

January 20, 2017



WLSD Response to Torrington Water Company's (Pullman & Comley) Letter of 12/06/16
Proposed Regional Sewer Connection Project
Woodridge Lake Sewer District

Responses to each of the comments presented in the TWC letter of December 6, 2016 follow. A copy of the TWC letter, with items numbered to match our responses, is included in Appendix A. For the TWC introductory paragraphs in this letter, please refer to our responses to their November 21, 2016 letter.

1. As part of the Facilities Planning process, a thorough evaluation of future connections from undeveloped parcels in WLSD was completed. Only parcels in the existing WLSD sewer service area, as approved the State, were considered. All of these undeveloped parcels that abut existing sewer mains, were previously approved by the State Office of Policy and Management (OPM), and are required to be connected to the sewer, if developed. The undeveloped parcels were analyzed to determine if they were buildable and if they could be subdivided.

As of September 25, 2012, we determined that the total maximum number of connections, at build-out conditions, would be 861, which includes the addition of 170 undeveloped parcels. No new sewer extensions within the WLSD sewer service area are anticipated. The 170 future connections represent only sewer connections to existing sewer mains, as required by OPM. Figure EX-1, in Appendix B, delineates WLSD's boundaries and the status of the lots. The proposed average daily design flow to Torrington, of 110,000 gpd, including all current and future connections. WLSD's average annual flow for 2016 was 79,890 gpd. Further, the proposed force main is sized for current and future flows. The pumping rate of the wastewater through the force main through a section of the TWC watershed will be the same at current and future build-out conditions.

2. DPH does reference and allow "tight pipe" for wastewater conveyance in proximity to drinking water sources. Our current design plan takes this to a conservative extreme at the sensitive watershed culvert crossing (see details in Item 3) by including redundancy beyond the "tight pipe" requirement. The proposed piping associated with the force main will be 8" PVC C900 DR18 and will be entirely within the existing ConnDOT ROW. This gasketed plastic piping is used throughout Connecticut, including State funded Projects, in force main applications. The PVC pipe, which is also resistant to soil corrosion, has a pressure rating of 235 pounds per square inch (psi). This pressure rating is nearly 10 times the actual pressure of the wastewater in the force main for the proposed pumping system. The pipe design meets the requirements of ASTM (American Society for Testing and Materials) which is an international standards organization that develops and publishes voluntary consensus technical standards for materials and products specified in this Project, including the pipe products.
3. The proposed Project is not directly crossing, nor impacting, any lands owned or controlled by TWC, as it is entirely within the existing ConnDOT ROW that already traverses a small section of the TWC watershed. Over the entire 200-foot length of the pipe at a culvert crossing adjacent to the most sensitive (Class 1) area of the TWC watershed, the proposed Project design includes two parallel pipes, each of 10" high density polyethylene (HDPE SDR11) piping. Both pipes are contained within 18" HDPE SDR11 sleeves. All HDPE pipes are to be fusion welded, resulting in no joints. A valve vault is located both up-gradient and down-gradient of this crossing. There are no joints, valves or vents for this watershed crossing and all work will be within the existing ConnDOT ROW.



In addition to the fusion welded piping and sleeves, the lower vault is to be equipped with a float system and alarm, in the event that wastewater is discharged between one of the carrier pipes and its sleeve pipe. This alarm will shut off the pumps and send an alarm to the operations staff of WLSD and the Torrington WPCA. The proposed Project is not directly crossing, nor impacting, any lands owned or controlled by TWC, as it is entirely within the existing ConnDOT ROW that already traverses a small section of the TWC watershed. Since the proposed force main adjacent to the TWC crossing is at the high point in the system, and it continuously slopes downhill toward Torrington, once the pumps are shut-off, the force main simply drains as a gravity sewer. In addition, the proposed WLSD pump station is equipped with a robust emergency overflow wetwell, to allow sufficient storage if the pumps are temporarily shut down. The second and redundant pipeline across crossing, allows operations staff to reroute the wastewater from pipe 1 to pipe 2, and reactivate the force main and pumps.

We believe that the additional proposed measures, as presented for the crossing through an area adjacent to the most sensitive area of the TWC watershed, are consistent if not more protective than measures utilized at other sewer crossings in watersheds in the State. We are not aware of any such additional measures, beyond a single "tight pipe," which have been utilized, or required by the State, where sewer pipes traverse other watersheds in the State within a ConnDOT ROW.

Regarding TWC's claims of force main breaks in watersheds in the State, we believe that this information was related to a much broader set of potential conditions, including combined sewer overflow (CSO) communities, breaks caused by construction methods, and old pipes beyond their design life expectancies. It is our understanding that some of the occurrences mentioned by TWC are related to sanitary sewer overflows (SSOs) and construction issues. Routine O&M, future capital replacement considerations, and construction observation are important to minimize such highly unlikely events. In the highly unlikely event of a force main break of the single 8" PVC C900 force main piping adjacent to the most sensitive area of the watershed, again, operating at a pressure of 10% of the design rating, such a break would be both detected by the pump control system and observed on this highly visible section of Route 4, allowing the operations team to utilize the emergency overflow wetwell and repair the force main. Other than the two vaults above/below the most sensitive area with a culvert crossing, there are no other valve vaults or air release vents in the remainder of the proposed watershed crossing. Again, the entire section of force main through the watershed crossing pitches downward continuously towards Torrington, and acts as a gravity sewer when the pumps are not active. Moreover, Tata & Howard, TWC's expert witness, stated within less sensitive areas of the watershed, that "pipe leaks generally would travel very slowly --- rough travel time to Allen Dam Reservoir -- in the range of 6 months to a year -- therefore not readily noticed in Allen Reservoir" in their letter to TWC of August 16, 2016 (page 7 of 10) in (Appendix C).

4. [1] The route of the proposed sewer main traversing the TWC watershed area is approximately 4,500 feet, all of which is within the existing ConnDOT ROW. [2] The WLSD's engineers have reviewed the Tata & Howard recommendations and have agreed to all but one of the recommendations. The plans for the proposed crossing adjacent to the watershed, which is not directly through any lands owned by TWC, were updated to include all of the Tata & Howard comments. The updated plans also include leak detection equipment for two remaining vaults at the existing culvert that crosses the most sensitive area of the TWC watershed, and eliminates all other vaults to alleviate concerns with the air release valves. The remaining suggestions from Page 9 of Tata & Howard's letter of August 16, 2016 will be included in the specifications,



including comments about the sedimentation and erosion control plan, spill protection plan, vehicle fueling plan and spare parts.

5. According to the City of Torrington, the average wastewater generation per home for their sewer customers is 65,000 gallons per year, or 178 gallons per day. The 2014 census for Torrington reported 2.41 persons per household. Therefore, we estimate that the 40 homes in the Allen Dam portion of the TWC watershed, all of which are on septic systems, would produce approximately 7,120 gpd of wastewater every day, plus an unknown amount of wastewater from the hundreds of large animals at Action Wildlife, together with several farms with cattle and horses within the watershed. In a year, that would amount to approximately 2,598,800 gallons of wastewater. Over the course of 20 years, that is nearly 52 million gallons of wastewater that will be discharged to the watershed by the 40 homes that exist today.

On the contrary, in the highly unlikely event of a pipe failure, if the contents of the force main across the full length of the watershed were to be released, it might amount to a single release of approximately 11,993 gallons (some of which could be captured in the vaults, which is roughly equivalent to the amount of wastewater that enters the TWC Allen Dam watershed each day and a half from the 40 identified septic systems (excluding Action Wildlife and the other related sources of contamination). TWC's Engineering Consultant, Tata & Howard, acknowledged WLSA's additional protections for areas in the ConnDOT ROW adjacent to sensitive watershed land, and also indicated in a letter to TWC, dated August 16, 2016 (Page 7), that leaks in the ConnDOT ROW adjacent to the Class 2 and unclassified watershed land "generally would travel very slowly --- rough travel time to Allen Reservoir -- in the range of 6 months to a year -- therefore not readily noticed in Allen Reservoir."

