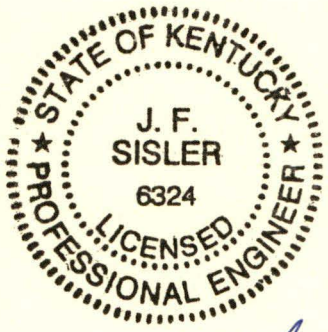
Preliminary Engineering Report

BIG SANDY WATER DISTRICT

PHASE V

WATER SYSTEM IMPROVEMENTS

Boyd, Lawrence and Carter Counties, Kentucky



J. F. Sisler 5/3/19

September 2018

SME Project Code: 15030

SISLER-MAGGARD ENGINEERING, PLLC
220 EAST REYNOLDS ROAD, SUITE A3
LEXINGTON, KY 40517
(859) 271-2978
Fax (859) 271-5670
Email: sme@sislermaggard.com

BIG SANDY WATER DISTRICT

Paul Thomas	Commissioner - Chairman
Charles Shockey	Commissioner - Treasurer
Bill Hardin	Commissioner
David Salisbury	Commissioner - Secretary
Larry Shockey	Commissioner
Teresa Brown	Office Manager

PRELIMINARY ENGINEERING REPORT
BIG SAND WATER DISTRICT
PHASE V – WATER SYSTEM IMPROVEMENTS

TABLE OF CONTENTS

PRELIMINARY ENGINEERING REPORT
BIG SANDY WATER DISTRICT
PHASE V – WATER SYSTEM IMPROVEMENTS

EXECUTIVE SUMMARY

FINDINGS

Over the last 5-10 years the Big Sandy Water District has spent an immeasurable amount of time and resources of management, staff and personnel working to resolve their system water losses.

These efforts have included monthly discussions, directions and actions by the Board at their Board meetings. They have an ongoing Agenda item titled "Water Losses". Personnel efforts have included water line walking at night, bringing in KRWA circuit rider, contracting for installation of some isolation valves, etc.

This Phase V project is an enhancement and continuation of those efforts.

This project will be directed at trying to fix some items that have been found to be regular problems, such as replacing some stream crossings with HDD installation of HDPE piping with leak detection; installing valves and in line meters to isolate leaks with this project (District has purchased several valves and appurtenances for their own installation). Also will purchase and develop GPS system to allow/assist in readily locating valves, blowoffs, etc. so that system can be monitored and shut down to CONSERVE water when leaks occur,

The Repair and painting of (8) eight water storage tanks will resolve some small leaks, but is primarily an effort to clean and remove rusting of tanks to assist in maintaining chlorine residual/disinfection for sanitary reasons.

The District discovered over 10 years ago that the ¾" Blue Max Service lines previously installed with extension contracts has failed in many, many instances. The District has spent much time and resources to replace these on a continual basis. On this project approximately 750 residential service lines will be replaced thru out the District.

The replacement of the existing inadequate water office is needed for better efficient operation and will provide public with better access to meetings and include a drive up window.

RECOMMENDATIONS

Based on studies, findings and conclusions and in accordance with other pertinent information contained in this report, it is recommended that the Big Sandy Water District take the following steps:

A) Review this report, then direct the Engineer, upon notification of RD, to immediately complete necessary documentation to RD for further processing for Loan and Grant

funds to construct the improvements outlined in this Report.

B) Direct the Engineer to complete all necessary plans, specifications and contract documents to receive approvals and permission to advertise this project for bids.

C) Upon completion of the above and receipt of approvals, initiate actions to acquire required permits, fee simple titles and right of way easements for construction areas.

D) Upon favorable review of RD, make necessary arrangements, through local and bond counsel, to proceed with the Project.

PRELIMINARY ENGINEERING REPORT
BIG SANDY WATER DISTRICT
PHASE V – WATER SYSTEM IMPROVEMENTS

SECTION 1 - PROJECT PLANNING

a. Location – The project areas are as follows:

In general, the Big Sandy Water District (BSWD) serves the southern half of Boyd County south of I-64 to the Boyd-Lawrence County line. The limits of the District boundary in Boyd County in an east-west direction extend from the Big Sandy River west to the Boyd-Carter County line.

In 1982, the Big Sandy Water District annexed small areas in the south-western end of Boyd County along State Route 854 and a small area in northern-eastern Carter County, both formerly within the Boundary limits of the then dissolved Leon-Hitchens Water District.

In the late 1990's the USDA-RD State office unofficially requested that the BSWD take over the Lawrence County Water District. In 2000 under the auspices of the Kentucky Public Service Commission Case # 99-481, the BSWD took over the ownership and operation of the Lawrence County Water District. This acquisition means that the BSWD serves 90% of rural Lawrence County.

The exception was an area in western Lawrence County that is served by the Rattlesnake Ridge Water District along S.R. 32 near the Elliott County line and an area in Northern Lawrence County around S.R. 201 at Blaine, served by Paintsville Utilities.

After acquisition of the Lawrence County Water District, the BSWD made an expansion in south and southwestern Lawrence County. The project included U.S. 23 north of Louisa to Johnson County line at Lowmansville; S.R. 1760 from S.R. 32 thru Charley to U.S. 23; S.R. 581 from U.S. 23 to Johnson County line at River, Kentucky. This allowed for (2) two backup connections to the Paintsville Utility System.

Project roads for the NEW Service line replacements are listed in the Appendix.

Tanks for repair and painting are also listed in the Appendix.

Water Booster Pump Stations for Upgrade and/or replacement are also listed in the Appendix.

b) Environmental Resources Present – All of these sites have been previously disturbed as follows:

1. All (8) Eight Tank sites exist and repairs and painting is on previously built upon sites.
2. The existing Cunningham Hill and Fuller Ridge booster pump stations will be rebuilt in place or on the road right of way.
3. The existing U.S. 60 and The Point Water Booster Pump Stations will have new equipment (VFD's) added in the buildings.
4. The existing Quarry Branch booster pump station will be rebuilt in place.
5. The water service line replacements (old failing Blue Max PVC) will be replaced in the existing disturbed areas.
6. The NEW office building will be built on property adjacent to the existing office building on property that was occupied with an old gas station/general store that has been torn down. The buried gas tanks were removed, and a subsurface clearing certificate came to Big Sandy Water District with the purchase in August 2017.

c) Population Trends – Not applicable since this is rehab project only.

d) Community Engagement – This project will NOT serve any new customers.

A public meeting will be held to inform the public of the proposed water system improvements. The improvements of service line replacements, leak detection facilities, tank repairs and painting, and pump station improvements and the proposed new office building with drive thru window will be discussed. The funding source and ramification to rates, etc. will all be discussed.

PRELIMINARY ENGINEERING REPORT
BIG SANDY WATER DISTRICT
PHASE V – WATER SYSTEM IMPROVEMENTS

SECTION 2 - EXISTING FACILITIES

a) Location Map – Map & Photos located in Appendix.

b) History – See Page 1 of this report.

Water Sources – The Big Sandy Water District does not have its own water source or Water Treatment Plant. In approximately 1985 the Big Sandy Water District began operation with purchasing water from the City of Kenova, West Virginia across the Big Sandy River. They now have (6) six Water Purchase Contracts from separate entities as follows: City of Ashland; City of Kenova, WV; City of Louisa; Rattlesnake Ridge Water District; Cannonsburg Water District (backup only) and City of Paintsville Utilities (backup only). The Big Sandy Water District averages 1,150,000 GPD in summer. These agreements have capacity to meet any and all District needs, now and for future.

VIOLATIONS - There have been NO significant system violations in the project areas.

c) Condition of Existing Facilities- Water Mains – The Big Sandy Water District, over the last 10 years, has committed to a program of continual maintenance and upgrade of their distribution/transmission system throughout the (4) four counties. The District leaders have always taken great pride in their Water System.

The existing water transmission and distribution mains are more than adequate in size and condition. However, in the past (5) years, it has become apparent at they have tracked their water losses, and found that there is a significant need to replace multiple stream crossings, replace ALL (old Blue Max PVC) service lines and place multiple valves and meters throughout the system to allow closer control of their losses and allow isolation of breaks/leaks. Also a system wide GPS will help maintenance and controls.

STORAGE

The storage and condition of tanks is as follows:

1)	U.S. 23 Tank (tank #1) steel	300,000 gallons	Fair
2)	U.S. 23 Tank (tank #2) glass lined	360,000 gallons	Good, needs minor repairs

3) Bowling Drive Tank	200,000 gallons	Fair
4) Rush Hill Tank	137,000 gallons	Fair
5) Buchannan Tank	100,000 gallons	Fair
6) Quarry Branch Tank	75,000 gallons	Fair
7) Fullers Ridge Tank	23,500 gallons	Fair
8) Donithon Road Tank	100,000 gallons	Good
9) Arland Delong Tank	100,000 gallons	Good
10) Cunningham Hill Tank	40,000 gallons	Fair
11) Jerry Riffe Ridge Tank (not in use)	37,000 gallons	Fair

TOTAL STORAGE: 1,472,500 gallons

The 10 State Standards (used by the Kentucky Division of Water as basis for regulations) require a minimum amount of above ground storage equal to the average daily usage. The current **average daily usage is 1,150,000 gallons**. Subsequently the current storage of 1,472,500 gallons exceeds the minimum requirements by 28%.

PUMP STATIONS

The following is a listing of water booster pumping stations, including locations and conditions as follows:

1) State Route 538 – 2 @ 700 gpm each	Excellent
2) Whites Creek – 250 gpm each	Good
3) Burnaugh – 200 gpm each	Good
4) US 60 (Coalton) – 200 gpm each	Fair
5) Ced Gap – 150 gpm each	Fair
6) Fullers Ridge – 60 gpm each	Fair
7) Cunningham Hill – 60 gpm each	Poor
8) Quarry Branch – 96 gpm each	Poor
9) Point Section – 100 gpm each	Fair
10) Deephole – 20 gpm each	Good
11) Raven Rock – 40 gpm each	Good

It should be assumed that the existing operating conditions and efficiency is average, purely due to age. The design of the new Quarry Branch booster pump station will have top efficiency design.

d.) Financial Status of any Existing Facilities

The last (3) three annual audits 2015, 2016, 2017 have been furnished to USDA-Rural Development. The current rate schedules for water and sewer are included in the Appendix.

The annual Audits include all O & M costs including current energy costs, capital expenditures and users monthly usage categories. The User breakdowns by categories are completely outlined in the Summary Addendum which is submitted with this Preliminary Engineering Report.

The Audits include existing debts and required reserve accounts.

e.) Water/Energy Audits

There have been NO water or energy audits performed.

PRELIMINARY ENGINEERING REPORT
BIG SANDY WATER DISTRICT
PHASE V – WATER SYSTEM IMPROVEMENTS

SECTION 3 - NEED FOR PROJECT:

Describe the need in the following order of priority:

a) Health, Sanitation & Security

There are some health and sanitary situations that are within this project area as it relates to the conditions inside some of the storage tanks. These tanks in this project are in fair physical condition. The interiors have some rusting and could have an effect on sanitary conditions of the water and may cause deterioration of chlorine residuals.

The service line replacements have been a water loss problem for more than 10 years. The Blue Max PVC material has failed many times and continuously leaks.

The pump station rehabs and replacements are needed improvements that will affect efficient operation by upgrades and adding VFD's. However, they are not health or sanitary problems.

The adding of system valves and meters are for the purpose of system operation and controls and assisting in water loss management.

The stream crossing replacements are also for water loss control.

Security

The water storage tanks are secure with fencing, gates and locks. The water booster pump stations are or will be fenced and locked for security.

b) Aging Infrastructure

As stated hereinbefore, the District has taken a great deal of care in their water systems over the past 10 years. They have continually worked to eliminate leaks throughout their systems with limited results. This project is primarily about getting a handle on monitoring and controlling their leaks and subsequently water loss.

These improvements will leave very few if any aging deficient water system infrastructure.

There are NO safety concerns.

c) Reasonable Growth

Waterlines – The new water source from Ashland in 2013 included new 5 mile transmission main and new booster pump station on U.S. 23 at Catlettsburg South City limits. Therefore, the system as a whole is in adequate size and condition.

The growth in the project area in the last 5-10 years has been minimal.

Storage

As also stated hereinbefore, the D.O.W. storage requirements are 1 (one) day average usage, which has been stated to be 1,150,000 gallons based on the last three month's usage.

The District currently has 1,472,500 gallons of storage. That exceeds D.O.W. requirements by 322,500 gallons or 28%.

New Customers

As previously discussed, there will be NO new customers for this project.

PRELIMINARY ENGINEERING REPORT
BIG SANDY WATER DISTRICT
PHASE V – WATER SYSTEM IMPROVEMENTS

SECTION 4 – ALTERNATIVES CONSIDERED

This project is a water system upgrade/improvement project. Subsequently it is our belief that there are NO viable alternatives other than DO NOTHING.

Due to the ongoing long term water loss problem of the District, it is apparent that this project is needed.

The new office building could be eliminated. But the condition of the existing 20 year old building (double wide) is not conducive to upgrade or repair. The new building will add drive up window which is not realistic with current building.

Therefore, the selected alternatives are as follows:

Water Service Lines – Replacement
Office Building – Replacement adjacent to existing building
Tanks – Repair and paint
Booster Pump Stations – Upgrade and add VFD's (variable frequency drives) to motors for efficiency.

a) Design Criteria – The water service lines, tank repairs and booster pump station upgrades will be designed to meet Kentucky Division of Water Regulations and the 10 State Standards.

b) Map – A schematic layout map and topographic layout are included in Appendix.

c) Environmental Impacts – The replacement water service lines and replacement/upgrades to water booster pump stations are being constructed in previously disturbed areas.

The generation of residuals and wastes in these areas will be minimal. The water booster pump station sites will be silt fenced to prevent any runoff during construction.

d) Land Requirements – Waterlines – The replacement water service lines will be on existing easements or KDOT right of way. The pump stations are being repaired and/or replaced in place in previously disturbed areas.

Office building – ½ acre has been acquired adjacent to existing office on site of former gas service station/general store that has been removed.

A KDOT Encroachment Permit will be acquired for construction on KDOT Rights of Way, if necessary.

The proposed water booster pump stations will of necessity be constructed on existing sites.

e) Potential Construction Problems – We do not anticipate any construction problems.

f) Sustainability Consideration –

i. Water and Energy Efficiency – As discussed hereinbefore, the water service line replacement has no alternative (except do nothing) because the project is replacing a deteriorating 20+ year old water service lines to ±750 residences meters.

The water tank repairs and painting are dictated by each individual tank problem and condition.

The upgrade and replacement of the water booster pump station's is on an individual condition basis.

The office building replacement is necessary as the condition of the existing is such that repairs are not practical.

ii. Green Infrastructure – The water service line construction will be built, then seeded and strawed ASAP to minimize run-off during construction.

The one new water booster pump station (Quarry Branch) and office building will be fenced with sedimentation fences, then seeded and strawed.

iii. Other – The new office building will be designed and constructed as an energy efficient building.

The operation of booster pump station at Quarry Branch, with more efficient pumps and VFD's is clearly more efficient and cost effective. The addition of VFD's at all the other pump stations will make them all more efficient.

g) Cost Estimates

The Cost Estimates for the project compnents is located in Appendix under Cost Estimates.

O & M Costs. This project is a basically a rehabilitation project and the goal of all improvements is to lower and control O & M costs.

i. Waterlines - Replacing all the 750+ leaking Blue Max PVC service lines – Subsequently repairs of breaks and/or leaks will reduce purchased water loss and save the cost of labor and materials for such repairs. Therefore, a significant savings to existing O & M costs will be realized by these water service line replacements to the 750+ residences.

ii. Leak detection installations – Water loss monitoring.

iii. Pump Stations - These Pump Stations are over 20 years old and not in good repair.

The Cunningham Hill and Fuller Ridge Stations are in need of extensive repair. These stations will need new buildings, pumps, VFD's and some piping in place.

The U.S. 60, Quarry Branch, and The Point (near Louisa) pump stations will have VFD's added to improve efficiency and save electricity. The new stations will be much more efficient than the existing three pump stations. Therefore, the operational and maintenance savings will be significant.

The Quarry Branch pump station will be relocated and rebuilt to better serve the system and certainly be more efficient.

iv. Water tanks – The following tanks (standpipes) will be painted and re-caulked inside and out. They have been professionally inspected and are all in the 25-30 year range without painting:

1)	Cunningham Hill –	75,000 gallon	Paint
2)	Quarry Branch –	75,000 gallon	Paint
3)	Fuller Ridge –	75,000 gallon	Paint
4)	Rush Hill –	137,000 gallon	Paint
5)	Bowling Drive –	216,000 gallon	Paint
6)	Buchanan –	106,000 gallon	Paint
7)	U.S. 23 (Steel) –	300,000 gallon	Paint
8)	U.S. 23 (glass lined) –	360,000 gallon	Caulk & Repairs

These project changes of service line replacements, pump station rehabs and replacement, tank repairs and painting will provide significant savings to Operation and Maintenance for the future.

PRELIMINARY ENGINEERING REPORT
BIG SANDY WATER DISTRICT
PHASE V – WATER SYSTEM IMPROVEMENTS

SECTION 5 - SELECTION OF AN ALTERNATIVE

The selection of alternatives on this project, beyond "DO NOTHING" are really not alternatives. This project is the solution of (5) five direct and specific needs:

(1) Waterlines: Multiple service line replacements – The only real alternative is replacement (in place) of the many failing water service lines. The District has been replacing the failing Blue Max PVC service lines sporadically for 10+ years. However, the job is logically unsurmountable for a SMALL water district to replace ±750 services. However, this work is a must, based on the known water losses.

(2) Water tanks: As previously discussed, the painting and repairs of the tanks is a necessity for the continued integrity of the system and the SANITARY necessities of maintaining chlorine residuals where rusting and leaks exist.

(3) Leak Monitoring Infrastructure: The District has diligently been chasing leaks for 5+ years. To assist in that effort this project will add the following:

1) Replace failing stream crossings with horizontal directional drilling of HDPE.
2) Adding leak detection assemblies at streams
3) Installing Master Meters in distribution system to isolate and determine flow before and after leaks
4) Provide system with GPS to allow ready location of all infrastructure such as valves, meters, blowoffs, etc. This will give ready access to items to isolate and confine leaks.
5) Install more "isolation" valves throughout system
6) District is already purchasing and installing "isolation" valves and will request reimbursement from project.

(4) Pump Stations: The existing pump stations are 20-30 years old and beyond their efficient operation and maintenance life time. We have outlined hereinbefore the necessary repair/replacement work on the pump stations.

(5) Office Building: The existing office building is a 20 year old deteriorating double wide that has electrical problems, insulation problems, rodent infestations, privacy of staff, etc.

The new building will be located on adjacent property that has become available. The old service station/general store property has been acquired by District and cleared in 2017.

The building will be energy efficient and operationally efficient for management staff to be allowed some privacy, more filing space (NOT in attic), conference room space to allow public participation with adequate parking and a drive up window.

a) Life Cycle Cost analysis – A life cycle/present worth cost analysis to evaluate present and future costs for comparison of alternatives is not needed due to the fact that these improvements are dictated by system failures and other alternatives are not viable or reasonable.

b) Non-Monetary Factors

i. Operator Training – System operators already operate multiple pump stations and water tanks. Subsequently no new training will be required. Of course, the NEW or rehabbed pump station specifications will require the equipment's supplier to give "specific" training on their VFD's control panel, etc.

ii. Design Criteria and Approvals and Permit Requirements – All waterlines and pump stations will be designed in accordance with Kentucky Natural Resources and Environmental Protection Cabinet, Division of Water (Ten State Standards), U.S. Department of Agriculture/Rural Development, and Kentucky Public Service Commission guidelines and their subsequent approvals. Approvals will be also secured from the Kentucky Natural Resources and Environmental Protection Cabinet, Division of Water Resources to obtain stream crossing permits where necessary.

Design drawings and Specifications will be submitted for approval by the Kentucky Natural Resources and Environmental Protection Cabinet, Division of Water, USDA/Rural Development and the Kentucky Public Service Commission.

iii. Land of Rights-of-Way – For all lines constructed on private rights-of-way, a construction and permanent easement will be obtained from the property owner prior to constructing the lines. For lines to be constructed on Kentucky state highways or railroads, all necessary encroachment permits will be obtained before proceeding with waterline construction.

iv. Permit requirements – A Kentucky Department of Transportation Encroachment permit will be required if necessary for any water service line replacement.

v. Community Objections – It is anticipated that there should be NO community objections since all these project improvements will enhance the users flows and pressures and reduce water loss expenditures for the District which would subsequently affect water rates.

vi. Greenhouse gas emissions – The only savings would be less electrical usage, since this project will add VFD's to pump stations which make them operate MORE efficiently. Also the new office building will be energy efficient.

vii. Wetland Relocation – This project will not affect any wetlands.

PRELIMINARY ENGINEERING REPORT
BIG SANDY WATER DISTRICT
PHASE V – WATER SYSTEM IMPROVEMENTS

SECTION 6 – PROPOSED PROJECT (RECOMMENDED ALTERNATIVE)

a) Preliminary Project Design

i. Drinking Water –

EXISTING Water Supplers – The water supplers for the Big Sandy Water District System comes from the (7) seven sources as follows:

1) Ashland Water Works
2) City of Kenova, West Virginia
3) Louisa Board of Water and Sewer
4) Rattlesnake Ridge Water District
5) Cannonsburg Water District (Backup Only)
6) Paintsville (emergency backup only)
7) ~~Martin County Water District (emergency backup only)~~ - Dropped

The Water Purchase contracts are included in the Appendix. The current combined allocation limits far exceed the 1,150,000 MGD average usage.

ii. Storage –

No new storage is needed. However, (8) eight of the existing tanks will have painting and repairs under this project.

iii. Pumping Stations –

No new pump stations are proposed under this project. However, a new replacement pump station will be built at Quarry Branch.

Several (5) other stations will have repairs/rehab work done and VFD's (variable frequency drives) added to increase operation efficiencies and electricity savings.

iv. Distribution Waterlines –

This project replaces approximately 750+ service lines to residences throughout District.

v. Leak Detection –

Water loss is a major problem with the District and gets a lot of their attention. About 50% of this project is to help monitor and control the water losses. See itemization of the proposed actions under previous section and in the Cost Estimate in Appendix.

vi. New Office Building –

The new proposed 3000 S.F. office building, as outlined hereinbefore, will be constructed on ½ acre tract next to the existing office structure which is a 20 year old double wide.

b) Project Schedule – Plans and Specifications – It is anticipated that plans and specifications for water service lines, booster pump station replacements and upgrades, tank repairs and painting, water loss infrastructure and new office building will be submitted for approval to D.O.W. & Housing and Building Construction by Dec 1, 2018. The D.O.W. approval should be available on or before January 15, 2019.

Land Purchase – The office building site has been acquired in 2017. Copy of deed in Appendix.

Waterline easements – There should be none required. The service lines will be on public right-of-ways or existing easements.

Pump Stations and Water Tanks – No easements or deeds are required as work will be done on existing properties.

KDOT Encroachment Permit – NONE NEEDED.

Advertisement for Bids – February 1, 2019

Contract(s) Awards – April 1, 2019

Loan Closing – August 1, 2019

Initiation of Construction – April 15, 2019

Substantial Completion – October 15, 2019

Final Completion – November 15, 2019

Initiation of Operation - October 15, 2019

c) Permit Requirements – There are no construction, discharge or capacity permits required for this type of project.

d) Sustainability Considerations

i) Water and Energy Efficiency - Water reuse and water efficiency are not a consideration in this project. However, replacing the service lines, stream crossings, tank repairs and installing many leak detecting devices and controls will contribute to WATER CONSERVATION.

ii) Green Infrastructure - Energy efficient design will be implemented in the selection of pumps and VFD's for the pump stations, rehabs and/or replacements. The VFD (variable frequency drives) are to be installed in the new pumps and rehab pump stations to conserve electricity.

e) Total Project Cost Estimate (Engineer's Opinion of Probable Cost).

A complete itemized Project and Construction Cost Estimate is included in the Appendix based on the stated period of construction. It includes construction cost, land and right-of-ways, legal and administrative, engineering, construction program management, funds administration, interest, construction contingency, and other costs associated with the proposed project. The construction subtotal is separated out from the non-construction costs.

f) Annual Operating Budget

The Statement of Budget, Income and Equity for 07/01/18 to 06/30/19 (Form RD 442-2) in Appendix is furnished annually to RD as a requirement of existing RD loans. The District has also furnished the last 3 years of Certified Audits thru December 31, 2017. Furthermore, these documents and the Summary Addendum will list and project the following items:

i) Income
ii) Annual O&M Costs
iii) Debt Repayments
iv) Reserves
    Debt Service Reserves
    Short-Lived Asset Reserve
v) Rate Structures

PRELIMINARY ENGINEERING REPORT
BIG SANDY WATER DISTRICT
PHASE V – WATER SYSTEM IMPROVEMENTS

SECTION - 7 CONCLUSIONS AND RECOMMENDATIONS

Based on studies, findings and conclusions and in accordance with other pertinent information contained in this report, it is recommended that the Big Sandy Water District take the following steps:

A) Review this report, then direct the Engineer, upon notification from USDA – Rural Development, to immediately complete necessary documentation to USDA – Rural Development for further processing for Loan and Grant funds to construct the improvements outlined in this Report.

B) Direct the Engineer to complete all necessary plans, specifications and contract documents to receive approvals and permission to advertise this project for bids.

C) Upon completion of the above and receipt of approvals, initiate actions to acquire required permits, fee simple titles and right of way easements as necessary for construction areas.

D) Upon favorable review of USDA – Rural Development, make necessary arrangements, through local and bond counsel, to proceed with the Project.

APPENDIX A

ESTIMATED CONSTRUCTION

AND

PROJECT COST

COST ESTIMATE

SME # 15030
July 20, 2018

Item	Description	Unit	Qty	Cost	Extension
	SYSTEM WATER LOSS IMPROVEMENTS				
1	Stream crossing replacements (6")	LF	300	$ 160.00	$ 48,000.00
	(Horizontal direct drill method w/8" O.D.				
	HDPE, DR9, IPS (2 each)				
2	Stream crossing replacements (4" & 3")	LF	300	$ 130.00	$ 39,000.00
	(Horizontal direct drill method w/6" O.D.				
	HDPE, DR9, IPS) (3 each)				
3	Leak detection assemblies @ Stream Crossings	EA	5	$ 1,400.00	$ 7,000.00
4	System Master Meters (3", 4", 6")	EA	8	$ 8,000.00	$ 64,000.00
5	System GPS	LS	1	$ 30,000.00	$ 30,000.00
6	Tie-ins (6" and 4")	EA	10	$ 1,500.00	$ 15,000.00
7	6" Gate Valves	EA	4	$ 1,500.00	$ 6,000.00
8	4" Gate Valves	EA	4	$ 1,250.00	$ 5,000.00
9	3" Gate Valves	EA	2	$ 1,000.00	$ 2,000.00
10	Misc. Valves by District (water loss control)	LS	1	$ 30,000.00	$ 30,000.00
11	3/4" Service Line Replacements (including	LF	40,000	$ 10.00	$ 400,000.00
	locating and tie-ins) (750 each)				
				Subtotal A	$ 646,000.00
	OTHER SYSTEM IMPROVEMENTS				
12	Pump Station Upgrades	EA	2	$50,000	$ 100,000.00
	a) Cunningham Hill & Fuller Ridge				
	(building, 2 pumps, VFD's, piping)				
	b) U.S. Rt. 60, The Point, other	EA	3	$ 15,000.00	$ 45,000.00
	(add VFD's to each pump)				
13	Pump Station Relocation (NEW) - Quarry Branch	EA	1	$ 100,000.00	$ 100,000.00
	TOTAL ALL PUMP STATIONS				$ 245,000.00
14	Tank Painting & Repairs				
	a) Cunningham Hill (75,000 gallons)	EA	1	$ 75,000.00	$ 75,000.00
	b) Quarry Branch (75,000)	EA	1	$ 70,000.00	$ 70,000.00
	c) Fuller Ridge (75,000)	EA	1	$ 60,000.00	$ 60,000.00
	d) Rush Hill (137,000)	EA	1	$ 100,000.00	$ 100,000.00
	e) Bowling Drive (216,000 gallons)	EA	1	$ 140,000.00	$ 140,000.00
	f) Buchanan (106,000)	EA	1	$ 100,000.00	$ 100,000.00
	g) U.S. 23 (300,000) gallons - steel	EA	1	$ 149,000.00	$ 149,000.00
	h) U.S. 23 (360,000 gallons glass lined tank	EA	1	$ 15,000.00	$ 15,000.00
	(misc. repairs & caulking)				
	i) Arland Delong (100,000 glass lined)	EA	1	0.00	0.00
	j) Donithon (102,000 gallons)	EA	1	0.00	0.00
	TOTAL ALL TANKS				$ 709,000.00
15	Building (Office) (2,200 S.F.)	LS	1	$ 225,000.00	$ 225,000.00
16	Site Development (grading, parking, paving	LS	1	$ 25,000.00	$ 25,000.00
	sewers, water, etc.)				
				Subtotal B	$ 1,204,000.00
	Total of both subtotals A & B above				$ 1,850,000.00
	10% (+/-) contingency				$ 180,000.00
	Total Estimated Construction Cost				$ 2,030,000.00

COST ESTIMATE

	Total Estimated Construction Cost	**$ 2,030,000.00**
	Engineering Fees (RD Fees)	
	Basic (7.63%)	$ 155,000.00
	Resident Inspection (4.58%)	$ 93,000.00
	Additional Engineering (Permits [$3,000], easements [$3,000], surveying [$3,000], geotechnical for building [$4,000], Grant Administration [$20,000], System mapping (water loss control) [$30,000], Other [$7,000])	$ 70,000.00
	Land Acquisition	$ 45,000.00
	Legal and Administrative	$ 30,000.00
	Interest During Construction	$ 35,000.00
	Total Estimated Project Cost	**$ 2,458,000.00**
	PROPOSED FUNDING	
	USDA - RURAL DEVELOPMENT GRANT (28.48%)	$ 700,000.00
	USDA - RURAL DEVELOPMENT LOAN (67.94%)	$ 1,670,000.00
	Applicant (BSWD) - (3.58%)	$ 88,000.00
	Total Estimated Project Cost	**$ 2,458,000.00**

APPENDIX B

FUNDING/FINANCIAL SECTION

FUNDING BREAKDOWN

STATEMENT OF BUDGET, INCOME & EQUITY (RD442-2)

OPERATING BUDGET (RD442-7)

AMORTIZATION SCHEDULE

RD LOAN

EXISTING RATE SCHEDULE

PROPOSED RATE SCHEDULE

FINANCIAL

The Big Sandy Water District (BSWD) system covers the western and southern portion of Boyd County, the small eastern portion of Carter County and nearly all of rural-southern, eastern and western Lawrence County that is not covered by the City of Louisa. The primary rural waterline by City of Louisa is in the Fallsburg area along S.R. 3 and west of town in Busseyville/Yatesville Lake area along S.R. 32. As stated in the "existing facilities" portion of this report the BSWD took over the Lawrence County Water District in 2001 at the request of USDA - Rural Development. The Lawrence County Water District customers were approved by KY PSC (Public Service Commission) under the BSWD rate structure.

The water purchase rates from the various water companies that BSWD purchases water from, vary significantly and have continued to grow frequently (at least every year) for the past few years. In Summer 2018 the rates were as follows:

City of Kenova	$2.55/1000 gallons
City of Ashland	$2.19/1000 gallons
City of Louisa	$3.66/1000 gallons
Cannonsburg Water District	$4.42/1000 gallons
Rattlesnake Ridge Water District	$3.82/1000 gallons

The City of Ashland purchase agreement of 2013 had agreed to hold their published bulk rate less .75¢/1000 gallons (which is currently $2.94 - .75¢ = $2.19/1000 gallons) for 5 years until 2018 and then it would raise to their bulk rate that they charge Cannonsburg Water District as established by current Ashland Rate Ordinance. That rate is anticipated to be around $2.94/1000 gallons in 2019.

Form RD 442-2
(Rev. 9-97)

Position 3

#5A60 15030

FORM APPROVED
OMB NO. 0575-0015

UNITED STATES DEPARTMENT OF AGRICULTURE

STATEMENT OF BUDGET, INCOME AND EQUITY

Schedule 1

Name	Address
Big Sandy Water District	18200 State Route 3 Catlettsburg KY 41129

(1) OPERATING INCOME	PRIOR YEAR Actual (2)	ANNUAL BUDGET BEG 01/01/17 END 12/13/17 (3)	For the _____ Months Ended _____ CURRENT YEAR Actual Data: Current Quarter (4)	Year To Date (5)	Actual YTD (Over) Under Budget Col. 3 - 5 = 6 (6)
1. Customers		2,775,200			0
2. Late Charges		58,500			0
3. Other		32,500			0
4.					0
5. Miscellaneous					0
6. Less: Allowances and Deductions					0
7. Total Operating Income (Add lines 1 through 6)	0	2,866,200	0	0	0
OPERATING EXPENSES					
8. Salaries		544,000			0
9. Purchased Water		1,100,000			0
10. Power		97,000			0
11. Insurance		23,300			0
12. Repairs & Supplies		143,000			0
13. Other		173,800			0
14. Other-Taxes		36,200			0
15. Interest RD, KRWFC		152,000			0
16. Depreciation		400,00			0
17. Total Operating Expense (Add Lines 8 through 16)	0	2,669,300	0	0	0
18. NET OPERATING INCOME (LOSS) (Line 7 less 17)	0	196,900	0	0	0
NONOPERATING INCOME					
19. Interest		850			0
20.					0
21. Total Nonoperating Income (Add 19 and 20)	0	850	0	0	0
22. NET INCOME (LOSS) (Add lines 18 and 21)	0	197,750	0	0	0
23. Equity Beginning of Period		25,000			0
24.					0
25.					0
26. Equity End of Period (Add lines 22 through 25)	0	222,750	0	0	0

Budget and Annual Report Approved by Governing Body

Secretary _____ Date _____

Quarterly Reports Certified Correct

Appropriate Official _____ Date _____

Schedule I
Page 2

SUPPLEMENTAL DATA

The Following Data Should Be Supplied Where Applicable

1. ALL BORROWERS

	Circle One
a. Are deposited funds in institutions insured by the Federal Government?	(Yes) No
b. Are you exempt from Federal Income Tax?	(Yes) No
c. Are Local, State and Federal Taxes paid current?	(Yes) No
d. Is corporate status in good standing with State?	(Yes) No

e. List kinds and amounts of insurance and fidelity bond: Complete Only when submitting annual budget information:

Insurance Coverage and Policy Number	Insurance Company and Address	Amount of Coverage	Expiration Date of Policy
Property Insurance Policy # 5190512	Nelson Insurance Company 200 Envoy Cir Louisville	as per statement on file	07/01/17
Liability Policy # "	" "	2,000,00	07/07/17
Fidelity Policy # "	" "	250,00	07/-1/17

2. RECREATION AND GRAZING ASSOCIATION BORROWERS ONLY	Current Quarter	Year to Date
a. Number of Members		
3. WATER AND/OR SEWER UTILITY BORROWERS ONLY		
a. Water purchased or produced (CU FT - GAL)	31,741,800 gal.	380,901,600 gal.
b. Water sold (CU FT - GAL)	25,568,800 gal.	296,825,600 gal.
c. Treated waste (CU FT - GAL)	gal.	gal.
d. Number of users - water	4768	
e. Number of users - sewer		
4. OTHER UTILITIES		
a. Number of users		
b. Product purchased		
c. Product sold		
5. HEALTH CARE BORROWERS ONLY		
a. Number of beds		
b. Patient days of care		
c. Percentage of occupancy	-2147483648 %	-2147483648 %
d. Number of outpatient visits		

6. DISTRIBUTION OF ALL CASH AND INVESTMENTS*

Indicate balances in the following accounts:

	Construction	Revenue	Debt Service	Operation & Maintenance	Reserve	All Others	Grand Total
Cash	$	$	$	$	$	$	$ 0
Savings and Investments	$	$	$	$	$	$	$ 0
Total	$ 0	$ 150,000	$ 155,000	$ 2,500	$ 198,120	$ 26,297	$ 531,917

7. AGE ACCOUNTS RECEIVABLE AS FOLLOWS:

	Days 0-30	31-60	61-90	91 and Older	*Total
Dollar Values	$ 35,929	$ 6,739	$ 3,675	$ 12,283	$ 58,626
Number of Accounts					0

*Totals must agree with those on Balance Sheet.

Schedule 2

PROJECTED CASH FLOW

For the Year BEG. 01/01/17 END. 12/31/17
(same as schedule 1 column 3)

A. Line 22 from Schedule 1, Column 3 NET INCOME (LOSS)	$ 0	197,750
Add		
B. Items in Operations not Requiring Cash:		
1. Depreciation (line 16 schedule 1)	0	400,000
2. Others:		
C. Cash Provided From:		
1. Proceeds from Agency loan/grant		
2. Proceeds from others		
3. Increase (Decrease) in Accounts Payable, Accruals and other Current Liabilities		
4. Decrease (Increase) in Accounts Receivable, Inventories and Other Current Assets (Exclude cash)		
5. Other:		
6.		597,750
D. Total all A, B and C Items		$0
E. Less: Cash Extended for:		
1. All Construction, Equipment and New Capital Items (loan & grant funds)		
2. Replacement and Additions to Existing Property, Plant and Equipment		
3. Principal Payment Agency Loan		72,000
4. Principal Payment Other Loans		118,833
5. Other:		
6. Total E 1 through 5	$0	190,833
Add		
F. Beginning Cash Balances		125,000
G. Ending Cash Balances (Total of D Minus E 6 Plus F)	$ 0	531,917
Item G Cash Balances Composed of:		
Construction Account	$	
Revenue Account		150,000
Debt Payment Account		155,000
O&M Account		2,500
Reserve Account		198,120
Funded Depreciation Account		
Others:		26,297
Total - Agrees with Item G	$	531,917

KY AN No. 009 (1780 & 1942-A)

(ATTACHMENT 4)
(FOR CF & RUS Borrowers)

(This form may be used in lieu of "Supplemental Data," Schedule 1, Page 2, of Form RD 442-2, to provide evidence of insurance and bond coverage.)

I certify that the insurance and bond coverage shown below is currently in effect and that copies of the insurance policies are on file with our office.

Date **President/Chairperson/Mayor/Secretary/Clerk**

EVIDENCE OF INSURANCE

Liability Insurance:

Policy #	Insurance Co. & Address	Amount of Coverage	Expiration Date
5190512	Nelson Insurance Company	2,000,000	07/01/17
	2000 Envoy Cir Louisville		

Workman's Compensation:

Policy #	Insurance Co. & Address	Amount of Coverage	Expiration Date
376169	KEMI	1,000,000	07/01/17
	250 E Main St Suite 900		
	Lexington		

Floodplain Insurance:

Policy #	Insurance Co. & Address	Amount of Coverage	Expiration Date

Property Insurance:

Property Description	Policy #	Insurance Co. & Address	Amount of Coverage	Expiration Date
as per statement	5190512	Nelson Insurance Co	as per	07/01/17
on file		200 Envoy Cir	statement	
		Louisville	on file	

Fidelity Bond Coverage:

Position Bonded	Policy #	Insurance Co. & Address	Amount of Coverage	Expiration Date
	5190512	Nelson Insurance Co	$250,000	07/01/17
		200 Envoy Cir		
		Louisville		

USDA-RD
Form RD 442-7
(Rev. 3-02)

Position 3

OPERATING BUDGET

Form Approved
OMB No. 0575-0015
OMB No. 0572-0137

Schedule 1

Name	Address	
Big Sandy Water District	18200 State Route 3	Catlettsburg
Applicant Fiscal Year From 01/01/18 To 12/31/18	**County** Boyd	**State** *(Including ZIP Code)* Kentucky, 4112

	20 18	20 19	20 20	20 21	First Full Year
OPERATING INCOME	(1)	(2)	(3)	(4)	(5)
1. Customers	$2,731,700.00	$2,813,651.00	$2,898,061.00	$2,985,002.00	$2,813,651.00
2. Late Charges	$60,400.00	$61,246.00	$62,103.00	$62,972.00	$61,246.00
3. Other	$33,400.00	$33,866.00	$34,340.00	$34,821.00	$33,866.00
4.					
5. Miscellaneous					
6. Less: Allowances and Deductions	( )	( )	( )	( )	( )
7. Total Operating Income *(Add Lines 1 through 6)*	$2,825,500.00	$2,908,763.00	$2,994,504.00	$3,082,795.00	$2,908,763.00
OPERATING EXPENSES					
8. Salaries	$530,600.00	$610,190.00	$671,209.00	$704,769.00	$610,190.00
9. Purchased Water	$1,003,000.00	$1,053,150.00	$1,105,808.00	$1,161,098.00	$1,053,150.00
10. Power	$96,000.00	$97,920.00	$99,878.00	$101,876.00	$97,920.00
11. Insurance	$24,700.00	$25,194.00	$25,698.00	$26,212.00	$25,194.00
12. Repairs & Supplies	$220,700.00	$231,735.00	$243,322.00	$255,488.00	$231,735.00
13. Other	$186,400.00	$190,128.00	$193,931.00	$197,809.00	$190,128.00
14. Other - Taxes	$28,000.00	$28,560.00	$29,131.00	$29,714.00	$28,560.00
15. Interest *(RD)*	$144,000.00	$183,746.00	$183,746.00	$186,746.00	$183,746.00
16. Depreciation	$400,000.00	$400,000.00	$400,000.00	$400,000.00	$400,000.00
17. Total Operating Expense *(Add lines 8 through 16)*	$2,633,400.00	$2,820,623.00	$2,952,723.00	$3,063,712.00	$2,820,623.00
18. NET OPERATING INCOME *(LOSS) (Line 7 less 17)*	$192,100.00	$88,140.00	$41,781.00	$19,083.00	$88,140.00
NONOPERATING INCOME					
19. Interest	$1,100.00	$1,300.00	$1,400.00	$1,500.00	$1,300.00
20. Equity	$25,000.00	$25,500.00	$26,010.00	$26,530.00	$25,500.00
21. Total Nonoperating Income *(Add Lines 19 and 20)*	$26,100.00	$26,800.00	$27,410.00	$28,030.00	$26,800.00
22. NET INCOME *(LOSS) (Add Lines 18 and 21) (Transfer to Line A Schedule 2)*	$218,200.00	$114,940.00	$69,191.00	$47,113.00	$114,940.00

Budget and Projected Cash Flow Approved by Governing Body

Attest: _____ _____
Secretary *Date*

_____ _____
Appropriate Official *Date*

Schedule 2

PROJECTED CASH FLOW

	20 18	20 19	20 20	20 21	First Full Year
A. Line 22 from Schedule 1 Income *(Loss)*	$218,200	$114,940	$69,191	$47,113	$114,940
Add					
B. Items in Operations not Requiring Cash:					
1. Depreciation *(Line 16, Schedule 1)*	$400,000	$400,000	$400,000	$400,000	$400,000
2. Others:					
C. Cash Provided from:					
1. Proceeds from RD loan/grant					
2. Proceeds from others					
3. Increase *(Decrease)* in Accounts Payable, Accruals and other Current Liabilities					
4. Decrease *(Increase)* in Accounts Receivable, inventories and Other Current Assets *(Exclude Cash)*					
5. Other:					
6.					
D. Total all A, B and C Items	$618,200	$514,940	$469,191	$447,113	$514,940
E. ***Less:*** Cash Expended for:					
1. All Construction, Equipment and New Capital Items *(Loan and grant funds)*					
2. Replacement and Additions to Existing Property, Plant and Equipment					
3. Principal Payment RD Loan	$75,000				
4. Principal Payment Other Loans	$122,833				
5. Other:					
6. Total E 1 through 5	$197,833	$0	$0	$0	$0
Add					
F. Beginning Cash Balances	$125,000				
G. Ending Cash Balances *(Total of D minus E 6 plus F)*	$545,367	$514,940	$469,191	$447,113	$514,940
Item G Cash Balances Composed of:					
Construction Account					
Revenue Account	$100,000				
Debt Payment Account	$175,000				
O&M Account	$2,500				
Reserve Account	$210,000				
Funded Depreciation Account					
Others:	$32,867				
Equity	$25,000				
Total - Agrees with Item G	$545,367	$0	$0	$0	$0

Big Sandy Water District

Loan - RUS

Loan amount:	$1,670,000.00
Ann. interest rate:	2.380%
Term in years:	40
Payments / year:	1
First payment due:	1/1/2021

TABLE DATA

Table starts at date: or at payment number: 1

Payment: **$65,189.10**

Plus 10% Cover	$6,518.91
Total Annual Payment	$71,708.00

No.	Payment Date	Beginning Balance	Interest
1	1/1/2021	1,670,000.00	39,746.00
2	1/1/2022	1,644,556.90	39,140.45
3	1/1/2023	1,618,508.26	38,520.50
4	1/1/2024	1,591,839.66	37,885.78
5	1/1/2025	1,564,536.35	37,235.97

Use payment of: $65,189.10
payment in table: 1

Beginning balance at payment 1: 1,670,000.00
Cumulative interest prior to payment 1: 0.00

