NORTHEAST ENGINEERS & CONSULTANTS, INC.

STORMWATER SYSTEM
OPERATIONS AND MAINTENANCE PLAN

"Wyndham Newport Hotel"
(Formerly Seaview Inn / Cambria Suites)
Assessor's Map 115, Lot 54
240 Aquidneck Avenue
Middletown, RI

Prepared For
Seaview Inn LLC
240 Aquidneck Avenue
Middletown, RI 02842

Rev. April 26, 2023

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Civil ● Site ● Land Development ● Waterfront ● Coastal Engineering ● Environmental ● Geotechnical ● Structural ● Transportation ● Surveying

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1.0 INTRODUCTION

1.1 SITE INFORMATION FOR WYNDHAM NEWPORT HOTEL

City / Town:	Middletown, Rhode Island
Adjacent Roadways:	Valley Road (RI State Roadway), Aquidneck Avenue, John Clarke Road
Lot(s) identification:	A.P. 115 Lot 54
Zoning District:	OPA (Office Park – Traffic Sensitive)
Current Use:	Hotel & Conference Center
Site Area:	10.15 Acres
FEMA Zone and Map:	Zone "X (Panel 44005C0181J)

2.0 ADMINISTRATION

2.1 RESPONSIBLE PARTIES

The Owner and party responsible for the operation and maintenance of the Stormwater Management System shall be:

Seaview Inn LLC
240 Aquidneck Avenue
Middletown, RI 02842

The Owner intends that this Plan shall run with the land and be binding upon the Owner and the Owner's successors and assigns. A copy of this Plan shall be provided to any future property owners. This Section shall be amended as necessary. **This document dated April 26, 2023 shall supersede any previous operations and maintenance document for this development.**

Easements across the stormwater system to the Town of Middletown may be provided upon request. The Owner is solely responsible for all other operation and maintenance. Refer to any stormwater maintenance agreements in Appendix C which may be applicable for this site.

2.2 O&M EXPENSES

It is anticipated that the Operation and Maintenance budget will be incorporated into the operating budget of the property. The stormwater facilities will require continual maintenance to operate at peak efficiency. It is anticipated that small equipment and hand labor will typically be required to operate and maintain the system. A vacuum truck may be required for more intensive maintenance. Operation and maintenance activities and equipment will be funded by the Owner.

3.0 GENERAL INSPECTION AND MAINTENANCE

This section contains a general overview of O&M guidelines and documentation procedures. Specific guidance is described in Section 5.0. Appendix A contains applicable Operation, Maintenance and Management Inspection Checklists. Appendix B contains a location map of stormwater features to be maintained and details of the devices which may be referenced during maintenance should any reconstructive measures be undertaken.

3.1 MAINTENANCE INSPECTION SCHEDULE

All stormwater management facilities shall be periodically inspected by a qualified individual. Inspections shall be conducted by a registered professional engineer where the structural or hydraulic integrity of the system is in question or as noted on the inspection checklists. Inspections shall follow the specific guidelines found in the checklists included in Appendix A. Regular inspections of the stormwater system shall be completed at the following intervals:

1. Biannual basis (twice per year)
2. After storm events greater to or equal to a 1-year, 24-hour Type III storm (2.8 inches of precipitation with 24-hours). The following website may be consulted to determine total rainfall for recent storm events in order to determine if an inspection is warranted:

   https://www.wunderground.com/weather/us/ri/middletown/02842

Conditions may warrant additional inspections throughout the year in order to determine the cause of failure conditions exhibited by the stormwater system. It is the responsibility of the Owner and his qualified inspectors to determine if additional inspections are necessary. Timing of such inspections may be:

1. Pre-storm
2. During a storm event

3.2 TYPES OF MAINTENANCE

Maintenance activities are described in three basic categories based upon the magnitude and type of the maintenance activities performed. A description of each category follows.

3.2.1 PREVENTATIVE MAINTENANCE

The most effective way to maintain the stormwater system is to prevent the pollutants from entering them in the first place. Common pollutants include sediment, trash and debris, chemicals, runoff from stored materials, and illicit discharges. The Owner shall implement the following measures to address these potential contaminants. **These activities do not correspond to any maintenance checklists provided in the following sections and should be considered "Good Housekeeping" measures intended to reduce the potential for costly maintenance in the future.**

- Educate employees/hotel guests of how their actions impact water quality, and how they can help reduce maintenance costs;
- Keep the property free of trash and debris;
- Ensure the proper disposal of hazardous wastes and chemicals;
- Plan landscaping care to minimize the use of fertilizers, herbicides, and pesticides. It is recommended that these materials not be kept on site when not in use;
- Sweep paved surfaces and dispose of sweepings properly. Regular sweeping can prevent or delay more costly maintenance that requires the use of more specialized equipment, such as a vacuum truck. The Owner should be aware that lax sweeping will affect stormwater components that they are ultimately responsible for;
- Be aware of automobiles leaking fluids. Use absorbents to soak up drippings – dispose of properly (refer to section 2.2.5 of this manual);
- Re-vegetate disturbed and bare areas to maintain vegetative stabilization under the direction of a qualified landscaper.