6. There is only one existing culvert that currently crosses the ConnDOT ROW, at Station 122+40, adjacent to the most sensitive (Class 1) area of the TWC watershed. The culvert land crossing represents the closest point for water and stormwater to travel from the proposed Project to the Allen Dam Reservoir. This culvert appears to actively convey flow from the wetland area south of Route 4 towards Allen Dam Reservoir through the intermittent stream. All remaining culvert crossings in the Route 4 ROW, adjacent to the proposed culvert, only carry stormwater, and appear to be dry during most conditions. Therefore, the remaining culvert crossings are further than 9,200 linear feet from the Allen Dam Reservoir.

In the highly unlikely event of a force main failure, it would take even longer for the wastewater to reach the most sensitive culvert, or to travel to the Allen Dam Reservoir. The main culvert at this crossing is protected by the proposed double pipes, both in casement pipes. The fact that WLSA has adequately designated "tight pipe" to be utilized adjacent to the less sensitive watershed lands, is additionally protective of the environment (see Item 3 for details on the proposed design configuration).

7. The TWC letter overstates the flows in the proposed Project. The proposed average daily flow is 110,000 gallons per day. This includes current flows and anticipated future flows from previously approved developable lots in the existing WLSA sewer service area. Over the past three years (2014, 2015 and 2016), total daily flows have ranged from a low of 104,270 gpd to 79,800gpd, with an average annual flow rate of 91,720 gpd over that same time period. Even though the peak hourly flow rate is 540,000 gpm (375 gpm), an event that is likely to occur in any given hour only a few times per year, the proposed pumping system is designed to maintain a scouring velocity of 3 feet per second in an 8-inch force. Therefore, the proposed pumping system will operate at 500 gallons per minute when it is running. Again, average annual flow,



peak hourly flow and proposed pumping rate each have different definitions that apply to design elements of the proposed Project. The pumps will start and stop in response to wet well levels over the course of a day. When the pump(s) run(s), the pipe will temporarily pressurize to roughly 10% of the rated pressure of the pipe. When the pump(s) stop, the force main will drain just like a gravity sewer. This is the same for a day when the total daily flow is 50,000 gallons, or on a day when the total daily flow is 150,000 gallons. In the highly unlikely event of a pipe failure, the potential exposure of wastewater in the section of the force main through the watershed is the same now as it would be in the future, the pumps would stop in the event of a failure, and the emergency wetwell overflow would be utilized. This is a special and unique feature of the proposed pumping station. TWC's flow rates (from the Project Update Report) have different definitions (i.e. average daily, maximum daily, peak hourly and pumping rate) and should be corrected.

8. To reiterate our response above, the term "peak hourly flow rate of 540,000 gpd" refers to the maximum instantaneous flow rate anticipated at the proposed WLSD pump station in a one-hour period. This peak instantaneous flow rate does not represent the flow expected for a whole day, as TWC suggests. This estimated instantaneous peak hourly flow rate, based on the maximum pumping rate of the existing upstream pump stations that currently convey wastewater to the WPSD WPCF. The peak hourly flow rate is used to size the proposed force main and pumping system. As summarized above and consistent with the definition of "peak flow", we would expect such flow rate to occur only occasionally, maybe a few times per year. Again, the proposed pump station will operate at 500 gallons per minute when it is running, which represents a velocity of 3 feet per second in an 8-inch force main. This is the proposed pumping rate regardless of what the total daily flow or peak hourly flow rate is.
9. The Torrington WPCA has been selected to provide regional processing by State authorities over the last dozen years speaks for their good standing in the eyes of the regulators. Their reputation in the State, successful long-term track record, experience operating other pumping systems in the City, and experience receiving wastewater from two other municipalities (Litchfield and Harwinton) speaks for itself.
10. The most sensitive portion of the watershed, adjacent to the proposed Project, is designated as Class 1. Additional pipe and leak detection measures have been detailed and the pumping system will have remote monitoring and alarming. In the highly unlikely event of a force main break anywhere in the force main, changes in pump operating conditions would be observed. Such a trend away from the operating point would be identified by the SCADA system as an alarm condition. In their letter to TWC of August 16, 2016, Tata & Howard, TWC's engineering consultant, in reference to potential leaks within the watershed areas stated: "pipe leaks generally would travel very slowly --- rough travel time to Allen Reservoir -- in the range of 6 months to a year -- therefore not readily noticed in Allen Reservoir." (Appendix C).
11. We were not able to locate the watershed mapping for planning purposes since they were not filed in Town offices, as required by law.
12. The WLSD established a Planning Committee on July 14, 2010. It comprises taxpayers, wastewater facility operations staff, Woodard & Curran engineering advisors and Shipman & Goodwin legal advisors. The Committee's charge was to prepare a long-term plan for WLSD to correct an existing problem and comply with a DEEP Order and the federal Clean Water Act (CWA). The CWA requires that any proposed solution meets the sewer and wastewater disposal



needs at an affordable cost and in compliance with local, state and federal regulatory requirements.

Since the formation of the committee, they have had 34 meetings and organized over a dozen community meetings. We published over 26 articles in "Breezes", the community newsletter, and send over a dozen letters by direct mail to taxpayers. All of these communications have been available via email and/or US Postal Mail to certain TWC Board members. However, we have never received any indication that a sewer pipe located entirely within an existing ConnDOT ROW that traverses the TWC watershed presented any concern to the TWC. In addition, we had several meetings with a Board member Steven Cerruto during the boring process, which took place during July of 2015, and did not receive any comments about the proposed route. The filing for the for the USDA Rural Development funding application, including the Preliminary Engineering Report and the Environmental Report, was also publicly noticed in the Republican American on December 28, 2015. The IWC and P&Z meetings in both Goshen and Torrington were also publicly noticed.

13. See Item 3 above.
14. See Item 2 above.
15. See Items 9 and 10 above.
16. See Items 7 and 8 above.
17. The revised plans and pending specifications include all of the Tata & Howard recommendations except for the monitoring wells. See Item 4 above.
18. The 2004 EPA Report cited by TWC is summarizing SSOs (sanitary sewer overflows) which include events caused by a number of causes including: Blockage (41%); Wet Weather (30%); Mechanical/Power (10%); Unknown (6%); and Line Break/Misc (13%). It is unclear which line breaks were attributed to pipe age, defect, construction issues, etc. The data is unrelated to this Project and never suggests that a force main break is a likely event.
19. See Item 12 above.
20. See Items 11 and 12 above. The filing for the for the USDA Rural Development funding application, including the Preliminary Engineering Report and the Environmental Report, was publicly noticed in the Republican American on December 28, 2015. The IWC and P&Z meetings in both Goshen and Torrington were also publicly noticed. WLSD did not receive any input from TWC in response to any of these public notices.
21. See item 11 and 12 above.
22. See item 11 and 12 above.
23. See Item 1 above. Also, both Goshen and Torrington have established sewer avoidance area protocols along the planned route which would prohibit the addition of collector sewers outside of the permitted areas.
24. See Item 10 above.



25. See Item 5 above. Further, the force main will not transport concentrated waste. There is no pre-treatment prior to pumping. The wastewater composition to be conveyed by the force main is similar to the wastewater from the 40 homes with septic systems within the Allen Dam watershed. The difference is that WLSD's wastewater will be fully treated in Torrington and discharged outside of the TWC watershed. The septic system effluent from the 40 homes is only partially treated by solids removal in the septic system. Nutrients, contaminants and anything else that is flushed stay in the TWC Allen Dam watershed. The daily wastewater volume generated from the 40 home septic systems is nearly equal to the volume from one highly unlikely force main break.
26. The TWC data and Water Supply Plan are in conflict with this TWC statement.
27. See Item 10 above.
28. See Item 10 above. TWC at times objects to the crossing, and at other times refutes that the measures are not sufficient. Additional protective measure are an open item to discuss further with the interested parties. We have attempted to do so with TWC several times.
29. See Item 4 above.
30. See Item 9 above.
31. See Items 5 and 25 above (and paragraph F of our response to TWC's November 21, 2016 letter).
32. The net costs per month per home in WLSD, as presented by TWC, are incorrect. The correct information, based on the anticipated Project costs, alternative route costs, and schedule delays caused by TWC, are summarized in detail at the end of this letter.
33. See Items 3 and 10 above.
34. The TWC has offered 42 days of data, albeit those during a historically dry period, to suggest that the Allen Dam Reservoir is critical to their water production. During a period of no rain this reservoir, which has a storage capacity of 3.5 million gallons, has produced over 45 million gallons of water. To put it another way, it has produced 13 times its total capacity over this short dry period. This is not possible except for the availability of a transmission capability from the Ruben Hart Reservoir, its primary source of production, as stated in the TWC Water Supply Plan Chapter IV page #21. This diversion creates an illusion of critical need when it is contrary to the available data to us between January 2004 and December 2008 when its production was reported at less than on half of one percent (0.5%) over the five year period and dropped to one quarter of one percent (0.25%) in 2008.
35. WLSD has been successfully managing its wastewater collection system, which is within the City of Waterbury watershed, for more than 40 years.

