**Village of Washingtonville**

**Town of Blooming Grove, Orange County, New York**

# Water and Sewer Infrastructure Master Plan

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# Contents



APPENDICES

# 1.0 INTRODUCTION

The Village of Washingtonville is located in the Town of Blooming Grove, Orange County, New York. The Village had a population of 5,899 according to the 2010 Census. Of the available housing, 78% was owner-occupied and 22% renter-occupied. The median household income was $85,263, while 2.1% of families were below the poverty level.

The Village provides the public benefit of both drinking water and wastewater treatment. Operation and maintenance of the infrastructure that makes up these systems is an important component of Village management that is often "out of sight, out of mind", therefore many villages struggle with setting a fair, equitable and effective way to finance these systems. However, the capacity and quality of these systems can affect a community's ability to maintain sustainable growth and redevelopment, and their maintenance and upgrade are necessary.

In the Village's current rate structure, the sewer use rate is 1.5 times the water rate; the two charges are calculated together regardless of the budget demands and revenue for each fund. According to New York State Village Law and applicable General Municipal Law, water and sewer budgets and funds are to be maintained separately.

The water system is in need of improvement that will increase resiliency, as well as basic maintenance and upkeep. The wastewater treatment plant is currently undergoing major upgrades, and the collection system and pump stations also need improvements. The Village should be planning for funding for the water and sewer systems that would transparently and equitably distribute the overall financial burden for the community.

Recognizing this situation, the Village engaged in the preparation of a Water and Sewer Infrastructure Master Plan as a valuable management and decision-making tool for the Village. The Village's objective is to provide the community with the most value in terms of capital investment, user cost impact and infrastructure longevity; therefore, a strategy for water and sewer systems that will result in long term public support for investment in these systems is in order. Understanding the value of the water and sewer systems to the Village residents not only in terms of ample, high quality water and sewer services, but also in terms of revenue generation capabilities will create a framework for the Village's fiscal policy with respect to these systems.

The Infrastructure Master Plan is intended to provide a framework within which the Village of Washingtonville can plan, fund and execute maintenance of existing water and sewer system infrastructure and extend the useful life of existing equipment, providing safe and adequate service to all customers. Subsequent sections of this report provide direct observations of the existing water and sewer systems.

The Village has expressed an interest in restructuring the water and sewer rates to result in a fair, equitable and fiscally sustainable distribution of costs among the user base. In reviewing this

opportunity, it was determined that the current approach to water and wastewater infrastructure operation and maintenance funding is not necessarily based on the independent needs of each system, and as a result, may burden rate payers with costs that are greater than those that could be achieved through a more comprehensive approach.

Conducting the Master Plan involved review of existing conditions through review of available documentation, and water and sewer system site visits. This review of existing conditions was facilitated by the Village staff and operators, along with Department of Health staff familiar with the system; however, it was hampered by conflicting personal memories, and a lack of historical documentation and reports. As a result, the recommendations of the Master Plan include confirming existing conditions as a first step in moving forward with an infrastructure plan.

In summary, the following recommendations are made:

- The water supply is vulnerable to drought, contamination or flooding events as both primary wells are located in the same well field. It is highly recommended that the Village commence further exploration of wells that have previously been developed, or other sources, to increase the water supply system flexibility and resiliency.
- The sewer collection system is experiencing on-going problems with infiltration and inflow, and individual pump stations require upgrade. Certain mechanical rehabilitation is warranted while stationary auxiliary generators are recommended at each pump station, as well as sewer flow metering to provide for monitoring.
- The water use rents are based on metered water usage; however, it is unclear how the rate (per 1000 gallons) is actually calculated as it does not appear to relate to the demand for revenue to operate and maintain the water system.
- The sewer use rents should be restructured to be based on consumption of water (as is metered) and not an arbitrary percentage of the dollar amount billed to each customer for water use.
- The existing Village Code concerning water and sewer use and debt charges should be updated to reflect new water and sewer rate structures when established.
- There is currently a Facility charge that is apparently put toward water and wastewater capital debt. There does not appear to be a Sewer Facility Rent charge to cover sewer capital debt independent of the water system capital debt. The revenue generated from the current Facility Charge does not adequately cover annual debt for water and wastewater.
- Facility Charges for some properties are based on property valuation. This results in some larger vacant properties and institutions being charged disproportionately. These charges should be fair and equitable based on the benefit to the customer. An update to the existing Facility Charges assignment is recommended for institutions and larger vacant properties.

- The current customer water usage database does not seem to accurately reflect "residential" vs "commercial" properties. The customer database of property types should be updated to ensure that Facility Charges are properly assigned.
- There are some water system upgrade needs, the financing of which can be considered in the water use rent and Facility Charge calculations moving forward.
- Upgrades to the wastewater treatment plant will require long-term financing that can be accomplished in a fair and equitable method of sharing costs among customers.

# 2.0 VILLAGE WATER AND SEWER SYSTEM EVALUATIONS

Evaluations were carried out through review of information supplied by the Village and on-site facility walk throughs with Village staff and the water and wastewater system operators. Both systems are operated under contract with JCO Environmental Services, Inc.; sewer since October, 2017, and water since January, 2019.

## 2.1 Village Water System Evaluation

The Village of Washingtonville owns and operates a public water system (PWS ID 3503567) for domestic potable consumption, fire protection and private commercial sale. The Village serves a population of approximately 7,260 via approximately 1,800 service connections consisting primarily of residential customers, but also includes commercial customers, including a bulk water supplier. The entire Village is currently served by groundwater wells. The water system consists of two wells, a small chlorination facility, two storage tanks and approximately 29,200 feet (5.5 mile) of water pipe.

### *Water System Capacity*

NYSDEC permit 3-3320-00133-00001 (WSA #11,106, 2008) allows the Village a combined total taking of 1,710 gallons per minute (gpm) or 2.462 million gallons per day (mgd) from four approved wells. This permit is included in Appendix A. However, only Well #1A and Well #3 are active.

The active wells, Wells 1A and 3, are permitted at 750 gpm each for a total of 1500 gpm (which would equate to 2.16 MGD). However, regulatory requirements limit water system capacity to that with the highest producing source out of service to meet maximum daily flow without respect to storage; therefore, the system capacity could be considered as high as 1.08 MGD considering only one of the current two wells in use at maximum capacity. However, one of the wells is typically throttled to 550 GPM, which could theoretically restrict capacity to 0.792 MGD. Average Daily production in 2018 was 0.484 MGD, with 0.311 MGD metered use with the balance being unaccounted for water lost due to leaking pipes. Average Daily production in 2019 was 0.546 MGD with the increase likely attributable to several large leaks in the distribution system.

Table 2.1a: Water Supply Permits

| Source Name | WSA # | Approved Individual Source Capacities (gpm) |
|---|---|---|
| Well 1A | 6622 (1994) | 750 |
| Well 3 | 8732 (1993) | 750 |
| Well 4 | 10,146 (1999) | 150 (permit 3 well combined total 890 gpm) |
| Well 5 | 11,106 (2008) | 60 (permit 4 well combined max 1710 gpm) |

### *Conditions of NYSDEC Water Supply Permit*

A water supply permit specifies the amount of water that a permittee may draw from a particular source, and any monitoring and reporting requirements. A permit also includes Special Conditions the most relevant of which for the Washingtonville well permit are noted below. The 2019 Community Water Supply inspection letter is included at Appendix E.

Special Condition 2 of NYSDEC WSA #11,106 specifies that all land within 200 feet of any approved well shall be protected and controlled in order to prevent pollution of the ground or groundwater. Special Condition 3 specifies that this area shall further be protected from pollution by surface waters.

Special Condition 12 of NYSDEC WSA #11,106 stipulates that the Village must calibrate all service connection meters (less than 1-inch in diameter) for accuracy at least every 15 years in accordance with AWWA standards. Larger service meters and production meters must be calibrated more frequently in accordance with the same standards.

Special Condition 14 of NYSDEC WSA #11,106 stipulates that the Village must develop and implement a leak detection and repair program using sonic detection equipment to inspect the entire distribution system in a systematic fashion on a three-year cycle, inspecting at least one-third of the system annually. The inspection cycle can decrease when two consecutive annual water audits result in unaccounted-for water less than 15%.

### *Groundwater Water Supply*

The Village withdraws all its water from two groundwater wells – Wells 1A and 3. These wells are approximately 230 feet apart, withdrawing from the same aquifer, which is a vulnerability identified by the Department of Health (DOH). The well field is located approximately 400 feet from Moodna Creek at the end of Conklin Way, south of NYS Route 94. There are two additional wells in this same well field that are not in service. The total area of the well site owned by the Village is 2.9 acres. Ground water flows easterly along the Moodna Creek Valley. The aquifer is mapped as an unconsolidated aquifer with generally high yields.

Flood Insurance Rate Map 36071C0316E, effective date 8/3/2009, shows the wells and the treatment building to be out of the flood plain in Zone X. The area is surrounded by flood zone with a calculated flood elevation of 312 feet.

The following records were obtained from DOH of all the groundwater wells within the Village:

**Well #1** – This well is presently non-functional with a collapsed screen. It was originally drilled in 1941 with a capacity of 600 gpm. Details: 42' deep gravel well; 10" casing - 30'; 8" X 12' screen. Soil log: 0-4' topsoil, Ig. gravel and boulders; 4-13' Ig. gravel, pea gravel, sand (tight, wet); 13'-23' gravel, boulders, sand water bearing.

**Well #1A** – This is a primary Village source well that was drilled in September 1994 to replace Well #1. Its yield is 1,050 gpm at 29.5 feet pumping level, the pump intake is at 43 feet. Recommended safe yield of 750 gpm, stated in the withdrawal permit. It has a specific capacity of 143.69 gpm per foot of drawdown at 786 gpm. This well is typically pumped at 550-650 gpm. The well had a static level of 18 ft when drilled. The well screen was replaced in 2016. The static level has typically been between 18' and 20' in recent years.

Surrounding base flood elevation is 312 ft, while the finished floor elevation of well house is 317.4 ft and top of casing is 321.6 ft.

Details: This is a 44.7 ft deep gravel packed well; 38-1/2 feet of 30" casing inside 36" outer casing, #5 gravel pack between casings. A 6-foot length of 30" diameter stainless steel screen (150 slot), with grout seal around outer casing to 20 feet.

Well Field well

**Well #2** – This is an emergency well that was drilled in 1962 and requires pump installation if it is to be used. Details: 35' deep gravel well; 8" casing- 27' yield 333 gpm; 8" x 10' screen, drilled 8/62, Layne 40 H.P. pump, 25' from well #1. Soil log: 0-4' topsoil, Ig. gravel & boulders; 4-13' Ig. gravel, pea

**Well #3** – This is a primary Village source that was completed in August 1993 and is approximately 230 ft north of Well #1A. It has a safe sustained yield of 700 gpm and is reportedly capable of 750 gpm, but is typically throttled to pump 550 gpm. Static water level was at 22.88 ft in March 1993 and at 18.08 ft in Dec 2009. Pump intake is at 40.4'. Water bearing depth typically

extends to 34'-50' at the well site. According to Layne Well & Pump Division, the best water is from 34'-35' and up to 10'. Intake of this well is 7-1/2' lower than that of Well #1(not in service) and 5' lower than that of Well #2 (not in service). This difference in intake levels was meant to allow pumping of the aquifer during severe drought conditions when the ground water level is lower. Top of 18" casing is at elevation 318.4' (the 100-yr flood elevation is 312 feet). The static level has typically been between 18' and 20' in current years.

Details: 44' deep gravel packed well, 20' of 24" diam. steel casing (cement grout to bottom) 35.1' 18" diam. inner casing, 8' of 18" slotted well screen, 75 hp vertical turbine well pump (5 stage - capable of 750 gpm at 300' TDH) 8" suction pipe extension to 278.4'.

Soil log: 0-8' coarse to med. gravel with some sand (tight & dry); 8'-14' medium to coarse gravel w/some silty sand; 14-19' fine to medium gravel w/some medium sand (soft and wet); 19' - 32'2" coarse to medium broken gravel and fine broken gravel, rock-black and hard 32'2" - 37'6" fine broken black rock w/some small pea gravel & little traces of clay (quite hard); 37-40' fine broken black rock w/some small gravel, very hard and dry.

**Additional wells not within the primary well field:**

**Well #4** – Known as "SiteCon Well", development was abandoned after it could not produce adequate volume of water during dryer conditions. Components of the system were salvaged and used at Well 5 (described below). It was drilled on January 27, 1999 and is located near the intersection of Route 94 and Patricia Lane, approximately 1000' southwest of the existing, primary well field and approximately 220' from the Moodna Creek. A static water level of 15' below grade was measured on January 10, 1999 with a safe yield 150 gpm (0.216 MGD), but again was not measured during drought conditions.

Details: It is a sand and gravel well that is 42' deep from top of the casing. 10" diam, casing grouted to 25' below grade, 2' bentonite seal; 8'-100 slot screen (10" diam) set 37-45' below top of casing, ground elevation at well- 492.4', Layne 50 HP vertical turbine pump (350 gpm at 350'TDH) with intake at 37.67' below grade

**Well #5** – Known as "Fireman's Memorial Well", its plans were approved by DOH in 2005 and construction completed on May 28, 2008, but the well was never placed into service. This well will discharge 50 gpm (0.07 MGD) continuously to Village distribution system. It is located opposite the intersection of Alexander Drive and Ahern Blvd. Total coliform was detected, but the well had not been disinfected prior to sampling. Elevated levels of iron and manganese were detected, that necessitated sequestering if flushing did not lower the levels. Nitrate was also excessive but believed to have been attributed to a laboratory error. Records from DOH indicated high levels of chloride. Due to the extent of time that has elapsed, a full Part 5 analysis is again required to determine surface water influence, as the well is less than 200ft from a stormwater pond.

Details: 400' deep rock well, 6" casing to 28' below grade (grouted), Submersible Goulds 5 hp model 60GS 11 stage pump set at 252', pumping level at 60 gpm-47.5'. Drilled in 2005, approved May 28, 2008. Soil Log: 0-9' topsoil, 9-17' hard pan; 17-400' Black shale; 40 gpm fracture at 85-86', 15 gpm fracture at 190- 191'. Well yield 75-80 gpm.

**Moffit Ridge** – The Village also explored for groundwater in the early 2000's on lands dedicated to it as part of the Moffit Ridge development. During a particularly dry year the Village found a well that produced over 100 gpm (0.14 MGD). A raw water line was installed by the Village, from this well to a newly constructed building at the park across from Woodfield Drive, a portion of which had been allocated for water treatment. However, enough precipitation then followed, the water levels at the primary well field rose and the Village directed further development of additional wells to cease.

**Spindler Wells** – At one time the Village had an agreement with Spindler Bulk Water (Spindler) to trade water as needed. Spindler owns and operates two rock wells in the center of the Village, on Locust Street, each of which produce approximately 100 gpm. The Village provided Spindler with treated water for potable bulk sale and, when needed, Spindler provided raw water to the Village for further treatment and distribution.

### *Treatment*

The only treatment currently in use within the Village water system is disinfection via sodium hypochlorite.

### *Storage Capacity*

The system has two 800,000-gallon storage tanks (Prides Crossing and Clinton Street tanks) that are hydraulically interconnected. There is a hydro-pneumatic system across the street from the Clinton Street tank that boosts pressure to adjoining homes that are at higher elevations for which the Clinton Street tank cannot always provide minimum pressure. Both tanks were inspected in 2015, with next inspection due 2020. The inspection reports are included at Appendix C.

Water storage tank

### *Fire Hydrants*

Hydrants have not been used to flush the system in at least 10 years. The new operator had hoped to flush the system this past year, however the static groundwater levels were too low to do so safely.

### *Water Production vs. Consumption*

For 2018, average daily water production was 484,000 gallons per day (gpd) with 35% of that being unmetered either from leaks, fire hydrant uses or under-registering meters. In 2019 leaks were discovered and repaired, however average daily production still increased to 550,000 gpd that year, most likely due to water lost during those leak events. The following summary of production and consumption is based on information gathered from Monthly Operation Reports and Annual Water Withdrawal Certifications. It should also be noted there was a 29% and 26% shortfall in unmetered water usage in 2011 and 2012, respectively.

Table 2.1b: Water Production and Metered Consumption

| YEAR | PRODUCTION (GPD) | METERED CONSUMPTION (GPD) | % of Water Unmetered |
|---|---|---|---|
| **2010** | 478,000 | 359,934 | 25% |
| **2013** | 501,000 | 269,498 | 46% |
| **2014** | 509,000 | 255,416 | 50% |
| **2015** | 473,000 | 262,373 | 45% |
| **2016** | 512,000 | 269,967 | 47% |
| **2017** | 486,000 | 322,675 | 34% |
| **2018** | 484,000 | 311,218 | 35% |
| **2019** | 550,000 | | |

### *Previous Studies*

Two independent studies performed at the Village of Washingtonville well site both in 1974 and 1993 were done to estimate the capacity of the well field. The ground water levels during the first analysis were 6-8' higher than during the second analysis. The first analysis was not performed during drought conditions; the second, more conservative analysis assumed a 180-day drought and yielded an estimated 890 gpm safe yield, which equates to 1.28 MGD. Average Daily production in 2019 was 0.550 MGD.

During non-drought conditions, DOH records assume the well field can support over 1,000 gpm. However, while the Village wells have been determined to not be under the direct influence of surface waters, the groundwater levels of the Village's primary well field are directly proportional

to the flow of the Moodna Creek. As such, the Village water system is highly vulnerable during drought conditions and in need of additional, reliable water sources.

**Summary**

Overall, the water system is functioning satisfactorily. Recent improvements include the completion of radio communications between the water storage tank and well pumps, allowing the automatic operation of wells when the water storage tank levels lower to a set point.

The well field is vulnerable to low water during drought, and as both wells are in the same well field the Village does not have adequate flexibility in water supply. It is highly recommended that the Village commence further exploration of wells that have previously been developed, and consider carrying out a hydrogeological study to identify potential areas for exploration of other wells. Development of wells outside of the Village Wellfield may not supplant the primary wells unless necessary due to changes in the water quality or quantity, but would lead to reducing the vulnerability and increasing the resilience of the water system.

A high percentage of water produced by the wells is unaccounted for in consumer usage. Pipe leaks could account for an amount of unmetered water, as well as poorly functioning or incorrectly read meters. Better data on actual water usage by customers could be achieved by replacing older radio read meters with advanced metering capability. Pipe leaks should be found and repaired on a prioritized schedule.

Inspections of storage tanks in 2015 indicated that both tanks needed some maintenance to improve worker safety and prevent access to storage tanks. These inspections are included in Appendix C. The next inspections are due in 2020.

The Village should actively maintain a Source Water Supply Protection Area of at least 200 feet around each well, in order to prevent contamination of the wells. Considering the geology of the Village's only active well field and its proximity to the Moodna Creek and associated flood zone, the determination of how the primary wells were determined to not be ground water under the direct influent (GWUDI) of surface waters should be examined and possibly re-monitored, as such influence can vary over the extended periods and changing climatic conditions.

## 2.2 Sanitary Sewer System Evaluation

The Village owns and operates a wastewater treatment plant that discharges to Moodna Creek (SPDES NY0023671, 2015 to 2020). The State Pollution Discharge Elimination System (SPDES) permit was last modified in 2016 and expires in July 2020. The plant utilizes an oxidation ditch, settling tanks, a sand filter, a trickling filter, clarifiers and sludge handling. This permit is included in Appendix B.

The Village is nearing completion of a wastewater treatment plant expansion that will increase total permitted capacity from 0.7 MGD to 0.85 MGD. It is estimated that the final construction cost will be $11.5 million. Upgrades include a new headworks building, the addition of a Sequencing Batch Reactor (SBR) and retrofit of the trickling filter, along with sludge handling improvements.

Sludge is disposed of through Spectraserve, Inc., South Kearney, NJ.

The FIRM map Flood level was updated in 2009 at slightly above 301 ft in the area of the wastewater treatment plant. The existing treatment plant tanks were above the 301 ft flood elevation, and the current improvements were to be designed with flood hardening in mind.

Discharge monitoring reports show an annual average daily flow of about 135,000 gallons more wastewater flow than water production across the years 2017 through 2019. This indicates that infiltration and inflow to the sewer collection system is an issue that needs to be addressed.

The sanitary waste water collection system is composed of approximately 112,762 feet of gravity sewer pipe and 6,935 feet of pressure force main (approximately 22.7 miles of pipe total) with 577 manholes that is served by 5 (five) pump stations. All but one of these pump stations require new slide rails and check valves.

Pump station information is included below. All pump stations need new check valves and sewer meters are also recommended to monitor for infiltration and inflow (I/I).

**Hallock Drive Pump Station**

This is the oldest of the pump stations. It has a hole in the roof of the building near the control cabinet. The slide rail system needs replacement as corrosion is causing separation at wall supports. The stationary, on-site generator has not worked in several years.

**Brookside Pump Station**

Newly renovated, including new pumps. Generator is currently undergoing installation. There is an existing tow-behind generator that will remain stored here that is also compatible with Hallock and Woodfield PS's.

**Woodfield Pump Station**

The contributing collection system has manholes within the adjacent wetland that contribute to inflow/infiltration (I/I), but have not yet been found. Heavy grease is an issue at this site. The slide rail system needs replacement as corrosion is causing separation at wall supports.

Pump Station

**West Main Street Pump Station**

This pump station has been working well except for a breaker serving Pump 2 that routinely trips.

**Patricia Lane Pump Station**

No operational issues were reported.

**South Street Force Main**

In addition to these centralized pump stations that the Village owns, it is also responsible for maintenance and replacement of 24 separate grinder pump systems serving individual customers within the South Street area. Since JCO Environmental Services assumed operational duties in early 2019, it has replaced 10 of these pumps. At issue is that these grinder systems are proprietary and no longer in production by the manufacturer and the replacement pump model does not fit into the original, prefabricated fiberglass chamber.

***Order on Consent***

An Order on Consent, Case No. R3-20130205-9, was issued to the Village in 2013 for violations at the WWTP and sanitary sewer overflows. Violations included failure to build the WWTP expansion by August 2012, and failing to submit an engineering report and design plans. These

were required as part of a SPDES permit schedule of compliance (Flow Management Plan Compliance Action). Other violations included exceeding effluent limitations for flow and maximum effluent concentrations of certain pollutants and failing to submit annual reports.

The Restoration/Remediation requirements included planning and implementing a Flow Metering Plan with both dry weather and wet weather flow monitoring, and a System Evaluation and Capacity Assurance Plan. The Work Plan submitted was to evaluate the effectiveness of the SECAP in reducing sanitary sewer overflows and I/I.

***Summary***

The WWTP upgrades are reportedly nearing completion. In general, the sanitary collection system is functioning satisfactorily, though there are on-going problems with I/I. Certain mechanical rehabilitation is warranted due to corrosion associated with the sewer operations. Dedicated, stationary auxiliary generators are recommended at each pump station, as well as sewer flow metering to provide for I/I monitoring.

