February 26, 2021

Ref: 14849.00

Ms. Michele McEachern
43D Permitting Coordinator
Town of Lakeville
346 Bedford Street
Lakeville, MA 02347

Re: Peer Review Letter – Wetlands, Grading, Stormwater, Erosion Control, Septic & Utilities
Lakeville Hospital Property Development, Lakeville, Massachusetts

Dear Ms. McEachern,

On behalf of Rhino Capital Advisors LLC, (the "Applicant"), VHB is pleased to provide the following responses to the comments/questions raised in the peer review letter prepared by Environmental Partners dated February 12, 2021 regarding the proposed Lakeville Hospital Redevelopment (the "Project").

For ease of reference, VHB has provided a copy of each comment in italics followed by our response in plain text. VHB will submit to the Town revised Site Plans and Stormwater Management Report during the week of March 1, 2021, prior to the public hearing scheduled for this project on March 4, 2021, reflecting various adjustment noted herein ("March 2021 Revised Site Plans" and "March 2021 Revised Stormwater Management Report"). Attachments to this letter include:

- Third-party report of the BaySaver Barracuda S4 Separator prepared by Boggs Environmental Consultants dated April 8, 2019;
- Signed Illicit Discharge Statement;
- Form 11 – Soil Suitability Assessment for On-Site Sewage Disposal documenting the Frimpter Adjustment Calculations for the Project; and,
- Hydrant Flow Test Results dated September 23, 2020.

Wetlands

1. *Typically wetland restoration areas include a planting plan detailing proposed plants to be included in the wetlands replication area. We recommend the applicant submit a planting plan for the wetlands replication area.*

   Response: The March 2021 Revised Site Plans will include a planting plan for the wetlands replication area.

Grading

1. *The project shows extensive grading on abutting properties associated with the north access driveway and infiltration basin 2. The offsite grading is proposed to accommodate a significant earth cut along the driveway that in some areas is approximately 8-10 feet. The grading plan shows a significantly wide flat shoulder adjacent to the driveway. We recommend the slope adjacent to the road begin within the driveway shoulder which would result in less 'off-site' grading. Near infiltration basin 2, there is a moderate grade on the applicants property which transitions to a steep slope offsite. We recommend that the slope on-site be steepened which would require less off-site grading and the applicant make every effort to minimize off-site grading.*

   Response: The proposed grades at the north access driveway have been coordinated with two proposed developments on either side (one currently under construction and the other will be submitted to the Town for local approvals imminently). This coordination was initiated by the abutting developer and will allow for a final condition of smooth transitions between the three developments, rather than steep slopes at the property lines.

2. *The applicant should provide documentation that an offsite grading easement will be allowed by the abutters. In the event that the abutting property owner does not allow the temporary grading easement, the site grading in this area will need to be modified and may require retaining walls. If retaining walls are required, they will need to be shown on the plans and construction details for the retaining walls provided.*

   Response: The offsite grading is shown in coordination with the abutting property owner, at their request. Both of the two abutting properties in this location, including the property currently under construction to the south and the property which will be submitted to the Town imminently for local approvals, are proposing to significantly lower proposed grades in this area (by about 10'), due to their proximity to Main Street. Documentation is currently being prepared by the Applicant and the abutters to allow the off-grading and will be submitted to the Town for their records. In the event the abutting property owners do not consent to the grading easements, the driveway proposed by the Applicant will be raised to be at an elevation closer to existing grade, which does not require grading off of the property, as shown on the Site Plans submitted to the Town for this Project on October 28, 2020.

3. *A drainage swale was added to the plans between the proposed berm and the abutting properties located to the west along Rush Pond Road. We agree with the incorporation of the swale to eliminate any stormwater generated by the berm from flowing onto abutting properties. The swale is graphical in nature and the grading of the swale needs to be further developed. We also recommend a swale detail be provided on the plans.*

Response: The March 2021 Revised Site Plans will include a construction detail of the proposed swale along the western limits of the Property. As part of the construction documents prepared for the project, additional information will be added to the site plans to note swale widths and depths throughout.

Massachusetts Stormwater Management Standards

1. *Standard 1 – The project complies with this requirement. There are no direct discharges to wetlands as the proposed design infiltrates the majority of stormwater generated and collected by the project.*

   Response: No response necessary.

2. *Standard 2 – The project, as currently designed, complies with this requirement. The current design does not increase offsite peak flows at any of the design points analyzed as part of the stormwater model.*

   Response: No response necessary.

3. *Standard 3 – The project – as designed - provides groundwater recharge in excess of the amount required by the Standard. However, we do have questions regarding the infiltration rate used in Infiltration Basin 2. Two test holes were performed in this basin. Test hole SB2-TP1shows loamy sand and test hole SB2-TP2 shows sand. The applicant has used an infiltration of 8.27 in/hour in the calculations, which reflects the infiltration rate for sand. Standard practice is to use the infiltration rate for the more restrictive soil type, which would be loamy sand. The infiltration rate for loamy sand is 2.41 inches/hour. Using the infiltration rate for loamy sand in the stormwater model may affect the functionality of this basin. We recommend the applicant provide justification for using the infiltration rate for sand and consider using the infiltration rate for loamy sand. Please see general comments below regarding additional items pertaining to the infiltration rate.*

   Response: The March 2021 Revised Stormwater Management Report will reflect the revised modeling of Infiltration Basin 2 assuming infiltration rate for loamy sand of 2.41 inches/hour.