The TWC concluding paragraph is incorrect regarding costs associated with the alternative Weed Road Route:

"Indeed, the incremental cost of the Weed Road alternate route would be under \$1 per month that the alternative, Weed Road, pipe route Incremental cost would be under \$1 per month for



a \$200,000 house in Woodridge Lake, only \$3.19 per month for a \$750,000 house in Woodridge Lake, or a mere \$4.25 more per month to the owner of a \$1,000,000 house in Woodridge Lake."

We offer the following corrected statements regarding the anticipated Project costs for the alternative Weed Road route:

- Based on updated projected cost of \$18,889,000 for the alternative Weed Road route (an increase of \$3,277,000 over the Project as proposed) and the current funding levels from the USDA, the actual anticipated incremental cost would be \$18.46 per month for a house assessed at \$200,000, \$70.37 per month for a \$750,000 house in Woodridge Lake, or \$93.82 more per month to the owner of a \$1,000,000 house.
- The Clean Water Act requires the most cost effective solution be implemented to correct an ongoing pollution issue. The most cost effective solution is to construct a sewer main entirely within the existing ConnDOT ROW along the route being proposed.
- The Weed Road alternative route would increase taxpayers' costs by 34% above their current level, or five times that of the State's 2013 average sewer rate per household.
- If the schedule delay, or other unknown project or permitting conditions resulted in a longer delay, WLSD could lose its funding commitment with USDA. Absent USDA's grant and loan commitments, the Project would cost residents and additional 20% beyond the above 34% increase.

PN: 214383.00

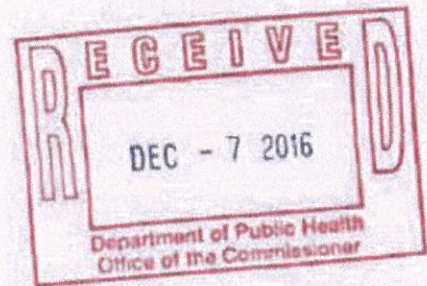
APPENDIX A

**PULLMAN
& COMILEY**
ATTORNEYS

FREDERIC LEE KLEIN
90 State House Square
Hartford, CT 06103-3702
p 860 424 4354
f 860 424 4370
fklein@pullcom.com
www.pullcom.com

December 6, 2016

Honorable Raul Pino, MD, MPH
Commissioner – Connecticut Department of Public Health
410 Capitol Avenue
Hartford, CT 06134



Re: Woodridge Lake Sewer District's Proposed Regional Sewer Connection Project
Torrington Water Company Response to Claims Made by WLS D

Dear Commissioner Pino:

Torrington Water Company ("TWC" or "Torrington Water") is very concerned with a number of misleading statements contained in Woodridge Lake Sewer District's ("WLS D") November 21, 2016 filing in response to the Department of Public Health's ("DPH" or the "Department") order instituting an investigation to determine whether the WLS D proposed regional force sewer main ("Proposed Project") may cause pollution or threatened pollution of a source of public drinking water supply.

Allen Dam Reservoir is Critical to Torrington's Water Supply

First and foremost, WLS D understates the critical importance of the Allen Dam Reservoir as a source of supply to the residents in the Torrington area. The Woodard & Curran letter dated November 21 (and DEEP's letter of November 18) argue that Allen Dam Reservoir is used infrequently for either drought or emergencies. While this is technically true, to state that Allen Dam Reservoir represents only 0.5% of TWC's water supply is misleading. To the contrary, when the Company utilizes Allen Dam Reservoir, whether to respond to drought conditions, a fire, planned maintenance at one of the other sources of supply, or in response to an unplanned emergency, it is used to its full capacity.

While WLS D cites to part of TWC's Water Supply Plan, it omits the plan's recognition of Allen Dam Reservoir's essential contribution to system reliability:

"Allen Dam historically had not been used on a regular basis. However, the Allen Dam supply has made significant contributions to the Company's total supply in the event of a serious drought, and during periods of peak demand.

The Allen Dam supply is capable of delivering 3.5 MGD (2,400 GPM) to the distribution system. This capacity is available at all times, and is an essential part of the Company's ability to provide water for fire protection."

In fact, Allen Dam Reservoir is playing an important role during the current drought. Since October 18th of this year, Allen Dam Reservoir is supplying between 22.8% up to a maximum of 74.5% of the drinking water delivered into TWC's distribution system. The average daily percentage delivered from Allen Dam Reservoir during the period of October 18 to November 28, 2016 was 47%. (See Exhibit 1 hereto.)

This availability is in large part due to the continuing investment that the Company has made to maintain the dam and reservoir. For example, in 2012 the Company invested \$200,000 to dredge the reservoir to preserve and restore capacity to this important water supply. The Company monitors different parcels of land on the watershed and tries to purchase important parcels whenever they become available. For example, in 1998 the Company purchased 22.3 acres of land which is on the Allen Dam Reservoir watershed. As recently as 2014 the Company purchased 35 acres of land which is also on the Allen Dam watershed area. TWC also inspects each of its sites on the watershed annually to make sure they are being maintained and have no impact on watershed.

Moreover, as noted in the Company's November 21 filing, loss of the Allen Dam Reservoir would reduce TWC's safe yield by 27%. This would reduce TWC's margin of safety for meeting maximum month demands to less than 1.0. On an average daily demand basis, the current margin of safety would be reduced below 1.15. Consequently, the loss of the critical Allen Dam Reservoir and Whist Pond Reservoir could jeopardize the ability of the TWC to serve its customers and meet its public water supply mission.

Other Misleading Statements that Need to be Corrected

Cover Letter Misstatements:	The Facts:
① The Project will not induce future growth along the proposed route as it relates to the environment and public health, and ... there will be no impact because the proposed force main will serve only as a transmission main for WLSD.	While there may be no new connections along the main, the force main will allow growth in Woodridge Lake from the current 691 homes to almost 900 homes, an increase of approximately 30%.
② The proposed pipe is what is referred to as a "tight pipe"	"Tight pipe" is defined by DPH technical standards as a type of water pipe, which does not apply in this instance to transporting pressurized human sewage.
③ The pressure main will [1] include modern monitoring and control features to detect a leak [2] in the unlikely event that one should occur.	[1] The entire pipe will not include such features. Only 200 linear feet out of 4,550 linear feet of the route through the watershed will include additional monitoring and control features. [2] TWC presented industry

	information in its submittal demonstrating that breaks and leaks happen with regularity. It is not unlikely.
4) WLS D has agreed to design that section of the pipe that will [1] traverse an edge of the Allen Reservoir Dam Watershed [2] with additional safety features, as proposed by the Torrington Water Company	[1] The proposed route runs through 4,550 linear feet of the watershed. Not an "edge" of the watershed. [2] Tata & Howard, TWC's experts, included 12 recommendations in its August 16, 2016 report, to be incorporated into the design as a condition of the Torrington IWC approval. Many would require extensive additional work which we have not seen, and they were not included as a condition of approval. Examples include: monitoring wells in the TWC watershed; leak detection equipment at air release and cleanout manholes; clarification of operational and control responsibilities between Torrington and WLS D.