At a meeting with NYSDEC on December 4, 2019, the Village was ordered to prepare, submit and implement a Flow Management Plan to address inflow and infiltration (I/I) following exceedance of 95% of permitted flow in 2018. Though the WWTP is currently undergoing improvement and expansion, I/I must be reduced in order to allow better treatment train functioning and reduce costs.

# 3.0 WATER SYSTEM RECOMMENDED IMPROVEMENTS AND BUDGETS

The following table lists recommendations for the water system. Cost Estimates are based on previous experience and are supplied for information on potential costs. Actual costs for any project would be based on site-specific conditions.

Table 3.1: Water Supply Recommendations

| Component | Issues | Recommendation | Cost Estimate |
|---|---|---|---|
| Groundwater Supply | Village is dependent on only two reliable groundwater wells in the same well field;<br>System is vulnerable during drought conditions<br><br>Maintain a 200 ft radius Water Supply Protection Area around each well | Perform more in-depth evaluation of:<br>1. existing sources not currently developed;<br>2. potential other sources.<br>Evaluation would include:<br>*Revisiting Well 5 (Firemen's Memorial) and the Moffit Ridge well for feasibility;<br>*Performing new Part 5 analysis and develop treatment/interconnection design based on sampling results;<br>*Revisiting or confirm agreement with Spindler as an emergency supply source.<br>*Groundwater study of possible other high yield areas | BART[1] testing to assess well rehab needs $2,700<br><br>Part 5[2] and MPA sampling $2500<br><br>Hydrogeological Assessment to explore other potential well sites $7000 |
| Distribution System | In 2018 approximately 35% of water production was unaccounted-for. The lowest percentage of unaccounted-for water the past 10 years was 25% | *Codify and implement the use of advanced metering technology in the way of cellular transmission for interval meter reading and data collection.<br>*Implement an amortization schedule for water meter replacement;<br><br>* Institute a leak detection program. | $3,000 for first 10 meters<br><br>$480,000 amortized over a number of years decided upon by the Village<br><br>In-house |

| | | | |
|---|---|---|---|
| Fire Hydrants | Have not been exercised in years | *Institute a direction flushing program to commence up elevation of groundwater levels. Direction flushing will exercise both hydrants and valving. | In-house |
| Asset Management | Mapping and records | * Develop and maintain geographical information system (GIS) to update mapping and link to centrally consolidated records, which assists in succession planning. | Minimum of $7,000/5 years by implementing commercially available software that would be shared with sewer and administered in-house. |
| Production Meter | Assuring calibration for accurate production figures | Bi-Annual calibration testing alternating with each well | $1,000 |
| Production Wells | Verify Well #1 closure (collapsed well)<br><br>Maintain production capacity and quality via regular well cleaning | Was Well #1 properly closed to prevent ground water contamination?<br><br>Video inspect, clean and rehabilitate wells on an alternating basis every few years | <br><br>$35,000 |

1 BART – Biological Activity Reaction Test – monitoring for bacterial agents related to biofouling that can reduce well productivity.

2 Part 5 – sampling to determine if the groundwater source is under the direct influence (GWUDI) of surface water.

NOTE: pump maintenance is required regularly

# 4.0 SEWER SYSTEM RECOMMENDED IMPROVEMENTS AND BUDGETS

The following table lists recommendations for the sewer system. Cost Estimates are based on previous experience, recent quotations on similar projects and are supplied for information on potential cost for a project. Actual costs for any project would be based on site-specific conditions.

Table 4.1: Sewer System Recommendations

| Component | Issues | Recommendation | Cost Estimate |
|---|---|---|---|
| WWTP Expansion | Financing of the construction | Potential low-interest loan, facility rent | Loan and grant $11.5M |
| Hallock Dr PS | Hole in roof;<br>Original generator not operational;<br>Slide rails and check valves need replacing | Comprehensive rehabilitation plan and specs:<br>Roof repair or entire building replacement;<br>Install dedicated generator;<br>General mechanical rehabilitation;<br>Install sewer mag meter for I/I monitoring. | $20,000-$50,000 |
| Brookside PS | None, newly renovated | Install sewer mag meter for I/I monitoring. | $8,000 |
| Woodfield PS | Upstream collection system has at least one manhole in wetland;<br>Grease buildup;<br>Slide rails and check valves need replacing | Jet and camera the sewer main to clean the lines and identify additional manholes affected by wetland;<br>Raise manhole lids;<br>General mechanical rehabilitation;<br>Install sewer mag meter for I/I monitoring. | $7,500<br>$6,000<br>$8,000 |
| West Main St PS | Pump 2 breaker routinely trips;<br>Slide rails and check valves need replacing | Identify cause of high current draw and replace breaker or test pump motor;<br>General mechanical rehabilitation; | $6,000 |

| | | | |
|---|---|---|---|
| | | Install sewer mag meter for I/I monitoring. | $8,000 |
| Patricia Lane PS | Slide rails and check valves need replacing | General mechanical rehabilitation;<br>Install sewer mag meter for I/I monitoring. | $6,000<br><br>$8,000 |
| Grinder Pump Chambers | Village responsible for 24 individual grinder package pump systems that have been discontinued. Replacement pump model is not compatible with prefabricated chamber | Implement a rotating replacement schedule of a cost-effective alternative such that pumps are replaced on the Village's schedule and not as emergencies. | $2,500 per pump |
| Asset Management | Mapping and records | Develop and maintain geographical information system (GIS) to update mapping and link to centrally consolidated records, which assists in succession planning. | Minimum $7,000/5 years implementing commercially available software that would be shared with water and administered in-house. |

# 5.0 OPPORTUNITIES AND CONSTRAINTS

The Village of Washingtonville is fortunate to have the asset of public water supply and wastewater treatment systems to support land uses in the Village. The opportunities for the Village include:

- Independence and control over water resources and provision of service that is a pre-requisite for continued sustainability of the Village.
- Relatively low-cost needs for improvements to extend the useful life of the Village's water infrastructure and improve system reliability.
- A newly expanded and upgraded wastewater treatment plant.
- Relatively low-cost needs for improvements in the collection system to improve operation.

The Village's water system and wastewater system have relatively few constraints; however, those identified in this Master Plan include:

- Current dependence on two wells in the same well field for water supply treatment and distribution. This limits flexibility for the Village should there be a drought affecting well levels or an incident that results in contamination at the well field.
- Geological and environmental challenges to developing additional sources of supply from groundwater. Water hardness, higher levels of iron and manganese and chlorides may mean higher treatment costs for completed development of an existing permitted well that is currently not in service.
- Inconsistent methods for raising funds needed for continual operation and maintenance, such as water leak "find and repair", and infiltration and inflow "find and repair". Water distribution system leaks and sewer collection system infiltration and inflow (I/I) can both increase operation costs.

# 6.0 FINANCIAL ANALYSIS

New York State Village Law provides for the establishment of water rents for use of water (Village Law Article 11-1118) and for sewer rents (Village Law Article 14-1400, General Municipal Law 14-F). Assessments may also be made of each benefited lot parcel through an established ratio of benefits for the expense of construction of sewage treatment works. However, a Village may not fix its sewer rents at an amount that would generate revenues in excess of costs attributable to the sewer system in order to provide funds for general village purposes.

General Municipal Law 14-F, Sewer Rent Law, defines sewer rent as being a scale of annual charges for use of the sewer system which may be based upon a) consumption of water, b) number and kind of plumbing fixtures, c) number of persons served on each premise, d) volume and character of sewage, and e) upon any other equitable basis.

## 6.1 Methodology

To accomplish the Financial Analysis, a review of the operating budget for the water and sewer systems as well as debt schedules for existing obligations was conducted. Among the objectives of the Financial Analysis is a Rate Study to support the equitable distribution of costs. See Appendix D for a summary of the rate analysis.

The available information was reviewed with respect to operation and maintenance (O&M) costs and capital plans for the water system and for the sewer system. Improvements and annual repair and maintenance were considered with respect to potential future debt obligations.

The water meter data received from the Village was utilized to compare existing parcels to parcels metered (and presumably billed) in GIS. The map that resulted from this comparison is shown in Figure 1. The comparison resulted in 1934 total parcels (not all of which are developed); 1453 parcels that verified as a connection, while 481 parcels were not verified as connected. This may be partly due to metering agreements in subdivisions or currently vacant parcels. It would be to the Village's advantage to verify current metering records for parcels that may receive water but that are not currently billed.

Once this information was gathered and analyzed, it was modeled to evaluate the current fiscal situation as well as potential rate scenarios. A rate model using an Excel spreadsheet was created. It re-creates present day fiscal conditions including current revenues and expenses and then is constructed to evaluate a number of future scenarios involving rate structures. For each scenario, the impact on rate payers was evaluated based on the current rate structure as well as modification of the rate structure. The rate modeling summary is presented in Appendix D.

Additionally, the analysis identified likely sources of financing for the various improvements as well as opportunities to consolidate districts, as discussed in Section 7.0.

## 6.2 Summary Results

Village current water billing methods were assessed according to Village of Washingtonville, Village Law, Part II: General Legislation, Chapter 169 Water:

- 169-24 Establishment of water rents (last amended 1996): "Such water rents may be established and changed from time to time by resolution of the Board of Trustees. Such rents shall be a lien on the real property……"
- 169-25 Water rates (last amended 1990): "Charges for water during each billing period shall be in accordance with the schedule of water rents to be adopted by the Village Board: 1) for the first 12,000 gallons used: $24 minimum; plus 2) for each 1,000 gallons or part thereof used thereafter, to be effective after the May 1990 billing: $2."

Village current sewer billing methods were assessed according to Village of Washingtonville, Village Law, Article II Sewer Rents:

140-9 Definitions includes;

- Sewer Rents = The rent, rate or charge comprising the scale of annual charges imposed or levied by the Village of Washingtonville for the use of the sewerage system or any part or parts thereof, which charges will provide revenues sufficient to pay all costs and expenses of operating and maintaining the sewerage system.
- Sewerage Facility Rents = The rent, rate or charge imposed or levied by the Village of Washingtonville for the payment of the annual debt redemption on all the indebtedness incurred for the construction, enlargement, expansion and additions to the village sewerage system, which charges, together with such other funds as are available for such purposes, will provide revenue sufficient to pay in full when due all maturing principal of and interest on all outstanding indebtedness issues for sewerage purposes.

140-10 Sewer Use Rents (last amended 1998); (A)(1), "the sewer use rent against such real property shall be based on the consumption of water on the premises served by the sewer system or such part of parts thereof and levied or charged against such real property or the owners or occupants of such real property at the following rate: 130% of the water billing"; and (D) "the minimum sewer use rent charge for each customer shall be based on the minimum water billing"; and

140-11 Sewerage Facilities Rents (last amended 1991), (A)(8), "the owner of each property in the village shall pay a sewer facility charge equal to the number of units assigned to that property multiplied by the sewerage facilities unit charge…".

The Village webpage shows the current Rates as (billed on a quarterly basis);

* Facility Charge = $15.00
* Water = $3.50 per 1000 gallons
* Sewer = 150% of water usage
* Water minimum = 7000 gallons

Currently the water rent amount billed is used to calculate the sewer use rent. The sewer use rent is therefore not actually based on "consumption" of water but directly on the "cost" of water billed to each customer. The 2018-2019 budget exceeded actual expenses, while the revenue exceeded the budget for both water and sewer. Apparently, the current method of billing for water use and sewer use generates revenue significantly greater than the costs of operations and maintenance and is not based on actual benefit to customers which results in inequities. See Table 6.0.

The 2019-2020 Village Water operation and maintenance expenses total was $264,034.57, while $380,278.09 had been budgeted. Debt was $127,787.50. The fiscal year was March 2019 through February 2020.

Table 6.0 Budget, Revenue and Expense Summary Comparison

| | 2019-2020 | Budget* | Revenue* | Actual Expense |
|---|---|---|---|---|
| Water | O&M | $380,278.09 | $556,067.50 | $264,034.57 |
| | Debt | $127,787.50 | Facility Charge | $127,787.50 |
| Sewer | O&M | $596,259.00 | $786,027.78 | $565,062.29 |
| | Debt | $54,166.93 | $173,820.00 | $54,166.93 |

*Budget information from "Preliminary Water Fund Budget 2020-2021", Village website.

*Revenue as calculated based two quarterly billing cycles supplied by the Village; the sum of which was multiplied by two for an annual estimation. Current water use rate of $3.5/1000 gallons, sewer at 1.5 times water charge, and $15 Facility charge used for both water and sewer debt.

Using water billing data from two billing periods (August 2019 to January 2020 water use) as supplied by the Village, and multiplying the sum for these two quarters by two, the annual water revenue was calculated at $556,067.50. It appears that the water rents brought in $175,789 more revenue than was budgeted for water system operations and maintenance (O&M). It should be noted that the median water use for these two billing quarters was 11,000 gallons and 8,000 gallons. This indicates that the minimum charge of 7,000 gallons per quarter is valid.

The Facility Charge for each active connection, $15 times the number of assigned Facility Charges on a quarterly basis, resulted in an annual revenue of $173,820.00. Apparently, the Facility Charge

is put to both the water and sewer debt. The annual capital debt amount for water and sewer totaled $181,954.43. Thus, the current Facility Charge does not cover current annual debt for both the water and sewer systems. The Village Code currently does not address water system debt. Furthermore, the upgrade of the sewer treatment plant will result in additional debt.

The 2019-2020 Sewer operations and maintenance expenses total was $565,062.29 (including contract professional services), while $596,259.00 had been budgeted. The Debt Service budget was $22,447.00. The fiscal year was March 2019 through February 2020.

The Sewer Use Rent billed, $5.25/1000 gallons, based on 150% of the water use rent for the two billing quarters, August 2019 through January 2020, multiplied by 2 resulted in the annual revenue estimate of $786,027.78. It appears that the current sewer rent charged resulted in $189,768.78 more in revenue than what was budgeted. This is in contradiction of the interpretation of General Municipal Law as it relates to Villages.

It is not known how the current water and sewer use rates were calculated, nor how the Facility Charge of $15 per unit was calculated. Village Code 140 indicates that each parcel is assigned a number of "units" based on the land use type to be multiplied by the Facility Charge for sewer debt service. Single Family Homes (SFH) are 1 unit, with multi-family homes being assigned an addition unit for each additional dwelling unit, and commercial properties assigned units according to retail, office and dwelling spaces. The number of units for some undefined land use types is based upon the assessed value of the property divided by the average value of a single-family residential property.

The total cost of the current wastewater treatment plant upgrades was assumed to be $11.5 million for this analysis, including both a grant and a low-interest loan through NYS Environmental Facilities Corporation (EFC). Sewer Facility Use charges can be calculated for this project, and/or other improvements.

## 6.3 Rate Recommendations

Water and sewer charges should be divided among customers in a fair and equitable manner, based on appropriate calculations. Primarily, the sewer use rent should be separated from the water use rent. The sewer use rent may be based on water consumption, but on the actual metered water use, not the water bill. Transparent rate structures will increase customer support, and therefore enhance the technical, financial and managerial capacity of the utility.

No information was supplied as to how the current water use rate was calculated. According to analysis of the November 2019 and January 2020 billing information, the annual income from Water Use Rents was $556,067.50, while actual expenses were $264,034.57, and $380,278.09 had been budgeted. The average SFH customer paid approximately $292.67 in annual water rent, though the average does include customers that may have only used water for one quarter. See Table 6.1 for a summary.

It is recommended that the water rent be based upon the water operation and maintenance expenses and the total number of kilogallons consumed. According to the usage data available for this study, the O&M budget was $380,278.09, divided by the kilogallons consumed (estimated at 142,050 kilogallons) yields a cost of approximately $2.68/1000 gallons. If this water rate is used to calculate income based on the approximate annual water usage, the result is $380,694.00, slightly more than O&M budgeted. The average customer would pay approximately $200 in annual water rent, in comparison to the current average customer paying approximately $293. Though the average does include customers that did not use water for a full year, the rate and cost information calculated as an average is valid for comparison purposes.

Table 6.1 O&M Budget Analysis and Option Summary

| | **Operation and Maintenance Financial Analysis** | | | | |
|---|---|---|---|---|---|
| Nov19 and Jan20 billing used to estimate a year | | | | | |
| | | | | option | option |
| **March 2019 - February 2020** | **Water Billing** | **Sewer Billing** | | **Water Use Rent** | **Sewer Use Rent** |
| Estimated annual water use: 142,050 kgallons | $3.5/kgallons | $5.25/kgallons | | $2.68/kgallons | $4.35/kgallons |
| Billed | $556,067.50 | $786,027.78 | | $380,694.00 | $617,917.50 |
| average number of connections | 1,900 | 1,852 | | 1,900 | 1,852 |
| cost per average connection | $292.67 | $424.42 | | $200.37 | $333.65 |
| | | | | | |
| 2019-2020 O&M Budget | $380,278.09 | $596,259.00 | | | |
| 2019-2020 O&M Expense | $264,034.57 | $565,062.29 | | | |
| | | | | | |
| *NOTES:* | | | | | |
| Billing data for 2 quarters was used to estimate revenue for a year | | | | | |
| Revenue for water use rent and sewer use rent each exceed the O&M Budget | | | | | |
| The O&M Budget exceeded expenses | | | | | |
| The "option" columns present examples of use rates calculated on water use and each budget | | | | | |
| Water plus Sewer use cost for average customer 2019-2020: $717.09 | | | | | |
| Water plus Sewer use cost for average customer under option: $534.02 | | | | | |

The Facility Charge of $15 per unit per quarter resulted in $173,820.00 in revenue that was apparently put toward water system and sewer system current capital debt. The amount budgeted for capital debt for water and sewer totaled $181,954.43. The budgeted amount could be divided by the current total number of assigned units (2,897), to result in an annual Facility Charge of $64.28 per unit per year or $16.07 per unit per quarter. Facility Charges can also be calculated for future debt scenarios. See the Financial Analysis Summary at Table 6.2 and Appendix D.

Further recommendations are to base the sewer use rent on actual water consumption. The current method of charging sewer use rent resulted in the average SFH customer paying $424.42 per year, with the total amount collected in considerable excess of that needed for operation and maintenance of the sewer system. The sewer use rent can be calculated independently of the water rent by dividing the sewer system budget by the total of water consumed ($596,259.00 divided by

137,020 kilogallons). The resulting sewer use rent for that year would be $4.35/1000 gallons. Utilizing this rate, based on usage records supplied, results in $617,917.50 in charges to customers for sewer use, which is only slightly more than the amount budgeted. The average customer would pay $333.65 in annual sewer use rent, compared to the current $424.42. See Table 6.1 for a summary.

Table 6.2 Capital Debt Current Analysis

| 2018-2019 Debt Budget | Capital | | | | | Annual | Annual |
|---|---|---|---|---|---|---|---|
| **Infrastructure** | **Budget** | **Total #Units** | **FC at $15 per unit** | **Variance** | **Variance/Unit** | **SFH current/year** | **SFH adjusted** |
| Water BAN | $ 127,787.50 | 2,897 | $ 173,820.00 | $ (8,134.43) | $ (4.28) | $ 60.00 | $ 64.28 |
| Wastewater BAN | $ 54,166.93 | | | | | | |
| | | | | $15 per unit Facility charge goes to water and sewer for debt | | | |
| | | | | length of years current debt? | | | |

As there are, and will be in the future, capital debts for sewer system improvements, a sewer facility rent could be calculated based on methods outlined in Village Law of assigning “units” to each parcel. This is one method of charging for sewer infrastructure that is based on the land use and therefore more likely related to use of sewer infrastructure. The current Village Law does not include a method for separate water debt capital recovery, but such a Facility Charge method could be utilized for water and sewer system debt as long as the funds are separate.

It is recommended that, if the Facility Charge will continue to be utilized for debt service, a number of units be assigned per land use type for those property types that are currently assigned a number of units based on the assessed value of the property. For example, the school district properties appear to be assigned units based on property assessment. Instead, the units assigned a school could be based on the number of students. For example, 1 unit each 10 students would approximate the current number of units assigned and be more directly related to water and sewer use. School district offices would then be assigned units as for other office spaces.

It should be noted that the water usage data received for this study has the majority of connections identified as Residential, while a simple look at some of the addresses in Google maps clearly indicates a commercial plaza defined as Residential. This potential discrepancy indicates that the data on each parcel would need to be verified and updated in order to ensure proper implementation of the “units” method for sewer debt facility charges.

An alternative method of raising revenue for both O&M and Debt Service is to divide the total water budget by the annual water usage to arrive at a rate per 1000 gallons, and do the same for the sewer budget. For example, the 2019-2020 total water budget of $508,065.59, divided by approximate annual water use (142,050 kilogallons) results in a water use rent of $3.58/1000 gallons. A minimum charge of 7,000 gallons per quarter could be utilized. The 2019-2020 total sewer budget of $650,425.93, divided by the approximate annual sewer use (137,020 kilogallons) results in sewer use rent of $4.75/1000 gallons, also maintaining a minimum charge at 7,000

gallons per quarter. Utilizing this method would not require the calculation of a Facility Charge, however thought would need to be given to a fair minimum charge for vacant land.

Future planned operation and maintenance upgrades such as adding a magnetic flow meter at one pump station could be included in the sewer system budget and the annual sewer use rent adjusted to meet the budget. Sampling and analysis of wells to assess the need for rehabilitation could be budgeted into the water use rent. Larger projects, such as comprehensive work at Hallock Drive pump station could be achieved under a sewer facility rent charge or small grant.

With currently available information, utilizing assumed information for WWTP upgrade debt:

Annual current calculated cost per single-family home for water ($3.5/1000 gallons) and sewer ($5.25/1000 gallons) O&M plus facility charge of $15 per unit per quarter; $777.09.

Annual future calculated cost per single-family home for water ($2.68/1000 gallons) and sewer ($4.35/1000 gallons) O&M plus facility charges (including WWTP expansion debt): $714.35.

Thus, the Facility Charge for debt service is increased to cover expected debt with the WWTP upgrade, while the water and sewer rents are lowered to more equitably cover O&M costs. The adjustment slightly lowers the annual cost for water and sewer, while raising the revenue to finance the debt incurred by WWTP upgrades. The recommended change in methods for calculating water and sewer rents is clear and equitable based on water use. Current Village Law includes a review of calculation of rents and Facility Charges at least every two years.

## 7.0 Capital Financing Opportunities and Strategies

Given the regulatory status, capital improvement needs identified, demographic profile and economic opportunities in the Village of Washingtonville, the Village is well positioned to take advantage of a variety of state and federal low-cost financing and grant programs. Key to maximizing these opportunities is understanding the full scope of all improvements and matching the financing that will result in the lowest user cost to each project.

Each grant program is operated by an agency under a program specific timeline for announcements of availability of funds, application due dates, award notices and execution of agreements for assistance which allows the grantee to obtain funds from the grantor. To assist in understanding the opportunities available to the Village, a brief description of the programs and timeframes for each aspect of relevant is presented in this section.