Table

No.	Payment Date	Beginning Balance	Interest	Principal	Ending Balance	Cumulative Interest
1	1/1/2021	1,670,000.00	39,746.00	25,443.10	1,644,556.90	39,746.00
2	1/1/2022	1,644,556.90	39,140.45	26,048.64	1,618,508.26	78,886.45
3	1/1/2023	1,618,508.26	38,520.50	26,668.60	1,591,839.66	117,406.95
4	1/1/2024	1,591,839.66	37,885.78	27,303.31	1,564,536.35	155,292.74
5	1/1/2025	1,564,536.35	37,235.97	27,953.13	1,536,583.22	192,528.70
6	1/1/2026	1,536,583.22	36,570.68	28,618.41	1,507,964.81	229,099.38
7	1/1/2027	1,507,964.81	35,889.56	29,299.53	1,478,665.28	264,988.94
8	1/1/2028	1,478,665.28	35,192.23	29,996.86	1,448,668.41	300,181.18
9	1/1/2029	1,448,668.41	34,478.31	30,710.79	1,417,957.63	334,659.49
10	1/1/2030	1,417,957.63	33,747.39	31,441.70	1,386,515.92	368,406.88
11	1/1/2031	1,386,515.92	32,999.08	32,190.02	1,354,325.91	401,405.96
12	1/1/2032	1,354,325.91	32,232.96	32,956.14	1,321,369.77	433,638.91
13	1/1/2033	1,321,369.77	31,448.60	33,740.49	1,287,629.27	465,087.51
14	1/1/2034	1,287,629.27	30,645.58	34,543.52	1,253,085.75	495,733.09
15	1/1/2035	1,253,085.75	29,823.44	35,365.65	1,217,720.10	525,556.53
16	1/1/2036	1,217,720.10	28,981.74	36,207.36	1,181,512.74	554,538.27
17	1/1/2037	1,181,512.74	28,120.00	37,069.09	1,144,443.65	582,658.27
18	1/1/2038	1,144,443.65	27,237.76	37,951.34	1,106,492.31	609,896.03
19	1/1/2039	1,106,492.31	26,334.52	38,854.58	1,067,637.74	636,230.55
20	1/1/2040	1,067,637.74	25,409.78	39,779.32	1,027,858.42	661,640.33
21	1/1/2041	1,027,858.42	24,463.03	40,726.06	987,132.35	686,103.36
22	1/1/2042	987,132.35	23,493.75	41,695.35	945,437.01	709,597.11
23	1/1/2043	945,437.01	22,501.40	42,687.69	902,749.31	732,098.51
24	1/1/2044	902,749.31	21,485.43	43,703.66	859,045.65	753,583.94
25	1/1/2045	859,045.65	20,445.29	44,743.81	814,301.84	774,029.23
26	1/1/2046	814,301.84	19,380.38	45,808.71	768,493.13	793,409.61
27	1/1/2047	768,493.13	18,290.14	46,898.96	721,594.17	811,699.75
28	1/1/2048	721,594.17	17,173.94	48,015.15	673,579.02	828,873.69
29	1/1/2049	673,579.02	16,031.18	49,157.91	624,421.10	844,904.87
30	1/1/2050	624,421.10	14,861.22	50,327.87	574,093.23	859,766.09
31	1/1/2051	574,093.23	13,663.42	51,525.68	522,567.55	873,429.51
32	1/1/2052	522,567.55	12,437.11	52,751.99	469,815.57	885,866.62
33	1/1/2053	469,815.57	11,181.61	54,007.48	415,808.08	897,048.23
34	1/1/2054	415,808.08	9,896.23	55,292.86	360,515.22	906,944.46
35	1/1/2055	360,515.22	8,580.26	56,608.83	303,906.39	915,524.72
36	1/1/2056	303,906.39	7,232.97	57,956.12	245,950.26	922,757.70
37	1/1/2057	245,950.26	5,853.62	59,335.48	186,614.78	928,611.31
38	1/1/2058	186,614.78	4,441.43	60,747.66	125,867.12	933,052.74
39	1/1/2059	125,867.12	2,995.64	62,193.46	63,673.66	936,048.38
40	1/1/2060	63,673.66	1,515.43	63,673.66	0.00	937,563.81

EXISTING

FOR	DIVISION 1	
P.S.C. KY. NO.		1
30th Revised	SHEET NO.	1
CANCELLING P.S.C. KY. NO.		1
29th Revised	SHEET NO.	1

BIG SANDY WATER DISTRICT
(Name of Utility)

Division 1 Monthly Water Rates (Original Big Sandy Water District Area)

5/8" x 3/4" Meter		
First	1,000 gallons	$17.02 Minimum Bill
Next	9,000 gallons	8.67 per 1,000 gallons
Next	10,000 gallons	6.07 per 1,000 gallons
Next	20,000 gallons	5.65 per 1,000 gallons
Over	40,000 gallons	5.42 per 1,000 gallons
1" Meter		
First	10,000 gallons	$94.97 Minimum Bill
Next	10,000 gallons	6.07 per 1,000 gallons
Next	20,000 gallons	5.65 per 1,000 gallons
Over	40,000 gallons	5.42 per 1,000 gallons
1 1/2" Meter		
First	20,000 gallons	$155.67 Minimum Bill
Next	20,000 gallons	5.65 per 1,000 gallons
Over	40,000 gallons	5.42 per 1,000 gallons
2" Meter		
First	40,000 gallons	$268.67 Minimum Bill
Over	40,000 gallons	5.42 per 1,000 gallons
3" Meter		
First	100,000 gallons	$593.87 Minimum Bill
Over	100,000 gallons	5.42 per 1,000 gallons
4" Meter		
First	200,000 gallons	$1,135.87 Minimum Bill
Over	200,000 gallons	5.42 per 1,000 gallons
Wholesale Water Rate		
Cannonsburg Water District		$5.12 per 1,000 gallons

Rates based on monthly consumption and calculated per 100 gallons

Date of Issue 1/13/2017
Month / Date / Year

Date Effective 1/1/2017
Month / Date / Year

Issued By Paul E. Thomas
Signature of Officer

Title Chairman

BY AUTHORITY OF ORDER OF THE PUBLIC SERVICE COMMISION
IN CASE NO. 2016-00423 DATED 01/04/17

KENTUCKY
PUBLIC SERVICE COMMISSION
Talina R. Mathews
EXECUTIVE DIRECTOR
Talina R. Mathews
EFFECTIVE
1/1/2017
PURSUANT TO 807 KAR 5:011 SECTION 9 (1)

FOR	DIVISION 2	
P.S.C. KY. NO.		1
28th Revised	SHEET NO.	2
CANCELLING P.S.C. KY. NO.		1
27th Revised	SHEET NO.	2

BIG SANDY WATER DISTRICT
(Name of Utility)

Division 2 Monthly Water Rates (Former Overland Development Area)

First	2,000 gallons	$25.48 Minimum Bill
Next	8,000 gallons	10.01 per 1,000 gallons
Next	20,000 gallons	8.23 per 1,000 gallons
Next	20,000 gallons	7.29 per 1,000 gallons
Over	50,000 gallons	6.39 per 1,000 gallons

Date of Issue 1/13/2017
Month / Date / Year

Date Effective 1/1/2017
Month / Date / Year

Issued By Paul E. Thomas
Signature of Officer

Title Chairman

BY AUTHORITY OF ORDER OF THE PUBLIC SERVICE COMMISION
IN CASE NO. 2016-00423 DATED 01/04/17

KENTUCKY
PUBLIC SERVICE COMMISSION
Talina R. Mathews
EXECUTIVE DIRECTOR
Talina R. Mathews
EFFECTIVE
1/1/2017
PURSUANT TO 807 KAR 5:011 SECTION 9 (1)

PROPOSED

A. Recommended Rate Schedule with RUS Grant:

Meter Size 5/8"

First	*1,000*	*Gallons @ $*	*18.00*		*Minimum.*
Next	*9,000*	*Gallons @ $*	*9.10*		*per 1,000 Gallons.*
Next	*10,000*	*Gallons @ $*	*6.37*		*per 1,000 Gallons.*
Next	*20,000*	*Gallons @ $*	*5.93*		*per 1,000 Gallons.*
All Over	*40,000*	*Gallons @ $*	*5.69*		*per 1,000 Gallons*

Meter Size 1":

First 10,000 Gallons @ $ 99.90 Minimum.

Next 10,000 Gallons @ $ 6.37 per 1,000 Gallons.

Next 20,000 Gallons @ $ 5.93 per 1,000 Gallons.

ALL OVER 40,000 Gallons @ $ 5.69 per 1,000 Gallons.

Meter Size 1 1/2":

First 20,000 Gallons @ $ 166.27 Minimum.

Next 20,000 Gallons @ $ 5.93 per 1,000 Gallons.

ALL OVER 40,000 Gallons @ $ 5.69 per 1,000 Gallons.

Meter Size 2":

First 40,000 Gallons @ $ 284.87 Minimum.

ALL OVER 40,000 Gallons @ $ 5.69 per 1,000 Gallons.

Meter Size 3":

First 100,000 Gallons @ $ 626.27 Minimum.

ALL OVER 100,000 Gallons @ $ 5.69 per 1,000 Gallons.

PROPOSED

Meter Size 4" :

First 200,000 Gallons @ $ 1,195.27 Minimum.

ALL OVER 200,000 Gallons @ $ 5.69 per 1,000 Gallons.

Overland Development	***Same as above***
Cannonsburg Water District	***Same as above***

- If more than one rate, use additional sheets.

APPENDIX C

Water Purchase Agreements

Ashland Water Works	2013
City of Kenova, West Virginia	1982
City of Louisa	1993
Rattlesnake Ridge Water District	2010
Cannonsburg Water District (Emergency Only)	2005
Cannonsburg Water District (Emergency Only)	2006
Cannonsburg Water District (purchaser)	1984
City of Paintsville (emergency agreement)	2004
~~Martin Co. Water District (emergency agreement)~~	~~2005~~ (Dropped)

Water Purchase Agreement Extensions

Ashland Water Works	Extended to 2059
City of Kenova, West Virginia	Extended to 2059
City of Louisa	Extended to 2059
Rattlesnake Ridge Water District	Extended to 2059
Cannonsburg Water District (backup)	Extended to 2025
City of Paintsville (backup)	Currently 2024
~~Martin Co. Water District (backup)~~	~~Currently 2025~~ – (Dropped)

ORDINANCE NO. 17, 2013

AN ORDINANCE OF THE CITY OF ASHLAND, KENTUCKY, AUTHORIZING AND DIRECTING CHUCK D. CHARLES, MAYOR, TO EXECUTE AN AGREEMENT BETWEEN THE CITY OF ASHLAND AND BIG SANDY WATER DISTRICT TO FURNISH POTABLE WATER FOR DISTRIBUTION AND SALE WITHIN ITS WATER DISTRIBUTION SYSTEM BOUNDARIES.

****

BE IT ORDAINED BY THE CITY OF ASHLAND, KENTUCKY:

SECTION 1. That Chuck D. Charles, Mayor of the City of Ashland, Kentucky, is hereby authorized and directed to execute an Agreement between the City of Ashland and Big Sandy Water District for the furnishing of potable water for distribution and sale within the Big Sandy Water District distribution system boundaries. A true copy of said agreement is attached hereto and made a part hereof by reference.

SECTION 2. This ordinance shall be in full force and effect from and after its adoption, readoption and publication, as required by law.

SECTION 3. It is hereby authorized that publication of this ordinance be in summary form.

Chuck D. Charles
MAYOR

ATTEST:

Deborah Musser
CITY CLERK

ADOPTED BY THE BOARD OF COMMISSIONERS: JUL 18 2013
READOPTED BY THE BOARD OF COMMISSIONERS: AUG 08 2013
PUBLISHED:

REQUESTED/SPONSORED BY: STEPHEN W. CORBITT, CITY MANAGER

\ORDINANCE\Agreement.Big Sandy Water District

AGREEMENT

THIS AGREEMENT, made and entered into this the 15th day of July, 2013, by and between the CITY OF ASHLAND, Boyd County, Kentucky, a municipal corporation of the second class under the laws of the Commonwealth of Kentucky, (hereafter "ASHLAND"), and the Big Sandy Water District, an independent water district created under the laws of the Commonwealth of Kentucky, (hereafter "BIG SANDY"),

WITNESSETH:

WHEREAS, ASHLAND, is the owner and operator of a municipally owned water works plant and water distribution system, and is able, to furnish BIG SANDY potable water for distribution and sale within its water distribution system boundaries, and

NOW, THEREFORE, it is mutually agreed and covenanted by and between the parties that ASHLAND agrees to sell and BIG SANDY agrees to buy potable water for and in consideration of the payment of the rates hereinafter established and set out to be paid to ASHLAND by BIG SANDY, and each and all of the further and additional mutual covenants and agreements hereinafter set out to be performed by both or either of said parties;

1. **BOUNDARIES**. The water supply furnished by ASHLAND to BIG SANDY shall be restricted to usage by BIG SANDY only within the boundaries of the Big Sandy Water District as approved by the Kentucky Public Service Commission. BIG SANDY shall not extend service into the area reserved to ASHLAND.

2. **QUANTITY**. BIG SANDY agrees and binds itself to purchase during the term of this Agreement, all of or a portion of the potable water required by BIG SANDY (subject to Section 7 dealing with "water shortage") for distribution within its present water distribution system, or any approved extensions within the boundaries, but not less than 500,000 gallons per month. If for any reason, ASHLAND is unable to provide 500,000 gallons per month, BIG SANDY shall not be required to purchase the minimum daily amount.

The water shall be taken by BIG SANDY through a meter or meters located at BIG SANDY Pump Station on State Route 538 or at such other places as may be mutually agreed upon in advance in writing between the parties.

3. **RATES AND BILLING**. BIG SANDY agrees and binds itself to pay for water at rates sold and delivered to it at the meter or meters on a monthly basis and according to statements tendered to BIG SANDY by ASHLAND, payments to be due and payable not later than the twentieth (20th) day of each month for all water so metered, sold and delivered during the preceding month. In the event BIG SANDY shall fail to pay any monthly statement or statements in the manner described, then and in that event, there shall be added a penalty of 8 percent (8%) on such amount due and unpaid, together with six percent (6%) interest per annum thereon from due date until paid, and upon the failure of BIG SANDY to pay said monthly water bills for two (2) consecutive months, then ASHLAND shall have the right and option to discontinue furnishing of said water until said past due bills are paid in full.

In the event a water meter has registered incorrectly, an estimate of the amount of water furnished through the faulty meter shall be prepared by ASHLAND for the purpose of billing BIG SANDY. The estimate shall be based upon the average of twelve preceding readings of the meter, exclusive of incorrect readings. When less than twelve correct readings are available, fewer readings including some obtained after the period of incorrect registration may be used.

BIG SANDY agrees and binds itself to purchase potable water that may be required by BIG SANDY, but not less than 500,000 gallons per month at prices, as follows:

Currently $2.58 per one thousand (1000) gallons (until Dec 31, 2013)

It is mutually agreed that the term of this Agreement is such that the passage of time will require increases in the rates to be made for water hereunder. It is agreed that bulk water rates charged to BIG SANDY shall not exceed rates to other out-of-town bulk water customers.

ASHLAND may modify the schedule of rates for water hereunder from time to time outside the rates agreed upon herein, provided that:

a. ASHLAND does not raise the rates higher than the yearly CPI index for water, sewer and garbage (Currently the City of Ashland Water Ordinance has an automatic increase by the CPI index on January 1 every year. This increase will apply to this contract); or:

b. ASHLAND, prior to consideration of an increase (above the standard annual CPI index increase) in rates, may have a rate study conducted by an independent engineer chosen by ASHLAND, which rate study may provide the basis for any modification of the schedule of rates. Such rate study shall not be conducted more frequently than annually. ASHLAND shall give BIG SANDY prior notice of its intent to perform such study. BIG SANDY may, at its option and cost, provide ASHLAND with a rate study conducted by an engineer chosen by BIG SANDY. ASHLAND will cooperate with such engineer, and the study, when completed, shall be submitted to ASHLAND for consideration. BIG SANDY may provide ASHLAND other information it desires ASHLAND to consider in rate adjustment. ASHLAND agrees to meet with BIG SANDY and discuss the rate study or studies at BIG SANDY'S request.

c. Following completion of the rate study by the independent engineer chosen by ASHLAND and based upon any additional considerations and information deemed appropriate, ASHLAND shall notify BIG SANDY of the proposed rate. However, no modification shall become effective earlier than ninety (90) days after the increase shall be adopted by ASHLAND, and ASHLAND shall give notice to BIG SANDY of such increase immediately after such increase shall have been adopted by ASHLAND. ASHLAND shall reasonably provide BIG SANDY information which would assist BIG SANDY in any presentation or application required with the Kentucky Public Service Commission for approval of proposed rates.

BIG SANDY, with the written approval of ASHLAND, is installing new infrastructure at its own cost that increases demand on the City of Ashland Water System. ASHLAND shall credit BIG SANDY an infrastructure incentive of

$0.75 per 1,000 gallons of ASHLAND water purchased by BIG SANDY for a period of five (5) years. The five (5) years period will begin at the date of the first water supplied by ASHLAND to the BIG SANDY Pump Station on State Route 538.

4. **METER PIT AND ACCESSORIES.** BIG SANDY shall, at its cost, provide and install water main, meter location inside the pump station, check valves and accessories to ASHLAND'S specifications. ASHLAND shall, at its cost, provide, install and annually calibrate the meter. If the meter is installed inside the pump station owned and maintained by BIG SANDY, BIG SANDY shall provide ASHLAND with keys to the pump station in order for ASHLAND staff to access the meter. The meter shall be the responsibility of ASHLAND for future replacement after the one year warranty period.

5. **BOOSTER PUMPS.** BIG SANDY shall have the right to install, maintain and operate booster pumps at its own cost within its lines in order to accelerate and increase the flow of water through the lines of BIG SANDY to its customers, if and when it is deemed by the said District necessary or reasonable so to do. No booster pumps shall be installed by BIG SANDY that creates a drop in pressure below forty-five (45) pounds per square inch on the suction side of the booster pumps, at an elevation of 630 feet above mean sea level.

6. **MAINTENANCE, LIABILITY, HOLD HARMLESS.** During the term of this Agreement, BIG SANDY shall, at its own expense, maintain the water main distribution system of BIG SANDY and, any agreed upon extension, and make all necessary repairs to said system. Nothing contained herein, however, shall be construed to hold ASHLAND liable for lack of adequate water supply and pressure within the BIG SANDY Water District due to any inadequacy on the part of the distribution system of BIG SANDY. ASHLAND bears no degree of responsibility for the water quality at any point beyond the meter delivery point assuming the water reaches the pump station meeting D.O.W. standards. BIG SANDY bears the responsibility for maintaining the water quality at any point beyond the meter and within its distribution system.

7. **WATER SHORTAGE.** In the event of a water shortage suffered by ASHLAND, all of the cities, water districts, corporations, or other entities purchasing

water from ASHLAND on a bulk agreement basis shall share in the shortage on a proportionate basis to their average daily usage. ASHLAND shall make every good faith effort to meet emergency needs of its bulk customers during such shortage by taking reasonable and responsible administrative action within the City and shall request such action be taken outside the City.

8. **TEMPORARY SHUT OFF.** It is further agreed that ASHLAND shall have the right to temporarily shut off the water supply of BIG SANDY or any part thereof whenever alterations, additions or maintenance operations make it necessary. ASHLAND shall give BIG SANDY reasonable notice and probable duration of such shutoffs, except that in case of serious break or accident water service may be discontinued without notice. Under no circumstances will ASHLAND be held liable or responsible for any damage that may result to BIG SANDY or its customers due to any necessary discontinuance of water service.

9. **SUCCESSORS OR ASSIGNS.** In the event of an occurrence rendering BIG SANDY incapable of performing under this Agreement, any successor of BIG SANDY, qualified under Kentucky law, shall succeed to the rights and duties of BIG SANDY under this Agreement subject to the prior written approval of ASHLAND. Otherwise, without the prior written approval of ASHLAND this Agreement may not be assigned or transferred.

10. **COURT ACTION.** The parties reserve the right, either in law or equity, by suit, mandamus or other proceeding, to enforce or compel performance of any or all covenants contained, or for interpretation of the rights of the parties under this Agreement. Further, the parties acknowledge that any dispute between the parties shall be resolved in the state courts of the Commonwealth of Kentucky, including appellate levels of the court system or by any alternative dispute resolution process agreed to by the parties.

11. **TERM.** It is mutually agreed that the term of this Agreement shall be forty (40) years from date of execution of this contract from above. Any extension beyond twenty-four months of the original forty year term shall require approval by ASHLAND which shall not be unreasonably withheld.

12. **AMENDMENT**. No officer, official or agent of either party has the power to amend, modify or alter this Agreement, waive any of its conditions or bind ASHLAND or BIG SANDY by making any promise or representation not contained herein. Any amendment must be agreed to in writing by the parties.

IN WITNESS WHEREOF OF WHICH, the City of Ashland, Kentucky, has caused its Corporate Name to be hereunto subscribed by its Mayor, attested by its City Clerk and its Corporate Seal to be hereunto affixed; and the Big Sandy Water District, has caused its name to be hereunto subscribed by its Chairman, attested by its Secretary/Treasurer, and its Corporate Seal to be hereunto affixed; all in quadruplicate identical copies, on the day and year first above written.

CITY OF ASHLAND, KENTUCKY

Mayor

ATTEST:

City Clerk

(SEAL)

BIG SANDY WATER DISTRICT

Chairman

ATTEST:

Secretary

(SEAL)

FOR Boyd County, Kentucky
Community, Town or City

P.S.C. KY. NO. 1

2nd Revised SHEET NO. 1

City of Ashland, Kentucky
(Name of Municipal Utility)

CANCELLING P.S.C. KY. NO. 1

1st Revised SHEET NO. 1

RATES AND CHARGES

MONTHLY WHOLESALE WATER RATE:

Big Sandy Water District	$2.83 Per 1,000 Gallons

NOTE: This tariff revises the following prior rates:

$2.73 per 1,000 gallons effective on January 1, 2014

DATE OF ISSUE November 24, 2014
Month / Date / Year

DATE EFFECTIVE January 1, 2015
Month / Date / Year

ISSUED BY Ryan S. Eastwood, P.E.
(Signature of Officer)

TITLE Director of Engineering and Utilities

BY AUTHORITY OF ORDER OF THE PUBLIC SERVICE COMMISSION
IN CASE NO. N/A DATED N/A

15030(a)
+
PER

Ashland
A Proud Past. A Bright Future.

Engineering & Utilities

P.O. Box 1839
Ashland, KY 41105-1839

Phone: (606) 327-2008
Fax: (606) 327-2060

November 15, 2016

Mr. Jimmy Blanton
Manager
Big Sandy Water District
18200 Kentucky 3
Catlettsburg, KY 41129

RE: Wholesale Water Rate Adjustment for Big Sandy Water District

Dear Mr. Blanton:

The City of Ashland is proposing an increase in the rate to wholesale water purchasers. The increase from $2.83 / thousand gallons to $2.94 / thousand gallons becomes effective January 1, 2017 to all wholesale water purchasers from The City of Ashland including Big Sandy Water District. Therefore, all water passing through the meter on or after January 1, 2017, shall be billed at the new rate.

Please respond indicating that you have received this letter. Please do not hesitate to contact me should you have any questions regarding this filing.

Sincerely;
CITY OF ASHLAND KENTUCKY

Ryan S. Eastwood, P.E.
Director of Engineering and Utilities

Therefore $2.94 - 0.75¢ = $2.19/1000 gal

Enclosure(s)

cc: Public Service Commission
File

USDA–FHA
Form FHA 442-30
(Rev. 4-19-72)

Position 5

SALISBURY

WATER PURCHASE CONTRACT

This contract for the sale and purchase of water is entered into as of the _____ day of February,

19 82, between the City of Kenova, West Virginia,

_____,
(Address)

hereinafter referred to as the "Seller" and the Big Sandy Water District,

P. O. Box 636, Catlettsburg, Kentucky 41129,
(Address)

hereinafter referred to as the "Purchaser",

WITNESSETH:

Whereas, the Purchaser is organized and established under the provisions of Chapter 74 of the Code of Kentucky Revised Statutes, for the purpose of constructing and operating a water supply distribution system serving water users within the area described in plans now on file in the office of the Purchaser and to accomplish this purpose, the Purchaser will require a supply of treated water, and

Whereas, the Seller owns and operates a water supply distribution system with a capacity currently capable of serving the present customers of the Seller's system and the estimated number of water users to be served by the said Purchaser as shown in the plans of the system now on file in the office of the Purchaser, and

Whereas, by Resolution No. _____ enacted on the 22nd day of February, 19 82, by the Seller, the sale of water to the Purchaser in accordance with the provisions of the said Resolution was approved, and the execution of this contract carrying out the said Resolution by the Mayor, and attested by the clerk, was duly authorized, and

Whereas, by Resolution of the Board of Commissioners of the Purchaser, enacted on the 4th day of August, 19 81, the purchase of water from the Seller in accordance with the terms set forth in the said Resolution was approved, and the execution of this contract by the Chairman, and attested by the Secretary was duly authorized;

Now, therefore, in consideration of the foregoing and the mutual agreements hereinafter set forth,

A. The Seller Agrees:

1. (Quality and Quantity) To furnish the Purchaser at the point of delivery hereinafter specified, during the term of this contract or any renewal or extension thereof, potable treated water meeting applicable purity standards of the _____ U.S. Environmental Protection Agency (Drinking Water Standards) in such quantity as may be required by the Purchaser not to exceed 24,000,000 gallons per month.

☆ U. S. GOVERNMENT PRINTING OFFICE: 1978—665-052/23

2. (Point of Delivery and Pressure) That water will be furnished at a reasonably constant pressure calculated at minimum 120 psi from an existing 12 (Twelve) inch main supply at a point located at the Kenova Water Plant.

If a greater pressure than that normally available at the point of delivery is required by the Purchaser, the cost of providing such greater pressure shall be borne by the Purchaser. Emergency failures of pressure or supply due to main supply line breaks, power failure, flood, fire and use of water to fight fire, earthquake or other catastrophe shall excuse the Seller from this provision for such reasonable period of time as may be necessary to restore service.

3. (Metering Equipment) To furnish, install, operate, and maintain at its own expense at point of delivery, the necessary metering equipment, including a meter house or pit, and required devices of standard type for properly measuring the quantity of water delivered to the Purchaser and to calibrate such metering equipment whenever requested by the Purchaser but not more frequently than once every twelve (12) months. A meter registering not more than two percent (2%) above or below the test result shall be deemed to be accurate. The previous readings of any meter disclosed by test to be inaccurate shall be corrected for the six months previous to such test in accordance with the percentage of inaccuracy found by such tests. If any meter fails to register for any period, the amount of water furnished during such period shall be deemed to be the amount of water delivered in the corresponding period immediately prior to the failure, unless Seller and Purchaser shall agree upon a different amount. The metering equipment shall be read on 15th of month. An appropriate official of the Purchaser at all reasonable times shall have access to the meter for the purpose of verifying its readings.

4. (Billing Procedure) To furnish the Purchaser at the above address not later than the 1st day of each month, with an itemized statement of the amount of water furnished the Purchaser during the preceding month.

B. The Purchaser Agrees:

1. (Rates and Payment Date) To pay the Seller, not later than the 10th day of each month, for water delivered in accordance with the following schedule of rates:

a. $ 58.00 for the first 100,000 gallons, which amount shall also be the minimum rate per month.

b. [illegible]

c. $ 0.58 cents per 1000 gallons for water in excess of 100,000 gallons.

2. (Connection Fee & Metering Equipment) To furnish and install in lieu of a connection fee the necessary metering equipment and connection to the Seller's system with the system of the Purchaser. Said metering equipment and connection shall follow good and normal engineering principals and said design and installation shall be done by the Purchaser. Upon completion and acceptance by the Seller, the meter vault and equipment therein shall become property of the Seller.

[illegible]

C. It is further mutually agreed between the Seller and the Purchaser as follows:

1. (Term of Contract) That this contract shall extend for a term of 40 years from the date of the initial delivery of any water as shown by the first bill submitted by the Seller to the Purchaser and, thereafter may be renewed or extended for such term, or terms, as may be agreed upon by the Seller and Purchaser.

2. (Delivery of Water) That 30 days prior to the estimated date of completion of construction of the Purchaser's water supply distribution system, the Purchaser will notify the Seller in writing the date for the initial delivery of water.

3. (Water for Testing) When requested by the Purchaser the Seller will make available to the contractor at the point of delivery, or other point reasonably close thereto, water sufficient for testing, flushing, and trench filling the system of the Purchaser during construction, irrespective of whether the metering equipment has been installed at that time, at a flat charge of $ 0.58/1,000 gal. which will be paid by the contractor or, on his failure to pay, by the Purchaser.

4. (Failure to Deliver) That the Seller will, at all times, operate and maintain its system in an efficient manner and will take such action as may be necessary to furnish the Purchaser with quantities of water required by the Purchaser. Temporary or partial failures to deliver water shall be remedied with all possible dispatch. In the event of an extended shortage of water, or the supply of water available to the Seller is otherwise diminished over an extended period of time, the supply of water to Purchaser's consumers shall be reduced or diminished in the same ratio or proportion as the supply to Seller's consumers is reduced or diminished.

5. (Modification of Contract) That the provisions of this contract pertaining to the schedule of rates to be paid by the Purchaser for water delivered are subject to modification at the end of every 1(One) year period. Any increase or decrease in rates shall be based on a demonstrable increase or decrease in the costs of performance hereunder, but such costs shall not include increased capitalization of the Seller's system. Other provisions of this contract may be modified or altered by mutual agreement. See paragraph 13 for more details.

6. (Regulatory Agencies) That this contract is subject to such rules, regulations, or laws as may be applicable to similar agreements in this State and the Seller and Purchaser will collaborate in obtaining such permits, certificates, or the like, as may be required to comply therewith.

7. (Miscellaneous) That the construction of the water supply distribution system by the Purchaser is being financed by a loan made or insured by, and/or a grant from, the United States of America, acting through the Farmers Home Administration of the United States Department of Agriculture, and the provisions hereof pertaining to the undertakings of the Purchaser are conditioned upon the approval, in writing, of the State Director of the Farmers Home Administration.

8. (Successor to the Purchaser) That in the event of any occurence rendering the Purchaser incapable of performing under this contract, any successor of the Purchaser, whether the result of legal process, assignment, or otherwise, shall succeed to the rights of the Purchaser hereunder.

9. (Pledge) This contract is hereby pledged to United States of America acting through the Administration of the Farmers Home Administration as part of security for loan from the United States of America.

10. Upon the failure of the Purchaser to pay the Seller's correct billing in accordance with the Seller's rules and regulations set out herein and appliable to other customers, the Purchaser will pay a 10% penalty if the correct billing is not paid by the 14th day of each month, and if the bill shall still remain unpaid at the end of the month the Seller shall be entitled to discontinue service to the Purchaser in the same manner as the Seller may be entitled to discontinue service to any other customer.

11. (Easement) The Seller Agrees to provide an easement to the Purchaser to construct, operate, maintain, repair, replace, etc. a water line on the Seller's property at no cost to the Purchaser.

12. (Taxes) The Purchaser shall be liable for the collection and payment of all taxes that are or may be levied on water purchases or sales within the State of Kentucky.

13. (Modification of C. act) The rate charged for pot e water delivered under this contract may be renegotiated if requested by either party, one year after the initial delivery of potable water, or one year after the last renegotiation. The new negotiated rate shall be the actual cost of production for the Purchaser plus 15% profit. The actual cost of production shall be based on the last published audit of the Seller's system. The method of actual cost determination shall be calculated and based on the methods set out in "City of Kenova, Water Production Rate Analysis", dated February 18, 1982, and marked as Exhibit "A" and made a part of this Agreement. The increase or decrease of costs shall not include increased capitalization of the Seller's system other than the plant, nor shall it include transmission, distribution or storage costs. The percent of Depreciation, Debt Service, O&M cost, etc., allocated to the Purchaser shall be based on the preceding average monthly consumption of the Purchaser for the preceding year per the Purchaser's meter reading divided by the preceding average monthly plant production for the preceding year per the plant's master meter, or 18,000,000 divided by the Kenova Water Treatment Plant's rated 24-hour capacity (which is now 120,000,000 gallons per month), whichever is less. Should mutual agreement of rates not be obtainable, then both parties agree to binding arbitration with both parties sharing the cost of same. See Paragraph 5 above for other details.

14. This agreement supercedes and replaces the "Water Purchase Contract" previously executed by both parties, dated August 14, 1981.

In witness whereof, the parties hereto, acting under authority of their respective governing bodies, have caused this contract to be duly executed in 6 counterparts, each of which shall constitute an original.

Seller: City of Kenova, West Virginia

By Leonard E. Hampton

Title Mayor

Attest: Leslie Spaulding
clerk
Leslie Spaulding

Purchaser: Big Sandy Water District

By David Salisbury

Title Chairman

Attest: J. C. Prichard
Secretary
J. C. Prichard

This contract is approved on behalf of the Farmers Home Administration this 5th day of April, 1982.

By Lionel Ground

Title Chief, Community Programs

Rubin & Hays

ADDENDUM TO WATER PURCHASE CONTRACT

This Addendum by and between the City of Kenova, West Virginia and the Big Sandy Water District amends the existing terms of a contract between the parties as follows:

In the initial contract dated February 22, 1982, as approved by the Farmers Home Administration on April 5, 1982, the provision contained in paragraph B.1. shall read as follows:

"1. (Term of Contract) That this contract shall extend for a term of forty-seven (47) years from the date of the initial delivery of any water as shown by the first bill submitted by the seller to the purchaser and, thereafter may be renewed or extended for such term, or terms, as may be agreed upon by the seller and purchaser."

All other terms contained in said contract and the attachment thereto dated July 15, 1985, shall remain the same and be in full force and effect.

This the 22 day of April, 1988.

Seller: City of Kenova, West Virginia

By: Franklin D. Heck

Title: Mayor

Attest:

Sheila Wheeler

Purchaser: Big Sandy Water District

By: Robert McGlothlin

Title: Chairman

Attest:

Jerald Blanton

This document is approved on behalf of the Farmers Home Administration this 6th day of May, 1988.

By: Robert W. Lelton

Title: Chief, Community & Business Programs

AMENDMENT TO WATER PURCHASE CONTRACT

This Amendment to Water Purchase Contract, effective April 13, 2012, is entered into by and between the City of Kenova, West Virginia, a municipal corporation ("Kenova"), and the Big Sandy Water District ("Big Sandy").

1. **WHEREAS,** Kenova and Big Sandy entered into a Water Purchase Contract on or about February 22, 1982, which Contract has subsequently been amended from time to time;

2. **WHEREAS,** pursuant to Commission Order dated December 4, 2009, the West Virginia Public Service Commission required Kenova and Big Sandy to amend certain terms of that Water Purchase Contract and directed that these amendments supercede and replace all conflicting provisions of the original Water Purchase Contract and the subsequent amendments and addendums thereto;

3. **WHEREAS,** paragraph 5 of the Water Purchase Contract provides that the schedule of rates is subject to modification at the end of every one (1) year period;

NOW THEREFORE, in consideration of the foregoing, the parties agree to amend the said Water Purchase Contract as follows:

1. Kenova agrees to supply the water required by Big Sandy for which Kenova will charge a flat rate of $2.55 per 1,000 gallons of water, which Big Sandy agrees to pay until changed by agreement of the parties with approval by the Public Service Commission;

2. Big Sandy further agrees to purchase a minimum of 8 million gallons per month or make minimum payments based upon such minimum value at the rate of $2.55 per 1,000 gallons of water;

3. Paragraph 13 is stricken from the Water Purchase Contract; and

All remaining terms and provisions of the original Water Purchase Contract and its subsequent addendums and amendments shall remain in full force and effect.

IN WITNESS WHEREOF, the parties, acting under authority of their respective governing bodies, have caused this Amendment to be duly executed this 23rd day of April, 2012.

Attest:

Patricia A. Greenhill

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
PATRICIA A. GREENHILL
GRIFFITH & FEIL DRUG INC.
1406 CHESTNUT ST.
KENOVA, WV 25530
My commission expires April 18, 2018

Seller: City of Kenova

By: Rickey W. Griffith

Rickey W. Griffith
Its Mayor

Attest:

Teresa Brown

Buyer: Big Sandy Water District

By: James H. Blanton

James H. Blanton

Its: Manager

USDA–FHA
Form FHA 442-30
(Rev. 4-19-72)

Position 5

WATER PURCHASE CONTRACT

This contract for the sale and purchase of water is entered into as of the _____ day of _____, 19 93, between the CITY OF LOUISA, KENTUCKY, by and through the Louisa City Water and Sewer Commission, Louisa, Kentucky (*Address*), hereinafter referred to as the "Seller" and the BIG SANDY WATER DISTRICT, INC., 18200 Kentucky Route 3, Catlettsburg, Kentucky 41129 (*Address*), hereinafter referred to as the "Purchaser",

WITNESSETH:

Whereas, the Purchaser is organized and established under the provisions of State of the Code of Water District, for the purpose of constructing and operating a water supply distribution system serving water users within the area described in plans now on file in the office of the Purchaser and to accomplish this purpose, the Purchaser will require a supply of treated water, and

Whereas, the Seller owns and operates a water supply distribution system with a capacity currently capable of serving the present customers of the Seller's system and the estimated number of water users to be served by the said Purchaser as shown in the plans of the system now on file in the office of the Purchaser, and

Whereas, by _____ No. _____ dated on the approved 1st day of April, 19 93, by the Seller, the sale of water to the Purchaser in accordance with the provisions of the said _____ was approved, and the execution of this contract carrying out the said _____ by the _____, and attested by the Secretary, was duly authorized, and

Whereas, by Resolution of the Big Sandy Board of Commissioners of the Purchaser, enacted on the 15th day of February, 19 93, the purchase of water from the Seller in accordance with the terms set forth in the said contract was approved, and the execution of this contract by the Chairman, and attested by the Secretary was duly authorized;

Now, therefore, in consideration of the foregoing and the mutual agreements hereinafter set forth,

A. The Seller Agrees:

1. (Quality and Quantity) To furnish the Purchaser at the point of delivery hereinafter specified, during the term of this contract or any renewal or extension thereof, potable treated water meeting applicable purity standards of the U.S. E.P.A. and Kentucky Division of Water in such quantity as may be required by the Purchaser not to exceed 500,000 gallons per month.

☆ U. S. GOVERNMENT PRINTING OFFICE: 1978—665-052/23

2. (Point of Delivery and Pressure) That water will be furnished at a reasonably constant pressure calculated at 20 from an existing 6 inch inch main supply at a point located Fuller Ridge Tank site (driveway).

If a greater pressure than that normally available at the point of delivery is required by the Purchaser, the cost of providing such greater pressure shall be borne by the Purchaser. Emergency failures of pressure or supply due to main supply line breaks, power failure, flood, fire and use of water to fight fire, earthquake or other catastrophe shall excuse the Seller from this provision for such reasonable period of time as may be necessary to restore service.

3. (Metering Equipment) To furnish, install, operate, and maintain at its own expense at point of delivery, the necessary metering equipment, including ~~xxxxxxxxxxxxxxx~~ and required devices of standard type for properly measuring the quantity of water delivered to the Purchaser and to calibrate such metering equipment whenever requested by the Purchaser but not more frequently than once every twelve (12) months. A meter registering not more than two percent (2%) above or below the test result shall be deemed to be accurate. The previous readings of any meter disclosed by test to be inaccurate shall be corrected for the _____ months previous to such test in accordance with the percentage of inaccuracy found by such tests. If any meter fails to register for any period, the amount of water furnished during such period shall be deemed to be the amount of water delivered in the corresponding period immediately prior to the failure, unless Seller and Purchaser shall agree upon a different amount. The metering equipment shall be read on last week of month An appropriate official of the Purchaser at all reasonable times shall have access to the meter for the purpose of verifying its readings.

4. (Billing Procedure) To furnish the Purchaser at the above address not later than the 5th day of each month, with an itemized statement of the amount of water furnished the Purchaser during the preceding month.

B. The Purchaser Agrees:

1. (Rates and Payment Date) To pay the Seller, not later than the 25th day of each month, for water delivered in accordance with the following schedule of rates:

a. $ 99.30 for the first 50,000 or less gallons, which amount shall also be the minimum rate per month.

b. $ 1.20 cents per 1000 gallons for water in excess of 50,000 gallons but less than 100,000 gallons.

c. $ 0.80 cents per 1000 gallons for water in excess of 100,000 gallons.

2. (Connection Fee) To pay as an agreed cost, a connection fee to connect the Seller's system with the system of the Purchaser, the sum of $400.00 or / costs, whichever is greater dollars which shall cover any and all costs of the Seller for tapping the main and installation of the metering equipment and / the contractor of the Big Sandy Water District shall install the appurtenances necessary to accept the meter. The metering equipment shall remain property of the City.

C. It is further mutually agreed between the Seller and the Purchaser as follows:

1. (Term of Contract) That this contract shall extend for a term of 40 years from the date of the initial delivery of any water as shown by the first bill submitted by the Seller to the Purchaser and, thereafter may be renewed or extended for such term, or terms, as may be agreed upon by the Seller and Purchaser.

2. (Delivery of Water) That 60 days prior to the estimated date of completion of construction of the Purchaser's water supply distribution system, the Purchaser will notify the Seller in writing the date for the initial delivery of water.

3. (Water for Testing) When requested by the Purchaser the Seller will make available to the contractor at the point of delivery, or other point reasonably close thereto, water sufficient for testing, flushing, and trench filling the system of the Purchaser during construction, irrespective of whether the metering equipment has been installed at that time, at a flat charge of $ ---------- which will be paid by the contractor or, on his failure to pay, by the Purchaser.

4. (Failure to Deliver) That the Seller will, at all times, operate and maintain its system in an efficient manner and will take such action as may be necessary to furnish the Purchaser with quantities of water required by the Purchaser. Temporary or partial failures to deliver water shall be remedied with all possible dispatch. In the event of an extended shortage of water, or the supply of water available to the Seller is otherwise diminished over an extended period of time, the supply of water to Purchaser's consumers shall be reduced or diminished in the same ratio or proportion as the supply to Seller's consumers is reduced or diminished.

5. (Modification of Contract) That the provisions of this contract pertaining to the schedule of rates to be paid by the Purchaser for water delivered are subject to modification at the end of every -1- year period. Any increase or decrease in rates shall be based on a demonstrable increase or decrease in the costs of performance hereunder, but such costs shall not include increased capitalization of the Seller's system. Other provisions of this contract may be modified or altered by mutual agreement.

6. (Regulatory Agencies) That this contract is subject to such rules, regulations, or laws as may be applicable to similar agreements in this State and the Seller and Purchaser will collaborate in obtaining such permits, certificates, or the like, as may be required to comply therewith.

7. (Miscellaneous) That the construction of the water supply distribution system by the Purchaser is being financed by a loan made or insured by, and/or a grant from, the United States of America, acting through the Farmers Home Administration of the United States Department of Agriculture, and the provisions hereof pertaining to the undertakings of the Purchaser are conditioned upon the approval, in writing, of the State Director of the Farmers Home Administration.

8. (Successor to the Purchaser) That in the event of any occurence rendering the Purchaser incapable of performing under this contract, any successor of the Purchaser, whether the result of legal process, assignment, or otherwise, shall succeed to the rights of the Purchaser hereunder.

In witness whereof, the parties hereto, acting under authority of their respective governing bodies, have caused this contract to be duly executed in two [2] counterparts, each of which shall constitute an original.

Seller:

✓ James L. Van Hook

By

Title ✓ Mayor

Attest:

Elizabeth Sautwein
Secretary

Purchaser:

Paul E. Thomas

By

Title Chairman

Attest:

Jerald B. Blanton
Secretary

This contract is approved on behalf of the Farmers Home Administration this _____ day of _____, 19 ____.

By _____

Title _____

USDA–FHA
Form FHA 442-30
(Rev. 4-19-72)

WATER PURCHASE CONTRACT

This contract for the sale and purchase of water is entered into as of the 28th day of February, 19 95, between the City of Louisa, Kentucky, Water and Sewer Commission, P. O. Box 608 Louisa, Kentucky 41230 *(Address)*, hereinafter referred to as the "Seller" and the Lawrence County Water District; P. O. Box 566 Louisa, Kentucky 41230 *(Address)*, hereinafter referred to as the "Purchaser",

WITNESSETH:

Whereas, the Purchaser is organized and established under the provisions of Commonwealth of Kentucky of the Code of _____, for the purpose of constructing and operating a water supply distribution system serving water users within the area described in plans now on file in the office of the Purchaser and to accomplish this purpose, the Purchaser will require a supply of treated water, and

Whereas, the Seller owns and operates a water supply distribution system with a capacity currently capable of serving the present customers of the Seller's system and the estimated number of water users to be served by the said Purchaser as shown in the plans of the system now on file in the office of the Purchaser, and

Whereas, by a motion No. _____ enacted on the 2nd day of February, 19 95, by the Seller, the sale of water to the Purchaser in accordance with the provisions of the said contract was approved, and the execution of this contract carrying out the said sales agreement by the Mayor, City of Louisa, and Chairman, and attested by the Secretary, was duly authorized, and

Whereas, by motion of the Lawrence County Water District Board of the Purchaser, enacted on the _____ day of _____, 19 ____, the purchase of water from the Seller in accordance with the terms set forth in the said contract was approved, and the execution of this contract by the Chairman, and attested by the Secretary was duly authorized;

Now, therefore, in consideration of the foregoing and the mutual agreements hereinafter set forth,

A. The Seller Agrees:

1. (Quality and Quantity) To furnish the Purchaser at the point of delivery hereinafter specified, during the term of this contract or any renewal or extension thereof, potable treated water meeting applicable purity standards of the USEPA and Commonwealth of Kentucky, Division of Water in such quantity as may be required by the Purchaser not to exceed 5,000,000 gallons per month.