Woodard & Curran Misstatements:	The Facts:
5) The TWC Water Supply Plan states that there are 44 identified potential sources of pollution tributary to the Allen Dam Reservoir.	While this is technically correct, these potential sources of pollution are more attenuated and less concentrated than a potential spill from the human waste from upwards of 900 homes that the force main would transport through 4,550 linear feet of the watershed.
6) From the point where the force main traverses the existing culvert on Route 4 (Goshen Road) closest to the Allen Pond Dam, the proposed pipeline is approximately 9,200 feet (nearly two miles) from the Allen Pond Dam	That particular culvert may be a distance from the reservoir, however the force main would traverse eight different storm drain or culvert crossings within the watershed area. WLS D repeatedly focuses on this single culvert and ignores the fact that a sewage discharge could occur anywhere along the pipe inside the watershed area.
7) In numerous places WLS D speaks in terms of average flows through the pipe.	Peak flow rates are critical to consider as they could impact volume of discharge particularly if a break occurs during peak operation.
8) Claims of total daily flows in excess of 500,000 gpd are grossly exaggerated	WLS D's own report uses the 540,000 flow rate. ¹
9) Routine maintenance and monitoring, as proposed in WLS D's design, will help extend the duration of such infrastructure.	WLS D will not be maintaining the force main in Torrington. Beyond unsupported assertions, WLS D has provided no evidence on

¹ Woodridge Lake Sewer District (WLS D) Regional Sewer Extension Project, Phases 1 and 2 Environmental Report, Woodard & Curran, Issued on December 26, 2015, Updated on February 10, 2016, ("Woodard & Curran Report") at p. 4.

		maintenance and monitoring on the Torrington side of the main.
(10)	The proposed Project includes remote monitoring and control measures to allow operations staff to observe a potential leak, deactivate the pumping system ...	Remote monitoring is only proposed for 200 linear feet of force main, and the proposed monitoring will not detect a leak or break along most of the force main. Also, Torrington, and not WLSD, will be responsible for repairs. There is no evidence that Torrington will monitor the main and no assurance that repair will be as prompt as WLSD claims.
(11)	TWC did not make the watershed mapping publicly available as required by State law.	WLSD is misreading the statute, which requires that the applicant of a project (WLSD) provide notice to the water company of activity within a watershed if the water company has filed a map delineating the watershed. It does not require the water company to file the map. TWC provided its Water Supply Plan, including watershed maps, to Torrington and Goshen officials as well as regional planning officials, but did not record the map for security safety reasons.
(12)	TWC did not inform WLSD of the watershed area during an early planning meeting	TWC was not contacted concerning any detailed proposal. In particular TWC was not informed of the chosen route at all. It was not until a legal notice appeared in the paper for a Special Meeting of WLSD to approve funding for the project, that the Company became aware that this route was chosen. There was no early planning meeting with TWC.
(13)	WLSD attempts to understate the extent to which the force main runs through the watershed by repeatedly claiming that it will be on the "edge" of the watershed.	The fact is, the route would have the pipe run through 4,550 linear feet within the watershed.
(14)	WLSD refers to the main as "tight pipe"	"Tight" pipe is defined in the DPH "Technical Standards for Subsurface Sewage Disposal Systems". PVC C-900 is considered a "tight" pipe for carrying water within 25 feet of a Sewage System. DPH does not appear to have a "technical design standard" for force sewage main piping which by definition carries more toxic contents.
(15)	On-call staff has smart phones to respond to SCADA alarms on the main.	As noted above, the SCADA system may not pick up a break remote from the sensors. Moreover, WLSD will not operate or maintain the main in Torrington and has said nothing of Torrington's capabilities to respond to an

	alarm or, worse, a break.
16) Based on the proposed average daily design flow of 110,000 gpd, the system will have roughly 4 + hours to respond.	At the 540,000 maximum flow rate provided by WLSD, the time to react to a break is reduced to under an hour.
17) Tata & Howard, recommended design improvements to the proposed system, for the portion of the proposed Project traversing the TWC watershed. We agreed to incorporate these design recommendations in our proposed Project	Tata & Howard included 12 recommendations in its August 16, 2016 report, to be incorporated into the design as a condition of the Torrington IWC approval. Many would require extensive additional work which we have not seen, and they were not included as a condition of approval. Examples: monitoring wells in TWC watershed; leak detection equipment at air release and cleanout manholes; clarification of operational and control responsibilities between Torrington and WLSD.
18) WLSD challenges TWC's information on sewer main breaks based on an assumption that it reflects combined sanitary sewer and storm drain mains (CSOs).	The 2004 EPA report addresses CSOs and SSOs separately. Tata & Howard's report and TWC's filing with DPH uses only the sanitary sewer information.

	W&C Project Update Report:	The Facts:
19)	The Project Update Report claims that several agencies were consulted during the project, including TWC.	TWC was not contacted concerning any detailed proposal. In particular TWC was not informed of the chosen route at all. TWC became aware of the chosen route when a legal notice for a Special Meeting to be held May 28, 2016 was published. There was no coordination between WLSD and TWC.
20)	USDA-RD approved both the Preliminary Engineering Report (PER) of February 10, 2016, and the Environmental Report (ER) of March 16, 2016 for the proposed project.	Neither of these reports identified that the sewer main would traverse the watershed area.
21)	During the planning phase, no maps were available to identify the boundaries of the TWC watershed.	The maps were available from either TWC or the City of Torrington had WLSD clearly identified its route or requested them.
22)	The public participation process included several meetings, as well as Torrington Water Company representatives.	WLSD asked for certain information for several potential routes. WLSD never identified the final proposed route as the route chosen.
23)	No new collector sewers are proposed as part of the proposed project.	Service to up to 190 additional homes in WLSD might require new collector sewers. TWC notes that WLSD variously uses 900 and 835 for the expected number of homes served after the proposed main solves WLSD's sewer

	problems and Woodridge Lake continues its buildout. Also, there is nothing in place to stop new collector sewers outside of WLSD in the future.
(24) All of the Regional Alternatives would incorporate remote monitoring capabilities.	The proposed remote monitoring would be extremely limited. Most of the 4,550 linear feet of main through the watershed would not be protected with remote detection. Pressure gauges at the station would not be impacted by a pipeline break within the watershed area downstream of Station 121+00. Depending on size and location of a break or leak, the gauges at the station may not be impacted by a break or leak occurring anywhere in the watershed area.
(25) WLSD makes much of 44 existing potential sources of pollution (septic systems, fuel tanks, farm, zoo, etc.) in the TWC watershed.	Where the force main will transport concentrated human waste from upwards of 900 homes, a single force main break has much greater potential for pollution than the existing 44 dissipated potential sources combined
(26) In the event a break in the main shut down Allen Dam Reservoir, "TWC has the ability to utilize its other water source."	This is incorrect. When Allen Dam is in use other water sources are inadequate or not otherwise available.
(27) WLSD claims that it will use dual pipes and containment sleeves <i>through the Class I land</i> , and sufficient engineering measures to protect the TWC watershed.	The proposed measures are restricted to protecting the watershed for 200 linear feet of the 4,550 linear feet of watershed crossed by the force main.
(28) Other similar [protective] design concepts can be developed	This is a new, unseen proposal that raises many questions, including whether any new proposal would cover the entire 4,550 linear feet of watershed crossed by the force main, and would similar [protective] design concepts be more effective than an alternative route that avoids the watershed altogether.
(29) The route runs along State Route 4 through the edge of a small stretch of the Torrington Water Company watershed.	The proposed route runs through 4,550 linear feet of the watershed. Not an "edge" of a "small stretch" of watershed.
(30) The City of Torrington prefers Regional Alternative T1 because it has the shortest route, results in the fewest downstream sewer upgrades, and will be the least maintenance intensive after constructed.	TWC is not sure that T1 results in fewer downstream sewer upgrades compared to T3 (Weed Road). Also, the City appears to prefer T1 because it has fewer linear feet in Torrington and thus would presumably be less costly to maintain. As TWC has suggested, the City should be reimbursed by WLSD for any operation and maintenance expenses associated with that portion of the line in the City and,

	therefore, should be indifferent to the choice of route based on length in the City.
<p>31</p> <p>WLSD states that TWC "long term goals" do not contain any actions to increase ownership within the Allen Dam watershed (Appendix I-10)</p>	<p>Appendix I-10 is a summary of TWC ownership of watershed land. Chapter IX F page 43 states:</p> <p>"The Company has not sold land in the recent past and has no plans to sell land in the near future. However, the Company owns approximately 5,400 acres of forestland related to its watershed area. The Company does review any piece of land that is on its watershed which is for sale. If feasible the Company will buy land on its watershed as part of its ongoing watershed protection programs. This program is in both the twenty year and fifty year planning periods."</p>