3.2.2 ROUTINE AND MINOR MAINTENANCE

Routine maintenance work to be undertaken by the Owner shall include activities normally performed throughout the year as described in the following sections. Such maintenance consists of isolated or small-scale maintenance and correcting minor operational problems. Most of this work can be completed by a small crew with hand tools, and small equipment. **These maintenance activities are included in the inspection and maintenance checklists and are required according to the intervals specified in Section 3.1 above.**

3.2.3 MAJOR MAINTENANCE

This work consists of more complex maintenance/operational problems and system failures. Some of this work may require consultation with a licensed engineer and/or the Town of Middletown. This work may also require more specialized maintenance equipment, design/details, surveying, or assistance through qualified contractors and consultants. **These maintenance activities may be required as a result of the required inspections and will not need to be performed at regular intervals.**

3.2.4 ILLICIT DISCHARGES

The following discharges are prohibited at the site, either into the stormwater system or otherwise:

- Contaminated groundwater, unless specifically authorized by the RIDEM and the Town.
- Wastewater from washout of concrete, unless the discharge is contained and managed by appropriate control measures (applicable during any construction activities).
- Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials (applicable during any construction activities).
- Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance. Proper storage and spill prevention practices must be utilized at all times.
- Soaps or solvents used in vehicle and equipment washing.
- Toxic or hazardous substances from a spill or other release.

Should any illicit discharges be detected at any time, the Owner will notify the Middletown Department of Public Works immediately. In the case of extreme discharges, or at the direction of the Town, the Owner shall also notify RIDEM and or RIDOT as appropriate. Any and all cleanup activities shall be completed in coordination with these agencies. All recovered material following a spill of illicit materials shall be disposed of in accordance with the mandates of RIDEM.

3.2.5 SPILL PREVENTION AND CONTROL

Any chemicals and/or hazardous waste material must be stored properly and legally in covered areas, with containment systems constructed in or around the storage areas. Areas must be designated for any such material delivery and storage. All areas where potential spills can occur and their accompanying drainage points must be identified in order for prevention to be possible. The owner and operator must establish spill prevention and control measures to reduce the chance of spills, stop the source of spills, contain and clean-up spills, and dispose of materials contaminated by spills. The site manager must establish and make highly visible location(s) for the storage of spill prevention and control equipment and provide training for personnel responsible for spill prevention and control on the construction site. The following table lists specific potential sources of spills, the associated risks, and the applicable preventative measures.

Potential Source of Pollution	Risk	Preventative Measures
Oil, gasoline, or hydraulic fluid leaks from vehicles	Oil or fluid leaks entering the drainage system or polluting downstream properties	The potential for fuel or fluid leaks from vehicles on site will be minimized by regular inspection of the site for spills or evidence of contamination in paved areas. All vehicles on site will be monitored for leaks. Any petroleum products used on site will be stored in tightly sealed containers, all of which will be clearly labeled. Following any spill absorbent material will be placed over the area to collect excess fluid. The absorbent material will be replaced and disposed of properly when saturated.
Temporary site toilet facilities (during construction)	Leaks and or overflows from temporary site toilets.	The General Contractor will ensure that temporary site toilets are maintained in good working order.
Stored construction materials	Leakage of stored materials entering the drainage system and hence downstream receiving waters.	The owner will ensure that all materials stored on site are placed in suitable leak-proof containers. Materials such as cement and asphalt will be stored in covered, weatherproof facilities only. Diesel, or other fuel stored on site will be stored in approved containers, with containment areas where required. All site materials storage facilities will be clearly labeled and adequate measures will be taken to ensure that spills can be isolated within the storage area.

3.2.6 MAINTENANCE REPORTING

At the request of the Town, submittal of the required inspection forms and inspector qualifications may be provided on an annual basis. Requirements of annual reporting (if any) will be determined during the town permitting process. Should any reporting be required, this will be noted in Appendix C.

4.0 LAWN, GARDEN, AND LANDSCAPE MANAGEMENT (PREVENTATIVE MAINTENANCE)

Grasses require more water and attention than alternative groundcovers, flowers, shrubs, or trees. Alternatives to turf are especially recommended for problem areas such as lawn edges, frost pockets, shady spots, steep slopes, and soggy areas.

4.1 GRASS

Grass seed is available in a wide range of cultivated varieties. The Owner should consult a landscape expert to choose the grass type that matches the site conditions, and is consistent with the Owners desired level of maintenance.

4.2 MOWING AND MANAGEMENT

To prevent insects and weed problems, the Owner should mow high, mow frequently, and keep mower blades sharp. Lawns should not be cut shorter than 2 to 3 inches, because weeds can grow more easily in short grasses. Grass can be cut lower in the spring and fall to stimulate root growth, but not shorter than 1 ½ inches.

4.3 FERTILIZATION

If fertilizing is desired, consider the following points:

- Most lawns require little or no fertilizer to remain healthy. Fertilize no more than twice a year - once in May-June, and once in September-October;
- Fertilizers are rated on their labeling by three numbers (e.g., 10-10-10 or 12-4-8), which refer to their Nitrogen (N) – Phosphorus (P) – Potassium (K) concentrations. Fertilize at a rate of no more than ½ pound of nitrogen per 1000 square feet, which can be determined by dividing 50 by the percentage of nitrogen in the fertilizer;
- Apply fertilizer carefully to avoid spreading on impervious surfaces such as paved walkways, patios, driveways, etc., where the nutrient can be easily washed into storm drains or directly into surface waters;
- To encourage more complete uptake, use slow-release fertilizers that is those that contain 50 percent or more water-insoluble nitrogen (WIN);
- Grass blades retain 30-40 percent of nutrients applied in fertilizers. Reduce fertilizer applications by 30 percent, or eliminate the spring application of fertilizer and leave clippings on the lawn where they will degrade and release stored nutrients back to the soil; and
- Fertilizer should not be applied when rain is expected. Not only does the rain decrease fertilizer effectiveness, it also increases the risk of surface and ground water contamination.