☆ U. S. GOVERNMENT PRINTING OFFICE: 1976—665-052/23

2. (Point of Delivery and Pressure) That water will be furnished at a reasonably constant pressure calculated at 30 psi from an existing 6 (six) inch main supply at a point located near the Hughes Road intersection with KY 3.

If a greater pressure than that normally available at the point of delivery is required by the Purchaser, the cost of providing such greater pressure shall be borne by the Purchaser. Emergency failures of pressure or supply due to main supply line breaks, power failure, flood, fire and use of water to fight fire, earthquake or other catastrophe shall excuse the Seller from this provision for such reasonable period of time as may be necessary to restore service.

3. (Metering Equipment) To furnish, install, operate, and maintain at its own expense at point of delivery, the necessary metering equipment, including a meter house or pit, and required devices of standard type for properly measuring the quantity of water delivered to the Purchaser and to calibrate such metering equipment whenever requested by the Purchaser but not more frequently than once every twelve (12) months. A meter registering not more than two percent (2%) above or below the test result shall be deemed to be accurate. The previous readings of any meter disclosed by test to be inaccurate shall be corrected for the 3 (three) months previous to such test in accordance with the percentage of inaccuracy found by such tests. If any meter fails to register for any period, the amount of water furnished during such period shall be deemed to be the amount of water delivered in the corresponding period immediately prior to the failure, unless Seller and Purchaser shall agree upon a different amount. The metering equipment shall be read on normal reading date set for that meter route An appropriate official of the Purchaser at all reasonable times shall have access to the meter for the purpose of verifying its readings.

4. (Billing Procedure) To furnish the Purchaser at the above address not later than the 5 th day of each month, with an itemized statement of the amount of water furnished the Purchaser during the preceding month.

B. The Purchaser Agrees:

1. (Rates and Payment Date) To pay the Seller, not later than the 25 th day of each month, for water delivered in accordance with the following schedule of rates:

a. $ see meter schedules below for the first _____ gallons, which amount shall also be the minimum rate per month.

b. $ _____ cents per 1000 gallons for water in excess of _____ gallons but less than _____ gallons.

c. $ _____ cents per 1000 gallons for water in excess of _____ gallons.

1½ inch meter: a. $41.72 for the first 12,000 gallons, which amount shall also be the minimum rate per month.
b. $2.24 per 1000 gallons for water in excess of 12,000 gallons but less than 20,100 gallons.
c. $1.88 per 1000 gallons for water in excess of 20,000 gallons but less than 50,100 gallons.
d. $1.41 per 1000 gallons for water in excess of 50,000 gallons but less than 100,000 gallons.
e. $0.94 per 1000 gallons for water in excess of 100,000 gallons.

2 inch meter: a. $59.64 for the first 20,000 gallons which amount shall also be the minimum rate per month.
b. $1.88 per 1000 gallons for water in excess of 20,000 gallons but less than 50,100 gallons.
c. $1.41 per 1000 gallons for water in excess of 50,000 gallons but less than 100,000 gallons.
d. $0.94 per 1000 gallons for water in excess of 100,000 gallons.

3 inch meter: a. $116.04 for the first 50,000 gallons which amount shall also be the minimum rate per month.
b. $1.41 per 1000 gallons for water in excess of 50,000 gallons but less than 100,000 gallons.
c. $0.94 per 1000 gallons for water in excess of 100,000 gallons.

2. (Connection Fee) To pay as an agreed cost, a connection fee to connect the Seller's system with the system of the Purchaser, the sum of exact cost of seller _____ which shall cover any and all costs of the Seller for installation of the metering equipment and appertenances, not provided by the purchaser's contractor(s)

In witness whereof, the parties hereto, acting under authority of their respective governing bodies, have caused this contract to be duly executed in 2 counterparts, each of which shall constitute an original.

Seller: James L Walker

By City of Lawson

Title Mayor

Attest:

Elizabeth Frantwein
Secretary

Purchaser:

LAWRENCE COUNTY WATER DISTRICT

By Lee A. Young

Title Chairman

Attest:

Secretary

This contract is approved on behalf of the Farmers Home Administration this _____ day of _____, 19 ____.

By _____

Title _____

C. It is further mutually agreed between the Seller and the Purchaser as follows:

1. (Term of Contract) That this contract shall extend for a term of 40 years from the date of the initial delivery of any water as shown by the first bill submitted by the Seller to the Purchaser and, thereafter may be renewed or extended for such term, or terms, as may be agreed upon by the Seller and Purchaser.

2. (Delivery of Water) That 60 days prior to the estimated date of completion of construction of the Purchaser's water supply distribution system, the Purchaser will notify the Seller in writing the date for the initial delivery of water.

3. (Water for Testing) When requested by the Purchaser the Seller will make available to the contractor at the point of delivery, or other point reasonably close thereto, water sufficient for testing, flushing, and trench filling the system of the Purchaser during construction, irrespective of whether the metering equipment has been installed at that time, at a flat charge of $ _____ which will be paid by the contractor or, on his failure to pay, by the Purchaser.

4. (Failure to Deliver) That the Seller will, at all times, operate and maintain its system in an efficient manner and will take such action as may be necessary to furnish the Purchaser with quantities of water required by the Purchaser. Temporary or partial failures to deliver water shall be remedied with all possible dispatch. In the event of an extended shortage of water, or the supply of water available to the Seller is otherwise diminished over an extended period of time, the supply of water to Purchaser's consumers shall be reduced or diminished in the same ratio or proportion as the supply to Seller's consumers is reduced or diminished.

5. (Modification of Contract) That the provisions of this contract pertaining to the schedule of rates to be paid by the Purchaser for water delivered are subject to modification at the end of every 1 (one) year period. Any increase or decrease in rates shall be based on a demonstrable increase or decrease in the costs of performance hereunder, but such costs shall not include increased capitalization of the Seller's system. Other provisions of this contract may be modified or altered by mutual agreement.

6. (Regulatory Agencies) That this contract is subject to such rules, regulations, or laws as may be applicable to similar agreements in this State and the Seller and Purchaser will collaborate in obtaining such permits, certificates, or the like, as may be required to comply therewith.

7. (Miscellaneous) That the construction of the water supply distribution system by the Purchaser is being financed by a loan made or insured by, and/or a grant from, the United States of America, acting through the Farmers Home Administration of the United States Department of Agriculture, and the provisions hereof pertaining to the undertakings of the Purchaser are conditioned upon the approval, in writing, of the State Director of the Farmers Home Administration.

8. (Successor to the Purchaser) That in the event of any occurence rendering the Purchaser incapable of performing under this contract, any successor of the Purchaser, whether the result of legal process, assignment, or otherwise, shall succeed to the rights of the Purchaser hereunder.

NOTICE

The city of Louisa has filed a proposed rate schedule that will change and increase the rate charge to the Big Sandy Water District. The City of Louisa currently charges the Big Sandy Water District the following rate:

$2.66 per 1,000 gallons

The City of Louisa proposes to charge Big Sandy Water District the following rate for water service effective January 30, 2015:

$3.06 per 1,000 gallons

The rate contained in this notice is the rate proposed by the City of Louisa. The Kentucky Public Service Commission, however, may order rates to be charged that differ from the proposed rates contained in this notice.

Any corporation, association, or person with a substantial interest in this matter may, by written request, within (30) days after publication or mailing of this notice of the proposed rate changes request to intervene. Intervention may be granted beyond (30) day period for good cause shown.

Any person who has been granted intervention by the Public Service Commission may obtain copies of the rate schedule and City Ordinance and any other filings made by the City of Louisa by contacting Kathy Compton, City Clerk, City Hall, 215 N Main Cross Street, Louisa, KY 41230, 606/638/4050.

Any person may examine the City of Louisa's rate schedule and City Ordinance and other filings at its main office at 213 Main Cross Street, Louisa, KY or at the Public Service Commission's Offices at 221 Sowers Blvd., Frankfort, KY 40602.

For Big Sandy Water District
Community, Town or City

P.S.C. NO. _____

5th revision SHEET NO. 1

City of Louisa, Kentucky
Name of Issuing Corporation

CANCELLING P.S.C. NO. _____

ORIGINAL SHEET NO. ONE

CLASSIFICATION OF SERVICE

	RATE PER UNIT
Wholesale rate to Big Sandy Water District; per 1,000 gallons	$3.06

DATE OF ISSUE 3-23-15

DATE EFFECTIVE 4-30-15

ISSUED BY City of Louisa

TITLE Mayor Harold E Slone

BY AUTHORITY OF ORDER OF THE PUBLIC SERVICE COMMISSION
IN CASE NO. _____ DATED _____

Exhibit C

WATER PURCHASE CONTRACT

THIS CONTRACT FOR THE SALE AND PURCHASE OF WATER is made and entered into this the 16 day of August, 2010, by and between THE RATTLESNAKE RIDGE WATER DISTRICT, a water district created and existing under the Laws of the Commonwealth of Kentucky, hereinafter refereed to as "Seller", and the BIG SANDY WATER DISTRICT, a municipality, hereinafter referred to as "Purchaser";

WITNESSETH:

In consideration of the mutual agreements herein and contingent upon approval by Commonwealth of Kentucky Public Service Commission and the United States Department of Agriculture Rural Development:

1. Seller agrees to furnish the Purchaser, at the point of delivery hereinafter specified, during the term of this Contract, potable, treated water at times and in quantities to be determined in Seller's sole and absolute discretion.
2. The water made available under this Agreement is only for use by retail customers of the Purchaser and may not be sold on a wholesale basis to any other utility.
3. Seller has no obligation to furnish satisfactory quantity or pressure for any purpose.
4. The Purchaser will keep Seller advised of all significant events which are likely to significantly affect the Purchaser's level of water purchased from the Seller.
5. The Master Meter(s) shall be read on the 15th day of each month. The Purchaser has the right to be present at each reading. The Purchaser shall pay the rate of $2.96 per 1,000 gallons (plus any taxes, fees, etc. which are required by law) to which payment is to be made by the 10th of the following month.

6. The Purchaser shall be notified in writing at least 30 days prior to any rate increase approved by the PUBLIC SERVICE COMMISSION.
7. The water will be furnished to the Purchaser through the following:
   A. One 3" compound Sensus radio read meter with test port, meter must read in gallons, located at the junction of Walnut Grove Road and Old Trace Road.

   The master meter, apparatuses, and all connections (including water lines) to connect the Purchaser's system to the Seller's system, shall be constructed at Purchaser's sole cost and expense. After completion, ownership of all Master Meter items will revert to the Seller.
8. Even if Seller has given its consent, Seller shall have no obligation to to continue providing water and may terminate or reduce service with a 60 day prior notice to Purchaser.
9. This Contract may be cancelled by either party at any time with a 60 day notice.
10. This Contract constitutes the sole and complete agreement as to the sale and purchase of water. There are no oral or other written agreements between the parties relating to the sale and purchase of water.

IN TESTIMONY WHEREOF, the parties hereto have caused this Agreement to be executed by its duly authorized officers, on this the day and date first above written.

THE RATTLESNAKE RIDGE WATER DISTRICT

Bill Gilbert
CHAIRMAN

ATTEST:

Sara Davis
SECRETARY

BIG SANDY WATER DISTRICT

Paul E Thomas
CHAIRMAN

ATTEST:

David Dalrymple
SECRETARY

2005

WATER USER AGREEMENT - SPECIAL CONTRACT

This Agreement entered into between BIG SANDY WATER DISTRICT whose address is 18200 State Route 3, Catlettsburg, Kentucky, 41129, party of the FIRST PART, and the CANNONSBURG WATER DISTRICT, 1606 Cannonsburg Rd., Ashland, Kentucky, 41102, party of the SECOND PART.

WHEREAS, the party of the FIRST PART desires to purchase water from the party of the SECOND PART, the party of the FIRST PART enters into this Water User Agreement as required by the BYLAWS of the party of the SECOND PART and as defined in 807 KAR 5:011, Tariffs, Section 13, Special Contracts.

NOW THEREOF, in consideration of the mutual covenants, promises, and agreements herein contained, it is hereby understood and agreed by the parties hereto as follows:

The party of the SECOND PART shall furnish, subject to the limitations set out in its BYLAWS and Rules and Regulations now in force or as hereafter amended, such quantity of water as the party of the FIRST PART may desire for domestic use in connection with property to be served by this Agreement, so long as such quantities are in a reasonable amount that will not interfere with SECOND PARTY'S ability to furnish water to its own customers. The property to be serviced with the water from this agreement is known as the western part of Boyd County and eastern part of Carter County.

The party of the FIRST PART shall install and maintain at its own expense a service line which shall begin at the meter and extend to the place of use. The location of water meters on the property will be determined by mutual agreement of the parties, which shall be nearest point to the water main of purchaser's property. The party of the SECOND PART shall continue to furnish and maintain a cutoff valve and a 3" water meter. The party of the SECOND PART shall have exclusive right to such cutoff valve and water meter. Any future location of connections and meters to this property shall be determined by mutual agreement. The party of the FIRST PART agrees to pay a connection fee equal to the actual cost.

The MINIMUM BILL for service to the party of the FIRST PART under this Agreement shall be $1.20, plus $.42 cents (Cannonsburg's present cost from Ashland Water) per thousand gallons of water per month on the total of all meters.

The party of the FIRST PART agrees to comply with and be bound by the Articles, BYLAWS, Rules and Regulations of the party of the SECOND PART now in force or as hereafter duly a legally supplemented, amended, or changed. The party of the FIRST PART agrees to pay for water at such time and place as shall be determined by the party of the SECOND PART, and agrees to the imposition of such penalties for noncompliance as are now set out in the party of the SECOND PART'S BYLAWS and Rules and Regulations, or which have been or hereafter shall be adopted and imposed by the party

of the SECOND PART.

The party of the FIRST PART shall agree to any further rate changes in the cost of purchased water incurred by Cannonsburg Water District from their supplier that shall be passed through to Big Sandy Water District in accordance with 807 KAR 5:068.

In the event that the Cannonsburg Water District must allocate and/or limit water use to the Big Sandy Water District for if more than two (2) days, then they will have the option of reconnecting their own water system and not be obligated to a minimum bill for the next 30 day billing period, or until water is available from the Big Sandy Water District on a continuous basis as previously provided before change in systems.

The contract shall remain in effect for 20 years, beginning the 1 day of May, 2005 and ending on the 1 day of May, 2025. This contract may be renewed at the option of the parties, subject to renegotiation of rates applicable at the time of the renewal and may be renewed for 10 year intervals.

The failure of the party of the FIRST PART to pay water charges duly imposed shall result in the automatic imposition of the penalties in accordance with 807 KAR 5:006, Section 11 (3) and the Cannonsburg District's tariff rates as approved by the Public Service Commission.

The party of the FIRST PART agrees to grant to the party of the SECOND PART, its successors and assigns, a perpetual easement in, over, under, and upon land owned by the party of the FIRST PART with the right to erect, construct, install and lay, and thereafter use, operate, inspect, repair, maintain, replace and remove water pipelines and appurtenant facilities together with the right to utilize adjoining lands belonging to the party of the SECOND PART for the purpose of ingress and egress from the said lands.

IN WITNESS WHEREOF, we have executed this Agreement this 12th day of April, 2005.

WITNESS: Robert McGlothlin WATER USER Big Sandy Water
(PARTY OF THE FIRST PART)

BY: Paul T. Thomas

WITNESS: Jessie Rose CANNONSBURG WATER DISTRICT

BY: _____
TITLE: Cannonsburg Water Chairman

FOR Entire District Service Area
Community, Town or City

P.S.C. KY. NO. 1

14th Revised SHEET NO. 5

Cannonsburg Water District
(Name of Utility)

CANCELLING P.S.C. KY. NO. 1

13th Revised SHEET NO. 5

LEAK ADJUSTMENT RATE	$4.21	per 1,000 Gallons	
WHOLESALE CUSTOMERS			
Big Sandy Water District	$4.25	per 1,000 Gallons	(I)
City of Greenup	$4.25	per 1,000 Gallons	(I)

DATE OF ISSUE August 11, 2015
Month / Date / Year

DATE EFFECTIVE July 8, 2015
Month / Date / Year

ISSUED BY Danny R Clarkston
(Signature of Officer)

TITLE Manager

BY AUTHORITY OF ORDER OF THE PUBLIC SERVICE COMMISSION
IN CASE NO. 2015-00181 DATED July 8, 2015

KENTUCKY
PUBLIC SERVICE COMMISSION
JEFF R. DEROUEN
EXECUTIVE DIRECTOR
TARIFF BRANCH
Brent Kirtley
EFFECTIVE
7/8/2015
PURSUANT TO 807 KAR 5:011 SECTION 9 (1)

2006

WATER USER AGREEMENT – SPECIAL CONTRACT

This Agreement entered into between Big Sandy Water District whose address is 18200 State Route 3, Catlettsburg Kentucky 41129 , party of the FIRST PART, and the Cannonsburg Water District, 1606 Cannonsburg Rd., Ashland Kentucky 41102 party of the SECOND PART.

WHEREAS, the party of the FIRST PART desires to purchase water from the party of the SECOND PART, the party of the FIRST PART enters into this Water User Agreement as required by the BYLAWS of the Party of the SECOND PART and as defined in 807 KAR 5;011, Tariffs, Section 13, Special Contracts.

NOW THEREOF, in consideration of the mutual covenants, promises, and agreements herein contained, it is hereby understood and agreed by the parties hereto as follows:

The party of the SECOND PART shall furnish, subject to the limitations set out in its BYLAWS and Rules and Regulations now in force or as here after amended, such quantity of water as the party of the FIRST PART may desire for domestic use in connection with property to served by this Agreement. The property to be serviced is known as western part of Boyd County and Eastern part of Carter County.

The party of the FIRST PART shall install and maintain at its own expense a service line which shall begin at the meter and extend to the place of use. The location of the water meters on the property will be determined by mutual agreement of the parties, which shall be the nearest point to the water main of purchaser's property. The party of the SECOND PART shall continue to furnish and maintain a cutoff valve and a 3" water meter. The party of the SECOND PART shall have exclusive right to use such cutoff valve and a 3" water meter. Any future location of connections and meters to this property shall be determined by mutual agreement. The party of the FIRST PART agrees to pay a connection fee equal to the actual cost.

The MINIMUM BILL for service to the party of the FIRST PART under this Agreement shall be $1.32 , plus $.42 cents (Cannonsburg's present cost from Ashland Water) per thousand gallons of water per month on the total of all meters.

The party of the FIRST PART agrees to comply with and be bound by the Articles, BYLAWS, Rules and Regulations of the party of the SECOND PART now in force or as hereafter duly and legally supplemented, amended, or changed. The party of the FIRST PART agrees to pay for water at such time and place as shall be determined by the party of the SECOND PART, and agrees to the imposition of such penalties for noncompliance as are now set out in the party of the SECOND PART'S BYLAWS and Rules and Regulations, or which have been or hereafter shall be adopted and imposed by the party of the SECOND PART.

The party of the FIRST PART shall agree to any further rate changes in the cost of purchased water incurred by Cannonsburg Water District from their supplier that shall be passed through to Big Sandy Water District in accordance with 807 KAR 5:068.

In the event that Cannonsburg Water District must allocate and/or limit water use to the Big Sandy Water District for if more than two (2) days, then they will have the option of reconnecting their own water system and not be obligated to a minimum bill for the next 30 day billing period, or until water is available from the Cannonsburg Water District on a continuous basis as previously provided before change in systems.

The contract shall remain in effect for 20 years and is renewable at 10-year intervals.

The failure of the party of the FIRST PART to pay water charges duly imposed shall result in the automatic imposition of the penalties in accordance with 807 KAR 5:006, Section 11 (3) and the Cannonsburg Water District tariff rates as approved by the Public Service Commission.

The party of the FIRST PART agrees to grant to the party of the SECOND PART, its successors an assigns, a perpetual easement in, over, under, and upon land owned by the party of the FIRST PART with the right to erect, construct, install, and lay, and thereafter use, operate, inspect, repair, maintain, replace, and remove water pipelines and appurtenant facilities together with the right to utilize adjoining lands belonging to the party of the SECOND PART for the purpose of ingress and egress from the said lands.

This contract replaces the most previous contract and is the same except the change in the amount per thousand charges for water, which reflects the increase cost from our supplier.

IN WITNESS WHEREOF, we have executed this Agreement this 1st day of JUNE, 2006.

WITNESS: Teresa Brown

WITNESS: Bobbi Burton

WATER USER Big Sandy Water
(PARTY OF THE FIRST PART)
BY: Paul E Thomas

Cannonsburg Water District
BY: W. D Walters

TITLE:

Form FHA 442-30
(Rev. 4-19-72)

WATER PURCHASE CONTRACT

SELLER

This contract for the sale and purchase of water is entered into as of the 30 day of July, 19 84, between the BIG SANDY WATER DISTRICT OF CATLETTSBURG, BOYD COUNTY, KENTUCKY P.O. BOX 341 Catlettsburg, KY 41129 (Address), hereinafter referred to as the "Seller" and the CANNONSBURG WATER DISTRICT INC. OF CANNONSBURG, BOYD COUNTY, KENTUCKY, P.O. Box 1535 Ashland, KY 41101 (Address), hereinafter referred to as the "Purchaser",

WITNESSETH:

Whereas, the Purchaser is organized and established under the provisions of Chapter 74 of the Code of Kentucky Revised Statutes, for the purpose of constructing and operating a water supply distribution system serving water users within the area described in plans now on file in the office of the Purchaser and to accomplish this purpose, the Purchaser will require a supply of treated water, and

Whereas, the Seller owns and operates a water supply distribution system with a capacity currently capable of serving the present customers of the Seller's system and the estimated number of water users to be served by the said Purchaser as shown in the plans of the system now on file in the office of the Purchaser, and

Whereas, by Resolution No. N/A enacted on the 30 day of July, 19 84, by the Seller, the sale of water to the Purchaser in accordance with the provisions of the said Resolution was approved, and the execution of this contract carrying out the said Resolution by the Chairman at the Big Sandy Water District, and attested by the Secretary, was duly authorized, and

Whereas, by Resolution of the Board of Commissioners of the Purchaser, enacted on the 30 day of July, 19 84, the purchase of water from the Seller in accordance with the terms set forth in the said Resolution was approved, and the execution of this contract by the Chairman of the Cannonsburg Water District, and attested by the Secretary was duly authorized;

Now, therefore, in consideration of the foregoing and the mutual agreements hereinafter set forth,

A. The Seller Agrees:

1. (Quality and Quantity) To furnish the Purchaser at the point of delivery hereinafter specified, during the term of this contract or any renewal or extension thereof, potable treated water meeting applicable purity standards of the Division of Water, Kentucky Department of Natural Resources & Environmental Protection in such quantity as may be required by the Purchaser not to exceed 500,000 gallons per month.

2. (Point of Delivery and Pressure) That water will be furnished at a reasonably constant pressure calculated Public Service Commission requirements
at _____ from an existing three (3) inch main supply at a point located at the junction of Dog Fork and Briarwood Estates in Boyd County, Kentucky. If a greater pressure than that normally available at the point of delivery is required by the Purchaser, the cost of providing such greater pressure shall be borne by the Purchaser. Emergency failures of pressure or supply due to main supply line breaks, power failure, flood, fire and use of water to fight fire, earthquake or other catastrophe shall excuse the Seller from this provision for such reasonable period of time as may be necessary to restore service.

3. (Metering Equipment) To furnish, install, operate, and maintain at its own expense at point of delivery, the necessary metering equipment, including a meter house or pit, and required devices of standard type for properly measuring the quantity of water delivered to the Purchaser and to calibrate such metering equipment whenever requested by the Purchaser but not more frequently than once every twelve (12) months. A meter registering not more than two percent (2%) above or below the test result shall be deemed to be accurate. The previous readings of any meter disclosed by test to be inaccurate shall be corrected for the twelve (12) months previous to such test in accordance with the percentage of inaccuracy found by such tests. If any meter fails to register for any period, the amount of water furnished during such period shall be deemed to be the amount of water delivered in the corresponding period immediately prior to the failure, unless Seller and Purchaser shall agree upon a different amount. The metering equipment shall be read on the 26th of each month. An appropriate official of the Purchaser at all reasonable times shall have access to the meter for the purpose of verifying its readings.

4. (Billing Procedure) To furnish the Purchaser at the above address not later than the 10th day of each month, with an itemized statement of the amount of water furnished the Purchaser during the preceding month.

B. The Purchaser Agrees:

1. (Rates and Payment Date) To pay the Seller, not later than the 19th day of each month, for water delivered in accordance with the following schedule of rates:

a. $ 1.00 per 1000 gal for the first 500,000 gallons, which amount shall also be the minimum rate per month.

b. $ _____ cents per 1000 gallons for water in excess of _____ gallons but less than _____ gallons.

c. $ _____ cents per 1000 gallons for water in excess of _____ gallons.

2. (Connection Fee) To pay as an agreed cost, a connection fee to connect the Seller's system with the system of the Purchaser, the sum of none dollars which shall cover any and all costs of the Seller for installation of the metering equipment and all labor equipment and connections to be made by Purchaser by Purchasers's employees.

C. It is further mutually agreed between the Seller and the Purchaser as follows:

1. (Term of Contract) That this contract shall extend for a term of 20 years from the date of the initial delivery of any water as shown by the first bill submitted by the Seller to the Purchaser and, thereafter may be renewed or extended for such term, or terms, as may be agreed upon by the Seller and Purchaser.

2. (Delivery of Water) That 5 days prior to the estimated date of completion of construction of the Purchaser's water supply distribution system, the Purchaser will notify the Seller in writing the date for the initial delivery of water.

3. (Water for Testing) When requested by the Purchaser the Seller will make available to the contractor at the point of delivery, or other point reasonably close thereto, water sufficient for testing, flushing, and trench filling the system of the Purchaser during construction, irrespective of whether the metering equipment has been installed at that time, at a flat charge of $ N/A which will be paid by the contractor or, on his failure to pay, by the Purchaser.

4. (Failure to Deliver) That the Seller will, at all times, operate and maintain its system in an efficient manner and will take such action as may be necessary to furnish the Purchaser with quantities of water required by the Purchaser. Temporary or partial failures to deliver water shall be remedied with all possible dispatch. In the event of an extended shortage of water, or the supply of water available to the Seller is otherwise diminished over an extended period of time, the supply of water to Purchaser's consumers shall be reduced or diminished in the same ratio or proportion as the supply to Seller's consumers is reduced or diminished.

5. (Modification of Contract) That the provisions of this contract pertaining to the schedule of rates to be paid by the Purchaser for water delivered are subject to modification at the end of every one year period. Any increase or decrease in rates shall be based on a demonstrable increase or decrease in the costs of performance hereunder, but such costs shall not include increased capitalization of the Seller's system. Other provisions of this contract may be modified or altered by mutual agreement.

6. (Regulatory Agencies) That this contract is subject to such rules, regulations, or laws as may be applicable to similar agreements in this State and the Seller and Purchaser will collaborate in obtaining such permits, certificates, or the like, as may be required to comply therewith.

7. (Miscellaneous) That the construction of the water supply distribution system by the Purchaser is being financed by a loan made or insured by, and/or a grant from, the United States of America, acting through the Farmers Home Administration of the United States Department of Agriculture, and the provisions hereof pertaining to the undertakings of the Purchaser are conditioned upon the approval, in writing, of the State Director of the Farmers Home Administration.

8. (Successor to the Purchaser) That in the event of any occurence rendering the Purchaser incapable of performing under this contract, any successor of the Purchaser, whether the result of legal process, assignment, or otherwise, shall succeed to the rights of the Purchaser hereunder.

9. This Contract is pledged to the United States of America, acting through the Farmers Home Administration (FmHA), as security for the loan made to the purchaser by FmHA.

*5. There is a mutual agreement between the Seller (Big Sandy Water District) and the Purchaser (Cannonsburg Water District) that if an increase in the wholesale water rate to the Seller occurs, they in return can forward the aforementioned increase to the purchaser upon approval by the Public Service Commission of Kentucky. The agreement also stipulates that the rate will be $0.42 per 1000 gals over the wholesale water rate of the Seller.

In witness whereof, the parties hereto, acting under authority of their respective governing bodies, have caused this contract to be duly executed in three (3) counterparts, each of which shall constitute an original.

Seller:

Big Sandy Water District

By J. C. Copeland

Title Chairman

Attest:

Valerie N. Blanton

Secretary

Purchaser:

Cannonsburg Water District

By X Delmis Dorta

Title Chairman

Attest:

Garland Thrasher

Secretary

This contract is approved on behalf of the Farmers Home Administration this _____ day of _____, 19____.

By _____

Title _____

EMERGENCY SUPPLY AGREEMENT

This Emergency Supply Agreement (hereinafter "Agreement") is made and entered into this 21st day of JUNE, 2004 by and between the Big Sandy Water District, 18200 Ky. Rt #3, Catlettsburg, Kentucky 41129 (hereinafter "Big Sandy") and the City of Paintsville Utility Commission (hereinafter "Paintsville"), 101 Euclid Avenue, Paintsville, Kentucky 41240.

In consideration of the premises, covenants and agreements contained hereinafter and other good and valuable consideration, the receipt of which is acknowledged, the Parties agree as follows:

ARTICLE I
NATURE OF AGREEMENT

This Agreement is an emergency supply agreement in which Big Sandy agrees to supply to Paintsville and Paintsville agrees to supply to Big Sandy water in the event of an emergency. For purposes of this Agreement, the term "Surplus Water" shall mean excess water available for supply after the needs of all other retail and wholesale customers of the supplying entity has been met and satisfied. Nothing in this Agreement requires Big Sandy or Paintsville to supply any water other than Surplus Water to the other. For purposes of this Agreement, the term "Emergency" shall mean any situation arising from fire, flood, storm, breakdown of a water system or unpotable condition causing an immediate threat to life, health or property.

ARTICLE II
PURCHASE AND SALE OF WATER

Big Sandy and Paintsville each will contact the other if and when an Emergency arises necessitating an emergency supply of water. Big Sandy and Paintsville each agree to supply and sell to the other such Surplus Water as may be required and requested by the other for all emergencies during the term of this Agreement.

ARTICLE III
EFFECTIVE DATE AND TERM

This Agreement will take effect immediately on the date first written above and shall continue in full force and effect for a period of twenty (20) consecutive years.

ARTICLE IV
POINTS OF DELIVERY

Big Sandy and Paintsville shall supply Surplus Water to the other at a point initially, but not limited to, on Route 23 near the intersection of Horse Picture Road in Johnson County, Kentucky.

ARTICLE V
USE OF WATER LINES

Big Sandy and Paintsville each agree to the use of their respective waterlines and appurtenances, without charge, for all purposes related to the emergency supply of water contemplated by this Agreement. The Parties shall not be obligated to make improvements to their respective water systems to provide any emergency supply of water under this Agreement.

ARTICLE VI
QUALITY OF WATER

All Surplus Water supplied by the Commission and Northern shall be potable, treated water meeting all applicable quality and purity standards of all appropriate state and federal regulatory agencies. The Surplus Water shall be of the same quality as the water furnished to the other customers of Big Sandy and Paintsville.

ARTICLE VII
WATER RATES

Big Sandy and Paintsville each shall pay to the other Two Dollars ($2.00) per thousand gallons and the rate shall not be increased or decreased without the approval of the Parties and the approval of the PSC if necessary.

ARTICLE VIII
BILLING AND PAYMENT

Big Sandy and Paintsville each shall bill the other on a monthly basis for the full amount due for Surplus Water supplied during the prior month. All bills will be due and payable within thirty (30) days of the date of receipt.

ARTICLE IX
FORCE MAJEURE

Except for the payments required above, either Big Sandy or Paintsville may suspend its performance under this Agreement if such Party's performance is prevented or delayed by a cause or causes beyond the reasonable control of such Party which could not have been avoided by the exercise of reasonable diligence by such Party. Such causes may include, but shall not be limited to, acts of war, acts of terrorism, riot, fire, explosion, lock-outs or other labor disturbances, breakage or damage to machinery or pipelines, and partial or entire failure of the water system. The Party asserting the right to suspend performance must within a reasonable period of time of acquiring knowledge of the cause requiring the suspension notify the other party in writing of the cause for suspension, the performance suspended and the anticipated duration of the suspension. Performance will be suspended only during the time that it is prevented or delayed by the type of cause or causes described in this Article and the Party whose performance is prevented or delayed shall endeavor to remove or overcome the cause or causes with all reasonable dispatch.

ARTICLE X
RESPONSIBILITY AND INDEMNIFICATION

Big Sandy and Paintsville each shall be responsible for the construction, operation and maintenance of all waterlines and appurtenances of its own water system. Each Party expressly agrees to defend, indemnify and hold harmless the other Party against all claims, demands, costs and expenses asserted by third parties and proximately caused by its negligence or willful misconduct in connection with the construction, operation or maintenance of its water system.

ARTICLE XI
APPROVAL OF AGREEMENT

The Parties understand and agree that this Agreement may require submission to the PSC for approval. If such submission is required, this Agreement shall still take effect on the date first above written but shall be subject to any lawful decision or order of the PSC.

ARTICLE XII
ENTIRE AGREEMENT

This Agreement constitutes the entire understanding and agreement between the Parties and supercedes all other understandings and agreements between the Parties with respect to the subject matter of this agreement. There are no understandings, representations or warranties of any kind, expressed or implied, not expressly set forth in this Agreement. No modification of this Agreement shall be effective unless in writing and executed on behalf of both Parties.

ARTICLE XIII
WAIVERS

The failure of either Party at any time to enforce any provision of this Agreement, to exercise its rights under any provision or to require a certain performance of any provision shall not be construed as a waiver of any such provision or in any way affect the validity of this Agreement or the right of the Party thereafter to enforce each and every provision.

ARTICLE XIV
ASSIGNMENT

This Agreement shall not be assigned by any Party without the written consent of the other Party.

ARTICLE XV
AUTHORITY TO EXECUTE AGREEMENT

The Parties each possess full authority to enter into this Agreement as indicated by the lawful resolutions/orders attached hereto as exhibits.

Paul E. Thomas Chairman, board of Directors
BIG SANDY WATER DISTRICT

Larry D. Hall General Manager
CITY OF PAINTSVILLE, UTILITY COMMISSION

Melvin
J. Calvin
John David Preston
David L. Collett

ORDINANCE NO. 139, 2018

AN ORDINANCE OF THE CITY OF ASHLAND, KENTUCKY, AUTHORIZING AND DIRECTING STEPHEN E. GILMORE, MAYOR, TO EXECUTE AN AGREEMENT BETWEEN THE CITY OF ASHLAND AND BIG SANDY WATER DISTRICT EXTENDING THE CONTRACT ADOPTED BY ORDINANCE NO. 77, SERIES OF 2013, TO FURNISH POTABLE WATER FOR DISTRIBUTION AND SALE WITHIN ITS WATER DISTRIBUTION SYSTEM BOUNDARIES UNTIL 2059 ENABLING THE WATER DISTRICT TO RECEIVE USDA RURAL DEVELOPMENT FUNDS.

* * * * * * * * * * *

WHEREAS, Ordinance 77, Series of 2013 was adopted by the Ashland Board of City Commissioners authorizing an agreement between the City of Ashland and Big Sandy Water District for the City to furnish potable water for distribution and sale within the boundaries of the Big Sandy Water Distribution system, and

WHEREAS, in order for Big Sandy Water District to obtain loan and grant funds from USDA Rural Development, the agreement adopted by Ordinance 77, Series of 2013 must be extended for a period of forty (40) years until the year 2059;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY OF ASHLAND, KENTUCKY:

SECTION 1. That Stephen E. Gilmore, Mayor of the City of Ashland, Kentucky, is hereby authorized and directed to execute an Agreement between the City of Ashland and Big Sandy Water District extending the contract adopted by Ordinance No. 77, Series of 2013, to furnish potable water for distribution and sale within its water distribution system boundaries until the year 2059. A true copy of said agreement is attached hereto and made a part hereof by reference.

SECTION 2. This ordinance shall be in full force and effect from and after its adoption, readoption and publication, as required by law.

SECTION 3. It is hereby authorized that publication of this ordinance be in summary form.

Stephen E. Pelanda
MAYOR

ATTEST:

Susan Maddux
CITY CLERK

ADOPTED BY THE BOARD OF COMMISSIONERS: SEP 13 2018
READOPTED BY THE BOARD OF COMMISSIONERS: SEP 27 2018
PUBLISHED: _____

REQUESTED/SPONSORED BY: RYAN EASTWOOD, CITY ENGINEER

\ORDINANCE\Agreement.Big Sandy Water District

AGREEMENT

THIS AGREEMENT, made and entered into this the 19th day of Sept, 2018, by and between the CITY OF ASHLAND, Boyd County, Kentucky, a municipal corporation of the second class under the laws of the Commonwealth of Kentucky, (hereafter "ASHLAND"), and the Big Sandy Water District, an independent water district created under the laws of the Commonwealth of Kentucky, (hereafter "BIG SANDY"),

WITNESSETH:

WHEREAS, ASHLAND, is the owner and operator of a municipally owned water works plant and water distribution system, and is able, to furnish BIG SANDY potable water for distribution and sale within its water distribution system boundaries, and

NOW, THEREFORE, it is mutually agreed and covenanted by and between the parties that ASHLAND agrees to sell and BIG SANDY agrees to buy potable water for and in consideration of the payment of the rates hereinafter established and set out to be paid to ASHLAND by BIG SANDY, and each and all of the further and additional mutual covenants and agreements hereinafter set out to be performed by both or either of said parties;

1. **BOUNDARIES**. The water supply furnished by ASHLAND to BIG SANDY shall be restricted to usage by BIG SANDY only within the boundaries of the Big Sandy Water District as approved by the Kentucky Public Service Commission. BIG SANDY shall not extend service into the area reserved to ASHLAND.

2. **QUANTITY**. BIG SANDY agrees and binds itself to purchase during the term of this Agreement, all of or a portion of the potable water required by BIG SANDY (subject to Section 7 dealing with "water shortage") for distribution within its present water distribution system, or any approved extensions within the boundaries, but not less than 500,000 gallons per month. If for any reason, ASHLAND is unable to provide 500,000 gallons per month, BIG SANDY shall not be required to purchase the minimum daily amount.

The water shall be taken by BIG SANDY through a meter or meters located at BIG SANDY Pump Station on State Route 538 or at such other places as may be mutually agreed upon in advance in writing between the parties.

3. **RATES AND BILLING**. BIG SANDY agrees and binds itself to pay for water at rates sold and delivered to it at the meter or meters on a monthly basis and according to statements tendered to BIG SANDY by ASHLAND, payments to be due and payable not later than the twentieth (20^{th}) day of each month for all water so metered, sold and delivered during the preceding month. In the event BIG SANDY shall fail to pay any monthly statement or statements in the manner described, then and in that event, there shall be added a penalty of 8 percent (8%) on such amount due and unpaid, together with six percent (6%) interest per annum thereon from due date until paid, and upon the failure of BIG SANDY to pay said monthly water bills for two (2) consecutive months, then ASHLAND shall have the right and option to discontinue furnishing of said water until said past due bills are paid in full.

In the event a water meter has registered incorrectly, an estimate of the amount of water furnished through the faulty meter shall be prepared by ASHLAND for the purpose of billing BIG SANDY. The estimate shall be based upon the average of twelve preceding readings of the meter, exclusive of incorrect readings. When less than twelve correct readings are available, fewer readings including some obtained after the period of incorrect registration may be used.

BIG SANDY agrees and binds itself to purchase potable water that may be required by BIG SANDY, but not less than 500,000 gallons per month at prices, as follows:

Currently $2.94 per one thousand (1000) gallons (until Dec 31, 2018)

It is mutually agreed that the term of this Agreement is such that the passage of time will require increases in the rates to be made for water hereunder. It is agreed that bulk water rates charged to BIG SANDY shall not exceed rates to other out-of-town bulk water customers.

ASHLAND may modify the schedule of rates for water hereunder from time to time outside the rates agreed upon herein, provided that:

a. ASHLAND does not raise the rates higher than the yearly CPI index for water, sewer and garbage (Currently the City of Ashland Water Ordinance has an automatic increase by the CPI index on January 1 every year. This increase will apply to this contract); or:

b. ASHLAND, prior to consideration of an increase (above the standard annual CPI index increase) in rates, may have a rate study conducted by an independent engineer chosen by ASHLAND, which rate study may provide the basis for any modification of the schedule of rates. Such rate study shall not be conducted more frequently than annually. ASHLAND shall give BIG SANDY prior notice of its intent to perform such study. BIG SANDY may, at its option and cost, provide ASHLAND with a rate study conducted by an engineer chosen by BIG SANDY. ASHLAND will cooperate with such engineer, and the study, when completed, shall be submitted to ASHLAND for consideration. BIG SANDY may provide ASHLAND other information it desires ASHLAND to consider in rate adjustment. ASHLAND agrees to meet with BIG SANDY and discuss the rate study or studies at BIG SANDY'S request.

c. Following completion of the rate study by the independent engineer chosen by ASHLAND and based upon any additional considerations and information deemed appropriate, ASHLAND shall notify BIG SANDY of the proposed rate. However, no modification shall become effective earlier than ninety (90) days after the increase shall be adopted by ASHLAND, and ASHLAND shall give notice to BIG SANDY of such increase immediately after such increase shall have been adopted by ASHLAND. ASHLAND shall reasonably provide BIG SANDY information which would assist BIG SANDY in any presentation or application required with the Kentucky Public Service Commission for approval of proposed rates.

BIG SANDY, with the written approval of ASHLAND, has installed new infrastructure at its own cost that increases demand on the City of Ashland Water System. ASHLAND shall continue the prior agreed credit to BIG SANDY, an

infrastructure incentive, of $0.75 per 1,000 gallons of ASHLAND water purchased by BIG SANDY for the remainder of the five (5) year period, by prior agreement. Said infrastructure incentive five-year period will expire on August 8, 2019

4. **METER PIT AND ACCESSORIES**. BIG SANDY shall, at its cost, provide and install water main, meter location inside the pump station, check valves and accessories to ASHLAND'S specifications. ASHLAND shall, at its cost, provide, install and annually calibrate the meter. If the meter is installed inside the pump station owned and maintained by BIG SANDY, BIG SANDY shall provide ASHLAND with keys to the pump station in order for ASHLAND staff to access the meter. The meter shall be the responsibility of ASHLAND for future replacement after the one year warranty period.

5. **BOOSTER PUMPS**. BIG SANDY shall have the right to install, maintain and operate booster pumps at its own cost within its lines in order to accelerate and increase the flow of water through the lines of BIG SANDY to its customers, if and when it is deemed by the said District necessary or reasonable so to do. No booster pumps shall be installed by BIG SANDY that creates a drop in pressure below forty-five (45) pounds per square inch on the suction side of the booster pumps, at an elevation of 630 feet above mean sea level.

6. **MAINTENANCE, LIABILITY, HOLD HARMLESS**. During the term of this Agreement, BIG SANDY shall, at its own expense, maintain the water main distribution system of BIG SANDY and, any agreed upon extension, and make all necessary repairs to said system. Nothing contained herein, however, shall be construed to hold ASHLAND liable for lack of adequate water supply and pressure within the BIG SANDY Water District due to any inadequacy on the part of the distribution system of BIG SANDY. ASHLAND bears no degree of responsibility for the water quality at any point beyond the meter delivery point assuming the water reaches the pump station meeting D.O.W. standards. BIG SANDY bears the responsibility for maintaining the water quality at any point beyond the meter and within its distribution system.

7. **WATER SHORTAGE**. In the event of a water shortage suffered by ASHLAND, all of the cities, water districts, corporations, or other entities purchasing

water from ASHLAND on a bulk agreement basis shall share in the shortage on a proportionate basis to their average daily usage. ASHLAND shall make every good faith effort to meet emergency needs of its bulk customers during such shortage by taking reasonable and responsible administrative action within the City and shall request such action be taken outside the City.

8. **TEMPORARY SHUT OFF**. It is further agreed that ASHLAND shall have the right to temporarily shut off the water supply of BIG SANDY or any part thereof whenever alterations, additions or maintenance operations make it necessary. ASHLAND shall give BIG SANDY reasonable notice and probable duration of such shutoffs, except that in case of serious break or accident water service may be discontinued without notice. Under no circumstances will ASHLAND be held liable or responsible for any damage that may result to BIG SANDY or its customers due to any necessary discontinuance of water service.

9. **SUCCESSORS OR ASSIGNS**. In the event of an occurrence rendering BIG SANDY incapable of performing under this Agreement, any successor of BIG SANDY, qualified under Kentucky law, shall succeed to the rights and duties of BIG SANDY under this Agreement subject to the prior written approval of ASHLAND. Otherwise, without the prior written approval of ASHLAND this Agreement may not be assigned or transferred.

10. **COURT ACTION**. The parties reserve the right, either in law or equity, by suit, mandamus or other proceeding, to enforce or compel performance of any or all covenants contained, or for interpretation of the rights of the parties under this Agreement. Further, the parties acknowledge that any dispute between the parties shall be resolved in the state courts of the Commonwealth of Kentucky, including appellate levels of the court system or by any alternative dispute resolution process agreed to by the parties.

11. **TERM**. It is mutually agreed that the term of this Agreement shall be forty (40) years from January 1, 2019. Any extension beyond twenty-four months of the original forty-year term shall require approval by ASHLAND which shall not be unreasonably withheld.

12. **AMENDMENT**. No officer, official or agent of either party has the power to amend, modify or alter this Agreement, waive any of its conditions or bind ASHLAND or BIG SANDY by making any promise or representation not contained herein. Any amendment must be agreed to in writing by the parties.