- ***State Revolving Loan Fund (Loan and Grant Program)***

  The Drinking Water and Clean Water State Revolving Loan Funds (DWSRF and CWSRF) programs fund the vast majority of municipal water and sewer infrastructure in the State for which outside sources of funds are sought. The programs function on a Federal Fiscal Year (FFY) calendar, with an Intended Use Plan (IUP) published effective on October 1 of each year listing projects for which funds may be encumbered during the following fiscal year. In order to receive program funds, a project must be listed on the Annual List which requires submission of a listing form, a Preliminary Engineering Report (PER), and a Smart Growth Assessment generally in late August.

  Once a project is listed on the Annual List and a community determines it will proceed with the project, an application for financing is submitted by late June of the following year.

  The application for financing must include an application form, documentation that the State Environmental Quality Review Act (SEQRA) has been conducted, the State Historic Preservation Office has been consulted, and any special districts have been created among other requirements. If a Special District is required to be formed, documentation that the district has been formed, including review by the Office of the State Comptroller if necessary, is required. And, a bond resolution with referendum period concluded is also required.

  If a complete application is submitted by late June, financing can usually be closed before the end of the same year. Short term financing is available to support project development and construction costs at no cost or very low interest rate for two to three years after which long term financing is established with interest rates ranging from zero percent interest through market rate financing. To the extent that the community qualifies for a grant (based on

environmental/public health need and ability to pay), the community borrows less over the long term, reducing annual debt service and impacts to the customer rates.

The SRF program accommodates adjustments to project cost and scope through submission of engineering amendments and budget updates. If project costs change beyond anticipated contingency, it may be necessary for the community to issue short term borrowing; however, all eligible, approved project costs are rolled into long term financing and any additional short-term borrowing is defeased.

Generally, the SRF process requires approximately 18 months from initiation any given spring (preparation of an engineering report and associated documents) through to the late end of the following year. Because the program has hard deadlines, there is no opportunity to speed the application process.

- ***State Water Infrastructure Improvement Program (Grant)***

The NYS Legislature initially committed $400 million in grant funds in the State Budget towards the Water Infrastructure Improvement Program over three fiscal years spanning 2015, 2016 and 2017. In 2017, the Legislature expanded the program through the Water Infrastructure Improvement Act (WIIA) and Intermunicipal Grant (IMG) programs to $2.5 billion over a five-year period for a variety of programs focused on water quality. The WIIA program works in concert with the SRF programs discussed herein with application materials for projects intending to make use of SRF funds for the balance of project costs mirroring the SRF financing requirements. However, communities may also submit applications for grant without SRF financing if other sources of funds will be used to

For funding rounds to date, up to 60% or $3 million of eligible drinking water project costs and up to 25% or $5 million of eligible wastewater project costs have been awarded to recipients. While public health, environmental impact and consumers ability to pay for improvements are considered, this grant program is unique in that it may be awarded to projects that do not achieve a high ranking based on IUP scoring criteria but that are vital to the long-term sustainability of public infrastructure.

- ***US Department of Agriculture Rural Development (Loan and Grant Program)***

The USDA accepts pre-applications for loan and grant packages to support community infrastructure on a rolling, invitation basis. Submission of a pre-application incorporates an application form, engineering report, environmental review and other fiscal and legal documentation. Upon receipt of a completed pre-application, the USDA will invite submission

of a full application. Once a complete application is submitted and accepted, closing on financing occurs within several month time.

The overall process to obtain USDA RD funding is a multi-step process without hard timeframes, so it can be difficult to predict the timeframe for agency reviews. The agency's workload fluctuates but staffing does not and staffing is geographically assigned, so if there are many projects being submitted in the same geographic area, it can take time for the agency to review all materials.

The USDA RD program does not accommodate project cost and budget costs per se. Minor modifications within the overall scope and contingency are acceptable, but significant changes in scope or budget are generally not accommodated by the RD program. Therefore, appropriate and detailed project planning is key to a successful USDA RD project.

- ***Consolidated Funding Applications: DOS Local Waterfront Revitalization, OCR Community Development Block Grants, DEC Water Quality Improvement Program, DEC Green Infrastructure Grant Program, OPRHP Parks Grant Program, ESD Infrastructure Investment, New York State Energy Research and Development (NYSERDA)***

The Consolidated Funding Application (CFA) process was borne from the State combining the grant activities of over ten state agencies administering nearly 30 grant programs into a single, annual action, directed by regional councils and under the review and approval of the agencies and the Governor's Office. This process has operated for a number of years, aggregating between $800 million and nearly $1 billion dollars annually in state aid through various programs.

The application schedule involves a call for applications in the early summer each year, with applications due towards the end of summer. Grant awards have been announced in December, with State Assistance Agreements executed in the spring or summer of the following year and funds available thereafter in the same year. The overall schedule from application to funding is about a year, driven by the state's process.

# APPENDIX A

# WATER SUPPLY PERMIT

95-20-6(10/90)-25c R3

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

RECEIVED
APR 10 2008
BUREAU OF WATER RESOURCE MANAGEMENT

| DEC PERMIT NUMBER | EFFECTIVE DATE |
|---|---|
| 3-3320-00133/ 00001 | April 7, 2008 |
| FACILITY/PROGRAM NUMBER(s) | EXPIRATION DATE |
| WSA # 11,106 (6th Application) | None (except see General Condition "D" on page 3) |

# PERMIT

**Under the Environmental Conservation Law (ECL)**

TYPE OF PERMIT (Check All Applicable Boxes)

☒ New ☐ Renewal ☐ Modification ☐ Permit to Construct ☐ Permit to Operate

| | | |
|---|---|---|
| ☐ Article 15, Title 5: Protection of Water | ☐ Article 17, Titles 7, 8: SPDES | ☐ Article 27, Title 9; 6NYCRR 373: Hazardous Waste Management |
| XX Article 15, Title 15: Water Supply | ☐ Article 19: Air Pollution Control | ☐ Article 34: Coastal Erosion Management |
| ☐ Article 15, Title 15: Water Transport | ☐ Article 23, Title 27: Mined Land Reclamation | ☐ Article 36: Floodplain Management |
| ☐ Article 15, Title 15: Long Island Wells | ☐ Article 24: Freshwater Wetlands | ☐ Articles 1, 3, 17, 19, 27, 37; 6NYCRR 380: Radiation Control |
| ☐ Article 15, Title 27: Wild, Scenic & Recreational Rivers | ☐ Article 25: Tidal Wetlands | ☐ Other _____ |
| ☐ 6NYCRR 608: Water Quality Certification | ☐ Article 27, Title 7; 6NYCRR 360: Solid Waste Management | |

| PERMIT ISSUED TO | TELEPHONE NUMBER |
|---|---|
| Village of Washingtonville | 845-496-3221 |
| ADDRESS OF PERMITTEE | |
| 29 West Main Street , Washingtonville , NY 10992 | |
| CONTACT PERSON FOR PERMITTED WORK | TELEPHONE NUMBER |
| Tom Devinko | 845-496-3221 |
| NAME AND ADDRESS OF PROJECT/FACILITY | |
| V/ Washingtonville Fireman's Memorial Well, Intersection Washington/Ahern Blvd. | |
| LOCATION OF PROJECT/FACILITY | |
| P.O. - Washingtonville , NY 10992 | |

| COUNTY | TOWN | WATERCOURSE/WETLAND NO. | NYTM COORDINATES |
|---|---|---|---|
| Orange | T / Blooming Grove | | E: 570.60 N: 4586.98 |

DESCRIPTION OF AUTHORIZED ACTIVITY

Take an additional supply of water for use in the Village's existing system by the installation of bedrock Well # 5 (Village of Washingtonville Fireman's Memorial Well) at a maximum rate of 60 gallons per minute (gpm) or 86,400 gallons per day (gpd). The Village is authorized to withdraw a combined maximum daily taking of 1,710 gpm from all of its four approved wells (see Special Condition #1).

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations, the General Conditions specified (**See Page 2**) and any Special Conditions included as part of this permit.

| DEPUTY PERMIT ADMINISTRATOR | ADDRESS | |
|---|---|---|
| Michael D. Merriman | 21 South Putt Corners Rd., New Paltz NY 12561 | ☞ EMH |
| AUTHORIZED SIGNATURE Michael D. Merriman | Date April 7, 2008 | Page 1 of 5 |

DRA1:PERMITP1 8/94

## NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

**Item A: Permittee Accepts Legal Responsibility and Agrees to Indemnification**

The permittee has accepted expressly, by the execution of the application, the full legal responsibility for all damages and costs, direct or indirect, of whatever nature and by whomever suffered, for liability it incurs resulting from activity conducted pursuant to this permit or in noncompliance with this permit and has agreed to indemnify and save harmless the State from suits, actions, damages and costs of every name and description resulting from such activity.

**Item B: Permittee to Require it's Contractors to Comply with Permit**

The permittee shall require its independent contractors, employees, agents and assigns to read, understand and comply with this permit, including all special conditions, and such persons shall be subject to the same sanctions for violations of this permit as those prescribed for the permittee.

**Item C: Permittee Responsible for Obtaining Other Required Permits**

The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way that may be required for this project.

**Item D: No Right to Trespass or Interfere with Riparian Rights**

This permit does not convey to the permittee any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work nor does it authorize the impairment of any rights, title, or interest in real or personal property held or vested in a person not a party to the permit.

## GENERAL CONDITIONS

**General Condition 1: Facility Inspection by the Department**

--The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71-0301 and SAPA 401(3).

--The permittee shall provide a person to accompany the Department's representative during an inspection to the permit area when written or verbal notification is provided by the Department at least 24 hours prior to such inspection.

--A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

**General Condition 2: Relationship of this Permit to Other Department Orders and Determinations**

Unless expressly provided for by the Department, issuance of this permit does not modify, supersede or rescind any order or determination previously issued by the Department or any of the terms, conditions or requirements contained in such order or determination.

**General Condition 3: Applications for Permit Renewals or Modifications**

The permittee must submit a separate written application to the Department for renewal, modification or transfer of this permit. Such application must include any forms or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing.

The permittee must submit a renewal application at least:

a) 180 days before expiration of permits for State Pollutant Discharge Elimination System (SPDES), Hazardous Waste Management Facilities (HWMF), major Air Pollution Control (APC) and Solid Waste Management Facilities (SWMF); and

b) 30 days before expiration of all other permit types.

Submission of applications for permit renewal or modification are to be submitted to:

NYSDEC Regional Permit Administrator, Region 3
21 South Putt corners Road, New Paltz, NY 12651, Telephone: 845-256-3054

**General Condition 4: Permit Modifications, Suspensions and Revocations by the Department**

The Department reserves the right to modify, suspend or revoke this permit when:

a) the scope of the permitted activity is exceeded or a violation of any condition of the permit or provisions of the ECL and pertinent regulations is found;

b) the permit was obtained by misrepresentation or failure to disclose relevant facts;

c) new material information is discovered; or

d) environmental conditions, relevant technology, or applicable law or regulation have materially changed since the permit was issued.

**ADDITIONAL GENERAL CONDITIONS FOR ARTICLE 15, TITLE 15 (Water Supply)**

A. The permittee must require that any contractor, project engineer, or other person responsible for the overall supervision of this project has read, understands and agrees to comply with this permit and associated plan(s).

B. Prior to starting work on any construction authorized herein, detailed plans of the structures proposed to be built and specifications for such work shall have been submitted to and approved by the Department. Thereafter, such construction work shall be entirely completed in full accordance with the plans and specifications which have been submitted and approved.
**NOTE**: Approval by this Department of final plans and specifications, and of completed works, will not be issued until equivalent approvals have been issued by the NYS Department of Health.

C. Section 15-1529 of the Environmental Conservation Law forbids the operation of any of these works until, as constructed, they have been approved by the Department. Such final approval will be given only on written request. In general, such approval will not be given until all provisions affecting quality of the water and safety of the works have been complied with in full.

D. The Department reserves the right to rescind this permit or to take whatever action it may deem suitable and proper if the works authorized to be constructed herein are not initiated by January 01, 2010 .

# SPECIAL CONDITIONS
## For Article 15, Title 15 (Water Supply)

1.The following table lists the permittee's approved groundwater sources. No other groundwater sources shall be used without the further approval of the Department.

| Source Name | WSA # | Current Approved Individual Source Capacities ( gpm ) |
|---|---|---|
| Well 1A | 6622 | 750 |
| Well 3 | 8732 | 750 |
| Well 4 | 10,146 | 150 |
| Well 5 | This permit | 60 |

2. All land within 200 feet of any well approved herein shall be protected and controlled, in order to prevent pollution of the ground or groundwater, by direct ownership of the land, by the acquisition of protective easements, or by other appropriate measures. This area shall further be protected from pollution by surface waters originating outside thereof by the construction of suitable diversion ditches or embankments, and the development of the wells shall so be carried out that there shall be no opportunity for pollution to enter the wells.

3.This area shall further be protected from pollution by surface waters originating outside thereof by the construction of suitable diversion ditches or embankments, and the development of the wells shall so be carried out that there shall be no opportunity for pollution to enter the wells.

4.The physical pumping facilities and controls at any well site approved herein shall be protected against damage or tampering either by a fence or other suitable enclosure or by their manner of construction and installation.

5. Nothing contained in this permit and approval shall be held to authorize the permittee to supply, sell or distribute, for any purpose, water from any source approved herein unless all such water shall first have been treated in a manner satisfactory to the New York State Department of Health.

6.The Department reserves the right to require the taking of further sanitary precautions or the further treatment of the water from any source approved herein should future conditions cause the New York State Department of Health to specify such action.

# SPECIAL CONDITIONS
## For Article 15 Title 15 (Water Supply)

7. Nothing contained herein shall be held to authorize the permittee to distribute water to any other district or service area that has not already been approved by the Department or its predecessors without first obtaining a further permit from the Department.

8. During any construction direcly or indirectly associated with the activities authorized herein, the permittee shall make provisions to minimize erosion on the construction site and to prevent increased sedimentation in any water body on or adjacent to the site.

9. The permittee shall ensure that water used for disinfecting water mains, if discharged to area streams, has a free chlorine residual not exceeding 0.05 milligrams-per-liter (mg/l) at the point of discharge.

10. Provisions shall be made to provide an adequate supply of water to those residents whose private well water systems are diminished or rendered non-productive by the use of the wells developed by the Permittee.

## WATER CONSERVATION CONDITIONS:

11.The permittee must maintain meters on all sources of supply used in the system and on all customer service connections supplied by the system.

12. At least once every fifteen years, the permittee must have all of its small service connection meters (less than 1-inch in diameter) calibrated for accuracy according to standards of the American Water Works Association (AWWA). Larger service meters and all source meters must be calibrated more frequently, based upon the AWWA standards for the size of meter used.

13. The permittee must maintain records of annual metered water production and consumption, and, at least once annually, must conduct a system water audit that utilizes metered production and consumption data to determine unaccounted-for water.

14. The permittee must develop and implement a leak detection and repair program that uses sonic detection equipment to inspect its entire distribution system in a systematic fashion. At a minimum, this program must cover the entire system in a three-year cycle by inspecting at least one-third of the system each year. Whenever two consecutive annual water audits shall show that unaccounted-for water is 15% or less of system production, the leak detection and repair program may be modified to cover the entire system in a longer cycle.

15. The permittee must retain records of production and consumption, reports of audit results, and summaries of leaks detected and repaired for at least ten years. The permittee must provide copies of such of these records, reports, and summaries as might be requested in writing by the Department within one month of receiving such a request.

# SPECIAL CONDITIONS

For Article 15 Title 15 (Water Supply)

## STATE ENVIRONMENTAL QUALITY REVIEW.

### STATE ENVIRONMENTAL QUALITY REVIEW

Under the State Environmental Quality Review Act (SEQR), the project associated with this permit is classified as an Unlisted Action with the Village of Washingtonville Village Board designated as the lead agency. It has been determined that the project will not have a significant effect on the environment.

Distribution:

M. George & T. Rudolph, DOW, Tarrytown
M. Holt, DOW, Albany (3504)
M. Montysko, NYS DOH, Troy

# APPENDIX B

# WASTEWATER SPDES PERMIT

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

# State Pollutant Discharge Elimination System (SPDES)
# DISCHARGE PERMIT

| | | | |
|---|---|---|---|
| Industrial Code: | **4952** | SPDES Number: | **NY0023671** |
| Discharge Class (CL): | **07** | DEC Number: | **3-3320-00028/00004** |
| Toxic Class (TX): | **N** | Effective Date (EDP): | **8/1/2015** |
| Major Drainage Basin: | **13** | Expiration Date (ExDP): | **7/31/2020** |
| Sub Drainage Basin: | **03** | Modification Dates: (EDPM) | **5/27/2016** |
| Water Index Number: | **H-89** | | |
| Compact Area: | | | |

This SPDES permit is issued in compliance with Title 8 of Article 17 of the Environmental Conservation Law of New York State and in compliance with the Clean Water Act, as amended, (33 U.S.C. §1251 et.seq.)(hereinafter referred to as "the Act").

**PERMITTEE NAME AND ADDRESS**

| | | | | | |
|---|---|---|---|---|---|
| Name: | **Village of Washingtonville** | Attention: | **Mayor and Village Board** | | |
| Street: | **9 Fairlawn** | | | | |
| City: | **Washingtonville** | State: | **NY** | Zip Code: | **10992** |

is authorized to discharge from the facility described below:

**FACILITY NAME AND ADDRESS**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Name: | **Village of Washingtonville WWTP** | | | | | | | | | | | |
| Location (C,T,V): | **Washingtonville (V)** | | | | | | County: | **Orange** | | | | |
| Facility Address: | **3 Walt Cole Boulevard** | | | | | | | | | | | |
| City: | **Washingtonville** | | | State: | **NY** | | Zip Code: | **10992** | | | | |
| From Outfall No.: | **001** | at Latitude: | **41** | ° | **25** | ' | **32** | " | & Longitude: | **74** | ° **08** | ' **33** " |
| into receiving waters known as: | **Moodna Creek** | | | | | | | | Class: | **C** | | |

and (list other Outfalls, Receiving Waters & Water Classifications)

in accordance with: effluent limitations; monitoring and reporting requirements; other provisions and conditions set forth in this permit; and 6 NYCRR Part 750-1and 750-2.

**DISCHARGE MONITORING REPORT (DMR) MAILING ADDRESS**

| | | | | | |
|---|---|---|---|---|---|
| Mailing Name: | **Village of Washingtonville WWTP** | | | | |
| Street: | **9 Fairlawn** | | | | |
| City: | **Washingtonville** | State: | **NY** | Zip Code: | **10992** |
| Responsible Official or Agent: | **Patrick J. Rowley, Chief Operator** | | Phone: | **845-496-7488** | |

This permit and the authorization to discharge shall expire on midnight of the expiration date shown above and the permittee shall not discharge after the expiration date unless this permit has been renewed, or extended pursuant to law. To be authorized to discharge beyond the expiration date, the permittee shall apply for permit renewal not less than 180 days prior to the expiration date shown above.

DISTRIBUTION:

USEPA – Region II
NYSEFC
Orange County Department of Health
CO BWP - Permit Coordinator
RWE / Adedayo Adewole – R3 DEC

Deputy Permit Administrator: John W. Petronella

Address: 21 South Putt Corners Road
New Paltz, NY 12561

Signature: John W. Petronella Date: 5/27/16

# PERMIT LIMITS, LEVELS AND MONITORING DEFINITIONS

| OUTFALL | WASTEWATER TYPE | RECEIVING WATER | EFFECTIVE | EXPIRING |
|---|---|---|---|---|
| | This cell describes the type of wastewater authorized for discharge. Examples include process or sanitary wastewater, storm water, non-contact cooling water. | This cell lists classified waters of the state to which the listed outfall discharges. | The date this page starts in effect. (e.g. EDP or EDPM) | The date this page is no longer in effect. (e.g. ExDP) |

| PARAMETER | MINIMUM | MAXIMUM | UNITS | SAMPLE FREQ. | SAMPLE TYPE |
|---|---|---|---|---|---|
| e.g. pH, TRC, Temperature, D.O. | The minimum level that must be maintained at all instants in time. | The maximum level that may not be exceeded at any instant in time. | SU, °F, mg/l, etc. | See below | See below |

| PARAMETER | EFFLUENT LIMIT or CALCULATED LEVEL | COMPLIANCE LEVEL / ML | ACTION LEVEL | UNITS | SAMPLE FREQUENCY | SAMPLE TYPE |
|---|---|---|---|---|---|---|
| | Limit types are defined below in Note 1. The effluent limit is developed based on the more stringent of technology-based limits, required under the Clean Water Act, or New York State water quality standards. The limit has been derived based on existing assumptions and rules. These assumptions include receiving water hardness, pH and temperature; rates of this and other discharges to the receiving stream; etc. If assumptions or rules change the limit may, after due process and modification of this permit, change. | For the purposes of compliance assessment, the permittee shall use the approved EPA analytical method with the lowest possible detection limit as promulgated under 40CFR Part 136 for the determination of the concentrations of parameters present in the sample unless otherwise specified. If a sample result is below the detection limit of the most sensitive method, compliance with the permit limit for that parameter was achieved. Monitoring results that are lower than this level must be reported, but shall not be used to determine compliance with the calculated limit. This Minimum Level (ML) can be neither lowered nor raised without a modification of this permit. | Action Levels are monitoring requirements, as defined below in Note 2, which trigger additional monitoring and permit review when exceeded. | This can include units of flow, pH, mass, temperature, or concentration. Examples include µg/l, lbs/d, etc. | Examples include Daily, 3/week, weekly, 2/month, monthly, quarterly, 2/yr and yearly. All monitoring periods (quarterly, semiannual, annual, etc) are based upon the calendar year unless otherwise specified in this Permit. | Examples include grab, 24 hour composite and 3 grab samples collected over a 6 hour period. |

Notes:

1. EFFLUENT LIMIT TYPES:
   a. DAILY DISCHARGE: The discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for the purposes of sampling. For pollutants expressed in units of mass, the 'daily discharge' is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the 'daily discharge' is calculated as the average measurement of the pollutant over the day.
   b. DAILY MAX: The highest allowable daily discharge. DAILY MIN: The lowest allowable daily discharge.
   c. MONTHLY AVG: The highest allowable average of daily discharges over a calendar month, calculated as the sum of each of the daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.
   d. 7 DAY ARITHMETIC MEAN (7 day average): The highest allowable average of daily discharges over a calendar week.
   e. 30 DAY GEOMETRIC MEAN: The highest allowable geometric mean of daily discharges over a calendar month, calculated as the antilog of: the sum of the log of each of the daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.
   f. 7 DAY GEOMETRIC MEAN: The highest allowable geometric mean of daily discharges over a calendar week.
   g. RANGE: The minimum and maximum instantaneous measurements for the reporting period must remain between the two values shown.

2. ACTION LEVELS: Routine Action Level monitoring results, if not provided for on the Discharge Monitoring Report (DMR) form, shall be appended to the DMR for the period during which the sampling was conducted. If the additional monitoring requirement is triggered as noted below, the permittee shall undertake a short-term, high-intensity monitoring program for the parameter(s). Samples identical to those required for routine monitoring purposes shall be taken on each of at least three consecutive operating and discharging days and analyzed. Results shall be expressed in terms of both concentration and mass, and shall be submitted no later than the end of the third month following the month when the additional monitoring requirement was triggered. Results may be appended to the DMR or transmitted under separate cover to the same address. If levels higher than the Action Levels are confirmed, the permit may be reopened by the Department for consideration of revised Action Levels or effluent limits. The permittee is not authorized to discharge any of the listed parameters at levels which may cause or contribute to a violation of water quality standards.