4.4 WEED MANAGEMENT

The Owner must decide how many weeds can be tolerated before action is taken to eradicate them. To the extent practicable, weeds should be dug or pulled out. If patches of weeds are present, they can be covered for a few days with a black plastic sheet. This process kills the weeds while leaving the grass intact. If weeds blanket a large enough area, the patch can be covered with clear plastic for several weeks, effectively "cooking" the weeds and their seeds. The bare area left behind after weeding should be reseeded to prevent weeds from growing back. As a last resort, the owner may use chemical herbicides to spot treat weeds.

4.5 PEST MANAGEMENT

Effective pest management begins with maintenance of a healthy, vigorous lawn that is naturally disease resistant. The Owner should monitor plants for obvious damage and check for the presence of pest organisms. Learn to distinguish beneficial insects and arachnids, such as green lacewings, ladybugs, and most spiders, from ones that will damage plants.

When damage is detected or when harmful organisms are present, the property manager should determine the level of damage the plant is able to tolerate. No action should be taken if the plant can maintain growth and fertility. If controls are needed, there are a variety of low-impact pest management controls and practices to choose from, including the following:

- Visible insects can be removed by hand (with gloves or tweezers) and placed in soapy water or vegetable oil. Alternatively, insects can be sprayed off a plant with water, or in some cases vacuumed off of larger plants;
- Store-bought traps, such as species- specific, pheromone-based traps or colored sticky cards, can be used;
- Sprinkling the ground surface with abrasive diatomaceous earth can prevent infestations by soft-bodied insects and slugs. Slugs can also be trapped by falling or crawling into small cups set in the ground flush with the surface and filled with beer;
- In cases where microscopic parasites, such as bacteria and fungi, are causing damage to plants, the affected plant material can be removed and disposed of. (Pruning equipment should be disinfected with bleach to prevent spreading the disease organism);
- Small mammals and birds can be excluded using fences, netting, tree trunk guards, and, as a last resort, trapping. (In some areas trapping is illegal. Property owners should check local codes if this type of action is desired); and
- The Owner can encourage/attract beneficial organisms, such as bats, birds, green lacewings, ladybugs, praying mantis, ground beetles, parasitic nematodes, trichogramma wasps, seedhead weevils, and spiders that prey on detrimental pest species. These desirable organisms can be introduced directly or can be attracted to the area by providing food and/or habitat.

If chemical pesticides are used, the Owner should try to select the least toxic, water soluble and volatile pesticides possible. All selected pesticides should be screened for their potential to harm water resources. When possible, pesticides that pose the least risk to human health and the environment should be chosen. A list of popular pesticides, along with their uses, their toxicity to humans and wildlife, EPA's toxicity rating,

and alternatives to the listed chemicals, is available from *The Audubon Guide to Home Pesticides*, (http://www.audubon.org/bird/pesticides/).

4.6 SENSIBLE IRRIGATION

Established lawns need no more than one inch of water per week (including precipitation) to prevent dormancy in dry periods. Watering at this rate should wet soil to approximately 4-6 inches and will encourage analogous root growth. If possible, use timers to water before 9:00 a.m., preferably in the early morning to avoid evaporative loss. Use drought-resistant grasses (see "grass selection" above) and cut grass at 2-3 inches to encourage deeper rooting and heartier lawns.

4.7 SNOW MANAGEMENT

Snow shall be managed as environmental conditions require. Owner shall adhere to the following guidelines when managing snow and snowplowing.

1. Snow shall be moved to and stored at any location shown on plan M-2 in Appendix B. Note that any paved surface not needed for vehicular or emergency access is also a suitable area for storage.

2. Snow shall not be stored upon any pervious paver surface.

3. When plowing any pervious paver surface, a contractor shall attach rollers to bottom of snowplows to prevent them from catching on the edges of pavers. Any damage to pavers as a result of plowing shall require the replacement of damaged paver stones in kind.

4. Minimize the use of sand and salt on pervious pavers in winter months.

5.0 ROUTINE MAINTENANCE OF STORMWATER DEVICES

5.1 SAND FILTER (LINED)

A sand filter is designed to capture and temporarily store the water quality storm runoff volume and pass it through a sand media layer. The media is lined with an impermeable membrane and the filtered runoff is collected by an underdrain. This treated runoff is then discharged downgradient. High flow runoff from the sand filter passes over overflow weirs to the RIDOT swale along Valley Road. The sand filter is not intended to have a permanent pool and should drain within 24 hours. The filter bed is planted with water tolerant grasses selected from the Rhode Island Coastal Plant Guide or Appendix B of the RIDISM.

The stormwater design for this development includes the following sand filters.

1. Device ID: SF-1
   Location: West of Phase 2 building along the Valley Road frontage
   Lined or Unlined: Lined
   Outlet Structure: 4' diameter concrete outlet structure in berm of filter

5.1.1 REQUIRED SAND FILTER MAINTENANCE

Maintenance inspections shall include the following tasks. All inspections shall be carried out using the checklists provided in Appendix A of this document.

1. The slopes of the sand filter shall be inspected for erosion and gullying. Inlet areas shall be reinforced if they are found to be deficient or erosion is present at the overflow outlet. All material, including any trash and/or debris from all areas within the extents of the filter shall be disposed of in accordance with all applicable regulations. The overflow weir shall be inspected for structural faults.