DEEP Letter Inaccuracies:	The Facts:
<p>32</p> <p>The recommended route is the most cost-effective solution.</p>	<p>The least expensive route dollar-wise is not the most cost-effective route, particularly if the lowest dollar cost route presents health risks. As TWC has demonstrated, the Weed Road alternative avoids the potential health and environmental risk, and would cost Woodridge Lake residents anywhere from less than a dollar per month for a \$200,000 home to \$4.25 per month for a million dollar home.</p>
<p>33</p> <p>The force main would be double-walled and have transducers to detect leakage which can immediately stop the flow of sewage through the line.</p>	<p>The entire force main will not be double walled and will not have transducers. Only 200 linear feet out of 4,550 linear feet of pipe in the watershed area is proposed to receive additional protective measures.</p>
<p>34</p> <p>Based on the infrequent use of the reservoir and minimal possibility of a sewer main break, it appears that the potential threat to the reservoir is minimal.</p>	<p>While Allen Dam may not be used frequently, it must be available at all times in order for TWC to meet its safe yield. Moreover, as noted above, recently Allen Dam Reservoir has been supplying 47% of the Torrington area's needs.</p>
<p>35</p> <p>DEEP refers to TWC as a private company distinguishing it from the citizens of Torrington.</p>	<p>TWC is a private company chartered to supply the citizens of Torrington and surrounding communities with safe potable water. TWC takes its responsibility very seriously and is acting in the best interests of the citizens of the Torrington area.</p>

The selected route will pose an immediate threat to the public health and drinking water

WLSD repeatedly claims that the selected route will not pose an immediate threat to the public health or public drinking water. Torrington Water Company submits that the public health concern is both immediate (after operation begins) and long-term. The fact that placement of the force sewer main in the watershed area now may lead to a future discharge means that DPH must act immediately to avert this threat, particularly where there are a number of feasible and prudent alternate pipeline routes which, if utilized, would eliminate the potential contamination and shutdown of the Allen Dam Reservoir. Indeed, the incremental cost of the Weed Road alternate route would be under \$1 per month for a \$200,000 house in Woodridge Lake, only \$3.19 per month for a \$750,000 house in Woodridge Lake, or a mere \$4.25 more per month to the owner of a \$1,000,000 house in Woodridge Lake.

It is critical to act now. If the raw sewage force main is constructed as presently planned, it is highly unlikely that it would ever be shut down or replaced by a pipeline following a different route. The force main as currently proposed constitutes an immediate threat to the health of residents of Torrington, Litchfield, New Hartford, Harwinton and Burlington.

Accordingly, the Torrington Water Company respectfully requests that the Commissioner order WLSD to utilize the feasible and prudent alternative route that avoids the watershed area and avoids adversely impacting Torrington Water Company's public drinking water supply source water area.

Respectfully submitted,
Torrington Water Company

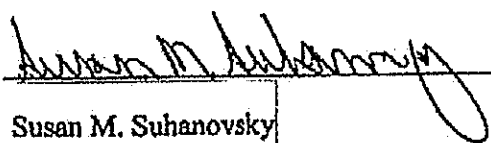
Frederic Lee Klein
by: Frederic Lee Klein
its Attorney

cc: Jim Mersfelder, WLSO
Chris Smith, Shipman & Goodwin
Connecticut Water Planning Council
Torrington Area Health District
Yvonne T. Addo, MBA, DPH, Deputy Commissioner
Lori Mathieu, DPH, Public Health Section Chief
Antony A. Casagrande, Esq., General Counsel, DPH
Betsey C. Wingfield, Bureau Chief, Water Protection and Land Reuse, CTDEEP
Denise Ruzicka, Director, Planning and Standards Division, CTDEEP
Oswald Inglese, Jr., Director, Water Permitting & Enforcement Div., CTDEEP
Ann Straut, Sanitary Engineer 3, Water Protection and Land Reuse, CTDEEP
Hon. Elinor Carbone, Mayor, City of Torrington
Rista Malanca, Wetlands Enforcement Officer, City of Torrington
Jerry Rollett, P.E., Public Works Director, City of Torrington
Ray Drew, Administrator, Torrington, WPCA
Hon. Bob Valentine, Goshen First Selectman
Martin J. Connor, Inland Wetlands Commission, Town of Goshen
Stacey Sefcik, Land Use Commissions Clerk, Town of Goshen
David LeVasseur, Office of Policy and Management
Johan Strandson, Area Director, USDA Norwich Service Center

VERIFICATION

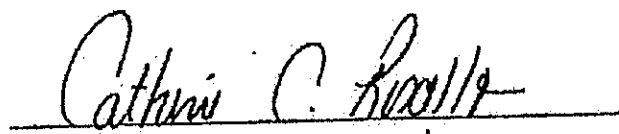
I, Susan M. Suhanovsky, President of The Torrington Water Company, and acting on its behalf with respect to the matters described in this Verified Pleading, have personal knowledge of the factual matters stated therein. I declare under the pains and penalty of perjury that the facts set forth in this Verified Pleading are true and correct to the best of my information, knowledge, and belief.

Dated at Torrington, Connecticut this 10 day of December, 2016.


Susan M. Suhanovsky

Personally appeared Susan M. Suhanovsky, known to me to be President of The Torrington Water Company, the signer and sealer of the foregoing instrument, and being duly sworn, deposes and says that she has read the foregoing Verified Pleading and that the allegations and statements contained therein are true and correct to the best of her knowledge and belief this 10th day of December, 2016.

Notary Public


My Commission expires 7/31/2017
CATHERINE C. ROSELLO
NOTARY PUBLIC
SEAL MY COMMISSION EXPIRES 7/31/2017

CERTIFICATE OF SERVICE

I hereby certify that this day I have caused the aforementioned BRIEF OF THE TORRINGTON WATER COMPANY to be sent by first class mail, postage prepaid to the following this 7th day of December, 2016.

Christopher J. Smith Shipman & Goodwin One Constitution Plaza Hartford, CT 06103-1919	Raymond Turri - President Jim Mersfelder - VP & Treasurer Woodridge Lake Sewer District 113 Brush Hill Road P.O. Box 258 Goshen, Connecticut 06756
--	---

Frederic Lee Klein

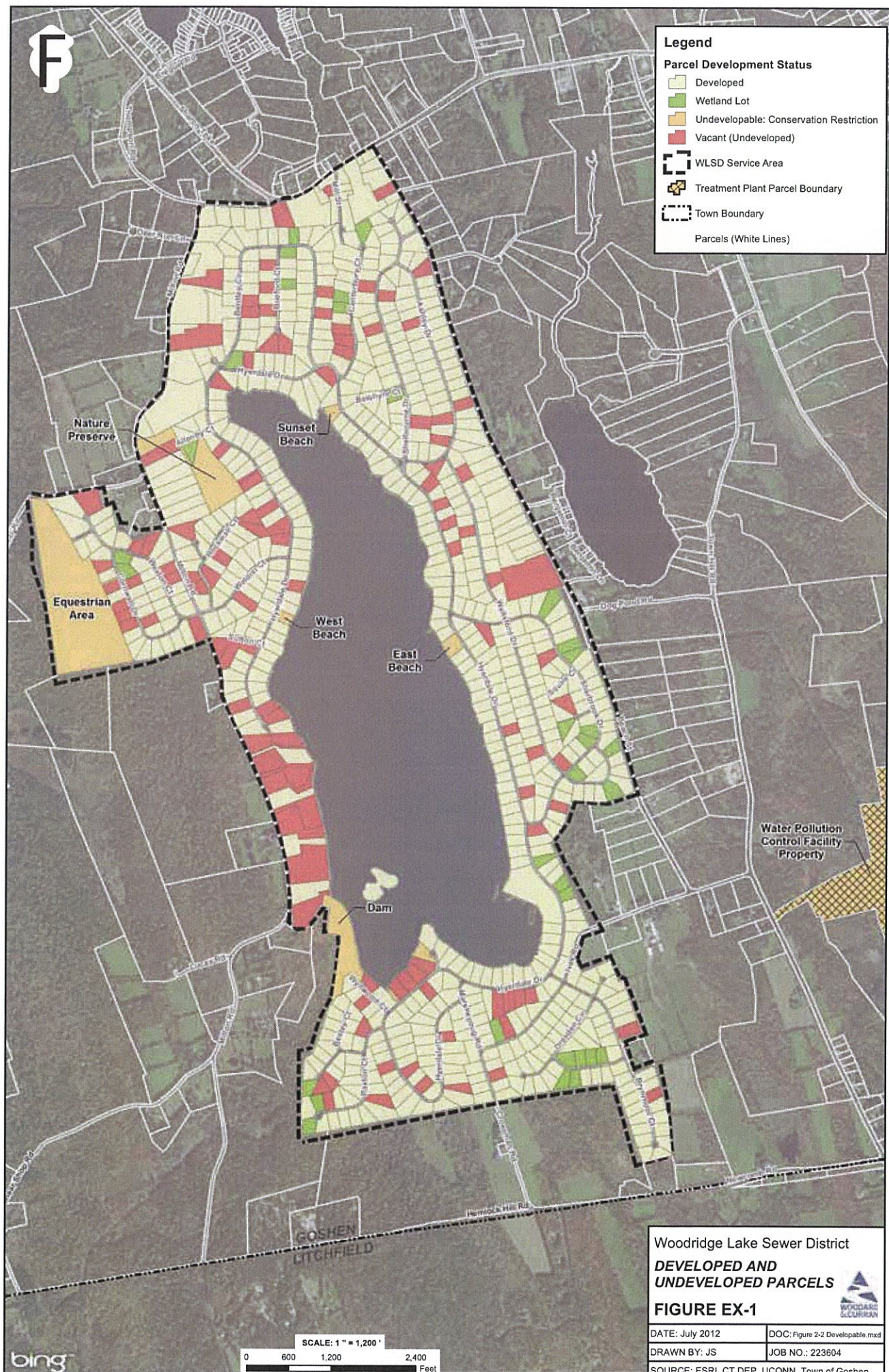
Frederic Lee Klein
Pullman & Comley LLC
90 State House Square
Hartford, Connecticut 06103
860.424.4354