# INTERIM PERMIT LIMITS, LEVELS AND MONITORING

| OUTFALL | LIMITATIONS APPLY: | RECEIVING WATER | EFFECTIVE | EXPIRING |
|---|---|---|---|---|
| 001 | All year unless otherwise noted | Moodna Creek | 08/01/2015 | The Startup date of the new 0.85 mgd Wastewater Treatment Plant. (5) |

| PARAMETER | EFFLUENT LIMIT | | | | | MONITORING REQUIREMENTS | | | | FN |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Location | | |
| | Type | Limit | Units | Limit | Units | Sample Frequency | Sample Type | Inf. | Eff. | |
| Flow | Monthly Average | 0.70 | | | mgd | Continuous | Recorder | X | | |
| $CBOD_5$ (June 1 – October 31) | Monthly Average | - | mg/l | - | lbs/d | 2 / month | 6-hr. Comp. | X | X | (1) |
| $CBOD_5$ (November 1 – May 31) | Monthly Average | 25 | mg/l | 146 | lbs/d | 2 / month | 6-hr. Comp. | X | X | (1) |
| Solids, Total Suspended | Daily Maximum | 10 | mg/l | 58 | lbs/d | 2 / month | Grab | X | X | (1) |
| UOD (June 1 – October 31) | Daily Maximum | 35 | mg/l | 204 | lbs/d | 2 / month | Calculated | | X | (2) (4) |
| UOD (November 1 – May 31) | Monthly Average | 100 | mg/l | 584 | lbs/d | 2 / month | Calculated | X | X | (2) (4) |
| Solids, Settleable | Daily Maximum | 0.1 | ml/l | | | 1 / day | Grab | | X | |
| pH | Range | 6.0 – 9.0 | SU | | | 1 / day | Grab | | X | |
| Ammonia (as $NH_3$) (June 1 – October 31) | Monthly Average | 4.3 | mg/l | | | 2 / month | 6-hr. Comp. | | X | |
| Nitrogen, TKN (as N) (June 1 – October 31) | Monthly Average | Monitor | | | | 2 / month | 6-hr. Comp. | | X | |
| Temperature | Daily Maximum | Monitor | Deg F | | | 1 / day | Grab | | X | |
| Dissolved Oxygen | Daily Minimum | 7.0 | mg/l | | | 1 / day | Grab | | X | |
| Effluent Disinfection required | | [ ] All Year | | [ x ] Seasonal from May 1 to October 31 | | | | | | |
| Coliform, Fecal | 30-Day Geometric Mean | 200 | No./ 100 ml | | | 2 / month | Grab | | X | |
| Coliform, Fecal | 7 Day Geometric Mean | 400 | No./ 100 ml | | | 2 / month | Grab | | X | |
| Chlorine, Total Residual | Daily Maximum | 0.1 | mg/l | | | 1 / day | Grab | | X | (3) |

**FOOTNOTES: See page 4 of this Permit.**

# FINAL PERMIT LIMITS, LEVELS AND MONITORING

| OUTFALL | LIMITATIONS APPLY: | RECEIVING WATER | EFFECTIVE | EXPIRING |
|---|---|---|---|---|
| 001 | All year unless otherwise noted | Moodna Creek | (5) | 7/31/2020 |

| PARAMETER | EFFLUENT LIMIT | | | | | MONITORING REQUIREMENTS | | | | FN |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Location | | |
| | Type | Limit | Units | Limit | Units | Sample Frequency | Sample Type | Inf. | Eff. | |
| Flow | Monthly Average | 0.85 | | | mgd | Continuous | Recorder | X | | |
| $CBOD_5$ | Monthly Average | Monitor | mg/l | - | lbs/d | 2 / month | 6-hr. Comp. | X | X | (1) |
| Solids, Total Suspended | Daily Maximum | 10 | mg/l | 71 | lbs/d | 2 / month | Grab | X | X | (1) |
| Nitrogen, TKN (as N) | Monthly Average | Monitor | mg/l | | | 2 / month | 6-hr.Comp. | | X | |
| UOD | Daily Maximum | 20 | mg/l | 142 | lbs/d | 2 / month | Calculated | | X | (2), (4) |
| Ammonia (as $NH_3$) (June 1 – October 31) | Monthly Average | 1.5 | mg/l | - | lbs/d | 2 / month | 6-hr. Comp. | | X | |
| Solids, Settleable | Daily Maximum | 0.1 | ml/l | | | 1 / day | Grab | | X | |
| pH | Range | 6.0 – 9.0 | SU | | | 1 / day | Grab | | X | |
| Temperature | Daily Maximum | Monitor | Deg F | | | 1 / day | Grab | | X | |
| Dissolved Oxygen | Daily Minimum | 7.0 | mg/l | | | 1 / day | Grab | | X | |
| Effluent Disinfection required | | [ ] All Year | | [ x ] Seasonal from May 1 to October 31 | | | | | | |
| Coliform, Fecal | 30-Day Geometric Mean | 200 | No./ 100 ml | | | 2 / month | Grab | | X | |
| Coliform, Fecal | 7 Day Geometric Mean | 400 | No./ 100 ml | | | 2 / month | Grab | | X | |
| Chlorine, Total Residual | Daily Maximum | 0.1 | mg/l | | | 1 / day | Grab | | X | (3) |

## FOOTNOTES:

(1) Effluent shall not exceed 15 % and 15 % of influent concentration values for CBOD5 & TSS respectively.

(2) Ultimate Oxygen Demand shall be computed as follows: UOD = 1.5 x CBOD5 + 4.5 x TKN (Total Kjeldahl Nitrogen)

(3) If Chlorine is used for disinfection.

(4) Samples for CBOD5 and TKN are to be collected at the time to calculate UOD.

(5) The final permit limits shall become effective upon startup of the 0.85 mgd facility. The Startup date of the new 0.85 mgd Wastewater Treatment Plant shall be identified in a letter from the permittee to the offices listed on the last page of this permit. The letter shall be submitted at least 45 days prior to the startup date. The facility shall not startup until a P.E. licensed in NYS has certified in writing to the Department that the facility was constructed in accordance with the approved engineering report, plans and specifications.

## Mercury Minimization Program for Low Priority POTWs

The permittee shall inspect each tributary dental facility at least once every five years to verify compliance with the wastewater treatment operation, maintenance, and notification elements of 6NYCRR Part 374.4. Inspection and/or outreach to other industrial/commercial sectors which may contribute mercury is also recommended. All new or increased tributary discharges, including hauled wastes, which are from sources that are industrial in nature must be evaluated for mercury content and if levels exceed 500 ng/L then authorization must be obtained from the Department prior to acceptance. Equipment and materials which may contain mercury shall also be evaluated by the permittee and replaced with mercury-free alternatives where environmentally preferable. A file shall be maintained containing the notices submitted by dental offices and all other pertinent information. This file shall be available for review by NYSDEC representatives and copies shall be provided upon request. A permit modification may be necessary to include more stringent requirements for POTWs which do not maintain low mercury effluent levels. Note – the mercury-related requirements in this permit conform to the mercury Multiple Discharge Variance specified in NYSDEC policy *DOW 1.3.10.*

# DISCHARGE NOTIFICATION REQUIREMENTS

(a) Except as provided in (c) and (g) of these Discharge Notification Act requirements, the permittee shall install and maintain identification signs at all outfalls to surface waters listed in this permit. Such signs shall be installed before initiation of any discharge.

(b) Subsequent modifications to or renewal of this permit does not reset or revise the deadline set forth in (a) above, unless a new deadline is set explicitly by such permit modification or renewal.

(c) The Discharge Notification Requirements described herein do not apply to outfalls from which the discharge is composed exclusively of storm water, or discharges to ground water.

(d) The sign(s) shall be conspicuous, legible and in as close proximity to the point of discharge as is reasonably possible while ensuring the maximum visibility from the surface water and shore. The signs shall be installed in such a manner to pose minimal hazard to navigation, bathing or other water related activities. If the public has access to the water from the land in the vicinity of the outfall, an identical sign shall be posted to be visible from the direction approaching the surface water.

The signs shall have **minimum** dimensions of eighteen inches by twenty four inches (18" x 24") and shall have white letters on a green background and contain the following information:

**N.Y.S. PERMITTED DISCHARGE POINT**

**SPDES PERMIT No.: NY_____**

**OUTFALL No. :____**

For information about this permitted discharge contact:

Permittee Name: _____

Permittee Contact: _____

Permittee Phone: ( ) - ### - ####

OR:

NYSDEC Division of Water Regional Office Address :

NYSDEC Division of Water Regional Phone: ( ) - ### -####

(e) For each discharge required to have a sign in accordance with a), the permittee shall, concurrent with the installation of the sign, provide a repository of copies of the Discharge Monitoring Reports (DMRs), as required by the **RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS** page of this permit. This repository shall be open to the public, at a minimum, during normal daytime business hours. The repository may be at the business office repository of the permittee or at an off-premises location of its choice (such location shall be the village, town, city or county clerk's office, the local library or other location as approved by the Department ). In accordance with the **RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS** page of your permit, each DMR shall be maintained on record for a period of five years

(f) The permittee shall periodically inspect the outfall identification sign(s) in order to ensure they are maintained, are still visible, and contain information that is current and factually correct. Signs that are damaged or incorrect shall be replaced within 3 months of inspection.

# DISCHARGE NOTIFICATION REQUIREMENTS (continued)

(g) All requirements of the Discharge Notification Act, including public repository requirements, are waived for any outfall meeting any of the following circumstances, provided Department notification is made in accordance with (h) below:

(i) such sign would be inconsistent with any other state or federal statute;

(ii) the Discharge Notification Requirements contained herein would require that such sign could only be located in an area that is damaged by ice or flooding due to a one-year storm or storms of less severity;

(iii) instances in which the outfall to the receiving water is located on private or government property which is restricted to the public through fencing, patrolling, or other control mechanisms. Property which is posted only, without additional control mechanisms, does not qualify for this provision;

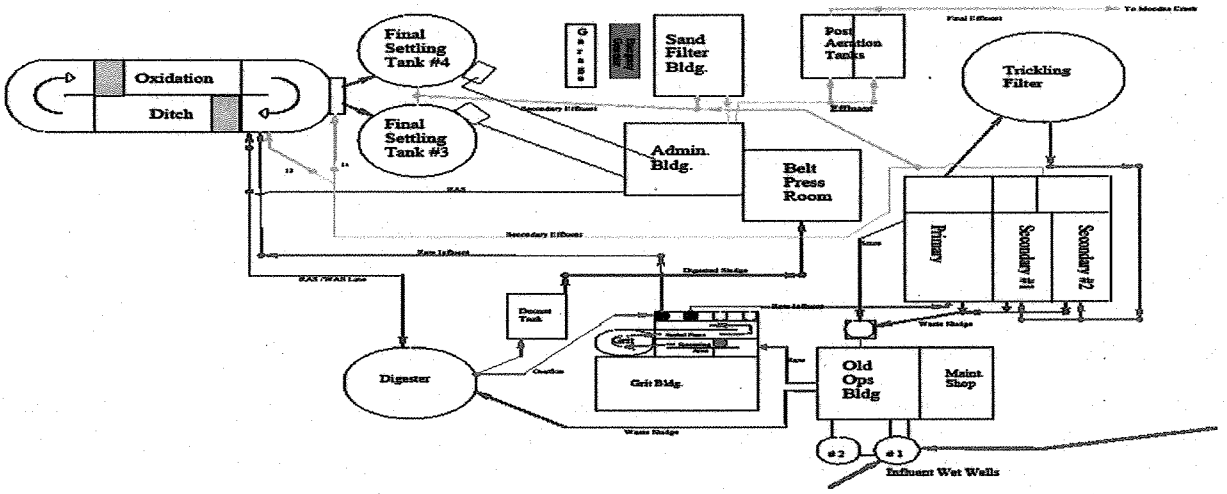
(iv) instances where the outfall pipe or channel discharges to another outfall pipe or channel, before discharge to a receiving water; or

(v) instances in which the discharge from the outfall is located in the receiving water, two-hundred or more feet from the shoreline of the receiving water.

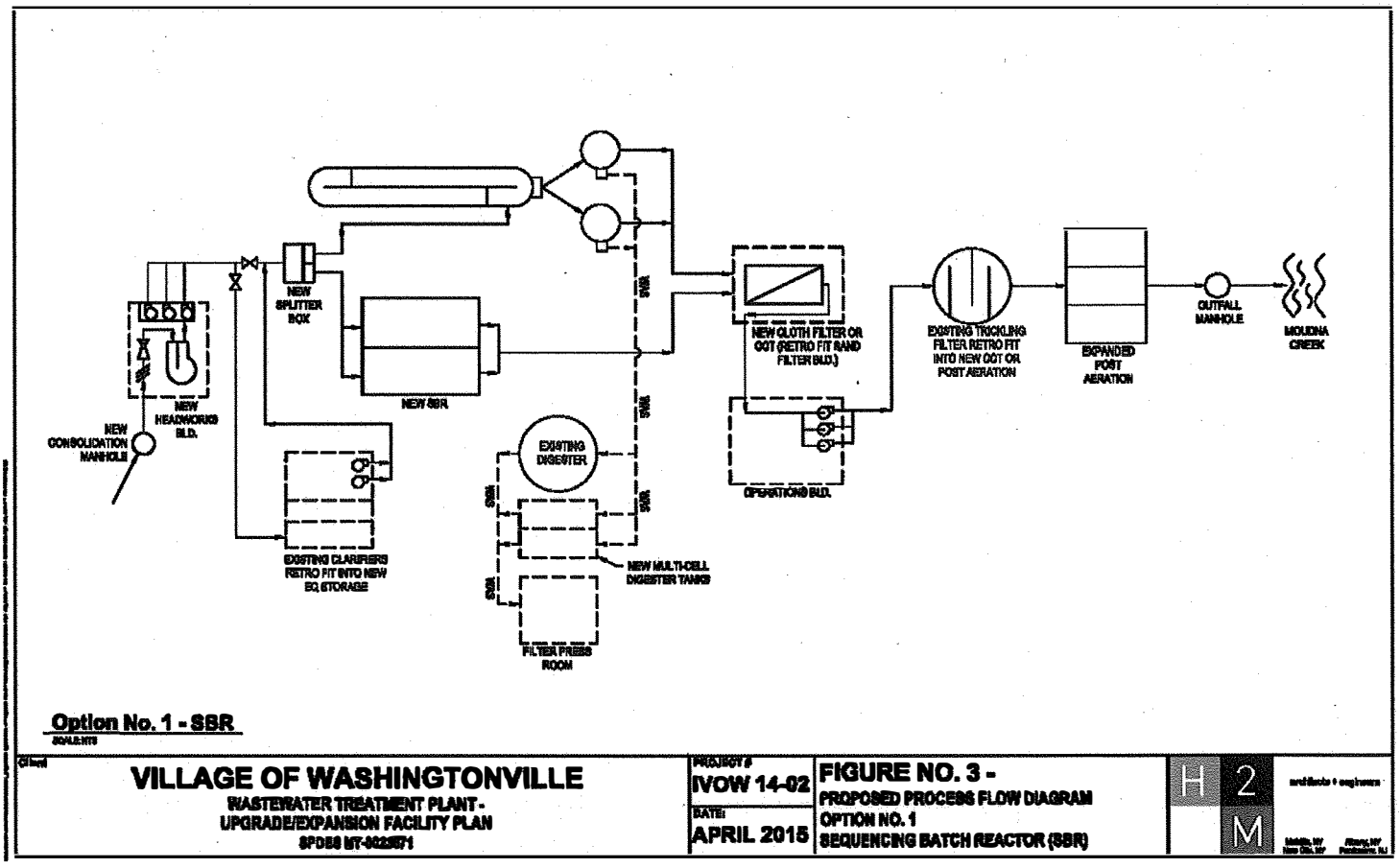
(h) If the permittee believes that any outfall which discharges wastewater from the permitted facility meets any of the waiver criteria listed in (g) above, notification (form enclosed) must be made to the Department's Bureau of Water Permits, 625 Broadway, Albany, N.Y. 12233-3505, of such fact, and, provided there is no objection by the Department, a sign and DMR repository for the involved outfall(s) are not required. This notification must include the facility's name, address, telephone number, contact, permit number, outfall number(s), and reason why such outfall(s) is waived from the requirements of discharge notification. The Department may evaluate the applicability of a waiver at any time, and take appropriate measures to assure that the ECL and associated regulations are complied with.

# MONITORING LOCATIONS

The permittee shall take samples and measurements, to comply with the monitoring requirements specified in this permit, at the locations(s) specified below:




## EXISTING WASTEWATER TREATMENT PLANT




## PROPOSED WASTEWATER TREATMENT PLANT

# GENERAL REQUIREMENTS

A. The regulations in 6 NYCRR Part 750 are hereby incorporated by reference and the conditions are enforceable requirements under this permit. The permittee shall comply with all requirements set forth in this permit and with all the applicable requirements of 6 NYCRR Part 750 incorporated into this permit by reference, including but not limited to the regulations in paragraphs B through I as follows:.

B. General Conditions

| | |
|---|---|
| 1. Duty to comply | 6NYCRR Part 750-2.1(e) & 2.4 |
| 2. Duty to reapply | 6NYCRR Part 750-1.16(a) |
| 3. Need to halt or reduce activity not a defense | 6NYCRR Part 750-2.1(g) |
| 4. Duty to mitigate | 6NYCRR Part 750-2.7(f) |
| 5. Permit actions | 6NYCRR Part 750-1.1(c), 1.18, 1.20 & 2.1(h) |
| 6. Property rights | 6NYCRR Part 750-2.2(b) |
| 7. Duty to provide information | 6NYCRR Part 750-2.1(i) |
| 8. Inspection and entry | 6NYCRR Part 750-2.1(a) & 2.3 |

C. Operation and Maintenance

| | |
|---|---|
| 1. Proper Operation & Maintenance | 6NYCRR Part 750-2.8 |
| 2. Bypass | 6NYCRR Part 750-1.2(a)(17), 2.8(b) & 2.7 |
| 3. Upset | 6NYCRR Part 750-1.2(a)(94) & 2.8(c) |

D. Monitoring and Records

| | |
|---|---|
| 1. Monitoring and records | 6NYCRR Part 750-2.5(a)(2), 2.5(c)(1), 2.5(c)(2), 2.5(d) & 2.5(a)(6) |
| 2. Signatory requirements | 6NYCRR Part 750-1.8 & 2.5(b) |

E. Reporting Requirements

| | |
|---|---|
| 1. Reporting requirements | 6NYCRR Part 750-2.5, 2.6, 2.7 & 1.17 |
| 2. Anticipated noncompliance | 6NYCRR Part 750-2.7(a) |
| 3. Transfers | 6NYCRR Part 750-1.17 |
| 4. Monitoring reports | 6NYCRR Part 750-2.5(e) |
| 5. Compliance schedules | 6NYCRR Part 750-1.14(d) |
| 6. 24-hour reporting | 6NYCRR Part 750-2.7(c) & (d) |
| 7. Other noncompliance | 6NYCRR Part 750-2.7(e) |
| 8. Other information | 6NYCRR Part 750-2.1(f) |
| 9. Additional conditions applicable to a POTW | 6NYCRR Part 750-2.9 |
| 10. Special reporting requirements for discharges that are not POTWs | 6NYCRR Part 750-2.6 |

F. Planned Changes

1. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

   a. The alteration or addition to the permitted facility may meet of the criteria for determining whether facility is a new source in 40 CFR §122.29(b); or
   b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, or to notification requirements under 40 CFR §122.42(a)(1); or
   c. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

   In addition to the Department, the permittee shall submit a copy of this notice to the United States Environmental Protection Agency at the following address: U.S. EPA Region 2, Clean Water Regulatory Branch, 290 Broadway, 24th Floor, New York, NY 10007-1866.

# GENERAL REQUIREMENTS continued

G. Notification Requirement for POTWs

1. All POTWs shall provide adequate notice to the Department and the USEPA of the following:
   a. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of CWA if it were directly discharging those pollutants; or
   b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
   c. For the purposes of this paragraph, adequate notice shall include information on:
      i. the quality and quantity of effluent introduced into the POTW, and
      ii. any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

POTWs shall submit a copy of this notice to the United States Environmental Protection Agency, at the following address: U.S. EPA Region 2, Clean Water Regulatory Branch, 290 Broadway, 24th Floor, New York, NY 10007-1866.

H. Sludge Management

The permittee shall comply with all applicable requirements of 6 NYCRR Part 360.

I. SPDES Permit Program Fee

The permittee shall pay to the Department an annual SPDES permit program fee within 30 days of the date of the first invoice, unless otherwise directed by the Department, and shall comply with all applicable requirements of ECL 72-0602 and 6 NYCRR Parts 480, 481 and 485. Note that if there is inconsistency between the fees specified in ECL 72-0602 and 6 NYCRR Part 485, the ECL 72-0602 fees govern.

J. Water Treatment Chemicals (WTCs)

New or increased use and discharge of a WTC requires prior Department review and authorization. At a minimum, the permittee must notify the Department in writing of its intent to change WTC use by submitting a completed *WTC Notification Form* for each proposed WTC. The Department will review that submittal and determine if a SPDES permit modification is necessary or whether WTC review and authorization may proceed outside of the formal permit administrative process. The majority of WTC authorizations do not require SPDES permit modification. In any event, use and discharge of a WTC shall not proceed without prior authorization from the Department. Examples of WTCs include biocides, coagulants, conditioners, corrosion inhibitors, defoamers, deposit control agents, flocculants, scale inhibitors, sequestrants, and settling aids.

1. WTC use shall not exceed the rate explicitly authorized by this permit or otherwise authorized in writing by the Department.
2. The permittee shall **maintain a logbook** of all WTC use, noting for each WTC the date, time, exact location, and amount of each dosage, and, the name of the individual applying or measuring the chemical. The logbook must also document that adequate process controls are in place to ensure that excessive levels of WTCs are not used.
3. The permittee shall **submit a completed *WTC Annual Report Form*** each year that they use and discharge WTCs. This form shall be attached to either the December DMR or the annual monitoring report required below.

The *WTC Notification Form* and *WTC Annual Report Form* are available from the Department's website at http://www.dec.ny.gov/permits/93245.html .

# RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS

A. The monitoring information required by this permit shall be summarized, signed and retained for a period of at least five years from the date of the sampling for subsequent inspection by the Department or its designated agent. **Also, monitoring information required by this permit shall be summarized and reported by submitting;**

[X] (if box is checked) completed and signed Discharge Monitoring Report (DMR) forms for each 1 month reporting period to the locations specified below. Blank forms are available at the Department's Albany office listed below. The first reporting period begins on the effective date of this permit and the reports will be due no later than the 28th day of the month following the end of each reporting period.