2. Any areas within the extents of the sand filter that are subject to erosion or gullying shall be replenished with the original design material and re-vegetated according to the design drawings. Slope protection material shall be placed in areas prone to erosion. Embankment stability shall be verified by inspecting for seepage and burrowing animals.

The following maintenance tasks shall be completed on an annual basis.

1. Silt/sediment shall be removed from the sand filter bed annually, when accumulation exceeds one inch, or when the filtering capacity of the device diminishes substantially. This material shall be disposed of in accordance with all applicable regulations.

2. Mow the grass around the perimeter of and within the sand filter, seed bare areas, and remove litter and debris at least three times per growing season to maintain maximum grass heights less than twelve inches.

3. Remove any invasive vegetation within the extents of the sand filter. Any invasive vegetation encroaching upon the perimeter of the filter shall be pruned or removed if it is prohibiting access to the device, compromising sight visibility, and/or compromising the original design intent.

4. If dead or dying grass on the bottom is observed, check to ensure that water drains down within two days following storms. If standing water is observed more than 48 hours after a storm event, then the top six (6) inches of sand shall be removed and replaced in kind. If discolored or contaminated material is found below this removed material, then that material shall also be removed and replaced in kind until all contaminated sand has been removed from the filter media. The sand shall be disposed of in accordance with all applicable regulations.

5.2 PRECAST CONCRETE DRAIN STRUCTURES

Multiple drain structures are located across the property. These structures feature cast iron grates or covers and have internal diameters between 4 and 5 feet. The structures can be accessed via the removal of the grates or covers by a qualified individual. The inlet catch basin structures have one or more outlet pipes below which are three-foot-deep sumps intended to collect trash debris and any intercepted sand or gravel. Drain manholes have no sumps.

5.2.1 REQUIRED PRECAST CONCRETE DRAIN STRUCTURE MAINTENANCE

Maintenance inspections shall include the following tasks. All inspections shall be carried out using the checklists provided in Appendix A of this document.

1. The sump of the catch basins shall be inspected for the presence of debris or sediments. Should the depth of material within the sump exceed 50% of the total sump depth (1.5 feet), the sediments shall be removed via a vacuum truck or by shovel (where possible). All material removed shall be removed by the operator and disposed of in accordance with all applicable RIDEM regulations. Any large debris which could potentially obstruct the outflow pipe shall be removed immediately. Should excess sediments and debris be encountered, the town should consider more frequent sweeping.

2. The frame and grate/cover of the structures shall be inspected for damage. Damage may include blockage of grate openings, or a compromise of the safety of the device. Structural faults shall be repaired by a qualified contractor.

3. Any internal steps shall be inspected for damage. Dangerous or damaged rungs shall be repaired by a qualified contractor.

4. The outlet pipes shall be inspected for damage or obstruction. Any damage shall be repaired by a qualified contractor.

5.3 HYDRODYNAMIC SEPARATOR

A hydrodynamic separator is a proprietary stormwater pre-treatment device which removes the remaining large diameter sediments before discharging runoff to the sand filter. The model of device specified for this development is a Stormtech STC450i. This device is a precast concrete structure accessed via a 24-inch diameter manhole cover. It consists of two chambers: an upper swirl chamber that causes particles to fall out of suspension and a lower sump chamber into which sediments are deposited. Two of these devices are located on the property which provide pretreatment for the sand filter and the subsurface infiltration/detention system.

5.3.1 REQUIRED SEPARATOR MAINTENANCE

Maintenance inspections shall include the following tasks. All inspections shall be carried out using the checklists provided in Appendix A of this document.

1. The structure sump chamber shall be inspected for the presence of debris or sediments. Should the depth of material within the sump exceed eighteen (18) inches, the sediment shall be removed via a vacuum truck. Should sediment depth exceed thirty (30) inches or more, the interval of sump inspection and cleanout should be increased. The Owner should also consider more frequent sweeping of the parking lot. All material removed shall be removed by the operator and disposed of in accordance with all applicable RIDEM regulations.

   Should the sump chamber be found to be devoid of sediments, it should be considered that the device is not functioning as intended. A licensed engineer should be consulted for direction. Correction of a failed hydrodynamic separator could avoid costly repairs and reconstruction of the sand filter or the subsurface chamber system.

2. The frame and cover of the structure shall be inspected for damage. Damage may result in a compromise of the safety of the device or the intrusion of excessive surface stormwater through the cover. Structural faults shall be repaired by a qualified contractor.

1. The inlet and outlet pipes shall be inspected for damage or obstruction. Any damage shall be repaired by a qualified contractor.

5.4 SUBSURFACE INFILTRATION CHAMBERS

Subsurface infiltration chambers allow for temporary storage and infiltration into underlying soil, effectively providing water quality and groundwater recharge. An outlet structure meters outlet flow from the subsurface chambers to relieve pressure within the system and regulates peak runoff. The stormwater system for this development consists of two sections. The first section provides water quality for the main hotel and convention center building and 50% of the paved parking lot. The second section provides detention and peak rate of runoff mitigation. The subsurface chambers are Cultec 330XLHD units.

5.4.1 REQUIRED SUBSURFACE CHAMBER MAINTENANCE

Maintenance inspections shall include the following tasks. All inspections shall be carried out using the checklist provided in Appendix A of this document:

1. Subsurface infiltration chambers shall be inspected via inspection ports or manholes to grade for the presence of sediments. Should the average depth of sediment exceed 3 inches within the inlet chamber or row, clean out of the system should be performed. This should be accomplished by vacuum truck.

