JONES&BEACH
ENGINEERS INC.
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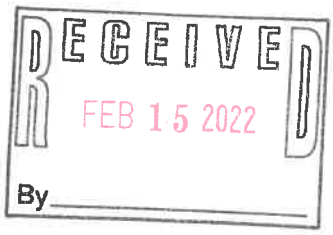
February 15, 2022

Rochester Planning Board
Attn. Nel Sylvian
31 Wakefield Street
Rochester, NH 03867



RE: Response Letter
19 Old Gonic Road, Rochester, NH
Tax Map 131, Lot 1
JBE Project No. 21090

Dear Mr. Sylvian,

We are in receipt of comments from Renee Bourdeau, P.E. and Emma Williamson EIT of Geosyntec dated January 26, 2022. Review comments are listed below with our responses in bold.

NARRATIVE STORMWATER MANAGEMENT REPORT:

1. *Anticipated project start and completion dates, and duration of grading and construction activities are not provided.*
   RESPONSE: This section 218-8 B of the Stormwater Management & Erosion Control allows for sites that require SWPPP's to have the SMECP requirements added into that document. We would like to request that we do this for this development. This information will be provided as part of EPA SWPPP documents as they will outline all of this information. The total length of construction will depend on market conditions and phasing.

2. *Documentation on what LID site planning and design strategies were used on-site or why using LID strategies are not feasible, as required under § 218-8.B(1)(d) is not provided.*
   RESPONSE: This section 218-8 B of the Stormwater Management & Erosion Control allows for sites that require SWPPP's to have the SMECP requirements added into that document. We would like to request that we do this for this development. We are utilizing wet ponds, swales, sediment forebays, catch basins with sumps and hoods and curbing.

3. *Description of the proposed changes in impervious cover is not provided. However, the proposed impervious cover is included in the HydroCAD outputs.*
   RESPONSE: The total amount of impervious cover in existing and proposed conditions is listed in the drainage report as requested.

4. *Description of the calculations to demonstrate how the proposed project meets construction site erosion control standards are not provided.*
   RESPONSE: Rip rap sizing calculations have been provided in the drainage report. Sediment forebay sizing information is part of the Alteration of Terrain Permit application along with the BMP worksheets.

5. *Description of the calculations to demonstrate how the proposed project meets post-construction stormwater management design standards are not provided.*
   RESPONSE: The Drainage Analysis and plan set provide the information to see that the stormwater management standards have been met.

6. *Description of the procedures to limit and/or optimize use of deicing materials and minimize off-site increases in chloride levels in adjacent surface and groundwater is not provided.*
   RESPONSE: This site is not located in a Chloride Impaired area and typically NHDES AOT does not require salt minimizations plans for these sites. All of our stormwater treatment is downstream of the road network and the stormwater gets treated per AOT regulations prior to release.

7. *Description of the procedures to control waste such as discarded building materials, construction debris, sanitary waste, concrete washout, chemicals, litter are not provided, with the exception of Site Notes #9 on drawing no. OVRS, which states that trash is to be handled with totes at each unit.*
   RESPONSE: The above will be addressed in the SWPPP Plan will be provided by the contractor prior to construction.

8. *Copies of pertinent state permits (AoT and wetlands), if applicable, are not provided.*
   RESPONSE: Copies of State Permits will be provided when received.

SITE DEVELOPMENT PLAN REQUIREMENTS:

1. *Drainage patterns and direction of flow of stormwater runoff using arrows 200-feet outside of the project boundary were not provided for the existing or proposed conditions on the site plans or watershed plans.*
   RESPONSE: We did not see this requirement in the site plan regulations, but we have added flow arrows on the watershed plans.

2. *The type of existing vegetation (including invasive species) is not shown (tree lines, trees and bushes, and wetland delineations are shown).*
   RESPONSE: The types of vegetation are called out on the plans; the woods are mixed growth and we have not found any invasives species to date.

3. *A limit of earth disturbance is not shown on the site plans.*
   RESPONSE: The limit of the earth disturbance is now shown on plan OVRG.

4. *A cut and fill plan are not provided.*
   RESPONSE: A plan has been added at the end of the set to show the areas of cut and fill.

5. *An Erosion and Sediment Control Plan is not provided to show the locations of earth stockpiles, perimeter controls, construction site entrances, temporary sediment basin, stone check dam, temporary culvert inlet protection check dam and any other erosion controls specified.*
   RESPONSE: All of this information is located on plans C9-C11 except temporary sediment basins. Those locations are determined by the site contractor and inspected as part of the SWPPP and this site will have an Environmental Monitor required by AOT as well.

6. *Location of equipment storage and staging areas are not shown. Procedures should be added to the Drainage Analysis Report to reflect the added controls.*
   RESPONSE: The above will be addressed in the SWPPP Plan will be provided by the contractor prior to construction.

7. *Location of vehicle fueling areas or equipment fueling areas are not shown. Procedures should be added to the Drainage Analysis Report to reflect the added controls.*
   RESPONSE: The above will be addressed in the SWPPP Plan will be provided by the contractor prior to construction.

8. *Location of disposal facilities for solid waste, construction debris, sanitary waste, concrete washout, and plan for stump disposal (if applicable) are not shown.*
   RESPONSE: The above will be addressed in the SWPPP Plan will be provided by the contractor prior to construction.

TEMPORARY CONSTRUCTION STORMWATER DESIGN STANDARDS:

1. *Stabilization notes on the site plans and within the Drainage Analysis Report should be updated to reflect the requirements under § 218-9.A(8)(a), which state that temporary stabilization measures should be in place within 5 calendar days for exposed soil areas that are within 100-feet of a surface water body or a wetland.*
   RESPONSE: This note has been added to our stabilization notes on Sheet E1.

2. *Procedures to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste during the construction process that may cause adverse impacts to water quality are not provided.*
   RESPONSE: The above will be addressed in the SWPPP Plan will be provided by the contractor prior to construction.

POST-CONSTRUCTION STOMWATER MANAGEMENT STANDARDS:

1. *Calculations are not provided that demonstrate that stormwater discharge from the proposed stormwater drainage system will not cause flooding or functional impairments to streets, adjacent properties, downstream properties, soils, or vegetation. Calculations show that the peak discharge for post-development does not exceed the pre-development discharge; however, calculations are not provided that demonstrate that the post-development runoff volume does not exceed the pre-development volume.*
   RESPONSE: Due to the soils onsite, infiltration of stormwater is not possible, therefore we are requesting a waiver to this requirement. We will also be requesting the same waiver from the AOT regulations, which is typically granted when in Hydrologic Soil Group C or worse.

2. *Provide a specific planting plan for the bioretention systems. Native plants should be proposed in a density sufficient to prevent surface erosion and to achieve water quality treatment requirements. Also, an alternative to bark or wood fiber mulch should be considered as this tends to float, does not reduce erosion at the inlet, and clogs overflow structures.*
   RESPONSE: The Bioretention Ponds have been removed from the plans and replace with Wet Ponds. No plantings are proposed.

3. *Proposed deicing material storage areas are not described or shown on the site plans.*
   RESPONSE: The above will be addressed in the SWPPP Plan will be provided by the contractor prior to construction. We do not anticipate the large storage of deicing material onsite. Typically, the plow trucks will salt and sand as they remove snow.

STORMWATER MANAGEMENT DESIGN STANDARDS FOR NEW DEVELOPMENT:

1. *Calculations are not provided to demonstrate that the total post-construction impervious area is treated to remove at least 80% total suspended solids and 50% removal of total phosphorus and total nitrogen, as required under § 218-10.C(1)(a). The Applicant should provide calculations that are consistent with the methods referenced in § 218-10.A(3)(a,b).*
   RESPONSE: These calculations are provided within the Drainage report.

2. *Calculations are not provided to demonstrate that the stormwater treatment practices have been designed for the water quality volume or water quality flow, in accordance with Env-Wq 1504.10 and Env-Wq 1504.11, respectively, as required under § 218-10.C(1)(c).*
   RESPONSE: BMP worksheets demonstrating these standards are being met are included within the Drainage Report.

3. *Calculations are not provided to demonstrate protection of groundwater resources by reducing the post-development stormwater runoff volume by infiltrating Groundwater Recharge Volume as required under § 218-10.C(2)(a,b).*
   RESPONSE: Due to the soils onsite, infiltration of stormwater is not possible, therefore we are requesting a waiver to this requirement. We will also be requesting the same waiver from the AOT regulations, which is typically granted when in Hydrologic Soil Group C or worse.

4. *Calculations are not provided to demonstrate that the post-development stormwater runoff volumes do not exceed the pre-development stormwater runoff volumes for the 2-year, 10-year, and 25-year, 24-hour design storm events, as required under § 218-10.C(3)(a).*
   RESPONSE: Due to the soils onsite, infiltration of stormwater is not possible, therefore we are requesting a waiver to this requirement. We will also be requesting the same waiver from the AOT regulations, which is typically granted when in Hydrologic Soil Group C or worse.

STORMWATER DRAINAGE SYSTEM SPECIFICATIONS:

1. *Calculations are not provided to demonstrate that the closed drainage system was sized for the 25-year, 24-hour storm event, as required under § 218-10.F(2)(a).*
   RESPONSE: The 25-year storm event is included within the calculations.

2. *Calculations are not provided for the 25-year, 24-hour storm to evaluate the potential for off-site effects, as if the project drainage flows to an existing roadway culvert or if a detention or retention area is proposed.*
   RESPONSE: We are proposed three separate Wet Ponds to mitigate peak discharge rates. The Drainage Report details the Wet Pond designs.

3. *Calculations are not provided to demonstrate that the closed drainage network has a minimum velocity of 2 feet per second, as required under § 218-10.F(2)(d).*
   RESPONSE: These calculations are included within the Drainage Report.

4. *Calculations are not provided to demonstrate that velocities entering the proposed swales are less than 10 feet per second and that the maximum velocity within the swale is 1 foot per second during the 25-year, 24-hour storm event, as required under § 218-10.F(2)(c).*
   RESPONSE: These calculations are included within the Drainage Report.

POST- CONSTRUCTION INSPECTION MAINTENANCE AGREEMENT:

1. *The Inspection and Maintenance Plan should include the following:*
   a. *The name of the responsible party for inspections and maintenance,*
      RESPONSE: These units are proposed as rental units and all maintenance will be the responsibility of the owners. Typically, AOT requires that projects of this size have annual maintenance inspection performed by a qualified third-party inspector.

b. *All of the proposed stormwater practices including but not limited to bioretention ponds, drip edges, riprap inlet and outlet protection, catch basins, and the closed drainage network.*
RESPONSE: The I&M document discusses these best management practices.

c. *A proposed schedule of inspection frequency,*
RESPONSE: We are proposing annual inspections. A checklist is provided in the I&M manual.

d. *A plan identifying each BMP and associated details an inspection checklist and photo documentation requirements,*
RESPONSE: A BMP plan has been added to the I&M document.

e. *Sample log to document each inspection and maintenance activity,*
RESPONSE: This has been added to the I&M document.

f. *Sample deicing log to track amount and type of deicing materials applied to the site,*
RESPONSE: This has been added to the I&M document.

g. *Description of maintenance response actions, including actions to be taking if invasive species begin to grow in stormwater practices, and*
RESPONSE: We have added the information provided in the Stormwater Management and Erosion Control Chapter 218 into the I&M document.

h. *Documentation of how reports will be completed, submittal and retention procedures, and contingency plans if future maintenance is required.*
RESPONSE: This information is provided in the I&M document and will be handled on a case by case depending on the situation and we will make reports available upon request to the DPW.

OTHER COMMENTS:

1. *The Grading and Drainage Plans reference "ponds"; however, the detail sheet provides a detail for bioretention. The details or Grading and Drainage Plans should identify these features with the same terminology.*
RESPONSE: The previously proposed Bioretention Ponds have been revised to be Wet Ponds. The Detail Sheets have been revised with the correct construction detail and notes have been changed within the plan set.

2. *Bioretention systems with an underdrain are not recommended as an appropriate stormwater practice for peak runoff control in accordance with Env-WQ 1507.05. Bioretention systems are appropriate for pollutant removal and to protect water quality. An alternative BMP should be considered for peak runoff control.*
RESPONSE: The previously proposed Bioretention Ponds have been revised to be Wet Ponds. The Detail Sheets have been revised with the correct construction detail and notes have been changed within the plan set.

3. *Proposed underdrains for the bioretention systems are not shown on the site plans.*
   RESPONSE: See above reply.

4. *The Applicant should clearly mark existing trees to remain on the Landscape Plan on drawing no. L1 (Landscape Notes #14) or on an alternate plan.*
   RESPONSE: Additional wordage has been added to the note that tree shall be clearly marked prior to land clearing activities.

5. *Note #14 on drawing no. P1 states "All driveways to have culverts unless approved by the town road agent." However, culverts are not shown, nor are drainage calculations or culvert specifications provided.*
   RESPONSE: There are no driveway culverts proposed. This note has been removed.

6. *Section 4.4 of the Drainage Analysis Sediment and Erosion Control Plan states that "Treatment is obtained through the use of deep sump hooded catch basins [...]", but does not provide the treatment rates obtained by the catch basins. Additionally, the hood is not included on the catch basin detail on drawing no. D2.*
   RESPONSE: A hood has been added to the Catch Basin Detail. Treatment provided by the catch basins is included in the Drainage Report.

7. *Snow storage areas are proposed in areas where stormwater runoff is managed (swales, inlets). This will impede the ability for stormwater to flow during rain events and cause localized flooding. Alternative locations for snow storage should be selected.*
   RESPONSE: We have reviewed the snow storage areas and removed any areas encroaching on inlets or swales.

8. *Details for proposed swales, including landscaping details are not provided.*
   RESPONSE: All swales will be grassed. A Detail has been included in the Plan Set.

9. *Outlet protection/rip-rap sizing calculations are not provided.*
   RESPONSE: Riprap sizing is now included in the Drainage Report.

10. *In the areas where the parking area runoff flows off of the pavement and onto vegetation prior to entering the proposed swale (near proposed buildings 103-114 and 91-102) calculations are not provided to demonstrate that the vegetation can withstand the velocities without causing erosion.*
    RESPONSE: A riprap apron has been added at the end of the parking lots in the areas mentioned in order to reduce any erosion caused by stormwater runoff.

11. *The following comments are specific to the HydroCAD Report and Watershed Plans:*
    a. *The complete (not summary) HydroCAD outputs should be included for the 25-year, 24-hour storm, as opposed to the 10-year, 24-hour storm which was provided.*
       RESPONSE: The complete summary of the 25-year storm is included.

b. *Analysis Point #5 appears to be off-site. Provide calculations to demonstrate that the existing infrastructure is sufficient to handle the additional flow from the development.*
RESPONSE: There will not be any additional flow to Analysis Point #5 as the HydroCAD output shows reductions in both the peak flow and volume for all analyzed storm events.

c. *The proposed vegetation should be modeled in the ponded area of the proposed bioretention and not treated as 100% void space to ensure that with mature vegetation these features have sufficient capacity to convey the post-development peak discharge and volume.*
RESPONSE: Bioretention areas have been eliminated from the plans.

Included with this response letter are the following:

1. Three (3) Full Size Plan Sets.
2. Sixteen (16) 11x17 Plan Sets (Folded).
3. Three (3) Revised Drainage Analysis.
4. Waiver Request Letter.
5. Stormwater O&M Manual.

Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Joseph Coronati
Vice President

cc: Green & Company (via email)
John O'Neil (via email)

JONES & BEACH
ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

February 15, 2022

Rochester Planning Board
Attn. Nel Sylvian
31 Wakefield Street
Rochester, NH 03867

RE: Waiver Request
Bayberry Commons, Rochester, NH
Tax Map 131, Lot 10
JBE Project No. 21090

Dear Mr. Sylvian,

Jones & Beach Engineers, Inc. is the Engineer of Record for the Proposed Bayberry Commons Project currently under review by the City of Rochester Planning Board.

We respectfully request a waiver from section 218-10 C(2) Groundwater Recharge Requirements. Using multiple stormwater management technologies, we have been successful is decreasing the peak stormwater discharge from this project for all studied storm events. We have attempted to infiltrate as much stormwater as possible to also reduce stormwater volume, however, due to high water table, the quantity of ledge on this site, and the soils belonging to hydrologic soil group 'C', we are unable to reduce the volume of stormwater to the level that exists in pre-existing conditions. Also, due to the soils onsite, infiltration of stormwater is not possible, therefore we are requesting a waiver to this requirement. We will also be requesting the same waiver from the AOT regulations, which is typically granted when in Hydrologic Soil Group C or worse.

The majority of stormwater from the project flows to Axe Handle Brook, which abuts the property. This brook has enough capacity to accept the small increase in stormwater volume discharged from the site and will not cause adverse impacts to downstream properties, infrastructure, aquatic habitat, or water quality degradation in downstream water bodies. We will be detaining much of the stormwater on site so as not to increase the peak amount of stormwater.

Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.

Joseph Coronati
Vice President

cc: Green & Company (via email)
John O'Neil (via email)

STORMWATER MANAGEMENT OPERATION AND MAINTENANCE MANUAL

Bayberry Commons
Tax Map 131 Lot 10
19 Old Gonic Road
Rochester, NH 03839

Prepared for:

Green and Company
11 Lafayette Road
North Hampton, NH 03862

Prepared by:
Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
(603) 772-4746
February 10, 2022
JBE Project No. 21090

JONES&BEACH ENGINEERS INC.

Inspection and Maintenance of Facilities and Property

A. Maintenance of Common Facilities or Property

1. The Residential Development, future owners and assigns are responsible to perform the maintenance obligations or hire a Professional Engineer to review the site on an annual basis for maintenance and certification of the stormwater system. The Owner shall keep receipts and records of all maintenance companies hired throughout the year to submit along with the following form. The annual report and certification shall be submitted to City of Rochester DPW upon request.

B. General Inspection and Maintenance Requirements

1. Permanent stormwater and sediment and erosion control facilities to be maintained on the site include, but are not limited to, the following:

    a. Catch basins and drain manholes
    b. Culverts
    c. Swales & Plunge Pools
    d. Vegetation and landscaping
    e. Parking lots and roadways
    f. Riprap inlet and outlet protection aprons
    g. Wet Ponds
    h. Residential Drip Edges
    i. Invasive Species Control

2. Maintenance of permanent measures shall follow the following schedule:

    a. Normal winter roadway and parking lot maintenance including plowing and snow removal.

    b. Road and parking lot sweeping at the end of every winter, preferably at the start of the spring rain season.

    c. **Inspection** of culvert inlets and outlets at least **once per month** during the rainy season (March to November). Any debris is to be removed and disposed of properly by owner or owner's agent.

    d. **Annual inspection** of the site for erosion, destabilization, settling, and sloughing. Any needed repairs are to be conducted immediately.

    e. **Annual inspection** of site's vegetation and landscaping. Any areas that are bare shall be reseeded and mulched with hay or, if the case is extreme, loamed and seeded or sodded to ensure adequate vegetative cover. Landscape specimens shall be replaced in kind, if they are found to be dead or dying.

    f. **Annual inspection** of catch basins and drain manholes to determine if they need to be cleaned. Catch basins are to be cleaned if the depth of deposits is greater than one-half the depth from the

basin bottom to the invert of the lowest pipe or opening into or out of the basin. If a catch basin significantly exceeds the one-half depth standard during the inspection, then it should be cleaned more frequently. If woody debris or trash accumulates in a catch basin, then it should be cleaned on a weekly basis. Manholes should be cleaned of any material upon inspection. Catch basins and manholes can be cleaned either manually or by specially designed equipment including, but not limited to, bucket loaders and vacuum pumps. Before any materials can be disposed, it is necessary to perform a detailed chemical analysis to determine if the materials meet the EPA criteria for hazardous waste. This will help determine how the materials should be stored, treated, and disposed. Grease hoods are to be wiped clean and the rags disposed of properly. Debris obscuring the grate inlet should also be removed.

g. Permanent stone check dams should be **inspected annually** in order to ensure that they are in good condition. Any sediment accumulated behind them shall be removed if it is deeper than six inches.

h. Rock riprap should be **inspected annually** in order to ensure that it has not been displaced, undermined, or otherwise damaged. Displaced rock should be replaced, or additional rock added in order to maintain the structure(s) in their undamaged state. Woody vegetation should not be allowed to become established in riprap areas, and/or any debris removed from the void spaces between the rocks. If the riprap is adjacent to a stream or other waterbody, the water should be kept clear of obstructions, debris, and sediment deposits.

i. Wet Ponds:

Wet Ponds should require little maintenance, but should be inspected frequently during the first year of operation, and annually thereafter. Every five years, the services of a professional engineer should be retained to perform a thorough inspection of all the aspects of the pond and its infrastructure. Any debris and sediment accumulations should be removed from the outlet structure(s) and emergency spillway(s) and disposed of properly. Inspect outlet structure for deterioration and or clogging. Wet Pond berms should be mowed at least once annually so as to prevent the establishment of woody vegetation – trees should *never* be allowed to grow on a Wet Pond berm, as they may destabilize the structure and increase the potential for failure. Areas showing signs of erosion or thin or dying vegetation should be repaired immediately by whatever means necessary, *with the exception of fertilizer*. Rodent burrows are to be repaired immediately and the suspect animals apprehended with non-lethal traps if the problem persists. The permanent water elevation should be constant at the elevation of the discharge culvert of 182.0'.

j. Cleaning Criteria for all Sedimentation Forebays: Sediment should be removed from the sedimentation chamber (forebay) when it accumulates to a depth of more than 12 inches (30 cm) or 10 percent of the pretreatment volume. The sedimentation forebay should be cleaned of vegetation if persistent standing water and wetland vegetation becomes dominant. The cleaning interval is once every year. A dry sedimentation forebay is the optimal condition while in practice this condition is rarely achieved. The sedimentation chamber, forebay, and treatment cell outlet devices should be cleaned when drawdown times exceed 60 to 72 hours. Materials can be removed with heavy construction equipment; however this equipment should not track on the wetland surface. Revegetation of disturbed areas as necessary. Removed sediments should be dewatered (if necessary) and disposed of in an acceptable manner.

k. Treatment and Vegetative Swales:

Inspect annually for erosion, sediment accumulation, vegetation loss, and presence of invasive species. Perform periodic mowing; frequency depends on location and type of grass. Do not cut shorter than Water Quality Flow depth (maximum 4-inches). Remove debris and accumulated sediment, based on inspection. Repair eroded areas, remove invasive species and dead vegetation, and reseed with applicable grass mix as warranted by inspection.

l. Vegetated Buffers:

Inspect buffer at least annually for signs of erosion, sediment buildup, or vegetation loss. If a meadow buffer, provide periodic mowing as needed to maintain a healthy stand of herbaceous vegetation. If a forested buffer, then the buffer should be maintained in an undisturbed condition, unless erosion occurs. If erosion of the buffer (forested or meadow) occurs, eroded areas should be repaired and replanted with vegetation similar to the remaining buffer. Corrective action should include eliminating the source of the erosion problem, and may require retrofit with a level spreader. Remove debris and accumulated sediment, based on inspection.

m. House Roof Drip Edges:

The following recommendations will help assure that the roof drip edges are maintained to preserve its effectiveness.

In the spring and fall, visually inspect the area around the edges and repair any erosion. Use small stones to stabilize erosion along drainage paths. Inspect stone area to ensure that it has not been displaced, undermined, or otherwise damaged. Displaced rock should be replaced, or additional rock added in order to maintain the structure(s) in their undamaged state. Woody vegetation should not be allowed to become established in stone areas, and/or any debris removed from the void spaces between the stones. Also inspect the roof collection and piping (if any) and clean and repair as necessary.

n. Invasive Species Control

An invasive plant is a non-native plant that is able to persist and proliferate outside of cultivation, resulting in ecological and/or economic harm. These plants readily colonize disturbed areas and habitat edges, such as transportation and river corridors. Once established in these areas, invasive plants often continue to spread to adjacent habitats. All invasive plant species are aggressive competitors with the ability to significantly reduce diversity of native plant and animal species.

For additional information refer to the "New Hampshire Department of Transportation: *Best Management Practices for Roadside Invasive Plants*"

1. **Invasive Plant Prevention:**

Invasive plants spread by a variety of mechanisms, including birds, wind, and water. Human activities are also a major factor in the spread of these plants, from gardening and transport of nursery stock to erosion control and wildlife plantings. Routine maintenance and construction activities along transportation corridors can also play a significant role in the spread of invasive plants by dispersing or introducing seeds and other viable plant materials.

Eliminating or reducing the spread and establishment of invasive plants requires a proactive approach, in which there are two key elements. First, new introductions, especially those that occur due to human activities, must be avoided to the maximum extent possible. Second, there must be an emphasis on early detection and eradication of new populations. Control measures are far more likely to be successful, as well as significantly less expensive, on small, young populations rather than on larger, more established populations, as shown in Figure 1.

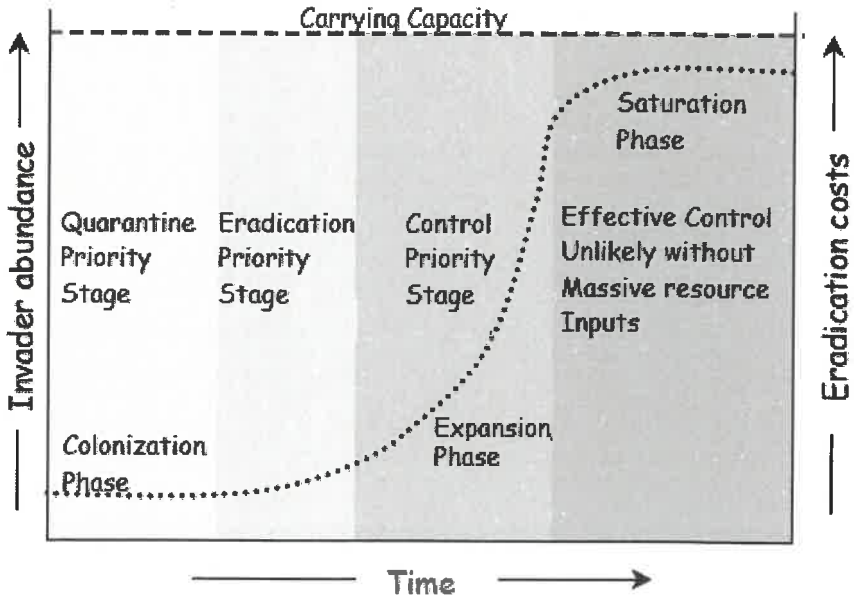


Figure 1. Typical invasive species population curve (from the University of Arizona and USGS Desert Laboratory http://wwwpaztcn.wr.usgs.gov)

2. Best Management Practices

Soil Disturbance and Stabilization:

- BMP #1: Minimize soil disturbance whenever possible. Invasive plants readily colonize areas of disturbed soil. Monitor recent work sites for the emergence of invasive plants for a minimum of two years after project completion.

- BMP #2: Stabilize disturbed soils as soon as possible by seeding and/or using mulch, hay, rip-rap, or gravel that is free of invasive plant material. Seeds of native species should be used whenever possible. Species on the prohibited invasive plant list should never be planted.

- BMP #3: Materials such as fill, loam, mulch, hay, rip-rap, and gravel should not be brought into project areas from sites where invasive plants are known to occur. If the

absence of invasive plant parts in these materials cannot be guaranteed, recent work sites should be monitored for the emergence of invasive plants for a minimum of two years after project completion.

Movement and Maintenance of Equipment:

- BMP #4: If work in areas containing invasive plants cannot be avoided, then the movement of maintenance and construction equipment should be from areas not infested by invasive plants to areas infested by invasive plants whenever possible. This is especially important during ditch cleaning and shoulder scraping activities.

- BMP #5: Locate and use staging areas that are free of invasive plants to avoid spreading seeds and other viable plant parts.

- BMP #6: If equipment must be used in areas where invasive plants occur, all equipment, machinery, and hand tools should be cleaned of all visible soil and plant material before leaving the project site. Equipment should be cleaned at the site of infestation. Acceptable methods of cleaning include, but are not limited to: *f* Portable wash station that contains runoff from washing equipment (containment must be in compliance with wastewater discharge regulations); *f* High pressure air; Brush, broom, or other hand tools (used without water).

- BMP #7: If equipment must be used in areas containing Japanese knotweed, phragmites, or purple loosestrife, aboveground plant material should be cut and properly disposed of (see BMP #11) prior to the start of work. If excavation occurs in these areas, see BMPs #13-16.

Mowing:

- BMP #8: These invasive plants have the ability to sprout from stem and root fragments: purple loosestrife, phragmites, and Japanese knotweed. Mowing these plants should be avoided whenever possible. Staking roadside populations of these plants as "do not mow" is one way to accomplish this. If these plants are cut, all plant material must be rendered nonviable and extra care should be taken to avoid spreading plant fragments (see BMP #11).

- BMP #9: In areas where invasive plants occur and the plants listed in BMP #8 (purple loosestrife, phragmites, and Japanese knotweed) are not present, an attempt should be made to mow the right-of-way prior to seed maturation (approximately August 1st). This could be accomplished by identifying specific roads that are either heavily infested with invasive plants or roads that are in sensitive habitat areas, and making those roads a priority in the mowing schedule.

- BMP #10: Mowing equipment should be cleaned at least daily, as well as prior to transport (see BMP #6). This is particularly important if mowing occurs after seed maturation (after August 1st).

Disposal of Plants:

- BMP #11: When invasive plants are cut or removed for roadside maintenance, construction, or control of plants, the spread of viable plant material must be avoided by rendering plant material nonviable. The following methods can be used to destroy plant material:
  - Drying/Liquefying: For large amounts of plant material or for plants with rigid stems, place the material on asphalt, tarps, or heavy plastic, and cover with tarps or heavy plastic to prevent the material from blowing away. For smaller amounts of plant material or for plants with pliable stems, bag the material in heavyduty (3-mil or thicker) garbage bags. Keep plant material covered or bagged for at least one month. Material is nonviable when it is partially decomposed, very slimy, or brittle. Once material is nonviable, it can be disposed of in a landfill or brush pile. Recommended for: Japanese knotweed, purple loosestrife, phragmites.
  - Brush Piles: Plant material from most invasive plants can be piled on site to dry out. However, when piling purple loosestrife, phragmites, and Japanese knotweed, care must be taken to pile stems so that cut surfaces are not in contact with the soil. Recommended for: Woody shrubs, trees, and vines; spotted knapweed; large quantities of purple loosestrife, phragmites, and Japanese knotweed. NOT recommended for: any invasive plant with seeds or fruit attached, unless plants can be piled within the limits of the infestation.
  - Burying: Plant material from most invasive plants can be buried a minimum of three feet below grade. This method is best used on a job site that already has disturbed soils. Recommended for: any invasive plant. NOT recommended for: Japanese knotweed, unless other options are not feasible and knotweed can be buried at the site of infestation at least five feet below grade. *f*
  - Burning: Plant material should be taken to a designated burn pile. (All necessary permits must be obtained before burning.) Recommended for: any invasive plant, especially purple loosestrife, phragmites, Japanese knotweed.
  - Herbicide: Herbicide applications must be carried out by a licensed applicator with a permit from the NH Department of Agriculture Division of Pesticide Control. Recommended for: any invasive plant, especially purple loosestrife, phragmites, Japanese knotweed.

- BMP #12: Invasive plant material must be covered during transport.

Excavated Material:

- BMP #13: Excavated material taken from sites that contain invasive plants cannot be used away from the site of infestation until all viable plant material is destroyed. Excavated material from areas containing invasive plants may be reused within the exact limits of the infestation.

- BMP #14: Any excavated material that contains viable plant material and is not reused within the limits of the infestation must be stockpiled on an impervious surface until viable plant material is destroyed OR the material must be disposed of by burying a minimum of three feet below grade. Japanese knotweed must be buried at least five feet below grade.

- BMP #15: Whenever possible, excavation should be avoided in areas containing Japanese knotweed, purple loosestrife, and phragmites. If excavation does occur in these areas, the BMPs described in Section II must be followed.

- BMP #16: Soil and other materials containing invasive plants must be covered during transport.

See attached sample forms as a guideline.

Any inquiries in regards to the design, function, and/or maintenance of any one of the above mentioned facilities or tasks shall be directed to the project engineer:

Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885

T#: (603) 772-4746
F#: (603) 772-0227

Commitment to maintenance requirements

I agree to complete and/or observe all of the required maintenance practices and their respective schedules as outlined above.

_____

Signature

_____

Print Name

_____

Title

_____

Date

Annual Operations and Maintenance Report

The Residential Development Owner, future owners and assigns are responsible to perform the maintenance obligations or hire a Professional Engineer to review the site on an annual basis for maintenance and certification of the stormwater system. The Owner or Owner's Agent shall keep receipts and records of all maintenance companies hired throughout the year to submit along with the following form. The annual report and certification shall be submitted to the City of Rochester DPW upon request.

Construction Activity	Date of Inspection	Who Inspected	Findings of Inspector
Catch basins and drain manholes			
Culverts			
Swales & Plunge Pools			
Vegetation and landscaping			
Parking lots and roadways			

Wet Ponds			
Drip Edges			

Weston & Sampson

100 International Drive, Suite 152, Portsmouth, NH 03801
Tel: 603.431.3937

MEMORANDUM

TO: Joseph Coronati, Jones & Beach Engineers, Inc.
Michael Green, Green & Company

FROM: John Sykora, Senior Team Leader, Weston & Sampson Engineers
Griffin Parodi, EIT, Staff Engineer, Weston & Sampson Engineers

RECEIVED
FEB 15 2022
By

DATE: February 11, 2022

SUBJECT: Rochester, NH, Old Gonic Road Sewer Capacity Evaluation

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This memorandum is a follow up to Weston and Sampson Engineer's (Weston & Sampson) evaluation of Rochester's (the City's) sewer collection system and its ability to accommodate wastewater flows from the proposed 175-unit townhouse development on the south end of Old Gonic Road.