4. *Standard 4 – The project design provides adequate Total Suspended Solids removal, consistent with the Standards. We request additional information regarding the TSS removal rate for the proposed Barracuda water quality unit.*

   Response: Third-party report prepared by Boggs Environmental Consultants is attached hereto documenting the BaySaver Barracuda S4 removes suspended solids from stormwater runoff, with an average efficiency of 80% at a Maximum Treatment Flow Rate of approximately 1.08 cubic feet per second.

5. *Standard 5 – The project is considered a Land Use with Higher Potential Pollutant Loads due to the proposed use. The project provides adequate treatment to meet the performance standards for this type of use.*

   Response: No response necessary.

6. *Standard 6 – The project discharges to a vernal pool. Therefore, Standard 6 regarding critical areas applies. The project uses appropriate Stormwater Best Management practices to meet the requirements of Standard 6.*

   Response: No response necessary.

7. *Standard 7 – The project is a mix of new development and redevelopment. However, the project has approached the stormwater design as if this is a new development and meets the performance standards for a new development project. We agree with this approach.*

   Response: No response necessary.

8. Standard 8 – An erosion and sedimentation control plan has been provided and generally complies with the Standards. We do have the following comments regarding erosion and sedimentation.

   a. *A Stormwater Pollution Prevention Plan required by the United States Environmental Protection Agency's National Pollutant Discharge Elimination System (NPDES) Construction General Permit was not provided. This document, which is sometimes submitted as part of a Notice of Intent application, is required to be prepared two weeks prior to construction. We recommend this document be submitted to the Town of Lakeville a minimum of two weeks prior to the start of construction for review and comment.*

      Response: As requested by the Conservation Commission, the Applicant will be submitting a draft proposed list of conditions to be attached to the Order of Conditions issued for this Project. Included in this list of proposed conditions will be a condition to the effect of "At least two weeks prior to the start of construction, the Applicant shall submit to the Town of Lakeville the Stormwater Pollution Prevention Plan (SWPPP) prepared for the Project as required by the United States Environmental Protection Agency's National Pollutant Discharge Elimination System (NPDES) Construction General Permit."

   b. *We recommend that copies of all SWPPP inspection reports be submitted to the Town or Lakeville.*

      Response: As requested by the Conservation Commission, the Applicant will be submitting a draft proposed list of conditions to be attached to the Order of Conditions issued for this Project. Included in this list of proposed conditions will be a condition to the effect of "All SWPPP Inspection Reports shall be submitted to the Town of Lakeville."

   c. *We recommend the Construction Period Pollution Prevention and Erosion and Sedimentation Controls document include information regarding protecting the bottom of all infiltration facilities during construction to prevent compaction. The bottom of all infiltration facilities should be protected from heavy machinery. In the event that heavy*

machinery is allowed on the bottom of the infiltration basins, the basins ability to infiltrate water could be impacted.

Response: The Erosion and Sedimentation Control Plan (Sheet C5.00) includes notes to protect infiltration areas during construction. These notes will also be added to the Construction Period Pollution Prevention and Erosion and Sedimentation Controls document included in the March 2021 Revised Stormwater Management Report to protect the bottom of all infiltration facilities, including protection from heavy machinery. The notes read as follows:

For the long-term function of the infiltration basins, care shall be taken in the areas of the infiltration basins during construction in accordance with the following:

- The infiltration basins shall not be used as a construction sedimentation basin without the prior approval of the engineer.
- Stormwater runoff from exposed surfaces shall be directed away from the infiltration basins.
- Construction equipment, vehicular traffic, parking of vehicles, and stockpiling of construction materials shall be outside of the infiltration basin areas.
- Excavation for construction of the infiltration system shall ensure that the soil at the bottom of the excavation is not compacted or smeared.
- The perimeter of the infiltration basins shall be staked and flagged to prevent the use of the area for activities that might damage the infiltration ability of the system.
- If infiltrations areas are used as temporary sedimentation basins during construction, then the soils shall be excavated a minimum of 2' from the temporary basin bottom to remove clogged soils.

d. *We also recommend the Construction Period Pollution Prevention and Erosion and Sedimentation Controls document include a section regarding the maintenance of the construction exit.*

Response: The Construction Period Pollution Prevention and Erosion and Sedimentation Controls document included in the March 2021 Revised Stormwater Management Report will include a section regarding the maintenance of the construction exit.

e. *We recommend the Erosion and Sedimentation Control Plan be revised for consistency with the most current grading plan. Specifically, the area near the southern entrance needs to be modified to show erosion and sedimentation controls consistent with the limit of grading. There may be additional areas that require coordination as well.*

Response: The Erosion and Sedimentation Control Plan included in the March 2021 Revised Site Plans will be revised for consistency with the most current grading plan, specifically the area near the southern entrance. In accordance with the

comments submitted by the Landscape Architect Peer Reviewer, erosion and sedimentation controls are now shown on the Grading and Drainage Plans, to help ensure consistency.