IN WITNESS WHEREOF OF WHICH, the City of Ashland, Kentucky, has caused its Corporate Name to be hereunto subscribed by its Mayor, attested by its City Clerk and its Corporate Seal to be hereunto affixed; and the Big Sandy Water District, has caused its name to be hereunto subscribed by its Chairman, attested by its Secretary/Treasurer, and its Corporate Seal to be hereunto affixed; all in quadruplicate identical copies, on the day and year first above written.

CITY OF ASHLAND, KENTUCKY

Mayor

ATTEST:

Susan Maddix
City Clerk

(SEAL)

BIG SANDY WATER DISTRICT

Chairman

ATTEST:

Secretary

(SEAL)

15030

AMENDMENT TO WATER PURCHASE CONTRACT

This Amendment to Water Purchase Contract, effective Aug. 17, 2018, is entered into by and between the City of Kenova, West Virginia, a municipal corporation ("Kenova" or "Seller"), and the Big Sandy Water District ("Big Sandy" or "Purchaser").

1. WHEREAS, Kenova and Big Sandy entered into a Water Purchase Contract on or about February 22, 1982, which Contract has subsequently been amended from time to time;

2. WHEREAS, paragraph C. 1. of the said Water Purchase Contract provides that the Contract will extend for a term of 40 years from the date of the initial delivery of water, to be thereafter "renewed or extended for such term, or terms, as may be agreed upon by the Seller and the Purchaser"; and

3. WHEREAS, Kenova and Big Sandy now desire to extend the term of the said Water Purchase Contract for an additional 40 years;

NOW THEREFORE, in consideration of the foregoing, the parties mutually agree to extend the said Water Purchase Contract as follows:

1. The Water Purchase Contract between Kenova and Big Sandy shall extend for an additional 40-year term to commence upon the date of the expiration of the original Water Purchase Contract, to be thereafter renewed or extended for such additional term or terms as may be agreed upon by the Seller and the Purchaser.

All remaining terms and provisions of the Water Purchase Contract and its subsequent addendums and amendments shall remain in full force and effect.

IN WITNESS WHEREOF, the parties, acting under authority of their respective governing bodies, have caused this Amendment to Water Purchase Contract to be duly executed this 17th day of August, 2018.

Attest:

Debra C. Price

Seller: City of Kenova

By: Don W. Bias

Don Bias

Its: Mayor

Attest

Teresa Crum

Buyer: Big Sandy Water District

By: Paul E. Thom

Its: Chairman

15030

CITY OF LOUISA
Municipal Building
215 North Main Cross
Louisa, Kentucky 41230
Bus.: (606) 638-4050
Fax: (606) 638-3414

Harold E. Slone
MAYOR

Kathryn Compton
CITY CLERK / TREASURER

August 16, 2018

Big Sandy Water District
18200 State Route 3
Catlettsburg, Kentucky 41129

Re: Water service

Gentlemen:

This will certify that the City of Louisa will furnish water to the Big Sandy Water District until 2059 subject to any rate adjustments during that time period.

Very truly yours,

Harold E. Slone, Mayor

HES/sb

Rattlesnake Ridge Water District

Serving Areas of Carter, Elliott, Lawrence and Morgan Counties
P.O. Box 475, Grayson, Kentucky 41143-0475
Phone (606) 474-7570, Fax (606) 474-8531
E-Mail: rrwd@windstream.net

August 3, 2018

Big Sandy Water District
18200 State Route 3
Catlettsburg, KY 41129

RE; Water Purchase Agreement Extension

To Whom It May Concern:

The Rattlesnake Ridge Water District does hereby grant an extension for water purchased by Big Sandy Water District until the year 2059. All other parts of the agreement remain the same.

Sincerely,

W.C. Gilbert, Manager

APPENDIX D

Water Tank Inspections

Liquid Engineering Corporation

Steel Potable Water Reservoir Inspection Report

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: BOWLING DRIVE 216KG

Inspector: J. FAUROT | Dive Controller: E. POTTER | Date: 11/13/2016

AMERICAN WATER WORKS ASSOCIATION
ANSI/AWWA M42 / D101-53

SSPC Legend

Grade	Description
10	No Rusting, or <0.01% of surface is rusted
9	Minor rusting, or <0.03% of surface is rusted
8	Isolated rust, <.01% of surface is rusted
7	Isolated rust, <.03% of surface is rusted
6	Extensive rusting, <1% of surface is rusted
5	Approximately 3% of the surface is rusted
4	Approximately 10% of the surface is rusted
3	Approximately 17% of the surface is rusted
2	Approximately 33% of the surface is rusted
1	Approximately 50% of the surface is rusted
0	Approximately 100% of the surface is rusted

NACE Legend

Grade	Description
A	None
B	Uniform Surface Corrosion
C	Pitting
D	Concentration Cell Corrosion
E	Galvanic Corrosion
F	Stress Corrosion Cracking
G	Erosion Corrosion
H	Intergranular Corrosion
I	Dealloying

AWS Legend

Grade	Description
L	Satisfactory
M	Spatter
N	Porosity
O	Convexity / Concavity
P	Cracks
Q	Inclusions
R	Incomplete Fusion
S	Incomplete Penetration
T	Undercut
U	Underfill
V	Overlap
W	Unable to evaluate

INTERIOR RESERVOIR ROOF

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Vents	7	H	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roof Panels	8	B	L	8	B	L	8	B	L	8	B	L
Roof Support	8	H	L	8	H	L	8	H	L	8	H	L
~~Roof Gussets~~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
~~Painting Ring~~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Fair | Average Blister Diameter NONE | Average Pit Depth NONE

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☑ Growth ☐ Pinholes ☑ Staining ☑ Sags/Runs ☑

INTERIOR RESERVOIR WALLS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Wall to Roof weld	8	B	L	8	B	L	8	B	L	8	B	L
Lower Ring Panels	8	D	M	8	D	M	8	D	M	8	D	M
Middle Ring Panels	8	D	M	8	D	M	8	D	M	8	D	M
Upper Ring Panels	9	A	L	9	A	L	9	A	L	9	A	L
Interior Ladder	7	DH	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Good | Average Blister Diameter NONE | Average Pit Depth NONE

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☑ Staining ☑ Sags/Runs ☑

INTERIOR RESERVOIR FLOOR

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Perimeter Weld	9	A	L	9	A	L	9	A	L	9	A	L
Floor Panels	9	A	L	9	A	L	9	A	L	9	A	L

Overall Coating Rating Good | Average Blister Diameter NONE | Average Pit Depth NONE

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☑ Sags/Runs ☑

Liquid Engineering Corporation

Steel Potable Water Reservoir Inspection Report

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: BOWLING DRIVE 216KG

Inspector: J. FAUROT | Dive Controller: E. POTTER | Date: 11/13/2016

INTERIOR RESERVOIR SUPPORT COLUMNS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Column Structures	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Column Bases	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Column to Roof	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating ---- Average Blister Diameter Average Pit Depth

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☐ Sags/Runs ☐

INTERIOR RESERVOIR PLUMBING COMPONENTS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Inlet Plumbing	8	D	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Outlet Plumbing	8	D	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Manways	6	D	L	N/A	N/A	N/A	8	D	L	N/A	N/A	N/A
Floor Drains	8	D	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Interior Overflow	8	H	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

EXTERIOR RESERVOIR ROOF

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Vents	9	B	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roof Panels	9	B	L	9	B	L	9	B	L	9	B	L
Access Hatches	8	H	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Fair Average Blister Diameter NONE Average Pit Depth NONE

Coating Deficiencies: Blistering ☐ Delamination ☑ Chalking ☐ Checking ☐ Cracking ☑ Growth ☐ Pinholes ☐ Staining ☑ Sags/Runs ☐

EXTERIOR RESERVOIR WALLS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Wall to Roof Weld	9	A	L	9	A	L	9	A	L	9	A	L
Lower Ring Panels	9	B	L	9	B	L	9	B	L	9	B	L
Mid Ring Panels	9	B	L	9	B	L	9	B	L	9	B	L
Upper Ring Panels	9	B	L	9	B	L	9	B	L	9	B	L
Exterior Overflow	9	B	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Fair Average Blister Diameter NONE Average Pit Depth NONE

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☑ Growth ☐ Pinholes ☐ Staining ☑ Sags/Runs ☐

FOOTINGS / FOUNDATION

Footings / Foundations:	Satisfactory ☑	Cracking ☑	Spalling ☐	Erosion/Exposed Aggregate ☐
Anchor Bolts:	Satisfactory ☑	Loose ☐	Rusted Corroded ☐	(If excessive) Diameter =

TOWER SUPPORT STRUCTURES

Tower Legs/Columns:	Satisfactory ☐	Alignment ----	Settling ----	Rust /Corrosion ----
Riser Pipe:	Satisfactory ☐	Alignment ----	Frost Casing ----	Rust /Corrosion ----
Rods & Turnbuckles:	Satisfactory ☐	Turnbuckle Tension ----	Rod Tension ----	Cotter Pins/Rod Nuts ----
Leg shoes/Brackets:	Satisfactory ☐	Coating ----	Rust/Corrosion ----	Pitting/Cracking ----

Liquid Engineering Corporation

Potable Water Reservoir Contamination, Health and Safety Report

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: BOWLING DRIVE 216KG

Inspector: J. FAUROT | Dive Controller: E. POTTER | Date: 11/13/2016

Complies With: AWWA • OSHA • ANSI • NIOSH • NAVFAC • NFPAC

CONTAMINATION & HEALTH

Air Vents	Type: MUSHROOM		#: 1	Screen Condition(s): Good	
Hatches	Type: Square		#: 1	Secured Properly: Yes	Properly Sealed: Yes
Exterior Overflow	Flapper: Yes	Screen: No		Gasket: No	Condition: Good
Cathodic Covers	In- Place: ----		#: ----	Gasket: ----	Properly Sealed: ----
Roof to Wall Joint	Welded: Yes	Properly Sealed: Yes			
Roof Integrity	Holes: No	Cracking: No	Standing Water: No		
Wall Integrity	Holes: No	Cracking: No			
Manway Integrity	Leaks: No	Condition: Good			
Water Clarity	General Appearance: CLEAR			Odor: NONE	
Floating Surface Debris	Type: NONE			Source: N/A	
~~**Hypalon Floating Cover**~~	~~Condition: ----~~	~~Holes: ----~~	~~Tears: ----~~		
Telemetry Penetrations	Properly Sealed: No				

FACILITY SAFETY COMPLIANCE

Exterior Ladder

Overall Ladder	Condition: Good	#: 1	Offset Landing: No	Height: 65'	
Vandal Guard	Present: No	Vandal Guard Locked: ----			
Ladder Rails & Rungs	Condition: Good	Missing/Damaged Rungs: No			
Rung Spacing & Depth	Spacing: 12 in. *(max 12")*	Toe Depth: 8 in. *(min 7")*			
Rail Spacing & Size	Width: 2.5 in. *(min 2")*	Thickness: .25 in. *(min 1/4")*	Rail to Rail: 16 in.*(min 16")*		
Safety Climb System	Type: Cable	Condition: Good			
Number & Locations	Wall: 1	Leg:	Roof:	Riser Pipe:	Other:
Ladder Attachments					

Manways

Type and size	Type: Round	#: 2	Size: 25"	inches *(24" – 18'x22" min)*
Support Structure	Type: Bolted	Condition: Good		
Number & Locations	Wall: 2	Roof:	Riser Pipe:	Other:

Hatches

Hatch Type & Size	Type: Square	#: 1	Size: 24"X24"	in. *(24" – 24"x15" min)*
Hatch & Lid Lip Height	Hatch: 6 in. *(min 4")*	Lid: 2	in. *(min 2")*	

Balconies & Railing

Deck / Walkways	Condition: ----	Width:			
Hand Rails	Condition: Good	Height: 42	in. *(min 42")*	No. Rails: 2	*(min 2)*
Toe Rail	Condition: Good	Height: 5	in. *(min 4")*		
Welds / Attachments	Condition: Good				

Roof

Safety Tie-Off Points	Condition: Good	#: 2	
Antennas	Type: -------	#: 1	

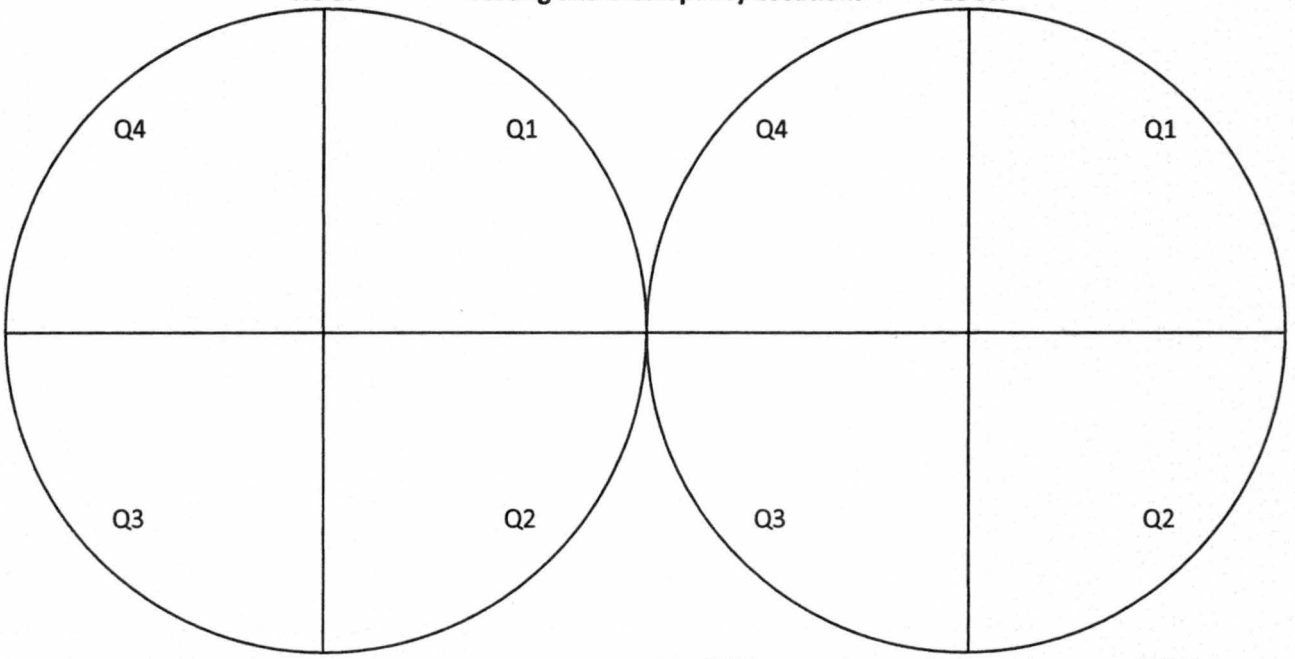
Liquid Engineering Corporation

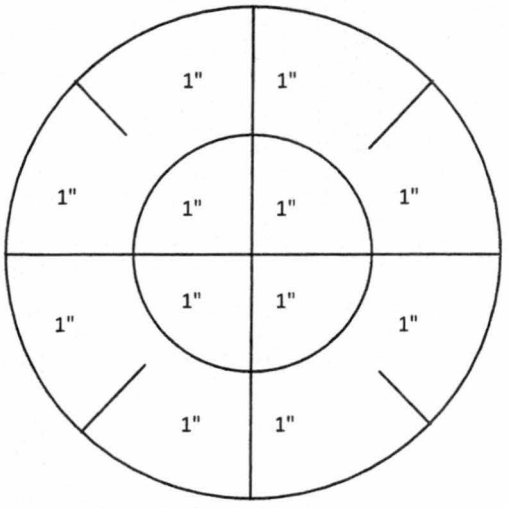
Circular Tank Diagram / Information Worksheet

Job Number 50463 Utility Name BIG SANDY WATER DISTRICT Tank Name BOWLING DRIVE 216KG

Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4

ROOF **Testing and Discrepancy Locations** **FLOOR**

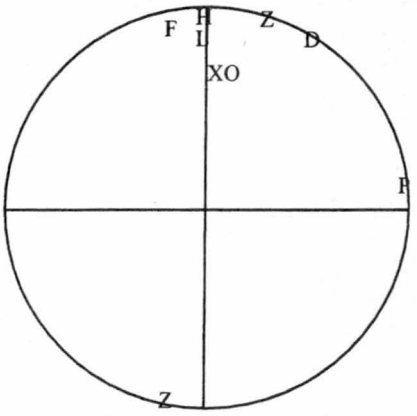




Sediment Depth Measurements

Average Sediment Depth = The sum of all measurements taken, divided by the number of measurements taken

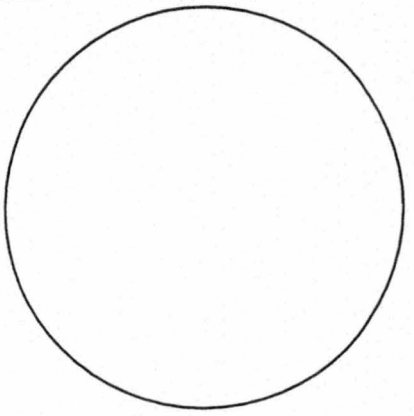
Avg. Depth **Cubic Yardage** **Sediment Type**



Plumbing & Structure location

Plumbing and structure codes

O=Outlet X=Inlet Z=Manway
V=Vent D=Drain S=Sump
L=Ladder H=Hatch P=Overflow
F=Float Level Indicator
T=Telemetry



Column Placement

Type of Column

Base Structure

Top Structure

Column Construction ------

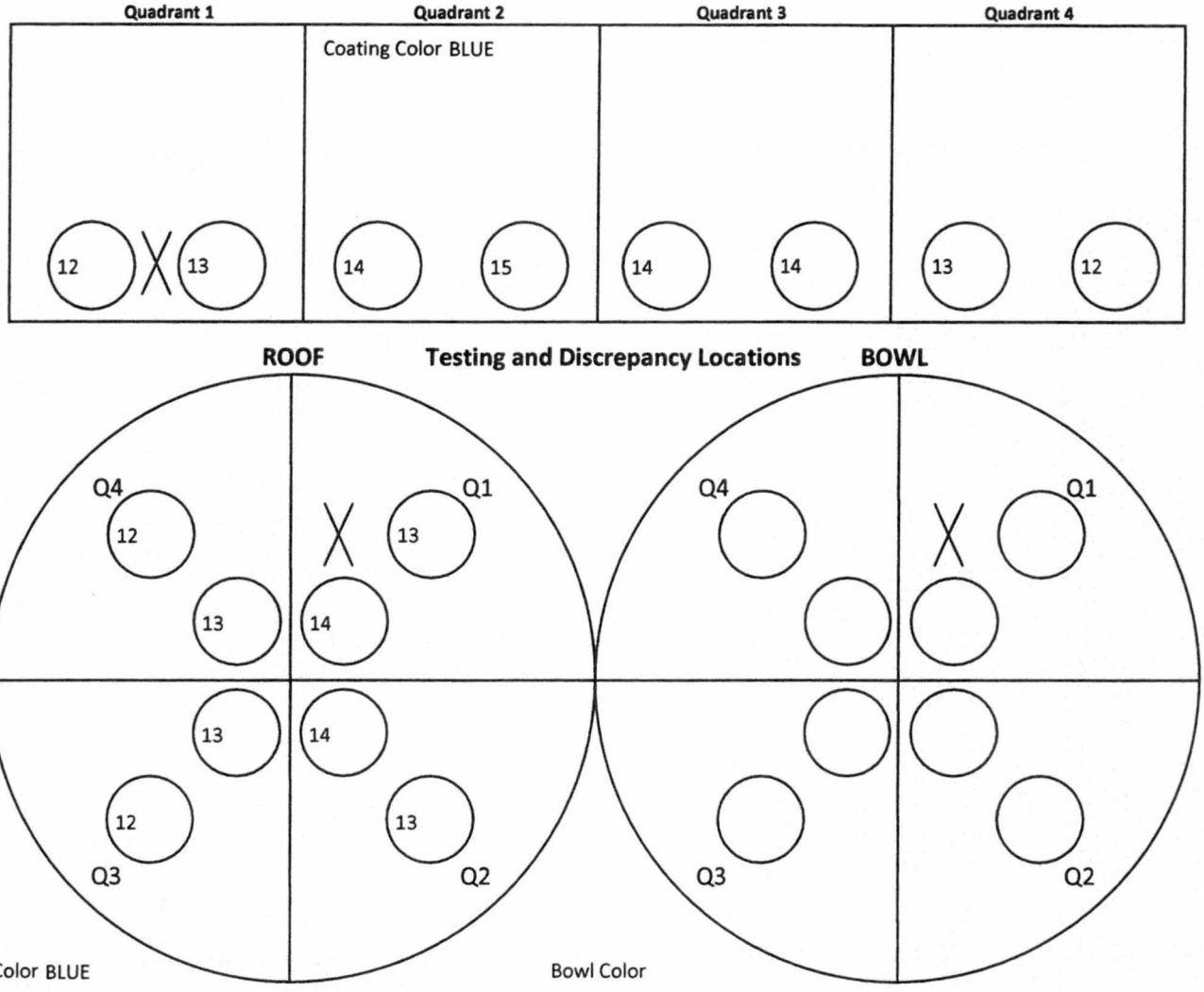
DISCLAIMER

Liquid Engineering does not provide consulting engineering services. Unless otherwise noted, the findings contained in this report were neither prepared nor reviewed by a licensed Professional Engineer, but are based on experience, training and visual examination of the Dive Maintenance Technician

Liquid Engineering Corporation

Circular Tank Diagram / NDT ☐ DFT ☐ Coating Adhesion ☐ Presence of lead ☐

Job Number 50463 Utility Name BIG SANDY WATER DISTRICT Tank Name BOWLING DRIVE 216KG



Roof Color BLUE

Bowl Color

Liquid Engineering Corporation

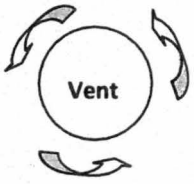
Steel Potable Water Reservoir Security / Measurement Worksheet

Job Number 50463 Utility Name BIG SANDY WATER DISTRICT Tank Name BOWLING DRIVE 216KG

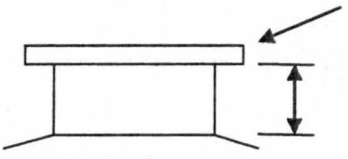
Security

Is the area surrounding the tank well lit?	Yes
Is the tank surrounded by a Security Fence?	No
Are the access gates locked?	N/A
Is the tank equipped with a Vandal Guard on the primary access ladder?	No
If so, is the Vandal Guard locked?	N/A
Are the vents equipped with security vent shrouds?	No
Are all of the hatches equipped with electronic monitoring devices?	No
Are the external plumbing components housed in a secure vault or out-building?	Yes
Does the surrounding geography of the tank obscure it from public view?	No
Does the exterior of the tank show signs of trespass?	No

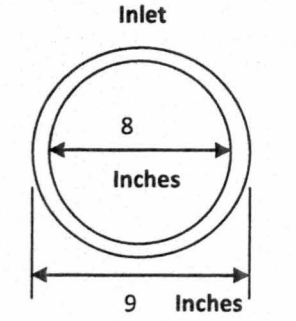
Measurements

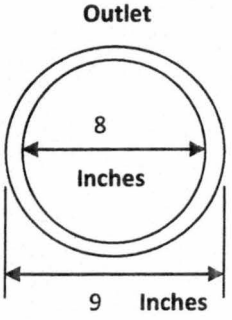


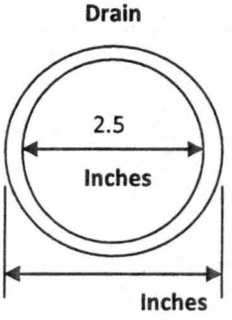
Outside Circumference
44 Inches

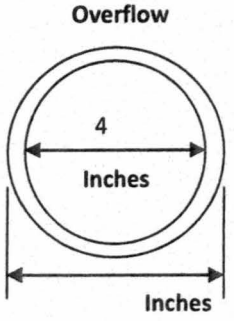


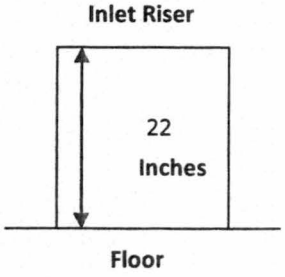
Flange Metal Thickness		Inches
Roof to Screen or Flange	8	Inches
Flange	Yes	
Number of Bolt Holes	8	
Size of Bolts	1	Inches

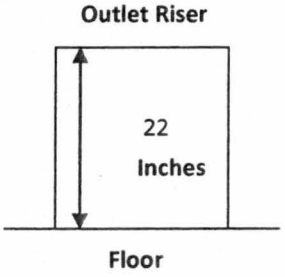


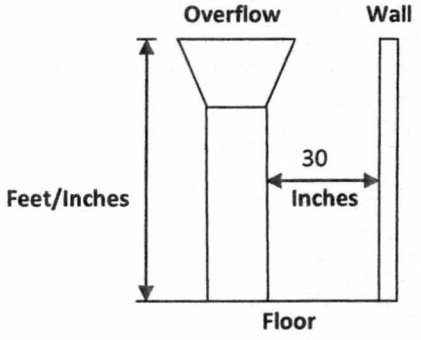












Liquid Engineering Corporation

Steel Potable Water Reservoir Immediate Needs Assessment

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: BOWLING DRIVE 216KG

Inspector: J. FAUROT | Dive Controller: E. POTTER | Date: 11/13/2016

1. **Health and Safety Items**
   - ☐ Safety Climb System Installation:
   - ☐ Vent Screen Repairs:

2. **Testing Items**
   - ☐ Dye Testing for Leak Evaluation:
   - ☐ Presence of Lead Test (Interior/Exterior):

3. **Destructive Testing Items**
   - ☐ % of Lead Test (Interior/Exterior) *(Coating samples are removed for laboratory analysis)*
   - ☐ Coating Adhesion Test (Interior/Exterior):

   Specific written authorization required to perform destructive testing. Destructive tests include touch-up of coating system.

4. **Repair Items**
   - ☐ Epoxy Coating Repairs:
   - ☐ Temporary Leak Repairs:
   - ☐ Float Operated Level Indicator Repairs / Maintenance:
   - ☐ Hypalon Repairs:

5. **Security Related Items** *(Critical security upgrade information is immediately available)*
   - ☐ Tank vents are not equipped with a security vent shroud:
   - ☐ Tank hatches are not equipped with a security hatch locking device:
   - ☐ Tank perimeter not adequately secured:

The above mentioned additional work is considered immediately necessary and is recommended to be completed. Some items may be completed in conjunction with work currently being performed while the crew is on site.

Reservoir Inspection Condition Supplemental

CLEAN AND INSPECT EVERY 3-5 YEARS

FLOORS: GOOD CONDITION. LIGHT STAINING.
INLET/OUTLET: CONCENTRATION CELL CORROSION.
FLOAT LEVEL: EYES ON FLOOR BRACKET ARE BROKEN. CONCENTRATION CELL CORROSION ON REMAINING BRACKET. WIRES IN GOOD CONDITION.
WALLS: LOWER 2/3 OF TANK HAVE CONCENTRATION CELL CORROSION ON HORIZONTAL WELD SEAMS. UPPER 1/3 IN GOOD CONDITION.
WALL TO ROOF WELD: UNIFORM SURFACE CORROSION.
ROOF PANELS: UNIFORM SURFACE CORROSION ON WELD SEAMS.
ROOF SUPPORTS: UNIFORM SURFACE CORROSION.
OVERFLOW: DELAMINATION AND INTERGRANULAR CORROSION ON UPPER SIDE OF PIPE.
VENT: INTERGRANULAR CORROSION ON HARDWARE. SCREEN IN GOOD CONDITION.

Liquid Engineering Corporation

Steel Potable Water Reservoir Inspection Report

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: CUNNINGHAM HILL 75KG

Inspector: ERIK POTTER | Dive Controller: MEG BUTAK | Date: 11/14/2016

AMERICAN WATER WORKS ASSOCIATION
ANSI/AWWA M42 / D101-53

SSPC Legend

Grade	Description
10	No Rusting, or <0.01% of surface is rusted
9	Minor rusting, or <0.03% of surface is rusted
8	Isolated rust, <.01% of surface is rusted
7	Isolated rust, <.03% of surface is rusted
6	Extensive rusting, <1% of surface is rusted
5	Approximately 3% of the surface is rusted
4	Approximately 10% of the surface is rusted
3	Approximately 17% of the surface is rusted
2	Approximately 33% of the surface is rusted
1	Approximately 50% of the surface is rusted
0	Approximately 100% of the surface is rusted

NACE Legend

Grade	Description
A	None
B	Uniform Surface Corrosion
C	Pitting
D	Concentration Cell Corrosion
E	Galvanic Corrosion
F	Stress Corrosion Cracking
G	Erosion Corrosion
H	Intergranular Corrosion
I	Dealloying

AWS Legend

Grade	Description
L	Satisfactory
M	Spatter
N	Porosity
O	Convexity / Concavity
P	Cracks
Q	Inclusions
R	Incomplete Fusion
S	Incomplete Penetration
T	Undercut
U	Undermill
V	Overlap
W	Unable to evaluate

INTERIOR RESERVOIR ROOF

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Vents	8	B	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roof Panels	8	B	L	8	B	L	8	B	L	8	B	L
~~Roof Support~~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
~~Roof Gussets~~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
~~Painting Ring~~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Good | Average Blister Diameter NONE | Average Pit Depth NONE

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☐ Sags/Runs ☐

INTERIOR RESERVOIR WALLS

	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Wall to Roof weld	8	B	L	8	B	L	8	B	L	8	B	L
Lower Ring Panels	2	B,D	L	2	B,D	L	2	B,D	L	2	B,D	L
Middle Ring Panels	1	B,D,H	L	1	B,D,H	L	1	B,D,H	L	1	B,D,H	L
Upper Ring Panels	8	B	L	8	B	L	8	B	L	8	B	L
~~Interior Ladder~~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Good | Average Blister Diameter 3/8" | Average Pit Depth 1/16"

Coating Deficiencies: Blistering ☑ Delamination ☑ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☑ Staining ☑ Sags/Runs ☐

INTERIOR RESERVOIR FLOOR

	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Perimeter Weld	5	B,D	L	5	B,D	L	5	B,D	L	5	B,D	L
Floor Panels	5	B,D	L	5	B,D	L	5	B,D	L	5	B,D	L

Overall Coating Rating Good | Average Blister Diameter 1/4" | Average Pit Depth 1/8"

Coating Deficiencies: Blistering ☑ Delamination ☐ Chalking ☑ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☑ Staining ☑ Sags/Runs ☐

Liquid Engineering Corporation

Steel Potable Water Reservoir Inspection Report

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: CUNNINGHAM HILL 75KG

Inspector: ERIK POTTER | Dive Controller: MEG BUTAK | Date: 11/14/2016

INTERIOR RESERVOIR SUPPORT COLUMNS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Column Structures	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Column Bases	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Column to Roof	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating ---- Average Blister Diameter Average Pit Depth

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☐ Sags/Runs ☐

INTERIOR RESERVOIR PLUMBING COMPONENTS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Inlet Plumbing	8	B	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Outlet Plumbing	N/A	N/A	N/A	8	D	L	N/A	N/A	N/A	N/A	N/A	N/A
Manways	N/A	N/A	N/A	5	D	L	N/A	N/A	N/A	4	D	L
Floor Drains	N/A	N/A	N/A	N/A	N/A	N/A	3	D	L	N/A	N/A	N/A
Interior Overflow	N/A	N/A	N/A	8	B	L	N/A	N/A	N/A	N/A	N/A	N/A

EXTERIOR RESERVOIR ROOF

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Vents	7	B	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roof Panels	9	B	L	9	B	L	9	B	L	9	B	L
Access Hatches	8	B	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Good Average Blister Diameter NONE Average Pit Depth NONE

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☐ Sags/Runs ☐

EXTERIOR RESERVOIR WALLS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Wall to Roof Weld	8	B	L	8	B	L	8	B	L	8	B	L
Lower Ring Panels	9	B	L	9	B	L	9	B	L	9	B	L
Mid Ring Panels	9	B	L	9	B	L	9	B	L	9	B	L
Upper Ring Panels	9	B	L	9	B	L	9	B	L	9	B	L
Exterior Overflow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Good Average Blister Diameter NONE Average Pit Depth NONE

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☑ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☐ Sags/Runs ☐

FOOTINGS / FOUNDATION

Footings / Foundations:	Satisfactory ☑	Cracking ☐	Spalling ☐	Erosion/Exposed Aggregate ☐
Anchor Bolts:	Satisfactory ☑	Loose ☐	Rusted Corroded ☑	(If excessive) Diameter =

TOWER SUPPORT STRUCTURES

Tower Legs/Columns:	Satisfactory ☐	Alignment ----	Settling ----	Rust /Corrosion ----
Riser Pipe:	Satisfactory ☐	Alignment ----	Frost Casing ----	Rust /Corrosion ----
Rods & Turnbuckles:	Satisfactory ☐	Turnbuckle Tension ----	Rod Tension ----	Cotter Pins/Rod Nuts ----
Leg shoes/Brackets:	Satisfactory ☐	Coating ----	Rust/Corrosion ----	Pitting/Cracking ----

Liquid Engineering Corporation

Potable Water Reservoir Contamination, Health and Safety Report

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: CUNNINGHAM HILL 75KG

Inspector: ERIK POTTER | Dive Controller: MEG BUTAK | Date: 11/14/2016

Complies With: AWWA • OSHA • ANSI • NIOSH • NAVFAC • NFPAC

CONTAMINATION & HEALTH

Air Vents	Type: MUSHROOM		#: 1	Screen Condition(s): Good	
Hatches	Type: Square		#: 1	Secured Properly: Yes	Properly Sealed: Yes
Exterior Overflow	Flapper: Yes	Screen: Yes		Gasket: Yes	Condition: Good
Cathodic Covers	In- Place: ----		#:	Gasket: ----	Properly Sealed: ----
Roof to Wall Joint	Welded: Yes	Properly Sealed: Yes			
Roof Integrity	Holes: No	Cracking: No	Standing Water: No		
Wall Integrity	Holes: No	Cracking: No			
Manway Integrity	Leaks: No	Condition: Good			
Water Clarity	General Appearance: CLEAR			Odor: NONE	
Floating Surface Debris	Type: NONE			Source: N/A	
~~**Hypalon Floating Cover**~~	~~Condition: ----~~	~~Holes: ----~~	~~Tears: ----~~		
Telemetry Penetrations	Properly Sealed: ----				

FACILITY SAFETY COMPLIANCE

Exterior Ladder

Overall Ladder	Condition: Good	#: 1	Offset Landing: No	Height: 48'	
Vandal Guard	Present: No	Vandal Guard Locked: ----			
Ladder Rails & Rungs	Condition: Good	Missing/Damaged Rungs: No			
Rung Spacing & Depth	Spacing: 12 in. *(max 12")*	Toe Depth: 10 in. *(min 7")*			
Rail Spacing & Size	Width: 2 in. *(min 2")*	Thickness: .375 in. *(min 1/4")*	Rail to Rail: 15.5	in.*(min 16")*	
Safety Climb System	Type: None	Condition: ----			
Number & Locations	Wall: 1	Leg:	Roof:	Riser Pipe:	Other:
Ladder Attachments					

Manways

Type and size	Type: Round	#: 2	Size: 24	inches *(24" – 18'x22" min)*
Support Structure	Type: Bolted	Condition: Good		
Number & Locations	Wall: 2	Roof:	Riser Pipe:	Other:

Hatches

Hatch Type & Size	Type: Square	#: 1	Size: 24x24	in. *(24" – 24"x15" min)*
Hatch & Lid Lip Height	Hatch: 5 in. *(min 4")*	Lid: 2	in. *(min 2")*	

Balconies & Railing

Deck / Walkways	Condition: Good	Width: 18"			
Hand Rails	Condition: Good	Height: 43	in. *(min 42")*	No. Rails: 2	*(min 2)*
Toe Rail	Condition: Good	Height: ----	in. *(min 4")*		
Welds / Attachments	Condition: Good				

Roof

Safety Tie-Off Points	Condition: Good	#: 5+	
Antennas	Type: -------	#: ----	

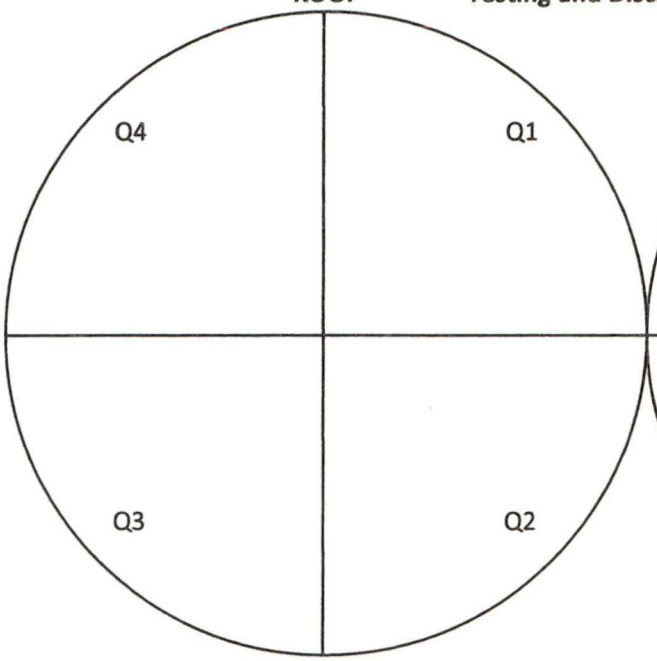
Liquid Engineering Corporation

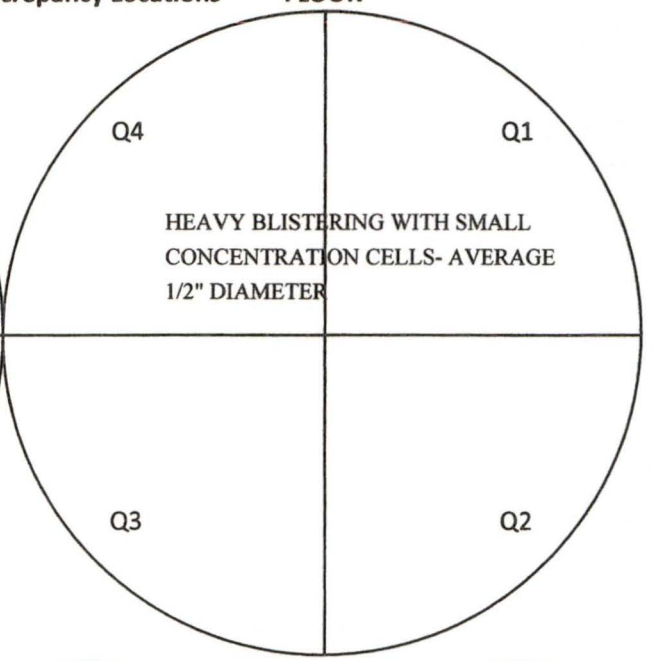
Circular Tank Diagram / Information Worksheet

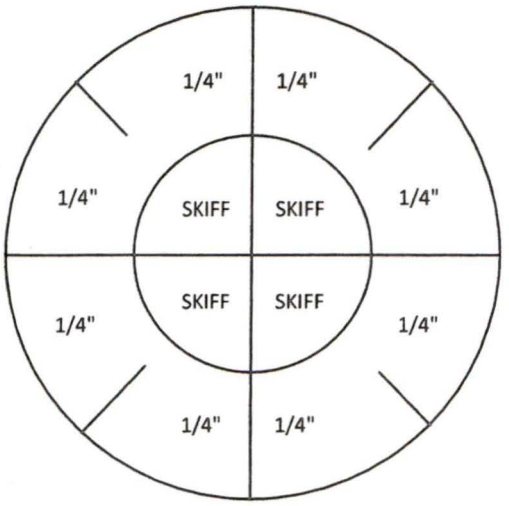
Job Number 50463 Utility Name BIG SANDY WATER DISTRICT Tank Name CUNNINGHAM HILL 75KG

Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4
HEAVY BLISTERING WITH CONCENTRATION CELL CORROSION AS WELL AS INTERGRANULAR CORROSION ON WELDS AND PANELS			

ROOF **Testing and Discrepancy Locations** **FLOOR**



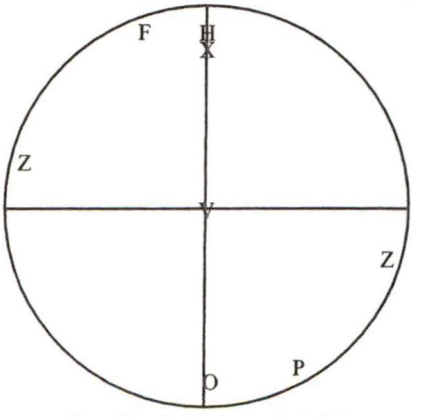




Sediment Depth Measurements

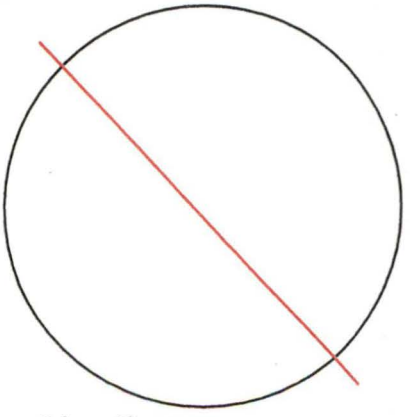
Average Sediment Depth = The sum of all measurements taken, divided by the number of measurements taken

Avg. Depth **Cubic Yardage** **Sediment Type**



Plumbing & Structure location

Plumbing and structure codes
O=Outlet X=Inlet Z=Manway
V=Vent D=Drain S=Sump
L=Ladder H=Hatch P=Overflow
F=Float Level Indicator
T=Telemetry



Column Placement

Type of Column

Base Structure

Top Structure

Column Construction ------

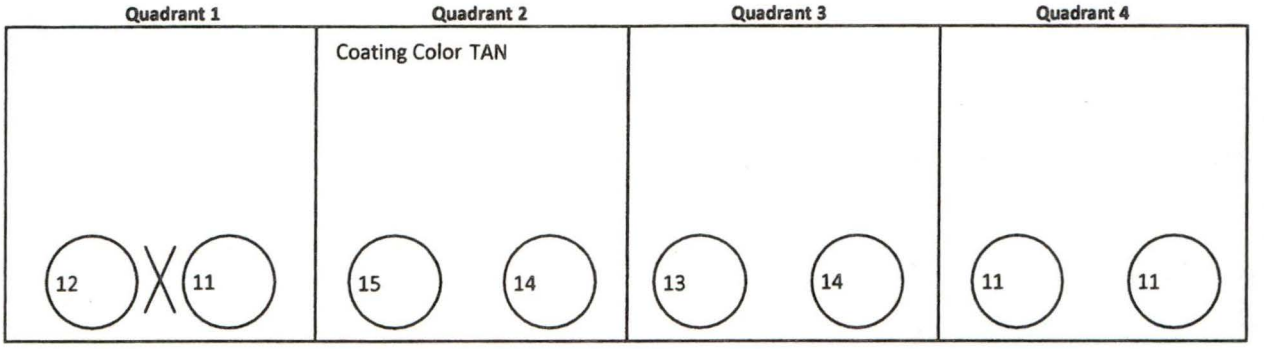
DISCLAIMER

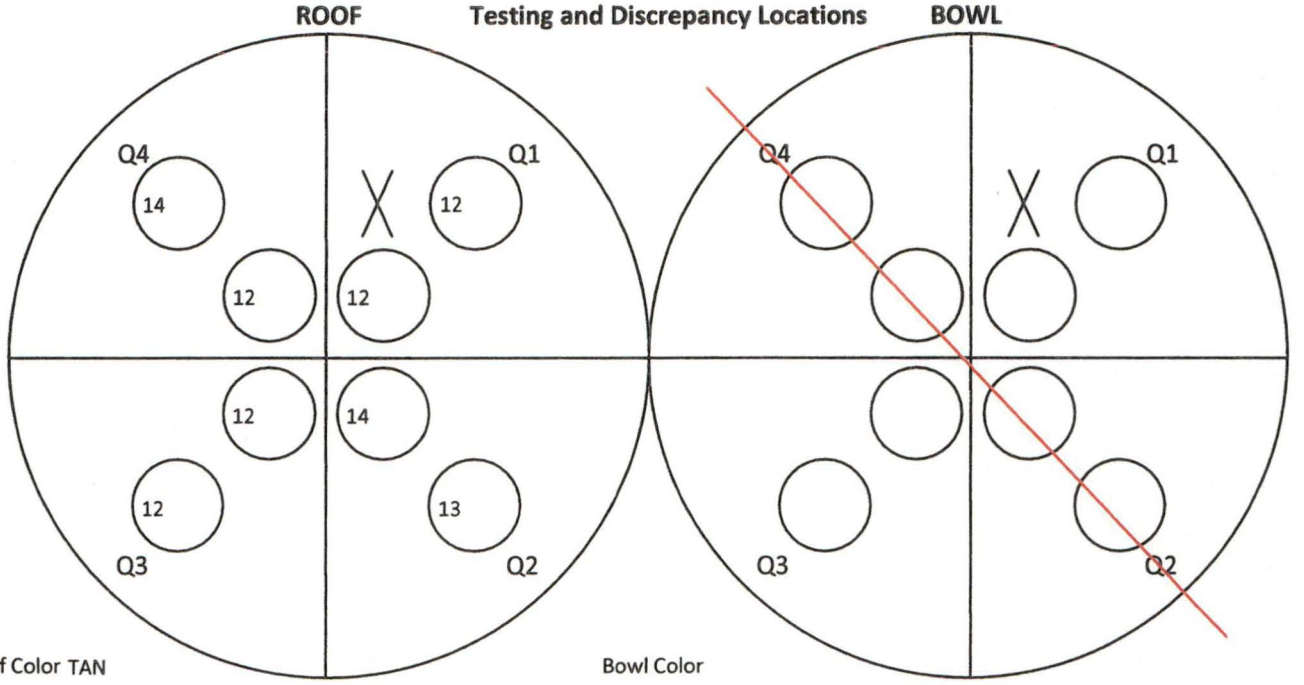
Liquid Engineering does not provide consulting engineering services. Unless otherwise noted, the findings contained in this report were neither prepared nor reviewed by a licensed Professional Engineer, but are based on experience, training and visual examination of the Dive Maintenance Technician

Liquid Engineering Corporation

Circular Tank Diagram / NDT ☐ DFT ☑ Coating Adhesion ☐ Presence of lead ☐

Job Number 50463 Utility Name BIG SANDY WATER DISTRICT Tank Name CUNNINGHAM HILL 75KG





Roof Color TAN

Bowl Color

Liquid Engineering Corporation

Steel Potable Water Reservoir Security / Measurement Worksheet

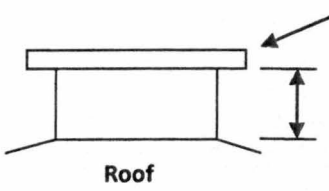
Job Number 50463 Utility Name BIG SANDY WATER DISTRICT Tank Name CUNNINGHAM HILL 75KG

Security

Is the area surrounding the tank well lit?	No
Is the tank surrounded by a Security Fence?	No
Are the access gates locked?	N/A
Is the tank equipped with a Vandal Guard on the primary access ladder?	No
If so, is the Vandal Guard locked?	N/A
Are the vents equipped with security vent shrouds?	No
Are all of the hatches equipped with electronic monitoring devices?	No
Are the external plumbing components housed in a secure vault or out-building?	Yes
Does the surrounding geography of the tank obscure it from public view?	No
Does the exterior of the tank show signs of trespass?	No

Measurements

Outside Circumference
65 Inches



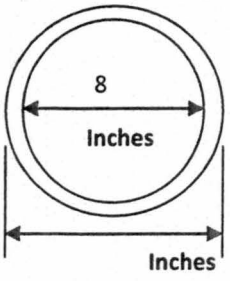
Flange Metal Thickness Inches

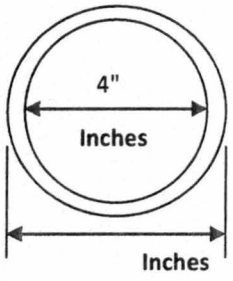
Roof to Screen or Flange 11 Inches

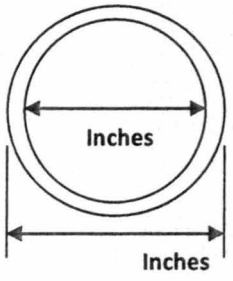
Flange No

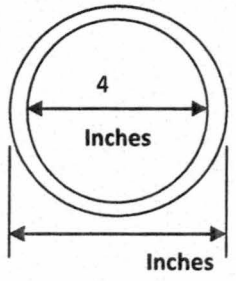
Number of Bolt Holes Inches

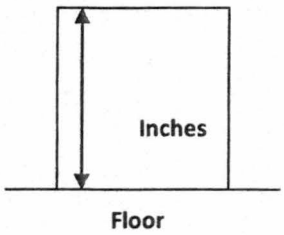
Size of Bolts Inches

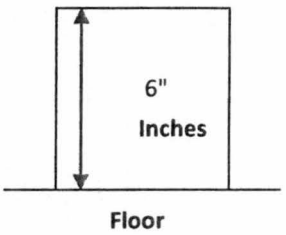


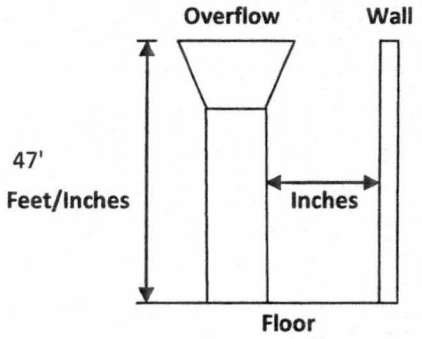












Liquid Engineering Corporation

Steel Potable Water Reservoir Immediate Needs Assessment

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: CUNNINGHAM HILL 75KG

Inspector: ERIK POTTER | Dive Controller: MEG BUTAK | Date: 11/14/2016

1. **Health and Safety Items**
   - ☐ Safety Climb System Installation:
   - ☐ Vent Screen Repairs:

2. **Testing Items**
   - ☐ Dye Testing for Leak Evaluation:
   - ☐ Presence of Lead Test (Interior/Exterior):

3. **Destructive Testing Items**
   - ☐ % of Lead Test (Interior/Exterior) *(Coating samples are removed for laboratory analysis)*
   - ☐ Coating Adhesion Test (Interior/Exterior):

   Specific written authorization required to perform destructive testing. Destructive tests include touch-up of coating system.