Weston & Sampson submitted a memorandum on November 10, 2021, detailing a sewer capacity evaluation. The scope of this evaluation included projecting flows from the proposed development; calculating the existing average and peak flows in the collection system; evaluating the capacity of the Old Route 125 pump station; and calculating the capacity of the gravity sewer on Old Gonic Road, Columbus Ave, and all pipe downstream of the Old Route 125 pump station force main discharge. The memorandum concluded that the collection system had sufficient capacity to accommodate the peak flows from the proposed development. This conclusion was based on several assumptions, and Weston & Sampson provided recommendations to further investigate the capacity of certain areas of the collection system.

Since the submission of the original memorandum, the City has provided additional record information to Weston & Sampson that allowed for a more accurate capacity analysis on Columbus Ave. Per Weston & Sampson's recommendations, the City also performed drawdown and pressure tests at the pump station. A representative of the pump manufacturer also performed several pump performance tests to verify their capacity. The tests indicated an average pump flow of 473 GPM, which is less that the design point of 500 GPM. Based on these results, the pump station will need to be upgraded to accommodate the additional peak flows.

Weston & Sampson has also incorporated the results of a similar capacity analysis into this evaluation. At the time this study was performed, Weston & Sampson conducted an analysis identical in scope for a 52-unit residential development on Wadleigh Road in Rochester. This development will also tie into City sewer and contribute flows to the Old Route 125 pump station and all downstream sewer. Therefore, Weston & Sampson considered the combination of flows from both developments when evaluating the capacity of the pump station, siphon, and interceptor sewers. Table 1 on the following page summarizes the existing sewer flows, proposed flows from the Old Gonic Road development, and the proposed flows from the Wadleigh Road development.

Old Route 125 Pump Station Capacity

Table 1. Summary of Flows to Old Route 125 Pump Station			
Flow Source	**Data Source**	**Average Daily Flow (GPD)**	**Peak Hourly Flow (GPM)**
Existing Pump Station Flow	Historical Pump Station Run Time Data	82,435[1]	343[1]
Old Gonic Road Development	Emails and Drawings from J&B/Green&Co	35,700	149
Wadleigh Road Development	Email with Bradford from J&B	13,500	56[2]
	Total Flows from Tributary Area	**131,553**	**548**

[1]Existing Pump Station Flow includes the calculated daily and peak flow from the completed phase of the Highfields development. Any future expansion of the Highfields development has not been accounted for in any capacity calculations.

[2]Wastewater from the Wadleigh Road Development will not flow through the 10-inch gravity pipes on Columbus Ave and are therefore not included in the capacity calculations for that gravity sewer.

As shown in Table 1, the pump station must be capable of pumping 548 GPM. The existing capacity, which was field verified, is 473 GPM, meaning the station cannot currently accommodate the proposed development. The developers will need to coordinate with the City of Rochester to upgrade the Old Route 125 Pump Station. It is expected that the City will require the Wadleigh Road and Old Gonic Road developers to pay for the upgrade on a per gallon basis, meaning that the Old Gonic Road developers may pay a larger portion of the upgrade as that development will be contributing more flow to the station. A planning level construction cost estimate for upgrading the Old Route 125 pump station is attached to this memorandum. The planning level total cost is $320,000, which includes two new higher capacity pumps, associated electrical and instrumentation equipment, labor, and engineering. The new pumping configuration will provide a pumping rate of 600-650 GPM depending on factors such as inner diameter and general condition of the forcemain.

Columbus Ave Gravity Sewer Capacity

The capacity of the Columbus Ave sewer was re-evaluated after the City provided additional record drawings showing each segment of the 10-inch asbestos cement gravity sewer on Columbus Ave. The slope of each pipe segment and resulting capacity is included in Table 2 below. It should be noted that "capacity" refers to the pipe flowing 80% full. The 80% capacity recommendation is based on Weston & Sampson's standard practices and our work in other communities. The location of each pipe segment is shown in Figure 1 on the following page.

Table 2. Columbus Ave Gravity Sewer Existing and Potential Capacity					
Pipe Segment		**Pipe Slope**	**Existing Capacity[1] (10" AC Pipe) (GPM)**	**Capacity[1] if replaced with 12" Pipe (GPM)**	**Capacity[1] if replaced with 15" Pipe (GPM)**
1	SMH 1584 to 1585	0.0113	948	1,542	2,795
2	SMH 1585 to 1586	0.0038	549	892	1,617
3	SMH 1586 to PS	0.0059	683	1,110	2,013

[1]Capacity refers to the pipe flowing 80% full.

The Columbus Ave sewer must have sufficient capacity to handle the flow from the proposed Old Gonic Road development, plus the existing peak flows seen at the station. The sum of the existing peak flow plus the projected peak flow from the proposed development would be 492 GPM. At this flow, the limiting segment of the Columbus Ave sewer (segment 2) would be flowing approximately 75% full. This is below the limit of acceptable capacity of 80% flowing full. This calculation is theoretical, and other factors such as pipe blockage and condition of the pipe may contribute to the pipe capacity being lower that what is theoretically expected.

Additionally, the City has indicated that the 10-inch sewer has regularly been observed flowing at a high depth. The City may require the 10-inch asbestos cement pipe segments be replaced before the development is tied into the collection system. The planning level construction cost for this project is estimated to be $385,000 (engineering costs not included). A breakdown of this cost estimate is attached to this memorandum.

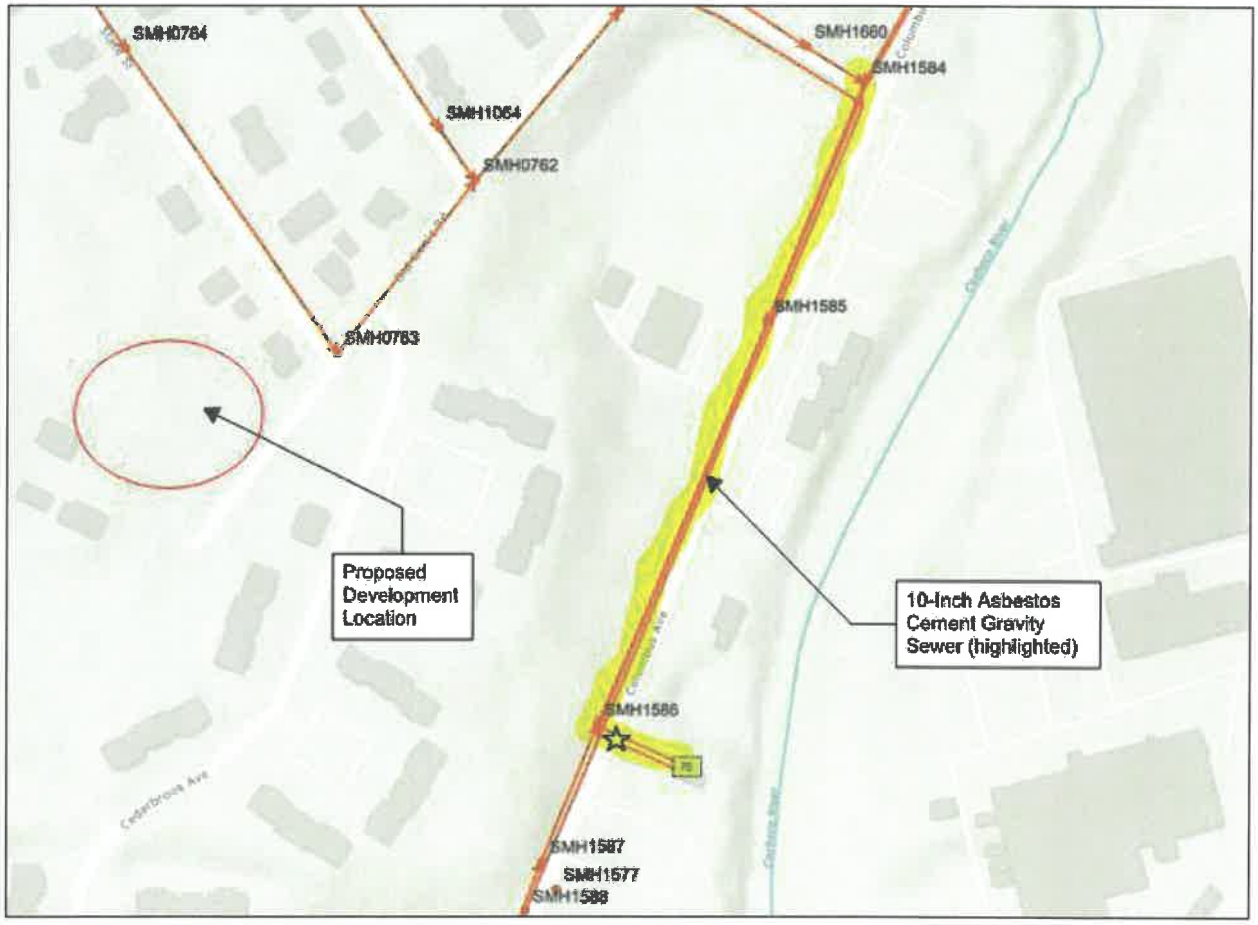


Figure 1 – Location of 10-Inch Sewer on Columbus Ave

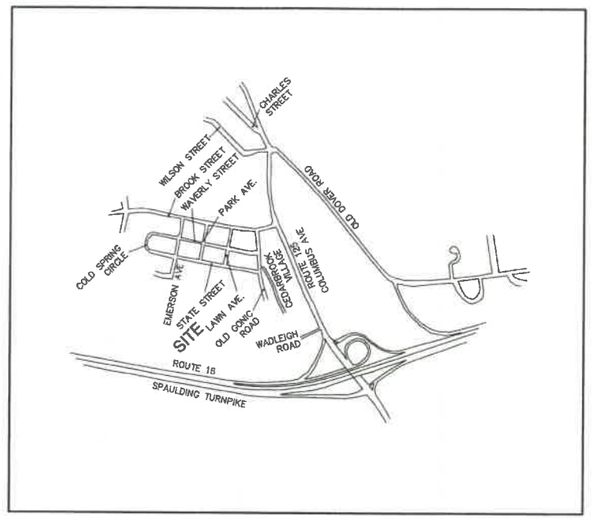
Attachments

Old Route 125 Pump Station Upgrade – Planning Level Cost Estimate
Columbus Ave Sewer Replacement – Planning Level Cost Estimate

PROPOSED SITE PLAN
"BAYBERRY COMMONS"
TAX MAP 131, LOT 10
19 OLD GONIC ROAD, ROCHESTER, NH

GENERAL LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINES
		SETBACK LINES
		CENTERLINE
		FRESHWATER WETLANDS LINE
		TIDAL WETLANDS LINE
		STREAM CHANNEL
		TREE LINE
		STONEWALL
		BARBED WIRE
		FENCE
		STOCKADE FENCE
		SOIL BOUNDARY
		AQUIFER PROTECTION LINE
		FLOOD PLAIN LINE
		ZONELINE
		EASEMENT
100	100	MAJOR CONTOUR
98	98	MINOR CONTOUR
		EDGE OF PAVEMENT
		VERTICAL GRANITE CURB
		SLOPE GRANITE CURB
		CAPE COD BERM
		POURED CONCRETE CURB
		ORGANIC FILTER BERM
		DRAINAGE LINE
		SEWER LINE
		SEWER FORCE MAIN
		GAS LINE
		WATER LINE
		WATER SERVICE
		OVERHEAD ELECTRIC
		UNDERGROUND ELECTRIC
		GUARDRAIL
		UNDERDRAIN
		FIRE PROTECTION LINE
		THRUST BLOCK
		IRON PIPE/IRON ROD
		DRILL HOLE
		IRON ROD/DRILL HOLE
		STONE/GRANITE BOUND
100x0	100x0	SPOT GRADE
100.00	100.00	PAVEMENT SPOT GRADE
100.00 / 99.50	100.00 / 99.50	CURB SPOT GRADE
		BENCHMARK (TBM)
		DOUBLE POST SIGN
		SINGLE POST SIGN
		WELL
TP1		TEST PIT
		FAILED TEST PIT
		MONITORING WELL
		PERC TEST
		PHOTO LOCATION
		TREES AND BUSHES
		UTILITY POLE
		LIGHT POLES
		DRAIN MANHOLE
		SEWER MANHOLE
		HYDRANT
		WATER GATE
		WATER SHUT OFF
		REDUCER
		SINGLE GRATE CATCH BASIN
		DOUBLE GRATE CATCH BASIN
		TRANSFORMER
		CULVERT W/WINGWALLS
		CULVERT W/FLARED END SECTION
		CULVERT W/STRAIGHT HEADWALL
		STONE CHECK DAM
		DRAINAGE FLOW DIRECTION
		4K SEPTIC AREA
		WETLAND IMPACT
		VEGETATED FILTER STRIP
		RIPRAP
		OPEN WATER
		FRESHWATER WETLANDS
		TIDAL WETLANDS
		STABILIZED CONSTRUCTION ENTRANCE
		CONCRETE
		GRAVEL
		SNOW STORAGE
		RETAINING WALL



LOCUS MAP
SCALE 1" = 2000'

SHEET INDEX

CS	COVER SHEET
OVEX	EXISTNG CONDITINS OVERVIEW PLAN
C1-C4	EXISTING CONDITIONS PLAN
DM1	DEMOLITION PLAN
OVRS	OVERVIEW SITE PLAN
C5-C8	SITE PLANS
OVRG	OVERVIEW GRADING PLAN
C9-C11	GRADING AND DRAINAGE PLAN
OVRU	OVERVIEW UTILITY PLAN
U1-U2	UTILITY PLAN
L1-L2	LANDSCAPE PLAN
L3-L4	LIGHTING PLAN
P1-P6	ROAD PLAN AND PROFILE
P7-P10	SEWER PROFILE
OFF-1-5	OFFSITE IMPROVEMENT PLANS
D1-D4	DETAIL SHEETS
E1	EROSION AND SEDIMENT CONTROL DETAILS
PH	PHASING PLAN

CIVIL ENGINEER / SURVEYOR
JONES & BEACH ENGINEERS, INC.
85 PORTSMOUTH AVENUE
PO BOX 219
STRATHAM, NH 03885
(603) 772-4746
CONTACT: JOSEPH CORONATI
EMAIL: JCORONATI@JONESANDBEACH.COM

TRAFFIC ENGINEER
STEPHEN G. PERNAW & COMPANY, INC.
P.O. BOX 1821
CONCORD, NH 03302
(603) 731-8500
CONTACT: STEPHEN G. PERNAW
EMAIL: SGP@PERNAW.COM

WETLAND CONSULTANT
GOVE ENVIRONMENTAL SERVICES, INC.
8 CONTINENTAL DR., BUILDING 2, UNIT H
EXETER, NH 03833-7526
(603) 778-0644
CONTACT: JAMES GOVE
EMAIL: JGOVE@GESINC.BIZ

LANDSCAPE DESIGNER
LM LAND DESIGN, LLC
11 SOUTH ROAD
BRENTWOOD, NH 03833
(603) 770-7728
CONTACT: LISE McNAUGHTON
LMLANDDESIGN@GMAIL.COM

WATER AND SEWER
ROCHESTER DEPARTMENT OF PUBLIC WORKS
45 OLD DOVER ROAD
ROCHESTER, NH 03867
(603) 332-4096
CONTACT: MICHAEL BEZANSON, P.E.

ELECTRIC
EVERSOURCE ENERGY
74 OLD DOVER ROAD
ROCHESTER, NH 03867
(603) 555-5334
CONTACT: MARK BOUCHER

TELEPHONE
CONSOLIDATED COMMUNICATIONS
1575 GREENLAND ROAD
GREENLAND, NH 03840
(603) 427-5525
CONTACT: JOE CONSIDINE

CABLE TV
COMCAST COMMUNICATION CORPORATION
334-B CALEF HIGHWAY
EPPING, NH 03042-2325
(603) 679-5695

NATURAL GAS
UNITIL SERVICE CORP.
325 WEST ROAD
PORTSMOUTH, NH 03801
(603) 294-5261
MACLEAND@UNITIL.COM

PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 10

APPLICANT
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

RECEIVED
FEB 15 2022
By

APPROVED - ROCHESTER, NH
PLANNING BOARD

DATE:

2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ
REV.	DATE	REVISION	BY

Design: JAC	Draft: LAZ	Date: 04/29/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

STATE OF NEW HAMPSHIRE – MICHAEL J. KERVAN No. 9646 – LICENSED PROFESSIONAL ENGINEER
2/14/2022

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

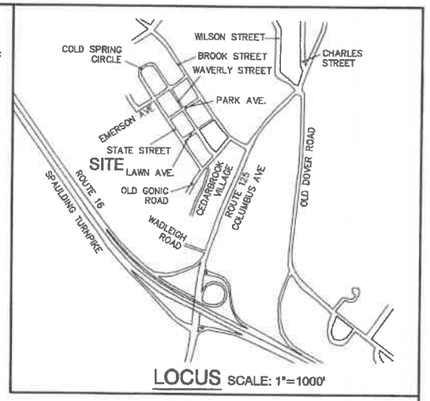
Plan Name:	COVER SHEET
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
CS
SHEET 1 OF 48
JBE PROJECT NO. 21090

PROJECT NAME AND LOCATION
REVISION 0, 11/23/21
JBE # 21090

EXISTING CONDITIONS NOTES:

1. UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER JONES & BEACH ENGINEERS, INC., NOR ANY OF THEIR EMPLOYEES TAKE RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES OR UTILITIES NOT SHOWN THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 1-888-DIG-SAFE (1-888-344-7233).
2. VERTICAL DATUM: NAVD 88. HORIZONTAL DATUM: STATE PLANE COORDINATES.
3. THE SUBJECT PARCEL IS PARTIALLY LOCATED WITHIN AN AREA HAVING A ZONE A DESIGNATION BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), ON FLOOD INSURANCE RATE MAP NO. 33017C0211D, WITH EFFECTIVE DATE OF MAY 17, 2005 FOR COMMUNITY PANEL NO. 211 OF 405, IN ROCKINGHAM COUNTY, STATE OF NEW HAMPSHIRE. WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR COMMUNITY IN WHICH SAID PREMISES IS SITUATED.
4. THE LIMITS OF JURISDICTIONAL WETLANDS WERE DELINEATED BY JAMES GOVE DURING SPRING, 2021 IN ACCORDANCE WITH THE FOLLOWING GUIDANCE DOCUMENTS:
   a. THE CORPS OF ENGINEERS FEDERAL MANUAL FOR IDENTIFYING AND DELINEATING JURISDICTIONAL WETLANDS.
   b. THE NORTH CENTRAL & NORTHEAST REGIONAL SUPPLEMENT TO THE FEDERAL MANUAL.
   c. THE CURRENT VERSION OF THE FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, AS PUBLISHED BY THE NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION AND/OR THE CURRENT VERSION OF THE FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, AS PUBLISHED BY THE USDA, NRCS, AS APPROPRIATE.
   d. THE CURRENT NATIONAL LIST OF PLANT SPECIES THAT OCCUR IN WETLANDS, AS PUBLISHED BY THE US FISH AND WILDLIFE SERVICE.
5. WETLAND BOUNDARIES AND CONSTRUCTION LIMITS ARE TO BE CLEARLY MARKED PRIOR TO THE START OF CONSTRUCTION.



LOCUS SCALE: 1"=1000'

ABUTTERS:

129/02
ROMAN CATHOLIC BISHOP
FINANCE AND REAL ESTATE OFFICE
153 ASH ST
MANCHESTER, NH 03104

131/57-1
131/58
TOWNSEND RICHARD
119 HALL ROAD
BARRINGTON, NH 03825
4379/86 (5/5/16) - LOT 57-1
2717/452 (3/31/03) - LOT 58

131/59-1
RHA CSM II LIMITED PARTNERSHIP
77 OLDE FARM LANE
ROCHESTER, NH 03867
2488/82 (4/4/02)

131/11
ABBOTT REMI
15 OLD GONIC ROAD
ROCHESTER, NH 03867
3375/947 (5/21/06)

131/11-1
GAGNON CHRISTOPHER
GAGNON NAOMI
25 STATE STREET
ROCHESTER NH 03867
4477/216 (5/18/17)

131/12
CODLING COREY
21 STATE ST
ROCHESTER, NH 03867
4927/624 (6/28/21)

131/13
LABRIE FAMILY TRUST
17 STATE ST
ROCHESTER, NH 03867
4627/285 (11/14/18)

131/14
13 STATE STREET LLC
11 FARRWOOD DRIVE
HOOKSETT, NH 03106
4864/285 (10/7/21)

131/15
PENA DOMINIC RAFAEL
11 STATE STREET
ROCHESTER, NH 03867
4702/788 (10/23/19)

131/16
FRISBEE TRACEY
84 BROCK ST
ROCHESTER, NH 03867
4847/802 (12/13/20)

131/17
DUCHESNEAU MICHELLE
7 STATE ST
ROCHESTER, NH 03867
3158/178 (2/14/05)

131/18
DAY ARRON
5 WSTATE STREET
ROCHESTER, NH 03867
4769/475 (6/2/20)

131/19
GELINAS BRYAN
GELINAS PAMELA
3 STATE ST
ROCHESTER, NH 03867
4799/762 (8/25/20)

131/06
CEDARBROOK VILLAGE CONDO ASSOCIATION
14A CEDARBROOK VILL
ROCHESTER, NH 03867
1161/202 (2/27/1985)

131/08-1
LAURA GATCHELL
1A CEDARBROOK AVE
ROCHESTER, NH 03867
4653/126 (5/9/19)

131/08-2
KATHRYN SOUSA
1B CEDARBROOK AVE
ROCHESTER, NH 03867
2965/618 (3/30/2004)

131/08-3
ANNA & ROBERT PEREIRA
1C CEDARBROOK AVE
ROCHESTER, NH 03867
4546/299 (1/31/18)

131/08-4
AMY SCHAEFFER
1D CEDARBROOK AVE
ROCHESTER, NH 03867
4367/484 (5/26/16)

131/8-5
NATHANIEL PRIEBE
1E CEDARBROOK AVE
ROCHESTER, NH 03867
4655/795 (5/19/19)

131/8-6
DAVID PETTIS
1F CEDARBROOK AVE
ROCHESTER, NH 03867
4658/411 (5/30/19)

131/8-7
AMANDA LAMBERT
1G CEDARBROOK AVE
ROCHESTER, NH 03867
3631/318 (3/27/08)

131/8-8
CAROLINE LEWIS
1H CEDARBROOK AVE
ROCHESTER, NH 03867
4597/717 (8/30/18)

131/8-9
STEPHEN & PATRICIA TALOR
2A CEDARBROOK AVE
ROCHESTER, NH 03867
2392/538 (10/15/01)

131/8-10
BRIAN HEBERT
2B CEDARBROOK AVE
ROCHESTER, NH 03867
3567/428 (8/23/07)

131/8-11
BUDI TANUDHARTA
2C CEDARBROOK AVE
ROCHESTER, NH 03867
429/512 (5/7/15)

131/8-12
GEORGE GATCOMB
2D CEDARBROOK AVE
ROCHESTER, NH 03867
3328/679 (1/26/06)

131/8-13
RAYMOND KING
2E CEDARBROOK AVE
ROCHESTER, NH 03867
3474/0028 (12/18/06)

131/8-14
OAK BLUFF REALTY LLC
242 CENTRAL AVE
DOVER NH 03820
3953/549 (9/8/11)

131/8-15
SEAN JACKSON
3A CEDARBROOK AVE
ROCHESTER, NH 03867
4581/644 (6/28/18)

131/8-16
ELIZABETH HANSON
3B CEDARBROOK AVE
ROCHESTER, NH 03867
4457/435 (2/9/17)

131/8-17
ALICIA MANSON
3C CEDARBROOK AVE
ROCHESTER, NH 03867
4623/411 (11/27/18)

131/8-18
EVANS FAMILY TRUST
3D CEDARBROOK AVE
ROCHESTER, NH 03867
4757/589 (4/8/20)

131/8-19
JESSICA STENERI
3E CEDARBROOK AVE
ROCHESTER, NH 03867
4487/437 (6/22/17)

131/8-20
SEAN CONNORS
3F CEDARBROOK AVE
ROCHESTER, NH 03867
4598/273 (8/27/18)

131/8-21
SRARH GIAMBRONE
4A CEDARBROOK AVE
ROCHESTER, NH 03867
3018/408 (6/20/04)

131/8-22
BRIAN MCQUADE
274 CEDAR ST
SEBASTIAN, FL 32958
3911/711 (1/13/11)

131/8-23
KERRY DESAUTEL
4C CEDARBROOK AVE
ROCHESTER, NH 03867
3935/932 (6/27/11)

131/8-24
PATRICK RILEY
4D CEDARBROOK AVE
ROCHESTER, NH 03867
2400/878 (10/30/01)

131/8-25
PAULE PRATT
4E CEDARBROOK AVE
ROCHESTER, NH 03867
2818/46 (12/11/03)

131/8-26
TIMUR GAMIROV
4F CEDARBROOK AVE
ROCHESTER, NH 03867
4296/903 (5/28/15)

131/8-27
HAYDEN GRACE KRISTY
5A CEDARBROOK AVE
ROCHESTER, NH 03867
4684/777 (6/19/19)

131/8-28
LINDA LACHANCE
5B CEDARBROOK AVE
ROCHESTER, NH 03867
3477/108 (12/21/06)

131/8-29
MICHAEL WALSH
5C CEDARBROOK AVE
ROCHESTER, NH 03867
4705/193 (10/30/19)

131/8-30
SANDRA FOURNIER
5D CEDARBROOK AVE
ROCHESTER, NH 03867
2942/181 (2/11/04)

131/8-31
OLD DOG PROPERTIES LLC
24 MORRISON LANE
DOVER NH 03820
4027/158 (5/29/12)

131/8-32
ELIZABETH RANKS
235 LONG POND ROAD
DANVILLE NH 03819
3719/769 (3/10/09)

131/8-33
DEBRA WELCH
6A CEDARBROOK AVE
ROCHESTER, NH 03867

131/8-34
JOSEPH ZUROMSKIS
6B CEDARBROOK AVE
ROCHESTER, NH 03867
2110/732 (5/26/1999)

131/8-35
ONGOOWARSITO MULIAWATI
6C CEDARBROOK AVE
ROCHESTER, NH 03867
4312/136 (7/24/15)

131/8-36
JOSHUA SWONGER
6D CEDARBROOK AVE
ROCHESTER, NH 03867
4958/1035 (9/21/21)

131/8-37
LINDSEY NICKLESS
6E CEDARBROOK AVE
ROCHESTER, NH 03867
4814/926 (10/1/20)

131/8-38
LOUISE BOUCHER
6F CEDARBROOK AVE
ROCHESTER, NH 03867
1877/283 (1/11/1998)

131/8-39
ERIN FERLAND
7o CEDARBROOK AVE
ROCHESTER, NH 03867
4963/870 (10/5/21)

131/8-40
ROBIN GARY
7B CEDARBROOK AVE
ROCHESTER, NH 03867
4541/660 (1/4/18)

131/8-41
BRANDON MAINS
7C CEDARBROOK AVE
ROCHESTER, NH 03867
4629/242 (1/10/19)

131/8-42
IOLA FOREMAN
7D CEDARBROOK AVE
ROCHESTER, NH 03867
4598/155 (6/30/18)

131/8-43
MELANIE HOLT
7E CEDARBROOK AVE
ROCHESTER, NH 03867
4798/961 (8/17/20)

131/8-44
ALEXANDRA WICKMAN
JOSEPH WARREN
7F CEDARBROOK AVE
ROCHESTER, NH 03867
4765/858 (5/28/20)

131/8-45
KAREN BAILEY
8A CEDARBROOK AVE
ROCHESTER, NH 03867
3878/380 (10/27/10)

131/8-46
MICHAEL CROVETTI
8B CEDARBROOK AVE
ROCHESTER, NH 03867
4715/120 (12/2/19)

131/8-47
PHILIP LANG
8C CEDARBROOK AVE
ROCHESTER, NH 03867
4581/977 (6/28/18)

131/8-48
ROBIN LORD
8D CEDARBROOK AVE
ROCHESTER, NH 03867
4923/182 (6/22/21)

131/8-49
MARISSA CORBIN
8E CEDARBROOK AVE
ROCHESTER, NH 03867
4845/275 (4/3/19)

131/8-50
JUSTIN MANITEUFFEL
8F CEDARBROOK AVE
ROCHESTER, NH 03867
3522/214 (4/2/07)

131/8-51
JEFFREY BOOMER
9A CEDARBROOK AVE
ROCHESTER, NH 03867
4578/729 (8/17/18)

131/8-52
KENNETH MAUSER
9B CEDARBROOK AVE
ROCHESTER, NH 03867
3935/182 (8/26/11)

131/8-53
HOMER WOODBURY
9C CEDARBROOK AVE
ROCHESTER, NH 03867
3165/820 (3/31/05)

131/8-54
JAMES SAULNIER
9D CEDARBROOK AVE
ROCHESTER, NH 03867
4579/833 (6/28/18)

131/8-55
ALISON JESSEMAN
9E CEDARBROOK AVE
ROCHESTER, NH 03867
4363/988 (3/6/18)

131/8-56
CHEN YIRU
9F CEDARBROOK AVE
ROCHESTER, NH 03867

131/8-57
UWAMEYEYI ESPERANCE
10A CEDARBROOK AVE
ROCHESTER, NH 03867
4680/191 (9/23/21)

131/8-58
DANIEL DEGRANDPRE
10B CEDARBROOK AVE
ROCHESTER, NH 03867
4658/850 (5/29/19)

131/8-59
RALPH STILLINGS
10C CEDARBROOK AVE
ROCHESTER, NH 03867
4525/479 (10/28/17)

131/8-60
DENISE SELFE
10D CEDARBROOK AVE
ROCHESTER, NH 03867
2215/260 (4/16/2000)

131/8-61
RICHARD DUSETT
33 ALEXANDRA LANE
ROCHESTER NH 03867
1304/258 (4/15/1987)

131/8-62
JOHN COLECCHIA
10 F CEDARBROOK AVE
ROCHESTER, NH 03867
4792/125 (5/7/20)

131/8-63
TARA CANFIELD
11A CEDARBROOK AVE
ROCHESTER, NH 03867
2443/74 (1/10/02)

131/8-64
MOORE FAMILY REV. TRUST
21 RIDGEWOOD ROAD
ELIOT, MAINE 03903

131/8-65
LYNNE PARADIS
11C CEDARBROOK AVE
ROCHESTER, NH 03867
3120/280 (12/21/04)

131/8-66
GRANT REALTY TRUST
ATTN: DAWD PAOLINI
242 CENTRAL AVE
DOVER NH 03820
4178/531 (11/5/13)

131/8-67
LISA KIMBALL
11E CEDARBROOK AVE
ROCHESTER, NH 03867
4589/936 (8/2/18)

131/8-68
CHARLENE WHITEHOUSE
11F CEDARBROOK AVE
ROCHESTER, NH 03867
2417/55 (11/25/01)

131/8-69
CHRISTINE SENECHAL
12A CEDARBROOK AVE
ROCHESTER, NH 03867
4428/130 (10/25/16)

131/8-70
STEHPEN SMALL
12 B CEDARBROOK AVE
ROCHESTER, NH 03867
2543/142 (7/11/02)

131/8-71
SARAH BENTON
12C CEDARBROOK AVE
ROCHESTER, NH 03867
4573/310 (6/3/18)

131/8-72
ROBERT THOMAS
12D CEDARBROOK AVE
ROCHESTER, NH 03867
4680/875 (8/14/19)

131/8-73
SUSAN WELSH
12E CEDARBROOK AVE
ROCHESTER, NH 03867
3032/39 (7/2/04)

131/8-74
MELINDA RIGGER REV. TRUST
12F CEDARBROOK AVE
ROCHESTER, NH 03867
4304/153 (6/25/15)

131/09
CITY OF ROCHESTER
31 WAKEFIELD ST
ROCHESTER, NH 03867
3371/144 (4/10/06)

137/35-1
SSG LLC
120 WASHINGTON ST
SUITE 302
ROCHESTER, NH 03867
4605/408 (9/27/18)

PLAN REFERENCES:

1. "CEDARBROOK VILLAGE CONDOMINIUM DEVELOPMENT BOUNDARY SURVEY FOR ROUNDHOUSE REALTY TRUST ROCHESTER, NH"; PREPARED BY BERRY CONST. CO., INC.; DATED APRIL 23, 1988; RECORDED AT THE STRAFFORD COUNTY REGISTRY OF DEEDS AS PLAN P23-059.
2. "PLAN OF LAND PARCEL NO. 5 TAX ASSESSOR'S MAP 59 AND PARCEL NO. 2 TAX ASSESSOR'S MAP NO 8 NEW HAMPSHIRE ROUTE 125 PREPARED FOR JEN-SCOT REALTY, INC"; PREPARED BY CIVILWORKS ENGINEERS AND SURVEYORS; DATED NOVEMBER 8, 1989 RECORDED AT THE STRAFFORD COUNTY REGISTRY OF DEEDS AS PLAN P37A-028.
3. "PROPOSED SUBDIVISION AND LOT LINE REVISION FOR ROCHESTER HOUSING AUTHORITY COLD SPRING MANOR BROOK STREET ROCHESTER, NH"; PREPARED BY BERRY SURVEYING & ENGINEERING; DATED FEBRUARY 13, 2001; RECORDED AT THE STRAFFORD COUNTY REGISTRY OF DEEDS AS PLAN P61-056.
4. "PROPOSED SUBDIVISION LAND OF THOMAS & JODI REMINGTON 15 OLD GONIC ROAD ROCHESTER, NH"; PREPARED BY BERRY SURVEYING & ENGINEERING; DATED AUGUST 17, 2005; RECORDED AT THE STRAFFORD COUNTY REGISTRY OF DEEDS AS PLAN P81-0036.
5. "SUBDIVISION PLAN TAX MAP 131, LOT 26 WAVERLY ST./ OLD GONIC RD. ROCHESTER NH FOR BAYONNE CONSTRUCTION COMPANY, INC.; PREPARED BY NORWAY PLAINS ASSOCIATES, INC; DATED JULY 25, 2006; RECORDED AT THE STRAFFORD COUNTY REGISTRY OF DEEDS AS PLAN P86-0100.
6. "SUBDIVISION PLAN TAX MAP 131, LOT 57 STATE STREET & EMERSON COURT ROCHESTER NH FOR RUNNING WITH HAMMERS, LLC"; PREPARED BY NORWAY PLAINS ASSOCIATES, INC.; DATED OCTOBER 17, 2007; RECORDED AT THE STRAFFORD COUNTY REGISTRY OF DEEDS AS PLAN P92-014.
7. "ROCHESTER HEIGHTS ROCHESTER, NH A.H. CHAPMAN LAND CO"; PREPARED BY E.H. SHEFFIELD; DATED JULY 1920; RECORDED AT THE STRAFFORD COUNTY REGISTRY OF DEEDS AS PLAN #19 POCKET #10 FOLDER #3.