9. *Standard 9 – A long Term Operations and Maintenance Plan has been submitted. We recommend that the Operations and Maintenance plan be revised to include operations and maintenance of the gravel wetland. We also recommend that it include language prohibiting the dumping of snow in any stormwater management facilities. We recommend that Operations and Maintenance Reports be submitted to the town annually.*

Response: The Long Term Operations and Maintenance Plan to be submitted with the March 2021 Revised Stormwater Management Report will be revised to include operations and maintenance of the gravel wetland as well as language prohibiting the dumping of snow in any stormwater management facilities. As requested by the Conservation Commission, the Applicant will be submitting a draft proposed list of conditions to be attached to the Order of Conditions issued for this Project. Included in this list of proposed conditions will be a condition to the effect of "the Applicant shall submit annual Operations and Maintenance Reports to the Town Conservation Commission annually." The operations and maintenance of the gravel wetland are shown in the Long Term Operations and Maintenance Plan as follows:

Snow Management (Section 3)

- Under no circumstances shall snow be disposed or stored in stormwater basins, gravel wetlands, or swales.

Gravel Wetlands (Section 4)

- Gravel Wetland shall be visually inspected for a period of one year following installation, to ensure proper function and that vegetation is healthy and developing.
- Inlet and outlet areas should be checked for scouring or other erosion and the sediment forebay and treatment cells should be checked for excessive sedimentation.
- Confirm that the drawdown time of the gravel wetland treatment cells is less than 72 hours.
- Inspect the treatment cells at a minimum one time per year for sediment build up, erosion and vegetable conditions. Any sediment build up interfering with plant growth shall be removed and the vegetation restored immediately.
- Inspect the gravel wetlands every year for invasive species (Phragmites, Purple Loosestrife). Any invasive species should be removed immediately.
- Inspect outlet control structures every year for erosion build up and clogging. Any sediment or blockage should be removed.

- Test the pH levels of the soils within the gravel wetland bottoms at a minimum of one time per year. If the pH is below 5.2, limestone should be applied to increase it; if the pH is above 8.0, iron sulfate and sulfur should be added to reduce it.
- Plant growth within the gravel wetland should be cut back at the end of every growing season. Cuttings must be removed and properly disposed of. Gravel wetlands should not be mowed at any time.
- The use of fertilizers shall be avoided in the gravel wetlands as excessive nutrients may be discharged to adjacent surface waters.

10. *Standard 10 – A signed illicit discharge statement needs to be signed and submitted.*

Response: A signed illicit discharge statement is attached hereto and will be included in the March 2021 Revised Stormwater Management Report.

Additional Stormwater Management Comments

1. *Portions of the site discharge to the MassDOT drainage system. MassDOT policy is to eliminate all off-site connections to their drainage systems. The applicant should provide an update regarding whether these connections will be allowed by MassDOT.*

Response: The Applicant understands that MassDOT's policy is to eliminate all off-site connection to their drainage systems. The Applicant has gone to considerable lengths to eliminate nearly all of the drainage discharge from the Site into MassDOT's system. As outlined on pages 4 and 5 of the Stormwater Management Report, all stormwater discharges from the northerly curb cut serving the Project have been eliminated. Regarding the southerly curb cut, nearly all of the existing stormwater discharges have been eliminated, except for runoff from the final 155-linear feet (totaling 0.1 acres) will be collected, treated by a water quality unit and then discharged to an existing on-Site catch basin which discharges to MassDOT's system. This corner of the Site is too low to drain back into the gravel wetland proposed on Site. The Applicant will work through this drainage connection exception with MassDOT as part of the MassDOT Access Permit process.

2. *The stormwater system pipes are sized using the 10-year storm. Although the proposed project is a private site development and not a definitive subdivision, we note that The Town of Lakeville Rules and Regulations of the Planning Board require pipes be sized for the 25 year storm.*

Response: Acknowledged. VHB notes that the pipe sizing requirement for subdivisions is intended to reduce the risk for stormwater runoff ponding on public roadways and encroaching into the vehicular path of travel. The Project proposes private development with no internal roadways, only driveways, parking lots and loading areas, all where

vehicular speeds will be very low. Furthermore, the Site and its stormwater management system have been designed to provide overland relief in all locations, to ensure that if, in the unlikely event of a blockage of the stormwater management system, stormwater will flow overland away from the site and will not back up into the building.

3. *A mounding analysis was included in the Stormwater Report. It is unclear what infiltration basin this mounding analysis was prepared for.*

Response: The mounding analysis was prepared for Infiltration Basin 1, because the basin provides peak rate attenuation in the 10-year storm and provides less than 4' (but at least 2') separation from estimated seasonal high groundwater. The March 2021 Revised Stormwater Management Report will clarify that the provided mounding analysis is provided for Infiltration Basin 1.