Production from Allen Dam Reservoir as Percentage to Total System Production

Exhibit 1

	Allen Dam	Total	%
10/18/2016	667,000	2,930,000	22.8%
10/19/2016	1,230,000	2,450,000	50.2%
10/20/2016	1,180,000	2,400,000	49.2%
10/21/2016	692,000	1,960,000	35.3%
10/22/2016	789,000	3,070,000	25.7%
10/23/2016	1,277,000	2,040,000	62.6%
10/24/2016	1,292,000	2,460,000	52.5%
10/25/2016	1,108,000	2,370,000	46.8%
10/26/2016	1,081,000	2,160,000	50.0%
10/27/2016	1,064,000	2,190,000	48.6%
10/28/2016	1,253,000	2,420,000	51.8%
10/29/2016	1,257,000	2,490,000	50.5%
10/30/2016	1,241,000	2,430,000	51.1%
10/31/2016	1,285,000	2,660,000	48.3%
11/1/2016	1,163,000	2,130,000	54.6%
11/2/2016	1,351,000	2,430,000	55.6%
11/3/2016	1,185,000	2,410,000	49.2%
11/4/2016	1,060,000	2,340,000	45.3%
11/5/2016	755,000	1,910,000	39.5%
11/6/2016	1,243,000	2,580,000	48.2%
11/7/2016	1,393,000	2,320,000	60.0%
11/8/2016	775,000	1,900,000	40.8%
11/9/2016	783,000	2,020,000	38.8%
11/10/2016	1,774,000	2,380,000	74.5%
11/11/2016	1,247,000	2,490,000	50.1%
11/12/2016	771,000	1,950,000	39.5%
11/13/2016	1,083,000	2,310,000	46.9%
11/14/2016	1,137,000	2,440,000	46.6%
11/15/2016	1,105,000	2,460,000	44.9%
11/16/2016	1,216,000	2,450,000	49.6%
11/17/2016	1,254,000	2,500,000	50.2%
11/18/2016	1,158,000	2,420,000	47.9%
11/19/2016	870,000	2,080,000	41.8%
11/20/2016	737,000	1,970,000	37.4%
11/21/2016	1,255,000	2,490,000	50.4%
11/22/2016	880,000	2,100,000	41.9%
11/23/2016	1,250,000	2,490,000	50.2%
11/24/2016	919,000	2,100,000	43.8%
11/25/2016	1,169,000	2,410,000	48.5%
11/26/2016	738,000	1,910,000	38.6%
11/27/2016	1,067,000	2,290,000	46.6%
11/28/2016	1,080,000	2,310,000	46.8%
		Avg	47.0%

APPENDIX B



APPENDIX C

TATA & HOWARD

August 16, 2016

Ms. Susan M. Suhanovsky, President
Torrington Water Company
277 Norfolk Road, P.O. Box 867
Torrington, CT 06790

Subject: Engineering Review Services – Woodridge Lake Sewer Project
T&H No. 04889

Dear Ms. Suhanovsky:

Pursuant to your July 19, 2016 request, Tata & Howard, Inc. (T&H) has performed a review of the proposed Woodridge Lake Sewer District's Regional Sewer Connection Project (the Project). The purpose of the review is to identify potential impacts to the designated watershed protection areas of the Torrington Water Company (TWC) during construction and subsequent operation of the Project. Our review was based on information furnished by the Torrington Water Company and other readily available public information. No additional field work, testing or borings was performed as part of this review. The review should be considered preliminary in nature, and we have included in our recommendations suggestions for further work.

Description of the Project

The Woodridge Lake Sewer District (WLSD) is proposing to connect their existing wastewater collection system to the sanitary sewer system operated by the City of Torrington in order to address a consent order issued in 1989 by the Department of Environmental Protection, now the Department of Energy & Environmental Protection (CTDEEP). The proposed WLSD Project will consist of construction of a new sewage pumping station on the site of their existing wastewater treatment facility in Goshen, CT. The pump station will deliver wastewater to the City of Torrington sanitary sewer collection system through a combination of new pressurized force main and gravity sewer main running approximately 31,500 linear feet (lf) through public rights of way in Goshen and Torrington.

We have reviewed the June 30, 2016 and July 13, 2016 applications by Woodard & Curran, Inc. (W&C) on behalf of the WLSD for Inland Wetlands Permit review filed with the Town of Goshen and City of Torrington, respectively. Based on our review, it is our understanding that the Project is designed for a current average daily flow of about 105,000 gallons per day (gpd), of which about 40,000 gpd consists of inflow and infiltration into the existing WLSD collection system, installed in 1972. The existing maximum daily flow delivered to the WLSD collection

system is reported to be approximately 402,000 gpd. The Project is designed to accommodate future growth and associated increases in flow. The Project design capacity is based on a future average daily flow rate of 125,000 gpd, and a peak hourly flow rate of 540,000 gpd.

The Project pump station will include pumps designed to deliver 585 gallons per minute (gpm). This flow rate was selected in order to produce adequate scouring velocity in the proposed force main. The proposed new sewer force main will consist of approximately 20,000 lf of 8-inch diameter ductile iron force main running from the pump station to a high point at Station 147+50 in Goshen on Torrington Road (State Route 4). At the high point the sewer main changes to 8-inch diameter PVC C900 pipe. The sewer main will run approximately 11,100 lf along Route 4 in Goshen and Torrington. Both of these sections of main will be pressurized whenever the pump station is operating. The Project design includes air release valve manholes and cleanout manholes along both sections of pipe. The Project plans included with the Inland Wetlands applications include a detail drawing of the air release valve manholes, but do not include a detail of the cleanout manholes.

The final 3,600 lf of the main will be a traditional gravity type sewer collection system consisting of 12-inch diameter SDR-21 PVC pipe laid on straight slopes, and interspersed with manholes.

The proposed route of the Project runs through Torrington Water Company Class 1 and Class 2 watershed protection land for their Allen Reservoir Dam, from approximate Station 147+50 to Station 102+00, or about 4,550 lf. Most of this length, about 3,580 lf, is within the City of Torrington. Within the watershed protection area, the proposed project consists of 8-inch PVC C900 pipe.