SOIL NOTES:

THIS MAP PRODUCT IS WITHIN THE TECHNICAL STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY. IT IS A SPECIAL PURPOSE PRODUCT, INTENDED FOR INFILTRATION REQUIREMENTS BY THE NH DES ALTERATION OF TERRAIN BUREAU. IT WAS PRODUCED BY A PROFESSIONAL SOIL SCIENTIST, AND IS NOT A PRODUCT OF THE USDA NATURAL RESOURCES CONSERVATION SERVICE. THERE IS A REPORT THAT ACCOMPANIES THIS MAP.

THE SITE SPECIFIC SOIL SURVEY (SSSS) WAS PRODUCED JULY 21, 2021, AND WAS PREPARED BY JAMES P. GOVE, CSS # 004, GOVE ENVIRONMENTAL SERVICES, INC. THE SURVEY AREA IS LOCATED AT 19 OLD GONIC ROAD, ROCHESTER, NH.

SOILS WERE IDENTIFIED WITH THE NEW HAMPSHIRE STATE-WIDE NUMERICAL SOILS LEGEND, USDA NRCS, DURHAM, NH. ISSUE # 10, JANUARY 2011. THE NUMERIC LEGEND WAS AMENDED TO IDENTIFY THE CORRECT SOIL COMPONENTS OF THE COMPLEX.

HYDROLOGIC SOIL GROUP FROM KSAT VALUES FOR NEW HAMPSHIRE SOILS, SOCIETY OF SOIL SCIENTISTS OF NEW ENGLAND, SPECIAL PUBLICATION NO. 5, SEPTEMBER, 2009.

SSSS SYM.	SSSS MAP NAME	HISS SYM.	HYDRO. SOIL GRP.
953	BOXFORD (SOMEWHAT POORLY DRAINED)	453	C
38	ELDRIDGE LOAMY SAND	343	C
141	HOLLIS-ROCK OUTCROP-CHATFIELD	228	D
448	SCITUATE FINE SANDY LOAM	323	C
5	00UDORTHENTS, LOAMY	762	N/A
538	SQUAMSCOTT LOAMY SAND	543	C

SLOPE PHASE:
0-8% B 8-15% C 15-25%D
25%+ E

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

CERTIFICATION:

I CERTIFY THAT THIS PLAT WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN UNADJUSTED LINEAR ERROR OF CLOSURE THAT EXCEDS BOTH THE MINIMUM OF 1:10,000 AS DEFINED IN SECTION 503.04 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES AND THE MINIMUM OF 1:15,000 AS DEFINED IN SECTION 4.2 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

THIS SURVEY CONFORMS TO A CATEGORY 1 CONDITION 1 SURVEY AS DEFINED IN SECTION 4.1 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR SIGNATURE

DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 10

APPLICANT
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

Design: JAC	Draft: LAZ	Date: 04/29/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

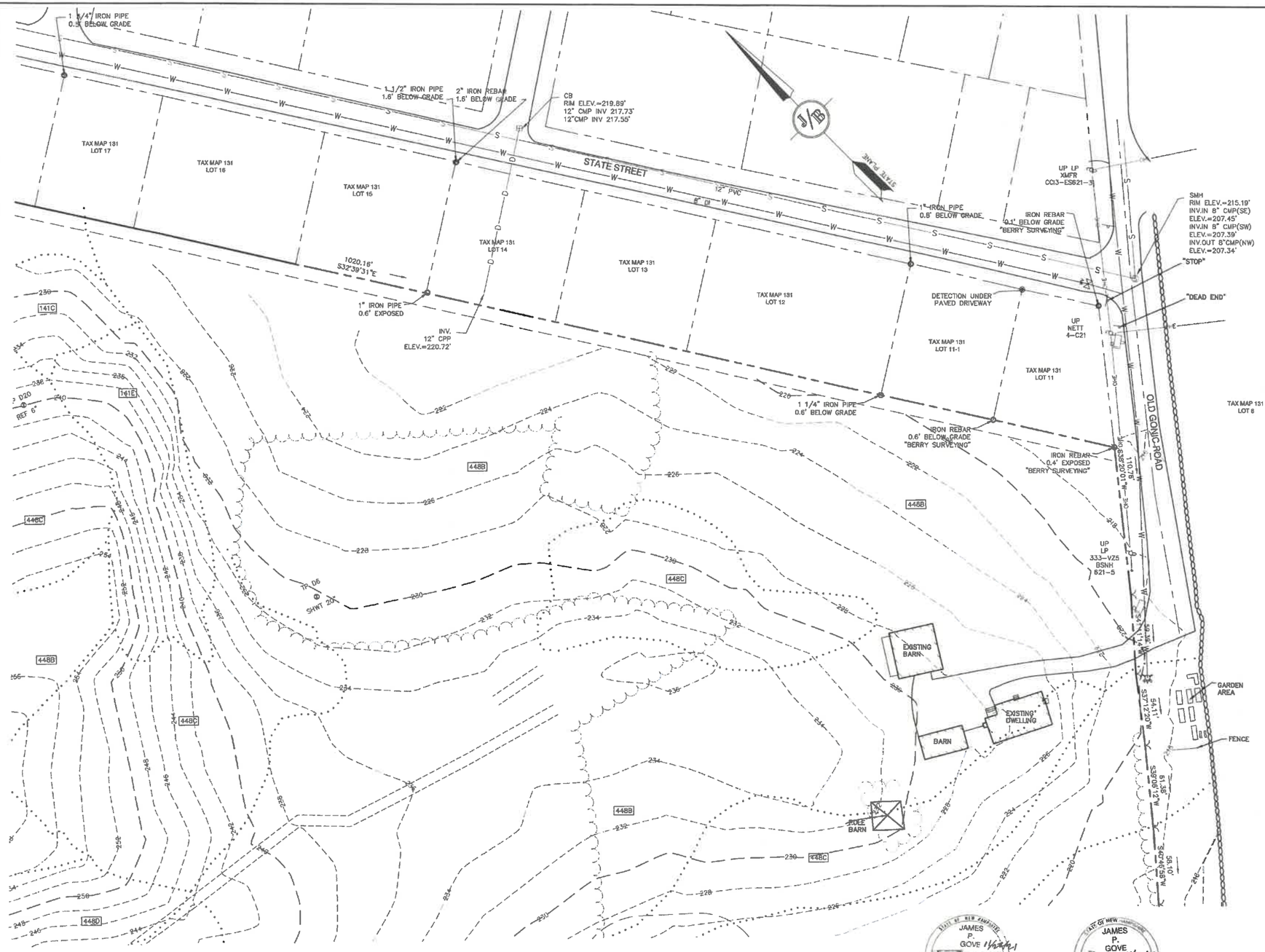
STATE OF NEW HAMPSHIRE MICHAEL J. KERIVAN No. 9646 LICENSED LAND SURVEYOR

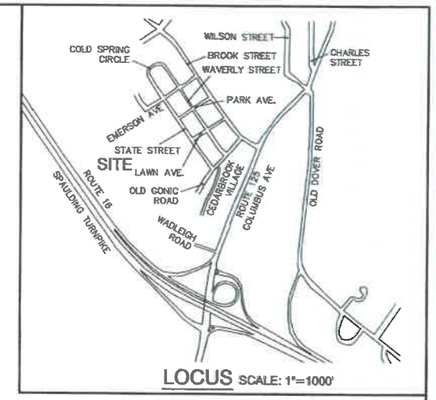
REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

Designed and Produced In NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EXISTING CONDITIONS PLAN
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
OVR
SHEET 2 OF 46
JBE PROJECT NO. 21090





LOCUS SCALE: 1"=1000'

SOIL NOTES:

THIS MAP PRODUCT IS WITHIN THE TECHNICAL STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY. IT IS A SPECIAL PURPOSE PRODUCT, INTENDED FOR INFILTRATION REQUIREMENTS BY THE NH DES ALTERATION OF TERRAIN BUREAU. IT WAS PRODUCED BY A PROFESSIONAL SOIL SCIENTIST, AND IS NOT A PRODUCT OF THE USDA NATURAL RESOURCES CONSERVATION SERVICE. THERE IS A REPORT THAT ACCOMPANIES THIS MAP.

THE SITE SPECIFIC SOIL SURVEY (SSSS) WAS PRODUCED JULY 21, 2021, AND WAS PREPARED BY JAMES P. GOVE, CSS # 004, GOVE ENVIRONMENTAL SERVICES, INC. THE SURVEY AREA IS LOCATED AT 19 OLD GONIC ROAD, ROCHESTER, NH.

SOILS WERE IDENTIFIED WITH THE NEW HAMPSHIRE STATE-WIDE NUMERICAL SOILS LEGEND, USDA NRCS, DURHAM, NH, ISSUE # 10, JANUARY 2011. THE NUMERIC LEGEND WAS AMENDED TO IDENTIFY THE CORRECT SOIL COMPONENTS OF THE COMPLEX.

HYDROLOGIC SOIL GROUP FROM KSAT VALUES FOR NEW HAMPSHIRE SOILS, SOCIETY OF SOIL SCIENTISTS OF NEW ENGLAND, SPECIAL PUBLICATION NO. 3, SEPTEMBER, 2009.

SSSS SYM.	SSSS MAP NAME	HSS SYM.	HYDRO. SOIL GRP.
953	BOXFORD (SOMEWHAT POORLY DRAINED)	453	C
38	ELDRIDGE LOAMY SAND	343	C
141	HOLLIS-ROCK OUTCROP-CHATFIELD	228	D
448	SCITUATE FINE SANDY LOAM	323	C
5	00UDORTHENTS, LOAMY	782	N/A
538	SQUAMSCOTT LOAMY SAND	543	C

SLOPE PHASE:
0-8% B 8-15% C 15-25%D
25%+ E

CERTIFICATION:

I CERTIFY THAT THIS PLAT WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN UNADJUSTED LINEAR ERROR OF CLOSURE THAT EXCEED BOTH THE MINIMUM OF 1:10,000 AS DEFINED IN SECTION 503.04 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES AND THE MINIMUM OF 1:15,000 AS DEFINED IN SECTION 4.2 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

THIS SURVEY CONFORMS TO A CATEGORY I CONDITION 1 SURVEY AS DEFINED IN SECTION 4.1 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

STATE OF NEW HAMPSHIRE — No. 892 DAVID M. COLLIER — LAND SURVEYOR
SIGNATURE

DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

STATE OF NEW HAMPSHIRE JAMES P. GOVE 004 CERTIFIED SOILS SCIENTIST

STATE OF NEW HAMPSHIRE JAMES P. GOVE No. 0051 CERTIFIED WETLAND SCIENTIST

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 10

APPLICANT
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,895 SQ. FT. ±
30.07 ACRES ±

Design: JAC	Draft: LAZ	Date: 04/29/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-PLAN.dwg		

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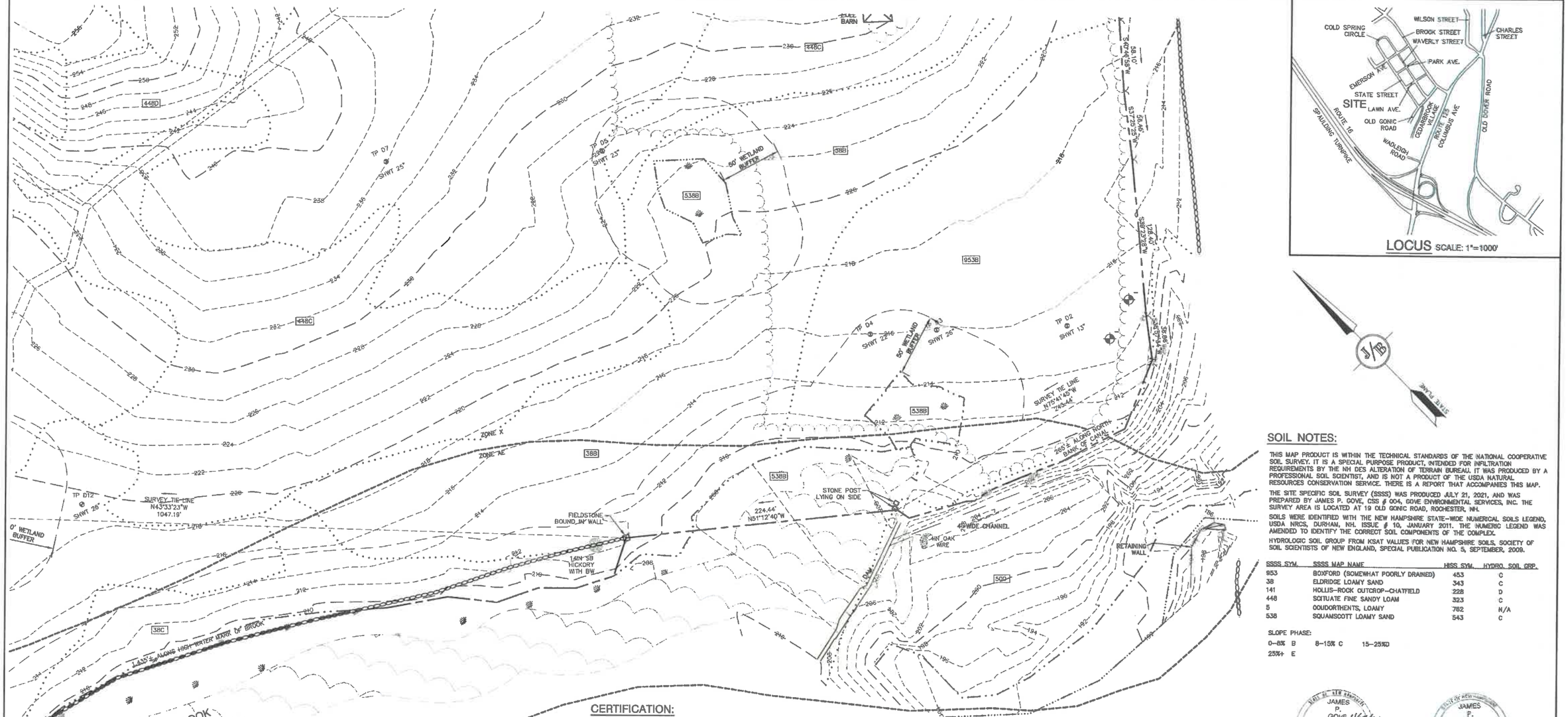
STATE OF NEW HAMPSHIRE — MICHAEL J. KERRIGAN No. 9648 — LICENSED PROFESSIONAL ENGINEER — 2/14/2022

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

Designed and Produced In NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EXISTING CONDITIONS PLAN
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
C1
SHEET 3 OF 46
JBE PROJECT NO. 21090



SOIL NOTES:

THIS MAP PRODUCT IS WITHIN THE TECHNICAL STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY. IT IS A SPECIAL PURPOSE PRODUCT, INTENDED FOR INFILTRATION REQUIREMENTS BY THE NH DES ALTERATION OF TERRAIN BUREAU. IT WAS PRODUCED BY A PROFESSIONAL SOIL SCIENTIST, AND IS NOT A PRODUCT OF THE USDA NATURAL RESOURCES CONSERVATION SERVICE. THERE IS A REPORT THAT ACCOMPANIES THIS MAP.

THE SITE SPECIFIC SOIL SURVEY (SSSS) WAS PRODUCED JULY 21, 2021, AND WAS PREPARED BY JAMES P. GOVE, CSS # 004, GOVE ENVIRONMENTAL SERVICES, INC. THE SURVEY AREA IS LOCATED AT 19 OLD GONIC ROAD, ROCHESTER, NH.

SOILS WERE IDENTIFIED WITH THE NEW HAMPSHIRE STATE-WIDE NUMERICAL SOILS LEGEND, USDA NRCS, DURHAM, NH. ISSUE # 10, JANUARY 2011. THE NUMERIC LEGEND WAS AMENDED TO IDENTIFY THE CORRECT SOIL COMPONENTS OF THE COMPLEX.

HYDROLOGIC SOIL GROUP FROM KSAT VALUES FOR NEW HAMPSHIRE SOILS, SOCIETY OF SOIL SCIENTISTS OF NEW ENGLAND, SPECIAL PUBLICATION NO. 5, SEPTEMBER, 2009.

SSSS SYM.	SSSS MAP NAME	HISS SYM.	HYDRO. SOIL GRP.
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38	ELDRIDGE LOAMY SAND	343	C
141	HOLLIS-ROCK OUTCROP-CHATFIELD	228	D
448	SCITUATE FINE SANDY LOAM	323	C
5	OQUDORTHENTS, LOAMY	782	N/A
538	SQUAMSCOTT LOAMY SAND	543	C

SLOPE PHASE:
0-8% B 8-15% C 15-25%D
25%+ E

CERTIFICATION:

I CERTIFY THAT THIS PLAT WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN UNADJUSTED LINEAR ERROR OF CLOSURE THAT EXCEED BOTH THE MINIMUM OF 1:10,000 AS DEFINED IN SECTION 503.04 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES AND THE MINIMUM OF 1:15,000 AS DEFINED IN SECTION 4.2 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

THIS SURVEY CONFORMS TO A CATEGORY 1 CONDITION 1 SURVEY AS DEFINED IN SECTION 4.1 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

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STATE OF NEW HAMPSHIRE No. 692 DAVID M. COLLIER LICENSED LAND SURVEYOR
SIGNATURE

DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

STATE OF NEW HAMPSHIRE JAMES P. GOVE 11/23/21 #004

STATE OF NEW HAMPSHIRE JAMES P. GOVE 11/23/21 No. 0051 WETLAND SCIENTIST

PROJECT PARCEL	CITY OF ROCHESTER TAX MAP 131, LOT 10
APPLICANT	GREEN AND COMPANY 11 LAFAYETTE ROAD NORTH HAMPTON, NH 03862
TOTAL LOT AREA	1,309,686 SQ. FT. ± 30.07 ACRES ±

Design: JAC	Draft: LAZ	Date: 04/29/21	
Checked: JAC	Scale: AS NOTED	Project No.: 21090	
Drawing Name: 21090-PLAN.dwg			

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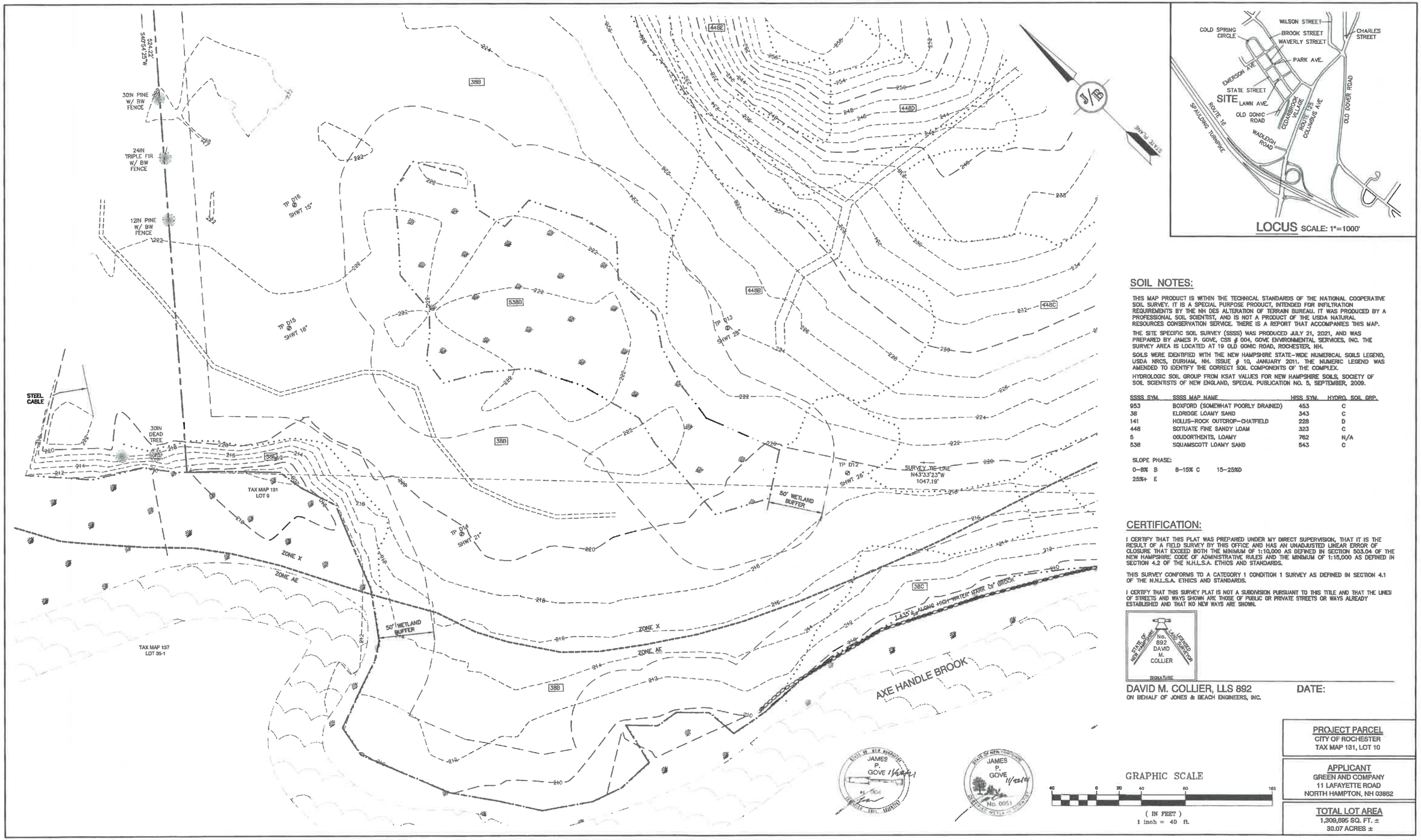
STATE OF NEW HAMPSHIRE MICHAEL J. KERVAN No. 9846 LICENSED LAND SURVEYOR 11/23/21

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EXISTING CONDITIONS PLAN
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
C2
SHEET 4 OF 46
JBE PROJECT NO. 21090



SOIL NOTES:

THIS MAP PRODUCT IS WITHIN THE TECHNICAL STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY. IT IS A SPECIAL PURPOSE PRODUCT, INTENDED FOR INFILTRATION REQUIREMENTS BY THE NH DES ALTERATION OF TERRAIN BUREAU. IT WAS PRODUCED BY A PROFESSIONAL SOIL SCIENTIST, AND IS NOT A PRODUCT OF THE USDA NATURAL RESOURCES CONSERVATION SERVICE. THERE IS A REPORT THAT ACCOMPANIES THIS MAP.

THE SITE SPECIFIC SOIL SURVEY (SSSS) WAS PRODUCED JULY 21, 2021, AND WAS PREPARED BY JAMES P. GOVE, CSS # 004, GOVE ENVIRONMENTAL SERVICES, INC. THE SURVEY AREA IS LOCATED AT 19 OLD GONIC ROAD, ROCHESTER, NH.

SOILS WERE IDENTIFIED WITH THE NEW HAMPSHIRE STATE-WIDE NUMERICAL SOILS LEGEND, USDA NRCS, DURHAM, NH. ISSUE # 10, JANUARY 2011. THE NUMERIC LEGEND WAS AMENDED TO IDENTIFY THE CORRECT SOIL COMPONENTS OF THE COMPLEX.

HYDROLOGIC SOIL GROUP FROM KSAT VALUES FOR NEW HAMPSHIRE SOILS, SOCIETY OF SOIL SCIENTISTS OF NEW ENGLAND, SPECIAL PUBLICATION NO. 5, SEPTEMBER, 2009.

SSSS SYM.	SSSS MAP NAME	HISS SYM.	HYDRO. SOIL GRP.
953	BOXFORD (SOMEWHAT POORLY DRAINED)	453	C
38	ELDRIDGE LOAMY SAND	343	C
141	HOLLIS-ROCK OUTCROP-CHATFIELD	228	D
448	SCITUATE FINE SANDY LOAM	323	C
5	OQUDORTHENTS, LOAMY	762	N/A
538	SQUAMSCOTT LOAMY SAND	543	C

SLOPE PHASE:
0-8% B 8-15% C 15-25%D
25%+ E

CERTIFICATION:

I CERTIFY THAT THIS PLAT WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN UNADJUSTED LINEAR ERROR OF CLOSURE THAT EXCEED BOTH THE MINIMUM OF 1:10,000 AS DEFINED IN SECTION 503.04 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES AND THE MINIMUM OF 1:15,000 AS DEFINED IN SECTION 4.2 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

THIS SURVEY CONFORMS TO A CATEGORY 1 CONDITION 1 SURVEY AS DEFINED IN SECTION 4.1 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR
SIGNATURE

DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

JAMES P. GOVE 11/2014 No. 004

JAMES P. GOVE 11/2014 No. 0051

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 10

APPLICANT
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,895 SQ. FT. ±
30.07 ACRES ±

Design: JAC	Draft: LAZ
Checked: JAC	Scale: AS NOTED
Drawing Name: 21090-PLAN.dwg	Date: 04/29/21 Project No.: 21090

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

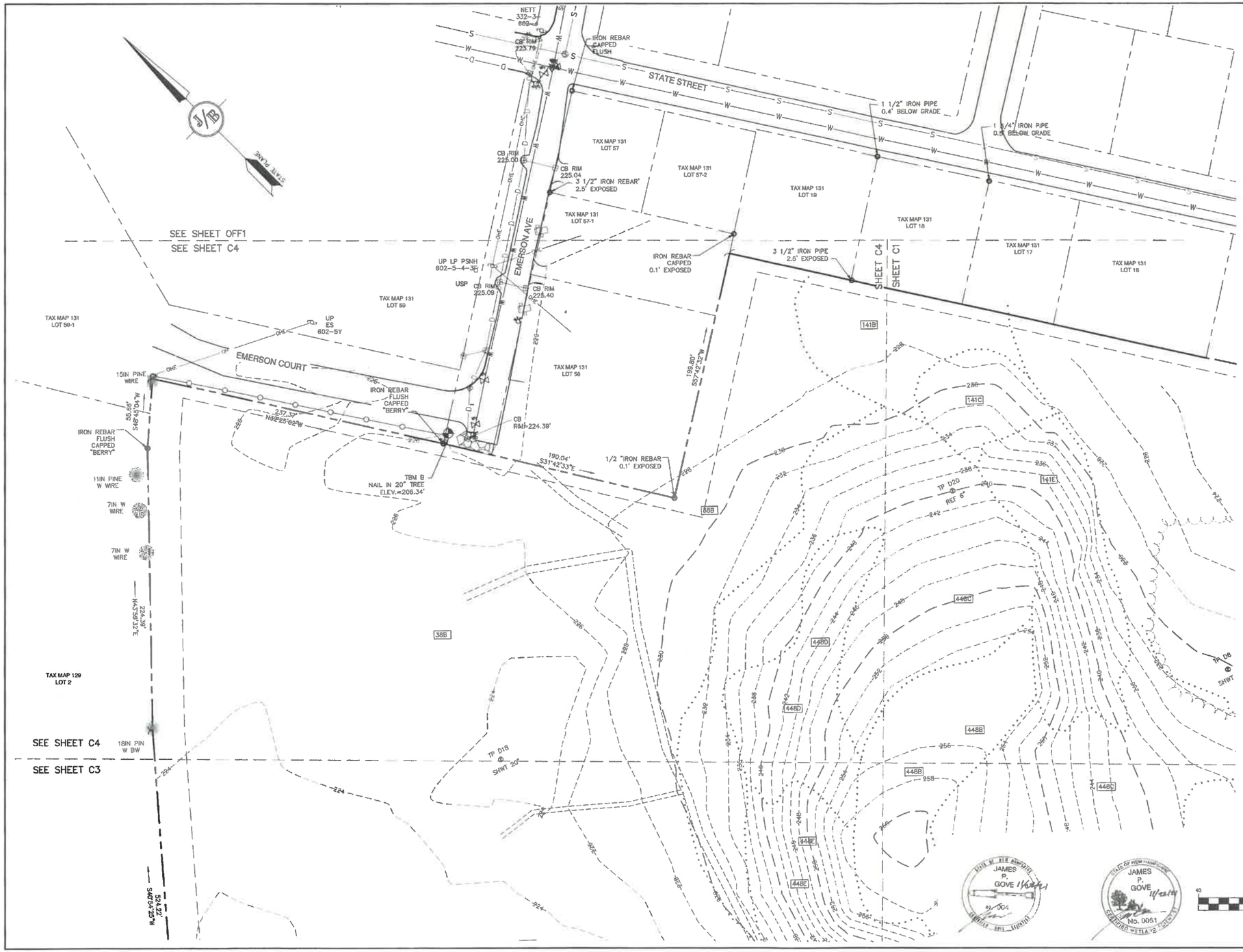
STATE OF NEW HAMPSHIRE MICHAEL J. KERVAN No. 9849 LICENSED PROFESSIONAL ENGINEER 2/14/2022

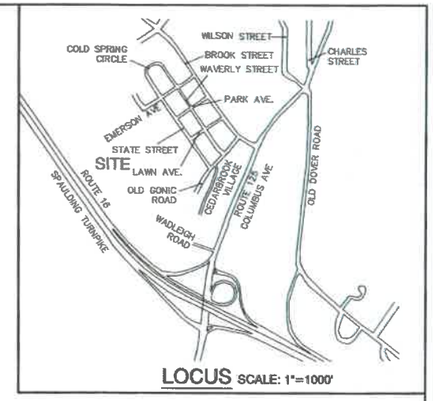
REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: EXISTING CONDITIONS PLAN
Project: BAYBERRY COMMONS
19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record: LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE
19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
C3
SHEET 5 OF 48
JBE PROJECT NO. 21090





LOCUS SCALE: 1"=1000'

SOIL NOTES:

THIS MAP PRODUCT IS WITHIN THE TECHNICAL STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY. IT IS A SPECIAL PURPOSE PRODUCT, INTENDED FOR INFILTRATION REQUIREMENTS BY THE NH DES ALTERATION OF TERRAIN BUREAU. IT WAS PRODUCED BY A PROFESSIONAL SOIL SCIENTIST, AND IS NOT A PRODUCT OF THE USDA NATURAL RESOURCES CONSERVATION SERVICE. THERE IS A REPORT THAT ACCOMPANIES THIS MAP.

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HYDROLOGIC SOIL GROUP FROM KSAT VALUES FOR NEW HAMPSHIRE SOILS, SOCIETY OF SOIL SCIENTISTS OF NEW ENGLAND, SPECIAL PUBLICATION NO. 5, SEPTEMBER, 2009.