4. *Infiltration Basin 1 is proposed to be constructed in the area of the existing Solid Waste Disposal Area. The plans call for removing all materials associated with the SWDA, as well as any peat or clay soils until natural earth is observed. The plans call for this material to be replaced with sand suitable for infiltration. In general, we are comfortable with this approach. We recommend the applicant provide a specification for the sand and the excavation of all unsuitable material are verified by an on-site observation. The plans suggest removal of material to elevation 72, which is over ten feet below existing grade.*

Response: The removal of the SWDA will be observed by a Licensed Site Professional in accordance with MassDEP requirements. VHB will add a note to the Site Plans indicating that the Civil or Geotechnical Engineer for the Project must observe the over-excavation to confirm natural soils have been achieved. Specifications for sand material will be included in the Project Specifications and are as follows:

SAND

On Site Disposal System Leaching Area, Sand Fill Material shall consist of clean, inert, hard, durable grains of quartz or other hard, durable rock, free from loam or clay, surface coatings and deleterious materials.

A. A sieve analysis, using a No. 4 sieve, shall be performed on a representative sample of the fill. Up to 45% by weight of the fill sample may be retained on the No. 4 sieve. Sieve analyses also shall be performed on the fraction of the fill sample passing the No. 4 sieve, such analyses must demonstrate that the material meets the following gradation:

Sieve ASTM D422	Effective Particle Size	Percent Passing by Weight
No. 4	4.75 mm	100
No. 50	0.30 mm	10 - 100

No. 100	0.15 mm	0 - 20
No. 200	0.075 mm	0 - 5

B. The allowable amount of material passing a No. 200 sieve as determined by AASHTO - T11 or ASTM D422 shall not exceed 5 percent by weight.

5. *We recommend that stone for pipe ends, consistent with MassDOT specifications, be installed at all rip-rap pads.*

Response: Materials for stone for pipe ends at all rip rap pads will be specified in the Project Specifications as follows: "Stone for pipe ends and energy dissipaters shall be sound, durable rock, angular in shape. Rounded stones, boulders, sandstone, or similar stone or relatively thin slabs will not be acceptable. The majority of the larger stones shall weigh not less than 50 pounds nor be less than 1.4 ft. long, 0.5 ft. wide, and 0.5 ft. in height. Each larger stone shall weigh not more than 125 pounds nor be more than 2.0 ft. long, 0.8 ft. wide, and 0.8 ft. in height and at least 50 percent of the larger stone volume shall consist of stones weighing not less than 75 pounds nor be less than 1.6 ft. long, 0.6 ft. wide, and 0.6 ft. height. The remainder of the stones shall be so graded that when placed with the larger stones the entire mass will be compact."

6. *We recommend the applicant confirm the size of the pipe that runs under Main Street. The survey, although missing some labels, seems to indicate the pipe is a 12" inch pipe. The HydroCADD existing conditions model includes an 18" pipe. The proposed condition HydroCADD model shows this pipe as a 12".*

Response: The pipe that runs under Main Street is a 12" pipe. There is also an 18" pipe on our site upstream of the 12" pipe. Our selected design point is the manhole on our property in-between the on-Site 18" pipe and the 12" that runs under Main Street. Therefore, the existing and proposed HydroCAD models include the existing on-Site 18" prior to the design point. The design point node has been renamed accordingly.

7. *The boundary between proposed subcatchment areas 5B and 6 appear inconsistent with the grading shown on the plans. We recommend the applicant adjust the plan and – more importantly – the HydroCADD model if needed.*

Response: The proposed drainage figure and proposed HydroCAD model have been revised to be consistent with the proposed grading.

8. *The boundary of proposed subcatchment area 4 appears to be drawn incorrectly. The grading plan shows the slope on the southern side of the driveway draining into the driveway. However, the*

drainage area plan shows this slope draining away from the driveway. We recommend the applicant adjust the plan and – more importantly – the HydroCADD model if needed.

Response: The boundary of proposed subcatchment area 4 has been corrected to reflect the off-grading sloping towards the driveway. The proposed drainage figure and proposed HydroCAD model have been revised accordingly.

9. *We recommend the side slopes for the gravel wetland be a maximum of 3:1 consistent with the University of New Hampshire Standard Specifications for a Gravel Wetland. The detail shows 2:1 side slopes.*

   Response: The gravel wetland as shown on the Grading and Drainage Plans is shown with 3:1 slopes. The detail indicates it could be graded up to 2:1 maximum, however in accordance with this comment, the detail will be revised on the March 2021 Revised Site Plans to show 3:1 slopes as the gravel wetland.

10. *We recommend the gravel layer in the gravel wetland be 24" and ¾" stone be used, consistent with the University of New Hampshire Standard Specifications for a Gravel Wetland.*

    Response: The detail has been revised accordingly and the change will be reflected in the March 2021 Revised Site Plans.

11. *We recommend the gravel wetland detail provide specs on the permeability of the soil beneath the crushed stone layer.*

    Response: The detail has been revised accordingly to note a permeability of 1 x 10-5 cm/s for the soil beneath the crushed stone layer. This change will be reflected in the March 2021 Revised Site Plans.

12. *We recommend additional information on the outlet control structure for the gravel wetland be provided.*

    Response: The outlet control structure for the gravel wetland has been revised to include a weir. An "Outlet Control Structure" detail has been added to the March 2021 Revised Site Plans. Furthermore, the proposed HydroCAD model has been revised to reflect the proposed outlet control structure and this change will be reflected in the March 2021 Revised Stormwater Management Report.