4. **Repair Items**
   - ☐ Epoxy Coating Repairs:
   - ☐ Temporary Leak Repairs:
   - ☐ Float Operated Level Indicator Repairs / Maintenance:
   - ☐ Hypalon Repairs:

5. **Security Related Items** *(Critical security upgrade information is immediately available)*
   - ☐ Tank vents are not equipped with a security vent shroud:
   - ☐ Tank hatches are not equipped with a security hatch locking device:
   - ☐ Tank perimeter not adequately secured:

The above mentioned additional work is considered immediately necessary and is recommended to be completed. Some items may be completed in conjunction with work currently being performed while the crew is on site.

Reservoir Inspection Condition Supplemental

CLEAN AND INSPECT EVERY 3-5 YEARS

FLOOR- SOME BLISTERING OF THE COATING WITH SMALL CONCENTRATION CELLS. PITTING WAS CHECKED ON TWO SEPERATE CELLS WITH ONE READING 3/16" AND THE OTHER 3/32" METAL LOSS.
WALLS- HEAVY BLISTERING WITH CONCENTRATION CELL CORROSION AS WELL AS INTERGRANULAR CORROSION ON WELDS AND PANELS. SOME WELDS HAVE HEAVY INTERGRANULAR CORROSION ABOUT 30' FROM BOTTOM THAT COULD BE A STRUCTURAL THREAT. LOWER WALLS HAVE HEAVY BLISTERING WITH SMALL CONCENTRATION CELLS.
ROOF- LIGHT SURFACE CORROSION ON WELD SEAMS AND ROOF TO WALL SEAM.
INLET- LIGHT SURFACE CORROSION ON THE UPPER PORTION OF THE PIPE NEAR THE J-TUBE.
OUTLET- SOME CONCENTRATION CELL CORROSION ON THE LIP AS WELL AS THE RISER AROUND THE OUTLET.
MANWAYS- HEAVY CONCENTRATION CELL CORROSION ON THE LIP WITH UP TO 1/2" METAL LOSS ON EDGE.
VENT- LIGHT SURFACE CORROSION AROUND THE VENT PENETRATION. SCREEN IS INTACT AND IN GOOD CONDITION.
OVERFLOW- MINIMAL SURFACE CORROSION WITH SOME BLEEDING.

Liquid Engineering Corporation

Steel Potable Water Reservoir Inspection Report

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: FULLER RIDGE

Inspector: J. FAUROT | Dive Controller: E. POTTER | Date: 11/15/2016

AMERICAN WATER WORKS ASSOCIATION
ANSI/AWWA M42 / D101-53

SSPC Legend

Grade	Description
10	No Rusting, or <0.01% of surface is rusted
9	Minor rusting, or <0.03% of surface is rusted
8	Isolated rust, <.01% of surface is rusted
7	Isolated rust, <.03% of surface is rusted
6	Extensive rusting, <1% of surface is rusted
5	Approximately 3% of the surface is rusted
4	Approximately 10% of the surface is rusted
3	Approximately 17% of the surface is rusted
2	Approximately 33% of the surface is rusted
1	Approximately 50% of the surface is rusted
0	Approximately 100% of the surface is rusted

NACE Legend

Grade	Description
A	None
B	Uniform Surface Corrosion
C	Pitting
D	Concentration Cell Corrosion
E	Galvanic Corrosion
F	Stress Corrosion Cracking
G	Erosion Corrosion
H	Intergranular Corrosion
I	Dealloying

AWS Legend

Grade	Description
L	Satisfactory
M	Spatter
N	Porosity
O	Convexity / Concavity
P	Cracks
Q	Inclusions
R	Incomplete Fusion
S	Incomplete Penetration
T	Undercut
U	Underfill
V	Overlap
W	Unable to evaluate

INTERIOR RESERVOIR ROOF

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Vents	7	H	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roof Panels	9	A	L	9	A	L	9	A	L	9	B	L
~~Roof Support~~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
~~Roof Gussets~~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
~~Painting Ring~~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Fair | Average Blister Diameter NONE | Average Pit Depth NONE

Coating Deficiencies: Blistering ☐ Delamination ☑ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☐ Sags/Runs ☐

INTERIOR RESERVOIR WALLS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Wall to Roof weld	7	H	L	7	H	L	7	H	L	7	H	L
Lower Ring Panels	8	D	L	8	D	L	8	D	L	8	D	L
Middle Ring Panels	8	D	L	8	D	L	8	D	L	8	D	L
Upper Ring Panels	9	D	L	9	D	L	9	D	L	9	D	L
Interior Ladder	6	H	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Poor | Average Blister Diameter .25" | Average Pit Depth NONE

Coating Deficiencies: Blistering ☑ Delamination ☑ Chalking ☐ Checking ☐ Cracking ☑ Growth ☐ Pinholes ☑ Staining ☑ Sags/Runs ☑

INTERIOR RESERVOIR FLOOR

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Perimeter Weld	8	D	L	8	D	L	8	D	L	8	D	L
Floor Panels	8	D	L	8	D	L	8	D	L	8	D	L

Overall Coating Rating Poor | Average Blister Diameter .25" | Average Pit Depth NONE

Coating Deficiencies: Blistering ☑ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☑ Growth ☐ Pinholes ☑ Staining ☑ Sags/Runs ☐

Liquid Engineering Corporation

Steel Potable Water Reservoir Inspection Report

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: FULLER RIDGE

Inspector: J. FAUROT | Dive Controller: E. POTTER | Date: 11/15/2016

INTERIOR RESERVOIR SUPPORT COLUMNS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Column Structures	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Column Bases	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Column to Roof	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating ---- Average Blister Diameter Average Pit Depth

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☐ Sags/Runs ☐

INTERIOR RESERVOIR PLUMBING COMPONENTS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Inlet Plumbing	8	D	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Outlet Plumbing	8	D	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Manways	7	D	L	N/A	N/A	N/A	8	D	L	N/A	N/A	N/A
Floor Drains	9	D	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Interior Overflow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

EXTERIOR RESERVOIR ROOF

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Vents	8	B	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roof Panels	8	B	L	8	B	L	8	B	L	8	B	L
Access Hatches	8	H	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Fair Average Blister Diameter NONE Average Pit Depth NONE

Coating Deficiencies: Blistering ☐ Delamination ☑ Chalking ☐ Checking ☐ Cracking ☑ Growth ☐ Pinholes ☐ Staining ☑ Sags/Runs ☐

EXTERIOR RESERVOIR WALLS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Wall to Roof Weld	9	A	L	9	A	L	9	A	L	9	A	L
Lower Ring Panels	7	B	L	7	B	L	7	B	L	7	B	L
Mid Ring Panels	8	B	L	8	B	L	8	B	L	8	B	L
Upper Ring Panels	9	B	L	9	B	L	9	B	L	9	B	L
Exterior Overflow	N/A	N/A	N/A	N/A	N/A	N/A	8	B	L	N/A	N/A	N/A

Overall Coating Rating Fair Average Blister Diameter NONE Average Pit Depth NONE

Coating Deficiencies: Blistering ☐ Delamination ☑ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☐ Sags/Runs ☐

FOOTINGS / FOUNDATION

Footings / Foundations:	Satisfactory ☑	Cracking ☐	Spalling ☐	Erosion/Exposed Aggregate ☐
Anchor Bolts:	Satisfactory ☑	Loose ☐	Rusted Corroded ☑	(If excessive) Diameter =

TOWER SUPPORT STRUCTURES

Tower Legs/Columns:	Satisfactory ☐	Alignment ----	Settling ----	Rust /Corrosion ----
Riser Pipe:	Satisfactory ☐	Alignment ----	Frost Casing ----	Rust /Corrosion ----
Rods & Turnbuckles:	Satisfactory ☐	Turnbuckle Tension ----	Rod Tension ----	Cotter Pins/Rod Nuts ----
Leg shoes/Brackets:	Satisfactory ☐	Coating ----	Rust/Corrosion ----	Pitting/Cracking ----

Liquid Engineering Corporation

Potable Water Reservoir Contamination, Health and Safety Report

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: FULLER RIDGE

Inspector: J. FAUROT | Dive Controller: E. POTTER | Date: 11/15/2016

Complies With: AWWA • OSHA • ANSI • NIOSH • NAVFAC • NFPAC

CONTAMINATION & HEALTH

Air Vents	Type: MUSHROOM		#: 1	Screen Condition(s): Fair	
Hatches	Type: Square		#: 1	Secured Properly: Yes	Properly Sealed: Yes
Exterior Overflow	Flapper: Yes	Screen: No		Gasket: No	Condition: Fair
Cathodic Covers	In- Place: ----		#:	Gasket: ----	Properly Sealed: ----
Roof to Wall Joint	Welded: Yes	Properly Sealed: Yes			
Roof Integrity	Holes: No	Cracking: No	Standing Water: No		
Wall Integrity	Holes: No	Cracking: No			
Manway Integrity	Leaks: No	Condition: Good			
Water Clarity	General Appearance: CLEAR			Odor: NONE	
Floating Surface Debris	Type: NONE			Source: N/A	
~~**Hypalon Floating Cover**~~	~~Condition: ----~~	~~Holes: ----~~	~~Tears: ----~~		
Telemetry Penetrations	Properly Sealed: Yes				

FACILITY SAFETY COMPLIANCE

Exterior Ladder

Overall Ladder	Condition: Good	#: 1	Offset Landing: No	Height: 32'		
Vandal Guard	Present: Yes	Vandal Guard Locked: No				
Ladder Rails & Rungs	Condition: Good	Missing/Damaged Rungs: No				
Rung Spacing & Depth	Spacing: 12 in. *(max 12")*	Toe Depth: 8 in. *(min 7")*				
Rail Spacing & Size	Width: 2 in. *(min 2")*	Thickness: 1/4 in. *(min 1/4")*	Rail to Rail: 16	in.*(min 16")*		
Safety Climb System	Type: Rail	Condition: Good				
Number & Locations	Wall: 1	Leg:	Roof:	Riser Pipe:	Other:	
Ladder Attachments						

Manways

Type and size	Type: Round	#: 2	Size: 33"	inches *(24" – 18'x22" min)*
Support Structure	Type: Bolted	Condition: Good		
Number & Locations	Wall: 2	Roof:	Riser Pipe:	Other:

Hatches

Hatch Type & Size	Type: Square	#: 1	Size: 24"x24"	in. *(24" – 24"x15" min)*
Hatch & Lid Lip Height	Hatch: 5 in. *(min 4")*	Lid: 2	in. *(min 2")*	

Balconies & Railing

Deck / Walkways	Condition: ----	Width:			
Hand Rails	Condition: Good	Height: 42	in. *(min 42")*	No. Rails: 2	*(min 2)*
Toe Rail	Condition: ----	Height:	in. *(min 4")*		
Welds / Attachments	Condition: Good				

Roof

Safety Tie-Off Points	Condition: Good	#: 1	
Antennas	Type: -------	#: 2	

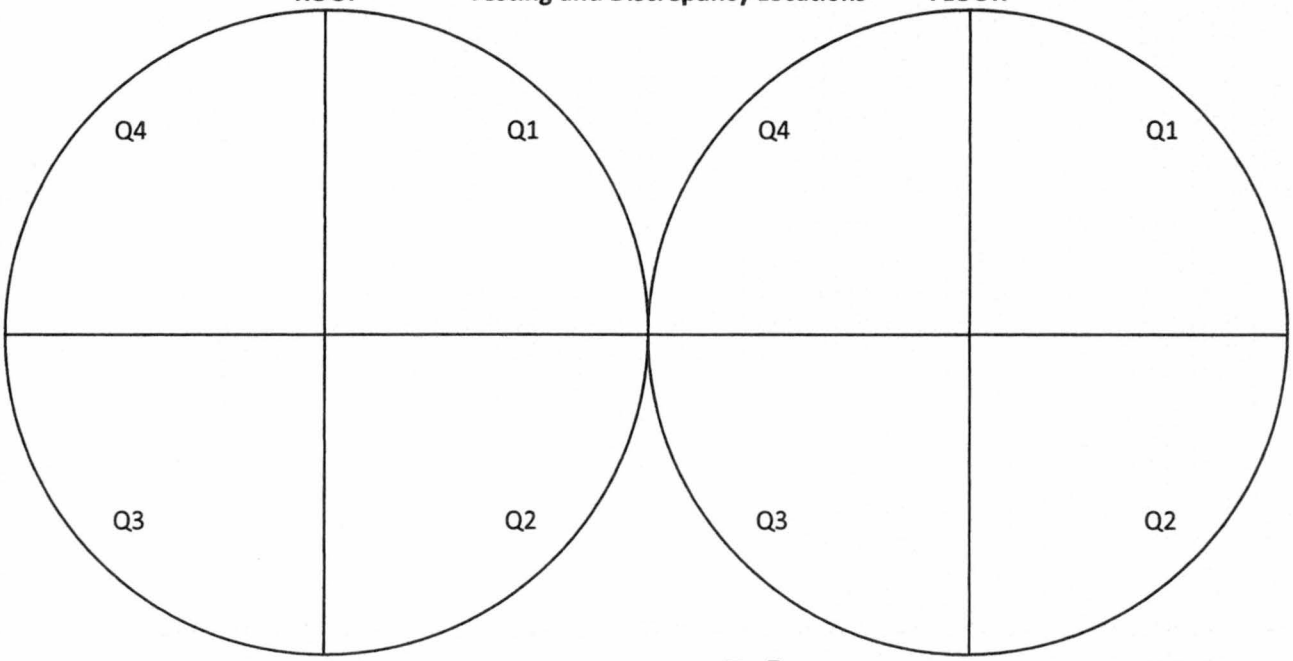
Liquid Engineering Corporation

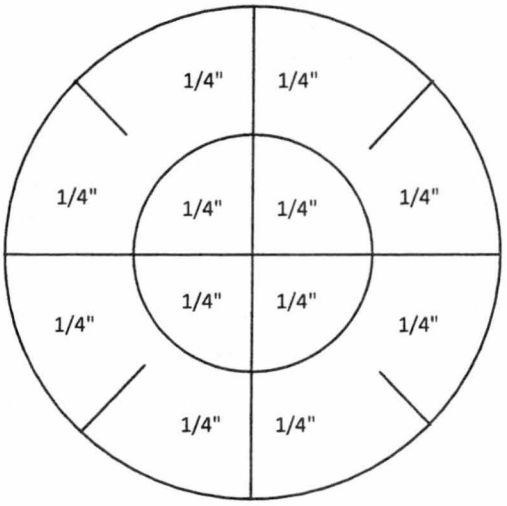
Circular Tank Diagram / Information Worksheet

Job Number 50463 Utility Name BIG SANDY WATER DISTRICT Tank Name FULLER RIDGE

Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4

ROOF **Testing and Discrepancy Locations** **FLOOR**

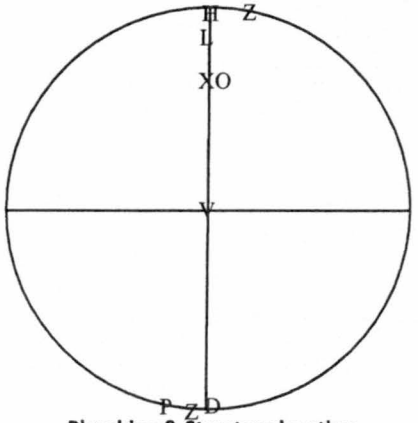




Sediment Depth Measurements

Average Sediment Depth = The sum of all measurements taken, divided by the number of measurements taken

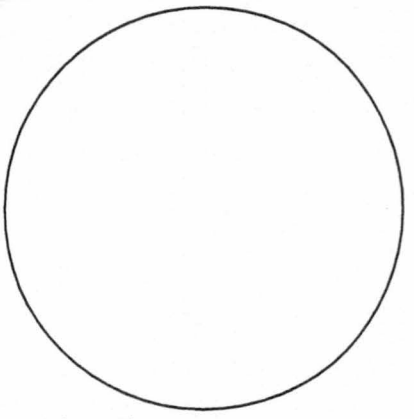
Avg. Depth **Cubic Yardage** **Sediment Type**



Plumbing & Structure location

Plumbing and structure codes

O=Outlet X=Inlet Z=Manway
V=Vent D=Drain S=Sump
L=Ladder H=Hatch P=Overflow
F=Float Level Indicator
T=Telemetry



Column Placement

Type of Column

Base Structure

Top Structure

Column Construction ------

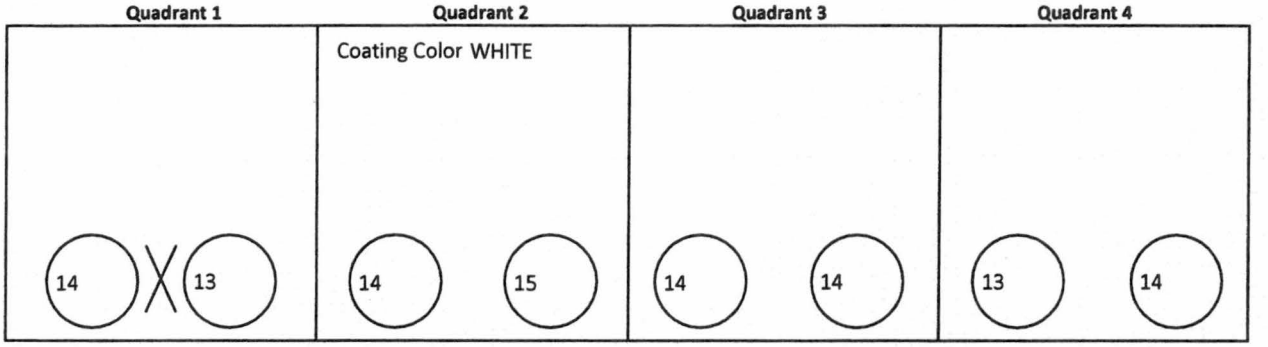
DISCLAIMER

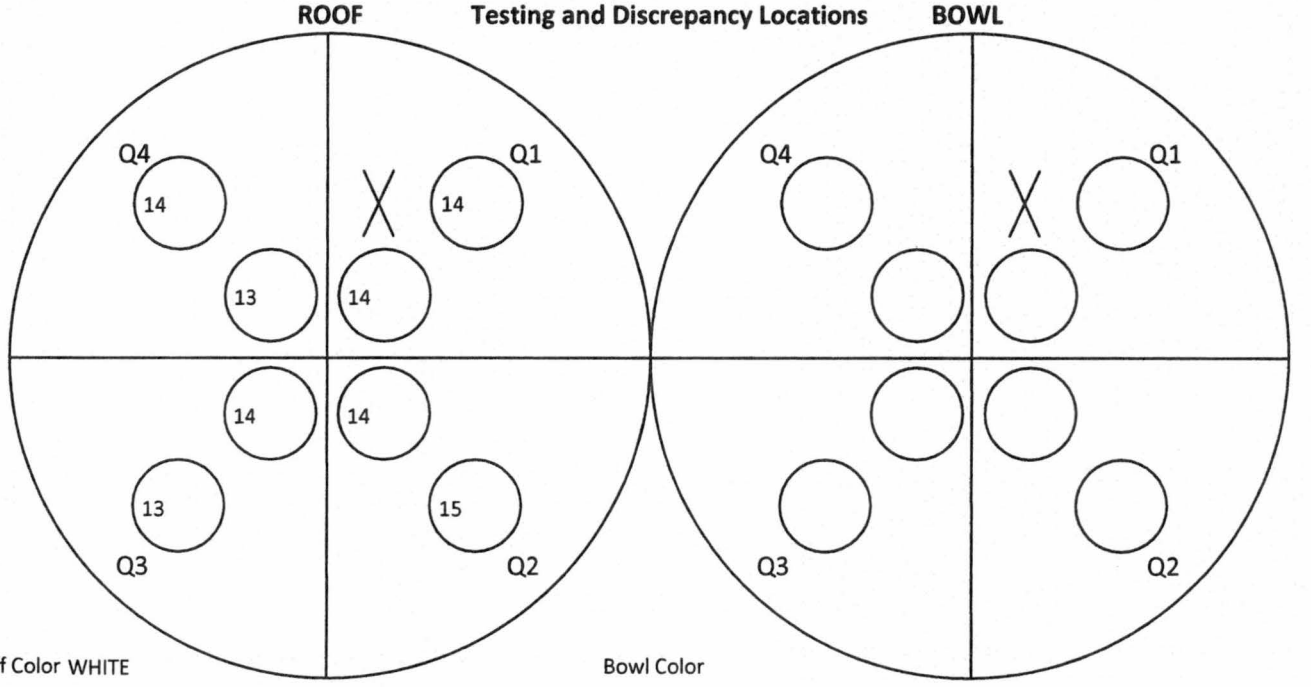
Liquid Engineering does not provide consulting engineering services. Unless otherwise noted, the findings contained in this report were neither prepared nor reviewed by a licensed Professional Engineer, but are based on experience, training and visual examination of the Dive Maintenance Technician

Liquid Engineering Corporation

Circular Tank Diagram / NDT ☐ DFT ☐ Coating Adhesion ☐ Presence of lead ☐

Job Number 50463 Utility Name BIG SANDY WATER DISTRICT Tank Name FULLER RIDGE





Liquid Engineering Corporation

Steel Potable Water Reservoir Security / Measurement Worksheet

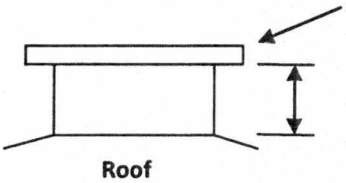
Job Number 50463 Utility Name BIG SANDY WATER DISTRICT Tank Name FULLER RIDGE

Security

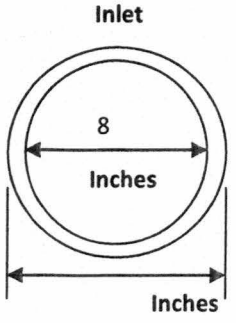
Is the area surrounding the tank well lit?	Yes
Is the tank surrounded by a Security Fence?	No
Are the access gates locked?	----
Is the tank equipped with a Vandal Guard on the primary access ladder?	Yes
If so, is the Vandal Guard locked?	No
Are the vents equipped with security vent shrouds?	No
Are all of the hatches equipped with electronic monitoring devices?	No
Are the external plumbing components housed in a secure vault or out-building?	No
Does the surrounding geography of the tank obscure it from public view?	No
Does the exterior of the tank show signs of trespass?	No

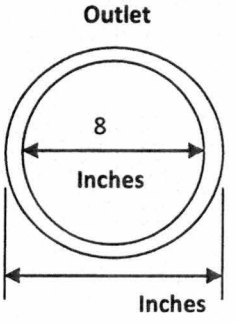
Measurements

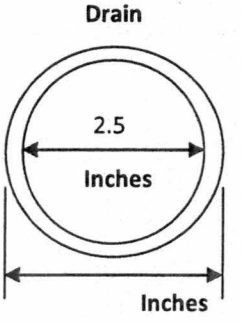
Outside Circumference
40 Inches

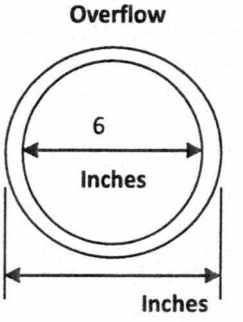


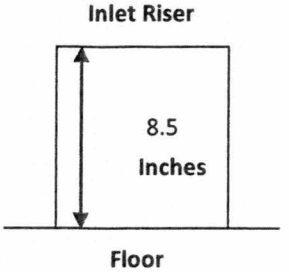
Flange Metal Thickness		Inches
Roof to Screen or Flange	14	Inches
Flange	----	
Number of Bolt Holes		Inches
Size of Bolts		Inches

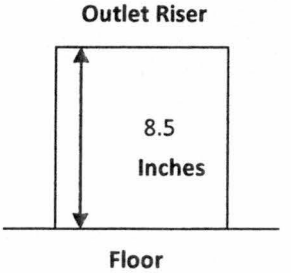


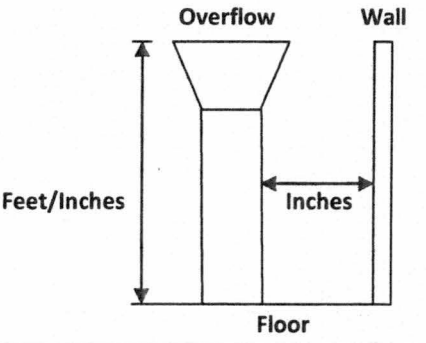












Liquid Engineering Corporation

Steel Potable Water Reservoir Immediate Needs Assessment

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: FULLER RIDGE

Inspector: J. FAUROT | Dive Controller: E. POTTER | Date: 11/15/2016

1. **Health and Safety Items**
   - ☐ Safety Climb System Installation:
   - ☐ Vent Screen Repairs:

2. **Testing Items**
   - ☐ Dye Testing for Leak Evaluation:
   - ☐ Presence of Lead Test (Interior/Exterior):

3. **Destructive Testing Items**
   - ☐ % of Lead Test (Interior/Exterior) *(Coating samples are removed for laboratory analysis)*
   - ☐ Coating Adhesion Test (Interior/Exterior):

   Specific written authorization required to perform destructive testing. Destructive tests include touch-up of coating system.

4. **Repair Items**
   - ☐ Epoxy Coating Repairs:
   - ☐ Temporary Leak Repairs:
   - ☐ Float Operated Level Indicator Repairs / Maintenance:
   - ☐ Hypalon Repairs:

5. **Security Related Items** *(Critical security upgrade information is immediately available)*
   - ☐ Tank vents are not equipped with a security vent shroud:
   - ☐ Tank hatches are not equipped with a security hatch locking device:
   - ☐ Tank perimeter not adequately secured:

The above mentioned additional work is considered immediately necessary and is recommended to be completed. Some items may be completed in conjunction with work currently being performed while the crew is on site.

Reservoir Inspection Condition Supplemental

CLEAN AND INSPECT EVERY 3-5 YEARS

FLOOR: CRACKING IN COATING AND CONCENTRATION CELL CORROSION IN ALL 4 QUADRENTS.
INLET/OUTLET: HEAVY CONCENTRATION CELLS ON INSIDE OF PLUMBING. CRACKING IN COATING AND CONCENTRATION CELLS ON OUTSIDE.
MANWAYS: CRACKING IN COATING AND CONCENTRATION CELL CORROSION. 1/8" METAL LOSS. GASKET IN GOOD CONDITION.
WALLS: CRACKING AND PINHOLES IN COATING. CONCENTRATION CELL CORROSION IN ALL 4 QUADRENTS.
ROOF: LIGHT CORROSION ON WELDS.
OVERFLOW: DELAMINATION OF COATING. INTERGRANULAR CORROSION.
VENTS: CRACKING OF COATING. INTERGRANULAR CORROSION.
HATCH: INTERGRANULAR CORROSION.
INTERIOR LADDER: DELAMINATION AND INTERGRANULAR CORROSION.

Liquid Engineering Corporation

Steel Potable Water Reservoir Inspection Report

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: QUARRY BRANCH 75KG

Inspector: ERIK POTTER | Dive Controller: MEG BUTAK | Date: 11/12/2016

AMERICAN WATER WORKS ASSOCIATION
ANSI/AWWA M42 / D101-53

SSPC Legend

Grade	Description
10	No Rusting, or <0.01% of surface is rusted
9	Minor rusting, or <0.03% of surface is rusted
8	Isolated rust, <.01% of surface is rusted
7	Isolated rust, <.03% of surface is rusted
6	Extensive rusting, <1% of surface is rusted
5	Approximately 3% of the surface is rusted
4	Approximately 10% of the surface is rusted
3	Approximately 17% of the surface is rusted
2	Approximately 33% of the surface is rusted
1	Approximately 50% of the surface is rusted
0	Approximately 100% of the surface is rusted

NACE Legend

Grade	Description
A	None
B	Uniform Surface Corrosion
C	Pitting
D	Concentration Cell Corrosion
E	Galvanic Corrosion
F	Stress Corrosion Cracking
G	Erosion Corrosion
H	Intergranular Corrosion
I	Dealloying

AWS Legend

Grade	Description
L	Satisfactory
M	Spatter
N	Porosity
O	Convexity / Concavity
P	Cracks
Q	Inclusions
R	Incomplete Fusion
S	Incomplete Penetration
T	Undercut
U	Underfill
V	Overlap
W	Unable to evaluate

INTERIOR RESERVOIR ROOF

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Vents	7	B	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roof Panels	8	B	L	8	B	L	8	B	L	8	B	N/A
~~Roof Support~~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
~~Roof Gussets~~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
~~Painting Ring~~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Good | Average Blister Diameter NONE | Average Pit Depth NONE

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☐ Sags/Runs ☐

INTERIOR RESERVOIR WALLS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Wall to Roof weld	3	B	L	3	B	L	3	B	L	3	B	L
Lower Ring Panels	2	B,D	L	4	B,D	L	2	B,D	L	2	B,D	L
Middle Ring Panels	3	B,D	L	3	B,D	L	3	B,D	L	3	B,D	L
Upper Ring Panels	4	B	L	2	B	L	4	B	L	4	B	L
Interior Ladder	5	D	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Good | Average Blister Diameter 1/2" | Average Pit Depth < 1/16"

Coating Deficiencies: Blistering ☑ Delamination ☑ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☐ Sags/Runs ☐

INTERIOR RESERVOIR FLOOR

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Perimeter Weld	3	B,D	L	3	B,D	L	3	B,D	L	3	B,D	L
Floor Panels	3	B,D	L	3	N/A	L	3	B,D	L	3	B,D	L

Overall Coating Rating Good | Average Blister Diameter 1/4" | Average Pit Depth NONE

Coating Deficiencies: Blistering ☑ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☑ Staining ☑ Sags/Runs ☐

Liquid Engineering Corporation

Steel Potable Water Reservoir Inspection Report

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: QUARRY BRANCH 75KG

Inspector: ERIK POTTER | Dive Controller: MEG BUTAK | Date: 11/12/2016

INTERIOR RESERVOIR SUPPORT COLUMNS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Column Structures	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Column Bases	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Column to Roof	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating ---- Average Blister Diameter Average Pit Depth

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☐ Sags/Runs ☐

INTERIOR RESERVOIR PLUMBING COMPONENTS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Inlet Plumbing	5	B,D	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Outlet Plumbing	5	B,D	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Manways	3	B,D	L	N/A	N/A	N/A	2	B,D	L	N/A	N/A	N/A
Floor Drains	N/A	N/A	N/A	3	B,D	L	N/A	N/A	N/A	N/A	N/A	N/A
Interior Overflow	N/A	N/A	N/A	5	B,H	L	N/A	N/A	N/A	N/A	N/A	N/A

EXTERIOR RESERVOIR ROOF

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Vents	6	B	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roof Panels	8	B	L	8	B	L	8	B	L	8	B	L
Access Hatches	7	B	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Good Average Blister Diameter NONE Average Pit Depth NONE

Coating Deficiencies: Blistering ☐ Delamination ☑ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☐ Sags/Runs ☐

EXTERIOR RESERVOIR WALLS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Wall to Roof Weld	9	B	L	9	B	L	9	B	L	9	B	L
Lower Ring Panels	8	B	L	8	B	L	8	B	L	8	B	L
Mid Ring Panels	9	B	L	9	B	L	9	B	L	9	B	L
Upper Ring Panels	9	B	L	9	B	L	9	B	L	9	B	L
Exterior Overflow	N/A	N/A	N/A	8	B	L	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Good Average Blister Diameter NONE Average Pit Depth NONE

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Growth ☑ Pinholes ☐ Staining ☐ Sags/Runs ☐

FOOTINGS / FOUNDATION

Footings / Foundations:	Satisfactory ☑	Cracking ☐	Spalling ☐	Erosion/Exposed Aggregate ☐
Anchor Bolts:	Satisfactory ☑	Loose ☐	Rusted Corroded ☑	(If excessive) Diameter =

TOWER SUPPORT STRUCTURES

Tower Legs/Columns:	Satisfactory ☐	Alignment ----	Settling ----	Rust /Corrosion ----
Riser Pipe:	Satisfactory ☐	Alignment ----	Frost Casing ----	Rust /Corrosion ----
Rods & Turnbuckles:	Satisfactory ☐	Turnbuckle Tension ----	Rod Tension ----	Cotter Pins/Rod Nuts ----
Leg shoes/Brackets:	Satisfactory ☐	Coating ----	Rust/Corrosion ----	Pitting/Cracking ----

Liquid Engineering Corporation

Potable Water Reservoir Contamination, Health and Safety Report

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: QUARRY BRANCH 75KG

Inspector: ERIK POTTER | Dive Controller: MEG BUTAK | Date: 11/12/2016

Complies With: AWWA • OSHA • ANSI • NIOSH • NAVFAC • NFPAC

CONTAMINATION & HEALTH

Air Vents	Type: MUSHROOM		#: 1	Screen Condition(s): Good	
Hatches	Type: Square		#: 1	Secured Properly: Yes	Properly Sealed: Yes
Exterior Overflow	Flapper: Yes	Screen: No		Gasket: No	Condition: Good
Cathodic Covers	In- Place: ----		#:	Gasket: ----	Properly Sealed: ----
Roof to Wall Joint	Welded: Yes	Properly Sealed: Yes			
Roof Integrity	Holes: No	Cracking: No	Standing Water: No		
Wall Integrity	Holes: No	Cracking: No			
Manway Integrity	Leaks: No	Condition: Good			
Water Clarity	General Appearance: CLEAR			Odor: NONE	
Floating Surface Debris	Type: NONE			Source: N/A	
~~**Hypalon Floating Cover**~~	~~Condition: ----~~	~~Holes: ----~~	~~Tears: ----~~		
Telemetry Penetrations	Properly Sealed: ----				

FACILITY SAFETY COMPLIANCE

Exterior Ladder

Overall Ladder	Condition: Good		#: 1	Offset Landing: No	Height: 33'	
Vandal Guard	Present: Yes		Vandal Guard Locked: Yes			
Ladder Rails & Rungs	Condition: Good		Missing/Damaged Rungs: No			
Rung Spacing & Depth	Spacing: 12	in. *(max 12")*	Toe Depth: 9	in. *(min 7")*		
Rail Spacing & Size	Width: 2	in. *(min 2")*	Thickness: .375	in. *(min 1/4")*	Rail to Rail: 15	in.*(min 16")*
Safety Climb System	Type: None		Condition: ----			
Number & Locations	Wall: 1	Leg:	Roof:	Riser Pipe:	Other:	
Ladder Attachments						

Manways

Type and size	Type: Round	#: 2	Size: 24	inches *(24" – 18'x22" min)*	
Support Structure	Type: Bolted	Condition: Good			
Number & Locations	Wall: 2	Roof:	Riser Pipe:	Other:	

Hatches

Hatch Type & Size	Type: Square	#: 1	Size: 24x24	in. *(24" – 24"x15" min)*	
Hatch & Lid Lip Height	Hatch: 4	in. *(min 4")*	Lid: 2	in. *(min 2")*	

Balconies & Railing

Deck / Walkways	Condition: Good	Width: 74"			
Hand Rails	Condition: Good	Height: 42	in. *(min 42")*	No. Rails: 2	*(min 2)*
Toe Rail	Condition: Good	Height: ---	in. *(min 4")*		
Welds / Attachments	Condition: Good				

Roof

Safety Tie-Off Points	Condition: Good	#: 5+	
Antennas	Type: -------	#: ----	

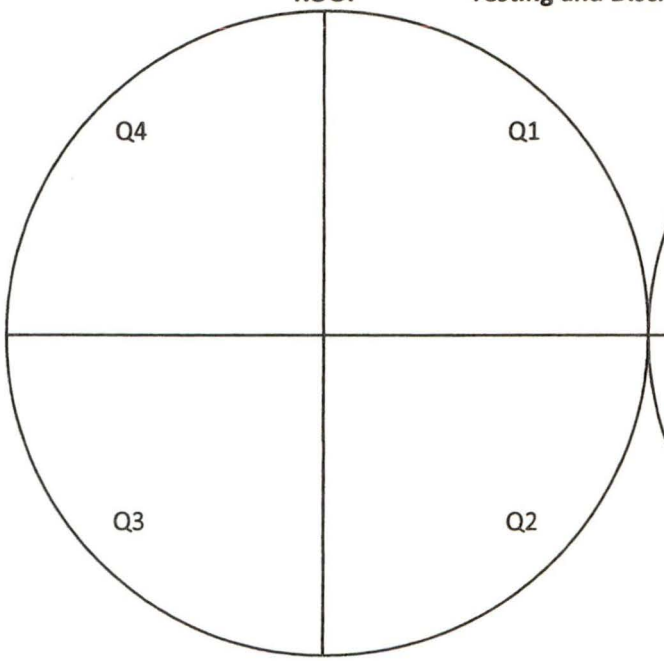
Liquid Engineering Corporation

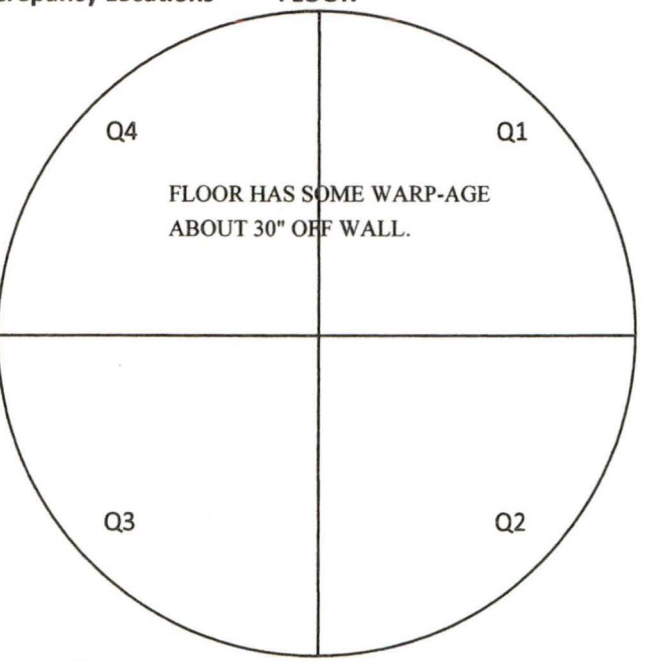
Circular Tank Diagram / Information Worksheet

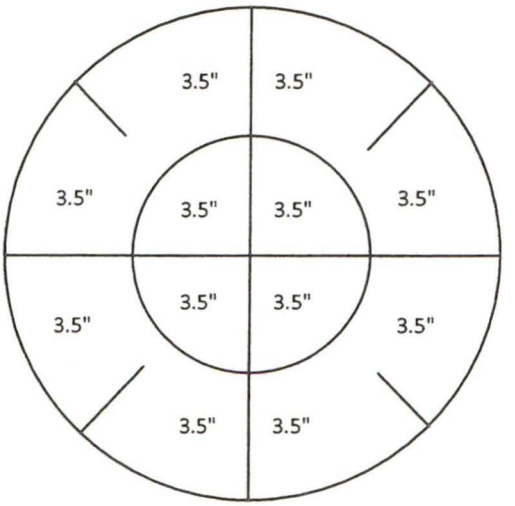
Job Number 50463 Utility Name BIG SANDY WATER DISTRICT Tank Name QUARRY BRANCH 75KG

Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4
HEAVY CONCENTRATION CELL CORROSION AT LOWER AND MID LEVELS			

ROOF **Testing and Discrepancy Locations** **FLOOR**



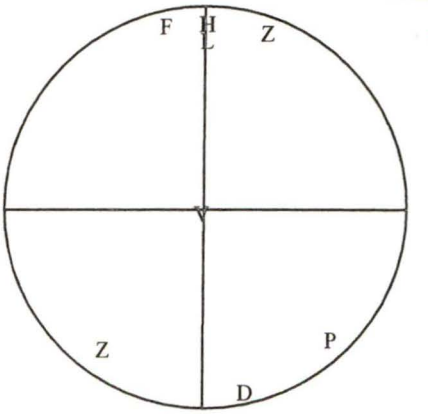




Sediment Depth Measurements

Average Sediment Depth = The sum of all measurements taken, divided by the number of measurements taken

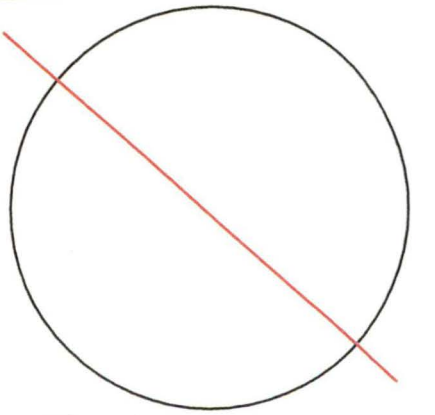
Avg. Depth 3.5" **Cubic Yardage** **Sediment Type** IRON