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538	SQUAMSCOTT LOAMY SAND	543	C

SLOPE PHASE:
0-8% B 8-15% C 15-25%D
25%+ E

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STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR
SIGNATURE

DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

JAMES P. GOVE 11/23/21 No. 004

JAMES P. GOVE 11/23/21 No. 0051

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 10

APPLICANT
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

Design: JAC	Draft: LAZ
Checked: JAC	Scale: AS NOTED
Drawing Name: 21090-PLAN.dwg	Date: 04/29/21 Project No.: 21090

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STATE OF NEW HAMPSHIRE MICHAEL J. KERVAN No. 9846 LICENSED LAND SURVEYOR

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

Designed and Produced In NH
Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EXISTING CONDITIONS PLAN
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
C4
SHEET 6 OF 48
JBE PROJECT NO. 21090

DEMOLITION NOTES:

1. THIS PLAN IS INTENDED TO PROVIDE MINIMUM GUIDELINES FOR SITE DEMOLITION. IT SHOULD BE NOTED THAT ALL MANMADE FEATURES, PAVEMENT, SIGNS, POLES, CURBING, CONCRETE WALKS, UTILITIES, ETC., SHALL BE REMOVED AS NECESSARY TO CONSTRUCT WORK, UNLESS OTHERWISE NOTED TO REMAIN. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCIES FROM DATA AS SHOWN ON DESIGN PLANS. THIS INCLUDES ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS OF THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
2. A TEMPORARY CULVERT AND ROADBED SHALL BE IN PLACE PRIOR TO ANY USE OF A WETLAND CROSSING.
3. WETLAND IMPACTS SHALL NOT OCCUR UNTIL ALL PERMITS HAVE BEEN ACQUIRED AND IMPACT MITIGATION REQUIREMENTS HAVE BEEN SATISFIED.
4. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS REQUIRED TO HAVE THE PROJECT LAND SURVEYOR STAKE OR FLAG CLEARING LIMITS. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED. CLEARING LIMITS ARE THE EDGE OF THE PROPERTY AND THE LIMITS OF WORK.
5. ALL EXISTING STRUCTURES WITHIN THE CONSTRUCTION AREA, UNLESS OTHERWISE NOTED TO REMAIN, SHALL BE REMOVED AND DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL GUIDELINES. ANY BURNING ON-SITE SHALL BE SUBJECT TO LOCAL ORDINANCES.
6. ALL EXISTING PAVED SURFACES WITHIN THE LIMITS OF WORK THAT ARE TO REMAIN SHALL BE RECLAIMED TO MINIMUM DEPTH OF 12" AND REGRADED AS SHOWN ON THE GRADING AND DRAINAGE PLAN. RECLAIMED ASPHALT SHALL CONFORM TO STATE SPECIFICATIONS. PRIOR TO REMOVAL, PAVEMENT SHALL BE SAWCUT AT ALL ENTRANCES AND LIMITS OF REMOVAL.
7. ALL EXISTING GRANITE CURBING TO BE REMOVED SHALL BE STOCKPILED IN AN AREA TO BE DESIGNATED BY THE OWNER OR OWNER'S REPRESENTATIVE. THE OWNER SHALL INSPECT GRANITE CURBING TO BE RESET AND APPROVE LOCATION OF RESET CURBING. THE CONTRACTOR SHALL NOT INSTALL USED CURBING AT ANY ENTRANCE LOCATIONS.
8. ALL EXISTING UTILITIES SHALL BE TERMINATED AT THE PROPERTY LINE, UNLESS OTHERWISE NOTED ON THE PLANS, IN CONFORMANCE WITH LOCAL, STATE AND UTILITY COMPANY STANDARDS, SPECIFICATIONS AND DETAILS. THE CONTRACTOR SHALL COORDINATE UTILITY SERVICE DISCONNECTS WITH THE UTILITY REPRESENTATIVES PRIOR TO THE START OF WORK.
9. EXISTING WATERLINES AND HYDRANTS TO BE REMOVED SHALL BE CAPPED AT EXISTING WATERMAIN.
10. EXISTING GAS SERVICE LINES ARE TO BE REMOVED ON-SITE UP TO EXISTING GASMAIN LINES OR VALVES.
11. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL CONTAMINATED MATERIAL LOCATED IN THE AREA OF EXISTING LEACHFIELDS IN ACCORDANCE WITH LOCAL AND STATE REGULATIONS.
12. ALL CURBING, CONCRETE, PAVEMENT, BUILDINGS AND SUBBASE MATERIALS LOCATED WITHIN PROPOSED LANDSCAPED AREAS SHALL BE REMOVED AND REPLACED WITH LOAM MATERIALS SUITABLE FOR LANDSCAPING IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS. (SEE ALSO LANDSCAPE PLAN).
13. SEE LANDSCAPE PLAN FOR "TREES TO BE SAVED" AND DETAILS ASSOCIATED WITH LANDSCAPED AREAS.
14. THE CONTRACTOR SHALL OBTAIN TREE CLEARING PERMIT FROM LOCAL AND STATE AUTHORITIES PRIOR TO START OF CONSTRUCTION (IF REQUIRED).
15. CONTRACTOR SHALL HAVE THE OPTION TO REMOVE DRAINAGE/SEWER STRUCTURES, OR REMOVE MANHOLE FRAME AND GRATE/COVER TO A MINIMUM OF 36" BELOW FINISH GRADE, FRACTURE BOTTOM AND FILL WITH COMPACTED BORROW.
16. IN AREAS WHERE CONSTRUCTION IS PROPOSED ADJACENT TO ABUTTING PROPERTIES, THE CONTRACTOR SHALL INSTALL ORANGE CONSTRUCTION FENCING ALONG PROPERTY LINES IN ALL AREAS WHERE SILT FENCING IS NOT REQUIRED.
17. EXISTING SANITARY SEWER LINE AND STRUCTURES LOCATED WITHIN THE EXISTING SEWER EASEMENTS SHALL BE MAINTAINED OR MODIFIED AS NOTED ON PLANS. SEWER LINES SHALL BE DISCONNECTED IN ACCORDANCE WITH LOCAL STANDARDS AND REGULATIONS.
18. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND ANY EARTH MOVING OPERATIONS. SILT FENCE SHALL BE INSTALLED AT THE LIMITS OF IMPACT AREAS ACCORDING TO THE DETAILS SHOWN ON SHEET E1.
19. EXCAVATED MATERIALS WILL BE PLACED WITHIN UPLAND AREAS AS FILL MATERIAL OR HAULED OFF-SITE FOR DISPOSAL IN AN APPROPRIATE UPLAND LOCATION.

PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 10

APPLICANT
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

Design: JAC	Draft: LAZ
Checked: JAC	Scale: AS NOTED
Drawing Name: 21090-PLAN.dwg	

Date: 04/29/21
Project No.: 21090

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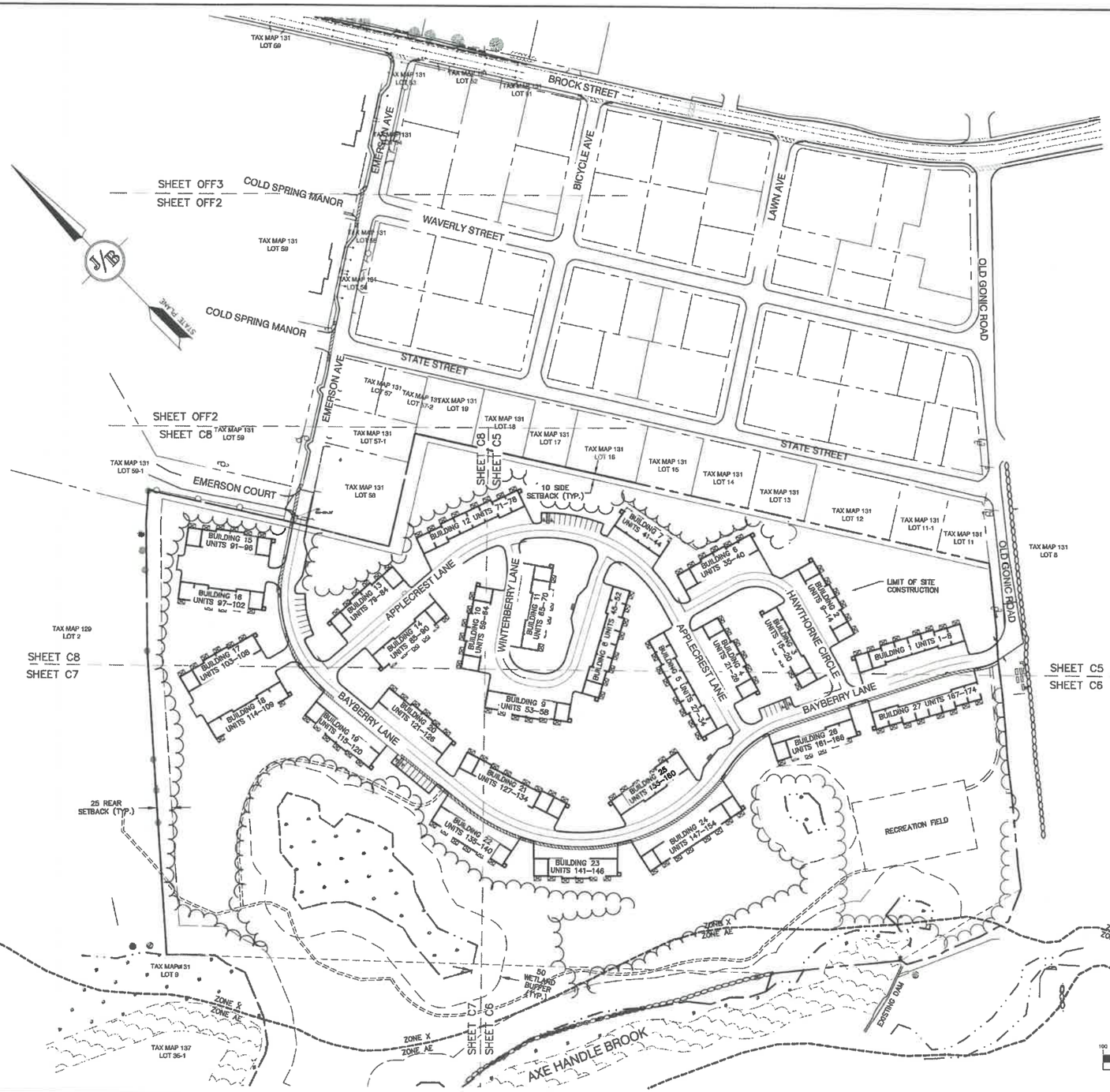
STATE OF NEW HAMPSHIRE – MICHAEL J. KERIVAN No. 9808 – LICENSED PROFESSIONAL ENGINEER
2/14/2022

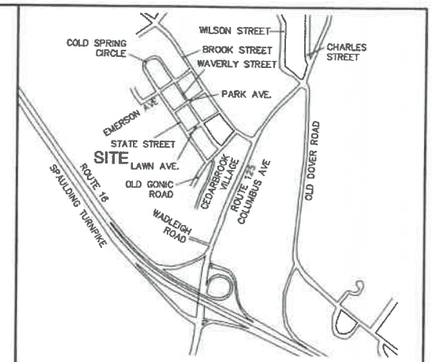
REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	DEMOLITION PLAN
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
DM-1
SHEET 7 OF 46
JBE PROJECT NO. 21090





LOCUS SCALE: 1"=1000'

SITE NOTES:

1. THE INTENT OF THIS PLAN IS TO SHOW A 174-UNIT TOWNHOUSE DEVELOPMENT ON THE SUBJECT PARCEL. ALL UNITS TO HAVE 3 BEDROOMS. PROJECT TO BE SERVICED BY CITY WATER AND SEWER AND UNDERGROUND UTILITIES.

2. ZONING DISTRICT: RESIDENTIAL-2, USE: FIVE-OR MORE FAMILY
   LOT AREA MINIMUM = 30,000 SF
   LOT FRONTAGE MINIMUM = 100'
   BUILDING SETBACKS (MINIMUM):
   FRONT SETBACK = 15'
   SIDE SETBACK = 10'
   REAR SETBACK = 25'
   WETLAND SETBACK = 50'
   MAX. BUILDING HEIGHT = 35'
   MAX. BUILDING FOOTPRINT = 30%
   MAX. LOT COVERAGE = 60%
   MIN. LOT AREA / DWELLING UNIT = 7,500 S.F.
   BUILDING FOOTPRINT PROPOSED = 125,280 S.F. =9.6% OF SITE
   TOTAL LOT COVERAGE PROPOSED = 327,455 S.F. = 25% OF SITE

4. DENSITY CALCULATION:
   TOTAL LOT AREA = 1,309,695 S.F. / 7,500 S.F. = 175 UNITS ALLOWED
   174 UNITS PROVIDED

5. LOT COVERAGE CALCULATIONS

	AREA (SF)	AREA (AC)	PERCENT OF SITE
TOTAL AREA	1,309,695 SF	30.07 AC	
BUILDING AREA	125,280 SF	2.9 AC	9.6%
PAVEMENT	202,175 SF	4.6 AC	15.4%
WETLAND	58,294 SF	1.3 AC	4.5%
LANDSCAPING	397,940 SF	9.1 AC	30.4%
OTHER (DRAINAGE)	42,260 SF	1.0 AC	3.2%
UNDISTURBED	483,746 SF	11.1 AC	36.9%

6. PARKING CALCULATIONS
   ALL UNITS TO HAVE 2 GARAGE SPACES AND 2 SPACES IN FRONT OF UNIT PLUS 34 VISITOR SPACES INCLUDING 6 HANDICAP SPACES.
   TOTAL PARKING ON SITE = 730 SPACES

7. ALL CONSTRUCTION SHALL CONFORM TO CITY STANDARDS AND REGULATIONS, AND NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.

8. THE SUBJECT PARCEL IS PARTIALLY LOCATED WITHIN AN AREA HAVING A ZONE A DESIGNATION BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), ON FLOOD INSURANCE RATE MAP NO. 33017C0211D, WITH EFFECTIVE DATE OF MAY 17, 2005 FOR COMMUNITY PANEL NO. 211 OF 405, IN ROCKINGHAM COUNTY, STATE OF NEW HAMPSHIRE, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR COMMUNITY IN WHICH SAID PREMISES IS SITUATED.

9. LANDOWNERS ARE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING PERMITTING REQUIRED UNDER THESE REGULATIONS.

10. ALL CONSTRUCTION ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN (S.W.P.P.P.). THIS DOCUMENT IS TO BE KEPT ONSITE AT ALL TIMES AND UPDATED AS REQUIRED.

11. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER, ARCHITECT AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY LOCAL PERMITS, FEES AND BONDS.

12. ALL PROPOSED SIGNAGE SHALL CONFORM WITH THE CITY ZONING REGULATIONS, UNLESS A VARIANCE IS OTHERWISE REQUESTED.

13. ALL SIGNAGE AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.) AND NHDOT STANDARDS AND SPECIFICATIONS (NON-REFLECTORIZED PAVEMENT MARKINGS), UNLESS OTHERWISE NOTED.

14. ALL PARKING STALLS SHALL BE SEPARATED USING 4" WIDE SOLID STRIPES. STRIPING SHALL HAVE TWO COATS OF PAINT, ALKYD BASIN SYNTHETIC RESIN, FEDERAL SPECIFICATION TTP-115 TYPE 1, IN A COLOR OF WHITE.

15. ALL STOP BARS SHALL BE 18" IN WIDTH IN A COLOR OF WHITE; ALL TRAFFIC ARROWS SHALL BE PAINTED IN A COLOR OF WHITE.

16. ALL BUILDING DIMENSIONS SHALL BE VERIFIED WITH THE ARCHITECTURAL AND STRUCTURAL PLANS PROVIDED BY THE OWNER. ANY DISCREPANCIES SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND OWNER PRIOR TO THE START OF CONSTRUCTION. BUILDING DIMENSIONS AND AREAS TO BE TO OUTSIDE OF MASONRY, UNLESS OTHERWISE NOTED.

17. SNOW TO BE STORED AT EDGE OF PAVEMENT AND IN AREAS SHOWN ON THE PLANS, OR TRUCKED OFFSITE TO AN APPROVED SNOW DUMPING LOCATION.

18. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.

19. TRASH TO BE HANDLED WITH TOTES AT EACH UNIT. TRASH TO BE PICKED UP BY A PRIVATE HAULER.

20. STATE PERMITS REQUIRED:
    NHDES ALTERATION OF TERRAIN PERMIT
    NHDES SEWER EXTENSION PERMIT
    NHDES DRINKING WATER PERMIT

21. EXCAVATION PERMITS ARE REQUIRED FOR ANY WORK PERFORMED WITHIN THE CITY RIGHT-OF-WAY.

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 10

APPLICANT
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

APPROVED - ROCHESTER, NH
PLANNING BOARD

DATE:

Design: JAC	Draft: LAZ	Date: 04/29/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-PLAN.dwg		

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STATE OF NEW HAMPSHIRE — MICHAEL J. KERVAN No. 9648 — PROFESSIONAL ENGINEER — LICENSED — 2/18/2022

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
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85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	OVERVIEW SITE PLAN
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
OVRS
SHEET 8 OF 46
JBE PROJECT NO. 21090

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

APPROVED - ROCHESTER, NH PLANNING BOARD

DATE:

PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 10

APPLICANT
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
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30.07 ACRES ±

Design: JAC	Draft: LAZ	Date: 04/29/21
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STATE OF NEW HAMPSHIRE – MICHAEL J. KERWAN No. 9648 – LICENSED LAND SURVEYOR – 2/18/2022

REV.	DATE	REVISION	BY
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1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

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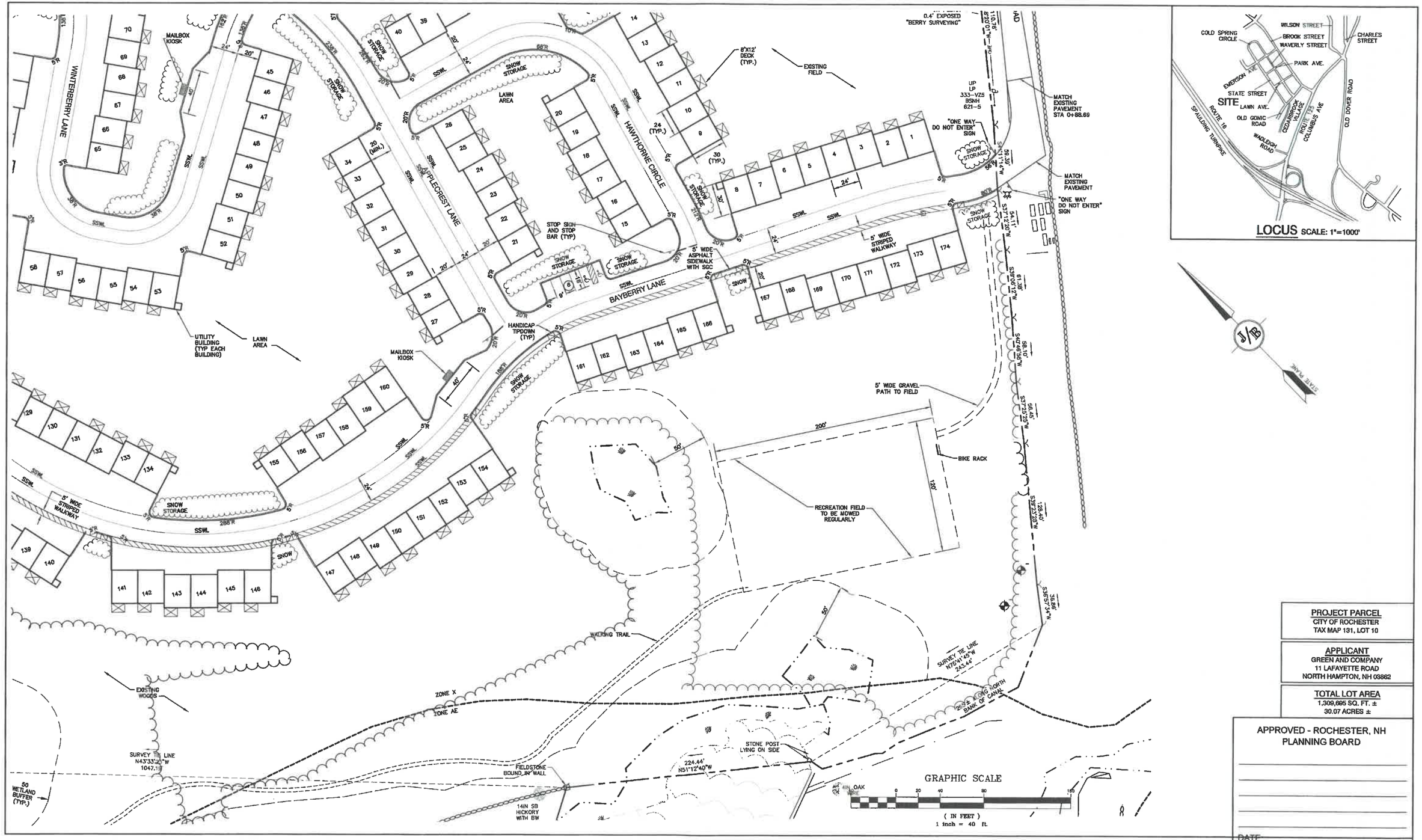
85 Portsmouth Ave. Civil Engineering Services 603-772-4746
PO Box 219 FAX: 603-772-0227
Stratham, NH 03885 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: **SITE PLAN**

Project: BAYBERRY COMMONS
19 OLD GONIC ROAD, ROCHESTER, NH

Owner of Record: LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE
19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
C5
SHEET 9 OF 46
JBE PROJECT NO. 21090



PROJECT PARCEL	CITY OF ROCHESTER TAX MAP 131, LOT 10
APPLICANT	GREEN AND COMPANY 11 LAFAYETTE ROAD NORTH HAMPTON, NH 03862
TOTAL LOT AREA	1,309,685 SQ. FT. ± 30.07 ACRES ±

APPROVED - ROCHESTER, NH
PLANNING BOARD

DATE:

Design: JAC	Draft: LAZ
Checked: JAC	Scale: AS NOTED
Drawing Name: 21090-PLAN.dwg	Date: 04/29/21 Project No.: 21090

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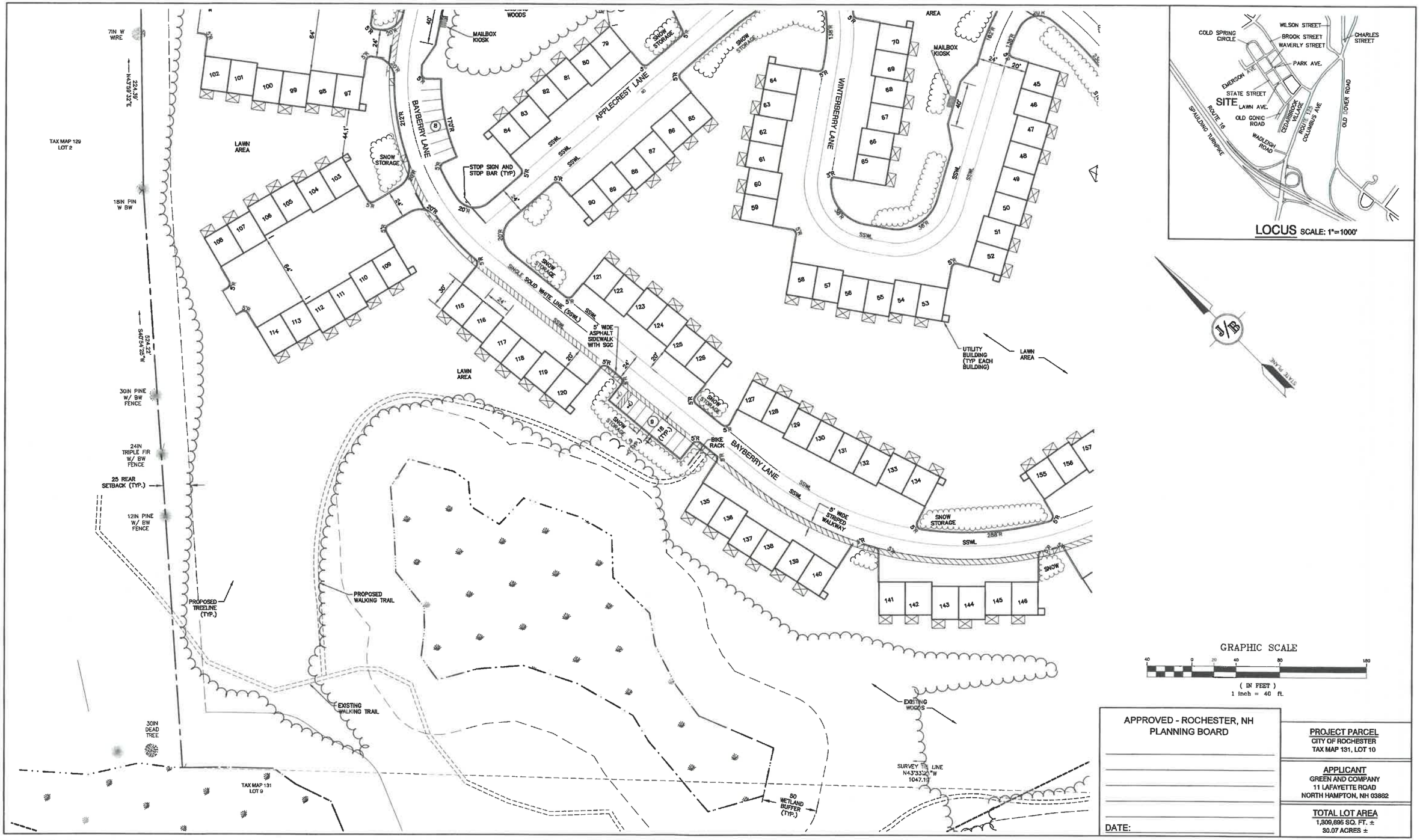
STATE OF NEW HAMPSHIRE – MICHAEL J. KENAVAN No. 9848 – LICENSED LAND SURVEYOR

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave. Civil Engineering Services 603-772-4746
PO Box 219 FAX: 603-772-0227
Stratham, NH 03885 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	SITE PLAN
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
C6
SHEET 10 OF 46
JBE PROJECT NO. 21090



APPROVED - ROCHESTER, NH
PLANNING BOARD

DATE:

PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 10

APPLICANT
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

Design: JAC	Draft: LAZ
Checked: JAC	Scale: AS NOTED
Drawing Name: 21090-PLAN.dwg	Date: 04/29/21
	Project No.: 21090

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STATE OF NEW HAMPSHIRE – MICHAEL J. KERWAN No. 9946 LICENSED PROFESSIONAL ENGINEER – 2/14/22

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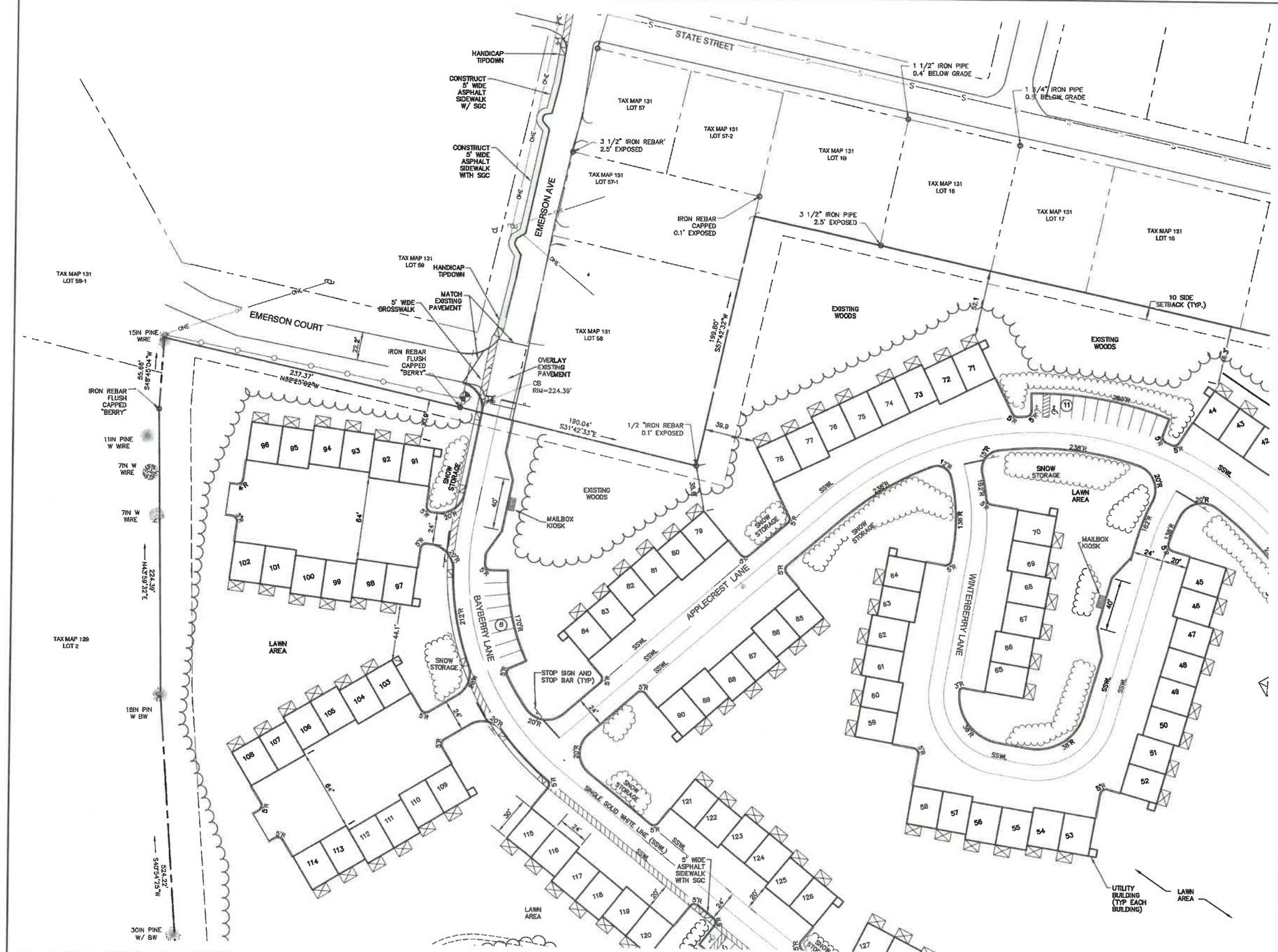
PO Box 219 FAX: 603-772-0227
Stratham, NH 03885 E-MAIL: JBE@JONESANDBEACH.COM

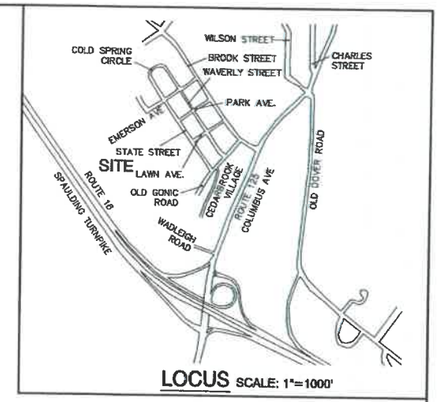
Plan Name: **SITE PLAN**

Project: **BAYBERRY COMMONS**
19 OLD GONIC ROAD, ROCHESTER, NH

Owner of Record: LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE
19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
C7
SHEET 11 OF 46
JBE PROJECT NO. 21090





GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

APPROVED - ROCHESTER, NH PLANNING BOARD

DATE:

PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 10

APPLICANT
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

Design: JAC	Draft: LAZ	Date: 04/29/21	
Checked: JAC	Scale: AS NOTED	Project No.: 21090	
Drawing Name: 21090-PLAN.dwg			

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STATE OF NEW HAMPSHIRE – MICHAEL J. KERVAN No. 9846 LICENSED LAND SURVEYOR

REV.	DATE	REVISION	BY
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0	11/23/21	ISSUED FOR REVIEW	LAZ

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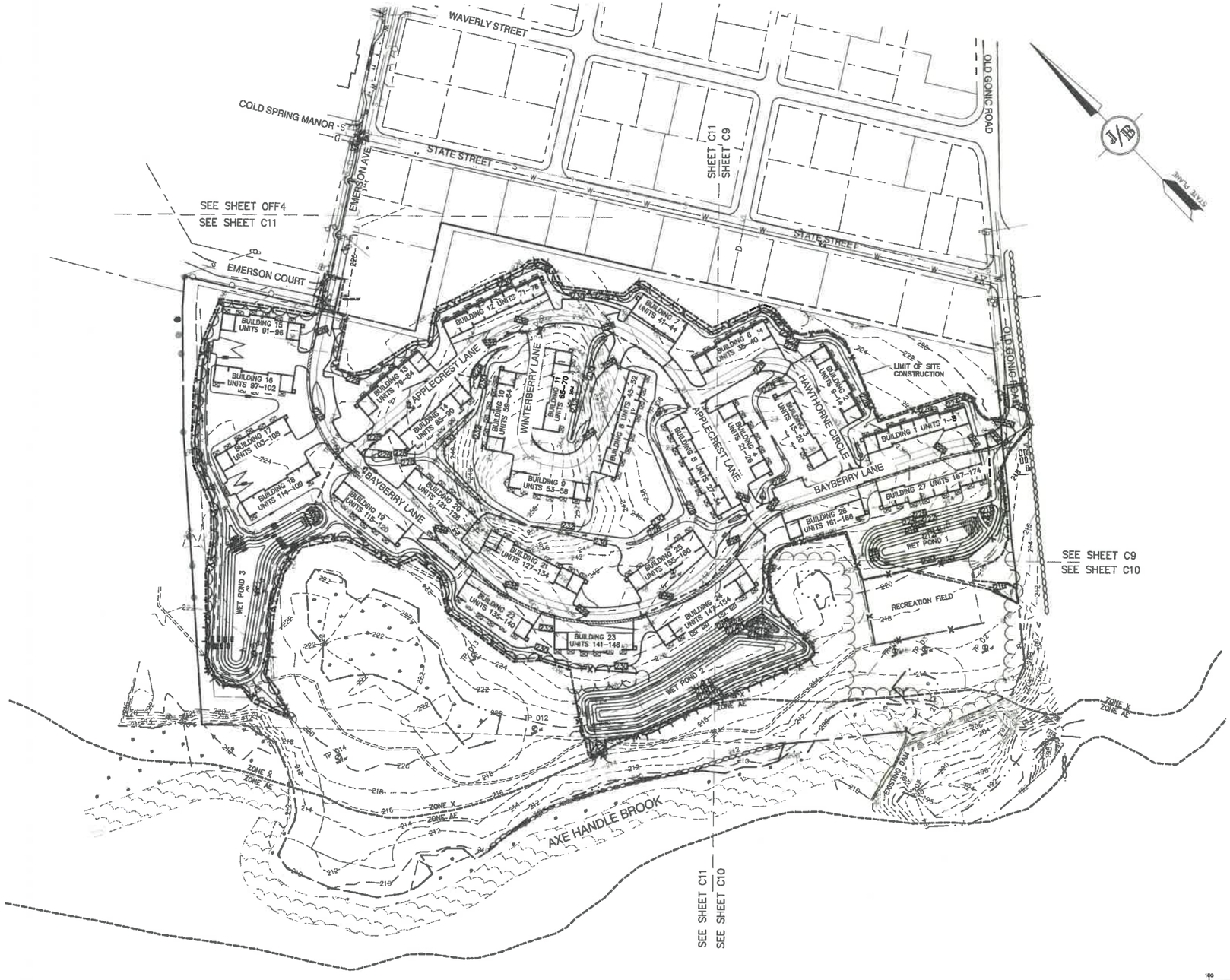
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: **SITE PLAN**

Project: **BAYBERRY COMMONS**
19 OLD GONIC ROAD, ROCHESTER, NH

Owner of Record: LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE
19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
C8
SHEET 12 OF 46
JBE PROJECT NO. 21090



GRADING AND DRAINAGE NOTES:

1. THIS SITE WILL REQUIRE A USEPA NPDES PERMIT FOR STORMWATER DISCHARGE FOR THE CONSTRUCTION SITE. THE CONSTRUCTION SITE OPERATOR SHALL DEVELOP AND IMPLEMENT A CONSTRUCTION STORM WATER POLLUTION PREVENTION PLAN (SWPPP), WHICH SHALL REMAIN ON SITE AND BE MADE ACCESSIBLE TO THE PUBLIC. THE CONSTRUCTION SITE OPERATOR SHALL SUBMIT A NOTICE OF INTENT (NOI) TO THE EPA REGIONAL OFFICE SEVEN DAYS PRIOR TO COMMENCEMENT OF ANY WORK ON SITE. EPA WILL POST THE NOI AT HTTP://CFPUB1.EPA.GOV/NPDES/STORMWATER/NOI/NOISEARCH.CFM. AUTHORIZATION IS GRANTED UNDER THE PERMIT ONCE THE NOI IS SHOWN IN "ACTIVE" STATUS ON THIS WEBSITE. A COMPLETED NOTICE OF TERMINATION SHALL BE SUBMITTED TO THE NPDES PERMITTING AUTHORITY WITHIN 30 DAYS AFTER EITHER OF THE FOLLOWING CONDITIONS HAVE BEEN MET:
   A. FINAL STABILIZATION HAS BEEN ACHIEVED ON ALL PORTIONS OF THE SITE FOR WHICH THE PERMITTEE IS RESPONSIBLE; OR
   B. ANOTHER OPERATOR/PERMITTEE HAS ASSUMED CONTROL OVER ALL AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED. PROVIDE DPW WITH A COPY OF THE NOTICE OF TERMINATION (NOT).
2. IF THIS CONSTRUCTION SITE IS NOT STABILIZED WITH PAVEMENT, A ROAD GRAVEL BASE, 85 % MATURE VEGETATION COVER, OR RIPRAP BY OCTOBER 15, THEN THE SITE MUST BE PROTECTED WITH OVER-WINTER STABILIZATION. THE WINTER CONSTRUCTION PERIOD IS FROM OCTOBER 15 THROUGH MAY 15. WINTER EXCAVATION AND EARTHWORK ACTIVITIES SHALL BE LIMITED IN EXTENT AND DURATION, TO MINIMIZE POTENTIAL EROSION AND SEDIMENTATION IMPACTS.
3. UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER JONES & BEACH ENGINEERS, INC., NOR ANY OF THEIR EMPLOYEES TAKE RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES AND/OR UTILITIES NOT SHOWN THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 888-DIG-SAFE (888-344-7233).
4. ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.
5. SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED. SEE CONSTRUCTION SEQUENCE ON SHEET E1.
6. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS REQUIRED TO HAVE THE PROJECT'S LAND SURVEYOR STAKE OR FLAG CLEARING LIMITS. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED.
7. ALL SWALES AND DETENTION PONDS ARE TO BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
8. PROPOSED RIM ELEVATIONS OF DRAINAGE STRUCTURES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES.
9. ALL SWALES AND ANY SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITH NORTH AMERICAN GREEN S75 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER), UNLESS OTHERWISE SPECIFIED.
10. ALL DRAINAGE AND SANITARY STRUCTURE INTERIOR DIAMETERS (4' MIN) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS. CATCH BASINS SHALL HAVE 3' DEEP SUMPS WITH GREASE HOODS, UNLESS OTHERWISE NOTED.
11. ALL DRAINAGE STRUCTURES SHALL BE PRECAST, UNLESS OTHERWISE SPECIFIED.
12. ALL DRAINAGE STRUCTURES AND STORM SEWER PIPES SHALL MEET HEAVY DUTY TRAFFIC H20 LOADING AND SHALL BE INSTALLED ACCORDINGLY.
13. THE CONTRACTOR SHALL INSTALL ORANGE CONSTRUCTION FENCING ALONG PROPERTY LINES AND ALONG WETLAND BUFFERS.
14. ALL DRAINAGE PIPE SHALL BE NON-PERFORATED ADS N-12 OR APPROVED EQUAL.
15. STONE INLET PROTECTION SHALL BE PLACED AT ALL CATCH BASINS. SEE DETAIL WITHIN THE DETAIL SHEETS.
16. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY ALL GOVERNING AUTHORITIES. THE GENERAL CONTRACTOR SHALL STRICTLY ADHERE TO THE EPA SWPPP DURING CONSTRUCTION OPERATIONS.
17. ALL EXPOSED AREAS SHALL BE SEEDED AS SPECIFIED WITHIN 3 DAYS OF FINAL GRADING AND ANYTIME CONSTRUCTION STOPS FOR LONGER THAN 3 DAYS.
18. MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN EVENT OF 0.5" OR GREATER IN A 24 HOUR PERIOD AND AT LEAST ONCE A WEEK.
19. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE, AS THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SEDIMENT FROM LEAVING THE SITE.
20. CONSTRUCTION VEHICLES SHALL UTILIZE THE STABILIZED CONSTRUCTION ENTRANCE TO THE EXTENT POSSIBLE THROUGHOUT CONSTRUCTION.
21. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
22. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
23. SEDIMENT SHALL BE REMOVED FROM ALL SEDIMENT BASINS BEFORE THEY ARE 25% FULL.
24. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
25. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED, IF DEEMED NECESSARY BY ON-SITE INSPECTION BY ENGINEER AND/OR REGULATORY OFFICIALS.
26. SEE ALSO EROSION AND SEDIMENT CONTROL SPECIFICATIONS ON SHEET E1.
27. PRIOR TO CLEARING OR GRADING DISTURBANCE, THE CONTRACTOR SHALL IDENTIFY ALL AREAS OF TYPE 2 INVASIVE SPECIES AS DEFINED BY NHDOT AND ADHERE TO THE PRACTICES OUTLINED IN BEST MANAGEMENT PRACTICES FOR THE CONTROL OF INVASIVE AND NOXIOUS PLANT SPECIES, NHDOT, 2018. THESE PRACTICES SHALL BE FOLLOWED FOR THE ENTIRE CONSTRUCTION TERM INCLUDING ESTABLISHMENT OF LANDSCAPING. AS THE SITE RE-VEGETATES AFTER CONSTRUCTION, LANDSCAPING CONTRACTOR TO INFORM THE OWNER IF ANY INVASIVE SPECIES START TO GROW. OWNER SHALL CONTACT A QUALIFIED REMOVAL COMPANY AND FOLLOW NHDES BEST MANAGEMENT PRACTICES.

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 10

APPLICANT
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

Design: JAC	Draft: LAZ	Date: 04/29/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-PLAN.dwg		

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STATE OF NEW HAMPSHIRE — MICHAEL J. KERVIAN No. 10148 — LICENSED LAND SURVEYOR — 04/14/22

REV.	DATE	REVISION	BY
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0	11/23/21	ISSUED FOR REVIEW	LAZ

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85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	OVERVIEW GRADING PLAN
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
OVRG
SHEET 13 OF 46
JBE PROJECT NO. 21090

PROJECT PARCEL	CITY OF ROCHESTER TAX MAP 131, LOT 10
APPLICANT	GREEN AND COMPANY 11 LAFAYETTE ROAD NORTH HAMPTON, NH 03882
TOTAL LOT AREA	1,309,695 SQ. FT. ± 30.07 ACRES ±

Design: JAC	Draft: LAZ	Date: 04/29/21
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Drawing Name: 21090-PLAN.dwg		

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STATE OF NEW HAMPSHIRE — MICHAEL J. KERVAN No. 9946 — LICENSED PROFESSIONAL ENGINEER — 2/14/2022

REV.	DATE	REVISION	BY
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Stratham, NH 03885
Civil Engineering Services
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FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	GRADING & DRAINAGE PLAN
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
C9
SHEET 14 OF 46
JBE PROJECT NO. 21090

Design: JAC	Draft: LAZ
Checked: JAC	Scale: AS NOTED
Drawing Name: 21090-PLAN.dwg	Date: 04/29/21
	Project No.: 21090

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STATE OF NEW HAMPSHIRE – MICHAEL J. KERVAN No. 9848 – LICENSED PROFESSIONAL ENGINEER

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Plan Name:	GRADING & DRAINAGE PLAN
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
C10
SHEET 15 OF 48
JBE PROJECT NO. 21090

PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 10

APPLICANT
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 10

APPLICANT
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

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Drawing Name: 21090-PLAN.dwg		

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STATE OF NEW HAMPSHIRE — MICHAEL J. KERJAN No. 9946 LICENSED PROFESSIONAL ENGINEER

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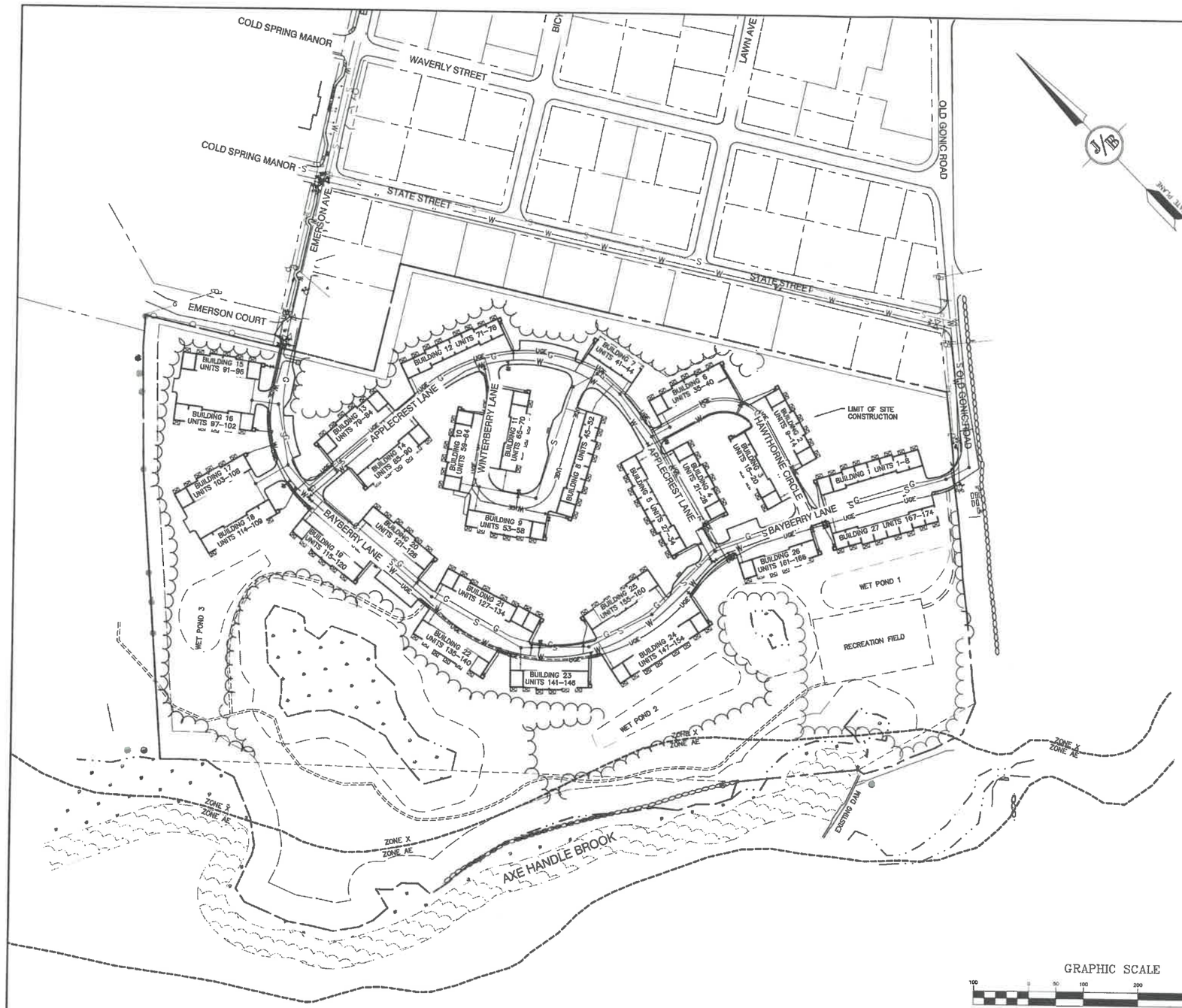
Plan Name:	GRADING & DRAINAGE PLAN
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
C11
SHEET 16 OF 45
JBE PROJECT NO. 21090



GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

1 inch = 100 ft.

UTILITY NOTES:

1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER, ARCHITECT AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY LOCAL PERMITS, CONNECTION FEES AND BONDS.
2. THE CONTRACTOR SHALL PROVIDE A MINIMUM NOTICE OF FOURTEEN (14) DAYS TO ALL CORPORATIONS, COMPANIES AND/OR LOCAL AUTHORITIES OWNING OR HAVING A JURISDICTION OVER UTILITIES RUNNING TO, THROUGH OR ACROSS PROJECT AREAS PRIOR TO DEMOLITION AND/OR CONSTRUCTION ACTIVITIES.
3. THE LOCATION, SIZE, DEPTH AND SPECIFICATIONS FOR CONSTRUCTION OF PROPOSED PRIVATE UTILITY SERVICES SHALL BE TO THE STANDARDS AND REQUIREMENTS OF THE RESPECTIVE UTILITY COMPANY (ELECTRIC, TELEPHONE, CABLE TELEVISION, FIRE ALARM, GAS, WATER, AND SEWER).
4. A PRECONSTRUCTION MEETING SHALL BE HELD WITH THE OWNER, ENGINEER, ARCHITECT, CONTRACTOR, LOCAL OFFICIALS, AND ALL PROJECT-RELATED UTILITY COMPANIES (PUBLIC AND PRIVATE) PRIOR TO START OF CONSTRUCTION.
5. ALL CONSTRUCTION SHALL CONFORM TO THE CITY STANDARDS AND REGULATIONS, AND NHDES STANDARDS AND SPECIFICATIONS, WHICHEVER ARE MORE STRINGENT, UNLESS OTHERWISE SPECIFIED.
6. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.
7. BUILDING TO BE SERVICED BY UNDERGROUND UTILITIES UNLESS OTHERWISE NOTED.
8. THE CONTRACTOR IS TO VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITY STUBS PRIOR TO CONSTRUCTION AND DISCONNECT ALL EXISTING SERVICE CONNECTIONS AT THEIR RESPECTIVE MAINS IN ACCORDANCE WITH THE RESPECTIVE UTILITY COMPANY'S STANDARDS AND SPECIFICATIONS. ENGINEER TO BE NOTIFIED.
9. AS-BUILT PLANS SHALL BE SUBMITTED TO DEPARTMENT OF PUBLIC WORKS.
10. INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW AT CHANGES IN DIRECTION. THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE THROUGH CHANNEL. UNDERLAYMENT OF INVERT, AND SHELF SHALL CONSIST OF BRICK MASONRY.
11. FRAMES AND COVERS: MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30 INCH DIA. CLEAR OPENING. THE WORD "SEWER" OR DRAIN" SHALL BE CAST INTO THE CENTER OF THE UPPER FACE OF EACH COVER WITH RAISED, 3" LETTERS.
12. SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER MAY BE USED HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H20 LOADS.
13. CONTRACTOR SHALL PLACE 2" WIDE METAL WIRE IMPREGNATED RED PLASTIC WARNING TAPE OVER ENTIRE LENGTH OF ALL GRAVITY SEWERS, SERVICES, AND FORCE MAINS.
14. SANITARY SEWER FLOW CALCULATIONS:
    174 – THREE BEDROOM UNITS @ 150 GPD/BEDROOM = 78,300 GPD
15. ALL SANITARY STRUCTURE INTERIOR DIAMETERS (4' MIN) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS.
16. PROPOSED RIM ELEVATIONS OF DRAINAGE AND SANITARY MANHOLES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES. ADJUST ALL OTHER RIM ELEVATIONS OF MANHOLES, WATER GATES, GAS GATES AND OTHER UTILITIES TO FINISH GRADE AS SHOWN ON THE GRADING AND DRAINAGE PLAN.
17. ALL WATER MAINS AND SERVICE PIPES SHALL HAVE A MINIMUM 12" VERTICAL AND 24" HORIZONTAL SEPARATION TO MANHOLES, OR CONTRACTOR SHALL INSTALL BOARD INSULATION FOR FREEZING PROTECTION.
18. WATER MAINS SHALL BE HYDROSTATICALLY PRESSURE TESTED FOR LEAKAGE PRIOR TO ACCEPTANCE. WATERMAINS SHALL BE TESTED AT 1.5 TIMES THE WORKING PRESSURE OR 150 PSI, WHICH EVER IS GREATER. TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH SECTION 4 OF AWWA STANDARD C 600. WATERMAINS SHALL BE DISINFECTED AFTER THE ACCEPTANCE OF THE PRESSURE AND LEAKAGE TESTS ACCORDING TO AWWA STANDARD C 651.
19. ALL WATER AND SANITARY LEADS TO BUILDING(S) SHALL END 5' OUTSIDE THE BUILDING LIMITS AS SHOWN ON PLANS AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT END.
20. IF THE BUILDING IS REQUIRED TO HAVE A SPRINKLER SYSTEM, A PRECONSTRUCTION MEETING SHALL BE HELD BETWEEN THE CONTRACTOR, OWNER, ARCHITECT AND THE LOCAL FIRE DEPARTMENT PRIOR TO THE INSTALLATION.
21. THRUST BLOCKS SHALL BE PROVIDED AT ALL BENDS, TEES, MECHANICAL JOINTS AND FIRE HYDRANTS.
22. DIMENSIONS ARE SHOWN TO CENTERLINE OF PIPE OR FITTING.
23. REFER TO FIRE PROTECTION SHEETS FOR LOCATION AND DETAIL OF FIRE LINE LEAD IN TO BUILDING. FIRE LINE SHALL BE STUBBED UP 1' ABOVE FINISH FLOOR ELEVATION IN SPRINKLER ROOM. AN APPROVED AUTOMATIC SPRINKLER SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH 101 LIFE SAFETY CODE/NFPA 1 AND LOCAL REGULATIONS. FIRE DEPARTMENT CONNECTION SHALL BE FIELD VERIFIED BY LOCAL FIRE DEPARTMENT TO ENSURE OPTIMUM PLACEMENT.
24. THE CONTRACTOR SHALL HAVE THE APPROVAL OF ALL GOVERNING AGENCIES HAVING JURISDICTION OVER FIRE PROTECTION SYSTEM PRIOR TO INSTALLATION.
25. CONTRACTOR TO FURNISH SHOP DRAWINGS FOR UTILITY RELATED ITEMS TO ENSURE CONFORMANCE WITH THE PLANS AND SPECIFICATIONS. SHOP DRAWINGS SHOULD BE SENT IN TRIPLICATE TO THE DESIGN ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
26. EXISTING UTILITIES SHALL BE DIGSAFED BEFORE CONSTRUCTION.
27. ALL WATER LINES SHOULD HAVE TESTABLE BACKFLOW PREVENTERS AT THE ENTRANCE TO EACH BUILDING.
28. ALL GRAVITY SEWER PIPE, MANHOLES, AND FORCE MAINS SHALL BE TESTED ACCORDING TO NHDES STANDARDS OF DESIGN AND CONSTRUCTION FOR SEWAGE AND WASTEWATER TREATMENT FACILITIES, CHAPTER ENV-WQ 700. ADOPTED ON 10-15-14.
29. ENV-WQ 704.06 GRAVITY SEWER PIPE TESTING: GRAVITY SEWERS SHALL BE TESTED FOR WATER TIGHTNESS BY USE OF LOW-PRESSURE AIR TESTS CONFORMING WITH ASTM F1417-92(2005) OR UNI-BELL PVC PIPE ASSOCIATION UNI-B-6. LINES SHALL BE CLEANED AND VISUALLY INSPECTED AND TRUE TO LINE AND GRADE. DEFLECTION TESTS SHALL TAKE PLACE AFTER 30 DAYS FOLLOWING INSTALLATION AND THE MAXIMUM ALLOWABLE DEFLECTION OF FLEXIBLE SEWER PIPE SHALL BE 5% OF AVERAGE INSIDE DIAMETER. A RIGID BALL OR MANDREL WITH A DIAMETER OF AT LEAST 95% OF THE AVERAGE INSIDE PIPE DIAMETER SHALL BE USED FOR TESTING PIPE DEFLECTION. THE DEFLECTION TEST SHALL BE CONDUCTED WITHOUT MECHANICAL PULLING DEVICES.
30. ENV-WQ 704.17 SEWER MANHOLE TESTING: SHALL BE TESTED FOR LEAKAGE USING A VACUUM TEST PRIOR TO BACKFILLING AND PLACEMENT OF SHELVES AND INVERTS.
31. SANITARY SEWER LINES SHALL BE LOCATED AT LEAST TEN (10) FEET HORIZONTALLY FROM AN EXISTING OR PROPOSED WATER LINE. WHEN A SEWER LINE CROSSES UNDER A WATER LINE, THE SEWER PIPE JOINTS SHALL BE LOCATED AT LEAST 6 FEET HORIZONTALLY FROM THE WATERMAIN. THE SEWER LINE SHALL ALSO MAINTAIN A VERTICAL SEPARATION OF NOT LESS THAN 18 INCHES.
32. SEWERS SHALL BE BURIED TO A MINIMUM DEPTH OF 6 FEET BELOW GRADE IN ALL ROADWAY LOCATIONS, AND TO A MINIMUM DEPTH OF 4 FEET BELOW GRADE IN ALL CROSS-COUNTRY LOCATIONS. PROVIDE TWO-INCHES OF R-10 FOAM BOARD INSULATION 2-FOOT WIDE TO BE INSTALLED 6-INCHES OVER SEWER PIPE IN AREAS WHERE DEPTH IS NOT ACHIEVED. A WAIVER FROM THE DEPARTMENT OF ENVIRONMENTAL SERVICES WASTEWATER ENGINEERING BUREAU IS REQUIRED PRIOR TO INSTALLING SEWER AT LESS THAN MINIMUM COVER.
33. ALL WATER AND SANITARY LEADS TO BUILDING(S) SHALL END AT RIGHT OF WAY AS SHOWN ON PLANS AND SHALL BE PROVIDED WITH A TEMPORARY PLUG AND WITNESS AT END.
34. THE CONTRACTOR SHALL MINIMIZE THE DISRUPTIONS TO THE EXISTING SEWER FLOWS AND THOSE INTERRUPTIONS SHALL BE LIMITED TO FOUR (4) HOURS OR LESS AS DESIGNATED BY THE CITY SEWER DEPARTMENT.
35. LIGHTING CONDUIT SHALL BE SCHEDULE 40 PVC, AND SHALL BE INSTALLED IN CONFORMANCE WITH THE NATIONAL ELECTRIC CODE. CONTRACTOR SHALL PROVIDE EXCAVATION AND BACKFILL.
36. ALL TRENCHING, PIPE LAYING, AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS.
37. DISINFECTION OF WATER MAINS SHALL BE CARRIED OUT IN STRICT ACCORDANCE WITH AWWA STANDARD C651, LATEST EDITION. THE BASIC PROCEDURE TO BE FOLLOWED FOR DISINFECTING WATER MAINS IS AS FOLLOWS:
    a. PREVENT CONTAMINATING MATERIALS FROM ENTERING THE WATER MAIN DURING STORAGE, CONSTRUCTION, OR REPAIR.
    b. REMOVE, BY FLUSHING OR OTHER MEANS, THOSE MATERIALS THAT MAY HAVE ENTERED THE WATER MAINS.
    c. CHLORINATE ANY RESIDUAL CONTAMINATION THAT MAY REMAIN, AND FLUSH THE CHLORINATED WATER FROM THE MAIN.
    d. PROTECT THE EXISTING DISTRIBUTION SYSTEM FROM BACKFLOW DUE TO HYDROSTATIC PRESSURE TEST AND DISINFECTION PROCEDURES.
    e. DETERMINE THE BACTERIOLOGICAL QUALITY BY LABORATORY TEST AFTER DISINFECTION.
    f. MAKE FINAL CONNECTION OF THE APPROVED NEW WATER MAIN TO THE ACTIVE DISTRIBUTION SYSTEM

Design: JAC	Draft: LAZ	Date: 04/29/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-PLAN.dwg		

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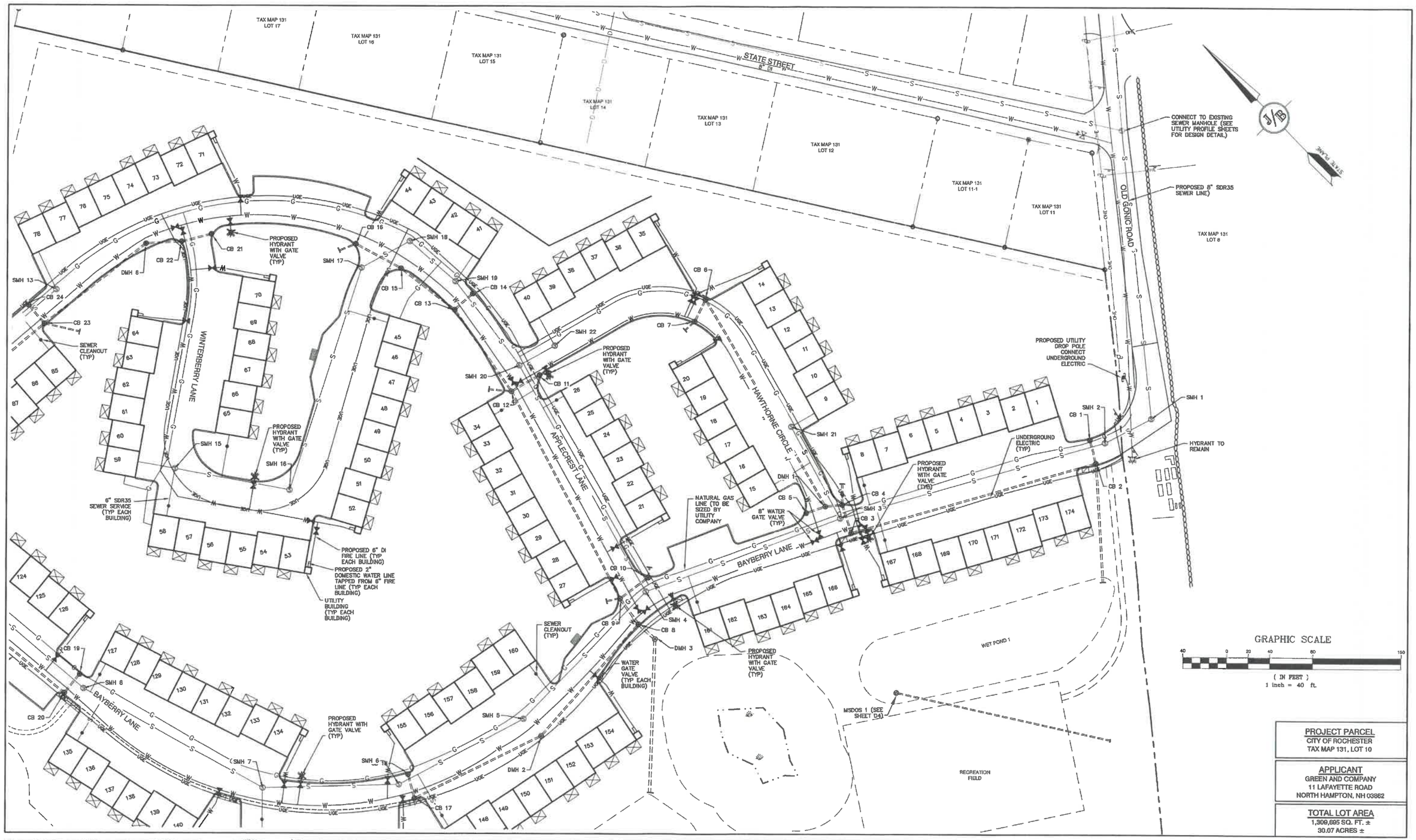
STATE OF NEW HAMPSHIRE MICHAEL J. KERWIN No. 9848 LICENSED PROFESSIONAL ENGINEER 2/14/2022

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

Designed and Produced In NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave. Civil Engineering Services 603-772-4746
PO Box 219 FAX: 603-772-0227
Stratham, NH 03885 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	OVERVIEW UTILITY PLAN
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
OVRU
SHEET 17 OF 46
JBE PROJECT NO. 21090



PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 10

APPLICANT
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

Design: JAC	Draft: LAZ
Checked: JAC	Scale: AS NOTED
Drawing Name: 21090-PLAN.dwg	Date: 04/29/21
	Project No.: 21090

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STATE OF NEW HAMPSHIRE – MICHAEL J. KERIVAN No. 9345 LICENSED PROFESSIONAL ENGINEER – 2/14/2022

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

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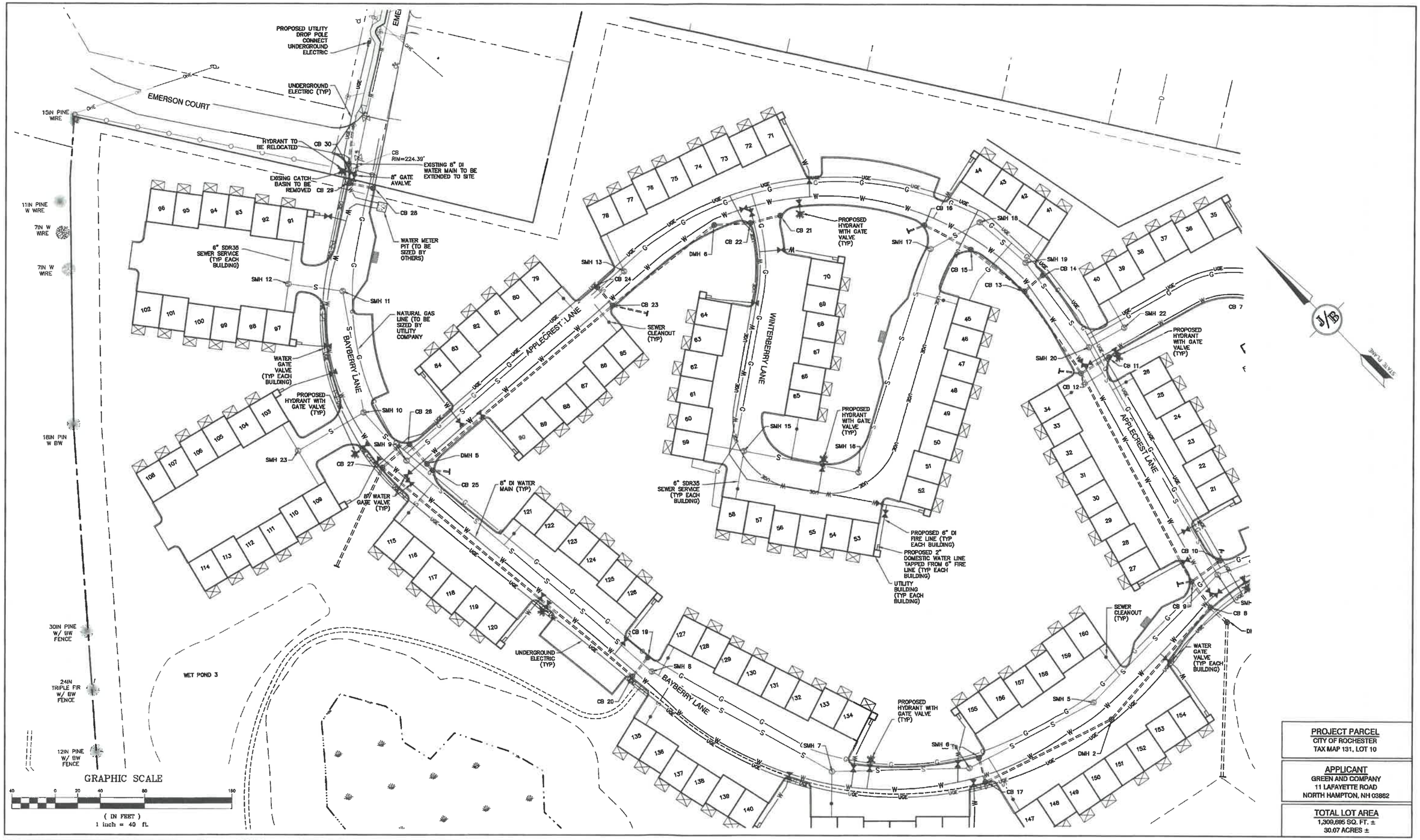
Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	UTILITY PLAN
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
U1
SHEET 18 OF 46
JBE PROJECT NO. 21090



PROJECT PARCEL
CITY OF ROCHESTER TAX MAP 131, LOT 10
APPLICANT
GREEN AND COMPANY 11 LAFAYETTE ROAD NORTH HAMPTON, NH 03862
TOTAL LOT AREA
1,309,685 SQ. FT. ± 30.07 ACRES ±

Design: JAC	Draft: LAZ	Date: 04/29/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-PLAN.dwg		