13. *We recommend the applicant revise the grading plan to clearly the show top of berm elevation around the gravel wetland and the overflow elevation.*

Response: The March 2021 Revised Site Plans will revise the note to legibly label the overflow elevation of the gravel wetland.

14. *Infiltration basin 1 shows estimated seasonal high groundwater at elevation 83.5 and the bottom of the basin at 85.5, which provides 2 feet of separation. However, the infiltration wick in the bottom of the basin is 12 inches deep, which effectively provides one foot of separation between the leaching facility and estimated seasonal high groundwater. We recommend the wick be removed or the bottom of the basin be adjusted one foot higher to 86.5 to provide two feet of separation between the bottom of the wick and seasonal high groundwater.*

    Response: The infiltration wick will be removed. This change will be reflected on the March 2021 Revised Site Plans.

15. *We recommend that filter fabric be installed on the bottom and sides of the infiltration wick to prevent fines from migrating into the stone.*

    Response: The infiltration wick will be removed from both infiltration basins. This change will be reflected on the March 2021 Revised Site Plans.

16. *The soil logs show soil mottles in virtually all of the test holes at elevations above estimated seasonal high groundwater. The Subsurface Evaluation for Stormwater Report describes these areas as isolated pockets of redoximorphic features. This appears to be a reasonable assumption, given the elevation of wetlands adjacent to the proposed infiltration basins. The report also describes a Frimpter adjustment applied by VHB to determine seasonal high groundwater. We recommend the Frimpter calculations be submitted for review.*

    Response: The Frimpter adjustment calculations completed for the Project are attached hereto as part of Form 11 – Soil Suitability Assessment for On-Site Sewage Disposal.

17. *Two test holes were performed in infiltration basin 2. One test hole shows loamy sand and the other shows sand. An infiltration rate for sand was used when modelling this basin. Typically, an infiltration rates for the most restrictive soil encountered in the hole is used for modelling purposes. We recommend that the rate for loamy sand be used for modelling infiltration in this basin, or additional test holes be performed in this basin to confirm soil types and infiltration rates. If the infiltration rate is adjusted, it will affect other calculations, including recharge volumes.*

    Response: The infiltration rate for infiltration basin 2 will be modified to assume the most restrictive soil layer, loamy sand. The March 2021 Revised Stormwater Management Report will reflect this change throughout, including in the HydroCAD model and in the recharge volume calculations. However, with the change, the Project will continue to comply with all 10 Stormwater Management Standards. We do not expect this change to

affect the rechange volumes, because all stormwater directed to Infiltration Basin 2 will continue to recharge (and not overflow the overflow weir), it will just be modeled to recharge at a slower rate. The basin will continue to drain within 72 hours.

18. *We recommend additional information be submitted regarding TSS removal efficiencies for the Barracuda water quality unit. The documentation provided from the New Jersey DEP describes a 50% TSS removal rate for the unit while the TSS removal calculation sheet describes 80% removal.*

    Response: Third-party report prepared by Boggs Environmental Consultants is attached hereto documenting the BaySaver Barracuda S4 removes suspended solids from stormwater runoff, with an average efficiency of 80% at a Maximum Treatment Flow Rate of approximately 1.08 cubic feet per second.

19. *We recommend the applicant provide a detail for the 36" perforated pipe that is proposed to convey stormwater from the roofs.*

    Response: The "Underdrain" detail provided on Sheet C6.02 is the detail that will be used for the perforated pipe to convey stormwater from the roofs. The March 2021 Revised Site Plans have been revised to clarify that this detail should be used for the perforated pipe proposed to convey stormwater from the roofs.

20. *We recommend the construction entrance stone size be increased to 2" to 3" stone course aggregate and the depth of the stone be increased to 6 inches.*

    Response: The March 2021 Revised Site Plans will include a revised detail for the construction entrance, including an increased 2" to 3" stone course aggregate and the depth of the stone will be increase to 6 inches.

21. *We recommend the Low Permeability core material included in the Detention Basin Berm Section be specified with a permeability rate.*

    Response: The Low Permeability core material included in the Detention Basin Berm Section will be specified with a permeability rate in the Project Specifications as "capable of being placed and compacted to provide an in-situ permeability rate of not more than 1.0 x 10-5 cm/sec."

Title V of the State Environmental Code (310 CMR 15.000)

1. *Test pit 6 performed in the leaching field shows fill to a depth of 18 feet. No naturally occurring soil was observed in this test pit. This is inconsistent with the rest of the test holes, as the rest of the test holes show naturally occurring soil. The location of this test pit is in the middle of one of the*

leaching areas. Given the location of test hole 6, we are concerned this may not be an isolated area and the extent of the fill may include a substantial portion of the leaching field. The applicant should clarify why this test hole is inconsistent with the rest of the test holes. All fill materials need to be removed and replaced. Section 15.240 (1) of Title V requires a minimum of four feet of naturally occurring material below the entire area of the soil absorption system. Section 15.415 (1) does not allow variances from the Section 15.240 (1) for new construction. The applicant should consider additional test holes towards the front of the site to determine the extent of this substantial amount of fill and consider moving the leaching field towards the back of the site where test pits indicate four feet of naturally occurring material, consistent with Title V.