Plumbing & Structure location

Plumbing and structure codes

O=Outlet X=Inlet Z=Manway
V=Vent D=Drain S=Sump
L=Ladder H=Hatch P=Overflow
F=Float Level Indicator
T=Telemetry



Column Placement

Type of Column

Base Structure

Top Structure

Column Construction ------

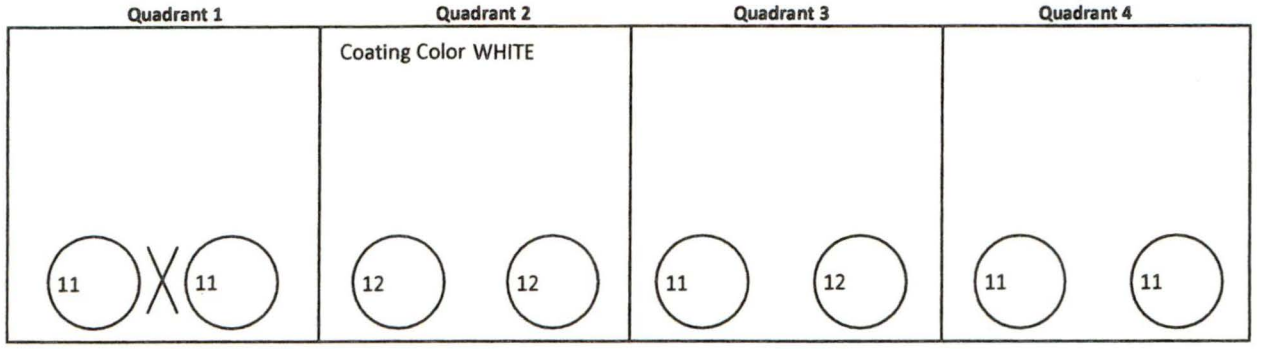
DISCLAIMER

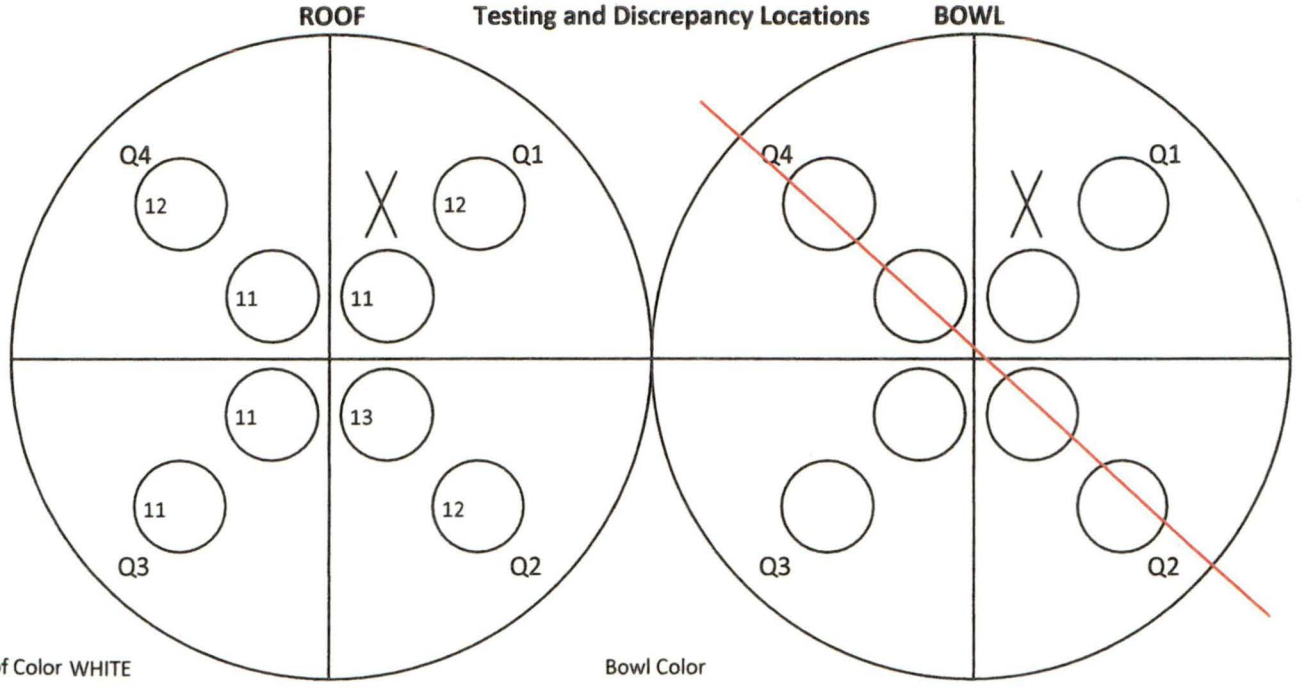
Liquid Engineering does not provide consulting engineering services. Unless otherwise noted, the findings contained in this report were neither prepared nor reviewed by a licensed Professional Engineer, but are based on experience, training and visual examination of the Dive Maintenance Technician

Liquid Engineering Corporation

Circular Tank Diagram / NDT ☐ DFT ☑ Coating Adhesion ☐ Presence of lead ☐

Job Number 50463 Utility Name BIG SANDY WATER DISTRICT Tank Name QUARRY BRANCH 75KG





Roof Color WHITE

Bowl Color

Liquid Engineering Corporation

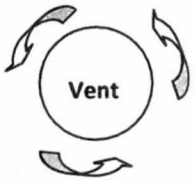
Steel Potable Water Reservoir Security / Measurement Worksheet

Job Number 50463 Utility Name BIG SANDY WATER DISTRICT Tank Name QUARRY BRANCH 75KG

Security

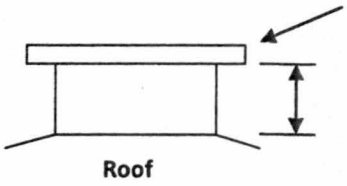
Is the area surrounding the tank well lit?	No
Is the tank surrounded by a Security Fence?	No
Are the access gates locked?	N/A
Is the tank equipped with a Vandal Guard on the primary access ladder?	Yes
If so, is the Vandal Guard locked?	Yes
Are the vents equipped with security vent shrouds?	No
Are all of the hatches equipped with electronic monitoring devices?	No
Are the external plumbing components housed in a secure vault or out-building?	Yes
Does the surrounding geography of the tank obscure it from public view?	No
Does the exterior of the tank show signs of trespass?	No

Measurements



Outside Circumference

42 **Inches**



Flange Metal Thickness **Inches**

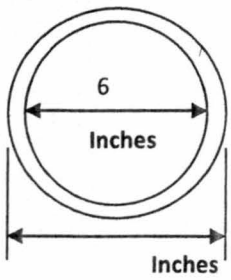
Roof to Screen or Flange 15 **Inches**

Flange No

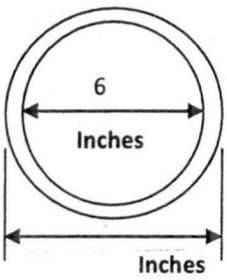
Number of Bolt Holes **Inches**

Size of Bolts **Inches**

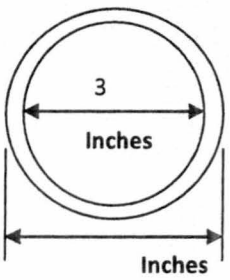
Inlet



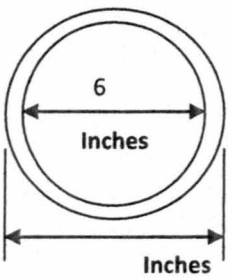
Outlet



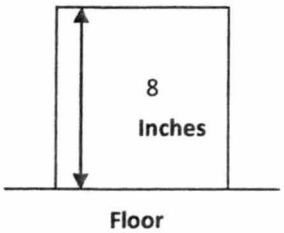
Drain



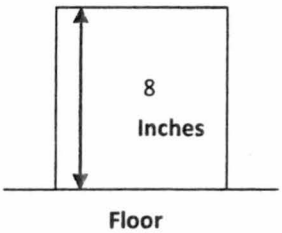
Overflow

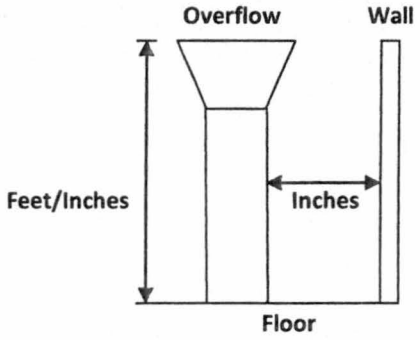


Inlet Riser



Outlet Riser





Liquid Engineering Corporation

Steel Potable Water Reservoir Immediate Needs Assessment

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: QUARRY BRANCH 75KG

Inspector: ERIK POTTER | Dive Controller: MEG BUTAK | Date: 11/12/2016

1. **Health and Safety Items**
   - ☐ Safety Climb System Installation:
   - ☐ Vent Screen Repairs:

2. **Testing Items**
   - ☐ Dye Testing for Leak Evaluation:
   - ☐ Presence of Lead Test (Interior/Exterior):

3. **Destructive Testing Items**
   - ☐ % of Lead Test (Interior/Exterior) *(Coating samples are removed for laboratory analysis)*
   - ☐ Coating Adhesion Test (Interior/Exterior):

   Specific written authorization required to perform destructive testing. Destructive tests include touch-up of coating system.

4. **Repair Items**
   - ☐ Epoxy Coating Repairs:
   - ☐ Temporary Leak Repairs:
   - ☐ Float Operated Level Indicator Repairs / Maintenance:
   - ☐ Hypalon Repairs:

5. **Security Related Items** *(Critical security upgrade information is immediately available)*
   - ☐ Tank vents are not equipped with a security vent shroud:
   - ☐ Tank hatches are not equipped with a security hatch locking device:
   - ☐ Tank perimeter not adequately secured:

The above mentioned additional work is considered immediately necessary and is recommended to be completed. Some items may be completed in conjunction with work currently being performed while the crew is on site.

Reservoir Inspection Condition Supplemental

CLEAN AND INSPECT EVERY 3-5 YEARS

FLOOR- HAS HEAVY CONCENTRATION CELL CORROSION IN ALL QUADRANTS. FLOOR HAS SIGNIFICANT WARPAGE ABOUT 30" OFF WALL AND COULD SUGGEST A POOR FOUNDATION.
WALLS- HEAVY CONCENTRATION CELL CORROSION AT THE LOWER AND MID LEVELS. PITTING WAS LESS THAN 1/16".
ROOF- SOME CORROSION ON THE WELD SEAMS AS WELL AS THE ROOF TO WALL SEAM.
INLET/OUTLET- SOME CONCENTRATION CELL CORROSION WITH SOME SURFACE CORROSION.
MANWAYS- PLATES SURROUNDING MANWAYS HAVE EXTENSIVE CONCENTRATION CELL CORROSION MOSTLY AROUND THE LOWER SIDE.

Liquid Engineering Corporation

Steel Potable Water Reservoir Inspection Report

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: RUSH HILL 137KG

Inspector: M BUTAK | Dive Controller: E. POTTER | Date: 11/14/2016

AMERICAN WATER WORKS ASSOCIATION
ANSI/AWWA M42 / D101-53

SSPC Legend

Grade	Description
10	No Rusting, or <0.01% of surface is rusted
9	Minor rusting, or <0.03% of surface is rusted
8	Isolated rust, <.01% of surface is rusted
7	Isolated rust, <.03% of surface is rusted
6	Extensive rusting, <1% of surface is rusted
5	Approximately 3% of the surface is rusted
4	Approximately 10% of the surface is rusted
3	Approximately 17% of the surface is rusted
2	Approximately 33% of the surface is rusted
1	Approximately 50% of the surface is rusted
0	Approximately 100% of the surface is rusted

NACE Legend

Grade	Description
A	None
B	Uniform Surface Corrosion
C	Pitting
D	Concentration Cell Corrosion
E	Galvanic Corrosion
F	Stress Corrosion Cracking
G	Erosion Corrosion
H	Intergranular Corrosion
I	Dealloying

AWS Legend

Grade	Description
L	Satisfactory
M	Spatter
N	Porosity
O	Convexity / Concavity
P	Cracks
Q	Inclusions
R	Incomplete Fusion
S	Incomplete Penetration
T	Undercut
U	Underfill
V	Overlap
W	Unable to evaluate

INTERIOR RESERVOIR ROOF

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Vents	6	B,H	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roof Panels	7	B	L	8	B	L	8	B	L	8	B	L
~~Roof Support~~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
~~Roof Gussets~~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
~~Painting Ring~~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Good | Average Blister Diameter NONE | Average Pit Depth NONE

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☑ Growth ☐ Pinholes ☐ Staining ☑ Sags/Runs ☑

INTERIOR RESERVOIR WALLS

	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Wall to Roof weld	2	B,H	L	2	B,H	L	2	B,H	L	2	B,H	L
Lower Ring Panels	7	B,D	N/A*	7	B,D	N/A*	7	B,D	N/A*	7	B,D	N/A*
Middle Ring Panels	6	B,H	N/A*	6	B,H	N/A*	6	B,H	N/A*	6	B,H	N/A*
Upper Ring Panels	6	B,H	N/A*	6	B,H	N/A*	6	B,H	N/A*	6	B,H	N/A*
Interior Ladder	5	H	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Fair | Average Blister Diameter NONE | Average Pit Depth

Coating Deficiencies: Blistering ☐ Delamination ☑ Chalking ☑ Checking ☑ Cracking ☑ Growth ☐ Pinholes ☑ Staining ☑ Sags/Runs ☑

INTERIOR RESERVOIR FLOOR

	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Perimeter Weld	7	D	L	7	D	L	7	D	L	7	D	L
Floor Panels	8	D	L	8	D	L	8	D	L	8	D	L

Overall Coating Rating Good | Average Blister Diameter NONE | Average Pit Depth 3/16"

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☑ Growth ☐ Pinholes ☐ Staining ☑ Sags/Runs ☐

Liquid Engineering Corporation

Steel Potable Water Reservoir Inspection Report

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: RUSH HILL 137KG

Inspector: M BUTAK | Dive Controller: E. POTTER | Date: 11/14/2016

INTERIOR RESERVOIR SUPPORT COLUMNS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Column Structures	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Column Bases	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Column to Roof	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating ---- Average Blister Diameter Average Pit Depth

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☐ Sags/Runs ☐

INTERIOR RESERVOIR PLUMBING COMPONENTS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Inlet Plumbing	N/A	N/A	N/A	6	D	L	N/A	N/A	N/A	N/A	N/A	N/A
Outlet Plumbing	6	D	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Manways	N/A	N/A	N/A	7	D	L	N/A	N/A	N/A	7	D	L
Floor Drains	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Interior Overflow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

EXTERIOR RESERVOIR ROOF

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Vents	8	B	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roof Panels	9	B	L	9	B	L	9	B	L	9	B	L
Access Hatches	6	H	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Fair Average Blister Diameter .5" Average Pit Depth NONE

Coating Deficiencies: Blistering ☑ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☑ Sags/Runs ☑

EXTERIOR RESERVOIR WALLS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Wall to Roof Weld	9	B	L	9	B	L	9	B	L	9	B	L
Lower Ring Panels	9	B	L	9	B	L	9	B	L	9	B	L
Mid Ring Panels	8	B	L	9	B	L	9	B	L	8	B	L
Upper Ring Panels	9	B	L	9	B	L	9	B	L	9	B	L
Exterior Overflow	N/A	N/A	N/A	N/A	N/A	N/A	9	B	L	N/A	N/A	N/A

Overall Coating Rating Good Average Blister Diameter NONE Average Pit Depth NONE

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☑ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☑ Sags/Runs ☑

FOOTINGS / FOUNDATION

Footings / Foundations:	Satisfactory ☑	Cracking ☐	Spalling ☐	Erosion/Exposed Aggregate ☐
Anchor Bolts:	Satisfactory ☑	Loose ☐	Rusted Corroded ☐	(If excessive) Diameter =

TOWER SUPPORT STRUCTURES

Tower Legs/Columns:	Satisfactory ☐	Alignment ----	Settling ----	Rust /Corrosion ----
Riser Pipe:	Satisfactory ☐	Alignment ----	Frost Casing ----	Rust /Corrosion ----
Rods & Turnbuckles:	Satisfactory ☐	Turnbuckle Tension ----	Rod Tension ----	Cotter Pins/Rod Nuts ----
Leg shoes/Brackets:	Satisfactory ☐	Coating ----	Rust/Corrosion ----	Pitting/Cracking ----

Liquid Engineering Corporation

Potable Water Reservoir Contamination, Health and Safety Report

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: RUSH HILL 137KG

Inspector: M BUTAK | Dive Controller: E. POTTER | Date: 11/14/2016

Complies With: AWWA • OSHA • ANSI • NIOSH • NAVFAC • NFPAC

CONTAMINATION & HEALTH

Air Vents	Type: MUSHROOM		#: 1	Screen Condition(s): Good	
Hatches	Type: Square		#: 1	Secured Properly: Yes	Properly Sealed: No
Exterior Overflow	Flapper: No	Screen: Yes		Gasket: No	Condition: Good
Cathodic Covers	In- Place: Yes		#: 6	Gasket: No	Properly Sealed: No
Roof to Wall Joint	Welded: Yes	Properly Sealed: Yes			
Roof Integrity	Holes: No	Cracking: No	Standing Water: No		
Wall Integrity	Holes: No	Cracking: No			
Manway Integrity	Leaks: No	Condition: Good			
Water Clarity	General Appearance: CLEAR			Odor: NONE	
Floating Surface Debris	Type: NONE			Source: N/A	
~~**Hypalon Floating Cover**~~	~~Condition: ----~~	~~Holes: ----~~	~~Tears: ----~~		
Telemetry Penetrations	Properly Sealed: ----				

FACILITY SAFETY COMPLIANCE

Exterior Ladder

Overall Ladder	Condition: Good	#: 1	Offset Landing: No	Height: 72'	
Vandal Guard	Present: Yes	Vandal Guard Locked: No			
Ladder Rails & Rungs	Condition: Good	Missing/Damaged Rungs: No			
Rung Spacing & Depth	Spacing: 12 in. *(max 12")*	Toe Depth: 9 in. *(min 7")*			
Rail Spacing & Size	Width: 2.25 in. *(min 2")*	Thickness: .25 in. *(min 1/4")*	Rail to Rail: 19	in.*(min 16")*	
Safety Climb System	Type: Cage	Condition: Good			
Number & Locations	Wall: 1	Leg:	Roof:	Riser Pipe:	Other:
Ladder Attachments					

Manways

Type and size	Type: Round	#: 2	Size: 38"	inches *(24" – 18'x22" min)*
Support Structure	Type: Bolted	Condition: Good		
Number & Locations	Wall: 2	Roof:	Riser Pipe:	Other:

Hatches

Hatch Type & Size	Type: Square	#: 1	Size: 24"x24"	in. *(24" – 24"x15" min)*
Hatch & Lid Lip Height	Hatch: 5" in. *(min 4")*	Lid: 1.25"	in. *(min 2")*	

Balconies & Railing

Deck / Walkways	Condition: ----	Width:			
Hand Rails	Condition: Good	Height: 42	in. *(min 42")*	No. Rails: 2	*(min 2)*
Toe Rail	Condition: Good	Height: 7	in. *(min 4")*		
Welds / Attachments	Condition: Good				

Roof

Safety Tie-Off Points	Condition: Good	#: 2	
Antennas	Type: -------	#: 3	

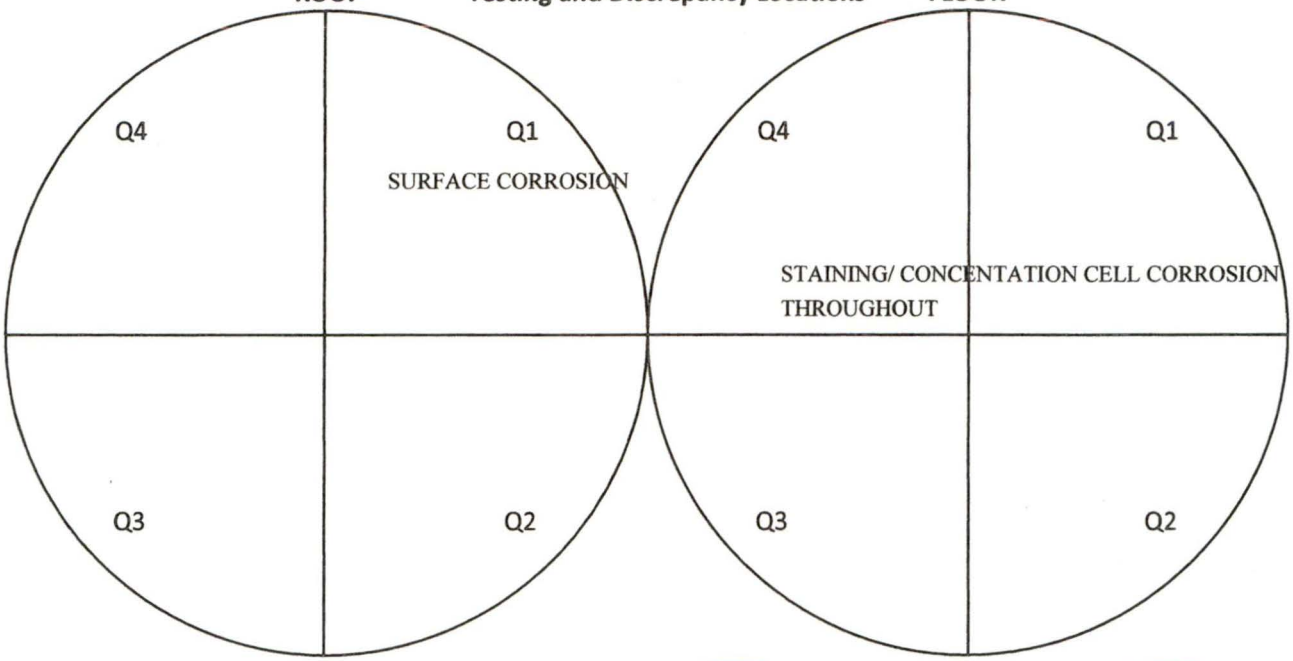
Liquid Engineering Corporation

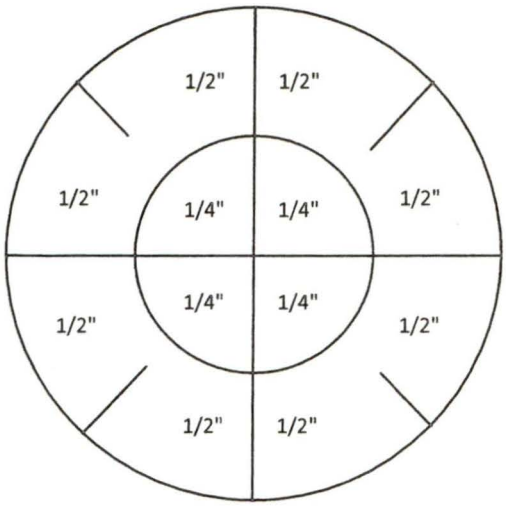
Circular Tank Diagram / Information Worksheet

Job Number 50463 Utility Name BIG SANDY WATER DISTRICT Tank Name RUSH HILL 137KG

Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4
HEAVY INTERGRANULAR CORROSION ON UPPER HALF OF RESERVIOR →			

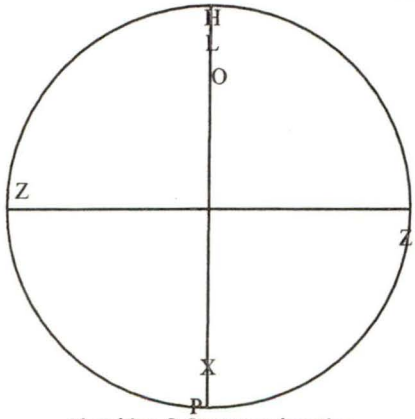
ROOF **Testing and Discrepancy Locations** **FLOOR**





Sediment Depth Measurements

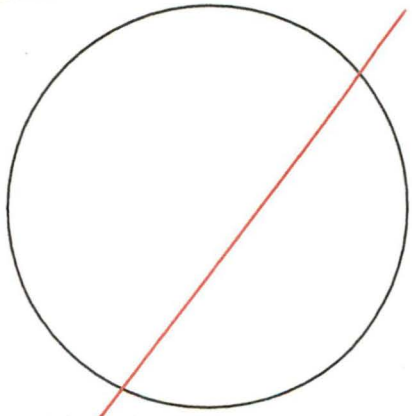
Average Sediment Depth = The sum of all measurements taken, divided by the number of measurements taken



Plumbing & Structure location

Plumbing and structure codes

O=Outlet X=Inlet Z=Manway
V=Vent D=Drain S=Sump
L=Ladder H=Hatch P=Overflow
F=Float Level Indicator
T=Telemetry



Column Placement

Type of Column

Base Structure

Top Structure

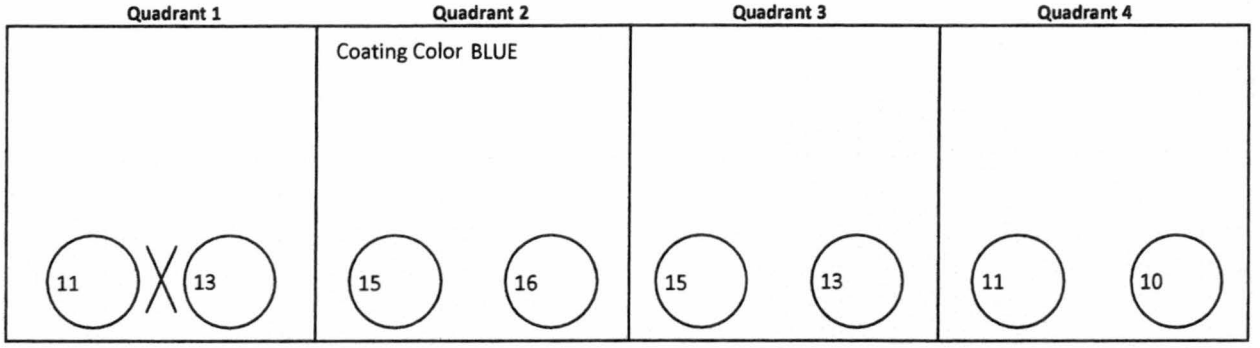
Column Construction ------

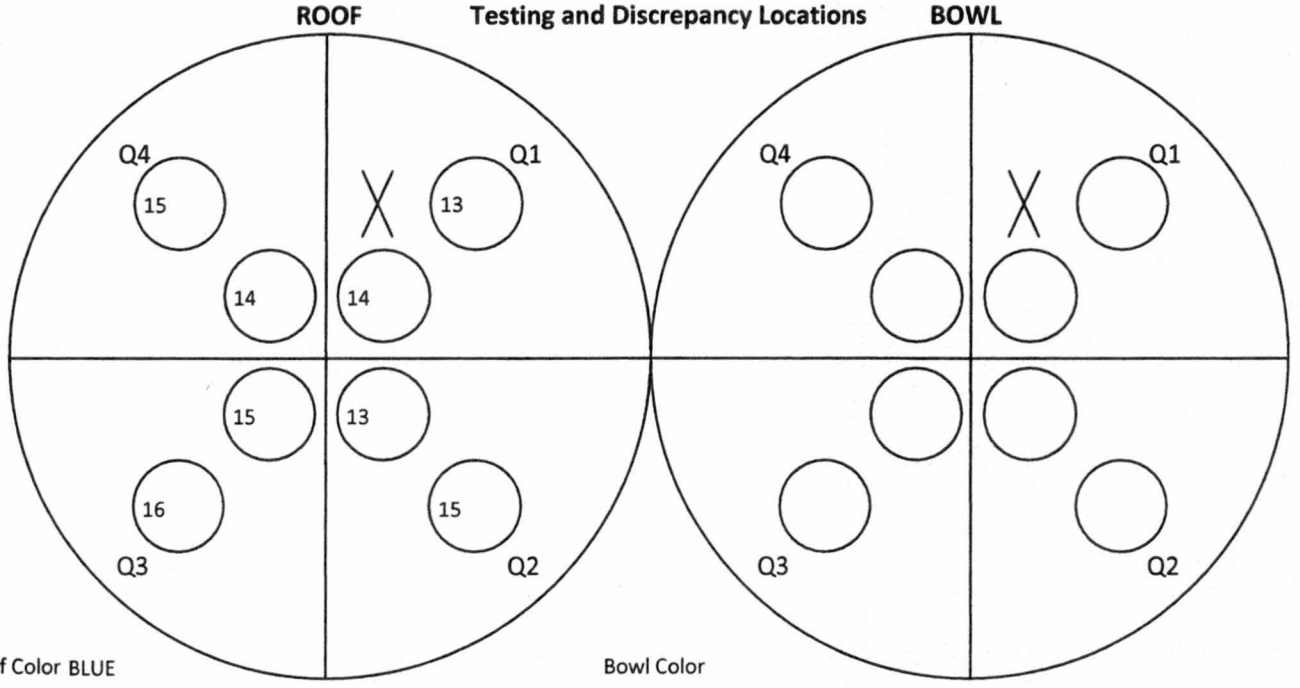
Avg. Depth 3/8" **Cubic Yardage** **Sediment Type** IRON/CLAY

Liquid Engineering Corporation

Circular Tank Diagram / NDT ☐ DFT ☐ Coating Adhesion ☐ Presence of lead ☐

Job Number 50463 Utility Name BIG SANDY WATER DISTRICT Tank Name RUSH HILL 137KG





Roof Color BLUE

Bowl Color

Liquid Engineering Corporation

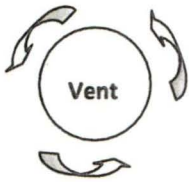
Steel Potable Water Reservoir Security / Measurement Worksheet

Job Number 50463 Utility Name BIG SANDY WATER DISTRICT Tank Name RUSH HILL 137KG

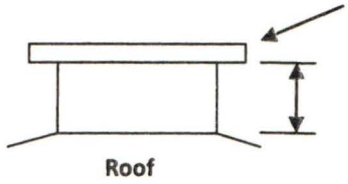
Security

Is the area surrounding the tank well lit?	Yes
Is the tank surrounded by a Security Fence?	Yes
Are the access gates locked?	Yes
Is the tank equipped with a Vandal Guard on the primary access ladder?	Yes
If so, is the Vandal Guard locked?	N/A
Are the vents equipped with security vent shrouds?	No
Are all of the hatches equipped with electronic monitoring devices?	No
Are the external plumbing components housed in a secure vault or out-building?	Yes
Does the surrounding geography of the tank obscure it from public view?	No
Does the exterior of the tank show signs of trespass?	Yes

Measurements

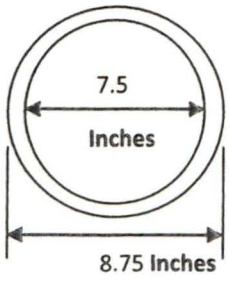


Outside Circumference
43 Inches

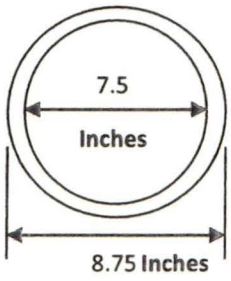


Flange Metal Thickness	1/2"	Inches
Roof to Screen or Flange	12"	Inches
Flange	Yes	
Number of Bolt Holes	6	
Size of Bolts	.75	Inches

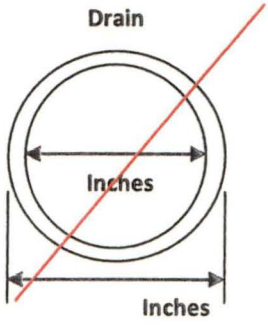
Inlet



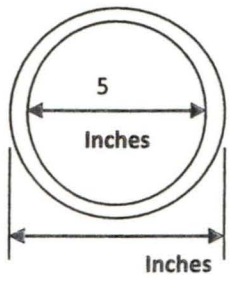
Outlet



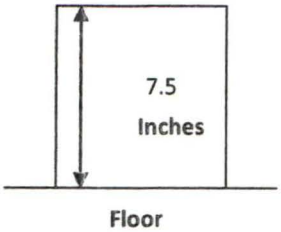
Drain



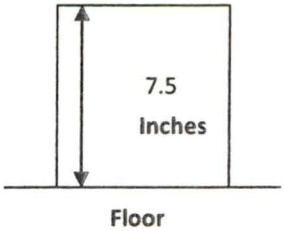
Overflow

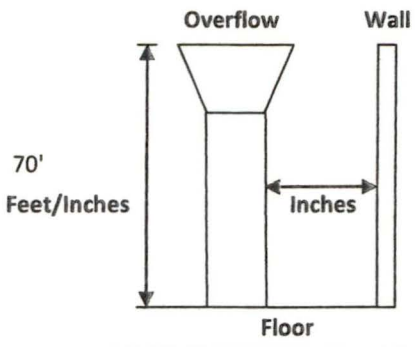


Inlet Riser



Outlet Riser





Liquid Engineering Corporation

Steel Potable Water Reservoir Immediate Needs Assessment

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: RUSH HILL 137KG

Inspector: M BUTAK | Dive Controller: E. POTTER | Date: 11/14/2016

1. **Health and Safety Items**
   - ☐ Safety Climb System Installation:
   - ☐ Vent Screen Repairs:

2. **Testing Items**
   - ☐ Dye Testing for Leak Evaluation:
   - ☐ Presence of Lead Test (Interior/Exterior):

3. **Destructive Testing Items**
   - ☐ % of Lead Test (Interior/Exterior) *(Coating samples are removed for laboratory analysis)*
   - ☐ Coating Adhesion Test (Interior/Exterior):

   Specific written authorization required to perform destructive testing. Destructive tests include touch-up of coating system.

4. **Repair Items**
   - ☐ Epoxy Coating Repairs:
   - ☐ Temporary Leak Repairs:
   - ☐ Float Operated Level Indicator Repairs / Maintenance:
   - ☐ Hypalon Repairs:

5. **Security Related Items** *(Critical security upgrade information is immediately available)*
   - ☐ Tank vents are not equipped with a security vent shroud:
   - ☐ Tank hatches are not equipped with a security hatch locking device:
   - ☐ Tank perimeter not adequately secured:

The above mentioned additional work is considered immediately necessary and is recommended to be completed. Some items may be completed in conjunction with work currently being performed while the crew is on site.

Reservoir Inspection Condition Supplemental

CLEAN AND INSPECT EVERY 3-5 YEARS

N/A* WELDS: WELD SEAMS HAVE UNEVEN EDGES THAT PROTRUDE APPROXIMATLY 1/8" OFF OF WALLS. PROPER COATING IN THESE SEAMS WOULD BE DIFFICULT IF NOT IMPOSSIBLE. WELD SEAMS ON BOTTOM ARE COLLECTING SEDIMENT AND SHOWING LARGE STRETCHES OF CONCENTRATION CELL CORROSION WITH LIKELYHOOD OF METAL LOSS THAT IS DIFFICULT TO MEASURE DUE TO LOCATION. WELD SEAMS ON UPPER HALF OF RESERVIOR SHOW HEAVY INTERGRANULAR CORROSION AND ARE FLAKING OFF LARGE AMOUNTS OF CORRODED METAL. THE AMOUNT OF CORROSION/ METAL LOSS IN THESE AREAS MAKE THE STRUCTURAL INTEGRITY OF THE RESERVIOR QUESTIONABLE.
FLOOR: FLOOR SHOWS SPORATIC CONCENTRATION CELL CORROSION. PITTING MEASURED AT 3/16". TWO 6" STRETCHES OF CONCENTRATION CELL CORROSION ON FLOOR TO WALL SEAMS SHOW HEAVY CRACKS UNDERNEATH. POSSIBILITY OF LEAKING IN THE FUTURE. OVERALL FLOOR PANELS IN GOOD CONDITION WITH FEW NOTABLE DISCREPENCIES.
WALLS: HEAVY INTERGRANULAR CORROSION ON UPPER HALF OF RESERVIOR. MOST CONCERNING DISCREPENCIES NOTED ABOVE ON WELD SEAM NOTES.
ROOF: HEAVY INTERGRANULAR CORROSION ON ROOF TO WALL SEAM. SOME CORROSION ON ROOF SEAMS AS WELL WITH SLIGHT SURFACE CORROSION ON PANELS. SMALL BREACH IN 6 O CLOCK CATHODIC CAP.
PLUMBING: HEAVY CONCNTRATION CELL CORROSION ON INTERIOR OF BOTH INLET AND OUTET. INTERIOR OVERFLOW SHOWS INTERGRANULAR CORROSION ON PIPE.
MANWAY: BOTH MANWAYS SHOW CONCENTRATION CELL CORROSION ON LIP AND INTERIOR OF PIPE, CLOSE TO GASKET. GASKET IS BEGINNING TO BREAK DOWN. NO LEAKING NOTED.

Liquid Engineering Corporation

Steel Potable Water Reservoir Inspection Report

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: US 23 A 300KG

Inspector: J. FAUROT | Dive Controller: E.POTTER | Date: 11/12/2016

AMERICAN WATER WORKS ASSOCIATION
ANSI/AWWA M42 / D101-53

SSPC Legend

Grade	Description
10	No Rusting, or <0.01% of surface is rusted
9	Minor rusting, or <0.03% of surface is rusted
8	Isolated rust, <.01% of surface is rusted
7	Isolated rust, <.03% of surface is rusted
6	Extensive rusting, <1% of surface is rusted
5	Approximately 3% of the surface is rusted
4	Approximately 10% of the surface is rusted
3	Approximately 17% of the surface is rusted
2	Approximately 33% of the surface is rusted
1	Approximately 50% of the surface is rusted
0	Approximately 100% of the surface is rusted

NACE Legend

Grade	Description
A	None
B	Uniform Surface Corrosion
C	Pitting
D	Concentration Cell Corrosion
E	Galvanic Corrosion
F	Stress Corrosion Cracking
G	Erosion Corrosion
H	Intergranular Corrosion
I	Dealloying

AWS Legend

Grade	Description
L	Satisfactory
M	Spatter
N	Porosity
O	Convexity / Concavity
P	Cracks
Q	Inclusions
R	Incomplete Fusion
S	Incomplete Penetration
T	Undercut
U	Underfill
V	Overlap
W	Unable to evaluate

INTERIOR RESERVOIR ROOF

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Vents	8	B	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roof Panels	7	B	L	7	B	L	7	B	L	7	B	L
Roof Support	7	B	L	7	B	L	7	B	L	7	B	L
~~Roof Gussets~~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
~~Painting Ring~~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Good | Average Blister Diameter NONE | Average Pit Depth NONE

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☑ Sags/Runs ☐

INTERIOR RESERVOIR WALLS

	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Wall to Roof weld	7	BD	L	7	BD	L	7	BD	L	7	BD	L
Lower Ring Panels	9	A	L	9	A	L	9	A	L	9	A	L
Middle Ring Panels	9	A	L	9	A	L	9	A	L	9	A	L
Upper Ring Panels	9	A	L	9	A	L	9	A	L	9	A	L
Interior Ladder	7	DH	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Good | Average Blister Diameter NONE | Average Pit Depth NONE

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☑ Sags/Runs ☑

INTERIOR RESERVOIR FLOOR

	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Perimeter Weld	9	A	L	9	A	L	9	A	L	9	A	L
Floor Panels	9	A	L	9	A	L	9	A	L	9	A	L

Overall Coating Rating Good | Average Blister Diameter 1/8" | Average Pit Depth NONE

Coating Deficiencies: Blistering ☑ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☑ Sags/Runs ☑

Liquid Engineering Corporation

Steel Potable Water Reservoir Inspection Report

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: US 23 A 300KG

Inspector: J. FAUROT | Dive Controller: E.POTTER | Date: 11/12/2016

INTERIOR RESERVOIR SUPPORT COLUMNS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Column Structures	8	D	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Column Bases	7	D	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Column to Roof	8	B	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Fair | Average Blister Diameter | Average Pit Depth

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☑ Growth ☐ Pinholes ☑ Staining ☑ Sags/Runs ☑

INTERIOR RESERVOIR PLUMBING COMPONENTS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Inlet Plumbing	8	D	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Outlet Plumbing	8	D	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Manways	N/A	N/A	N/A	8	D	L	N/A	N/A	N/A	7	D	L
Floor Drains	9	A	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Interior Overflow	7	H	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

EXTERIOR RESERVOIR ROOF

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Vents	8	A	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roof Panels	8	A	L	8	A	L	8	A	L	8	B	L
Access Hatches	6	H	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Good | Average Blister Diameter NONE | Average Pit Depth NONE

Coating Deficiencies: Blistering ☐ Delamination ☑ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☑ Sags/Runs ☐

EXTERIOR RESERVOIR WALLS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Wall to Roof Weld	9	A	L	9	A	L	9	A	L	9	A	L
Lower Ring Panels	9	A	L	9	A	L	9	A	L	9	A	L
Mid Ring Panels	9	A	L	9	A	L	9	A	L	9	A	L
Upper Ring Panels	9	A	L	9	A	L	9	A	L	9	A	L
Exterior Overflow	9	A	L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Good | Average Blister Diameter NONE | Average Pit Depth NONE

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☑ Sags/Runs ☐

FOOTINGS / FOUNDATION

Footings / Foundations:	Satisfactory ☑	Cracking ☐	Spalling ☐	Erosion/Exposed Aggregate ☐
Anchor Bolts:	Satisfactory ☐	Loose ☐	Rusted Corroded ☐	(If excessive) Diameter =

TOWER SUPPORT STRUCTURES

Tower Legs/Columns:	Satisfactory ☐	Alignment ----	Settling ----	Rust /Corrosion ----
Riser Pipe:	Satisfactory ☐	Alignment ----	Frost Casing ----	Rust /Corrosion ----
Rods & Turnbuckles:	Satisfactory ☐	Turnbuckle Tension ----	Rod Tension ----	Cotter Pins/Rod Nuts ----
Leg shoes/Brackets:	Satisfactory ☐	Coating ----	Rust/Corrosion ----	Pitting/Cracking ----

Liquid Engineering Corporation

Potable Water Reservoir Contamination, Health and Safety Report

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: US 23 A 300KG

Inspector: J. FAUROT | Dive Controller: E.POTTER | Date: 11/12/2016

Complies With: AWWA • OSHA • ANSI • NIOSH • NAVFAC • NFPAC

CONTAMINATION & HEALTH

Air Vents	Type: MUSHROOM		#: 1	Screen Condition(s): Good	
Hatches	Type: Square		#: 1	Secured Properly: Yes	Properly Sealed: Yes
Exterior Overflow	Flapper: Yes	Screen: No		Gasket: Yes	Condition: Good
Cathodic Covers	In- Place: ----		#:	Gasket: ----	Properly Sealed: ----
Roof to Wall Joint	Welded: Yes	Properly Sealed: Yes			
Roof Integrity	Holes: Yes	Cracking: No	Standing Water: Yes		
Wall Integrity	Holes: No	Cracking: No			
Manway Integrity	Leaks: No	Condition: Good			
Water Clarity	General Appearance: CLEAR			Odor: NONE	
Floating Surface Debris	Type: NONE			Source: N/A	
~~**Hypalon Floating Cover**~~	~~Condition: ----~~	~~Holes: ----~~	~~Tears: ----~~		
Telemetry Penetrations	Properly Sealed: ----				

FACILITY SAFETY COMPLIANCE

Exterior Ladder

Overall Ladder	Condition: Good	#: 1	Offset Landing: No	Height: 33'	
Vandal Guard	Present: Yes	Vandal Guard Locked: No			
Ladder Rails & Rungs	Condition: Good	Missing/Damaged Rungs: No			
Rung Spacing & Depth	Spacing: 12 in. *(max 12")*	Toe Depth: 8 in. *(min 7")*			
Rail Spacing & Size	Width: 2.5 in. *(min 2")*	Thickness: .25 in. *(min 1/4")*	Rail to Rail: 16 in.*(min 16")*		
Safety Climb System	Type: Cable	Condition: Good			
Number & Locations	Wall: 1	Leg:	Roof:	Riser Pipe:	Other:
Ladder Attachments					

Manways

Type and size	Type: Round	#: 2	Size: 33"	inches *(24" – 18'x22" min)*
Support Structure	Type: Bolted	Condition: Fair		
Number & Locations	Wall: 2	Roof:	Riser Pipe:	Other:

Hatches

Hatch Type & Size	Type: Square	#: 1	Size: 24"x24"	in. *(24" – 24"x15" min)*
Hatch & Lid Lip Height	Hatch: 5.5 in. *(min 4")*	Lid: 2	in. *(min 2")*	

Balconies & Railing

Deck / Walkways	Condition: ----	Width:			
Hand Rails	Condition: Good	Height: 42	in. *(min 42")*	No. Rails: 2	*(min 2)*
Toe Rail	Condition: Good	Height: 4	in. *(min 4")*		
Welds / Attachments	Condition: Good				