[ ] (if box is checked) an annual report to the Regional Water Engineer at the address specified below. The annual report is due by February 1 each year and must summarize information for January to December of the previous year in a format acceptable to the Department.

[X] (if box is checked) a monthly "Wastewater Facility Operation Report..." (form 92-15-7) to the:
[X] Regional Water Engineer and/or [X] County Health Department or Environmental Control Agency specified below

Send the **original** (top sheet) of each DMR page to:
Department of Environmental Conservation
Division of Water, Bureau of Water Compliance
625 Broadway
Albany, New York 12233-3506

Phone: (518) 402-8177

Send the **first copy** (second sheet) of each DMR page to:
Department of Environmental Conservation
Regional Water Engineer, Region 3
100 Hillside Avenue, Suite 1W
White Plains, New York 10603-2860

Phone: (914) 428-2505

Send an **additional copy** of each DMR page to:

B. Monitoring and analysis shall be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.

C. More frequent monitoring of the discharge(s), monitoring point(s), or waters of the State than required by the permit, where analysis is performed by a certified laboratory or where such analysis is not required to be performed by a certified laboratory, shall be included in the calculations and recording of the data on the corresponding DMRs.

D. Calculations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this permit.

E. Unless otherwise specified, all information recorded on the DMRs shall be based upon measurements and sampling carried out during the most recently completed reporting period.

F. Any laboratory test or sample analysis required by this permit for which the State Commissioner of Health issues certificates of approval pursuant to section 502 of the Public Health Law shall be conducted by a laboratory which has been issued a certificate of approval. Inquiries regarding laboratory certification should be directed to the New York State Department of Health, Environmental Laboratory Accreditation Program.

## NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

**Division of Environmental Permits, Region 3**
21 South Putt Corners Road, New Paltz, NY 12561-1620
P: (845) 256-3054 | F: (845) 255-4659
www.dec.ny.gov

### IMPORTANT NOTICE TO ALL PERMITTEES

The permit you requested is enclosed. Please read it carefully and note the conditions that are included in it. The permit is valid for only that activity expressly authorized therein; work beyond the scope of the permit may be considered a violation of law and be subject to appropriate enforcement action. Granting of this permit does not relieve the permittee of the responsibility of obtaining any other permission, consent or approval from any other federal, state, or local government which may be required.

Please note the expiration date of the permit. Applications for permit renewal should be made well in advance of the expiration date (minimum of 30 days) and submitted to the Regional Permit Administrator at the above address. For SPDES, Solid Waste and Hazardous Waste Permits, renewals must be made at least 180 days prior to the expiration date.

The DEC permit number & program ID number noted on page 1 under "Permit Authorization" of the permit are important and should be retained for your records. These numbers should be referenced on all correspondence related to the permit, and on any future applications for permits associated with this facility/project area.

If a permit notice sign is enclosed, you must post it at the work site with appropriate weather protection, as well as a copy of the permit per General Condition 1.

If the permit is associated with a project that will entail construction of new water pollution control facilities or modifications to existing facilities, plan approval for the system design will be required from the appropriate Department's regional Division of Water or delegated local Health Department, as specified in the State Pollutant Discharge Elimination System (SPDES) permit.

If you have any questions on the extent of work authorized or your obligations under the permit, please contact the staff person indicated below or the Division of Environmental Permits at the above address.

Jonathan Stercho, Environmental Analyst
Division of Environmental Permits, Region 3
Telephone (845) 256-3096

- ☐ Applicable only if checked. Please note all work authorized under this permit is prohibited during trout spawning season commencing October 1 and ending April 30.
- ☐ Applicable only if checked for STORMWATER SPDES INFORMATION: We have determined that your project requires coverage under the General Stormwater SPDES Permit. You must file a Notice of Intent to obtain coverage under the General Permit. This form can be downloaded at: http://www.dec.ny.gov/chemical/43133.html
- ☐ Applicable only if checked - MS4 Areas: This site is within an MS4 area (Municipal Separate Storm Sewer System), therefore the SWPPP must be reviewed and accepted by the municipality. The MS-4 Acceptance Form must be submitted in addition to the Notice of Intent.

Send the completed form(s) to: NYS DEC, Stormwater Permitting, Division of Water, 625 Broadway, Albany, New York 12233-3505; in addition, DEC requests that you provide one electronic copy of the approved SWPPP directly to NYS DEC, 100 Hillside Avenue - Suite 1W, White Plains, NY 10603-2860.

# APPENDIX C

# WATER STORAGE INSPECTIONS 2015

**Village of Washingtonville, Washington, NY**

# The Clinton Drive Tower

## 800,000 (?) Gallon Welded Steel Standpipe

**October 22, 2015**

**Prepared By:**


Conrady Consultant Services

460 LOKEY LANE, WILSONVILLE, AL 35186 205-807-6342

WWW.CONRADYCONSULTANTS.COM


**ROV And Drained AWWA Potable Water Storage Tank,
NFPA Fire Water Storage Tank, & Pipeline Inspections**

# Declaration

**This report was composed from the visual observations made during an inspection of this water storage facility. Portions of this report may also contain material or other information obtained from conversations with the utility personnel, the tank information plate, drawings, reports, etc. The information contained herein is believed to be as true and accurate as could be obtained from these observations and the information and material supplied to us. No other assurance or warranty is expressed or implied. We assume no responsibility for any errors or omissions in this report.**

**The time frames stated in the recommendations are estimates based on our years of experience with other storage facilities and paint installations, and discussions with corrosion engineers, paint manufacturer's representatives, tank constructors, painting contractors, etc. Although these estimates can be considered to be fairly reliable, many different factors affect the condition of the water storage facility over time and we cannot be held responsible for the accuracy of these estimates. Since the condition of the storage facility will change over time, the accuracy of the condition of the storage facility described in this report will decrease according to the amount of time that has elapsed since the date of the inspection. Should three (3) or more years have elapsed since this inspection, this report should be considered to be null and void and the storage facility should be reinspected to determine the current condition.**

**It is to be noted that, although this inspection report is signed by a P.E. since this P.E. is not registered in all states, it is not to be assumed or inferred that he is registered in your state unless this report has been professionally stamped and/or sealed.**

**By:**

**John R. Conrady, P.E.**

# Tank Information

| | |
|---|---|
| **The height to overflow is about:** | **?** |
| **The tank height is about:** | **?** |
| **The diameter of this tank is about:** | **?** |
| **The water depth during this inspection was:** | **26.8'** |
| **This tank was constructed at the present location in:** | **?** |
| **Tank has interior columns:** | **NO** |
| **Tank has a cathodic protection system installed:** | **NO** |
| **Latest interior recoat was done in:** | **2003?** |
| **Latest exterior recoat was done in:** | **2003?** |
| **This tank was previously inspected:** | **5 or 6 years ago** |

# AWWA D100 Standard

**IMPORTANT NOTE ABOUT AWWA STANDARDS:**

**Except in the states that have adopted these Standards as law, there is no regulatory or enforceable requirement that any or all of the AWWA Standards be followed or adhered to. Therefore, these Standards are to be used as a guideline only and are not to be construed or interpreted as a requirement and abiding by any of the requirements of these Standards are voluntary and not mandatory.**

| Item | Description | Yes | No | N/A |
|---|---|---|---|---|
| 1. | This tank has two shell manholes located in the first ring, one of which is at least 24” in diameter: | X | | |
| 2. | An additional upper access hatch or the center vent is installed near the center of the tank roof which has a at least a 4” high tank riser and a door plate with flanged edges so that a ventilation fan can be installed: | X | | |
| 3. | The existing upper access hatch has at least a 4” high tank riser and a door plate with edges that extends down over the riser at least 2” and is at least 24” in diameter: | X | | |

# OSHA Regulations

| Item | Description | Yes | No | N/A |
|---|---|---|---|---|
| 1. | Interior ladder has safety equipment that meets current OSHA standards: | | | X |
| 2. | Interior ladders (if existing) meet 16” width requirement: | | | X |
| 3. | Exterior ladder has protective cage safety equipment that is longer than 20’ has balcony platforms with railings at maximum 20’ intervals or has other safety equipment installed that meets current OSHA standards: | | X | |
| 4. | Exterior ladder meets 16” width requirement: | X | | |
| 5. | Tank has a sloped/domed roof with an existing ladder, walkway, or stairs that extends from the sidewall/roof junction to near the center vent that has safety equipment that meets current OSHA standards: | X | | |
| 6. | Cable fall protection systems installed on all ladders have a large enough diameter to meet current standards and use currently available cable climb devices: | | X | |
| 7. | The top edge height of all top rails, or equivalent guardrail system members, are 42 inches plus or minus 3 inches above the walking/working level, or when conditions warrant, the height of the top edge exceeds the 45-inch height, provided the guardrail system meets all other criteria of this paragraph as required by Section 1926.502(b)(1): | X | | |
| 8. | Utility owns and uses full body personal fall arrest systems and has eliminated the use of body belts after January 1, 1998 as per Section 1926.502(d): | X | | |
| 9. | On tanks with sloped or domed roofs, the roof access hatch is installed in close proximity to the roof access ladder that this hatch can be safely accessed: | X | | |

# OSHA Regulations (Cont.)

| Item | Description | Yes | No | N/A |
|---|---|---|---|---|
| 10. | Midrails, screens, mesh, intermediate vertical members, or equivalent intermediate structural members are installed between the top edge of the guardrail system and the walking/working surface when there is no wall or parapet wall at least 21 inches high. Midrails, if used, are installed at a height midway between the top edge of the guardrail system and the walking/working level. Screens and mesh, if used, extend from the top rail to the walking/working level and along the entire opening between top rail supports. Intermediate members such as balusters, additional midrails, or architectural panels, if used between posts, are installed such that there are no openings in the guardrail system that are more than 19 inches wide: | X | | |
| 11. | On tanks with a fall protection system installed, it is possible to remain connected, or to transfer between ladders or onto the roof with the use of a lanyard and safely access all parts of this tank: | X | | |
| 12. | On tanks with sloped or domed roofs which previously had a movable ladder which is supported by a bar or bracket that encircles the center vent and is not otherwise fastened to the roof by standoffs, which was unsafe and that this ladder could come loose and fall to the ground at any time, this ladder has been replaced or modified by being permanently fastened to the tank roof with standoffs: | | | X |
| 13. | Saf-T-Climb bars initially installed on the ladders have been replaced with safety cables due to the multiple recalls of these climbing brackets and the hazards of using these devices: | | | X |

# Water Stratification

**The display on the bottom left of the inspection video and interior photos displays the water temperature. Water stratification is the difference in water temperature throughout your tank and can affect the water quality.**

**Warmer water rises and colder water sinks. Therefore, in warmer weather if you input colder water from your pumps, this new water will stay on the bottom and be withdrawn when the pumps stop and not mix with the warmer water already in the tank. As the disinfectant level in the older water drops to nothing over time it is susceptible to bacteriological contamination. Also, as the water sits in your tank without being withdrawn, the existing disinfectant can form an amount of byproducts that exceed EPA standards, putting your system in violation.**

| Description | Yes | No |
|---|---|---|
| **The temperature of the water throughout the tank was close to being the same temperature with a few degrees or less in difference:** | X | |

**If this answer is "No", there is a problem with water stratification and water quality in your tank that should be addressed to prevent your system from having water contamination or being in violation of disinfectant byproduct levels.**

# Structural Condition

| Component | Description | O.K. | Problem | N/A |
|---|---|---|---|---|
| Concrete Base | Concrete base or ring supporting sidewalls is not excessively deteriorated: | X | | |
| Seal Between Concrete Base & Tank Bottom | Seal between base and tank bottom is adequate: | X | | |
| Concrete Base | The concrete base or ring of groundlevel tank or standpipe extends at least 6” above the ground: | X | | |
| Steel Ring | Steel ring to hold gravel base is not displaced: | | | X |
| Erosion/Settling | Ground at foundation or ring is not eroded or settled: | X | | |
| Anchor Bolts | These bolts are not excessively corroded, all nuts are tight and not missing, and the structural integrity is not affected: | | | X |
| Exterior Ladders | Structurally sound, safe for use, not excessively bent, dented, twisted, damaged, or excessively corroded: | X | | |
| Ladder Guards | The lowermost exterior ladder has a ladder guard installed to prevent access to the tank roof and tank interior: | X | | |
| Air Vent | Not excessively damaged, corroded, or deteriorated: | | X | |
| Overflow Pipe | Structurally sound, not bent, twisted, deformed, otherwise damaged, excessively corroded: | X | | |
| Leaks | No indications of leakage observed: | X | | |

# Structural Condition (Cont.)

| Component | Description | O.K. | Problem | N/A |
|---|---|---|---|---|
| Level Indicator | Functional, float not flooded, guide wires not broken, wire to flag not broken, bottom bracket not excessive corroded or loose, float and flag move freely and are not binding: | | | X |
| Handrails, Balconies | Balcony catwalk and all railings structurally sound and safe for use, not excessively corroded, level, smooth, not excessively bent, dented, twisted, or otherwise damaged: | X | | |
| Interior Ladder | Not excessively bent, dented, twisted, damaged, corroded: | | | X |
| Cathodic Protection System | System components are in proper position and configuration and system is functional and adequately protecting the submerged metal from corrosion: | | | X |
| Interior Sidewall Welds | Interior welds not excessively corroded, deteriorated: | X | | |
| Interior Sidewall Plate Surfaces | Interior plate surfaces not excessively corroded or deteriorated: | X | | |
| Bottom Welds | Bottom welds not excessively corroded, deteriorated: | X | | |
| Bottom Plate Surfaces | Bottom plate surfaces not excessively corroded or deteriorated: | X | | |
| Bottom Plate Deflection | Bottom plates have not deflected or depressed 4” or more: | X | | |
| Roof Interior Plates | Interior plate surfaces not excessively corroded or deteriorated: | X | | |
| Roof Support Beams or Angles | Beams, angles, spider rods, not excessively bent or twisted not excessively corroded: | X | | |

# Structural Condition (Cont.)

| Component | Description | O.K. | Problem | N/A |
|---|---|---|---|---|
| Roof Support Beams or Angles | Beams have not been welded to roof plates and plates are free to move across beams: | | | X |
| Roof Support Beams or Angles | Beams have not been caulked to roof plates and plates are free to move across beams: | | | X |
| Exterior Sidewall Welds | Exterior welds not excessively corroded, deteriorated: | X | | |
| Exterior Sidewall Plate Surfaces | Exterior plate surfaces not excessively corroded or deteriorated: | X | | |
| Roof Exterior Plates | Exterior plate surfaces not excessively corroded or deteriorated: | X | | |
| Interior Support Column | Surfaces not excessively corroded or deteriorated: | X | | |
| Interior Support Column | Constructed out of pipe sections which have not been perorated by corrosion or damage and the pipe is not flooded: | | | X |
| Interior Support Column | Not bent, deformed, or damaged. | | | X |
| Interior Support Column | Bottom of column is not fastened to the floor and has angles or floor standoffs to prevent the bottom of the column from horizontal movement: | | | X |
| Roof Railings | Railings are installed along the tank edge that extend at least 6’ in both directions from the top of the exterior ladder or stairs to prevent falls from the tank roof: | | X | |
| Roof Railings | Railings are installed along the tank roof near or toward the edge that extend completely around the roof circumference to prevent falls from the tank roof: | | | X |

# Sanitary Condition

| Component | Description | O.K. | Problem | N/A |
|---|---|---|---|---|
| Perimeter Fence | Has barbed wire on the top, fence and barbed wire are not damaged or deteriorated, has adequate number of "No Trespassing" signs: | X | | |
| Gates | Are not damaged and can be opened: | X | | |
| Locks | Perimeter gate have locks: | X | | |
| Overflow screen, flap, size | Is adequately screened or flap opens and closes and pipe is large enough: | ? | | |
| Vent Screen Material | Screen is metal, not damaged, not excessively corroded, or missing: | | X | |
| Access hatch | Has no excessive corrosion, is not deteriorated or bent, structurally sound: | X | | |
| Access Hatch Lock | Upper access hatch adequately locked: | X | | |
| Evidence of Foreign Matter | No debris laying on tank bottom: | X | | |
| Vandalism | No graffiti, litter, trash, or damage: | X | | |
| Silt Stop | Silt stop is not missing or displaced | X | | |
| Water Visibility | Visibility in water is at least 10': | X | | |

**Sediment:**

| Average Sediment Depth: | Less than ½" | Less than 1": | 1" to 5" | 5" to 10" or more |
|---|---|---|---|---|
| | X | | | |

# Tank Coating Condition

| Component | Description | |
|---|---|---|
| Interior Steel Coating Condition | Material appears to be: | epoxy |
| | Coating failure & corrosion: | < 5% |
| | Bubbling of coating: | < 1% |

| Component | Description | |
|---|---|---|
| Exterior Steel Coating Condition | Material appears to be: | epoxy |
| | Coating failure & corrosion: | < 1% |

# Exterior Paint Adhesion Test

If there is no insulation on the tank exterior, and there is some question as to whether or not the existing tank exterior paint system will adhere well enough to have another paint system applied on top of it, which would also encapsulate a previous paint system with lead primer material, an exterior protective coating adhesion test by a Tape Adhesion Test meeting the requirements of ASTM D 3359-87 (Method A, Method B, or both) was done as part of this inspection and the result of this test is indicated below. If the coating is still in good enough condition that the result would have been 5A, and no test was taken, then the result would be listed as 5A.

If the paint thickness was under 5 mils, a 2 mm cross hatch test was done that meets the requirements of Method B. If the paint thickness was 5 mils or thicker, a cross cut test was done that meets the requirements of Method A. If the tank contained sections of protective coating that were thicker than 5 mils, and other sections that were under 5 mils in thickness, then both tests may have been done.

| | |
|---|---|
| The result of the adhesion test was: | 5 A – DOESN'T MATTER, ALREADY OVERCOATED, CANNOT OVERCOAT AGAIN |

# Exterior Paint Adhesion Test Diagram

CLASSIFICATION OF ADHESION TEST RESULTS
METHOD A - X-CUT TAPE TEST

| Description | Surface | Classification |
|---|---|---|
| No peeling or removal. |  | 5 |
| Trace peeling or removal along incisions. |  | 4 |
| Jagged removal along incisions up to 1/16 in. (1.6mm) on either side. |  | 3 |
| Jagged removal along most of incisions up to 1/8 in. (3.2mm) on either side. |  | 2 |
| Removal from most of the area of the X under the tape. |  | 1 |
| Removal beyond the area of the X |  | 0 |

The example illustrated shows two cuts approximately 1.5 in. long that intersect near their middle with an angle of between 30° and 45°.

# Analysis For Lead Material

If this inspection is of a steel tank that was constructed prior to 1986, and if the interior or exterior paint system has not been completely removed and replaced, a lead analysis was done as part of this inspection with the use of a Lead Check swab.

| | |
|---|---|
| The result of a preliminary lead analysis on the interior primer(s) of this tank to determine if the paint contained lead that was done as part of this inspection was: | NEG |

| | |
|---|---|
| The result of a preliminary lead analysis on the exterior primer(s) of this tank to determine if the paint contained lead that was done as part of this inspection was: | POS |

# Ultrasonic Metal Thickness Measurements

Several ultrasonic metal thickness readings of the sidewall steel plate thickness were taken. Because of the difficulty of locating sections that are not corroded to determine the actual original thickness, and the difficulty of locating the very bottom of the pits in the seriously corroded sections to determine the actual minimal thickness, the accuracy of these readings are subject to some question and interpretation.

The sidewall metal thickness measurements range from 0.321” to 0.345”.

# Exterior Paint Thickness Measurements

Several measurements of the exterior protective coating dry film thickness were included with this inspection which were taken at various places around the tank exterior.

The measurements range from 2.9 mils to 8.5 mils.