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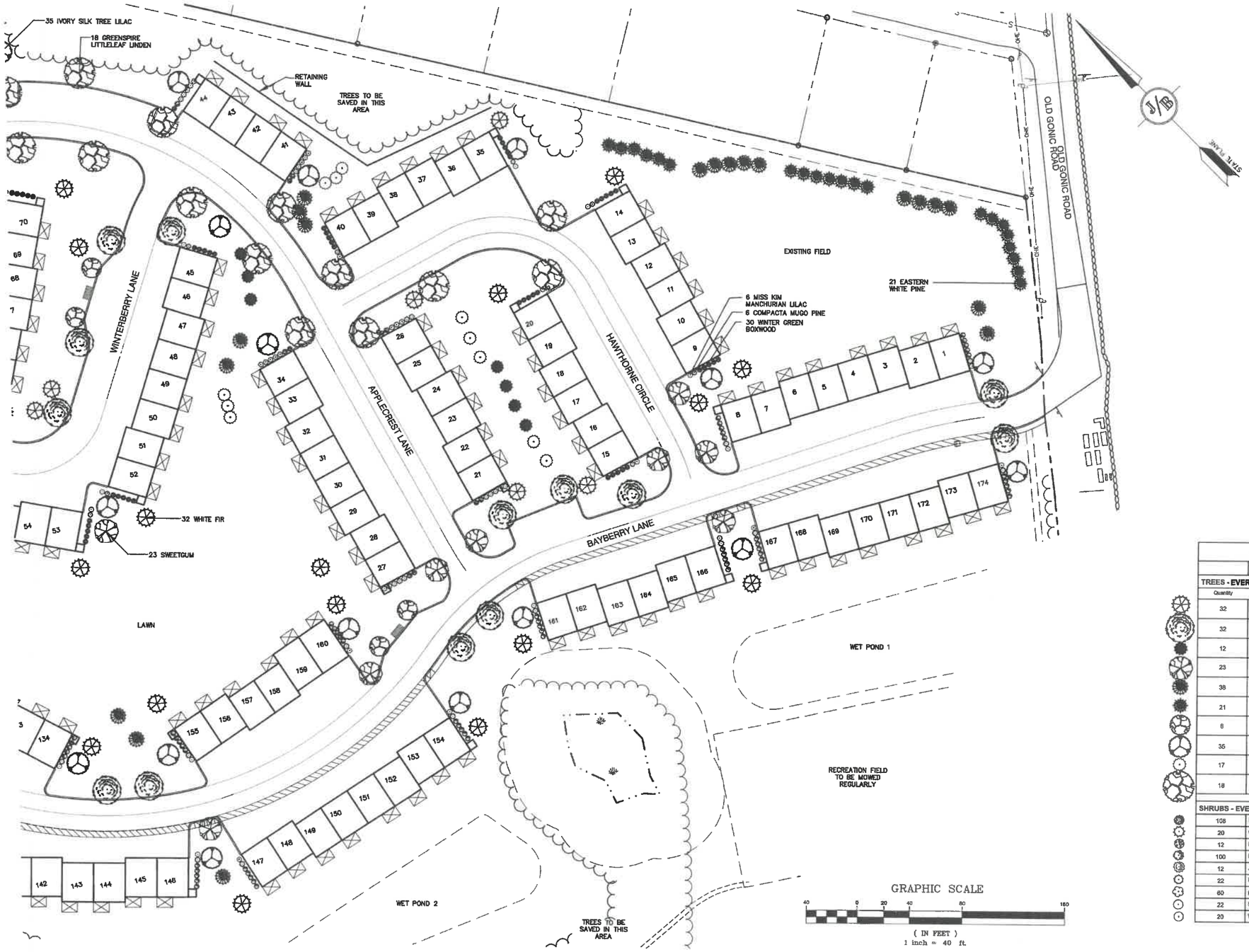
STATE OF NEW HAMPSHIRE – MICHAEL J. KERIVAN No. 9648 – LICENSED PROFESSIONAL ENGINEER – 11/23/21

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave. Civil Engineering Services 603-772-4746
PO Box 219 FAX: 603-772-0227
Stratham, NH 03885 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	UTILITY PLAN
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
U2
SHEET 18 OF 46
JBE PROJECT NO. 21090



LANDSCAPE NOTES:

1. THE CONTRACTOR SHALL LOCATE AND VERIFY THE EXISTENCE OF ALL UTILITIES PRIOR TO STARTING WORK.
2. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTINGS SHOWN ON THE DRAWINGS.
3. ALL MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE CURRENT AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
4. PLANTS FURNISHED IN CONTAINERS SHALL HAVE THE ROOTS WELL ESTABLISHED IN THE SOIL MASS AND SHALL HAVE AT LEAST ONE (1) GROWING SEASON. ROOT-BOUND PLANTS OR INADEQUATELY SIZED CONTAINERS TO SUPPORT THE PLANT MAY BE DEEMED UNACCEPTABLE.
5. NO PLANT SHALL BE PUT IN THE GROUND BEFORE GRADING HAS BEEN FINISHED AND APPROVED BY THE LANDSCAPE ARCHITECT.
6. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24-HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL BE WATERED WEEKLY, OR MORE OFTEN IF NECESSARY, DURING THE FIRST GROWING SEASON.
7. ALL PLANTS SHALL BE GUARANTEED BY THE CONTRACTOR FOR NOT LESS THAN ONE FULL YEAR FROM THE TIME OF PROVISIONAL ACCEPTANCE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT THE PLANTS TO ENSURE PROPER CARE.
8. BY THE END OF THE GUARANTEE PERIOD, THE CONTRACTOR SHALL HAVE REPLACED ANY PLANT MATERIAL THAT IS MISSING, NOT TRUE TO SIZE AS SPECIFIED, THAT HAS DIED, LOST NATURAL SHAPE DUE TO DEAD BRANCHES, EXCESSIVE PRUNING OR INADEQUATE OR IMPROPER CARE, OR THAT IS, IN THE OPINION OF THE LANDSCAPE ARCHITECT, IN UNHEALTHY OR UNSIGHTLY CONDITION.
9. ALL LANDSCAPE AREAS TO BE GRASS COMMON TO REGION, EXCEPT FOR INTERIOR LANDSCAPED ISLANDS OR WHERE OTHER PLANT MATERIAL IS SPECIFIED.
10. ALL TREES AND SHRUBS SHALL BE PLANTED IN MULCH BEDS WITH EDGE STRIPS TO SEPARATE TURF GRASS AREAS.
11. THE CONTRACTOR SHALL REMOVE WEEDS, ROCKS, CONSTRUCTION ITEMS, ETC. FROM ANY LANDSCAPE AREA SO DESIGNATED TO REMAIN, WHETHER ON OR OFF-SITE. GRASS SEED OR PINE BARK MULCH SHALL BE APPLIED AS DEPICTED ON PLANS.
12. FINISHED GRADES IN LANDSCAPED ISLANDS SHALL BE INSTALLED SO THAT THEY ARE 1" HIGHER THAN THE TOP OF THE SURROUNDING CURB.
13. ALL LANDSCAPING SHALL MEET THE CITY STANDARDS AND REGULATIONS.
14. EXISTING TREES TO REMAIN SHALL BE CLEARLY MARKED PRIOR TO LAND CLEARING ACTIVITIES AND SHALL BE PROTECTED WITH TEMPORARY SNOW FENCING AT THE DRIPLINE OF THE TREE. THE CONTRACTOR SHALL NOT STORE VEHICLES OR MATERIALS WITHIN THE LANDSCAPED AREAS. ANY DAMAGE TO EXISTING TREES, SHRUBS OR LAWN SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
15. ALL MULCH AREAS SHALL RECEIVE A 3" LAYER OF SHREDDED PINE BARK MULCH OVER A 10 MIL WEED MAT EQUAL TO "WEEDBLOCK" BY EASY GARDENER OR DEWITT WEED BARRIER.
16. ALL LANDSCAPED AREAS SHALL HAVE SELECT MATERIALS REMOVED TO A DEPTH OF AT LEAST 8" BELOW FINISH GRADE. THE RESULTING VOID IS TO BE FILLED WITH A MINIMUM OF 8" HIGH-QUALITY SCREENED LOAM AMENDED WITH 3" OF AGED ORGANIC COMPOST.
17. THIS PLAN IS INTENDED FOR LANDSCAPING PURPOSES ONLY. REFER TO CIVIL/SITE DRAWINGS FOR OTHER SITE CONSTRUCTION INFORMATION.

JBE 21090 - OLD GONIC RD TOWNHOUSES

TREES - EVERGREEN & DECIDUOUS

Quantity	Botanical Name	Common Name	Size
32	Abies concolor	WHITE FIR	9-10 FT. HT.
32	Acer saccharum 'Green Mountain'	GREEN MOUNTAIN SUGAR MAPLE	3" Caliper
12	Juniperus virginiana	EASTERN RED CEDAR	7-8 FT. HT.
23	Liquidambar styraciflua	SWEETGUM	3" Caliper
38	Picea abies	NORWAY SPRUCE	9-10 FT. HT.
21	Pinus strobus	EASTERN WHITE PINE	9-10 FT. HT.
6	Prunus serrulata 'Kwanzan'	KWANZAN ORIENTAL CHERRY	2.5" Caliper
35	Syringa reticulata 'Ivory Silk'	IVORY SILK TREE LILAC	2.5" Caliper
17	Thuja plicata 'Green Giant'	GREEN GIANT ARBORVITAE	7-8 FT. HT.
18	Tilia cordata 'Greenspire'	GREENSPIRE LITTLELEAF LINDEN	3" Caliper

SHRUBS - EVERGREEN & DECIDUOUS

108	Buxus microphylla var. koreana 'Winter Green'	WINTER GREEN BOXWOOD	5 Gallon
20	Chamaecyparis pisifera 'Aurea'	GOLDEN THREAD CYPRESS	5 Gallon
12	Hydrangea arborescens 'Annabelle'	ANNABELLE HYDRANGEA	5 Gallon
100	Ilex glabra 'Shamrock'	SHAMROCK INKBERRY HOLLY	5 Gallon
12	Juniperus chinensis 'Sea Green'	SEA GREEN JUNIPER	5 Gallon
22	Pinus mugo 'Compacta'	COMPACTA MUGO PINE	5 Gallon
60	Rhododendron 'PJM'	PJM RHODODENDRON	5 Gallon
22	Syringa patula 'Miss Kim'	MISS KIM MANCHURIAN LILAC	5 Gallon
20	Weigela florida 'Alexandra'	WINE & ROSES WEIGELA	5 Gallon

Design: JAC	Draft: LAZ	Date: 04/29/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-PLAN.dwg		

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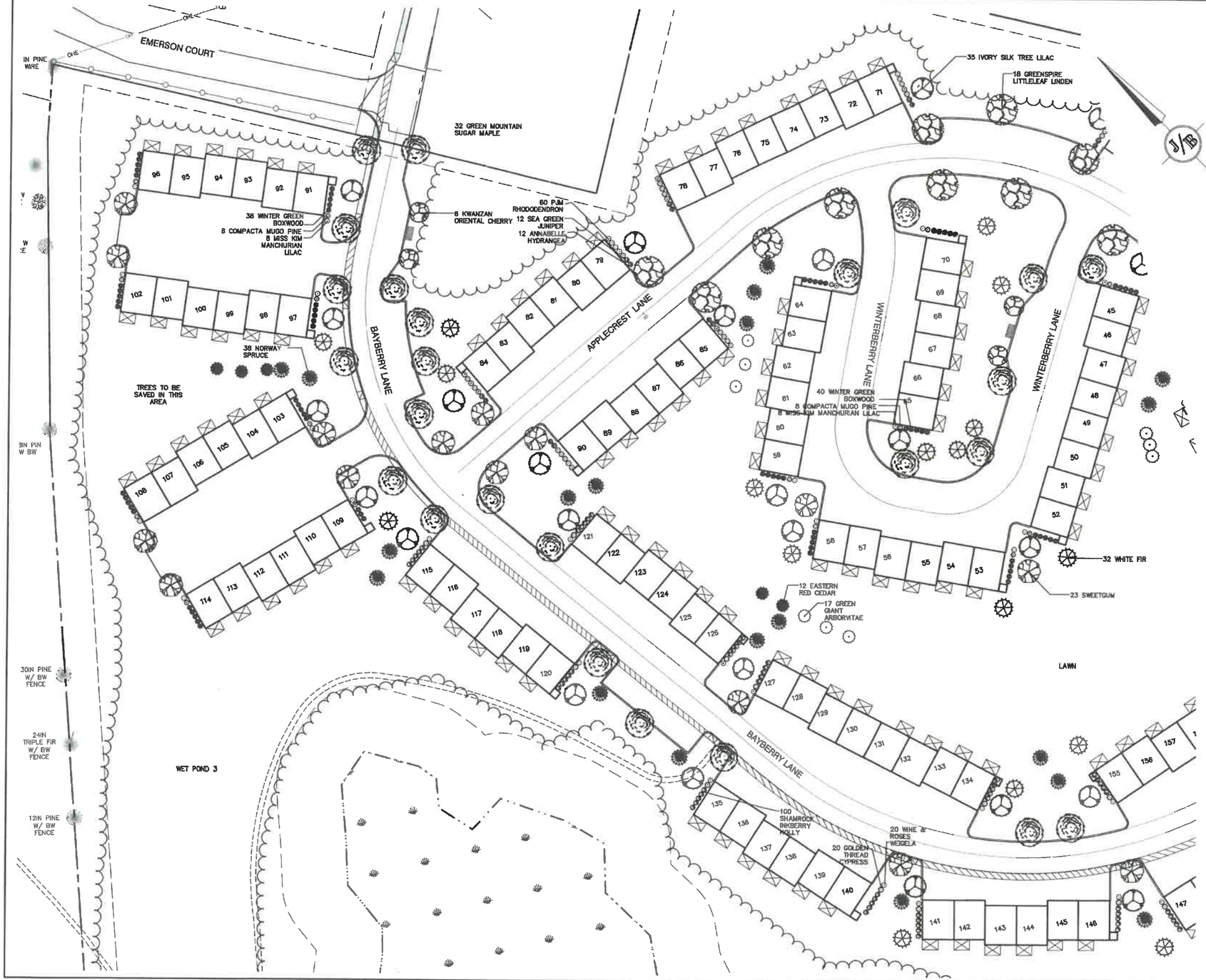
STATE OF NEW HAMPSHIRE — MICHAEL J. KERRIGAN No. 9646 — LICENSED PROFESSIONAL ENGINEER — 2/14/22

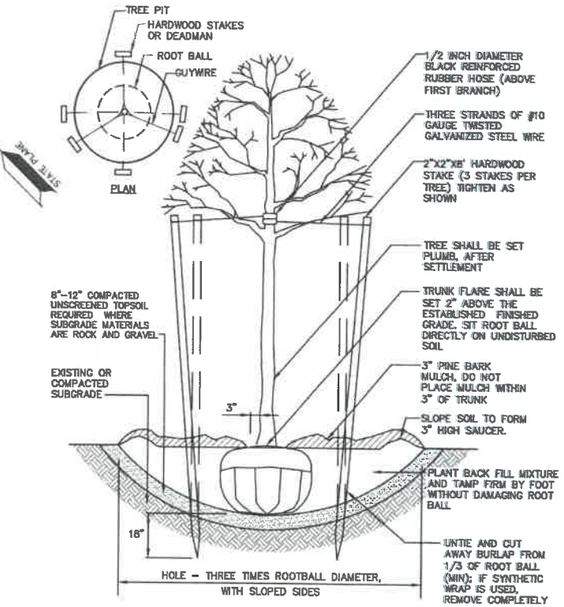
REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	LANDSCAPE PLAN
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

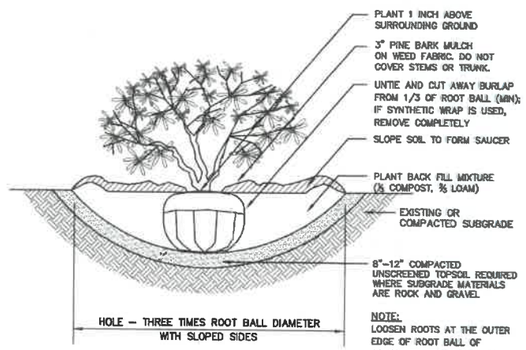
DRAWING No.
L1
SHEET 20 OF 46
JBE PROJECT NO. 21090





TREE PLANTING (FOR TREES UNDER 4" CALIPER)

NOT TO SCALE



SHRUB PLANTING

NOT TO SCALE

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 10

APPLICANT
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,895 SQ. FT. ±
30.07 ACRES ±

Design: JAC	Draft: LAZ	Date: 04/29/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-PLAN.dwg		

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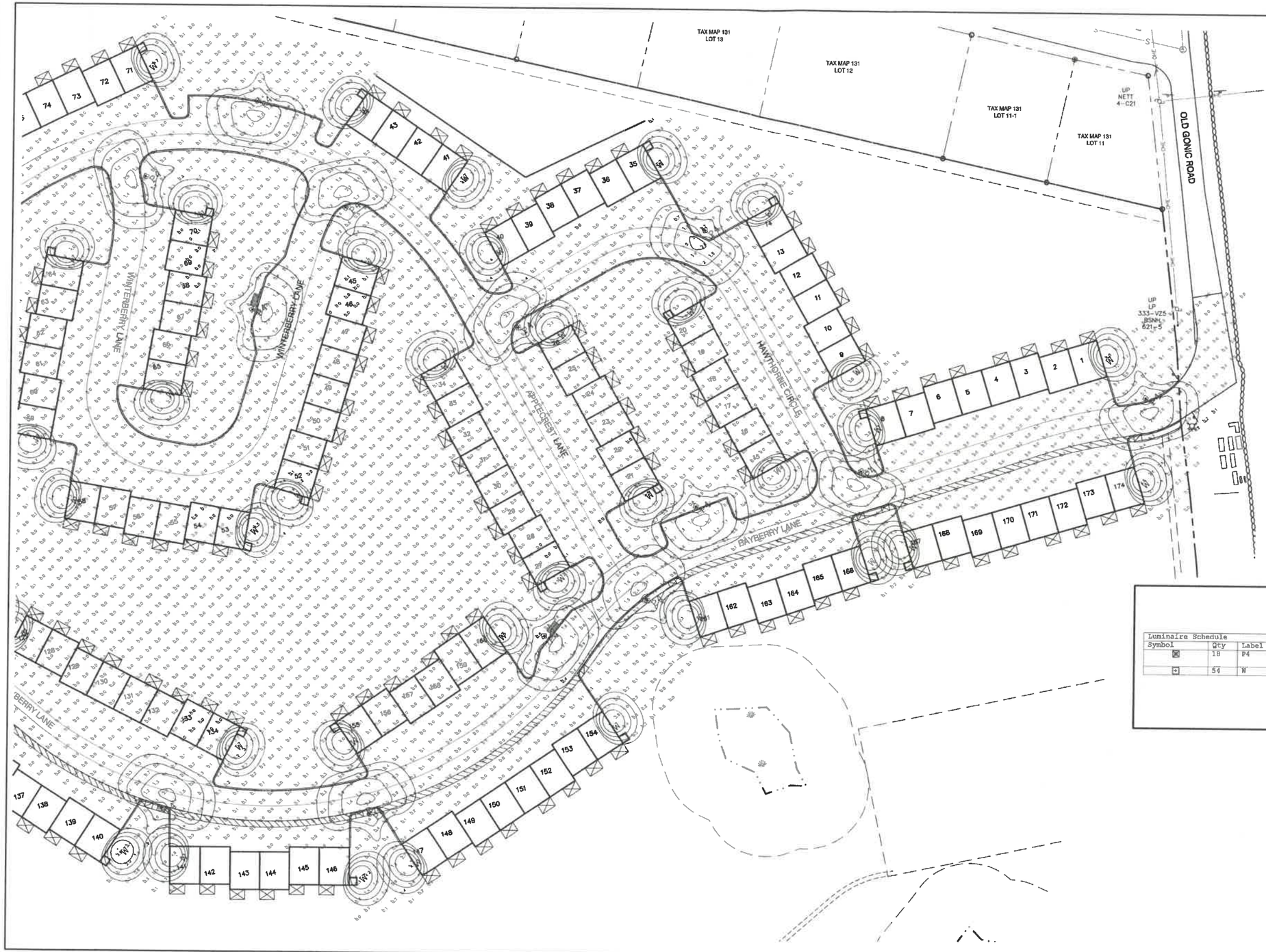
STATE OF NEW HAMPSHIRE – MICHAEL J. KERVAN No. 9646 LICENSED SURVEYOR – 2/14/2022

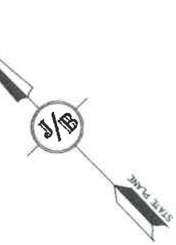
REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	LANDSCAPE PLAN
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
L2
SHEET 21 OF 46
JBE PROJECT NO. 21090





LIGHTING AND ELECTRICAL NOTES:

1. SITE ELECTRICAL CONTRACTOR SHALL COORDINATE LOCATION OF EASEMENTS, UNDERGROUND UTILITIES AND DRAINAGE BEFORE DRILLING POLE BASES.
2. CONTRACTOR SHALL INSTALL PROPOSED LIGHT POLES ACCORDING TO CITY REGULATIONS.
3. ALL OUTDOOR LIGHTING SYSTEMS SHALL BE EQUIPPED WITH TIMERS TO REDUCE ILLUMINATION LEVELS TO NON-OPERATIONAL VALUES PER CITY REGULATIONS.
4. LIGHTING CONDUIT SHALL BE SCHEDULE 40 PVC, AND SHALL BE INSTALLED IN CONFORMANCE WITH THE NATIONAL ELECTRICAL CODE. CONTRACTOR SHALL PROVIDE EXCAVATION AND BACKFILL.
5. ILLUMINATION READINGS SHOWN ARE BASED ON A TOTAL L.L.F OF 0.75 AT GRADE. ILLUMINATION READINGS SHOWN ARE IN UNITS OF FOOT-CANDLES.
6. LIGHTING CALCULATIONS SHOWN ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM AND SAFETY.
7. ALL LIGHTING FIXTURES SHALL BE FULL CUT-OFF DARK-SKY COMPLIANT.
8. THE PROPOSED LIGHTING CALCULATIONS AND DESIGN WAS PERFORMED BY CHARRON, INC., P.O. BOX 4550, MANCHESTER, NH 03108, ATTENTION KEN SWEENEY. ALL LIGHTS SHOULD BE PURCHASED FROM THIS COMPANY, OR AN EQUAL LIGHTING DESIGN SHOULD BE SUBMITTED FOR REVIEW IF EQUAL SUBSTITUTIONS ARE PROPOSED BY THE CONTRACTOR OR OWNER.

Luminaire Schedule				
Symbol	Qty	Label	Arrangement	Description
⊠	18	P4	Single	HER1-FA-40W3K-U-4-N-N-BK / PLB412-4-16-S-125-T300-N-BK (10' POLE)
⊡	54	W	Single	AXCS1AWT-PC1 / WALL MTD 12' AFG

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 10

APPLICANT
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

Design: JAC	Draft: LAZ
Checked: JAC	Scale: AS NOTED
Drawing Name: 21090-PLAN.dwg	

Date: 04/29/21
Project No.: 21090

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STATE OF NEW HAMPSHIRE
MICHAEL J. KIERNAN
No. 9648
LICENSED
PROFESSIONAL ENGINEER
2/14/2022

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

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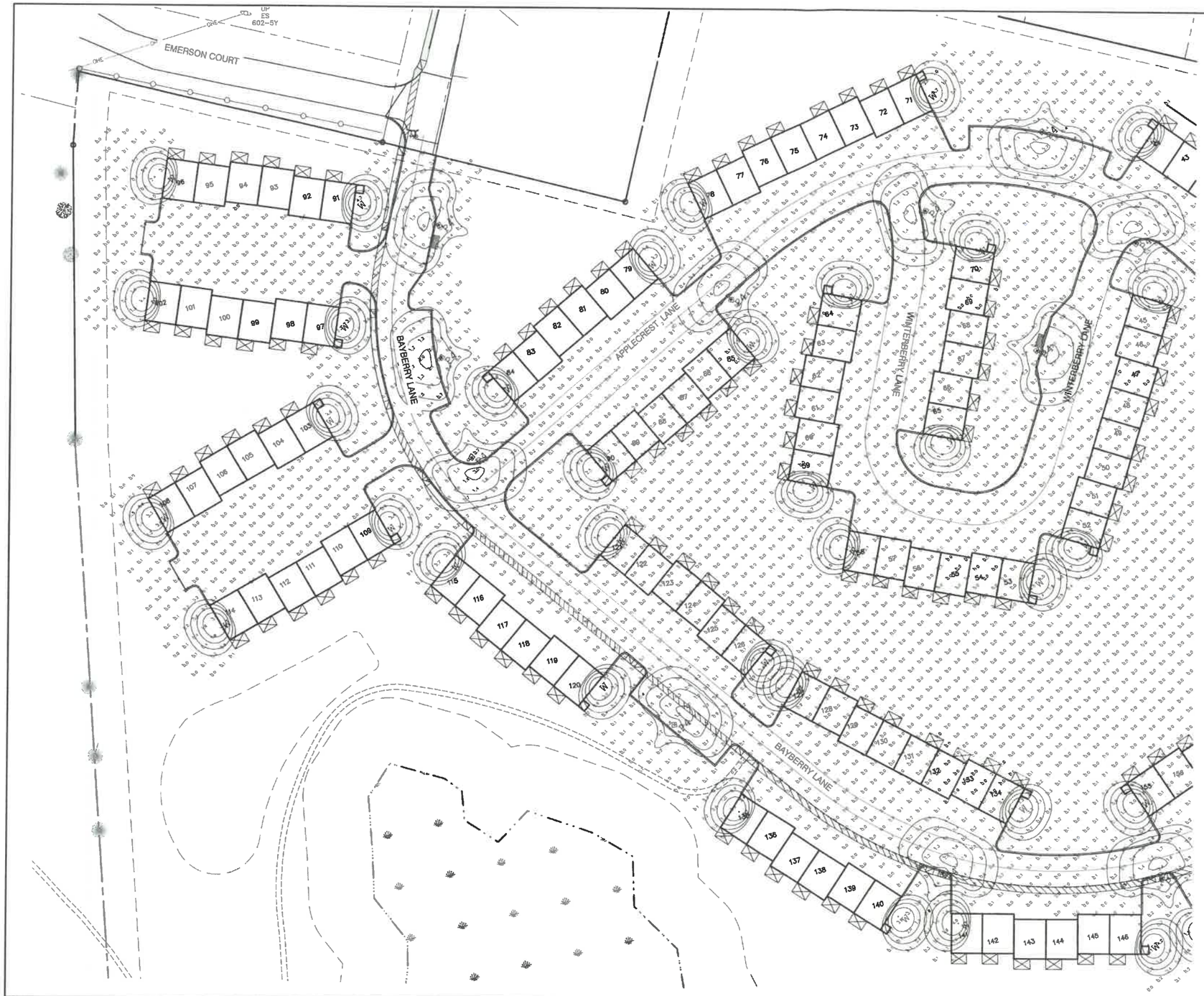
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: **LIGHTING PLAN**
Project: **BAYBERRY COMMONS**
19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record: LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE
19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
L3
SHEET 22 OF 46
JBE PROJECT NO. 21090



GRAPHIC SCALE

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(IN FEET)
1 inch = 40 ft.

PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 10

APPLICANT
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TOTAL LOT AREA
1,309,695 SQ. FT. ±
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Drawing Name: 21090-PLAN.dwg		

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STATE OF NEW HAMPSHIRE – MICHAEL J. KERVAN No. 9646 – LICENSED – PROFESSIONAL ENGINEER – 2021.11.12

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
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Stratham, NH 03885
Civil Engineering Services
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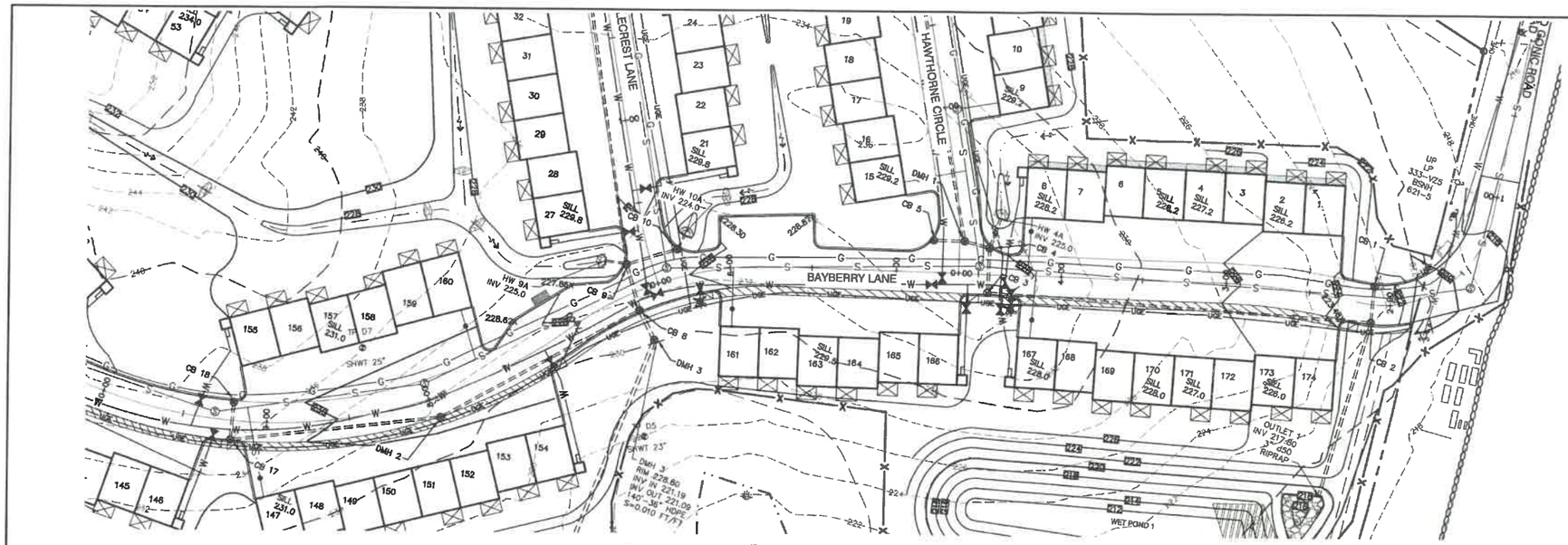
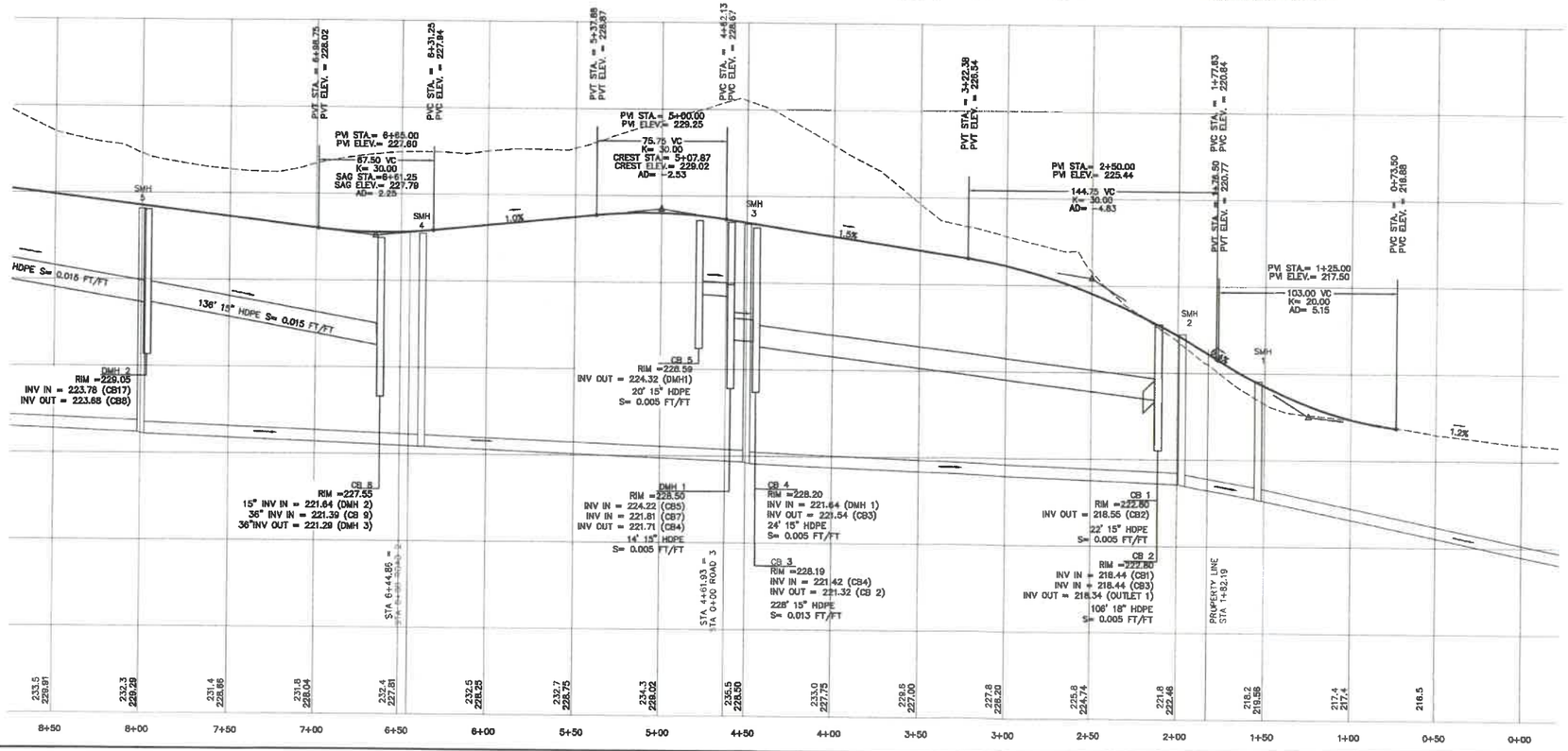
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: LIGHTING PLAN
Project: BAYBERRY COMMONS
19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record: LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE
19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
L4
SHEET 23 OF 46
JBE PROJECT NO. 21090





BAYBERRY LANE

GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft. Horiz.
1 inch = 4 ft. Vert.
0 40 80

NOTES:

1. ALL ROAD AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR THE CITY, AND NHDOT SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.
2. AS-BUILT PLANS TO BE SUBMITTED TO THE CITY PRIOR TO ACCEPTANCE OF THE ROADWAY.
3. DEVELOPER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING ANY PERMITTING AND SETBACK REQUIREMENTS REQUIRED UNDER THESE REGULATIONS.
4. CONTRACTOR TO COORDINATE AND COMPLETE ALL WORK REQUIRED FOR THE RELOCATION AND/OR INSTALLATION OF ELECTRIC, CATV, TELEPHONE, AND FIRE ALARM PER UTILITY DESIGN AND STANDARDS. LOCATIONS SHOWN ARE APPROXIMATE. LOW PROFILE STRUCTURES SHALL BE USED TO THE GREATEST EXTENT POSSIBLE.
5. THIS PLAN HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC. FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA SHOWN ON THE DESIGN PLANS. THIS INCLUDES ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS OF THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
6. SILTATION AND EROSION CONTROLS SHALL BE INSTALLED PRIOR TO CONSTRUCTION, SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN UNTIL SITE HAS BEEN STABILIZED WITH PERMANENT VEGETATION. SEE DETAIL SHEET E1 FOR ADDITIONAL NOTES ON EROSION CONTROL.
7. ALL DISTURBED AREAS NOT STABILIZED BY NOVEMBER 1st SHALL BE COVERED WITH AN EROSION CONTROL BLANKET. PRODUCT TO BE SPECIFIED BY THE ENGINEER.
8. FINAL DRAINAGE, GRADING AND EROSION PROTECTION MEASURES SHALL CONFORM TO REGULATIONS OF THE PUBLIC WORKS DEPARTMENT.
9. CONTRACTOR TO VERIFY EXISTING UTILITIES AND TO NOTIFY ENGINEER OF ANY DISCREPANCY IMMEDIATELY.
10. ROADWAY INTERSECTIONS WITH SLOPE GRANITE CURB SHALL EXTEND AROUND RADIUS WITH 6' STRAIGHT PIECE ALONG TANGENT.
11. RETAINING WALLS SHALL BE DESIGNED AND STAMPED BY A LICENSED PROFESSIONAL ENGINEER. CONTRACTOR SHALL COORDINATE WITH MANUFACTURER PRIOR TO INSTALLATION.
12. 6" PERFORATED ADS UNDER DRAIN PLACEMENT TO BE DETERMINED BY THE ENGINEER DURING TIME OF SUBGRADE INSPECTION. CONTRACTOR TO ADJUST LOCATION IN THE FIELD ONLY WITH PRIOR APPROVAL OF PROJECT ENGINEER OR PUBLIC WORKS DEPARTMENT.
13. ALL DRIVEWAYS TO BE CONSTRUCTED MAXIMUM 10% SLOPE. SEE DETAIL SHEET.
14. SIDEWALK TO BE INSTALLED AT TIME OF TOP COURSE PAVING ALONG WITH DRIVEWAY APRONS.
15. DRAINAGE INSPECTION AND MAINTENANCE SCHEDULE: SILT FENCING WILL BE INSPECTED DURING AND AFTER STORM EVENTS TO ENSURE THAT THE FENCE STILL HAS INTEGRITY AND IS NOT ALLOWING SEDIMENT TO PASS. SEDIMENT BUILD UP IN SWALES WILL BE REMOVED IF IT IS DEEPER THAN SIX INCHES, AND IS TO BE REMOVED FROM SUMPS BELOW THE INLET OF CULVERTS SEMIANNUALLY, AS WELL AS FROM CATCH BASINS. FOLLOWING MAJOR STORM EVENTS, THE STAGE DISCHARGE OUTLET STRUCTURES ARE TO BE INSPECTED AND ANY DEBRIS REMOVED FROM THE ORIFICE, TRASH TRACK AND EMERGENCY SPILL WAY. INFREQUENTLY, SEDIMENT MAY ALSO HAVE TO BE REMOVED FROM THE SUMP OF THE STRUCTURE.
16. ALL DRAINAGE INFRASTRUCTURE SHALL BE INSTALLED AND STABILIZED PRIOR TO DIRECTING ANY RUNOFF TO IT.
17. DETENTION PONDS REQUIRE TIMELY MAINTENANCE AND SHOULD BE INSPECTED AFTER EVERY MAJOR STORM EVENT, AS WELL AS FREQUENTLY DURING THE FIRST YEAR OF OPERATION, AND ANNUALLY THEREAFTER. EVERY FIVE YEARS, THE SERVICES OF A PROFESSIONAL ENGINEER SHOULD BE RETAINED TO PERFORM A THOROUGH INSPECTION OF THE DETENTION POND AND ITS INFRASTRUCTURE. ANY DEBRIS AND SEDIMENT ACCUMULATIONS SHOULD BE REMOVED FROM THE OUTLET STRUCTURE(S) AND EMERGENCY SPILLWAY(S) AND DISPOSED OF PROPERLY. DETENTION POND BERMS SHOULD BE MOWED AT LEAST ONCE ANNUALLY SO AS TO PREVENT THE ESTABLISHMENT OF WOODY VEGETATION. TREES SHOULD NEVER BE ALLOWED TO GROW ON A DETENTION POND BERM, AS THEY MAY DESTABILIZE THE STRUCTURE AND INCREASE THE POTENTIAL FOR FAILURE. AREAS SHOWING SIGNS OF EROSION OR THIN OR DYING VEGETATION SHOULD BE REPAIRED IMMEDIATELY BY WHATEVER MEANS NECESSARY, WITH THE EXCEPTION OF FERTILIZER. RODENT BORROWS SHOULD BE REPAIRED IMMEDIATELY AND THE ANIMALS SHOULD BE TRAPPED AND RELOCATED IF THE PROBLEM PERSISTS.
18. THE DETENTION PONDS ARE TO BE CONSTRUCTED PRIMARILY THROUGH EXCAVATION. IN THOSE AREAS WHERE THE BERMS MUST BE CONSTRUCTED BY THE PLACEMENT OF FILL, THE ENTIRE EMBANKMENT AREA OF THE DETENTION PONDS SHALL BE EXCAVATED TO PROPOSED GRADE, STRIPPED OF ALL ORGANIC MATERIALS, COMPACTED TO AT LEAST 95% AND SCARIFIED PRIOR TO THE PLACEMENT OF THE EMBANKMENT MATERIAL. IN THE EVENT THE FOUNDATION MATERIAL EXPOSED DOES NOT ALLOW THE SPECIFIED COMPACTION, AN ADDITIONAL ONE FOOT (1') OF EXCAVATION AND THE PLACEMENT OF A ONE FOOT (1') THICK, TWELVE FOOT (12') WIDE PAD OF THE MATERIAL DESCRIBED IN THE NOTE BELOW, COMPACTED TO 95% OF ASTM D-1557 MAY BE NECESSARY. PLACEMENT AND COMPACTION SHOULD OCCUR AT A MOISTURE CONTENT OF OPTIMUM PLUS OR MINUS 3% AND NO FROZEN OR ORGANIC MATERIAL SHOULD BE PLACED WITHIN FOR ANY REASON.
19. EMBANKMENT MATERIAL FOR THE BERMS SHALL BE CLEAN MINERAL SOIL WITH A CLAY COMPONENT FREE OF ROOTS, ORGANIC MATTER, AND OTHER DELETERIOUS SUBSTANCES, AND SHALL CONTAIN NO ROCKS OR LUMPS OVER FOUR INCHES (4") IN DIAMETER. THIS MATERIAL SHOULD BE INSTALLED IN 6" LIFTS AND COMPACTED TO 95% OS ASTM D-1557, AND SHOULD MEET THE FOLLOWING SPECIFICATIONS: 4" PASSING 100%, #4 SIEVE 25-70%, #200 SIEVE 10-29% (IN TOTAL SAMPLE).
20. EMBANKMENT IS TO HAVE 3:1 SIDE SLOPES (MAX.) AND IS TO BE BROUGHT TO SPECIFIED GRADES PRIOR TO THE ADDITION OF LOAM (4" MINIMUM) SO AS TO ALLOW FOR THE COMPACTION OF THE STRUCTURE OVER TIME WHILE MAINTAINING THE PROPER BERM ELEVATION.
21. COMPACTION TESTING SERVICES (I.E. NUCLEAR DENSITY TESTS) ARE TO BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER RETAINED BY THE CONTRACTOR FOR ROADWAY CONSTRUCTION, AND ON THE FOUNDATION OF THE BERM AND ON EVERY LIFT OF NEWLY PLACED MATERIAL.
22. SLOPED GRANITE CURB TO BE TIPPED DOWN AT ALL DRIVEWAY ENTRANCES BY THE CONTRACTOR.

Design: JAC	Draft: LAZ	Date: 04/29/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-PLAN.dwg		

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STATE OF NEW HAMPSHIRE — MICHAEL J. KERWIN No. 9646 — LICENSED PROFESSIONAL ENGINEER

REV.	DATE	REVISION	BY
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0	11/23/21	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
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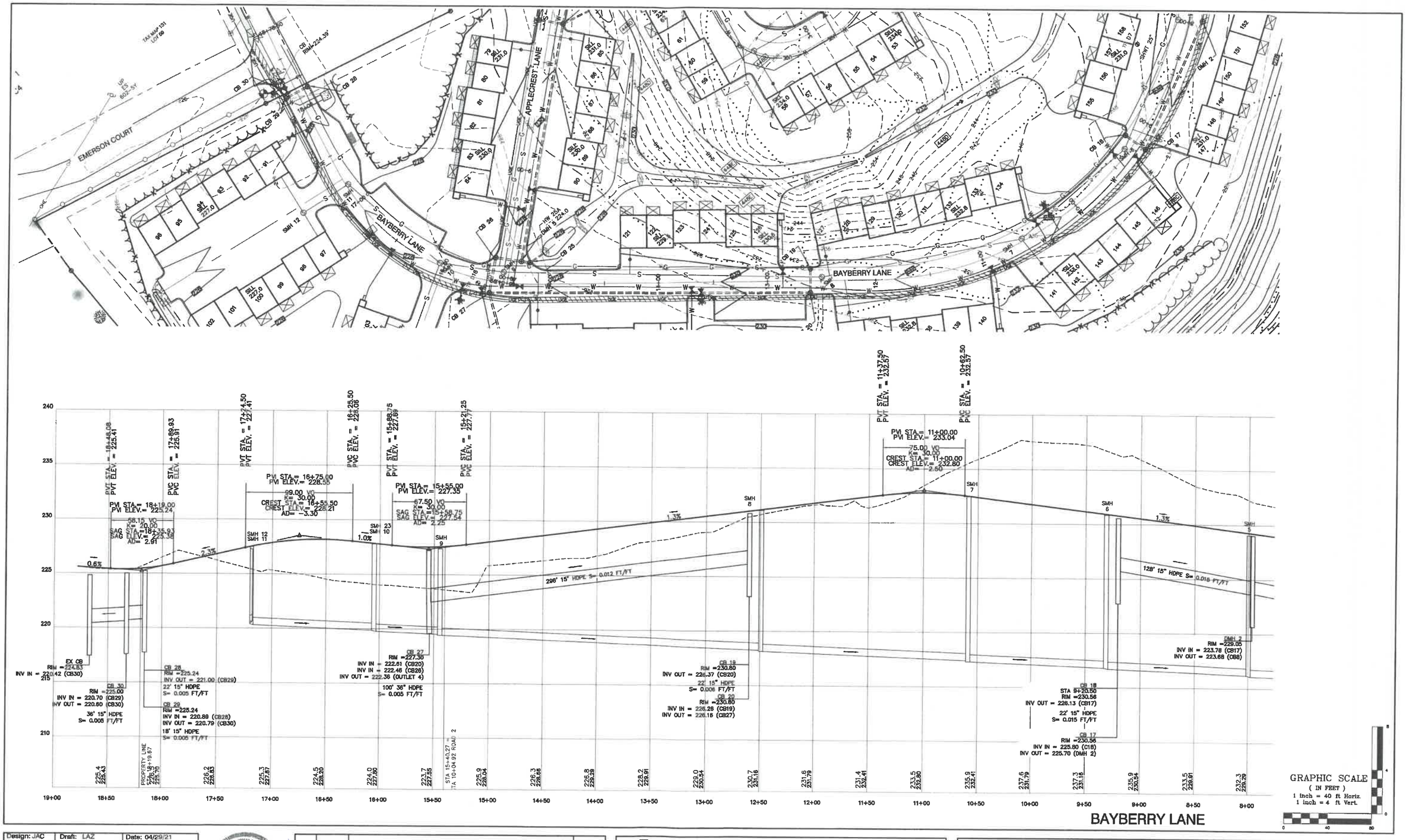
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	PLAN AND PROFILE
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
P1
SHEET 24 OF 46
JBE PROJECT NO.21090



BAYBERRY LANE

Design: JAC	Draft: LAZ	Date: 04/29/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-PLAN.dwg		

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STATE OF NEW HAMPSHIRE – MICHAEL J. KERRIVAN No. 9643 – LICENSED PROFESSIONAL ENGINEER – 4/14/2022

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

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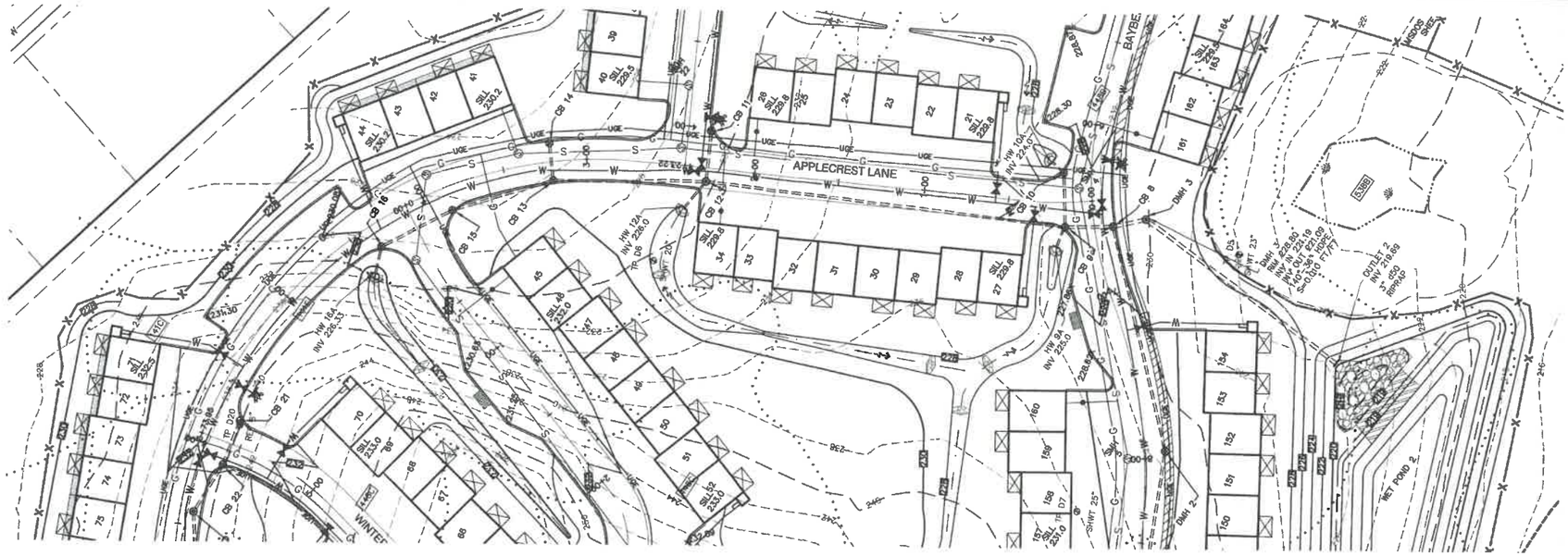
PO Box 219 FAX: 603-772-0227
Stratham, NH 03885 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	PLAN AND PROFILE
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
P2
SHEET 25 OF 46
JBE PROJECT NO. 21090



APPLECREST LANE

Design: JAC	Draft: LAZ	Date: 04/29/21	
Checked: JAC	Scale: AS NOTED	Project No.: 21090	
Drawing Name: 21090-PLAN.dwg			

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STATE OF NEW HAMPSHIRE – MICHAEL K. KERRIGAN No. 9648 LICENSED – 2/14/2022

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
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PO Box 219 FAX: 603-772-0227
Stratham, NH 03885 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	PLAN AND PROFILE
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
P3
SHEET 28 OF 48
JBE PROJECT NO.21090

APPLECREST LANE

Design: JAC	Draft: LAZ	Date: 04/29/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-PLAN.dwg		

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STATE OF NEW HAMPSHIRE — MICHAEL J. KEANAN No. 9646 — LICENSED PROFESSIONAL ENGINEER — 2/14/2022

REV.	DATE	REVISION	BY
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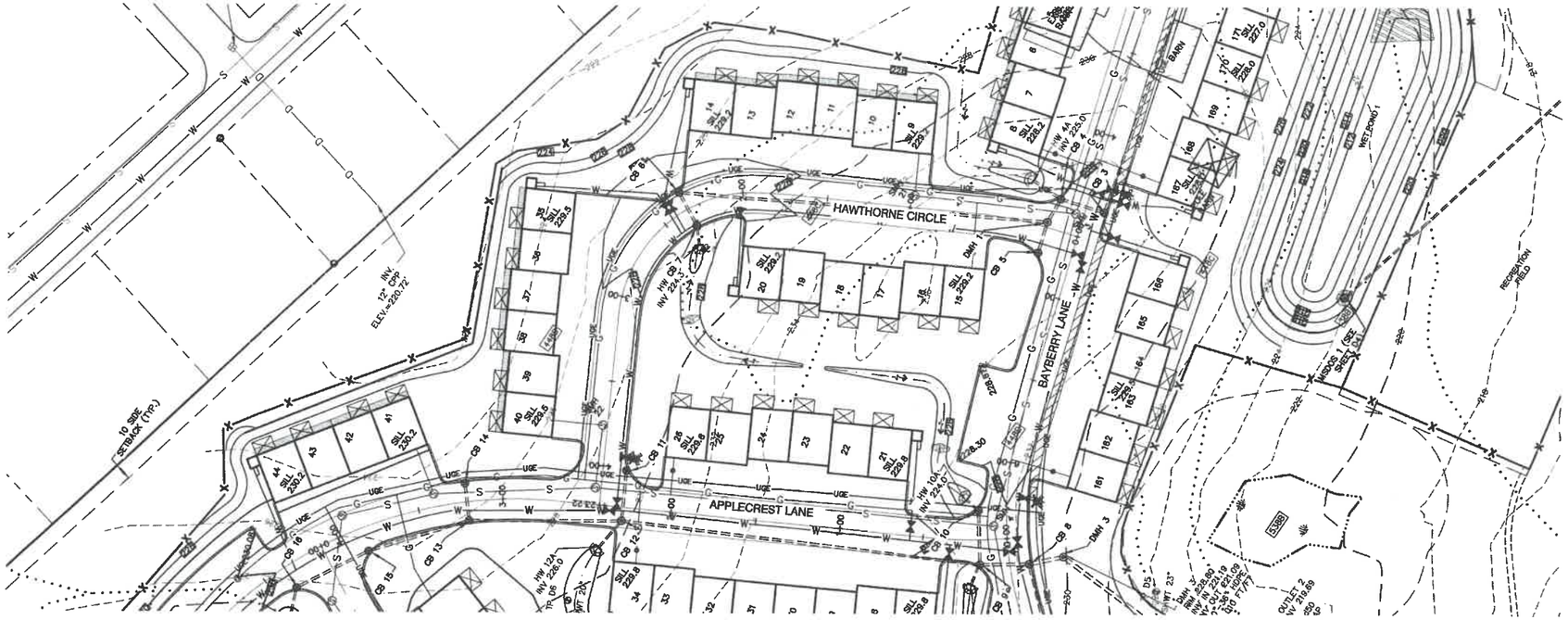
Plan Name:	PLAN AND PROFILE
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
P4
SHEET 27 OF 48
JBE PROJECT NO.21090



GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft Horiz.
1 inch = 4 ft Vert.
0 40 80
0 4 8

HAWTHORNE CIRCLE

Design: JAC	Draft: LAZ	Date: 04/29/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-PLAN.dwg		

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STATE OF NEW HAMPSHIRE — MICHAEL J. KERVAN No. 9645 — LICENSED PROFESSIONAL ENGINEER — 10/12/2022

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

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Civil Engineering Services
85 Portsmouth Ave.
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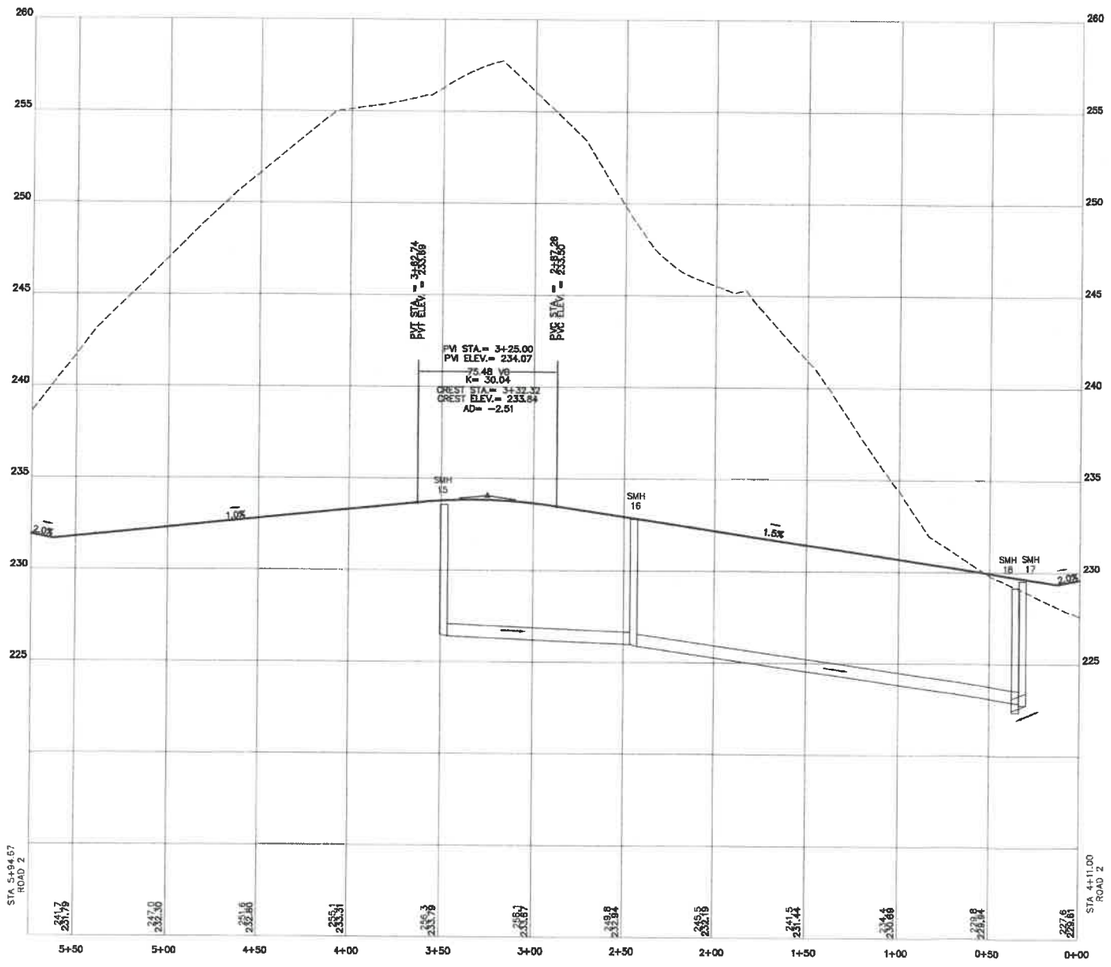
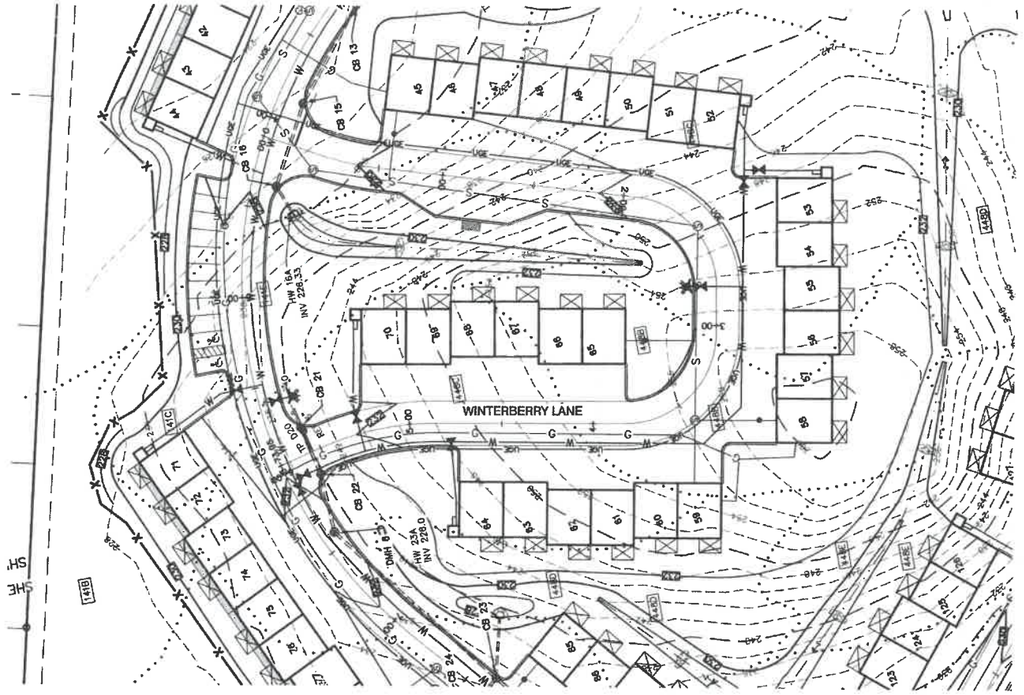
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	PLAN AND PROFILE
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
P5
SHEET 28 OF 46
JBE PROJECT NO.21090





GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft Horiz.
1 inch = 4 ft Vert.

WINTERBERRY LANE

Design: JAC	Draft: LAZ	Date: 04/29/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-PLAN.dwg		

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STATE OF NEW HAMPSHIRE – MICHAEL J. KERMAN No. 7916 LICENSED LAND SURVEYOR – 4/11/22

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

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603-772-4746 FAX: 603-772-0227
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Plan Name:	PLAN AND PROFILE
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
P6
SHEET 29 OF 46
JBE PROJECT NO.21090

BAYBERRY LANE

GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft Horiz.
1 inch = 4 ft Vert.
0 40 80

Design: JAC	Draft: LAZ	Date: 04/29/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-PLAN.dwg		

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STATE OF NEW HAMPSHIRE — MICHAEL J. KERVAN No. 9646 LICENSED — 2/14/2022

REV.	DATE	REVISION	BY
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1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

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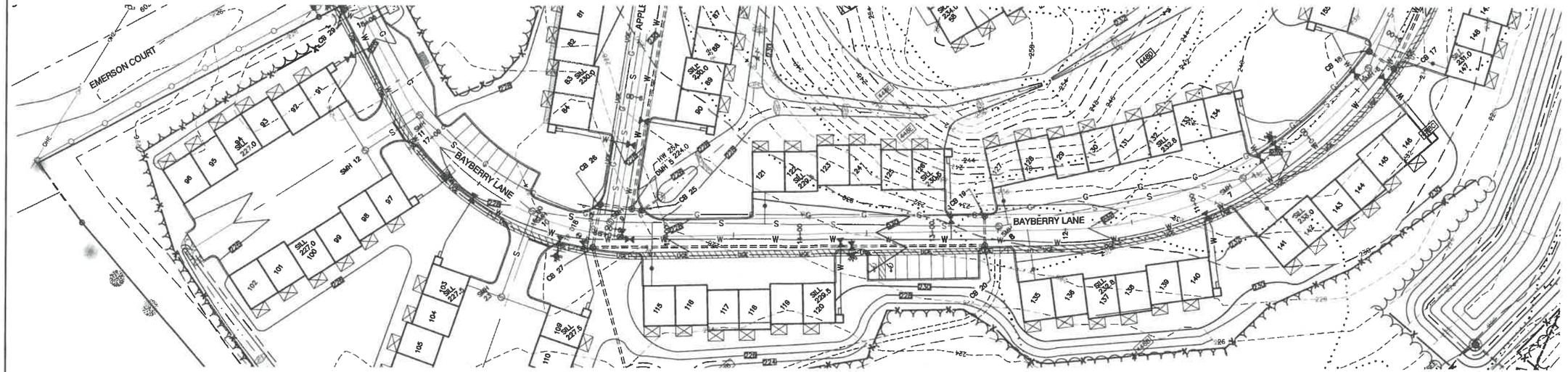
Plan Name:	SEWER PLAN AND PROFILE
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
P7
SHEET 30 OF 46
JBE PROJECT NO.21090


EMERSON COURT
S BAYBERRY LANE
BAYBERRY LANE
APPLE
SMH 12
SMH 7
DMH 5
CB 25
CB 26
CB 27
CB 28
CB 29
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CB 24
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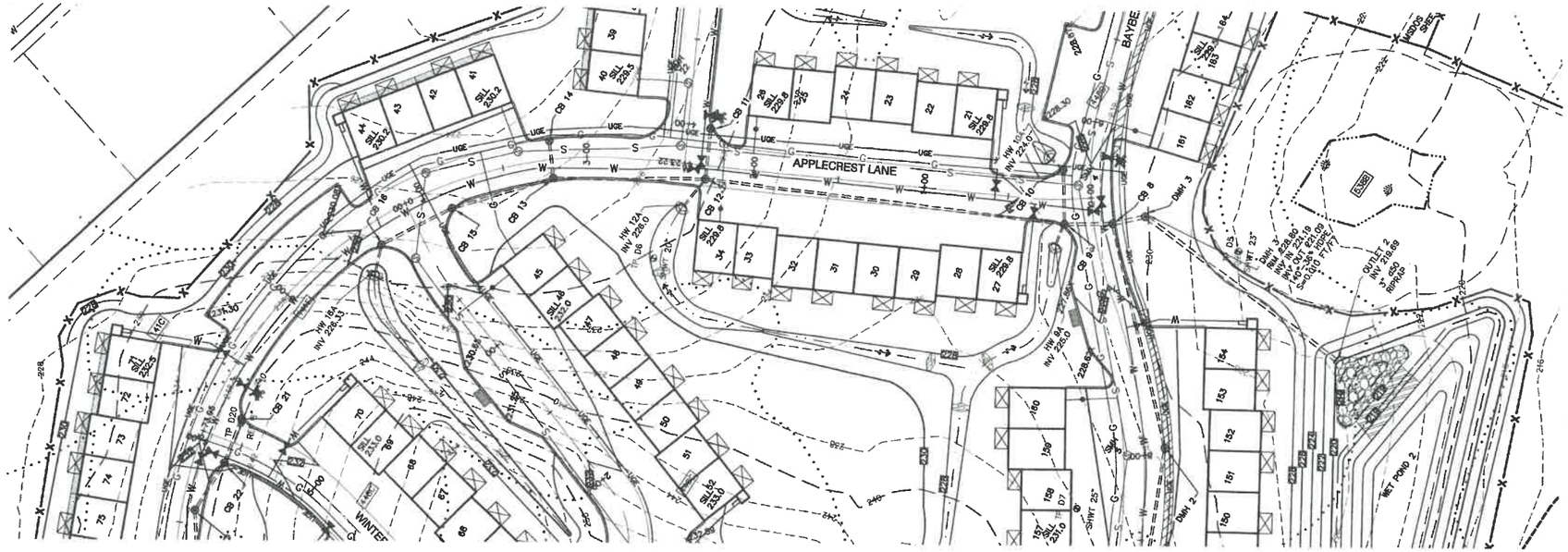

Design: JAC	Draft: LAZ
Checked: JAC	Scale: AS NOTED
Date: 04/29/21	Project No.: 21090
Drawing Name: 21090-PLAN.dwg	

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STATE OF NEW HAMPSHIRE
MICHAEL J. KERVAN No. 9648
LICENSED
PROFESSIONAL ENGINEER
2/14/2022

REV.	DATE	REVISION	BY
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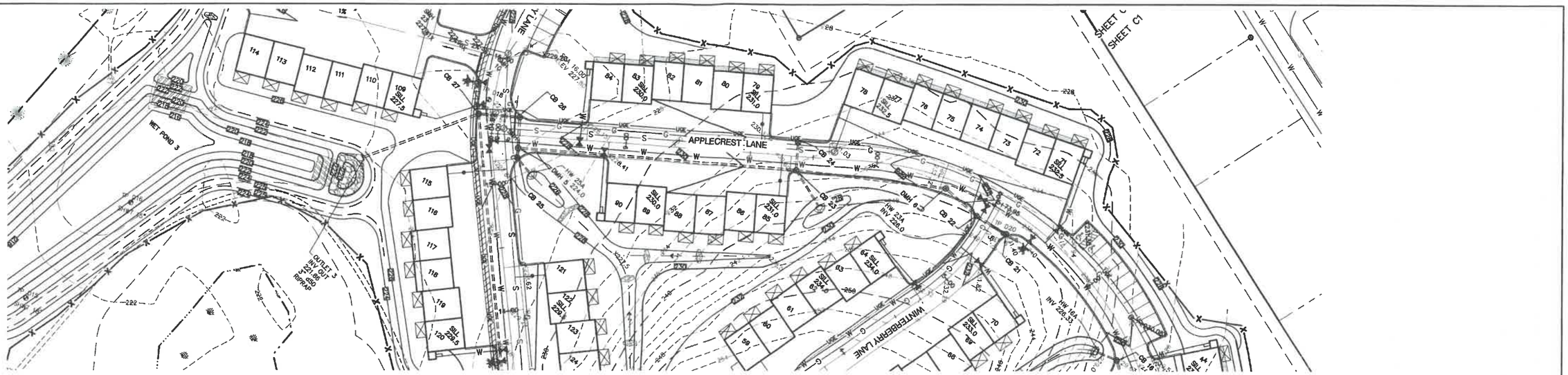
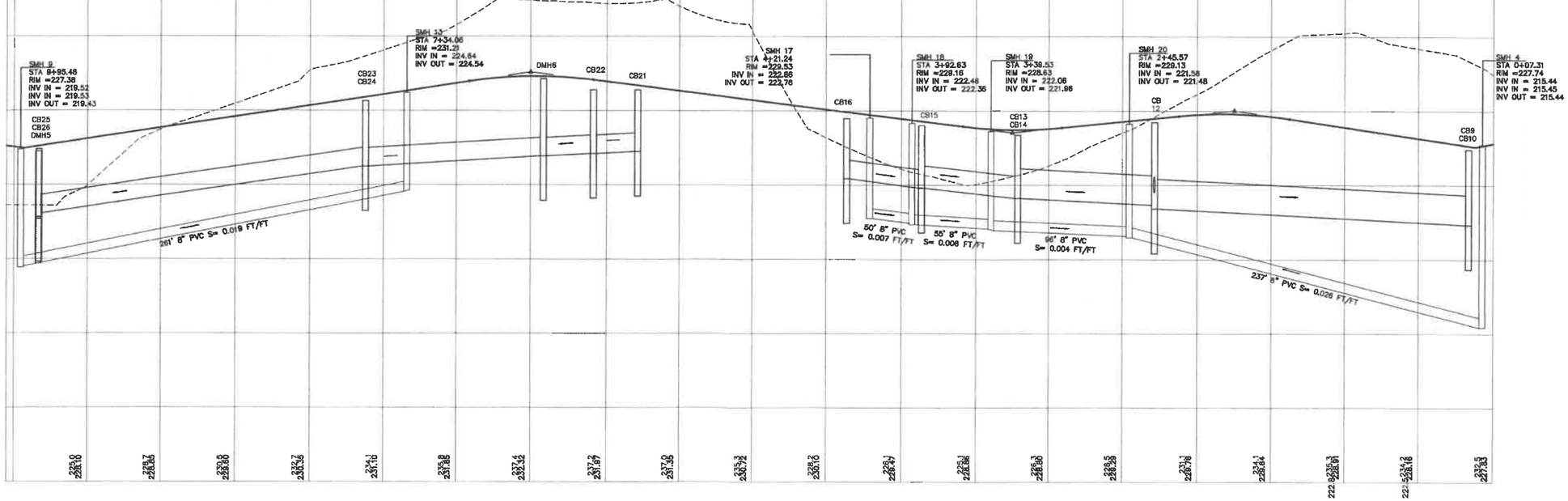
Plan Name:	SEWER PLAN AND PROFILE
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
P9
SHEET 32 OF 46
JBE PROJECT NO.21090





GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft Horiz.
1 inch = 4 ft Vert.