Response: Test pits on 3 sides of test pit 6 confirm that natural soils exist at lower elevations. On the remaining side of test pit 6 there are very large mature trees. Due to this, the fill extending to lower depths is assumed to be isolated. Notes on sheet C7.05 of the plans direct the removal and replacement of all fill encountered extending down to naturally occurring soil. A bottom of bed inspection will be performed in accordance with the Lakeville, MA board of Health regulations, witnessed by Board of Health representative and VHB.

2. *The septic system was designed for a warehouse without a cafeteria 15 gallons/person/day. The calculations assume 403 people in the building per day. In the event that a cafeteria is added, a grease trap will be necessary per Section 15.230 or Title V of the State Environmental Code. In the event that more than 403 people work in the building, the system may not be sized properly.*

   Response: Based on similar projects, the estimated number of employees of 1 per 1,000 SF is very conservative. VHB acknowledges that the design does not account for a cafeteria and should not be added without further analysis.

3. *Per Section 15.220 (4) (q), a benchmark is required within 50 to 75 feet of the system components which is not subject to dislocation or construction. There is no benchmark located on the septic plans but all areas in the vicinity of the system are subject to disruption.*

   Response: Permanent benchmarks are provided on the existing conditions plan, however in locations >75' from system design. A significant amount of the area surrounding the designed system will be disturbed during construction and a benchmark will need to be established closer to the system prior to constructing septic elements. A note to this effect will be added to the March 2021 Revised Site Plans.

4. *Per Section 15.220 (4) (r) pump curves are required to be provided.*

   Response: The pump curve will be added to the March 2021 Revised Site Plans.

5. *Per Section 15.221 (7) requires all system components, including the septic tank, pump chamber, to be installed no more than 36 inches below finish grade. It appears the top of the septic tank is more than 36" below finished grade. It is unclear whether the dosing chamber is greater than 36" below grade. We recommend the applicant provide additional information regarding the depth to the top of the system components.*

   Response: This design is for a commercial facility under a parking lot which will need a pavement section and appropriate cover on sewer pipes. The regulation is interpreted as being required for residential systems which sometimes have access covers buried below grade, and this is to prevent access covers from being buried too far below grade. In our case, manhole and hatch access to the tanks are provided for inspection and maintenance up to finished grade.

6. *Section 15.226 (2) (a) 6 requires a minimum septic tank wall thickness of four inches, three inches if reinforced. The applicant should indicate width of septic tank walls.*

   Response: Design detail was based on Shea Concrete Tunnel Tank details which are HS-20 load rated and have wall thickness of 8". This dimensioning will be shown on the March 2021 Revised Site Plans. There is a note on sheet C7.05 states HS-20 load rating and minimum of 1" cover on steel reinforcement.

Lakeville Board of Health Regulations Pertaining to the Subsurface Disposal Systems and Water

1. *We recommend the applicant comply with the septic inspection installation described in Section 6 of the Lakeville Board of Health Regulations.*

   Response: The note included on sheet C7.05 pertains to the open hole inspection described in Section 6 of the Lakeville Board of Health Regulations. The note reads "System Designer and Lakeville Board of Health (48 Hour minimum notice required) shall perform bottom of bed inspection prior to installation of the system." Note will be added for final and finish inspection will be added to the March 2021 Revised Site Plans.

Utilities

1. *We understand that the applicant met with representatives from the Fire Department and the Department is comfortable with the location of the proposed hydrants.*

   Response: No comment necessary.

2. *We recommend the applicant provide water pressure information to confirm that adequate pressure exists to services the site and building.*

Response: A hydrant flow test was completed on September 23, 2020 on the water main to service the site and building and was witnessed by a representative of the Taunton Water Department. The results have also been submitted to the Taunton Water Department and are attached hereto. A fire pump is proposed for the Project that will be designed and submitted as required as part of the Building Permit process.

3. *Non-gravity utilities (gas, electric, and telecommunications) are shown schematically which is customary during the project entitlement process. We anticipate that additional details regarding the design and installation of all non-gravity utilities will be developed and provided in the event any approvals are issued for this project. These would typically include elements such as transformers, utility vaults, pull boxes, etc.*

   Response: In the event local approvals are granted for this Project, additional details regarding the design and installation of all non-gravity utilities (gas, electric, and telecommunications) will be prepared in coordination with the MEP engineer and the various utility providers prior to construction.

If you have any questions or need additional information in the interim please feel free to contact me at (508) 513-2721 or bgesner@vhb.com.

Sincerely,

Brittany Gesner, PE
Project Manager

BOGGS ENVIRONMENTAL CONSULTANTS

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(301) 679-0640; dfigola@ads-pipe.com

April 8, 2019

ATTENTION: Daniel Figola, General Manager
REFERENCE: Third Party Review of Testing Procedures for Barracuda™ Separator at the Mid Atlantic Storm Water Research Center, 1207 Park Ridge Drive, Mount Airy, MD 21771

SUMMARY

Boggs Environmental Consultants, Inc. (BEC) was hired by Advanced Drainage Systems (ADS) in August of 2017, to serve as independent third-party oversight of the BaySaver Barracuda S4 Separator test unit for removal of sediment with equivalent particle size distribution to the industry standard OK-110. The BaySaver Barracuda S4 is a storm water treatment device with a Maximum Treatment Flow Rate (MTFR) of approximately 1.08 cubic feet per second (cfs) that removes suspended solids from storm water runoff, with an average removal efficiency of 80% at the MTFR and a feed concentration of 300 mg/L. The device is an insert that can be installed in either Polypropylene plastic pipe or concrete vault, and consists of a cone (vortex separator) and baffles ("teeth").