# Recommendations

**General Recommendations**

| Item | Description | Yes | No | N/A |
|---|---|---|---|---|
| 1. | Reinspect tank interior in 5 years: | X | | |
| 2. | Recoat the tank interior: | | X | |
| 3. | Recoat the tank exterior: | | X | |
| 4. | Reseal the junction of the exterior tank bottom and concrete base: | | X | |
| 5. | Replace existing ladders: | | X | |
| 6. | Modify or add safety equipment to exterior ladder(s): | | X | |
| 7. | Modify or add safety equipment to interior ladder(s): | | | X |
| 8. | Repair or replace roof vent: | X | | |
| 9. | Install, repair, or modify access control fence: | X | | |
| 10. | Modify drainage to expose 6” of base(s) and slope away from tank: | | X | |
| 11. | Modify or repair damaged or distorted balcony railing(s) or to meet current OSHA regulations: | | X | |

| | |
|---|---|
| Note: | Due to the excessive cost of installation, and maintenance, and yearly inspection fees, of cathodic protection systems, and that these systems do not protect the unsubmerged portion of the tank interior which is the first area of protective coating to fail, and that they only protect up to 20% of protective coating failure when they are functioning at their peak performance, and the limited functionality of these systems, it is recommended that a cathodic system not be installed in this tank. If a cathodic system exists, it should not be reinstalled or replaced whenever this tank is recoated. |

# Recommendations (Cont.)

**Recommendations Unique and Specific To This Tank**

| Item | Description |
|---|---|
| 1. | **Any items listed as NO in the AWWA Section, NO in the OSHA Section, PROBLEM in the STRUCTURAL and SANITARY Sections and listed as YES in the GENERAL RECOMMENDATIONS should be installed, modified, or repaired as indicated.** |
| 2. | **To limit the liability of the utility, any damaged sections of the perimeter fence should be repaired, any vegetation on the fence should be removed, and additional "No Trespassing" signs should be installed at 30' intervals.** |
| 3. | **Although the interior paint system is starting to fail, the existing paint failures and corrosion is still so slight that the interior does not need recoated at this time. The next interior inspection in 5 years will determine if corrective actions are recommended at that time.** |
| 4. | **Since the exterior paint system is still in such good condition, and that the exterior has a lead positive primer, and that the exterior has already been overcoated, and cannot be overcoated again, the exterior should be recoated at some time in the future when the tank starts to look bad, or if excessive corrosion starts to occur. The next exterior recoat will have to be a complete removal and not another overcoat.** |
| 5. | **The center roof vent screen is displaced and requires repair immediately to prevent birds from entering the tank and contaminating the tank water.** |
| 6. | **The exterior should be sprayed with a 50/50 mixture of bleach and water to kill and oxidize the mildew and then the tank pressure washed to remove the residue.** |
| 7. | **Whenever this tank is recoated, a railing should be installed along the tank edge that extends at least 6' from the top of the exterior ladder below the upper hatch to prevent falls from the tank roof:** |

# Recommendations (Cont.)

**Recommendations Unique and Specific To This Tank (Cont.)**

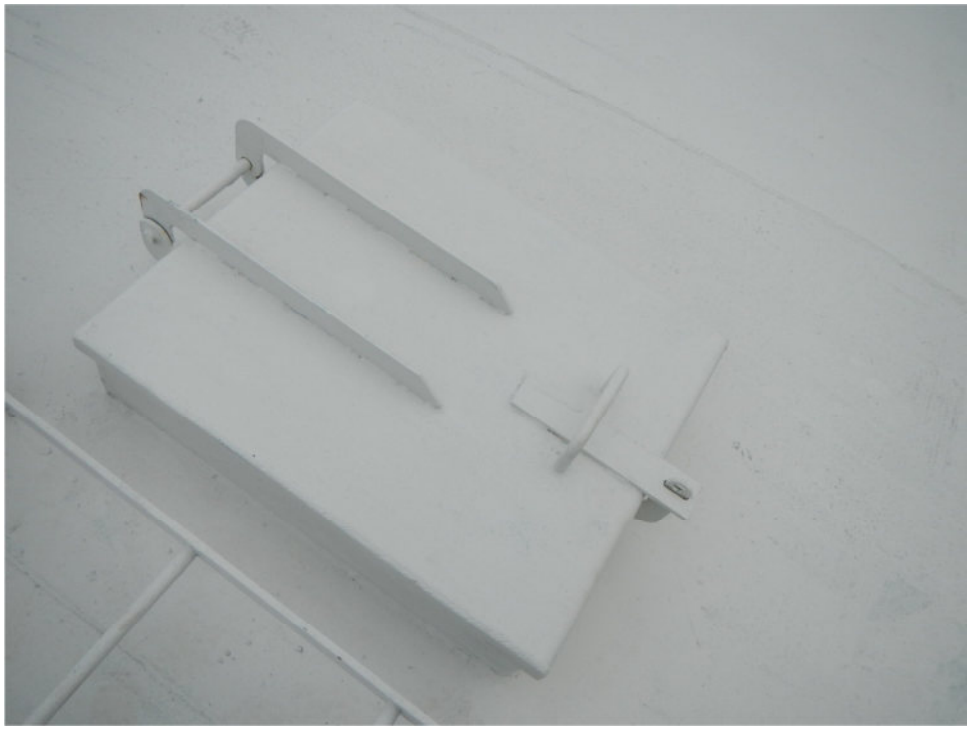
| Item | Description |
|---|---|
| **8.** | **The overflow pipe goes down into the ground which does not meet current NYSHD regulations. An air gap must be cut into this pipe and the upper opening must be screened. An air gap of at least 12" must be installed in the overflow pipe.** |
| **9.** | **No other corrective actions are recommended at this time and the tank should be reinspected again in a period of time of 5 years.** |

**Please contact us if you have any questions about our inspection or the recommendations or conclusions of this inspection report.**

# Photo Identification

**Note:** **If you chose to include this option, you received a photo disc with digital copies of all the interior and exterior photos taken during the inspection, an electronic copy of this complete report including photos as an Adobe Portable Document File (.pdf) document, and the interior video as a Windows Media File (.wmv) that you can copy to and play on your computer. The photos printed in this report are a representative sample of all of the photos taken and you should review the entire collection on this disc. Please note that we may be unable to deliver additional copies of the inspection report or discs after the initial reports and discs are delivered to you so we recommend that you make additional copies of this disc and keep track of these discs. This is probably your only chance to be able to have additional copies at any time in the future.**

# Pictures



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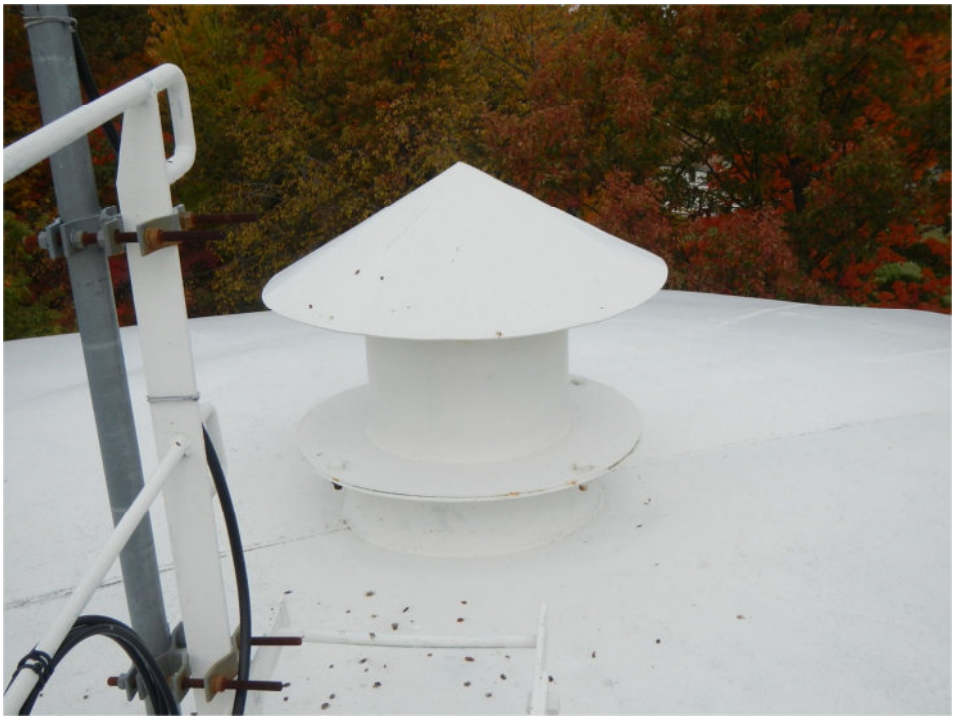

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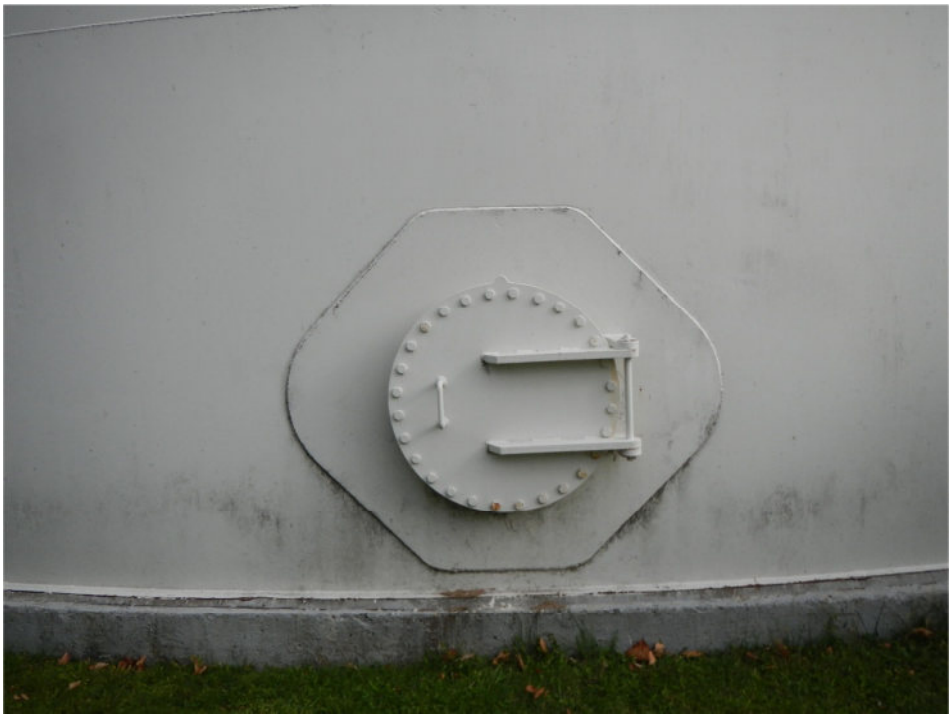

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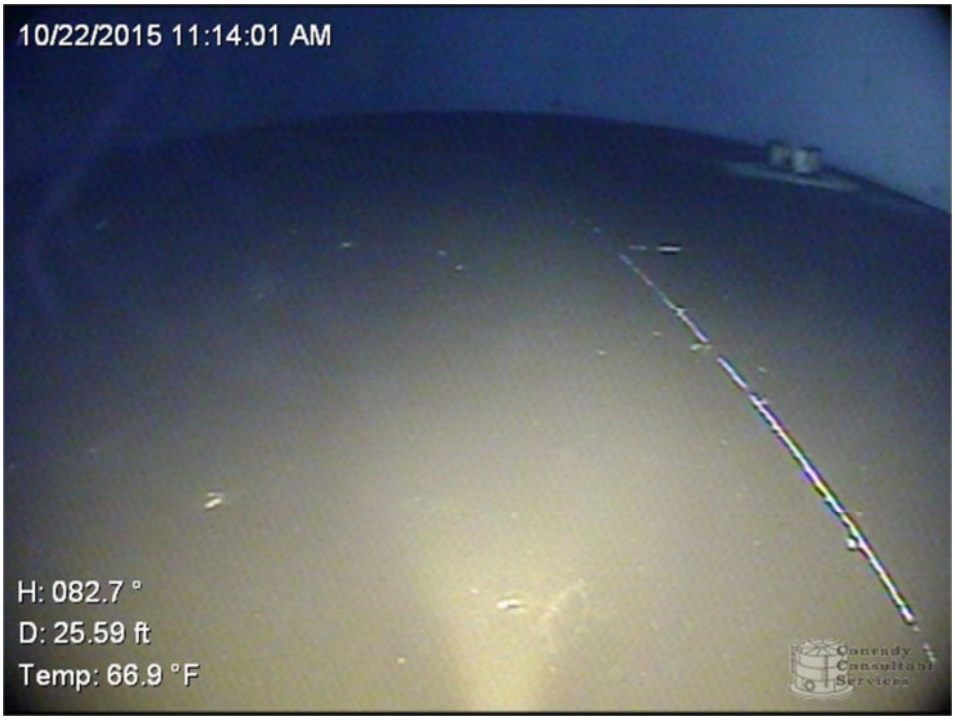


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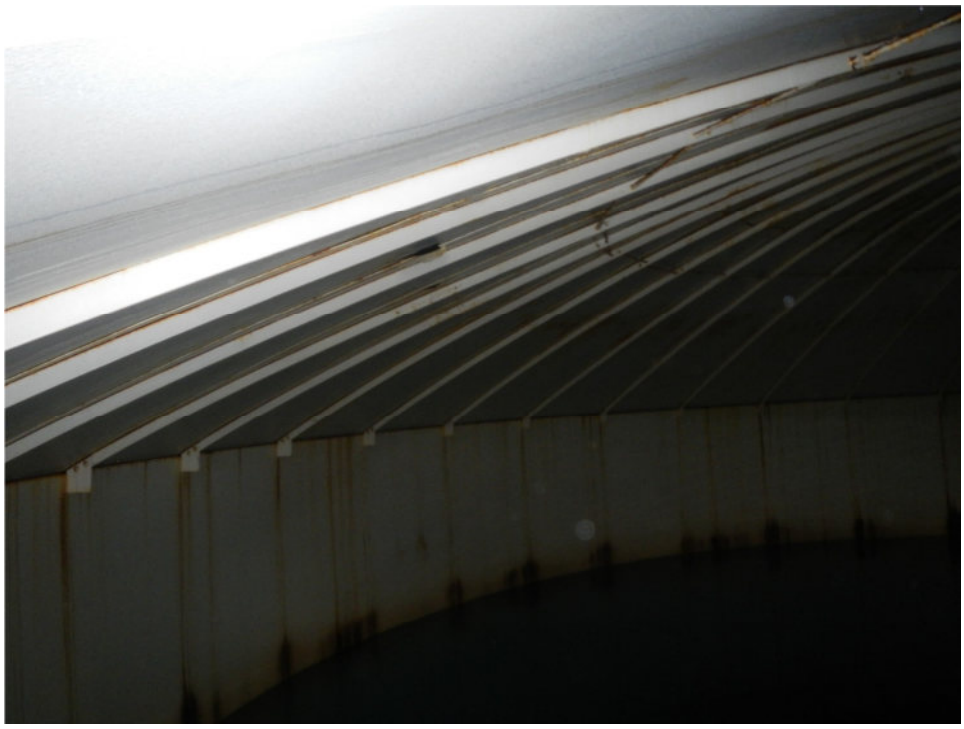

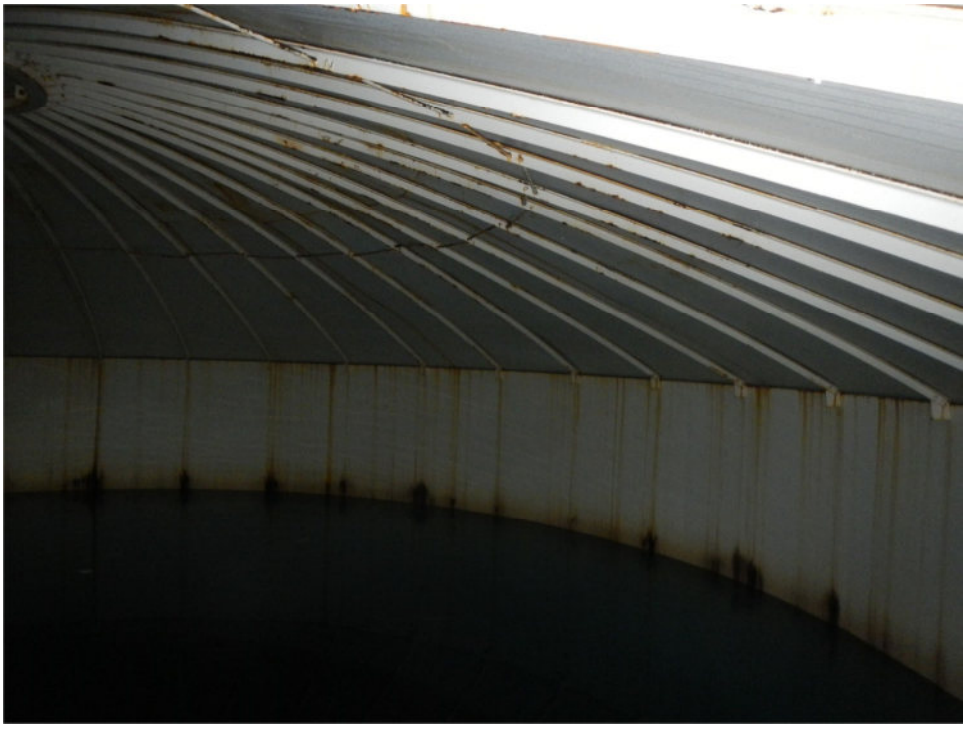

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**The Village of Washingtonville, NY**

# The Prides Crossing Tower

## 835,000 Gallon Groundlevel Glass Lined Bolted Steel

**October 22, 2015**

**Prepared By:**


Conrady Consultant Services

460 LOKEY LANE, WILSONVILLE, AL 35186 205-807-6342

WWW.CONRADYCONSULTANTS.COM


**ROV And Drained AWWA Potable Water Storage Tank,
NFPA Fire Water Storage Tank, & Pipeline Inspections**

# Declaration

**This report was composed from the visual observations made during an inspection of this water storage facility. Portions of this report may also contain material or other information obtained from conversations with the utility personnel, the tank information plate, drawings, reports, etc. The information contained herein is believed to be as true and accurate as could be obtained from these observations and the information and material supplied to us. No other assurance or warranty is expressed or implied. We assume no responsibility for any errors or omissions in this report.**

**The time frames stated in the recommendations are estimates based on our years of experience with other storage facilities and paint installations, and discussions with corrosion engineers, paint manufacturer's representatives, tank constructors, painting contractors, etc. Although these estimates can be considered to be fairly reliable, many different factors affect the condition of the water storage facility over time and we can not be held responsible for the accuracy of these estimates. Since the condition of the storage facility will change over time, the accuracy of the condition of the storage facility described in this report will decrease according to the amount of time that has elapsed since the date of the inspection. Should three (3) or more years have elapsed since this inspection, this report should be considered to be null and void and the storage facility should be reinspected to determine the current condition.**

**It is to be noted that, although this inspection report is signed by a P.E. since this P.E. is not registered in all states, it is not to be assumed or inferred that he is registered in your state unless this report has been professionally stamped and/or sealed.**

**By:**

**John R. Conrady, P.E.**

# Tank Information

| | |
|---|---|
| **The height to overflow is about:** | **47.43’** |
| **The tank height is about:** | **53’** |
| **The diameter of this tank is about:** | **56’** |
| **This tank was constructed at the present location in:** | **?** |
| **Does this tank have interior columns:** | **NO** |
| **Does this tank have magnesium bars for cathodic protection installed:** | **NO** |
| **This tank was previously inspected:** | **?** |

# OSHA Regulations

| Item | Description | Yes | No | N/A |
|---|---|---|---|---|
| 1. | Interior ladder has safety equipment that meets current OSHA standards: | | | X |
| 2. | Interior ladders (if existing) meet 16” width requirement: | | | X |
| 3. | Exterior ladder has protective cage safety equipment that is longer than 20’ has balcony platforms with railings at maximum 20’ intervals or has other safety equipment installed that meets current OSHA standards: | X | | |
| 4. | Exterior ladder meets 16” width requirement: | X | | |
| 5. | Tank with a sloped/domed roof has a walkway or anti-slip material and railings that extends from the sidewall/roof junction to near the center vent: | | X | |
| 6. | Cable fall protection systems installed on ladders have a large enough diameter to meet current standards and use currently available cable climb devices: | | | X |
| 7. | The top edge height of all top rails, or equivalent guardrail system members, are 42 inches plus or minus 3 inches above the walking/working level, or when conditions warrant, the height of the top edge exceeds the 45-inch height, provided the guardrail system meets all other criteria of this paragraph as required by Section 1926.502(b)(1): | X | | |
| 8. | Utility owns and uses full body personal fall arrest systems and has eliminated the use of body belts after January 1, 1998 as per Section 1926.502(d): | | | X |

# OSHA Regulations (Cont.)

| Item | Description | Yes | No | N/A |
|---|---|---|---|---|
| 9. | Midrails, screens, mesh, intermediate vertical members, or equivalent intermediate structural members are installed between the top edge of the guardrail system and the walking/working surface when there is no wall or parapet wall at least 21 inches high. Midrails, if used, are installed at a height midway between the top edge of the guardrail system and the walking/working level. Screens and mesh, if used, extend from the top rail to the walking/working level and along the entire opening between top rail supports. Intermediate members such as balusters, additional midrails, or architectural panels, if used between posts, are installed such that there are no openings in the guardrail system that are more than 19 inches wide: | X | | |
| 10. | On tanks with sloped or domed roofs, the roof access hatch is installed in close proximity to the roof access ladder that this hatch can be safely accessed: | X | | |
| 11. | On tanks with a fall protection system installed, it is possible to remain connected, or to transfer between ladders or onto the roof with the use of a lanyard and safely access all parts of this tank: | | | X |
| 12.. | Saf-T-Climb bars initially installed on the ladders have been replaced with safety cables due to the multiple recalls of these climbing brackets and the hazards of using these devices: | | | X |

# Glass Lined Bolted

| Item | Description | OK | Problem | N/A |
|---|---|---|---|---|
| 1. | Flowing or seeping leaks were not observed at the plate junctions or at any of the bolt holes: | X | | |
| 2. | An excessive amount of edge corrosion from the failure of the caulking material to adequately protect the edges of the plates was not observed throughout the tank interior: | X | | |
| 3. | No failures were observed on the additional layer of white titanium dioxide installed on the interior of each sidewall plate: | | | X |
| 4. | No initial fused glass adhesion failures and no failures or corrosion were observed at the locations of glass coating failure or damage in the sidewall plates away from the edges which had previously occurred on the tank interior, possibly during the initial construction or thereafter, and which were repaired with the addition of Sikaflex or other material and this material is not losing adhesion to the plates: | X | | |
| 5. | The interior of each sidewall plate has been factory coated with a cobalt fused glass material. An excessive amount of fused glass adhesion failures in the plates away from the edges were not observed throughout the tank interior: | X | | |
| 6. | This tank interior has a sacrificial anode cathodic protection system installed on the tank bottom which did not appear to be deteriorated and appeared to be still functional: | | | X |
| 7. | All of the bolt heads in the tank sidewall interior are covered with nylon covers. None of these are loose or missing. | X | | |

# Glass Lined Bolted (Cont.)

| Item | Description | OK | Problem | N/A |
|---|---|---|---|---|
| 8. | Almost all of the bolt heads in the tank sidewall interior have an adequate amount of caulking around the heads (i.e. complete donut) which are preventing corrosion from occurring on most of the bolt holes and this caulking is not excessively deteriorated and losing adhesion: | X | | |
| 9. | The tank bottom is constructed out of concrete which is not deteriorated and no extensive spalling or cracking was observed: | | | X |
| 10. | The tank bottom is constructed out of plates which are bolted together. The interior of each bottom plate has been factory coated with a cobalt fused glass material. An excessive amount of fused glass adhesion failures in the plates away from the edges which were not already repaired, or an excessive amount of new adhesion failures were not observed throughout the tank bottom: | X | | |
| 11. | An excessive amount of failures were not observed on the additional layer of white titanium dioxide installed on the tank interior side of each bottom plate: | | | X |
| 12. | The bolts that fasten the bottom plates together come up through the plates, with the heads below the tank bottom, and with the bolt threads and nuts above the bottom plates, These bolt threads and nuts are covered with nylon covers. Very few or none of these nylon covers are missing and the bolt threads and nuts are not corroding excessively: | X | | |
| 13. | Galvanized steel bolts, and not stainless steel bolts were used to construct this tank and no dissimilar metal corrosion was observed: | X | | |
| 14. | The exterior of each sidewall plate has been factory coated with a cobalt fused glass material and an excessive amount of fused glass adhesion failures or damage on these plates away from the plates edges that were not previously repaired were not observed: | X | | |

# Glass Lined Bolted (Cont.)

| Item | Description | OK | Problem | N/A |
|---|---|---|---|---|
| 15. | The edges of the sidewall plate exteriors appear to have been sealed with a polyurethane caulking material An excessive amount of sections of failure of the caulking material to adequately protect the edges of the plates were not observed throughout the tank exterior: | X | | |
| 16. | The bolts that fasten the sidewall plates together are installed with the heads in the tank interior and with the bolt threads and nuts on the sidewall exterior. The exterior section of these bolt threads and nuts are covered with nylon covers. An excessive amount of these nylon covers are not missing and the bolt threads and nuts are not corroding: | X | | |
| 17. | The bolts that fasten the sidewall plates together are installed with the heads in the tank interior and with the bolt threads and nuts on the sidewall exterior. Although the exterior section of these bolt threads and nuts are not covered with nylon covers and are protected only with caulking, an excessive amount of the bolt threads and nuts are not corroding: | | | X |
| 18. | The tank roof is constructed out of plates which are bolted together. The tank exterior and tank interior sides of each roof plate have been factory coated with a cobalt fused glass material. An excessive amount of fused glass adhesion failures in the plates away from the edges were not observed throughout the tank roof exterior and no problems or corrosion was observed at any failures which have previously been repaired: | | | X |
| 19. | An excessive amount of fused glass adhesion failures in the plates away from the edges were not observed throughout the tank roof interior and no problems or corrosion was observed at any failures which have previously been repaired: | | | X |
| 20. | An excessive amount of failures were not observed on the additional layer of white titanium dioxide installed on the tank exterior side of each roof plate: | | | X |