The pipeline within the watershed area is generally proposed to be buried with a minimum of 5 feet of earth cover, generally following the ground contours. The pipeline within the TWC watershed area will therefore vary in elevation from approximately 1,170 feet at the low point to 1,270 feet at the high point. The pipeline will be pressurized when the pump station is operating and for periods of time between pump cycles. We estimate that typical or working pressures in the sewer pipeline within the watershed area will range from about 10 to 50 pounds per square inch (psi), with an average of about 32 psi.

The proposed pipeline within the TWC watershed area will include two air release valve manholes (Station 116+01 and Station 147+50), and two cleanout manholes (Station 125+62 and Station 135+00). The proposed pipeline is designed to cross eight different storm drain or culvert crossings within the watershed area (Station 103+65, 105+21, 106+88, 109+42, 113+37, 122+40, 138+42, 143+12). The pipeline will run above the crossings at four locations, and below the crossings at the remaining four locations.

The most significant storm or culvert crossing is proposed at approximate Station 122+40, where the pipeline will cross over a 48-inch diameter reinforced concrete culvert, which feeds a tributary stream entering the Allen Reservoir approximately 10,600 ft distant. The design of this portion of the Project has been recently modified and is no longer as submitted with the July 13, 2016 Inland Wetlands Permit review application filed with the City of Torrington. According to a July 30, 2016 letter from the WLSD Project consulting engineers W&C and David Prickett Consulting, LLC to Ms. Patricia Bisacky of the Department of Public Health (CTDPH), the pipeline design has been modified in the area of the culvert to provide "additional protective measures." The modifications to the pipeline include changing to two 10-inch diameter HDPE SDR 11 pipes, sleeved within 18-inch diameter ductile iron pipes, with a valve vault at either end of the crossing (approximate Station 121+25 and Station 123+60). The downstream vault would be equipped with a float system to detect a pipe break. In the event of a pipe break or significant leakage, the float system would trigger an alarm signal back to the pump station control system, stop the pumps and alert the WLSD on-call staff.

During the design phase of the project, test borings were performed approximately every 100 ft along the proposed route of the main. A summary of the test boring information was provided to TWC's attorney Frederic Klein by email dated August 10, 2016. The summary consists primarily of location and depth to refusal or rock at each boring. Other relevant information typically included with boring logs (soil types, depth to observed groundwater, etc.), was not provided.

Additional information on the Project design was requested from Mr. James Mersfelder of the Woodridge Lake Sewer District through telephone and e-mail communications on July 21, 2016 and August 1, 2016. The information requested included boring logs, and details of the air release and cleanout manholes. WLSD provided a copy of their July 30, 2016 letter to CTDPH noted above. In an August 10, 2016 email to Chris Smith, an attorney for WLSD, the following additional information on the Project was requested by Mr. Klein on behalf of TWC:

- Boring logs – was depth to groundwater measured at any of the borings within the Torrington Water Co. watershed? If so please provide this information.
- Cleanout manholes – a detail similar to the detail shown on the plans for the air release manholes, showing what fittings, valves and piping are proposed. Additionally, a written description of proposed operation.
 - How often will they be used?
 - How long will the cleanout process take?
 - What equipment will be used during cleanouts?
 - Who would perform the cleanouts (Woodridge Lake, Torrington or a contractor)?
- Air release manholes – what valve is being specified (manufacturer, style and size)?
Are these two way valves?

- Facilities and piping within watershed – what is operating and maintenance plan for facilities?
How often will they be inspected?
Describe any SCADA/alarms proposed.
What qualifications (e.g., licenses, training, etc.) are required for persons performing operations and maintenance on the sewer main, force main, pumps, vaults, manholes, valves, cleanouts, air release valves, and any other equipment needed to operate and maintain the entire system?
- Pumps curves, including design point, if available.
- Sedimentation and erosion control plan for construction

As of the date of this letter report, the additional requested information has not been provided.

Torrington Water Company Operations

The TWC supplies drinking water to approximately 40,000 people in Torrington, Burlington, Harwinton, Litchfield and New Hartford. The current average daily demand supplied by TWC is about 3.5 million gallons per day (mgd), and this increases to about 5.2 mgd on the maximum demand day. Additionally, the TWC provides wholesale supply to the Aquarion Water Company's Litchfield system through an interconnection in Torrington. TWC is authorized to provide up to 400,000 gpd to Aquarion in accordance with a July 15, 2015 diversion permit (DIV-201401456) issued by the CTDEEP.

The TWC system is supplied entirely from four surface water reservoirs. The primary supply is drawn from the Reuben Hart and North Pond Reservoirs. Water from these reservoirs flows by gravity to the Filtration Plant for treatment, and treated water from the plant is pumped into the distribution system. During periods of drought or high demand, additional water is taken from the Allen Reservoir and Whist Reservoir. Water from the Whist Reservoir is released to the downstream Allen Reservoir through a pipeline. Water is then pumped from the Allen Reservoir to the Filtration Plant for treatment and distribution to customers.

As noted in TWC's Water Supply Plan updated and approved by the CTDPH in June 2013, the TWC surface water system has an approved safe yield of 5.3 mgd. The current margin of safety of supply over demand on an average day basis is 1.5.

Reservoir characteristics are shown on Table No. 1, below.

Table No. 1
TWC Surface Water Supplies

Reservoir Name	Surface Area (Acres)	Storage (MG)	Watershed Area (Acres)	CTDFEP Registered Diversion Capacity (mgd)
Allen Reservoir	2	3.5	1,907	3.5
Whist Reservoir	39	120	380	1.0
Reuben Hart Reservoir	122	704	2,042	4.5
North Pond	184	602	602	2.0
Totals	347	1,429.5	4,931	11.0

Potential Project Impacts on TWC

The Project will run along Route 4 crossing 4,550 lf of Allen Reservoir watershed. At its closest point, the Project will be within 470 lf of the reservoir. TWC is concerned about the potential for contamination of the Reservoir. During construction, there is potential for sediment from construction to travel to the reservoir, and also the possibility of spills of vehicle fuel and fluids entering the reservoir. Once the Project is in operation, concerns will center on sewage traveling to the reservoir. Sewage could escape the Project and travel to the reservoir through a pipe break; contractor damage to the pipe; pipe or joint leakage; leakage or a spill from the cleanout manholes; the air release manholes; or through valve vaults.

Connecticut does not allow waste receiving water sources to be used for potable water supply. In the event that sewage was observed by TWC to enter the reservoir, TWC would notify the CTDPH and would shut down any withdrawals from the source. It should be noted that without Allen Reservoir online, Whist Reservoir also cannot be used as a source.

Michael Hage of the CTDPH confirmed in an August 11, 2016 telephone conversation that CTDPH does not have any regulations or standard protocol for determining how long a source contaminated with sewage would be required to be removed from service. CTDPH would review information on a sewage spill on a case by case basis and would likely require testing to confirm the absence of sewage before allowing Allen Reservoir to resume operation.

TWC's safe yield and margin of safety would be decreased if the Allen Reservoir was put out of operation for any extended period of time. The safe yield included in the 2013 Water Supply Plan was estimated by Buck & Buck, Inc. and details of the computation were not included in the Water Supply Plan. However, based on our experience that safe yield is primarily a factor of watershed area, we estimate that the TWC safe yield would be reduced by about 40% if the Allen Reservoir and Whist Reservoir were removed from service. This would reduce the TWC margin of safety on an average daily basis to less than 1.0, below the CTDPH recommended margin of safety.

Construction Issues

Sediment from construction activities should not be of great concern provided a proper sediment and erosion control plan is developed, included with the plans and implemented during construction. Additionally, the design should include requirements for vehicle fueling outside of the watershed area, and requirements for spill reporting and cleanup.

Sewer Pipe Longevity and Failure

The proposed PVC C900 pipe may have leaks even when newly installed. The new pipe should be pressure tested immediately after installation to verify that it is functioning properly. The test pressure will vary based on the working pressure of the pipe, which has not been provided. Based on estimated working pressure, we estimate that the allowable leakage rate in the area of the TWC watershed will be between 1.5 and 2.5 gph.

Pipe will deteriorate once in service. The pipe will be stressed as a result of external loads (soil, frost, traffic) and internal loads (pressure). Additionally, the pipe will be subject to fatigue from repeat pump cycles alternately pulling and then relaxing the pipe. The action of stress and fatigue may cause failures in the pipe walls, bells or at the rubber gasket pipe joints.