SCALED RESULTS

Testing flow rates for the BaySaver Barracuda S4 Separator ranged from 0.31 to 1.61 cfs, with a feed OK-110 concentration of 300 mg/L. Based upon New Jersey scaling methodology, the table below represents treatment and device information for the S3, S4, S5, S6, and S8 units.

Table 1: MTFR's and Sizing for BaySaver Barracuda Models

Model[1]	Man-hole Diam-eter[1] (ft)	OK110 80% TSS Maximum Treatment Flow Rate (cfs)	Treat-ment Area (ft^2)	Hydraulic Loading rate (gpm/ft^2)	Chamber Depth (ft)	Wet Volume (ft^3)	50% Maximum Sediment Storage[2] (ft^3)
Barracuda S3	3	0.61	7.07	38.6	4.83	28.3	5.89
Barracuda S4	4	1.08	12.57	38.6	6.83	75.4	10.47
Barracuda S5	5	1.69	19.63	38.6	6.83	117.8	16.36
Barracuda S6	6	2.43	28.27	38.6	6.83	169.7	23.56
Barracuda S8	8	4.32	50.27	38.6	11.03	512.7	41.89

Notes:
1. In some areas, Barracuda units are available in additional diameters. Units not listed here are sized not to exceed 38.6 gpm/ft^2 of effective treatment during the peak water quality flow.
2. 50% Sediment Storage Capacity is equal to manhole diameter x 10 inches of sediment depth. Each Barracuda unit has a 20 inches deep sediment sump.

Should you have any questions, contact our office at your earliest convenience.

Sincerely,
BOGGS ENVIRONMENTAL CONSULTANTS, INC.
William R. Warfel
Principal Environmental Scientist

William R Warfel

Illicit Discharge Compliance Statement

I, as Applicant and Applicant's Representative, certify the following as they pertain to the proposed redevelopment at 43 Main Street, Lakeville, MA:

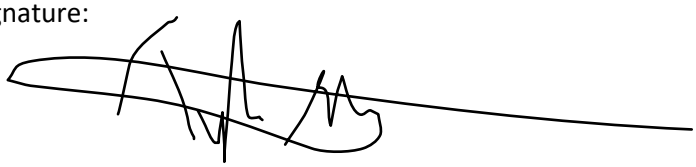
1. Sanitary sewer and storm drainage structures which were part of the previous development on this site are to be completely removed during the site redevelopment. The design plans submitted with this report have been designed in full compliance with current standards, including proposing separate sanitary sewer and storm drain systems. The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges.

Applicant

Name: Tyler Murphy

Company: Rhino Lakeville Development LLC c/o Rhino Capital Advisors

Signature:



Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

D. Determination of High Groundwater Elevation

Monitoring(V-406) well casing elevation= 98.95

1. Method Used:

	Obs. Hole # n/a	Obs. Hole # n/a
☐ Depth observed standing water in observation hole	_____ inches	_____ inches
☐ Depth weeping from side of observation hole	_____ inches	_____ inches
☐ Depth to soil redoximorphic features (mottles)	_____ inches	_____ inches
☒ Depth to adjusted seasonal high groundwater (S_h) (USGS methodology)	_____ inches	_____ inches

Depth to Water observed=15.76'

Approximate Elevation of Observed Groundwater=83.19+/-

Adjusted Approximate Elevation of Seasonal High Groundwater = 88.69+/-

LAKEVILLE (LKW) 14 — Index Well Number

5/17/2018 — Reading Date

Estimated Depth to Seasonal High Groundwater at monitoring well = 66"+/-

$S_h = S_c – [S_r \times (OW_c – OW_{max})/OW_r]$

Obs. Hole/Well# V-406 S_c 15.76' S_r 10' OW_c 11.16' OW_{max} 5.32' OW_r 10.62' S_h 10.26'

2. Estimated Depth to High Groundwater: 123"* inches

*Estimated Depth to High Groundwater is at the location of the monitoring well, not the testpits performed as part of this report. For the purpose of design, the approximate Estimated Seasonal High Groundwater Elevation of 88.69 is being used.

E. Depth of Pervious Material

1. Depth of Naturally Occurring Pervious Material

a. Does at least four feet of naturally occurring pervious material exist in all areas observed throughout the area proposed for the soil absorption system?

☒ Yes ☐ No

b. If yes, at what depth was it observed (exclude A and O Horizons)? Upper boundary: 51" inches Lower boundary: 228" inches

c. If no, at what depth was impervious material observed? Upper boundary: _____ inches Lower boundary: _____ inches

Note: Depth of Fill material is variable throughout the area of the proposed Soil Absorption System. The majority of the soil observations witnessed entirely natural pervious material below the top of the proposed system elevations. TP-5 and TP-7 confirmed naturally occurring pervious material in excess of 4' below the proposed soil absorption system elevation. TP-6 appears to be an isolated area of fill extending below the proposed system. All fill material is proposed to be removed and replaced with Title V sand.