2. Stormwater inlet structures shall also be inspected for accumulated sediments and debris. Should accumulation exceed 50% of the structure sump, the material shall be removed and disposed of off-site at a licensed facility. Structural faults shall be repaired and outlet pipes inspected for blockage.

3. After every storm event of greater than or equal to the 1-year, 24-hour type III precipitation event (2.8 inches), in the first six months after construction, then annually, a record shall be kept of the time to drain the system completely after a storm event. The chambers should drain completely within 72-hours. If the chambers remain undrained after 72-hours, the chambers should be excavated, the area beneath the system tilled to a depth of twelve (12) inches below the stone bedding, and the filter fabric beneath the system replaced. All stone bedding shall be washed or replaced and the chambers re-installed.

4. Inspect drainage field surface for settlement or collapse. Any collapsed areas shall be reconstructed by qualified individuals according to the original design drawings.

5.5 PERVIOUS PAVERS

While the paver stones of a typical paver parking lot are not themselves pervious, the open grout system allows stormwater to permeate the joints and enter the filter stone and base material below. The filtered stormwater is infiltrated into the undisturbed strata below the filter (in the case of the pervious paver lot south east of the main hotel building) or is collected in an underdrain system and routed downstream (in the case of the pervious paver lot adjacent to the large retaining wall and Phase 2 building). The stone reservoir below the filter stone is not intended to have permanent pools and should drain within 24 hours.

5.5.1 REQUIRED PERVIOUS PAVER MAINTENANCE

Maintenance inspections shall include the following tasks. All inspections shall be carried out using the checklist provided in Appendix A of this document.

1. Refer to section 4.7 of this manual with respect to snow management and treatment of pervious pavers during winter months.

2. Keep any adjacent landscape areas well maintained and stabilized. Any gullying or erosion cold create a sediment load on the paver surface and should be addressed immediately.

3. Pervious paver surface shall be vacuum swept with a regenerative air sweeper at a minimum every three (3) months to keep the surface from clogging. Standard vacuum sweepers shall not be used. Maintenance frequency shall be adjusted based on traffic volume at site and observed sediments. Observed slow draining of the paver surface shall prompt an immediate vacuuming of the paver surfaces.

4. Remove any unwanted vegetative growth in the open grouts.

5. Replace any grout material which may have been transported away.

6. Replace any damaged or missing paver stones with similar stones.

In addition, the owner is to ensure that the paver surface is never sealed or paved.

6.0 APPENDICES

APPENDIX A OPERATION AND MAINTENANCE CHECKLISTS

Wyndham Newport Hotel
Valley Road, Middletown

Inspection Checklist for Infiltration Chambers

Minimum inspection schedule shall be bi-annual and after major storm events

Device Description:	339 Cultec 330XLHD chambers
Device Location:	Under pervious paver overflow parking
Relevant O&M Section:	Section 5.4
Inspector's Name:	
Date of Inspection:	
Date of Last Inspection:	
Start Time:	
End time:	
Type of Inspection:	□ Biannual □ Major Storm □ Pre-Storm □ Post Storm □ Other

Specific Inspection Requirements		
Maintenance Activity	**Is Status Satisfactory?**	**Corrective Action Needed**
Inspet inlet chambers via inspection ports for presence of sediments. Sediments shall be removed via vacuum truck if depth exceeds 3-inches.	□ Yes □ No	
Inspect inlet headers for presence of sediments via drain manholes. Sediments shall be removed via a vaccum truck or by hand. The presence of excessive sediments shall require an inspection of upstream piping to ensure that soiltighness.	□ Yes □ No	
Inspect drainage field surface cover for settlement or collapse.	□ Yes □ No	
After every storm event of greater than or equal to the 1-year, 24-hour type III precipitation event (2.8 inches), in the first six months after construction, then annually, a record shall be kept of the time to drain the system completely after a storm event. The chambers should drain completely within 72-hours. If the chambers remain undrained after 72-hours, the chambers should be excavated, the area beneath the system tilled to a depth of twelve (12) inches below the stone bedding, and the filter fabric beneath the system replaced. All stone bedding shall be washed or replaced and the chambers re-installed	□ Yes □ No	

Wyndham Newport Hotel
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Inspection Checklist for Pervious Pavement

Minimum inspection schedule shall be bi-annual and after major storm events

Device Description:	Pervious pavers
Device Location:	Southeast parking lot and overflow parking
Relevant O&M Section:	Section 5.5
Inspector's Name:	
Date of Inspection:	
Date of Last Inspection:	
Start Time:	
End time:	
Type of Inspection:	□ Biannual □ Major Storm □ Pre-Storm □ Post Storm □ Other

Specific Inspection Requirements		
Maintenance Activity	**Is Status Satisfactory?**	**Corrective Action Needed**
Keep any adjacent landscape areas well maintained and stabilized. Any gullying or erosion cold create a sediment load on the paver surface and should be addressed immediately	□ Yes □ No	
Pervious paver surface shall be vacuum swept with a regenerative air sweeper at a minimum every three (3) months to keep the surface from clogging. Standard vacuum sweepers shall not be used. Maintenance frequency shall be adjusted based on traffic volume at site and observed sediments. Observed slow draining of the paver surface shall constitue an immediate vacuuming of the paver surfaces.	□ Yes □ No	
Remove any unwanted vegetative growth in the open grouts.	□ Yes □ No	
Replace any grout material which may have been transported away.	□ Yes □ No	
Replace any damaged or missing paver stones with similar stones.	□ Yes □ No	
If present, remove sediments from underdrain outlet structure with a vacuum hose.	□ Yes □ No	