Roof

Safety Tie-Off Points	Condition: Good	#: 5+	
Antennas	Type: -------	#: 2	

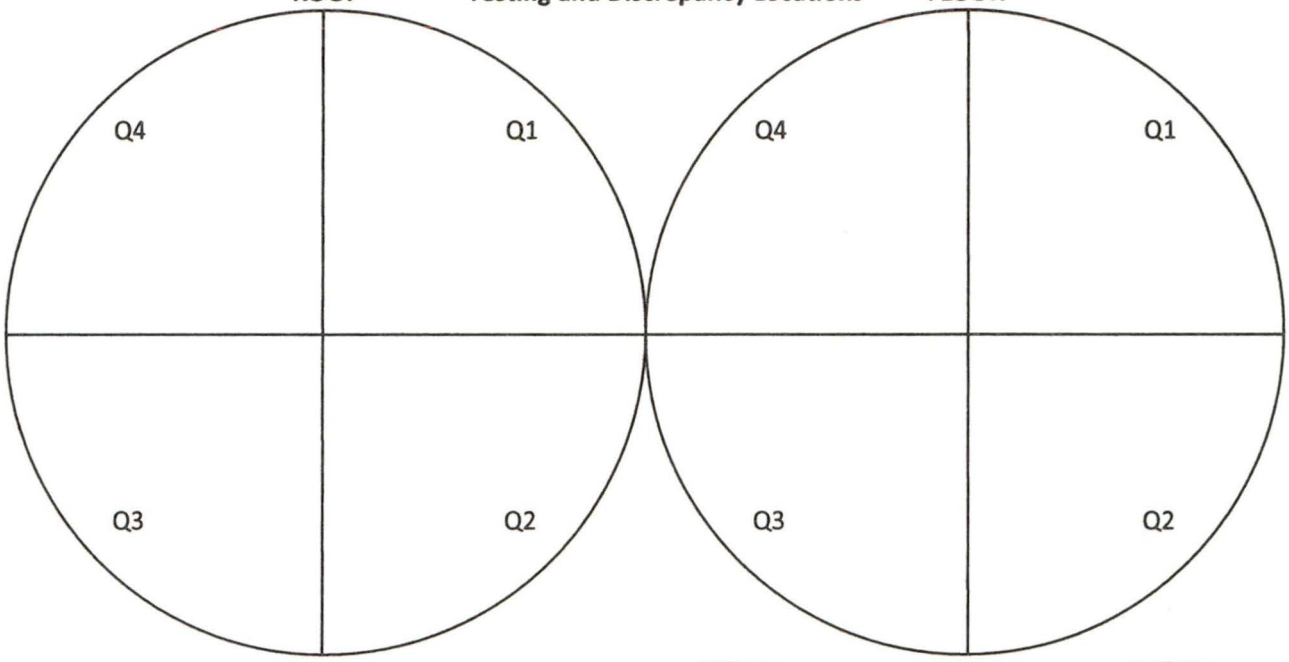
Liquid Engineering Corporation

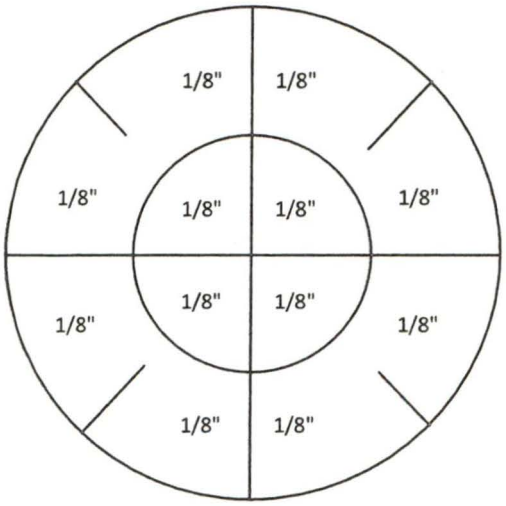
Circular Tank Diagram / Information Worksheet

Job Number 50463 Utility Name BIG SANDY WATER DISTRICT Tank Name US 23 A 300KG

Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4

ROOF **Testing and Discrepancy Locations** **FLOOR**

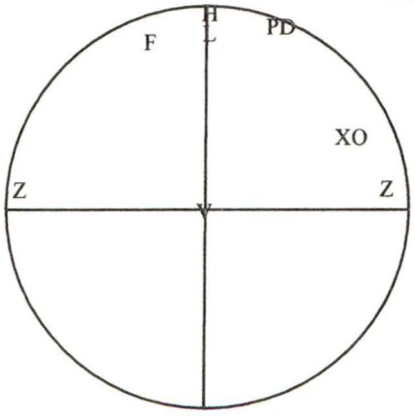




Sediment Depth Measurements

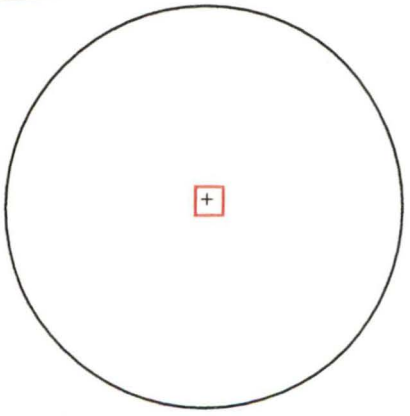
Average Sediment Depth = The sum of all measurements taken, divided by the number of measurements taken

Avg. Depth 1/8" **Cubic Yardage** **Sediment Type** IRON



Plumbing & Structure location

Plumbing and structure codes
O=Outlet X=Inlet Z=Manway
V=Vent D=Drain S=Sump
L=Ladder H=Hatch P=Overflow
F=Float Level Indicator
T=Telemetry



Column Placement

Type of Column

Base Structure

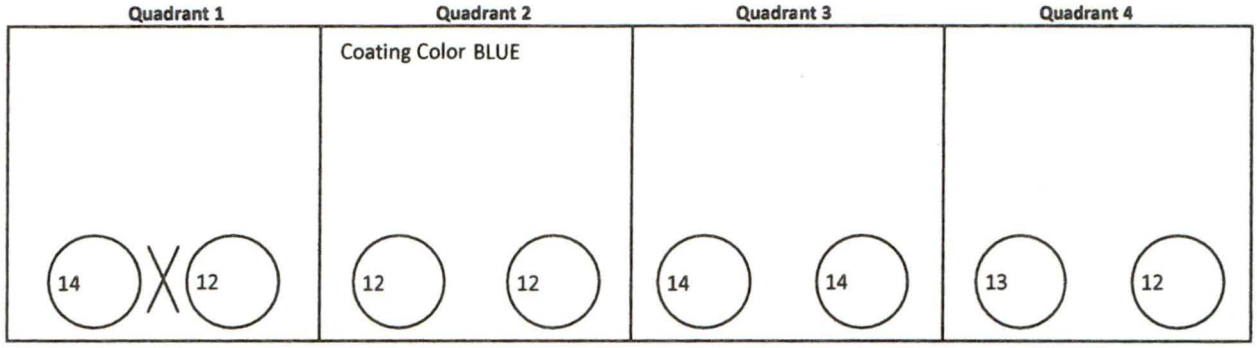
Top Structure

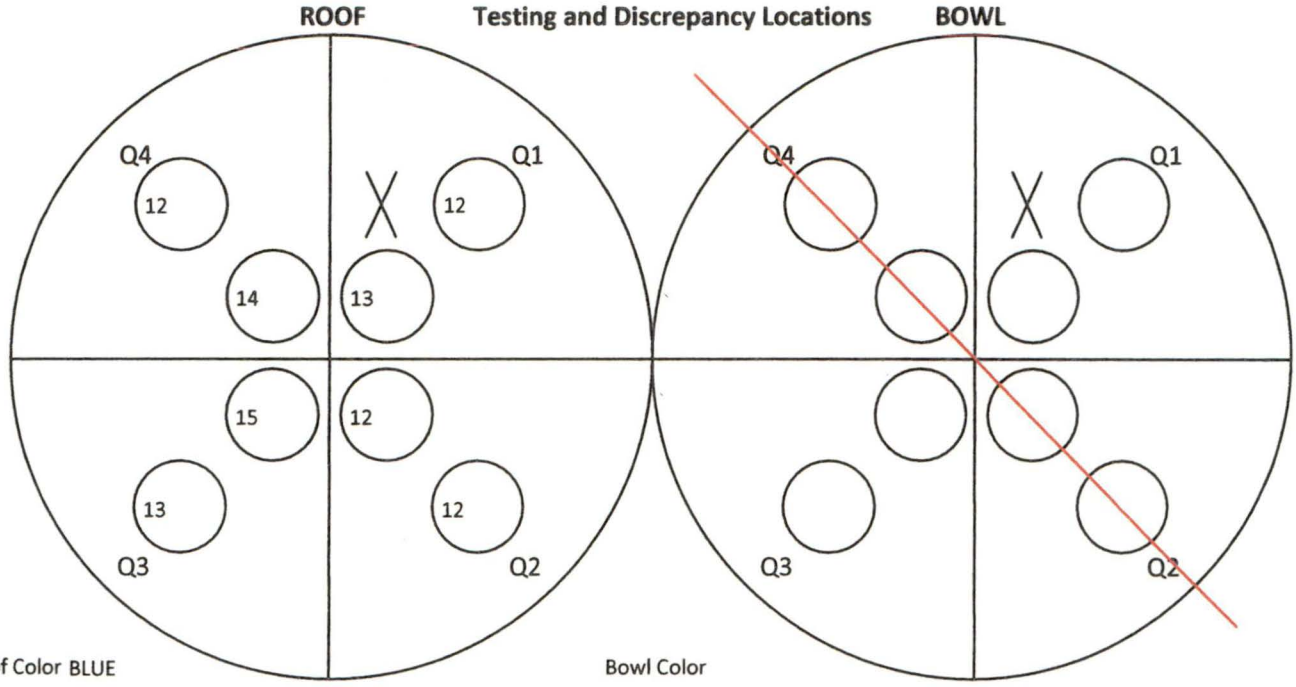
Column Construction Steel

Liquid Engineering Corporation

Circular Tank Diagram / NDT ☐ DFT ☑ Coating Adhesion ☐ Presence of lead ☐

Job Number 50463 Utility Name BIG SANDY WATER DISTRICT Tank Name US 23 A 300KG





Roof Color BLUE

Bowl Color

Liquid Engineering Corporation

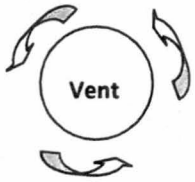
Steel Potable Water Reservoir Security / Measurement Worksheet

Job Number 50463 Utility Name BIG SANDY WATER DISTRICT Tank Name US 23 A 300KG

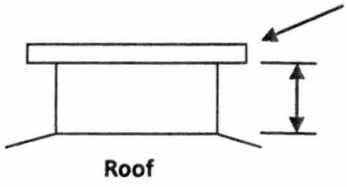
Security

Is the area surrounding the tank well lit?	Yes
Is the tank surrounded by a Security Fence?	Yes
Are the access gates locked?	Yes
Is the tank equipped with a Vandal Guard on the primary access ladder?	Yes
If so, is the Vandal Guard locked?	N/A
Are the vents equipped with security vent shrouds?	No
Are all of the hatches equipped with electronic monitoring devices?	No
Are the external plumbing components housed in a secure vault or out-building?	Yes
Does the surrounding geography of the tank obscure it from public view?	Yes
Does the exterior of the tank show signs of trespass?	No

Measurements

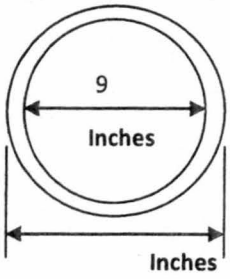


Outside Circumference
45 **Inches**

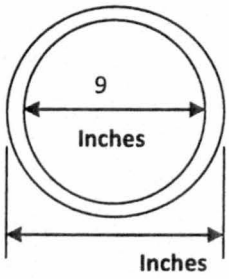


Flange Metal Thickness	3/8	**Inches**
Roof to Screen or Flange	8	**Inches**
Flange	Yes	
Number of Bolt Holes	8	**Inches**
Size of Bolts	1	**Inches**

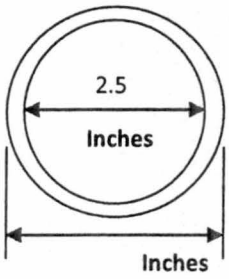
Inlet



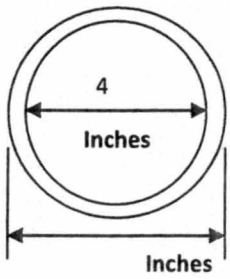
Outlet



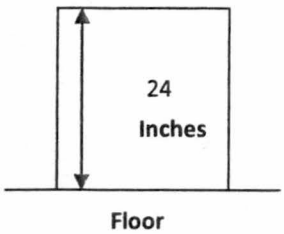
Drain



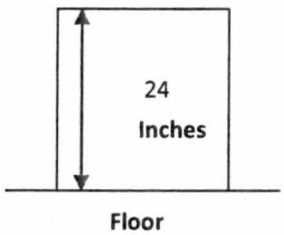
Overflow

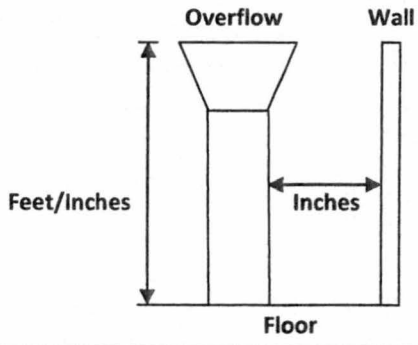


Inlet Riser



Outlet Riser





Liquid Engineering Corporation

Steel Potable Water Reservoir Immediate Needs Assessment

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: US 23 A 300KG

Inspector: J. FAUROT | Dive Controller: E.POTTER | Date: 11/12/2016

1. **Health and Safety Items**
   - ☑ Safety Climb System Installation: INTERIOR LADDER SAFETY CABLE IS NOT INTACT
   - ☐ Vent Screen Repairs:

2. **Testing Items**
   - ☐ Dye Testing for Leak Evaluation:
   - ☐ Presence of Lead Test (Interior/Exterior):

3. **Destructive Testing Items**
   - ☐ % of Lead Test (Interior/Exterior) *(Coating samples are removed for laboratory analysis)*
   - ☐ Coating Adhesion Test (Interior/Exterior):

   Specific written authorization required to perform destructive testing. Destructive tests include touch-up of coating system.

4. **Repair Items**
   - ☐ Epoxy Coating Repairs:
   - ☐ Temporary Leak Repairs:
   - ☐ Float Operated Level Indicator Repairs / Maintenance:
   - ☐ Hypalon Repairs:

5. **Security Related Items** *(Critical security upgrade information is immediately available)*
   - ☐ Tank vents are not equipped with a security vent shroud:
   - ☐ Tank hatches are not equipped with a security hatch locking device:
   - ☐ Tank perimeter not adequately secured:

The above mentioned additional work is considered immediately necessary and is recommended to be completed. Some items may be completed in conjunction with work currently being performed while the crew is on site.

Reservoir Inspection Condition Supplemental

CLEAN AND INSPECT EVERY 3-5 YEARS

FLOOR: POSSIBLE BLISTERING, AREAS TESTED WERE NOT SOFT AND DID NOT CRACK, POSSIBLE PAINT DRIPS. NO CORROSION.
INLET/OUTLET: MINOR CONCENTRATION CELL CORROSION.
MANWAYS: CONCENTRATION CELL CORROSION. 4TH QUADRENT HAS CORROSION NEXT TO GASKET MATERIAL.
COLUMN: HEAVY CONCENTRATION CELL CORROSION ON BASE. CONCENTRATION CELL CORROSION ON COLUMN.
WALLS: HEAVY SAGGING AND RUNNING IN COATING, BUT NO DEFICIENCIES OR CORROSION.
ROOF SUPPORTS: UNIFORM SURFACE CORROSION.
ROOF PANELS: UNIFORM SURFACE CORROSION. HEAVIER ON WELD SEAMS. 2 PENETRATION POINTS ALLOWING IN LIGHT.
WALL TO ROOF WELD: HEAVY CONCENTRATION CELL CORROSION.

Liquid Engineering Corporation

Steel Potable Water Reservoir Inspection Report

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: US 23 B

Inspector: M BUTAK | Dive Controller: J FAUROT | Date: 11/12/2016

AMERICAN WATER WORKS ASSOCIATION
ANSI/AWWA M42 / D101-53

SSPC Legend

Grade	Description
10	No Rusting, or <0.01% of surface is rusted
9	Minor rusting, or <0.03% of surface is rusted
8	Isolated rust, <.01% of surface is rusted
7	Isolated rust, <.03% of surface is rusted
6	Extensive rusting, <1% of surface is rusted
5	Approximately 3% of the surface is rusted
4	Approximately 10% of the surface is rusted
3	Approximately 17% of the surface is rusted
2	Approximately 33% of the surface is rusted
1	Approximately 50% of the surface is rusted
0	Approximately 100% of the surface is rusted

NACE Legend

Grade	Description
A	None
B	Uniform Surface Corrosion
C	Pitting
D	Concentration Cell Corrosion
E	Galvanic Corrosion
F	Stress Corrosion Cracking
G	Erosion Corrosion
H	Intergranular Corrosion
I	Dealloying

AWS Legend

Grade	Description
L	Satisfactory
M	Spatter
N	Porosity
O	Convexity / Concavity
P	Cracks
Q	Inclusions
R	Incomplete Fusion
S	Incomplete Penetration
T	Undercut
U	Underfill
V	Overlap
W	Unable to evaluate

INTERIOR RESERVOIR ROOF

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Vents	10	A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roof Panels	10	A	N/A	10	A	N/A	10	A	N/A	10	A	N/A
~~Roof Support~~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
~~Roof Gussets~~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
~~Painting Ring~~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Good | Average Blister Diameter NONE | Average Pit Depth NONE

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☑ Sags/Runs ☐

INTERIOR RESERVOIR WALLS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Wall to Roof weld	8	B	N/A	8	B	N/A	8	B	N/A	8	B	N/A
Lower Ring Panels	7	D	N/A	7	D	N/A	7	D	N/A	7	D	N/A
Middle Ring Panels	7	D	N/A	7	D	N/A	7	D	N/A	7	D	N/A
Upper Ring Panels	8	D	N/A	8	D	N/A	8	D	N/A	8	D	N/A
~~Interior Ladder~~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Good | Average Blister Diameter NONE | Average Pit Depth 1/4"

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☑ Sags/Runs ☐

INTERIOR RESERVOIR FLOOR

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
~~Perimeter Weld~~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
~~Floor Panels~~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Good | Average Blister Diameter NONE | Average Pit Depth NONE

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☐ Sags/Runs ☐

Liquid Engineering Corporation

Steel Potable Water Reservoir Inspection Report

Job Number: 50463 | Utility: BIG SANDY WATER DISTRICT | Tank: US 23 B

Inspector: M BUTAK | Dive Controller: J FAUROT | Date: 11/12/2016

INTERIOR RESERVOIR SUPPORT COLUMNS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Column Structures	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Column Bases	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Column to Roof	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating ---- Average Blister Diameter Average Pit Depth

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☐ Sags/Runs ☐

INTERIOR RESERVOIR PLUMBING COMPONENTS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Inlet Plumbing	6	B,D	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Outlet Plumbing	N/A	N/A	N/A	7	B,D	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Manways	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6	B,D	N/A
Floor Drains	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Interior Overflow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9	B	N/A

EXTERIOR RESERVOIR ROOF

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Vents	10	A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roof Panels	10	A	N/A	10	A	N/A	10	A	N/A	10	A	N/A
Access Hatches	10	A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Overall Coating Rating Good Average Blister Diameter NONE Average Pit Depth NONE

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☑ Sags/Runs ☐

EXTERIOR RESERVOIR WALLS

	QUADRANT 1			QUADRANT 2			QUADRANT 3			QUADRANT 4		
	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS	SSPC	NACE	AWS
Wall to Roof Weld	9	B	N/A	9	B	N/A	9	B	N/A	9	B	N/A
Lower Ring Panels	9	B	N/A	9	B	N/A	9	B	N/A	9	B	N/A
Mid Ring Panels	9	B	N/A	9	B	N/A	9	B	N/A	9	B	N/A
Upper Ring Panels	9	B	N/A	9	B	N/A	9	B	N/A	9	B	N/A
Exterior Overflow	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10	B	N/A

Overall Coating Rating Good Average Blister Diameter NONE Average Pit Depth NONE

Coating Deficiencies: Blistering ☐ Delamination ☐ Chalking ☐ Checking ☐ Cracking ☐ Growth ☐ Pinholes ☐ Staining ☐ Sags/Runs ☐

FOOTINGS / FOUNDATION

Footings / Foundations:	Satisfactory ☑	Cracking ☐	Spalling ☐	Erosion/Exposed Aggregate ☐
Anchor Bolts:	Satisfactory ☑	Loose ☐	Rusted Corroded ☐	(If excessive) Diameter =

TOWER SUPPORT STRUCTURES

Tower Legs/Columns:	Satisfactory ☐	Alignment ----	Settling ----	Rust /Corrosion ----
Riser Pipe:	Satisfactory ☐	Alignment ----	Frost Casing ----	Rust /Corrosion ----
Rods & Turnbuckles:	Satisfactory ☐	Turnbuckle Tension ----	Rod Tension ----	Cotter Pins/Rod Nuts ----
Leg shoes/Brackets:	Satisfactory ☐	Coating ----	Rust/Corrosion ----	Pitting/Cracking ----

Liquid Engineering Corporation

Potable Water Reservoir Contamination, Health and Safety Report

Job Number: 50463	Utility: BIG SANDY WATER DISTRICT	Tank: US 23 B
Inspector: M BUTAK	Dive Controller: J FAUROT	Date: 11/12/2016

Complies With: AWWA • OSHA • ANSI • NIOSH • NAVFAC • NFPAC

CONTAMINATION & HEALTH

Air Vents	Type: MUSHROOM		#: ----	Screen Condition(s): Good	
Hatches	Type: Square		#: 1	Secured Properly: Yes	Properly Sealed: Yes
Exterior Overflow	Flapper: ----	Screen: ----		Gasket: ----	Condition: Good
~~**Cathodic Covers**~~	~~In- Place: ----~~		~~#:~~	~~Gasket: ----~~	~~Properly Sealed: ----~~
Roof to Wall Joint	Welded: No	Properly Sealed: Yes			
Roof Integrity	Holes: No	Cracking: No	Standing Water: No		
Wall Integrity	Holes: No	Cracking: No			
Manway Integrity	Leaks: No	Condition: Good			
Water Clarity	General Appearance: CLEAR			Odor: NONE	
Floating Surface Debris	Type: NONE			Source: N/A	
~~**Hypalon Floating Cover**~~	~~Condition: ----~~	~~Holes: ----~~	~~Tears: ----~~		
Telemetry Penetrations	Properly Sealed: Yes				

FACILITY SAFETY COMPLIANCE

Exterior Ladder

Overall Ladder	Condition: Good	#: 1	Offset Landing: Yes	Height: 37"		
Vandal Guard	Present: None	Vandal Guard Locked: ----				
Ladder Rails & Rungs	Condition: Good	Missing/Damaged Rungs: No				
Rung Spacing & Depth	Spacing: 11" in. *(max 12")*	Toe Depth: 8" in. *(min 7")*				
Rail Spacing & Size	Width: 2" in. *(min 2")*	Thickness: 1.5" in. *(min 1/4")*	Rail to Rail: 17.5" in.*(min 16")*			
Safety Climb System	Type: Cage	Condition: Good				
Number & Locations	Wall: 1	Leg:	Roof:	Riser Pipe:	Other:	
Ladder Attachments						

Manways

Type and size	Type: Round	#: 1	Size: 30"	inches *(24" – 18'x22" min)*	
Support Structure	Type: Bolted	Condition: Good			
Number & Locations	Wall: 1	Roof:	Riser Pipe:	Other:	

Hatches

Hatch Type & Size	Type: Square	#: 1	Size: 30X30"	in. *(24" – 24"x15" min)*
Hatch & Lid Lip Height	Hatch: 3.5" in. *(min 4")*	Lid: 2" in. *(min 2")*		

Balconies & Railing

Deck / Walkways	Condition: Good	Width: 30"			
Hand Rails	Condition: Good	Height: 43" in. *(min 42")*	No. Rails: 2	*(min 2)*	
Toe Rail	Condition: Good	Height: 4.5" in. *(min 4")*			
Welds / Attachments	Condition: Good				

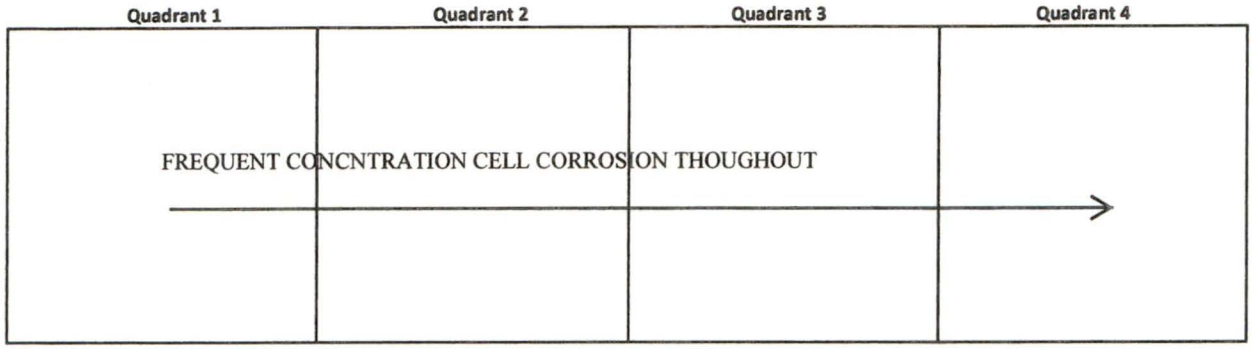
Roof

Safety Tie-Off Points	Condition: Good	#: 8	
Antennas	Type: -------	#: ----	

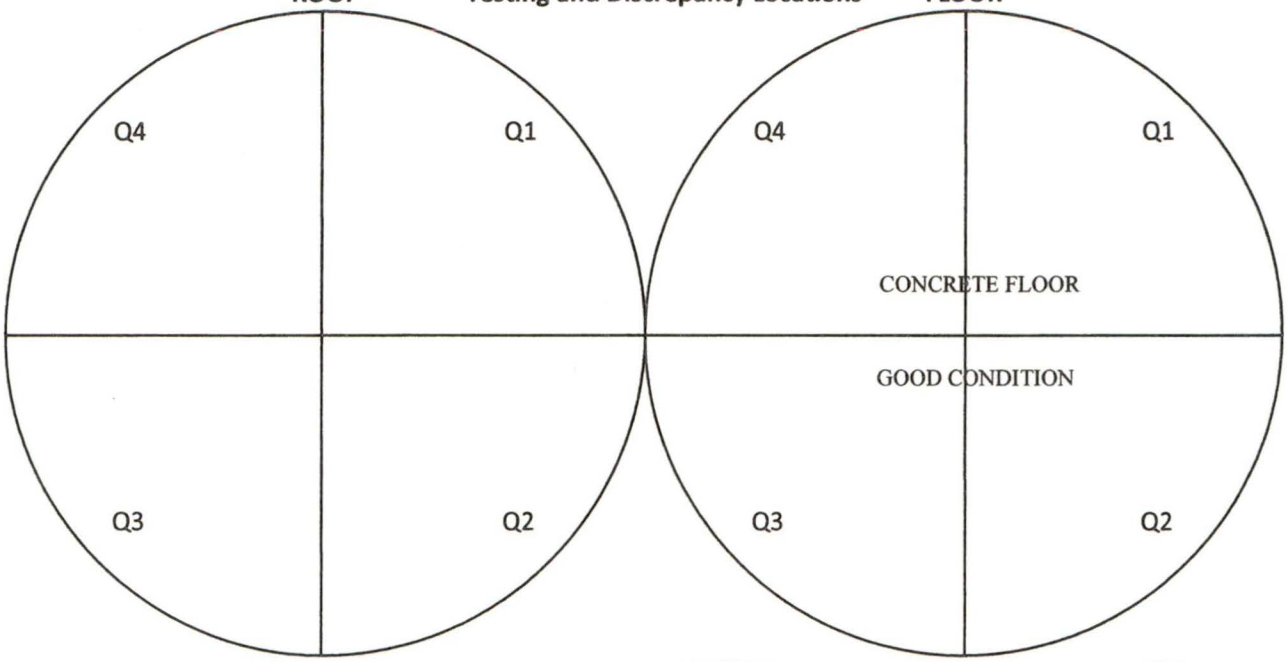
Liquid Engineering Corporation

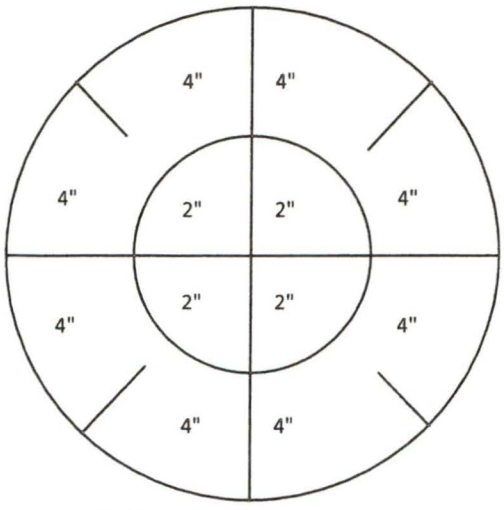
Circular Tank Diagram / Information Worksheet

Job Number 50463 Utility Name BIG SANDY WATER DISTRICT Tank Name US 23 B



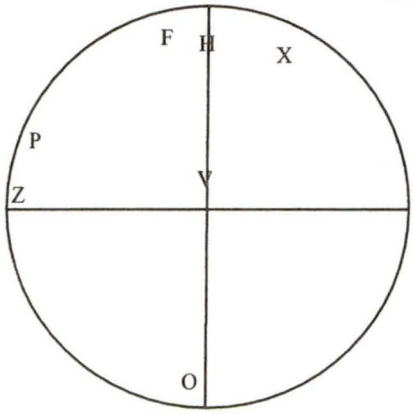
ROOF **Testing and Discrepancy Locations** **FLOOR**





Sediment Depth Measurements

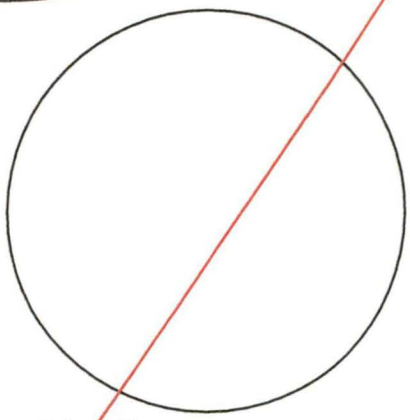
Average Sediment Depth = The sum of all measurements taken, divided by the number of measurements taken



Plumbing & Structure location

Plumbing and structure codes

O=Outlet X=Inlet Z=Manway
V=Vent D=Drain S=Sump
L=Ladder H=Hatch P=Overflow
F=Float Level Indicator
T=Telemetry



Column Placement

Type of Column

Base Structure

Top Structure

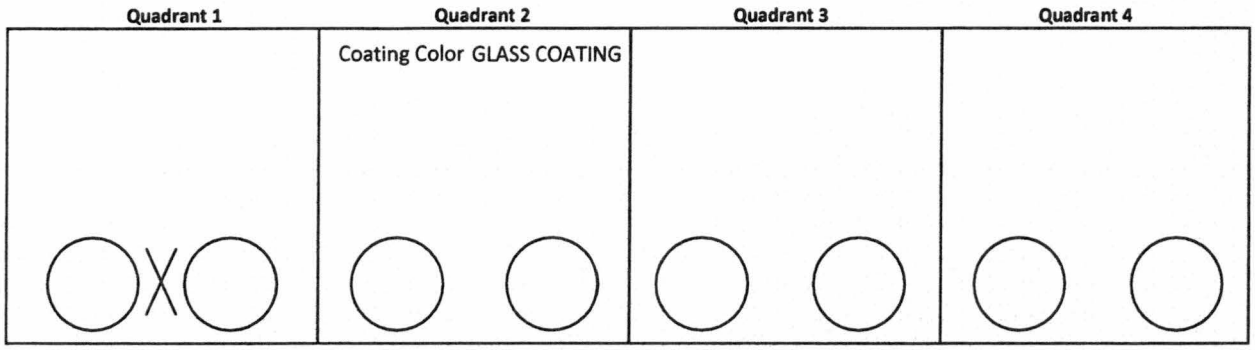
Column Construction ------

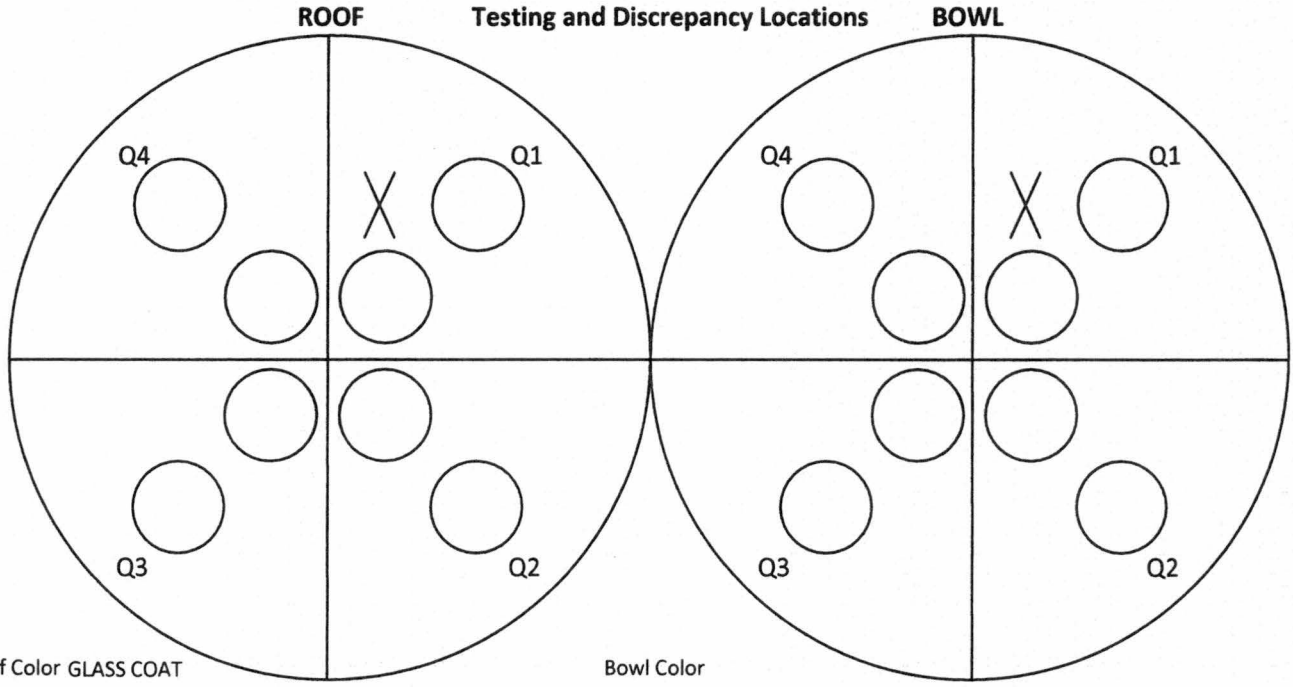
Avg. Depth **Cubic Yardage** **Sediment Type** IRON/FLOCULANT

Liquid Engineering Corporation

Circular Tank Diagram / NDT ☐ DFT ☐ Coating Adhesion ☐ Presence of lead ☐

Job Number 50463 Utility Name BIG SANDY WATER DISTRICT Tank Name US 23 B





Roof Color GLASS COAT

Bowl Color

Liquid Engineering Corporation

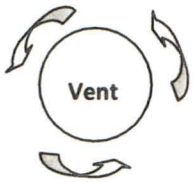
Steel Potable Water Reservoir Security / Measurement Worksheet

Job Number 50463 Utility Name BIG SANDY WATER DISTRICT Tank Name US 23 B

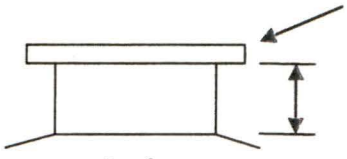
Security

Is the area surrounding the tank well lit?	Yes
Is the tank surrounded by a Security Fence?	Yes
Are the access gates locked?	Yes
Is the tank equipped with a Vandal Guard on the primary access ladder?	No
If so, is the Vandal Guard locked?	N/A
Are the vents equipped with security vent shrouds?	No
Are all of the hatches equipped with electronic monitoring devices?	No
Are the external plumbing components housed in a secure vault or out-building?	Yes
Does the surrounding geography of the tank obscure it from public view?	Yes
Does the exterior of the tank show signs of trespass?	No

Measurements

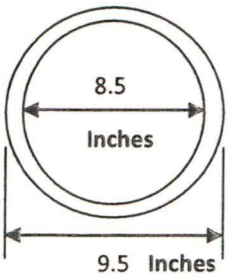


Outside Circumference
70" Inches

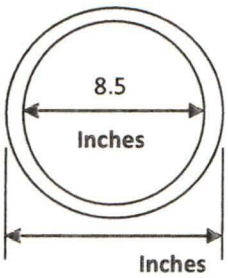


Flange Metal Thickness		Inches
Roof to Screen or Flange	9"	Inches
Flange	----	
Number of Bolt Holes		Inches
Size of Bolts		Inches

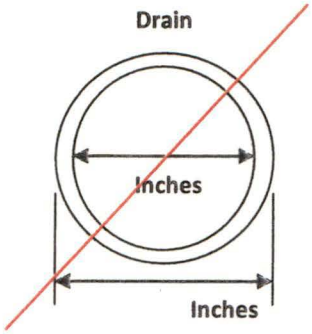
Inlet



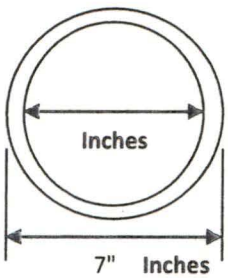
Outlet



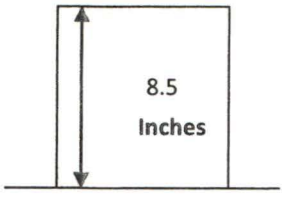
Drain



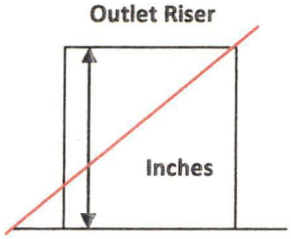
Overflow

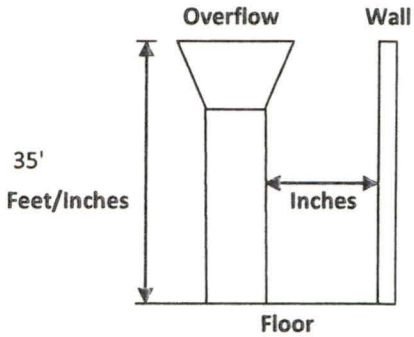


Inlet Riser



Outlet Riser





Liquid Engineering Corporation

Steel Potable Water Reservoir Immediate Needs Assessment

Job Number: 50463	Utility: BIG SANDY WATER DISTRICT	Tank: US 23 B
Inspector: M BUTAK	Dive Controller: J FAUROT	Date: 11/12/2016

1. **Health and Safety Items**
   - ☐ Safety Climb System Installation:
   - ☐ Vent Screen Repairs:

2. **Testing Items**
   - ☐ Dye Testing for Leak Evaluation:
   - ☐ Presence of Lead Test (Interior/Exterior):

3. **Destructive Testing Items**
   - ☐ % of Lead Test (Interior/Exterior) *(Coating samples are removed for laboratory analysis)*
   - ☐ Coating Adhesion Test (Interior/Exterior):

   Specific written authorization required to perform destructive testing. Destructive tests include touch-up of coating system.

4. **Repair Items**
   - ☑ Epoxy Coating Repairs: HEAVY METAL LOSS ON PANEL EDGES IN ALL 4 QUADRANTS. UP TO AND AROUND BOLTS IN SOME PLACES.
   - ☐ Temporary Leak Repairs:
   - ☐ Float Operated Level Indicator Repairs / Maintenance:
   - ☐ Hypalon Repairs:

5. **Security Related Items** *(Critical security upgrade information is immediately available)*
   - ☐ Tank vents are not equipped with a security vent shroud:
   - ☐ Tank hatches are not equipped with a security hatch locking device:
   - ☐ Tank perimeter not adequately secured:

The above mentioned additional work is considered immediately necessary and is recommended to be completed. Some items may be completed in conjunction with work currently being performed while the crew is on site.

Reservoir Inspection Condition Supplemental

CLEAN AND INSPECT EVERY 3-5 YEARS

FLOOR: CONCRETE FLOOR SHOWS STAINING, NO NOTABLE DISCREPENCIES. OVERALL GOOD CONDTION.
WALLS: PANEL EDGES SHOW HEAVY CONCENTRATION CELL CORROSION. HEAVY METAL LOSS WAS NOTED ON VIDEO. UP TO 1/4" PITTING, SOME METAL LOSS IS WORKING UP TO BOLTS ON INTERIOR. HIGH LIKELYHOOD OF LEAKING IN THE FUTURE. EPOXY REPAIRS ARE RECOMENDED AS SOON AS POSSIBLE. PANELS ARE IN OTHERWISE GOOD CONDITION. SOME CORROSION ON TOP ROW OF BOLTS AROUND PERIMETER OF RESERVIOR.
ROOF: NO NOTABLE DISCREPENCIES. SOME STAINING. PENETRATIONS ARE IN GOOD CONDITION. SMALL HOLE AT THE TOP OF VENT, COULD BE EASILY SEALED.
PLUMBING: HEAVY CONCNTRATION CELLS ON EXTERIOR OF INLET AND OUTLET. BOTH APPEAR TO BE FREE AND CLEAR OF BLOCKAGE. INTERIOR OVERFLOR STRUCTURE SHOWS SOME SURFACE CORROSION ON BOLTS, BUT APPEARS TO BE IN GOOD CONDITION.
MANWAY: HEAVY CONCNTRATION CELL CORROSION AROUND LIP OF INTERIOR MANWAY. NO SIGNS OF LEAKING, APPEARS TO BE IN FAIR CONDITION.
ANODES: ALL ANODES IN RESERVIOR ARE ENTIRELY DEPLETED. REPLACEMENT RECOMENDED AS SOON AS POSSIBLE.

APPENDIX E

EXISTING

AND

PROPOSED FACILITIES

Number and Capacity of Pump Station(s): 11 total as follows:

State Route 538 – 2 @ 700 gpm each

Whites Creek – 250 gpm each

Burnaugh – 200 gpm each

US 60 (Coalton) – 200 gpm each

Ced Gap – 150 gpm each

Fullers Ridge – 60 gpm each

Cunningham Hill – 60 gpm each

Quarry Branch – 96 gpm each

Point Section – 100 gpm each

Deephole – 20 gpm each

Raven Rock – 40 gpm each

Appendix – Tanks

1) U.S. 23 Tank – (2) tanks

   Capacity 300,000 gallons

2) Bowling Drive Tank

   Capacity 200,000 gallons

3) Rush Hill Tank

   Capacity 137,000 gallons

4) Buchannan Tank

   Capacity 100,000 gallons

5) Quarry Branch Tank

   Capacity 75,000 gallons

6) Fullers Ridge Tank

   Capacity 23,500 gallons

7) Donithon Road Tank

   Capacity 100,000 gallons

8) Arland Delong Tank

   Capacity 100,000 gallons

9) Cunningham Hill Tank

   Capacity 40,000 gallons

10) Jerry Riffe Ridge Tan (not in use)

    Capacity 37,000 gallons

Appendix

Proposed List of Roads for New Service Lines

Old Contract "G"

1. Bear Creek Rd. (S.R. 1937)
2. U.S. 23
3. Clay Jack Fork Rd.
4. Blue Ribbon Rd.
5. Brooks Rd.
6. Golden Gate Rd.
7. Brooks Lane
8. Right Fork Durbin Rd.
9. Pritchard Lane
10. Sheepbarn Hollow Rd.

Old Contract "J"

1. U.S. 23
2. Rush Creek Rd.
3. Bear Creek Rd. (S.R. 1937)
4. S.R. 707
5. Left Fork Durbin Rd.
6. Mill Branch Rd.
7. Blaine Creek Rd.
8. Silver Run
9. Big Run Trace Rd.
10. Long Branch Rd.
11. Roe Creek Rd.

Old Contract "E"

1. S.R. 854
2. U.S. RT 60
3. Fighting Fork Rd.
4. Norton Branch
5. S.R. 1654

Old Contract "H"

1. Old Williams Creek Rd.
2. Fighting Fork Rd.
3. U.S. 60/Cribbs Hill
4. Trace Rd. (Right & Left Fork)
5. Wilson Creek Rd.
6. Jack's Fork Rd.