# Glass Lined Bolted (Cont.)

| Item | Description | OK | Problem | N/A |
|---|---|---|---|---|
| 21. | The edges of the roof plate exteriors appear to have been sealed with a polyurethane caulking material An excessive amount of sections of failure of the caulking material to adequately protect the edges of the plates were not observed throughout the tank roof exterior: | | | X |
| 22. | The edges of the roof plate interiors appear to have been sealed with a polyurethane caulking material An excessive amount of sections of failure of the caulking material to adequately protect the edges of the plates were not observed throughout the tank roof interior: | | | X |
| 23. | The bolts that fasten the roof plates together are installed with the heads in the tank interior and with the bolt threads and nuts on the roof exterior. The exterior section of these bolt threads and nuts are covered with nylon covers. An excessive amount of these nylon covers are not missing and the bolt threads and nuts are not corroding: | | | X |
| 24. | The bolts that fasten the roof plates together are installed with the heads in the tank interior and with the bolt threads and nuts on the roof exterior. Although the exterior section of these bolt threads and nuts are not covered with nylon covers and are protected only with caulking, An excessive amount of the bolt threads and nuts are not corroding: | | | X |
| 25. | Angles are bolted to the roof plates for roof support. Both sides of each angle have been factory coated with a cobalt fused glass material. An excessive amount of fused glass adhesion failures in the angles were not observed throughout the tank roof interior and no problems or corrosion was observed at any failures which have previously been repaired: | | | X |
| 26. | The roof is constructed out of an aluminum dome. No problems or deterioration of the dome were observed. | X | | |

# Glass Lined Bolted (Cont.)

| Item | Description | OK | Problem | N/A |
|---|---|---|---|---|
| 27. | The adhesive anti-slip material installed on the tank roof so that the center vent can be safely accessed has not deteriorated and no sections are missing: | | X | |
| 28. | Almost all of the bolts holding the exterior ladder to the sidewall, the protective cage together, the upper balcony railing together and to the roof, and the protective cage to the exterior ladder, are constructed out of galvanized steel instead of stainless steel and are corroded but appeared to be still structurally sound: | | | X |
| 29. | The balcony railings that extend from near the tank sidewall to near the center vent appeared to still be structurally sound and no corrosion, deterioration, or other problems were observed: | X | | |
| 30. | The section of the concrete pad on the tank exterior is not excessively deteriorated and no deep or extensive cracks or spalling was observed: | X | | |

# Water Stratification

**PLEASE PAY SPECIAL ATTENTION TO THE DISPLAY ON THE BOTTOM LEFT OF THE INSPECTION VIDEO AND PHOTOS AND REFER TO THE PRINTED PHOTOS AT THE BACK OF THIS REPORT. THIS DISPLAY SHOWS THE DEPTH OF WATER AND THE WATER TEMPERATURE.**

**It is very important that you understand that water stratification can seriously affect the water quality. Water stratification is the difference in water temperature throughout your tank, including a temperature difference from top to bottom in the center of the tank and also near the sidewalls, and also a temperature difference at the top of the water and also the bottom of the tank from near the sidewalls to the center of the tank.**

**Warmer water rises and colder water sinks. Therefore, in warmer weather if you input colder water from your pumps, this new water will stay on the bottom and be withdrawn when the pumps stop and not mix with the warmer water already in the tank. As the disinfectant level in the older water drops to nothing over time it is susceptible to bacteriological contamination. Also, as the water sits in your tank without being withdrawn, the existing disinfectant can form an amount of byproducts that exceed EPA standards, putting your system in violation.**

| Item | Description | Yes | No |
|---|---|---|---|
| 1. | **The water temperature was virtually the same at the water surface and at the tank bottom near the center of the tank and near the sidewalls and also at the water surface near the center of the tank and near the sidewalls and at the bottom near the center of the tank and near the sidewalls:** | | X |

**If this answer is "No", there is a problem with water stratification and water quality in your tank that should be addressed to prevent your system from having water contamination or being in violation of disinfectant byproduct levels.**

# Structural Condition

| Component | Description | O.K. | Problem | N/A |
|---|---|---|---|---|
| Concrete Base | Concrete base or ring supporting sidewalls is not excessively deteriorated: | X | | |
| Erosion/Settling | Ground at foundation or ring is not eroded or settled: | X | | |
| Anchor Bolts | These bolts are not excessively corroded, all nuts are tight and not missing, and the structural integrity is not affected: | X | | |
| Exterior Ladders | Structurally sound, safe for use, not excessively bent, dented, twisted, damaged, or excessively corroded: | X | | |
| Ladder Guards | The lowermost exterior ladder has a ladder guard installed to prevent access to the tank roof and tank interior: | X | | |
| Air Vent | Not excessively damaged, corroded, or deteriorated: | X | | |
| Overflow Pipe | Structurally sound, not bent, twisted, deformed, otherwise damaged, excessively corroded: | X | | |
| Level Indicator | Functional, float not flooded, guide wires not broken, wire to flag not broken, bottom bracket not excessive corroded or loose, float and flag move freely and are not binding: | | | X |
| Leaks | No indications of leakage observed: | X | | |
| Handrails, Balconies | All balcony platforms and railings are structurally sound, safe for use, and not excessively corroded or damaged: | X | | |
| Interior Ladder | Not excessively bent, dented, twisted, damaged, corroded: | | | X |

# Sanitary Condition

| Component | Description | O.K. | Problem | N/A |
|---|---|---|---|---|
| Perimeter Fence | Has barbed wire on the top, is not damaged or deteriorated, has “No Trespassing” signs: | | X | |
| Gates | Are not damaged and can be opened: | X | | |
| Locks | Perimeter gate have locks: | X | | |
| Overflow screen, flap, size | Is adequately screened or flap opens and closes and pipe is large enough: | X | | |
| Vent Screen Material | Screen is metal, not damaged, not excessively corroded, or missing: | X | | |
| Access hatch | Has no excessive corrosion, is not deteriorated or bent, structurally sound: | X | | |
| Access Hatch Lock | Upper access hatch adequately locked: | | X | |
| Evidence of Foreign Matter | No debris laying on tank bottom: | | X | |
| Vandalism | No graffiti, litter, trash, or damage: | | X | |
| Silt Stop | Silt stop is not missing or displaced | X | | |
| Water Visibility | Visibility in water is at least 10’: | X | | |
| Floating Surface Debris | No debris floating on water surface: | X | | |

**Sediment:**

| Average Sediment Depth: | Less than ½” | Less than 1”: | 1” to 5” | 5” to 10” or more |
|---|---|---|---|---|
| | X | | | |

# Analysis For Lead Material

If this inspection is of a steel tank that was constructed prior to 1986, and if the interior or exterior paint system has not been completely removed and replaced, a lead analysis was done as part of this inspection with the use of a Lead Check swab.

| | |
|---|---|
| The result of a preliminary lead analysis on the interior primer(s) of this tank to determine if the paint contained lead that was done as part of this inspection was: | N/A |

| | |
|---|---|
| The result of a preliminary lead analysis on the exterior primer(s) of this tank to determine if the paint contained lead that was done as part of this inspection was: | N/A |

These tanks have a baked on glass material that does not have a lead primer.

# Ultrasonic Metal Thickness Measurements

Several ultrasonic metal thickness readings of the sidewall steel plate thickness were taken. Because of the difficulty of locating sections that are not corroded to determine the actual original thickness, and the difficulty of locating the very bottom of the pits in the seriously corroded sections to determine the actual minimal thickness, the accuracy of these readings are subject to some question and interpretation.

The lower sidewall metal thickness measurements range from 0.323” to 0.338”.

# Exterior Paint Thickness Measurements

Several measurements of the exterior protective coating dry film thickness were included with this inspection which were taken at various places around the tank exterior.

The measurements range from 9.1 mils to 12.2 mils.

# Recommendations

**General Recommendations**

| Item | Description | Yes | No | N/A |
|---|---|---|---|---|
| 1. | Reinspect tank interior in 5 years: | X | | |
| 2. | Repair glass coating on tank interior plates: | | X | |
| 3. | Repair glass coating on tank exterior plates: | | X | |
| 4. | Repair glass coating on tank roof interior or exterior plates: | | X | |
| 5. | Replace existing ladders: | | X | |
| 6. | Modify or add safety equipment to exterior ladder(s): | | X | |
| 7. | Modify or add safety equipment to interior ladder(s): | | | X |
| 8. | Repair or replace roof vent: | | X | |
| 9. | Install, repair, or modify access control fence: | X | | |
| 10. | Modify or repair damaged or distorted balcony railing(s) or to meet current OSHA regulations: | | X | |

# Recommendations (Cont.)

**Recommendations Unique and Specific To This Tank**

| Item | Description |
|---|---|
| 1. | **The items listed as NO in the OSHA Section, PROBLEM in the Glass Lined Bolted Section, PROBLEM in the STRUCTURAL and SANITARY Sections and listed as YES in the GENERAL RECOMMENDATIONS should be installed, modified, or repaired as indicated.** |
| 2. | **Although some incidences of corrosion are occurring throughout the tank interior on the sidewall bolts, these are still too few, and the corrosion is not excessive enough that the tank interior requires resealing at this time. This will probably occur in from 10 to 15 years from now and the routine 5 year inspections will determine the timing of this.** |
| 3. | **Although some incidences of corrosion are occurring throughout the tank exterior on the sidewall and roof plate edges and on some of the sidewall and roof bolts and nuts, these are still too few, and the corrosion is not excessive enough that corrective actions are recommended at this time. This will probably occur in 10 or more years from now and the routine 5 year inspections will determine the timing of this.** |
| 4. | **To limit the liability of the utility, the vegetation on the fence should be removed and "No Trespassing" signs spaced at 30' intervals should be installed on the access control fence.** |
| 5. | **The exterior should be sprayed with a 50/50 mixture of bleach and water to kill and oxidize the mildew and then pressure washed to remove the residue.** |
| 6. | **The exterior section of the sidewall bolt threads and nuts are covered with nylon covers. Several of these nylon covers are missing and should be replaced to prevent corrosion.** |
| 7. | **A baby stroller was found sitting on the tank bottom. Since this stroller may have been there for years and has not affected the quality of the tank water, it should be removed whenever the tank is drained for any reason.** |

# Recommendations (Cont.)

**Recommendations Unique and Specific To This Tank**

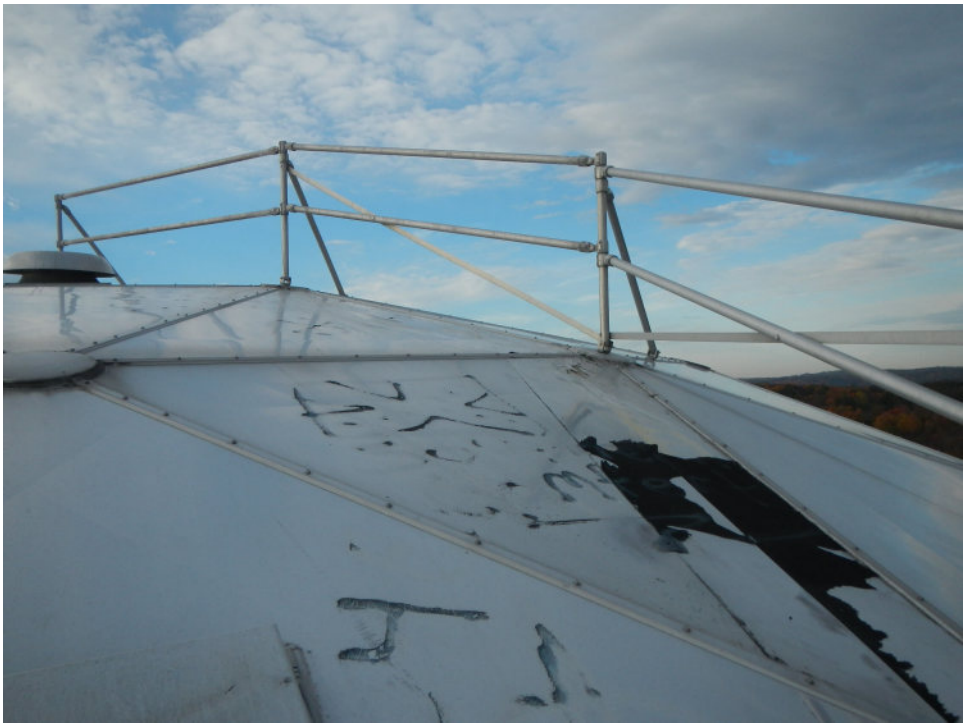
| Item | Description |
|---|---|
| 7. | The upper access hatch should be locked immediately. |
| 8. | The adhesive anti-slip material installed on the tank roof so that the center vent can be safely accessed has deteriorated, and sections are missing. This material should be reinstalled. |
| 9. | Railings should be installed from the ladder cage to the roof railings to prevent a fall through this opening. |
| 10. | Several lower sections of the vertical sidewall seams have been resealed at some time in the past. |
| 11. | A section of the horizontal seam about 8' above the ground appears to have been leaking in the past but was not leaking at the time of this inspection. |
| 12. | No other corrective actions are recommended at this time and the tank should be reinspected again in a period of time of 5 years. |

**Please contact us if you have any questions about our inspection or the recommendations or conclusions of this inspection report.**

# Photo Identification

**Note:** **If you chose to include this option, you received a photo disc with digital copies of all the interior and exterior photos taken during the inspection, an electronic copy of this complete report including photos as an Adobe Portable Document File (.pdf) document, and the interior video as a Windows Media File (.wmv) that you can copy to and play on your computer. The photos printed in this report are a representative sample of all of the photos taken and you should review the entire collection on this disc. Please note that we may be unable to deliver additional copies of the inspection report or discs after the initial reports and discs are delivered to you so we recommend that you make additional copies of this disc and keep track of these discs. This is probably your only chance to be able to have additional copies at any time in the future.**

# Pictures



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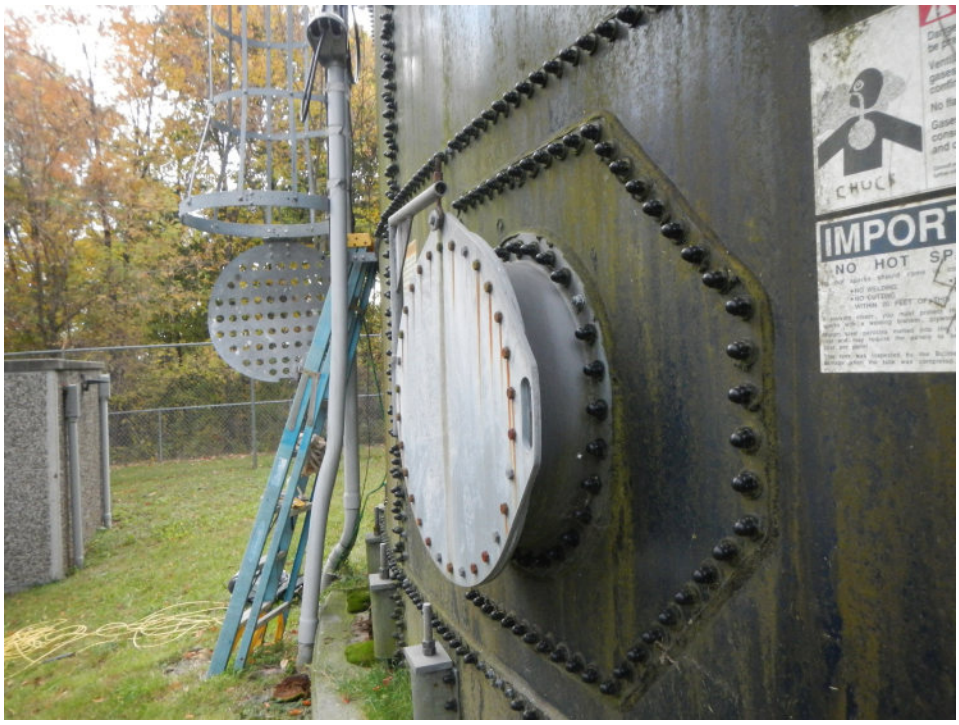


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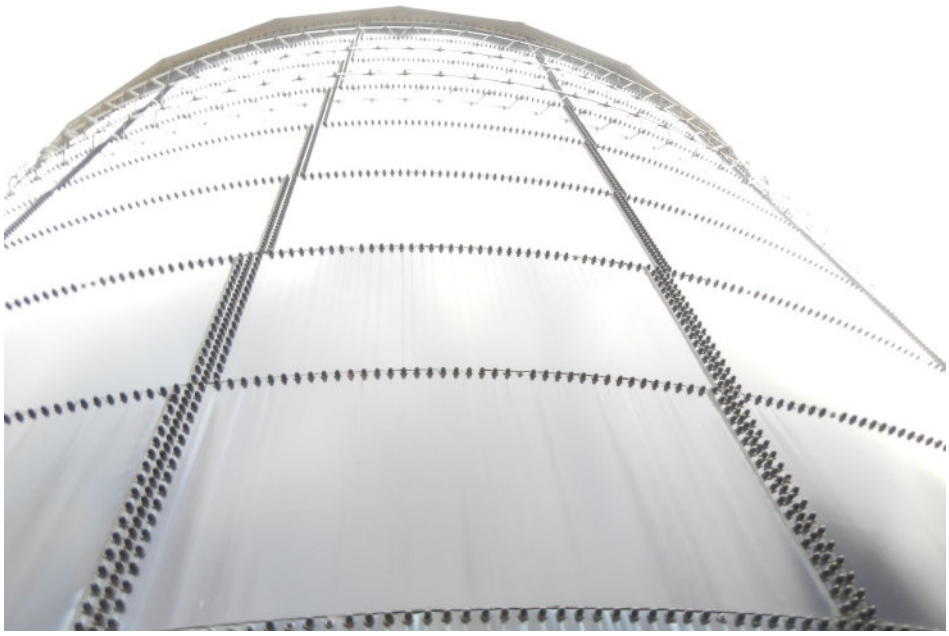

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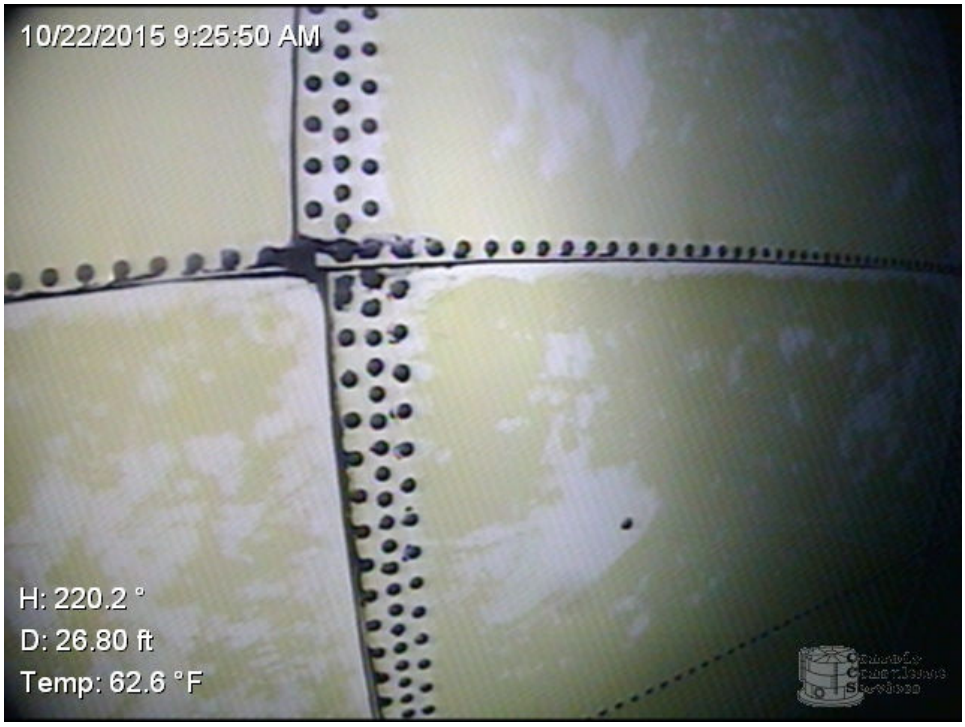

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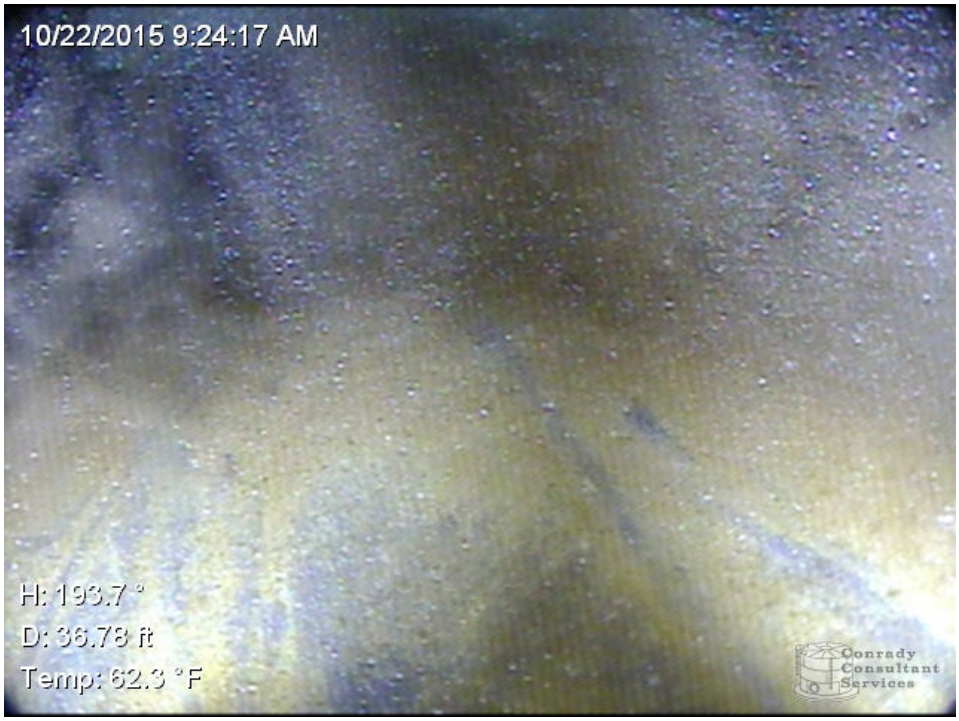