Wyndham Newport Hotel
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Inspection Checklist for Sand Filter

Minimum inspection schedule shall be bi-annual and after major storm events

Device Description:	5,250 SF sand filter with 24-inch deep ASTM C-33 sand media
Device Location:	Western side of property adjacent to Valley Road
Relevant O&M Section:	Section 5.1
Inspector's Name:	
Date of Inspection:	
Date of Last Inspection:	
Start Time:	
End time:	
Type of Inspection:	□ Biannual □ Major Storm □ Pre-Storm □ Post Storm □ Other

Specific Inspection Requirements		
Maintenance Activity	**Is Status Satisfactory?**	**Corrective Action Needed**
Grassed depression should be inspected for the presence of transported sediments. Should the average depth of sediments exceed one (1) inch, all sediments shall be removed using hand tools. All material removed shall be removed by the operator and disposed of in accordance with all applicable RIDEM regulations. The presence of excessive sediments may indicate a failure or improper maintenance of upstream pretreatment devices. A RI licensed Professional Engineer shall be consulted to determine a corrective course of action.	□ Yes □ No	
Sand filter basin should be inspected for the presence of standing water. Consult section 5.1 of the O&M if condition is found.	□ Yes □ No	
The slopes of the sand filter shall be inspected for erosion and gullying. Any eroded areas shall be repaired and reinforced with a seeding of grass. Slope protection material should be placed in areas prone to erosion.	□ Yes □ No	

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Specific Inspection Requirements		
Maintenance Activity	**Is Status Satisfactory?**	**Corrective Action Needed**
Reinforce inlet areas with erosion control blankets or stone over a bed of filter fabric if erosion is found.	□ Yes □ No	
The overflow weir shall be inspected for structural faults. In particular, it should be determined that settling of the weir has not occurred. In addition, it should be determined if any stormwater is escaping the filter around the sides of the weir. Any faults shall be corrected immediately. All work shall be carried out by a qualified contractor	□ Yes □ No	
Embankments of the filter shall be inspected for seepage and burrowing animals. Pest control will be required should evidence of burrowing animals be required. Any evidence of groundwater seepage shall be brought to the attention of a licensed engineer immediately	□ Yes □ No	
The inspector shall ensure that the grass around the perimeter of the filter has been mowed at least three times per growing season. Following each mowing, bare areas should be seeded. The intention is to maintain a maximum grass height of less than twelve inches within the filter.	□ Yes □ No	
During inspection, remove any invasive vegetation within the extents of the filter. Any invasive vegetation encroaching upon the perimeter of the filter shall be pruned or removed.	□ Yes □ No	

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Inspection Checklist for Precast Concrete Catch Basin

Minimum inspection schedule shall be bi-annual and after major storm events

Device ID:	Precast concrete structures with sump
Device Location:	(See device location map. Structured ID'd with 'CB')
Relevant O&M Section:	Section 5.2
Inspector's Name:	
Date of Inspection:	
Date of Last Inspection:	
Start Time:	
End time:	
Type of Inspection:	□ Biannual □ Major Storm □ Pre-Storm □ Post Storm □ Other

Specific Inspection Requirements		
Maintenance Activity	**Is Status Satisfactory?**	**Corrective Action Needed**
The sump of the catch basin shall be inspected for the presence of debris or sediments. Should the depth of material within the sump exceed 50% of the total sump depth (two feet), the sediment shall be removed via a vacuum truck. All material removed shall be removed by the operator and disposed of in accordance with all applicable RIDEM regulations. Any large debris which could potentially obstruct the outflow pipe shall be removed immediately	□ Yes □ No	
The frame and grates of the catch basin shall be inspected for damage. Damage may include blockage of the grate openings, or a compromise of the safety of the device. Structural faults shall be repaired by a qualified contractor	□ Yes □ No	
The internal steps shall be inspected for damage. Dangerous or damaged rungs shall be repaired by a qualified contractor	□ Yes □ No	
The outlet pipe(s) shall be inspected for damage or obstruction. Any damage shall be repaired by a qualified contractor.	□ Yes □ No	

Wyndham Newport Hotel
Valley Road, Middletown

Inspection Checklist for Precast Concrete Drain Manhole

Minimum inspection schedule shall be bi-annual and after major storm events

Device ID:	Precast concrete structures with no sump
Device Location:	(See stormwater device map. Structures ID'ed with 'DMH')
Relevant O&M Section:	Section 5.2
Inspector's Name:	
Date of Inspection:	
Date of Last Inspection:	
Start Time:	
End time:	
Type of Inspection:	□ Biannual □ Major Storm □ Pre-Storm □ Post Storm □ Other

Specific Inspection Requirements		
Maintenance Activity	**Is Status Satisfactory?**	**Corrective Action Needed**
The structure shall be inspected for the presence of debris or sediments. As there is no sump in this structure, all material encountered shall be removed immediately. All material removed shall be removed by the operator and disposed of in accordance with all applicable RIDEM regulations.	□ Yes □ No	
The frame and cover of the drain manhole shall be inspected for damage. Damage may result in a compromise of the safety of the device or the intrusion of excessive surface stormwater through the cover. Structural faults shall be repaired by a qualified contractor	□ Yes □ No	
The internal steps shall be inspected for damage. Dangerous or damaged rungs shall be repaired by a qualified contractor.	□ Yes □ No	
The inlet and outlet pipes shall be inspected for damage or obstruction. Any damage shall be repaired by a qualified contractor.	□ Yes □ No	