APPENDIX F

TOPO MAPS

SYSTEM MAP

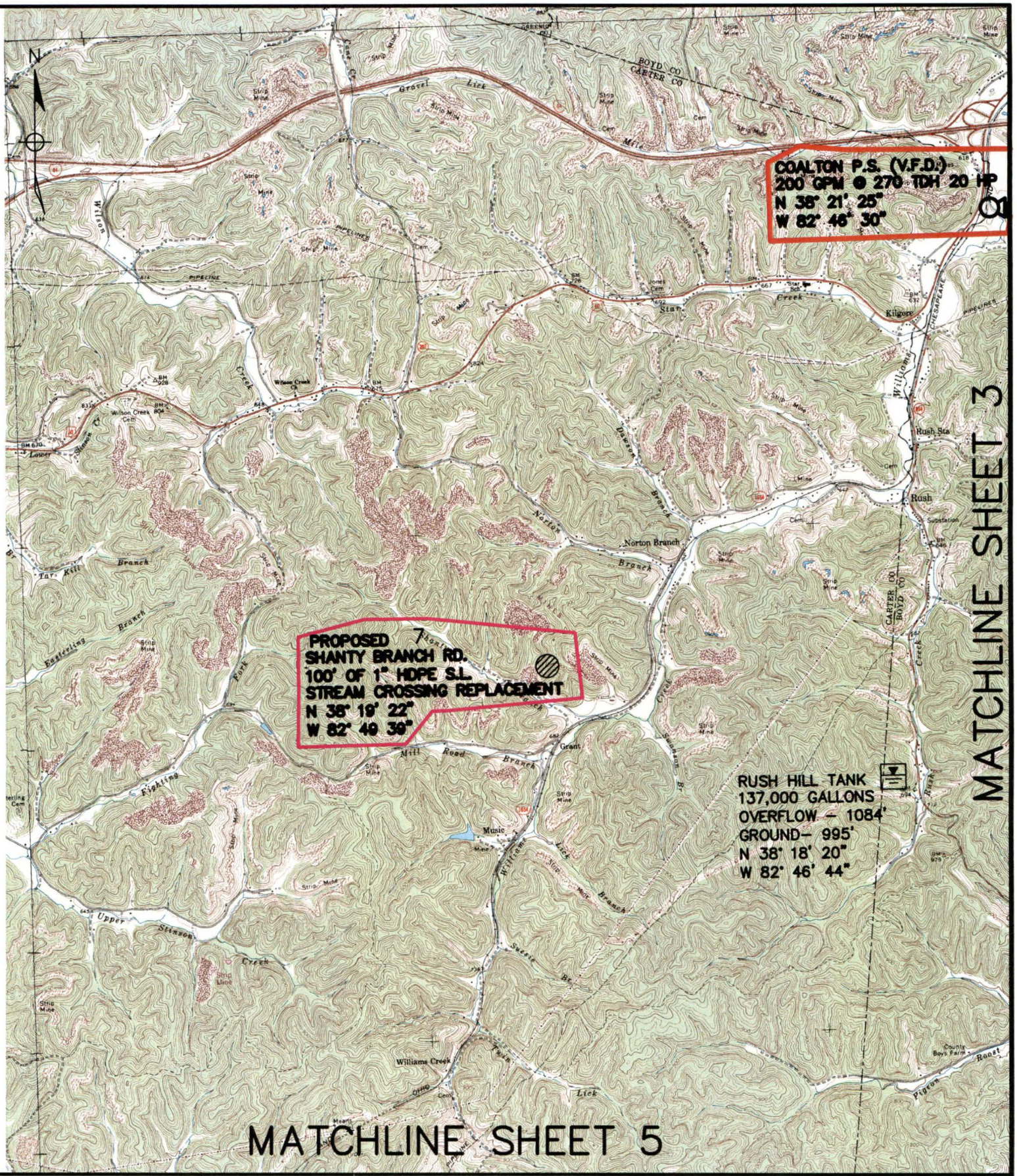
FIVCO MAP

SCALE:	1:4000
DATE:	08/18
DRAWN BY:	BCM
CHECKED BY:	JFS
APPROVED BY:	JFS

BIG SANDY WATER DISTRICT
PHASE V – WATER SYSTEM IMPROVEMENTS
BOYD, CARTER, & LAWRENCE COUNTIES, KY

SISLER-MAGGARD ENGINEERING, PLLC
Engineering – Surveying
220 E. REYNOLDS ROAD Lexington, Kentucky 40515
Tele. (859) 271-2978 Fax (859) 271-5670

CAD FILE NO:	15030
DWG NO:	1 of 12



SCALE:	1: 4000
DATE:	12/18
DRAWN BY:	BCM
CHECKED BY:	JFS
APPROVED BY:	JFS

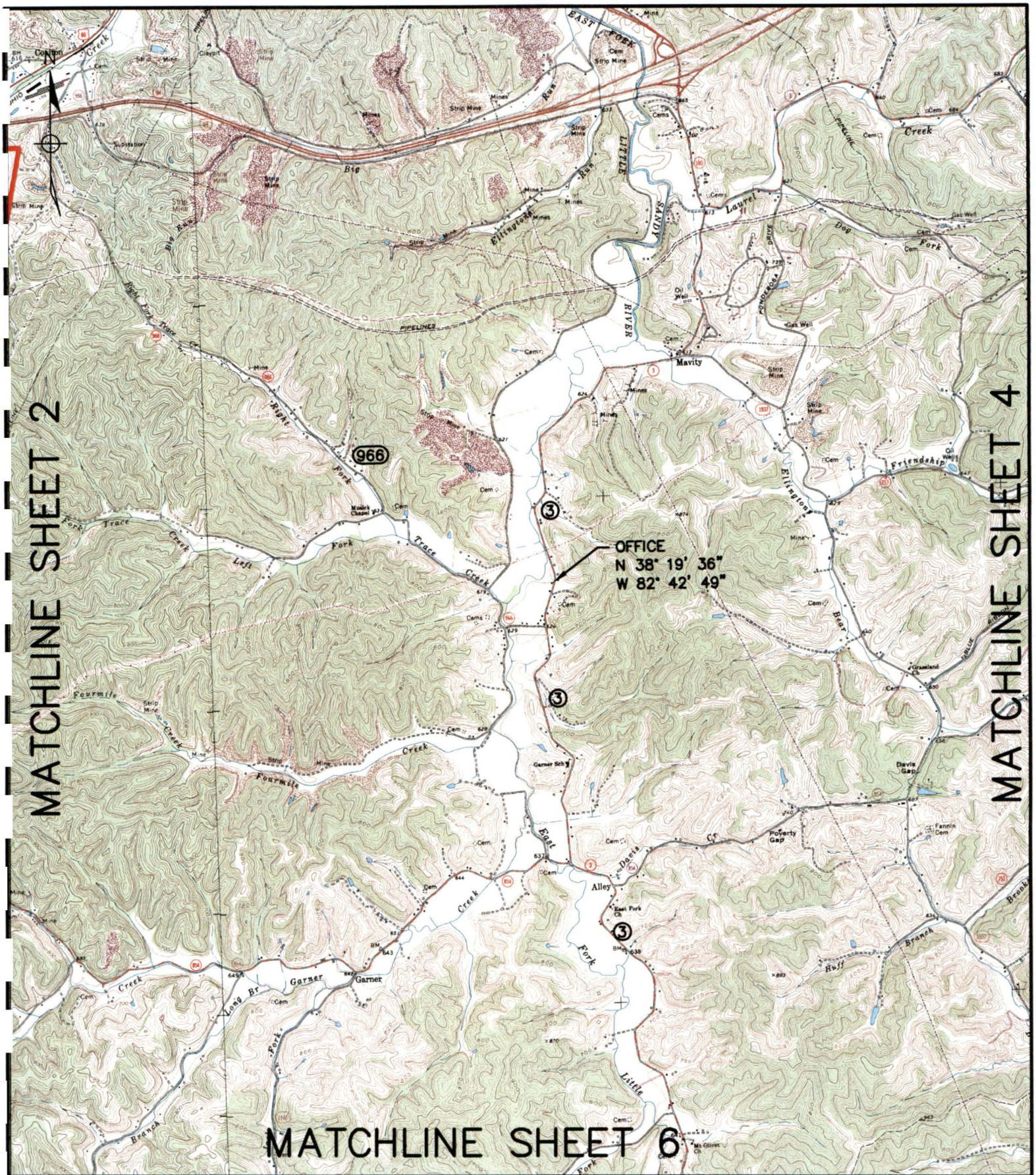
Sisler-Maggard Engineering, PLLC

BIG SANDY WATER DISTRICT
PHASE V – WATER SYSTEM IMPROVEMENTS
BOYD, CARTER, & LAWRENCE COUNTIES, KY

SISLER–MAGGARD ENGINEERING, PLLC
Engineering – Surveying
220 E. REYNOLDS ROAD Lexington, Kentucky 40515
Tele. (859) 271–2978 Fax (859) 271–5670

CAD FILE NO: 15030

DWG NO: 2 of 14



SCALE:	1:4000
DATE:	12/18
DRAWN BY:	BCM
CHECKED BY:	JFS
APPROVED BY:	JFS

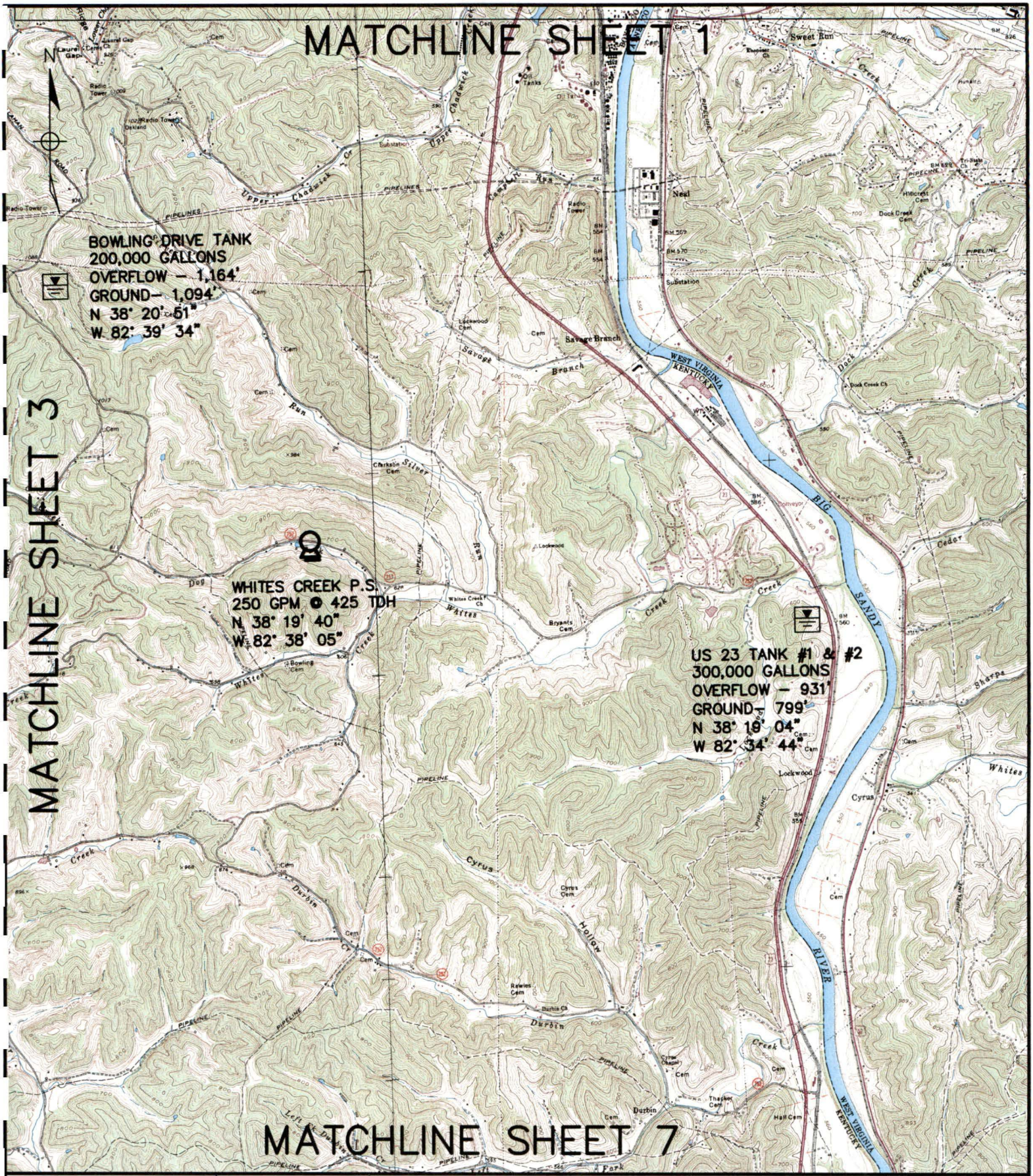
Sisler-Maggard Engineering, PLLC

BIG SANDY WATER DISTRICT
PHASE V – WATER SYSTEM IMPROVEMENTS
BOYD, CARTER, & LAWRENCE COUNTIES, KY

SISLER-MAGGARD ENGINEERING, PLLC
Engineering – Surveying
220 E. REYNOLDS ROAD Lexington, Kentucky 40515
Tele. (859) 271-2978 Fax (859) 271-5670

CAD FILE NO: 15030

DWG NO: 3 of 14



SCALE:	1:4000
DATE:	12/18
DRAWN BY:	BCM
CHECKED BY:	JFS
APPROVED BY:	JFS

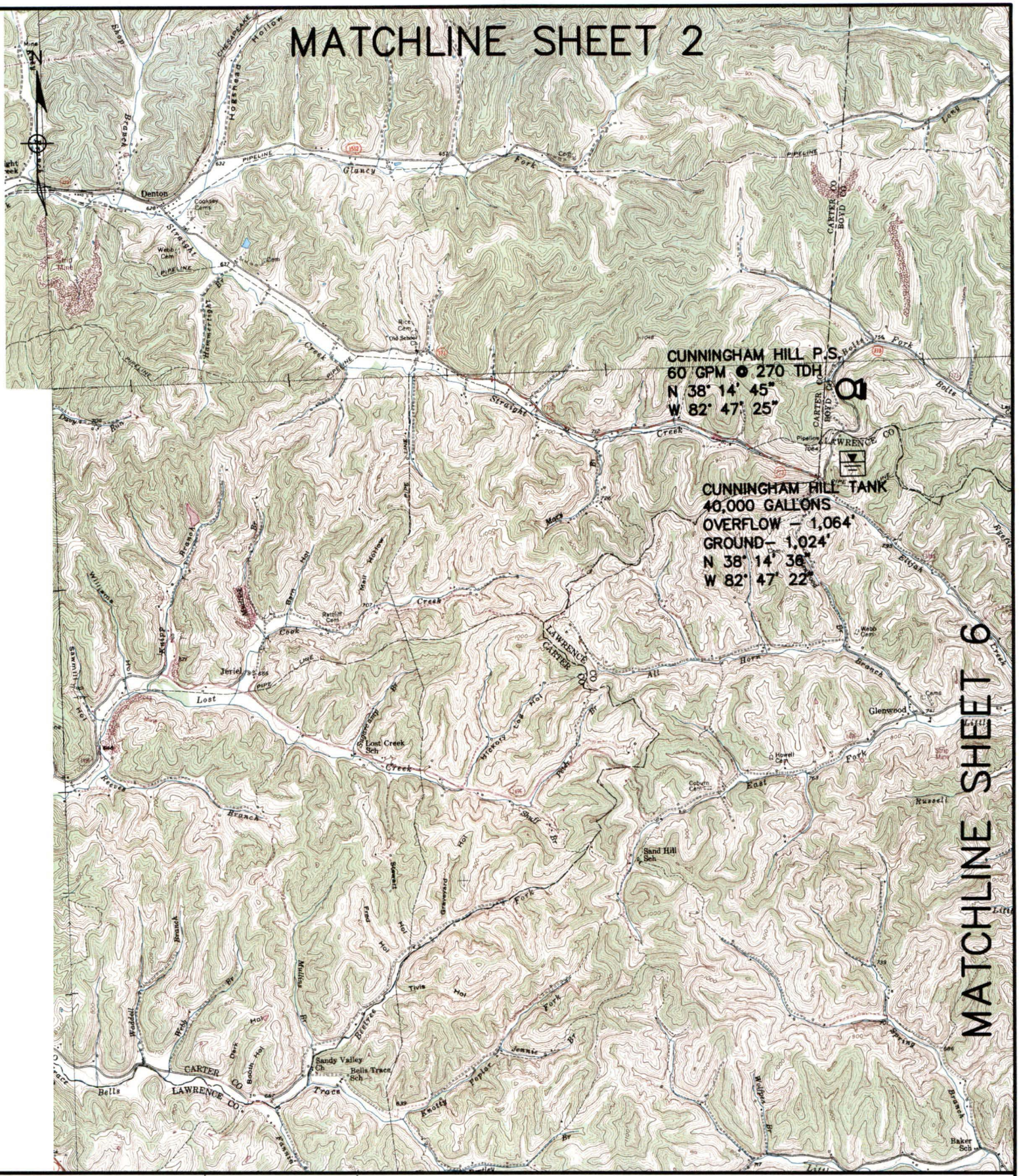
Sisler-Maggard Engineering, PLLC

BIG SANDY WATER DISTRICT
PHASE V – WATER SYSTEM IMPROVEMENTS
BOYD, CARTER, & LAWRENCE COUNTIES, KY

SISLER-MAGGARD ENGINEERING, PLLC
Engineering – Surveying
220 E. REYNOLDS ROAD Lexington, Kentucky 40515
Tele. (859) 271-2978 Fax (859) 271-5670

CAD FILE NO: 15030

DWG NO: 4 of 14



SCALE:	1:4000
DATE:	12/18
DRAWN BY:	BCM
CHECKED BY:	JFS
APPROVED BY:	JFS

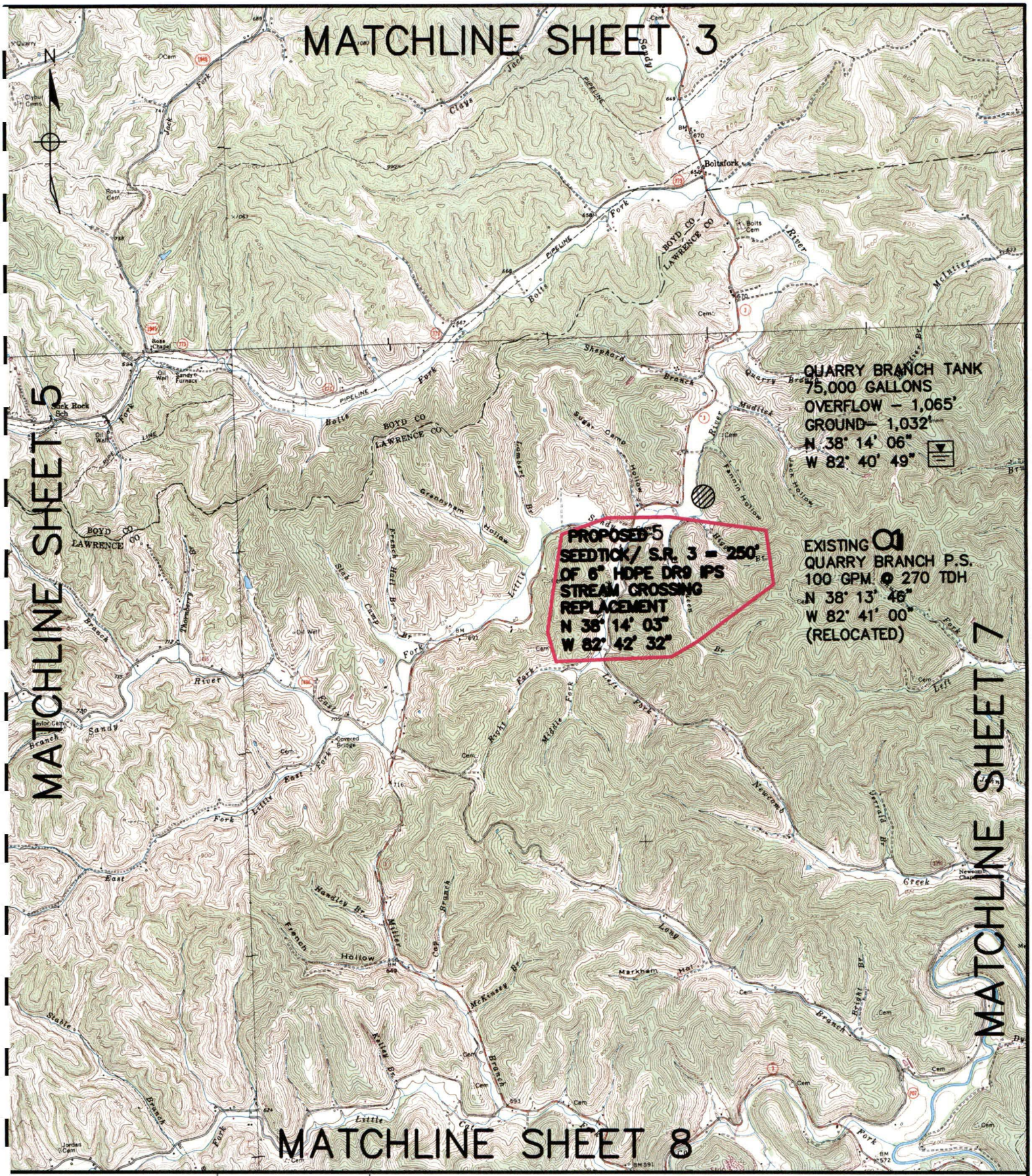
Sisler-Maggard Engineering, PLLC

BIG SANDY WATER DISTRICT
PHASE V – WATER SYSTEM IMPROVEMENTS
BOYD, CARTER, & LAWRENCE COUNTIES, KY

SISLER-MAGGARD ENGINEERING, PLLC
Engineering – Surveying
220 E. REYNOLDS ROAD Lexington, Kentucky 40515
Tele. (859) 271-2978 Fax (859) 271-5670

CAD FILE NO: 15030

DWG NO: 5 of 14



SCALE:	1:4000
DATE:	12/18
DRAWN BY:	BCM
CHECKED BY:	JFS
APPROVED BY:	JFS

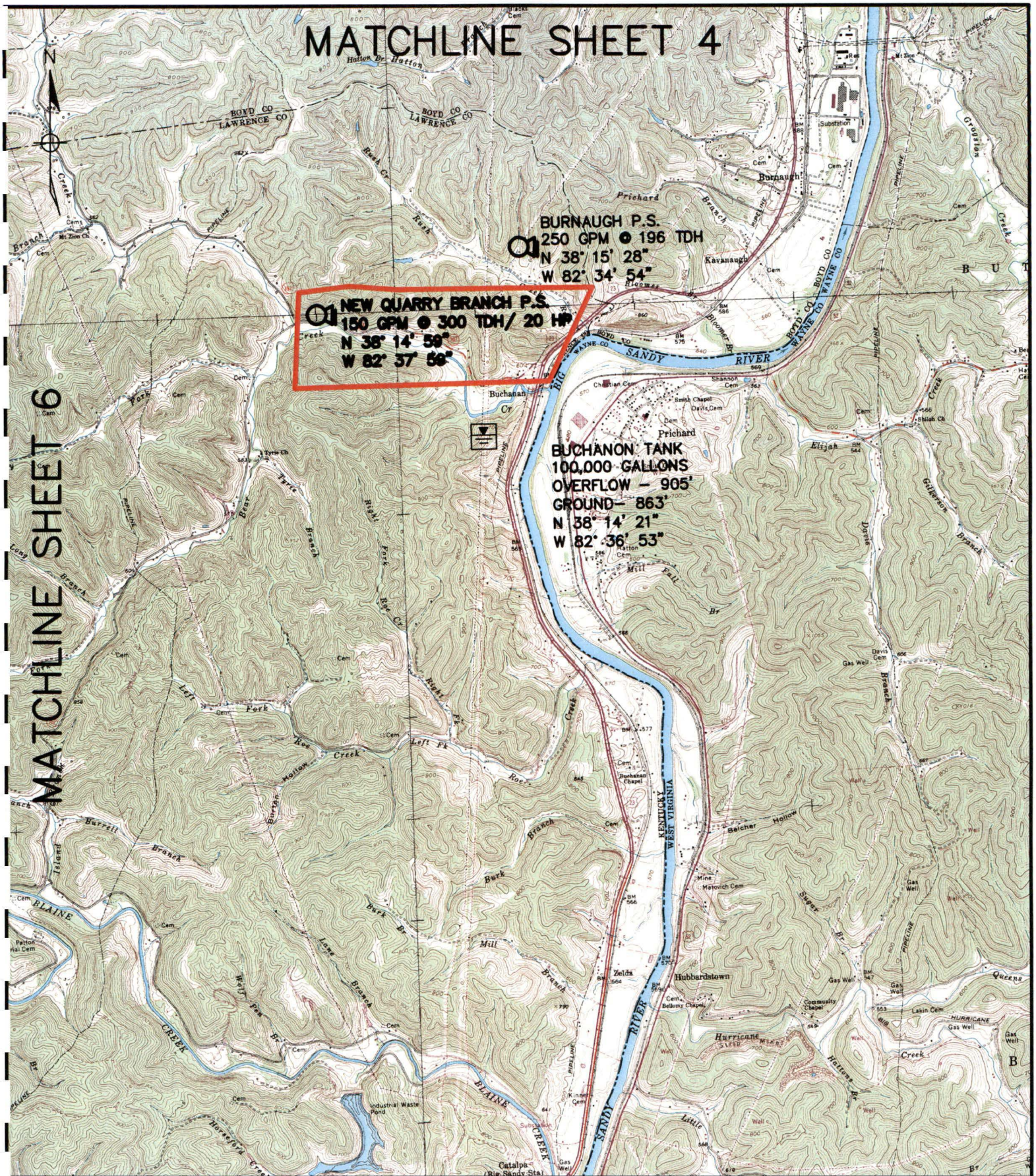
Sisler-Maggard Engineering, PLLC

BIG SANDY WATER DISTRICT
PHASE V – WATER SYSTEM IMPROVEMENTS
BOYD, CARTER, & LAWRENCE COUNTIES, KY

SISLER-MAGGARD ENGINEERING, PLLC
Engineering – Surveying
220 E. REYNOLDS ROAD Lexington, Kentucky 40515
Tele. (859) 271-2978 Fax (859) 271-5670

CAD FILE NO: 15030

DWG NO: 6 of 14



SCALE:	1:4000
DATE:	12/18
DRAWN BY:	BCM
CHECKED BY:	JFS
APPROVED BY:	JFS

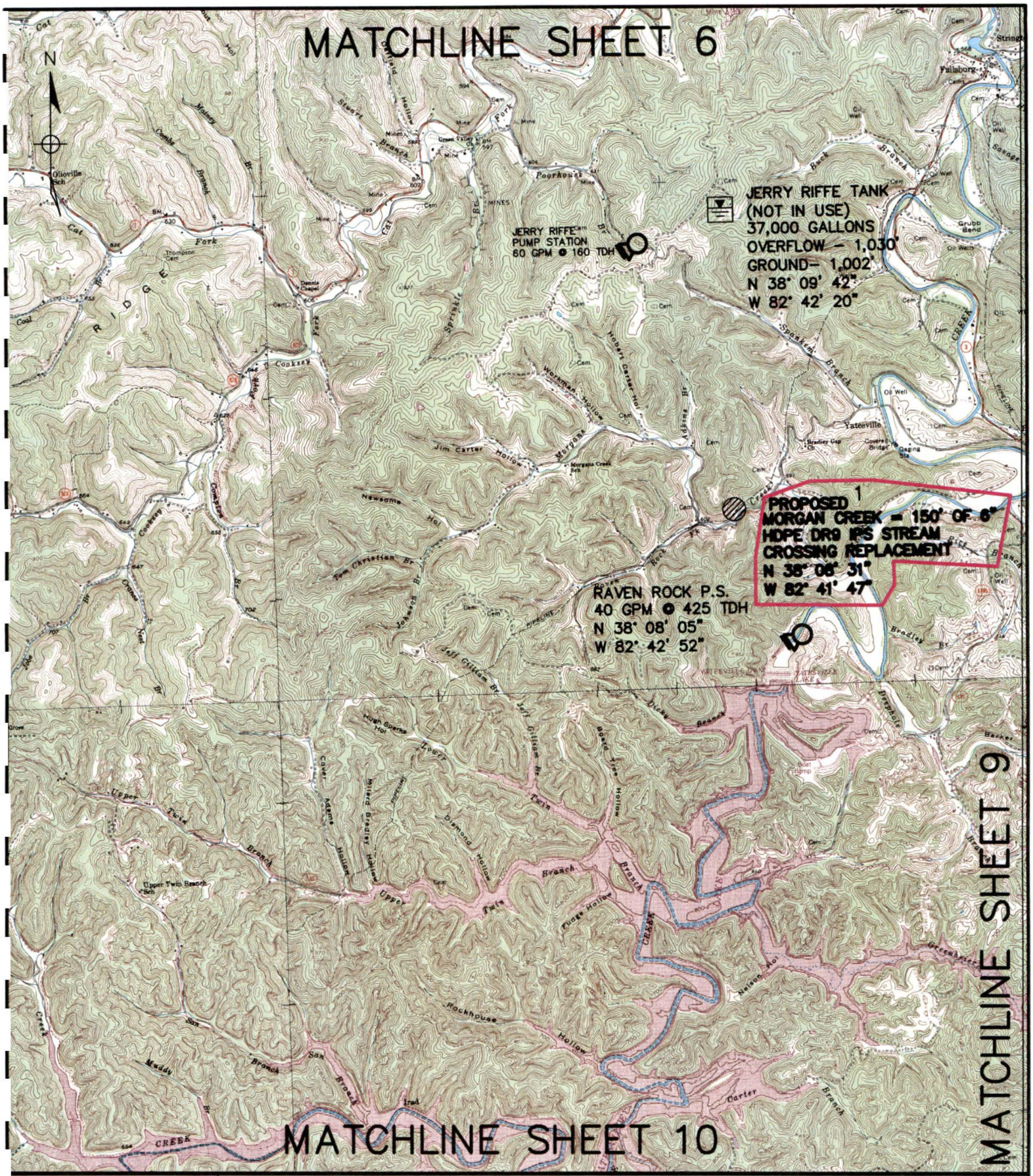
Sisler-Maggard Engineering, PLLC

BIG SANDY WATER DISTRICT
PHASE V – WATER SYSTEM IMPROVEMENTS
BOYD, CARTER, & LAWRENCE COUNTIES, KY

SISLER-MAGGARD ENGINEERING, PLLC
Engineering – Surveying
220 E. REYNOLDS ROAD Lexington, Kentucky 40515
Tele. (859) 271-2978 Fax (859) 271-5670

CAD FILE NO: 15030

DWG NO: 7 of 14



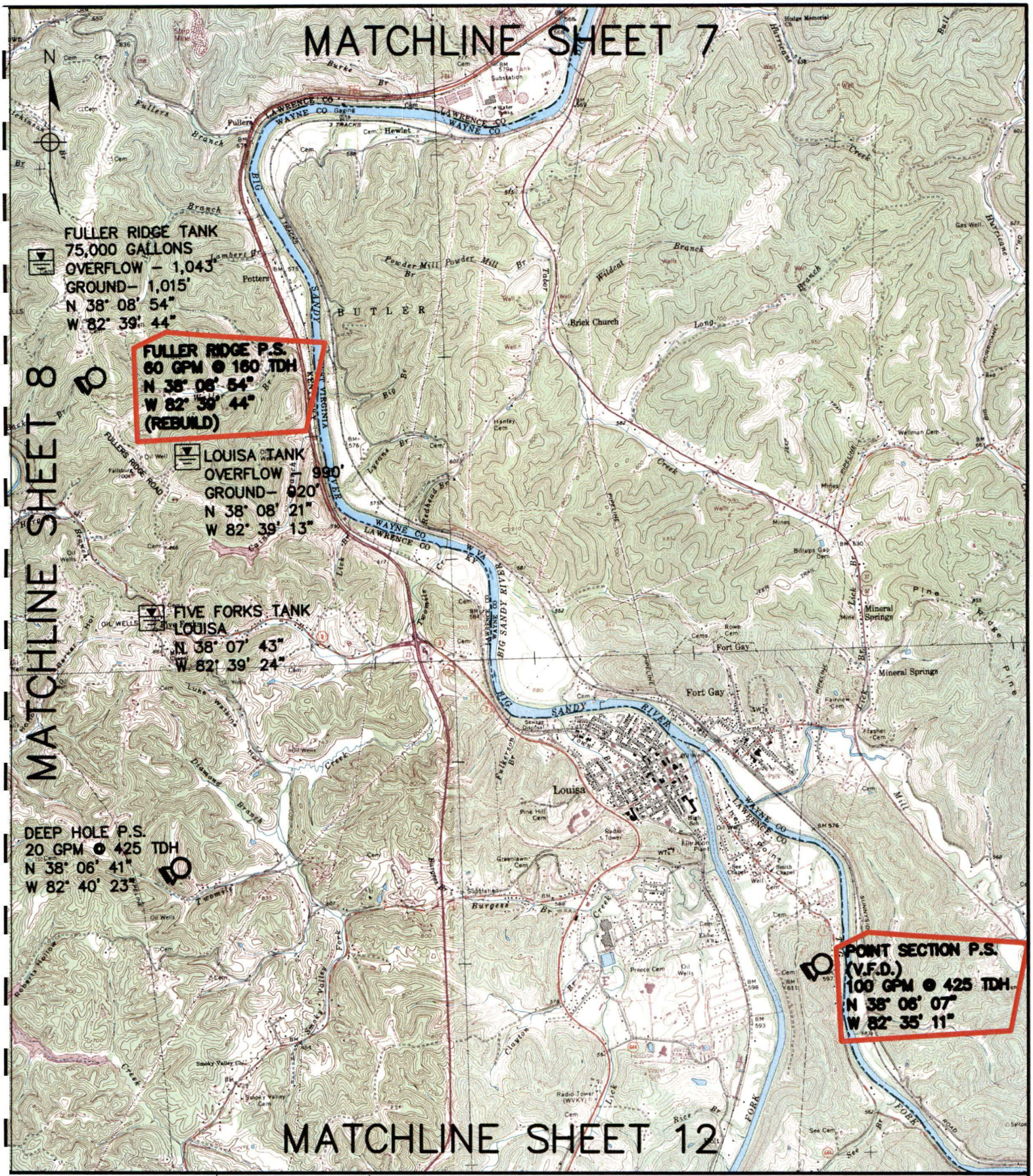
SCALE:	1: 4000
DATE:	01/19
DRAWN BY:	BCM
CHECKED BY:	JFS
APPROVED BY:	JFS

BIG SANDY WATER DISTRICT
PHASE V – WATER SYSTEM IMPROVEMENTS
BOYD, CARTER, & LAWRENCE COUNTIES, KY

SISLER–MAGGARD ENGINEERING, PLLC
Engineering – Surveying
220 E. REYNOLDS ROAD Lexington, Kentucky 40515
Tele. (859) 271–2978 Fax (859) 271–5670

CAD FILE NO: 15030

DWG NO: 8 of 14

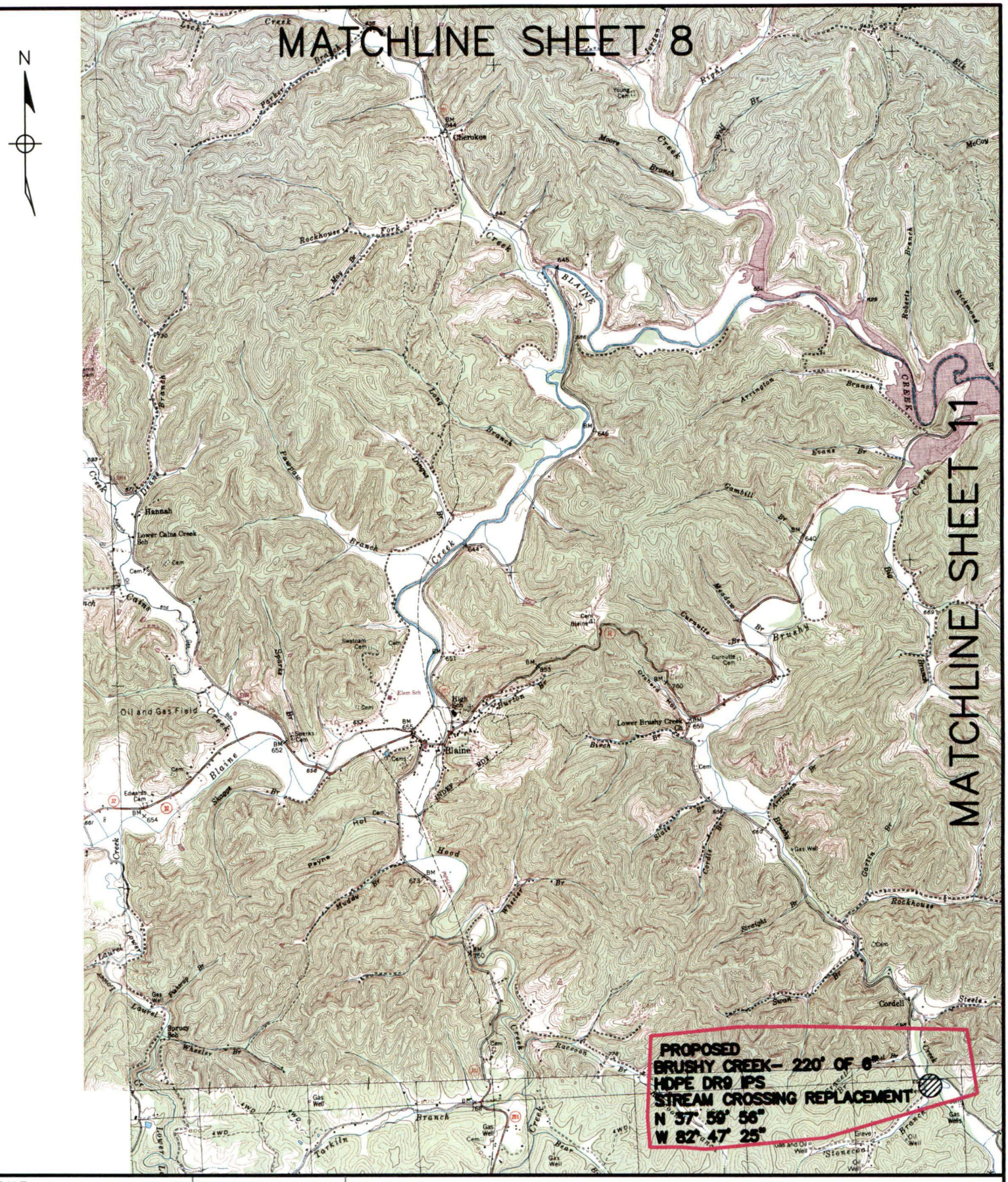


SCALE:	1:4000
DATE:	01/19
DRAWN BY:	BCM
CHECKED BY:	JFS
APPROVED BY:	JFS

BIG SANDY WATER DISTRICT
PHASE V – WATER SYSTEM IMPROVEMENTS
BOYD, CARTER, & LAWRENCE COUNTIES, KY

SISLER–MAGGARD ENGINEERING, PLLC
Engineering – Surveying
220 E. REYNOLDS ROAD Lexington, Kentucky 40515
Tele. (859) 271–2978 Fax (859) 271–5670

CAD FILE NO:	15030
DWG NO:	9 of 14



SCALE:	1: 4000
DATE:	12/18
DRAWN BY:	BCM
CHECKED BY:	JFS
APPROVED BY:	JFS

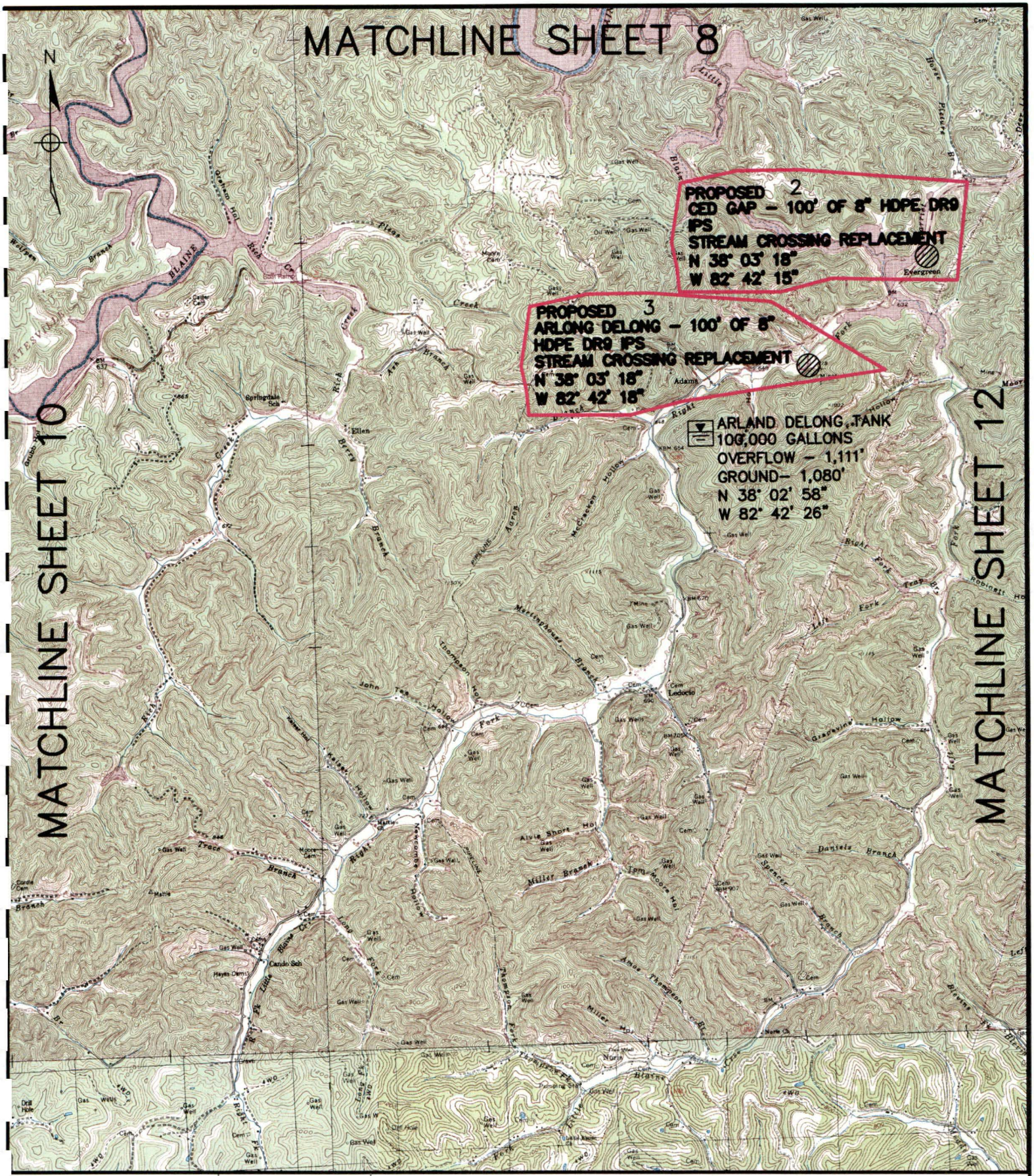
Sisler-Maggard Engineering, PLLC

BIG SANDY WATER DISTRICT
PHASE V – WATER SYSTEM IMPROVEMENTS
BOYD, CARTER, & LAWRENCE COUNTIES, KY

SISLER-MAGGARD ENGINEERING, PLLC
Engineering – Surveying
220 E. REYNOLDS ROAD Lexington, Kentucky 40515
Tele. (859) 271-2978 Fax (859) 271-5670

CAD FILE NO: 15030

DWG NO: 10 of 14



SCALE:	1:4000
DATE:	12/18
DRAWN BY:	BCM
CHECKED BY:	JFS
APPROVED BY:	JFS

Sisler-Maggard Engineering, PLLC

BIG SANDY WATER DISTRICT
PHASE V – WATER SYSTEM IMPROVEMENTS
BOYD, CARTER, & LAWRENCE COUNTIES, KY

SISLER–MAGGARD ENGINEERING, PLLC
Engineering – Surveying
220 E. REYNOLDS ROAD Lexington, Kentucky 40515
Tele. (859) 271–2978 Fax (859) 271–5670

CAD FILE NO: 15030

DWG NO: 11 of 14

SCALE:	1:4000
DATE:	12/18
DRAWN BY:	BCM
CHECKED BY:	JFS
APPROVED BY:	JFS

Sisler-Maggard Engineering, PLLC

BIG SANDY WATER DISTRICT
PHASE V – WATER SYSTEM IMPROVEMENTS
BOYD, CARTER, & LAWRENCE COUNTIES, KY

SISLER-MAGGARD ENGINEERING, PLLC
Engineering – Surveying
220 E. REYNOLDS ROAD Lexington, Kentucky 40515
Tele. (859) 271-2978 Fax (859) 271-5670

CAD FILE NO:	15030
DWG NO:	12 of 14

SCALE:	1:4000
DATE:	12/18
DRAWN BY:	BCM
CHECKED BY:	JFS
APPROVED BY:	JFS

Sisler-Maggard Engineering, PLLC

BIG SANDY WATER DISTRICT
PHASE V – WATER SYSTEM IMPROVEMENTS
BOYD, CARTER, & LAWRENCE COUNTIES, KY

SISLER-MAGGARD ENGINEERING, PLLC
Engineering – Surveying
220 E. REYNOLDS ROAD Lexington, Kentucky 40515
Tele. (859) 271-2978 Fax (859) 271-5670

CAD FILE NO: 15030

DWG NO: 13 of 14

MATCHLINE SHEET 12

SCALE:	1:4000
DATE:	12/18
DRAWN BY:	BCM
CHECKED BY:	JFS
APPROVED BY:	JFS

Sisler-Maggard Engineering, PLLC

BIG SANDY WATER DISTRICT
PHASE V – WATER SYSTEM IMPROVEMENTS
BOYD, CARTER, & LAWRENCE COUNTIES, KY

SISLER-MAGGARD ENGINEERING, PLLC
Engineering – Surveying
220 E. REYNOLDS ROAD Lexington, Kentucky 40515
Tele. (859) 271-2978 Fax (859) 271-5670

CAD FILE NO:	15030
DWG NO:	14 of 14

APPENDIX G

WATER SYSTEM PRO FORMA

Filing

CONTAINS

LARGE OR OVERSIZED

DRAWINGS

RECEIVED ON:
8/7/2019