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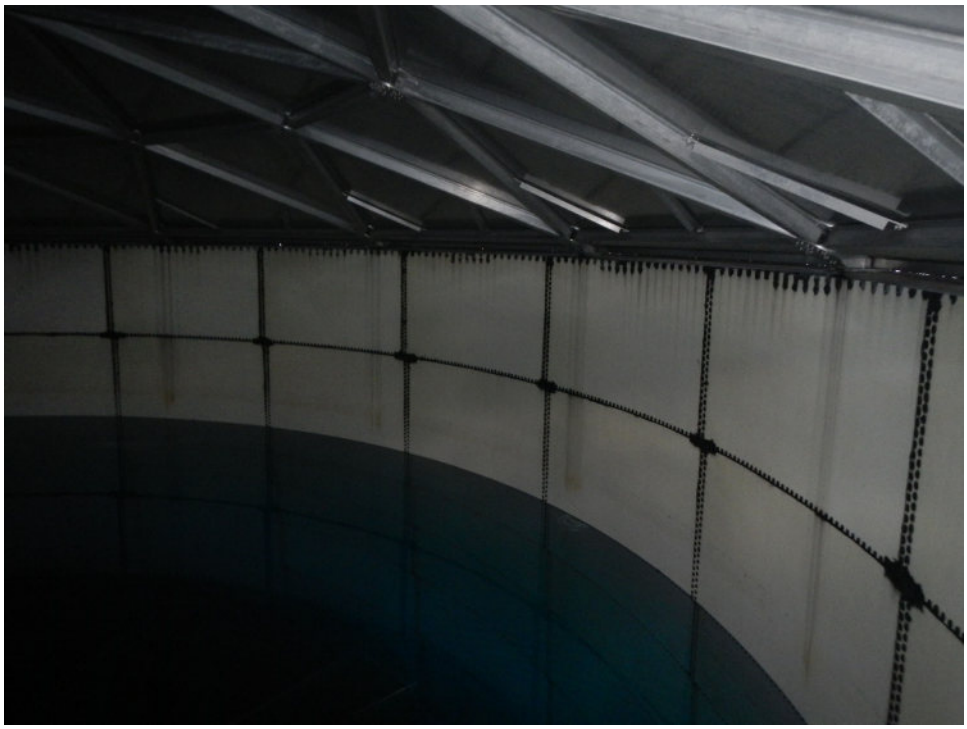

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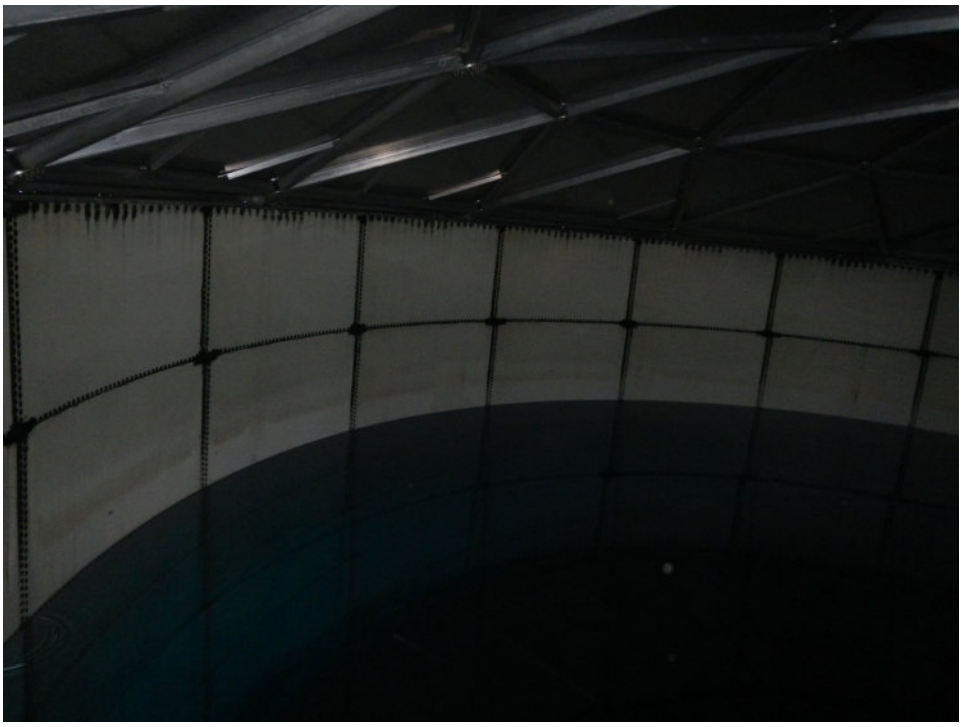

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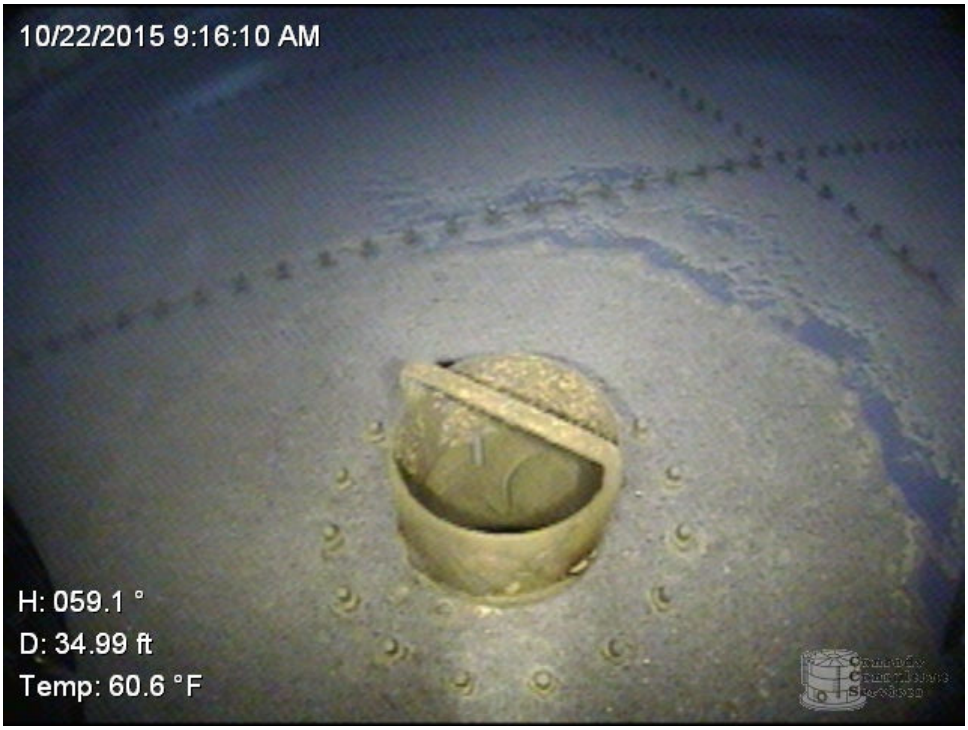

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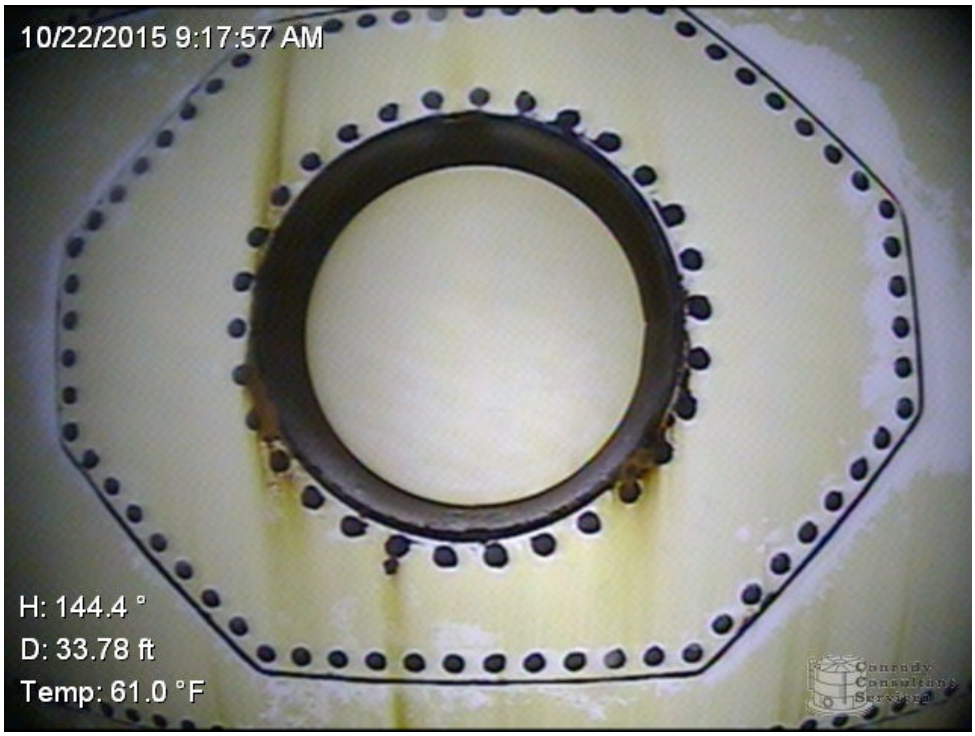


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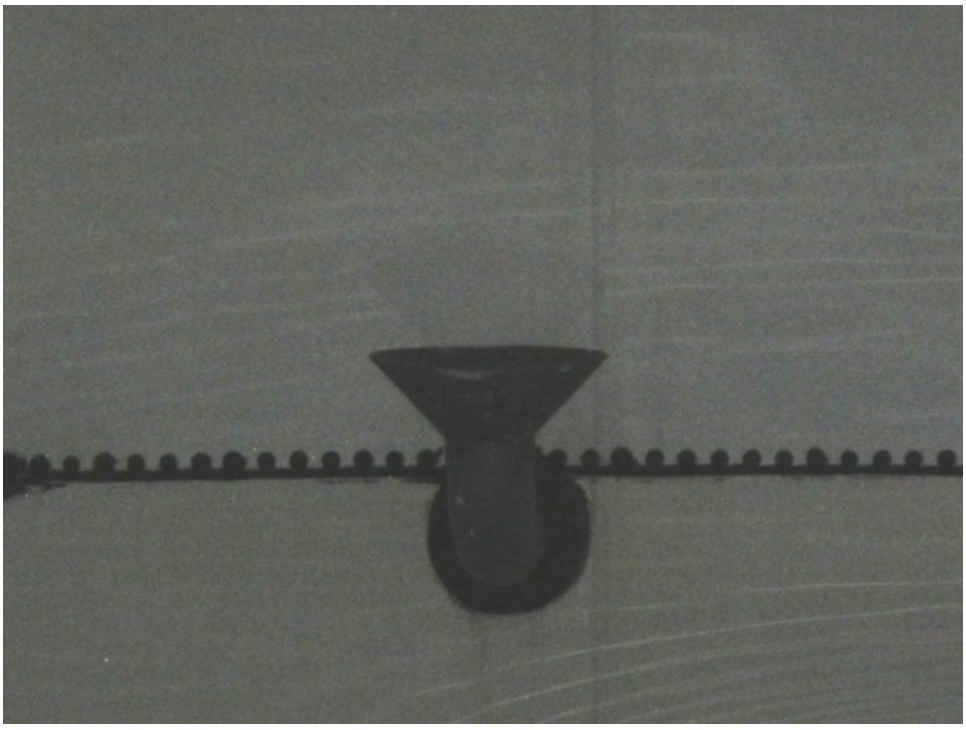

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# APPENDIX D

# FINANCIAL ANALYSIS SUMMARY

## Current Budget Water and Sewer Calculations

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Calculated with info from Nov19 and Jan20 billing | | | | | | | | |
| **2019-2020** | O&M | O&M | | **water usage** | **sewer** | | | Avg. |
| **Infrastructure** | **Budget** | **Total productio** | **Total usage MG** | **$3.5/1000 gal** | **1.5 * water** | **Variance** | **#connections** | **Annual $/conn** |
| Water | $ 380,278.09 | 178.99 | 142.05 | $556,067.50 | | $ 175,789.41 | 1,900 | $ 292.67 |
| Wastewater | $ 596,259.00 | | 137.02 | | $ 786,027.78 | $ 189,768.78 | 1,852 | $ 424.42 |
| Total | $ 976,537.09 | | | includes minimum charge for 7,000 gallons water used | | | | |
| | | | | | | | | |
| Discrepancy water budget - actual expense $116,243.52 | | | from 2020-2021 preliminary budget info | | | | | |
| Discrepancy sewer budget - actual expense $31,196.71 | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| **2018-2019 Debt Budget** | Capital | | | | | Annual | Option Annual | |
| **Infrastructure** | **Budget** | **Total #Units** | **FC at $15 per unit** | **Variance** | **Variance/Unit** | **SFH current/year** | **SFH adjusted** | **Connections (avg/quarter)** |
| Water BAN | $ 127,787.50 | 2,897 | $ 173,820.00 | $ (8,134.43) | $ (4.28) | $ 60.00 | $ 64.28 | 1,900 |
| Wastewater BAN | $ 54,166.93 | | | | | | | 1,852 |
| | | | | $15 per unit Facility charge goes to water and sewer for debt | | | | |
| | | | | length of years and interest on current debt unknown | | | | |

## Options for Water and Sewer Rates and Future Debt Service

| **Option Rents** | O&M | O&M | | **water usage** | **sewer use** | | | |
|---|---|---|---|---|---|---|---|---|
| **Infrastructure** | **Budget** | **Total productio** | **Total usage MG** | **$2.68/1000 gal** | **$4.35/1000 gal** | **Variance** | **#connections** | **Annual $/conn** |
| Water | $ 380,278.09 | don't have | 142.05 | $ 380,694.00 | | $ 415.91 | 1,900.00 | $ 200.37 |
| Wastewater | $ 596,259.00 | don't have | 137.02 | | $ 617,917.50 | $ 21,658.50 | 1,852.00 | $ 333.65 |
| Total | $ 976,537.09 | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| **Future Capital** | Estimated | **Market Rate** | | | | | Annual | |
| **Infrastructure** | Cap Expense | Term | Interest | bi-Annual Payment | Annual Payment Total | Total Facility Charges | $/FC/quarter | SFH/year |
| Water | current annual | | no data | | $127,787.50 | | | |
| Sewer* | $7,653,360.00 | 30 | 2.0% | $170,244.77 | $340,489.53 | | | |
| Sewer | current annual | | no data | | $54,166.93 | | | |
| | | | | | **$522,443.96** | 2897 | $45.08 | $180.34 |
| | | | | | | | | |
| current annual costs from Preliminary 2020-20201 Budget file | | | | | | | | |
| * NEWS $7,653,360 loan EFC and $3,240,377 grant | | | | | avg # connections = | 1900 | | |
| assume 2% interest low-interest loan | | | | | 1 Facility Charge per SFH | | | |
| | | | | | | | | |
| Comparison SFH | | | | | | | | |
| | Current | Option with future debt | | | | | | |
| Water | $ 292.67 | $ 200.37 | | | | | | |
| Sewer | $ 424.42 | $ 333.65 | | | | | | |
| Debt | $ 60.00 | $180.34 | | | | | | |
| | $ 777.09 | $ 714.35 | | | | | | |

APPENDIX E

COMMUNITY WATER SUPPLY INSPECTION 2019

August 22, 2019

Mayor & Village Board
V. Washingtonville
9 Fairlawn Drive
Washingtonville, NY 10992

**Re:**
**V. Washingtonville**
**CWS – ID#3503567**

Dear Mayor and Village Board:

On August 20, 2019, the undersigned, a representative of this department, inspected the above referenced water supply in the company of Marco Salome, designated operator, Chris Finnegan, water operator, and Christopher Martino, Public Works Commissioner.

Based on the inspection and a review of our files, the following comments are made:

1. We are pleased that since the time of last year's inspection the following improvements/modifications have been made to the water system or brought to the attention of this department:

    a. Two new Grunfos chemical feed pumps have been installed at the wellfield treatment plant to replace the previously existing Prominent pumps. The pumps will be compatible with the Grunfos chlorine analyzer installed two years earlier. Two new "Assman" double wall 160-gallon chemical crocks were installed to replace existing single wall tanks. Purchase was in response to this department's prior recommendation that double containment be provided at each solution tanks due to the volume of chlorine stored.
    b. A new "Gast" air compressor was placed at the Clinton Drive booster station.
    c. As problems with calibration or reporting by customer water meters are identified, the Village has been replacing the defective meters with new "lead free" Sensus (IPERL) units.
    d. JCO Inc. is now the new contract operators for the municipal water system. Specifically, Marco Salome is the designated water operator with Chris Finnegan assigned the role of back up water operator.

2. The following deficiencies were noted at the time of inspection:
    a. Reportedly, the Village is experiencing difficulties with the communication system, installed in 2017, that operates between the well field and the water storage tanks. When wells are operating in "automatic" mode, reportedly, there is a breakdown in communications which in turn de-energizes the well. Under this scenario, until rectified, the tanks will drain down without replenishment. In "manual" mode, the wells must be monitored so as not to overflow the tanks. We understand that the Village Board has approved the necessary upgrades to be completed by TAM.
    b. At the Clinton Drive booster station, significant corrosion was observed at various locations near the base of the larger diameter sight glass. Repairs should be scheduled in a timely manner to avoid failure that could take the pressure tank out of service.
    c. The motor operated exhaust louvers in both the Well #1A and Well #3 pump houses are non-functional. Repairs should be made so that the structures may property ventilate, as designed.
    d. Grout at the base of the Clinton Drive Tank, between the tank shell and top of the ring wall, should be inspected and repaired as necessary to prevent water intrusion that could cause corrosion of the base steel at the bottom of the tank.
    e. With respect to the Prides Crossing water storage tank:
        i. Tank should be power washed to remove accumulated algal growth.
        ii. Graffiti at the top of the tanks should be removed at the Village's earliest convenience as the message sprayed on the side wall is to be considered offensive, at the least. The Village must look to ways to prevent unauthorized access to the tank site and ultimately the tank itself.

3. The following recommendations are made:
    a. We continue to recommend that discussions be held with the Village of Cornwall with respect to the creation of an emergency interconnection between the Villages of Washingtonville and Cornwall water distribution systems. It was reported again that no progress has been made over the past year towards this effort. The Firemen's well cannot be considered a long-term backup for wells #1A and 3, due to its relatively low yield (particularly during drought conditions).

4. This Village is reminded that the Annual Water Quality Report (AWQR) for 2019 must be prepared and distributed to its water customers by May 31, 2020. Copy must be submitted to this office by that date as well. The Village is encouraged to submit a draft copy of the annual report to this office in advance of distribution so that it may be reviewed for accuracy and completeness prior to distribution. The annual certification form must be submitted to this department and the NYSDOH by September 1, 2020.

5. Our records have been updated to reflect that the Village now has a population of approximately 7,260 served by the public water supply. This increase of 60 individuals over prior numbers was based on the revised number of service connections (an increase of 19 meters since our last update). Your annual water quality report (AWQR) for 2018 reflected a service population of 7,000. All monthly water operation reports and your 2019 AWQR should reflect the new population of 7260. Based on a service population of 7,260, as per the provisions of Subpart 5-1 of the NYS Sanitary Code, there will be no change to your monitoring requirements.

6. A discrepancy of approximately 38.7% exists between quantity of water produced and billed consumption for 7/17/18 through 8/2/19 period of time. It was reported during the inspection that much of the discrepancy between production and billed consumption that the Village has experienced over the prior years was due to inaccurate meter readings and/ or calibration. As an example, meters reading in 1000's were being recorded as 100's of gallons and values from meters read in cubic feet should have been converted to gallons. It should be noted that water unaccounted for, as reported in the annual inspection letters for 2017, 2015, 2014, 2013, 2012, 2011, 2010, 2009, 2008, and 2007 was 38.76%, 46.3%, 37.4%, 50.8%, 25.63%, 28.55%, 24.5%, 26%, 29%, and 29%, respectively. The Village should continue to investigate all aspects of the water system, with the objective of identifying the true source(s) of this disparity, e.g. leaks in the distribution system, inaccuracies in production or consumption meter calibrations and unmetered use(s) of the treated water. There was no significant change in unaccounted for water between 2017 and 2019, despite of the number of meters replaced in distribution (38.76 versus 38.7%).

7. Reportedly, development of the Firemen's Memorial Park well and related treatment facilities is on hold due to elevated chloride levels. Records indicate that the safe yield of the well is 50 gpm. Village personnel reported that the well could produce up to 75-80 gpm. The Village is encouraged to complete the work in an expeditious manner so that this well would be available should an emergency occur, e.g. drought or contamination of the primary well field. Installation needs to be finalized and the well needs to be flushed and tested for water quality. The Village is reminded that prior to placing the well on-line, the engineer must provide certification that the facilities were completed in substantial compliance with the approved plans and a completed works inspection must be scheduled with a representative of this department. With the start- up of this second entry point, additional routine monitoring/ testing will be required. You will be advised in writing regarding changes to your monitoring requirements. It was suggested by water department personnel that the Fireman's well may be used exclusively by the fire department for "wash down" activities, in which case, the well would not be connected to the potable water distribution system.

8. We understand that no further progress has been made since the time of last year's inspection towards the development of the Bond Street and Skateboard Park (Woodfield) wells and related treatment facilities, however it was noted that development of these wells, one or both, would be addressed upon completion of the Firemen's Memorial Park well. Please keep this office informed regarding progress made. We understand that the Village is currently looking for a grant to perform the necessary work to bring the well(s) on-line. As a reminder all NYSDEC permits must be in place for the water taking.

9. The Village is reminded that copies of all backflow prevention device test reports must be forwarded to this office on an annual basis as tests are completed. They may be mailed in or scanned to the following e mail address: bfptests@orangecountygov.com . Reports for all devices on record have been submitted for 2018 testing with the exception of the Veron Alan Park (1.5" Watts RPZA) Fulton Square (4" AMES DCVA) and the four devices at the Village sewage plant (Watts 909 RPZA). Please have copies of these reports forwarded to this office at your earliest convenience. As a reminder, all 2019 tests must be completed by December 31, 2019.

10. As the Village water supply serves more than 3,300 people, it was required to begin to prepare a Cybersecurity Vulnerability assessment by 6/1/2017 and to submit the Cybersecurity Vulnerability assessment to both the NYSDOH and this office by 1/1/18. You are referred to correspondence provided to the Village as dated April 25, 2017 concerning details of the plan and resources available for completion of the task. An additional copy of the referenced documentation was provided to Mr. Martino by e-mail at the time of inspection.

11. Confirmation must be provided to this office that the two (2) "Assmann" 165-gallon sodium hypochlorite tanks are either NSF or UL approved for use with potable water.

12. Templates have been provided to both Mr. Finnegan and Mr. Salome for their use in preparing the necessary lead and copper documentation for delivery to both this department and to the residents whose homes were used as sampling sites.

13. Free chlorine residual, as measured at the DPW break room sink, at the time of inspection, was 0.7 mg/l.

14. Enclosed is a revised "Water Sample Schedule Report" which should assist the Village in planning for upcoming monitoring deadlines:

    The remaining chemical testing for 2019 includes:

    a. Disinfection Byproducts/ Stage 2 (2nd Tuesday in August)

b. Lead and Copper (20 distribution samples)

It was reported that all required sampling for 2019 has been completed and that the Village was awaiting receipt of the lab analyses.

Chris Martino and his staff are to be commended for the professional manner in which they operate the Village water system.

Your continued cooperation is appreciated.

Very truly yours,

Lee S. Bergus, P.E.
Sr. Public Health Engineer

LSB/ajc

cc: Mr. Christopher Martino, Public Works Commissioner
Mr. Marco Salome, Designated Operator
file

Attachment