

# Issue Analysis Form

**Date:** November 10, 2020

**Item:** Middle Road Water Tank – School Site Plan

**Lead Department:** Engineering & Utilities

**Contact Persons:** Frank Haltom, Director



## Description and Current Status

Plans for the new elementary school on Middle Road were reviewed by the Engineering & Utilities department. The review resulted in concerns that may require considerable revisions to the school layout. These concerns include the proximity of the school to the water tank and access to the tank site. Prior to acting on those concerns, a reputable tank maintenance contractor, Suez, was consulted to understand the potential cost implications to the Utility should the layout remain as presented. Suez's response indicates the layout requires alternative measures that create additional costs to the utility. Therefore, the comments provided during the site plan review must be addressed to ensure there are no additional costs to the utility to maintain the tank.

Maintenance activities occur each week, and often daily, that require unrestricted access to the tank site. The school layout requires access through the school grounds to access the tank site. This is not an acceptable layout as it would hinder the ability of the Utility to maintain their critical asset. Unrestricted access off school grounds must be provided.

Based on the additional costs identified by Suez, these costs could result in higher rates to the utility customers. Therefore, prior to any approval of the current layout, it is requested to gain support of the Board to potentially raise the rates of utility customers to accommodate the current layout.

The site plan comments provided to the schools, and the questions presented to Suez with their responses are included as an attachment.

## The Government Path

**Does this require IDA action?**  Yes  No

**Does this require BZA action?**  Yes  No

**Does this require Planning Commission action?**  Yes  No

**Does this require Board of Supervisors action?**  Yes  No

### Board Action Requested:

Options to consider:

1. An agreement between the School Board and the County BOS to require the schools to pay the additional costs of maintenance and repairs to the tank due to the vicinity of the building and parking lot; and due to inaccessibility to the tank site. Agreement must consider possible damages to the school or school grounds during maintenance and repair activities.
2. BOS acknowledges the additional costs to the future Utilities budget and will address with future rate increase.

3. Require schools design team to revise the layout of the school to avoid additional costs to the utility.

### **Fiscal Impact Statement**

Approval of the school plans as currently presented will impact future utility rates or future school budgets.

### **Prince George County Impact**

Should revising the layout be required, the schools may need to revise the current schedule to open in 2022 and could incur additional consulting fees.

### **Notes**

None.



## ***County of Prince George, Virginia***

*"A global community where families thrive and businesses prosper"*

### **Memorandum**

**To:** Horace Wade, Planner  
Missy G. Smith, Planner

**From:** Frank Haltom, Director of Engineering & Utilities

**Date:** September 7, 2020

**Subject:** **SP-20-13 New Elementary School**

The Engineering and Utility Department has reviewed the aforementioned site plan and offer the following:

1. As explained on the pre-submittal conference call, in order to properly maintain the water tank and public facilities, a 2-acre parcel is required with the tank centered on the parcel.
2. The water tank requires unrestricted access for maintenance and repairs. The access road and tank parcel must be capable of supporting large equipment to include cranes and dump trucks. It is recommended to provide a separate gravel path from the public road to the tank to avoid pavement failures. Utilities will not be responsible for damages to pavement.
3. The public water and sewer lines must be relocated around the school facilities to provide unrestricted access for maintenance and repairs.
4. Provide protection of the existing water and sewer lines during clearing and grading activities to prevent damage by heavy equipment with reduced cover over the pipes.
5. Add a note to provide 72-hour notification to the Utility department prior to any work on the County's water and sewer lines. Add note to indicate all public utility improvements must be inspected by the County prior to backfilling.
6. Provide the Prince George water and sewer utility contact information on the cover sheet: Frank Haltom, (804) 722-8706.
7. Plans indicate the removal of power lines and lights that are used to illuminate the tank. Provide an acceptable alternative to illuminate the tank.
8. Provide force main sizing calculations to indicate cleansing velocity of 2.5 fps is achieved in the public force main. This public force main is essentially a manifold system with 2 additional connections. Calculations need to consider all connections to ensure force main has the capacity

to handle the additional demand and meet cleansing velocity when other connections are not in use.