Wyndham Newport Hotel
Valley Road, Middletown

Inspection Checklist for Precast Concrete Hydrodynamic Separator

Minimum inspection schedule shall be bi-annual and after major storm events

Device Description:	Stormtech Stormcepter STC450i
Device Location:	Pretreatment for underground chambers and sand filter
Relevant O&M Section:	Section 5.3
Inspector's Name:	
Date of Inspection:	
Date of Last Inspection:	
Start Time:	
End time:	
Type of Inspection:	□ Biannual □ Major Storm □ Pre-Storm □ Post Storm □ Other

Specific Inspection Requirements		
Maintenance Activity	**Is Status Satisfactory?**	**Corrective Action Needed**
The structure sump chamber shall be inspected for the presence of debris or sediments. Should the depth of material within the sump exceed eighteen (18) inches, the sediment shall be removed via a vacuum truck. Should sediment depth exceed thirty (30) inches or more, the interval of sump inspection and cleanout should be increased. All material removed shall be removed by the operator and disposed of in accordance with all applicable RIDEM regulations.	□ Yes □ No	
The frame and cover of the structure shall be inspected for damage. Damage may result in a compromise of the safety of the device or the intrusion of excessive surface stormwater through the cover. Structural faults shall be repaired by a qualified contractor.	□ Yes □ No	
The inlet and outlet pipes shall be inspected for damage or obstruction. Any damage shall be repaired by a qualified contractor	□ Yes □ No	

APPENDIX B STORMWATER DEVICE MAP AND DRAWINGS

NORTHEAST ENGINEERS
& CONSULTANTS, INC.

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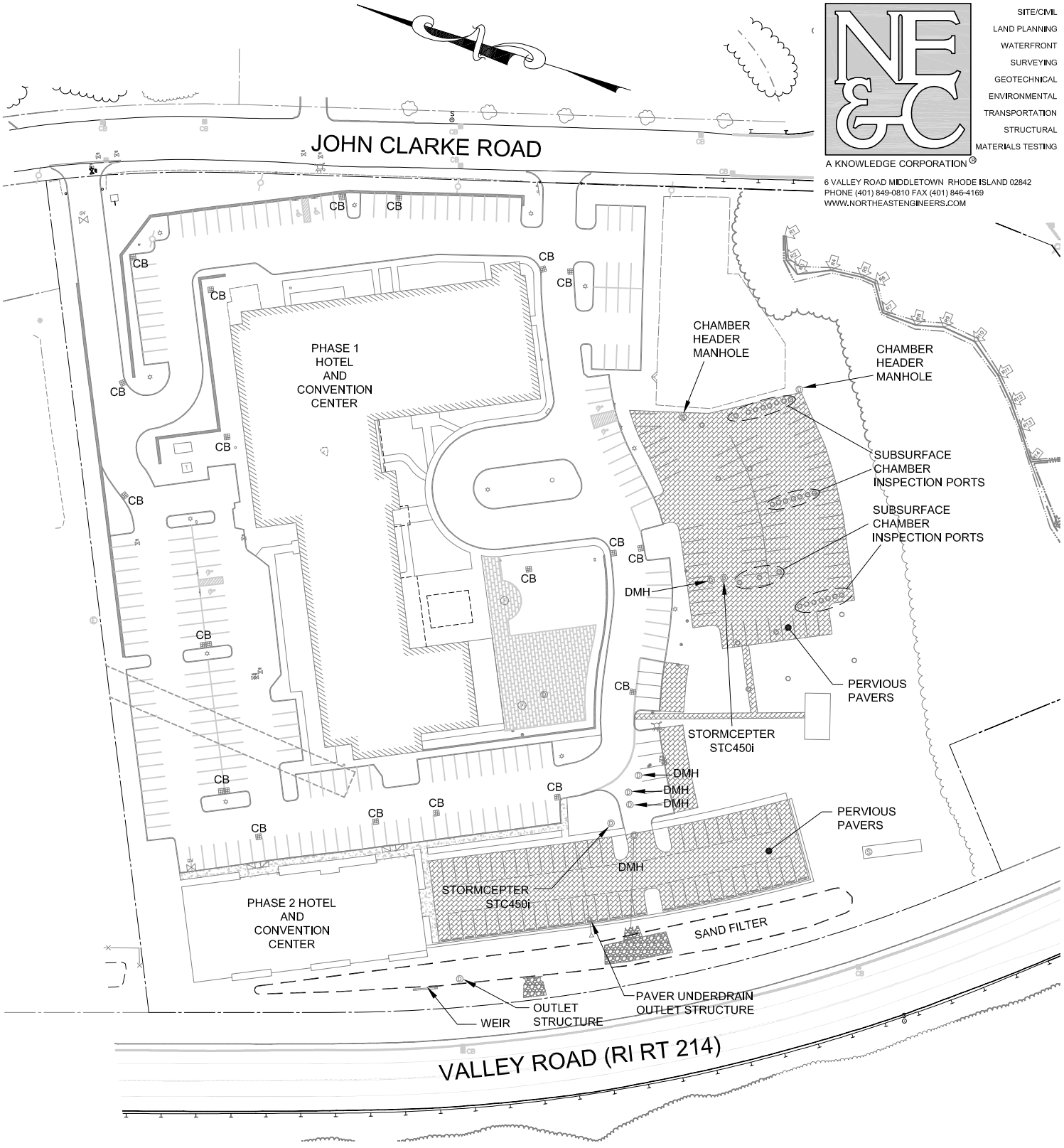
LAND PLANNING
WATERFRONT
SURVEYING
GEOTECHNICAL
ENVIRONMENTAL
TRANSPORTATION
STRUCTURAL
MATERIALS TESTING