We researched publicly available information on PVC C900 pipe longevity focusing on documentation from the Water Environment Federation (WEF). Although there are a number of research papers on asset management approaches to identifying renewal and rehabilitation needs, there does not appear to be much research on pipe longevity. Manufacturers typically claim a 100-year life span as a rule of thumb, and this was confirmed by a 2014 study by the Utah State University, provided however that the pipe is installed correctly and maintained during its service life.

One advantage of PVC C900 pipe is that the pipe will not be subject to corrosion. However, a disadvantage is the difficulty in locating PVC pipe once installed underground. Additionally, metallic pipe would be less susceptible to damage by other contractors that can be expected to work near the pipe in the future. Current pipe leak detection technology, which relies on acoustics, is much more effective with metallic pipe than with plastic pipe. If a leak does develop on the PVC C900 pipe, it may be difficult to locate and repair.

Available soils information for the area was reviewed on the University of Connecticut and CTDEEP websites, as information was not available from the Project soil borings. The soil in the TWC watershed area appears to be generally similar to a glacial till, with poor transmissivity characteristics. Slow volume pipe leaks generally would travel very slowly through such material, and may eventually surface. A rough estimate of travel time to the Allen Reservoir dam based on textbook soil transmissivity values was made and found to be in the range of 6 months to a year based on generally published soil data for the area. It is therefore likely that leakage from the Project would not be readily noticed in Allen Reservoir.

Other Potential Failure Points

Beyond the integrity of the pipe itself, the main will be exposed to a greater likelihood of leaks and breaks at weak points such as pipe joints, structural connections and valves (e.g., air release valves and clean out manholes). Unlike a leak, which is likely to be low volume, a break or valve failure would likely release larger quantities of sewage and could lead to sewage spills entering the Allen Reservoir.

In their August 2004 "Report to Congress: Impacts and Control of CSOs and SSOs", the United States Environmental Protection Agency (USEPA) defined sanitary sewer overflows (SSOs) as "any untreated or partially treated sewage release from a sanitary sewer system". The USEPA identified 33,213 SSO events reported in 25 states between 2001 and 2003, and estimated that these events released 2.7 billion gallons of sewage. Mechanical or power failures were reported responsible for 11 percent of the SSOs, and line breaks were estimated as being responsible for 10 percent of the SSOs.

CTDEEP does not currently maintain a publicly accessible database of SSOs, and all SSOs are likely not reported to CTDEEP. A limited database made available from CTDEEP to Mr. Klein identified several force main breaks in the last two years. A break in August 2014 released an estimated 4,125 gallons of sewage into Norwalk Harbor. In January 2015, a broken force main spilled an estimated 5,400 gallons, and in April 2015 a break in a force main released an estimated 9,000 gallons of sewage to a swamp in Plainfield. A much larger incident occurred in July 2016, when an estimated 7.5 million gallons of sewage were released to Fort Hill Brook in Groton. Additionally, it is our understanding based on discussions with TWC that the City of Torrington experienced a failure on a force main in December 2014. Pat Biscaky at CTDPH confirmed that CTDPH receives reports on sewage spills in public water supply towns. CTDPH's tracking is limited and DPH does not maintain a tracking spreadsheet or database. She noted a total of 16 incidents so far this year, and 26 in 2015.

There are two air release valve manholes located on the Project within the TWC watershed. The operation of the air release valves is unclear but it appears that a two way vacuum and air release type valve is intended. The valves would operate on each pump cycle to discharge air from the force main, and upon pump shut down to allow air into the pipe to facilitate gravity flow of

sewage on the downstream side of the air release valve. Air release valves can become clogged during operation. If the air release valves are clogged, and they may remain open during operation of the pumps, sewage would be released to the manhole and has the potential for flowing overland to the Allen Reservoir. It is recommended that the air release manholes be equipped with leak detection devices connected to SCADA to assure that operators at WLSD are alerted should this occur. In addition, the valves should be inspected on a regular basis to confirm operability and identify service needs.

No detail has been provided on the cleanout manholes. There are two cleanout manholes located on the Project within the TWC watershed. It is possible that valves or fittings in the manhole could fail and release sewage in a similar manner to the air release manholes. Leak detection devices should be provided in these facilities as well.

It is possible that a release from air release valve or clean out facilities, or a pipe break, could be of large volume, and not detected by WLSD operators at the pump station. Pressure gauges at the station would not "see" the effect of any loss downstream of the high point at the air release valve at Station 147+50. Although the 48-inch diameter culvert at Station 122+50 represents the largest conduit directly tributary to the TWC reservoir system, the proposed Project crosses seven additional storm drainage pipes within the TWC watershed area, and these likely discharge overland to the reservoir as well.

As previously noted, the modified Project design included in the July 31, 2016 letter from the WLSD consultants to the CTDPH referenced above in the vicinity of the 48-inch culvert at Station 122+40 includes a float alarm in the downstream chamber to detect pipe breaks. In the event of a break, the float system "would trigger a secondary alarm condition to stop the pump station pumps, and send alarms via our SCADA system to the Smart phones of the on-call staff." The letter states that the WLSD operations staff would have four to five hours to respond to an alarm. In their testimony at the August 4, 2016 hearing before the Town of Goshen Inland Wetlands Commission, the WLSD reportedly represented that the City of Torrington would operate and maintain the Project within the City. This is inconsistent with the information provided with the Inland Wetlands application and the July 31, 2016 letter to the CTDPH. The responsibility for starting and stopping pumps, and responsibility for responding to alarms, should be clarified and the operators must be qualified to deal with such an emergency. A sole source of responsibility for the Project staffed by qualified operators would reduce operational confusion and the potential for sewage releases at this critical facility.

Conclusions and Recommendations

The pipe in the TWC watershed will likely develop leaks at some time in the pipe lifespan, however the travel time to the reservoir is likely lengthy and the volumes involved would be small compared to the reservoir volume. A pipe break, either due to external pressures, fatigue,

lack of proper maintenance, or contractor damage could potentially release thousands of gallons of sewage to the reservoir through storm drain piping in the area. A failure of the air release or clean out valves could similarly result in a large volume of sewage entering the reservoir. Loss of the Allen Reservoir for a prolonged period could impact the ability of TWC to supply its customers.

Additional data and studies would be needed to more fully assess the risk to the TWC. Information from the WLSD borings including groundwater level and soil characterization, and details on the air release, cleanout and other facilities would be helpful.

Based on the potential risk to the TWC public water supply, we support the recommendation of Lori Mathieu, Public Health Section Chief, Drinking Water Section of the CTDPH in her August 15, 2016 letter from to the Torrington Inland Wetlands Commission, requesting that the "feasible and prudent alternatives that do not impact a public drinking water supply source water area should be reconsidered" and that "WLSD be required to conduct a detailed environmental and public health review of all of the alternatives for locating public sewer lines, including those outside of the public water supply watershed. The review should include the impacts of future development that may be induced by the introduction of sewer infrastructure."

If the Project is allowed to proceed along the current route, in order to better protect the watershed it is recommended that as a condition of approval the WLSD incorporate the following into the Project design:

- Sedimentation and Erosion Control Plan
- Spill Protection Plan
- Vehicle Fueling Plan
- Installation of leak detection equipment at air release valve and cleanout manholes
- Installation of monitoring wells within the TWC watershed
- Vacuum test proposed manholes within the TWC watershed to assure water tightness
- Provision for full-time resident observation of the construction
- Maintain a supply of spare air release valves, for each applicable size, for quick replacement should a system valve fail
- Install pipeline location tape for all sections of plastic force main
- Clarification of operational and control responsibilities for City of Torrington and WLSD staff
- Develop and implement operation and maintenance plan that includes regular inspections of the pipeline and appurtenances and emergency contact procedures between WLSD and TWC staff
- Provide the TWC with record plans of all pipelines and appurtenances within their watershed protection area

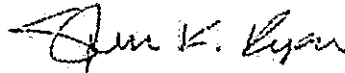
Ms. Susan M. Suhanovsky
Torrington Water Company

August 16, 2016
Page 10 of 10

We appreciate the opportunity to assist you on this important project. Should you have any questions, please do not hesitate to contact us.

Sincerely,

TATA & HOWARD, INC.



Stephen K. Rupar, P.E.
Vice President