9. Provide calculations for the sizing of the pump station.
10. Provide 16' wide, or greater, Utility Easements to be recorded for all public utility lines.
11. Specify on the plan the type of domestic meter to be used. The high normal flow for a 2" positive displacement meter is 80 gpm. To accommodate the demand of 147 gpm, a larger meter or turbine meter must be used.
12. Only one connection to the public water main is permitted. The domestic connection should be on the fire line prior to the detector check assembly. Looping back to the public line will not be permitted.
13. A 2" line is indicated for the domestic service prior to the meter with a 4" service line beyond the meter. This could cause a significant pressure drop after the meter.
14. Provide details of the grease interceptor and associated sizing calculations on these plans.
15. Provide the appropriate pressure service connection per county standard detail for private connections to a public force main. Detail should be modified to address the size of the private line.
16. Provide a note at the pressure service connection: "End of County Utility Maintenance."
17. Add a note on the plans "As-built plans must be provided for all Public Utility improvements prior to acceptance into the County system. As-builts shall be provided in the latest AutoCAD version supported by the County."
18. The detector check assembly vault should be located a minimum of 40' from the building to accommodate the use of the FDC.
19. Provide a cross section of the private 1-1/2" water line and the public water main and force main should it still cross when relocated around the school facilities.
20. All crossings of the water main shall provide for 18" minimum clearance.
21. Sheet P1.0 – Show location of the sewer pressure connection on the force main in the plan and profile views. The sewer pressure connection should be located within 5' of the connection to the public force main.
22. Sheet P1.0 - Plans indicate the pump station will be located within an enclosure. Please provide details of the enclosure.
23. Sheet R6.00 – Storm structure 6-2 is located on top of the water line. Relocate this structure or relocate the water line around it using the appropriate bends.
24. Landscape Plans - please note no small trees or shrubs shall be permitted within 5 feet of any public water and sewer line. Large trees shall be planted such that the drip line is a minimum of 5 feet from any public water or sewer line.

Questions provided to Suez to determine impacts of the school layout on tank maintenance.

1. In general, what would you consider to be the minimum cleared area around a tank necessary to allow for tank maintenance? What is the recommended cleared area for ease (no additional cost) of maintenance?
2. Would alternative methods be necessary to maintain the tank should the school layout be approved as shown?
3. Please provide a ballpark estimate of the additional cost to use the alternative methods compared to methods used with the minimum/recommended cleared area.
4. Is there a safety radius around the tank that should be considered to perform maintenance?
5. Is there any other risk that would need to be mitigated due to the layout shown?
6. Please confirm the painting/repairs of the tank would not require any special considerations with the location of the school facilities as shown.

In response to the six questions above, Suez provided the following “Discussion Notes” These were presented to the school design team and their responses are provided in red.

#### Discussion Notes:

- Parking lots adjacent to the tank will add 10% to overall maintenance costs. Can the parking lot be empty during work?  
The school division is committed to working with you to be sure that the parking lot is empty when work is necessary. I understand the 10% increase in cost is due to repairs of the parking lot, not due to vehicles within the parking lot.
- Will work time and days be restricted to Summer months due to school? If so then how will this impact high water demand periods?  
While planned maintenance will be best scheduled during the summer months, the school division is committed to providing you with full access to address the needs of the community. Most maintenance activities are scheduled during months of low water usage to reduce the risk of customers being without fire protection or water service. The low usage months are during the winter and fall.
- Containment will potentially be required for overcoat and abrasive blasting painting due to the school. Expected cost of \$150,000 per occurrence.  
It is our understanding that there are plans to paint the water tower in January 2021, prior to the building of the school. In the years to come, the school division understands that additional measures may be necessary during the painting process due to the close proximity of the school. The school division is willing to fund these additional costs. The painting to occur in 2021 is for the interior of the tank. The exterior painting would occur in the next 2-4 years.
- Will access be limited during school construction?  
No, your access will not be limited. This can be included in contractual documents for the general contractor to ensure access.
- Heavy equipment will damage the parking lot. Crane use could be limited. Pavement will be designed for heavy equipment access similar to that on Middle Road. Heavy pavement may not be the answer. Pavement failures occur when the cranes are under load, not while traveling. The use

of cranes to perform maintenance is seldom. However, when they are used it is preferred to not have them on pavement.

- The playground is 100 yards from the tank which could be a concern depending on when the tank is renovated.  
**Playground restrictions can be implemented during tank renovations if containment alone is not enough to ensure a safe environment for the students.**
- The site is expected to extend project times from 6 weeks by 40% due to site restrictions and obstacles. **The school division understands that maintenance projects are expected to take longer and will accommodate your needs.** Any extend times for projects activities will increase the risk of customers being without fire protection or water service.