



Planning & Development
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Date: December 17, 2021 Updated 1-20-22 Updated 3-16-22

To: Planning Board

From: Mike Livingston, Town Planner/Engineer

Re: Grand Trail Place III – Fire Pond Review

Background:

The existing fire pond/stormwater pond for the previously approved Grand Trail Place II Subdivision is being proposed to also satisfy the on-site fire protection requirement for Phase III of the development. The pond was identified as having capacity issues during the drought of 2020. A water supply well was installed as a solution to the pond capacity issue in 2020. As part of the Phase III subdivision review, a 3rd party consultant, Steve Harding, PE of Sebago Technics, Inc was engaged by the Town to evaluate the pond and prepare a report. The report was completed October 2021 after 5 weeks of monitoring the pond and evaluating the construction reports and as-built information of the pond.

Concerns have remained on the ability of the pond to maintain a sufficient water level and volume to satisfy on-site fire protection needs.

The design engineer, Walter Pelkey, PE of BH2M has investigated the elevation of the clay liner and pond elevations and prepared a supplemental evaluation of the pond water level and fire protection capacity. The existing pond with a lowered hydrant intake, gauge pole to be installed, and existing well water supply is proposed as the on-site fire protection method.

[Additional information provided dated January 12, 2022.](#)

[Additional plan provided March 7, 2022](#)

Proposal:

The hydrant intake invert elevation is to be lower to elevation 154.0. The resulting volume of water for fire protection is 40,078 gallons using the bottom elevation of the bench underdrain as the low water elevation of the pond, 158.37.

[Proposal remains the same. Additional information provided on pond volume at various elevations and estimated well "on" time to fill the pond at corresponding elevations. Well specifications provided with comparison of maximum pump rate of 10 gpm versus well production supply of 14 gpm.](#)

[Pond volumes remain greater than 30,000.](#)

Considerations:

- The minimum water volume of 30,000 gallons is based on excluding the top 2 feet as possible ice. During drought conditions, no ice will be present, therefore additional water volume will be available during those periods.
- The gauge pole should be marked at elevations which will prevent the pond water level from dropping a significant amount so the supply well can keep up with acceptable water level/volume requirements. For example, green from 160.0 to 159.0, yellow from 159.0 to 158.5, red from 158.5 to 157.0. The well to be turned on when red is first visible. A new gauge pole detail was provided with a proposed winter elevation and a summer elevation. This is not recommended. One elevation (winter) needs to be used year-round to simplify and retain the largest volume with the least length of well use to refill. Based on well refill periods/time, possibly green from the top of the pole to 158.3, yellow from 158.3 to 158.0 and red below 158.0. Fill levels on gauge pole, notes on Sht. 8
- A schedule for the well to be “on” established to preserve the well and water supply capacity. For example, 8 hours on, 2 hours off, repeat until pole is at green. A table of estimated pump on periods was provided. A manual for the operation of the well and pond is needed for the HOA’s management of the pond. It appears that approximately 12 hours of pump on time is needed for each inch (0.08 tenths) of pond depth. A fill time to go from elevation 158.0 to 158.3 would take approximately 45 hours. Fill levels on gauge pole, notes on Sht. 8, Pump “on” maximum to be noted, O&M Manual needed and referenced or added to Sht. 8. Should some type of automated timer/shut-off be added to the controls?
- A detailed plan for lowering the intake pipe and refilling the pond is needed. For example, time of year - spring, pump on and off schedule, deadline to fill to a specified elevation, trucking in of water if needed, finish filling in fall prior to ice conditions. A written plan was provided. A drawing/construction plan of the intake lowering will be needed. The work needs to be required to be done during spring. A total of 18.33 days or 440 hours of pump on time is estimated to fill the pond from 154.0 to 158.3. A schedule is needed with a possible deadline to reach 156.2 (10.99 days, 264 hours) and then to reach 158.3. It may also be required to truck in water if there is a dry spring period. The well should not be allowed to run for extended periods of time in order to minimize wear and tear on the pump and possible impacts to abutting wells. Fill levels on gauge pole, Sht. 8 depicts intake lowering and described in notes on Sht. 8, Pump “on” maximum to be noted, O&M Manual needed and referenced or added to Sht. 8. Should some type of automated timer/shut-off be added to the controls?

The Planning Board to consider the applicant’s additional information and proposal and provide direction on the existing pond’s ability to satisfy on-site fire protection.

- Additional questions have been submitted from a Grand Trail lot owner
- The HOA has requested another public hearing to be held with the design engineer, Town’s 3rd party engineer and Fire Chief To be determined

The Planning Board to consider the following:

- Does it appear that the proposal to lower the intake and rely on the supply well to maintain the pond volume is reasonable to meet the requirement of providing sufficient on-site fire protection? At the last workshop, it appeared there was a consensus that the volume could be re-established after the intake was modified and be maintained, but there was a concern on the draw limitations of the existing hydrant and that lowering the intake would make the condition worse. It was recommended to shorten the length of pipe to hydrant and reduce the vertical elevation between the hydrant and intake.
- Is another public hearing warranted to present the updated information and receive public comment? To be determined
- Is more information needed prior to scheduling another public hearing or determining if the proposal is feasible? To be determined

See Sht. 8 markups to be considered:

- Adjust grading for 1 foot shoulder
- Fire Lane signage
- Labelling: Hydrant, bollards, existing contour 153
- Add Gauge detail and approximate location in pond
- Regular operation and maintenance Notes to be added
- Existing transformer, UGE and water fill pipe to be added