Flow Test Information Sheet

VHB Project Number: 14849.00

VHB Project Name: Rhino Lakeville Hospital

Location of Test: 43 Main St. Lakeville MA 02347

Fire hydrant No., if any: NA

Date & Time of Test: Date: 09/23/2020 Time: 09:00 (AM) (PM)

Temperature 67° (F)

Test conducted by: Annie Gorman & Chris Hagen

Test witnessed by: Peter Rodriguez Taunton Water Department

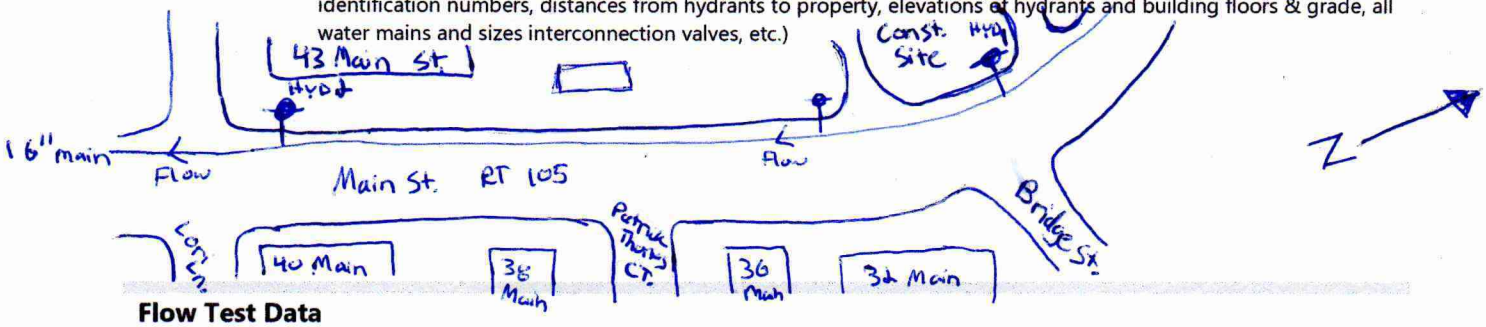
Name of Water District: Taunton Water Department

Name of Fire District: Lakeville Fire Department

Source of Water Supply: Gravity ☒ Pump ☐ Other Tank

Is water supply provided by: PRV STA's ☐ Yes ☒ No ☐ Other

Area Map: (Draw sketch showing property location: bounding streets and names, north arrow, hydrant location and identification numbers, distances from hydrants to property, elevations of hydrants and building floors & grade, all water mains and sizes interconnection valves, etc.)



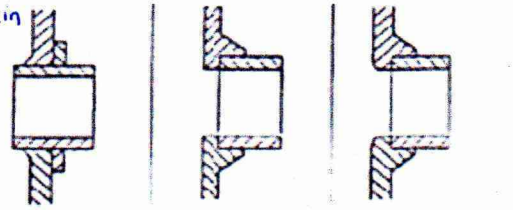
Flow Test Data

Flow at Hydr. No.	Elevation at Hydr. (Flow Hyd)	Static at Hydr. No.	Static PSIG	Residual PSIG	Flow PSIG	Outlet size and coefficient		GPM
1	100	2	58	51	34	2.5"	0.9	978
2	92	1	53	45	40	2.5"	0.9	1,061

Miscellaneous Comments: Both hydrants are AP Smith, Model H-205 5¼". Tests were Performed using hydrants fed from the 16" main running along the North/west side of Main St. as it is understood That that Main Services Lakeville

Signed:

Witness: Peter Rodriguez



Outlet Square End Projecting Into Barrel Coef = 0.70

Outlet Square And Sharp Coef = 0.80

Outlet Smooth And Rounded Coef = 0.90

Hydrant Flow Test Calculations

Project Name:	Rhino Lakeville Hospital	**Proj. No.:**	14849.00
		Date:	9/23/2020
Project Location:	43 Main St. Lakeville, MA	**Calculated by:**	CSH/ALG

Hydrant Flow Test Summary

Hydrant #1	
OUTLET SIZE (INCHES)	2.50
OUTLET COEFFICIENT	0.90

Hydrant #2	
OUTLET SIZE (INCHES)	2.50
OUTLET COEFFICIENT	0.90

$$Q = 29.83CD^2\sqrt{P}$$

Q = Flow Rate (gpm)
C = Outlet Coefficient
D = Outlet Size (inches)
P = Pressure (PSI)

Observed Flows

Hydrant #	Flow (PSIG)	Equivalent Flow (gpm)
1	34	978
2	40	1061

$$Q_{20} = Q_{obs} \cdot \frac{D_D}{D_{obs}}^{0.54}$$

Q_{20} = Flow at 20psi (gpm)
Q_{obs} = Observed Flow (gpm)
D_D = Desired Pressure Drop (Static to Residual) (PSI)
D_{obs} = Observed Pressure Drop During Test (PSI)

Flow at Hydrant #	Static (PSIG)	Residual (PSIG)	Q_{obs} Flow (gpm)	Q_{20} (gpm)
1	58	51	978	2438
2	53	45	1061	2281