A KNOWLEDGE CORPORATION

6 VALLEY ROAD MIDDLETOWN RHODE ISLAND 02842
PHONE (401) 849-0810 FAX (401) 846-4169
WWW.NORTHEASTENGINEERS.COM



Scale: 1"=100'	Date: 26APR23	Designed By: JJR	Drawn By: JJR	Checked By: GES

Project Title:

WYNDHAM NEWPORT HOTEL
MIDDLETOWN, RI

Drawing Title:

STORMWATER DEVICE MAP

Issued for:

O&M DOCUMENT

Drawing Number:

M-1

Project Number:

09001.1

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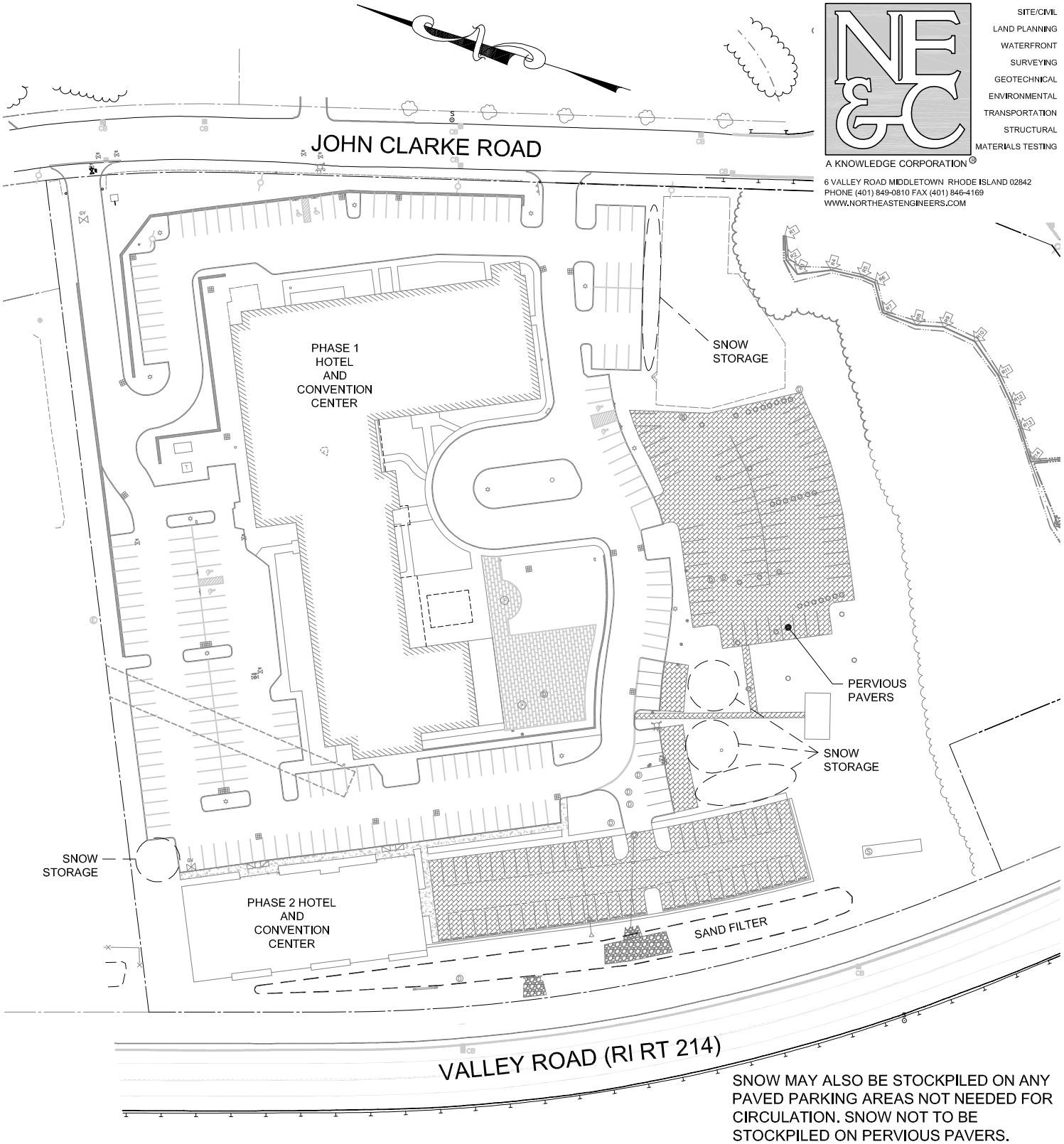

SNOW MAY ALSO BE STOCKPILED ON ANY PAVED PARKING AREAS NOT NEEDED FOR CIRCULATION. SNOW NOT TO BE STOCKPILED ON PERVIOUS PAVERS.

Scale:	1"=100'	Date:	26APR23	Designed By:	JJR	Drawn By:	JJR	Checked By:	GES

Project Title:

WYNDHAM NEWPORT HOTEL
MIDDLETOWN, RI

Drawing Title:

SNOW STORAGE LOCATION MAP

Issued for:

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Drawing Number:

M-2

Project Number:

09001.1

APPENDIX C STORMWATER MAINTENANCE AGREEMENT

(If required by the municipality, the agreement will be attached here.)