APPLECREST LANE

Design: JAC	Draft: LAZ	Date: 04/29/21	
Checked: JAC	Scale: AS NOTED	Project No.: 21090	
Drawing Name: 21090-PLAN.dwg			

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE), ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

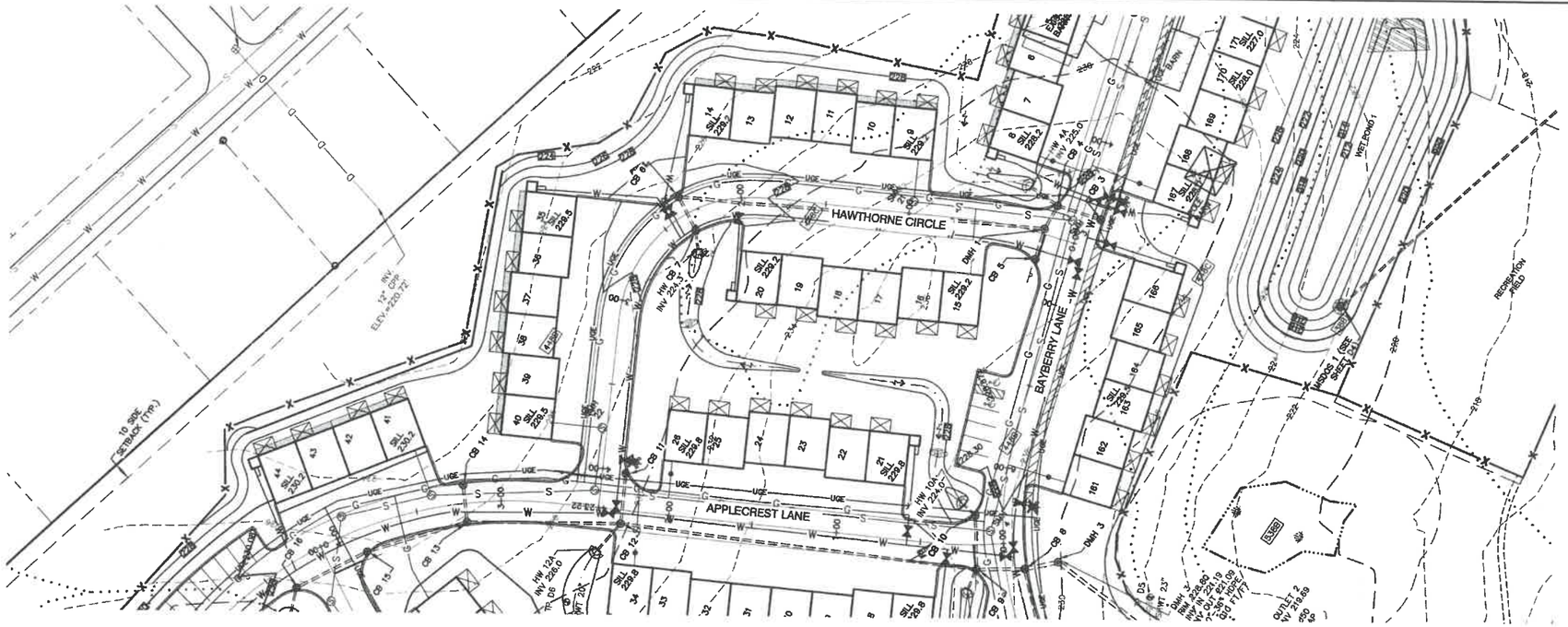
STATE OF NEW HAMPSHIRE — MICHAEL J KERVAN No. 9948 LICENSED — 2/14/2022

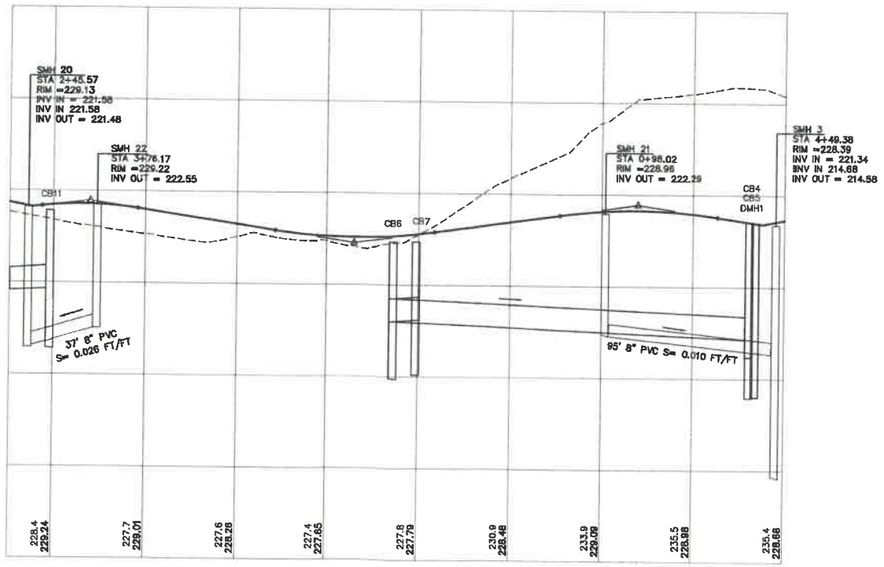
REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
Jones & Beach Engineers, Inc.
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	PLAN AND PROFILE
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
P10
SHEET 33 OF 46
JBE PROJECT NO.21090





GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft Horiz.
1 inch = 4 ft Vert.
0 40 80
0 4 8

HAWTHORNE CIRCLE

Design: JAC	Draft: LAZ	Date: 04/29/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-PLAN.dwg		

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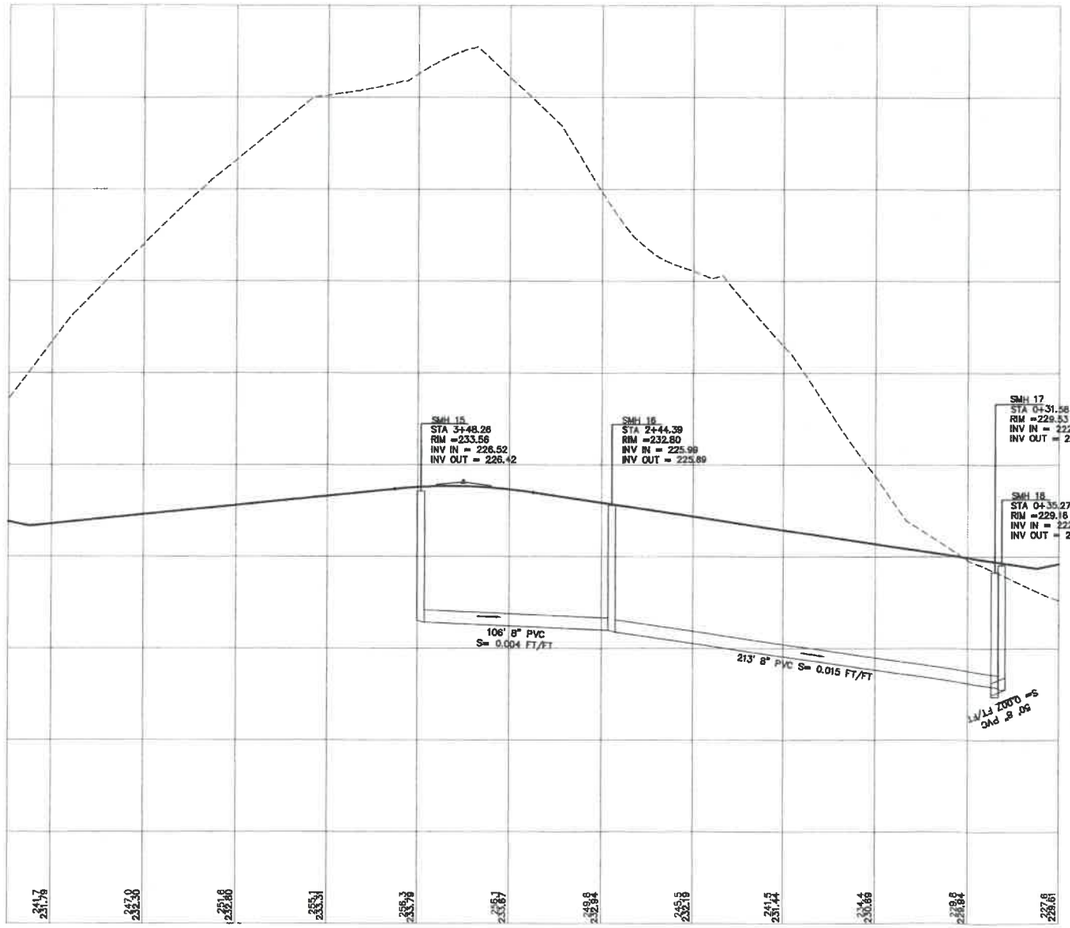
STATE OF NEW HAMPSHIRE – MICHAEL J. KERVAN No. 9646 – LICENSED PROFESSIONAL ENGINEER – 2/14/22

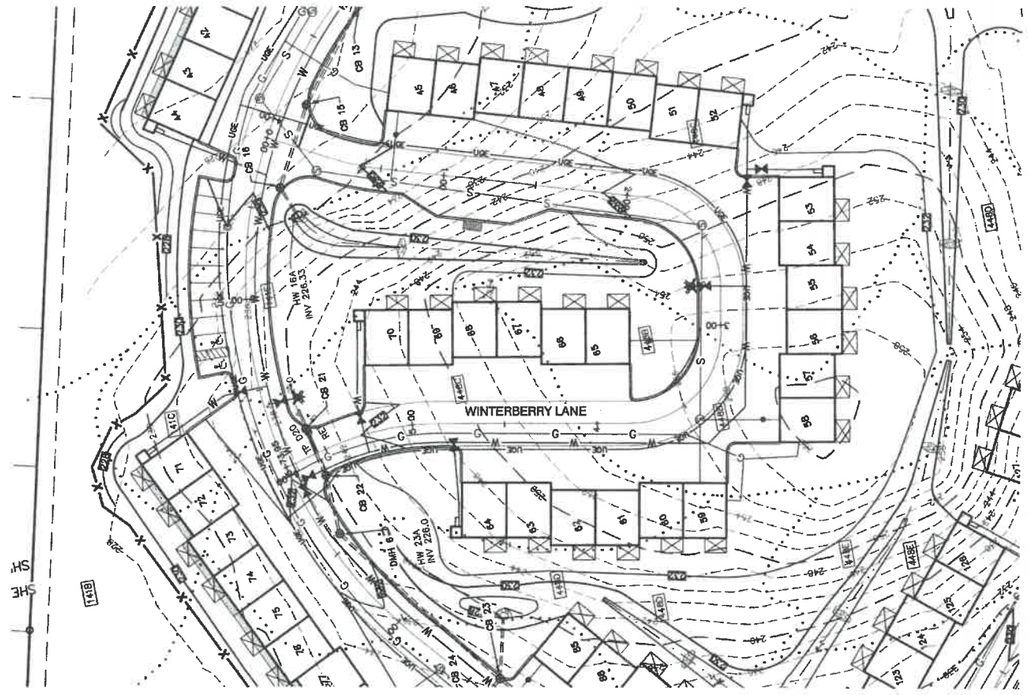
REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	SEWER PLAN AND PROFILE
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
P11
SHEET 34 OF 48
JBE PROJECT NO.21090





GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft. Horiz.
1 inch = 4 ft Vert.
0 40 80
0 4 8

WINTERBERRY LANE

Design: JAC	Draft: LAZ	Date: 04/29/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-PLAN.dwg		

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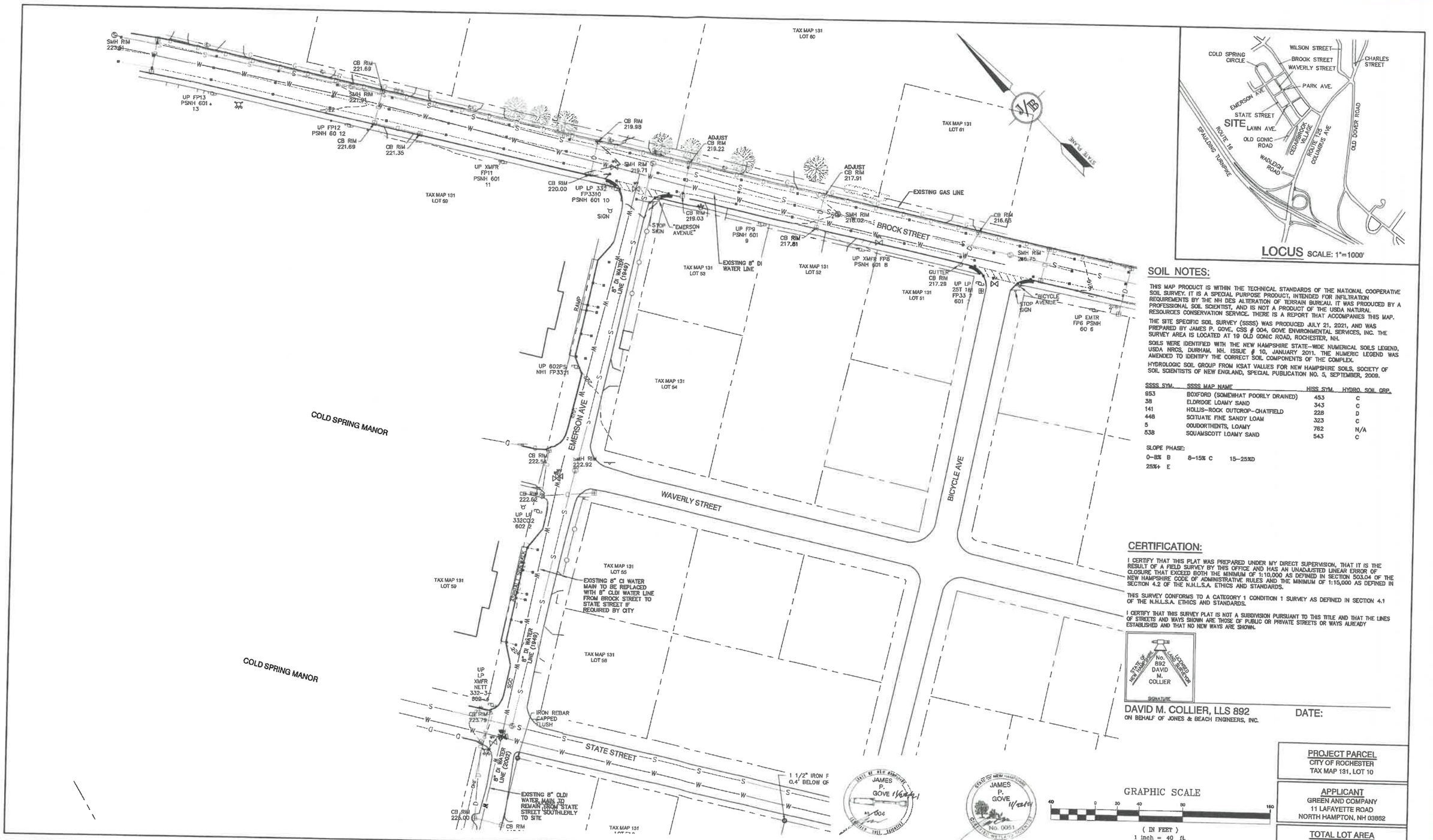
STATE OF NEW HAMPSHIRE
MICHAEL J. KERRIGAN No. 9646 LICENSED LAND SURVEYOR
7/19/2022

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	SEWER PLAN AND PROFILE
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
P12
SHEET 35 OF 46
JBE PROJECT NO.21090



SOIL NOTES:

THIS MAP PRODUCT IS WITHIN THE TECHNICAL STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY. IT IS A SPECIAL PURPOSE PRODUCT, INTENDED FOR INFILTRATION REQUIREMENTS BY THE NH DES ALTERATION OF TERRAIN BUREAU. IT WAS PRODUCED BY A PROFESSIONAL SOIL SCIENTIST, AND IS NOT A PRODUCT OF THE USDA NATURAL RESOURCES CONSERVATION SERVICE. THERE IS A REPORT THAT ACCOMPANIES THIS MAP.

THE SITE SPECIFIC SOIL SURVEY (SSSS) WAS PRODUCED JULY 21, 2021, AND WAS PREPARED BY JAMES P. GOVE, CSS # 004, GOVE ENVIRONMENTAL SERVICES, INC. THE SURVEY AREA IS LOCATED AT 19 OLD GONIC ROAD, ROCHESTER, NH.

SOILS WERE IDENTIFIED WITH THE NEW HAMPSHIRE STATE-WIDE NUMERICAL SOILS LEGEND, USDA NRCS, DURHAM, NH. ISSUE # 10, JANUARY 2011. THE NUMERIC LEGEND WAS AMENDED TO IDENTIFY THE CORRECT SOIL COMPONENTS OF THE COMPLEX.

HYDROLOGIC SOIL GROUP FROM KSAT VALUES FOR NEW HAMPSHIRE SOILS, SOCIETY OF SOIL SCIENTISTS OF NEW ENGLAND, SPECIAL PUBLICATION NO. 5, SEPTEMBER, 2009.

SSSS SYM.	SSSS MAP NAME	HISS SYM.	HYDRO. SOIL GRP.
953	BOXFORD (SOMEWHAT POORLY DRAINED)	453	C
38	ELDRIDGE LOAMY SAND	343	C
141	HOLLIS-ROCK OUTCROP-CHATFIELD	228	D
448	SCITUATE FINE SANDY LOAM	323	C
5	GOUDORTHENTS, LOAMY	782	N/A
538	SQUAMSCOTT LOAMY SAND	543	C

SLOPE PHASE:
0-8% B 8-15% C 15-25%D
25%+ E

CERTIFICATION:

I CERTIFY THAT THIS PLAT WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN UNADJUSTED LINEAR ERROR OF CLOSURE THAT EXCEED BOTH THE MINIMUM OF 1:10,000 AS DEFINED IN SECTION 503.04 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES AND THE MINIMUM OF 1:15,000 AS DEFINED IN SECTION 4.2 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

THIS SURVEY CONFORMS TO A CATEGORY 1 CONDITION 1 SURVEY AS DEFINED IN SECTION 4.1 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

STATE OF NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR SIGNATURE

DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 10

APPLICANT
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

Design: JAC	Draft: LAZ	Date: 04/29/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

STATE OF NEW HAMPSHIRE MICHAEL J. KERVAN No. 9848 LICENSED WETLAND SCIENTIST 2/18/2022

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
Jones & Beach Engineers, Inc.
85 Portsmouth Ave. Civil Engineering Services 603-772-4746
PO Box 219 FAX: 603-772-0227
Stratham, NH 03885 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: OFFSITE EXISTING CONDITIONS PLAN
Project: BAYBERRY COMMONS
19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record: LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE
19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
OFF1
SHEET 36 OF 48
JBE PROJECT NO. 21090

PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 10

APPLICANT
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

Design: JAC	Draft: LAZ	Date: 04/29/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-PLAN.dwg		

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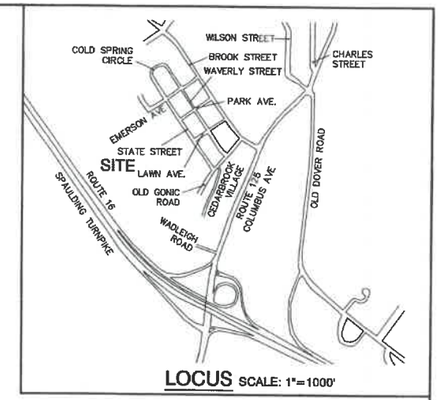
STATE OF NEW HAMPSHIRE – MICHAEL J. KERRIVAN No. 6948 – LICENSED PROFESSIONAL ENGINEER
2/14/2022

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

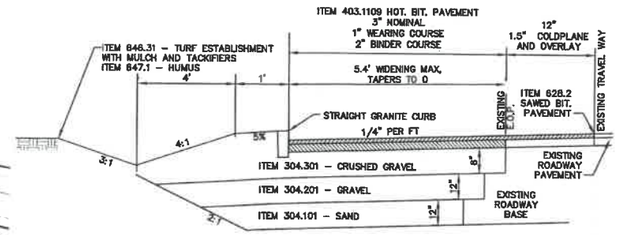
Designed and Produced In NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: **OFFSITE SITE PLAN**
Project: BAYBERRY COMMONS
19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record: LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE
19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
OFF2
SHEET 37 OF 46
JBE PROJECT NO. 21090



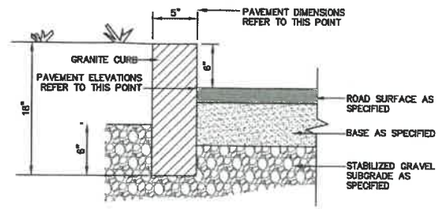
LOCUS SCALE: 1"=1000'



NOTE: TESTING OF IN-SITU SAND MATERIAL MAY BE PERFORMED TO DETERMINE IF MATERIAL WILL MEET SAND SPECIFICATION AND CAN BE USED FOR ITEM 304.101 – SAND

TYPICAL SECTION - SHOULDER WIDENING

NOT TO SCALE



NOTES:

1. JOINTS BETWEEN STONES SHALL BE MORTARED.
2. EDGING TO BE PLACED PRIOR TO PLACING TOP SURFACE COURSE.

5" VERTICAL GRANITE CURB

NOT TO SCALE

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 10

APPLICANT
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

Design: JAC	Draft: LAZ
Checked: JAC	Scale: AS NOTED
Drawing Name: 21090-PLAN.dwg	Date: 04/29/21
	Project No.: 21090

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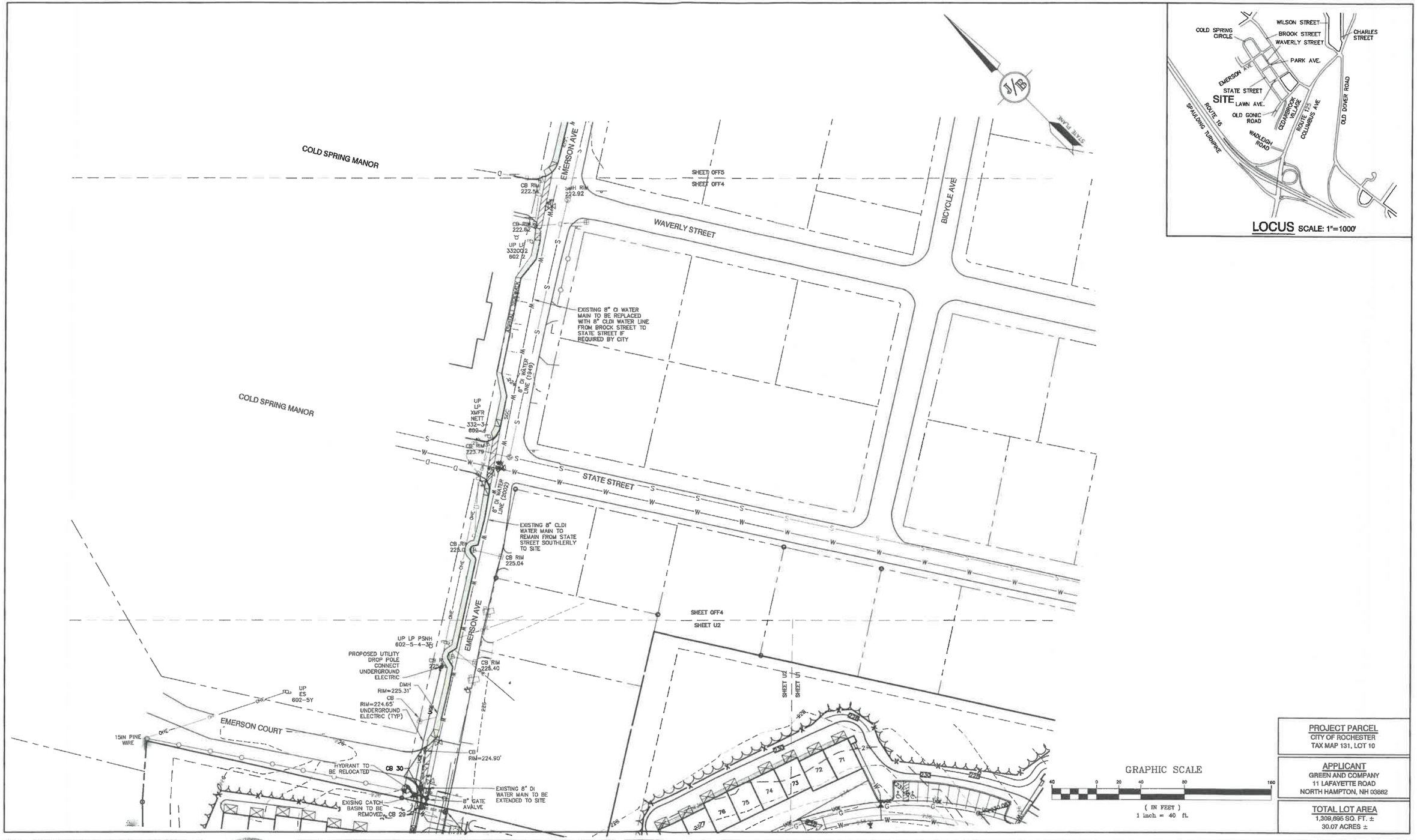
STATE OF NEW HAMPSHIRE – MICHAEL J. KERVAN No. 9646 – LICENSED PROFESSIONAL ENGINEER – 7/14/2022

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	OFFSITE SITE PLAN
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
OFF3
SHEET 38 OF 46
JBE PROJECT NO. 21090



PROJECT PARCEL
CITY OF ROCHESTER TAX MAP 131, LOT 10
APPLICANT
GREEN AND COMPANY 11 LAFAYETTE ROAD NORTH HAMPTON, NH 03862
TOTAL LOT AREA
1,309,695 SQ. FT. ± 30.07 ACRES ±

Design: JAC	Draft: LAZ	Date: 04/29/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-PLAN.dwg		

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STATE OF NEW HAMPSHIRE – MICHAEL I. KERIVAN No. 9646 – LICENSED PROFESSIONAL ENGINEER – 2/14/2022

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

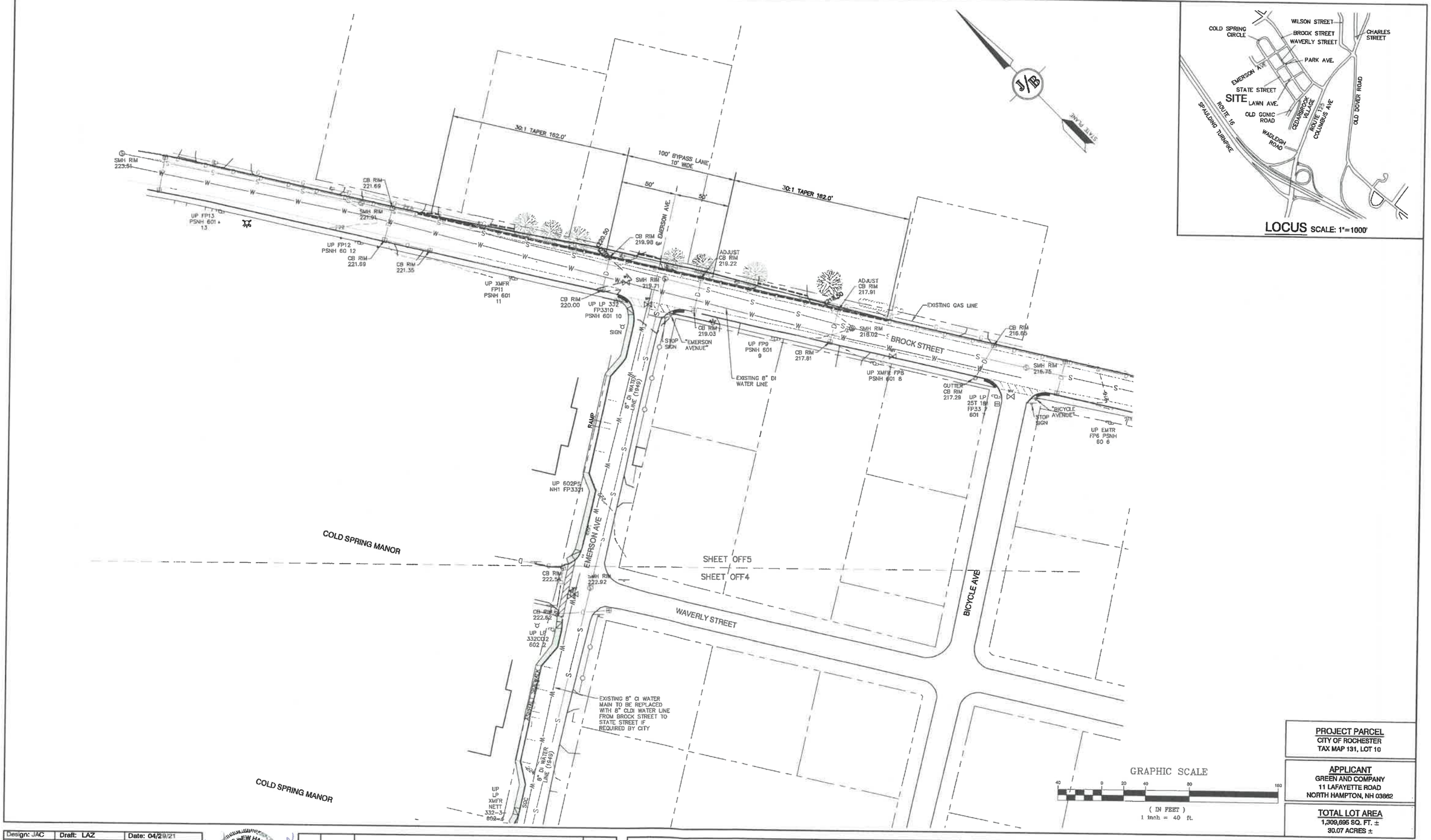
Designed and Produced in NH
Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	OFFSITE GRADING AND UTILITY PLAN
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.

OFF4

SHEET 39 OF 46
JBE PROJECT NO. 21090



Design: JAC	Draft: LAZ	Date: 04/29/21	
Checked: JAC	Scale: AS NOTED	Project No.: 21090	
Drawing Name: 21090-PLAN.dwg			

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STATE OF NEW HAMPSHIRE — MICHAEL J. KERWAN No. 6946 — LICENSED PROFESSIONAL ENGINEER — 2/14/2022

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

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Civil Engineering Services
603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 10

APPLICANT
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

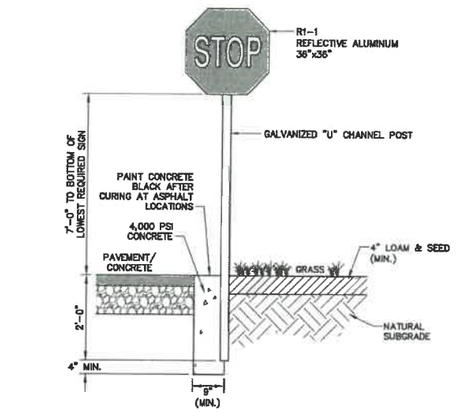
TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

Plan Name: **OFFSITE GRADING AND UTILITY PLAN**

Project: BAYBERRY COMMONS
19 OLD GONIC ROAD, ROCHESTER, NH

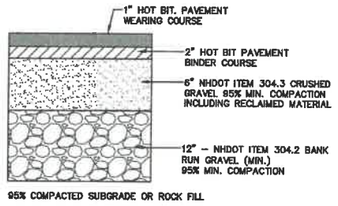
Owner of Record: LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE
19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
OFF5
SHEET 40 OF 48
JBE PROJECT NO. 21090



STOP SIGN (R1-1)

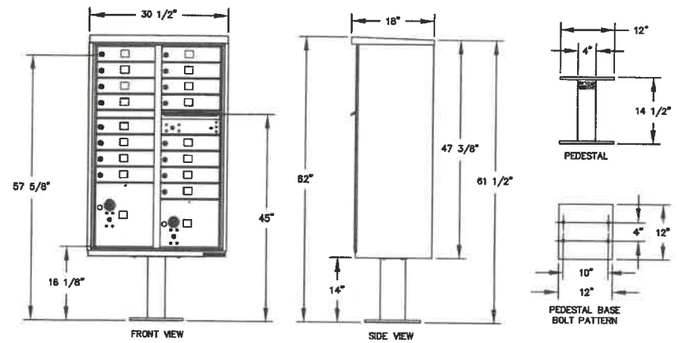
NOT TO SCALE



TYPICAL BITUMINOUS PAVEMENT

NOT TO SCALE

vital™ Cluster Box Unit - Type III



NOTES:

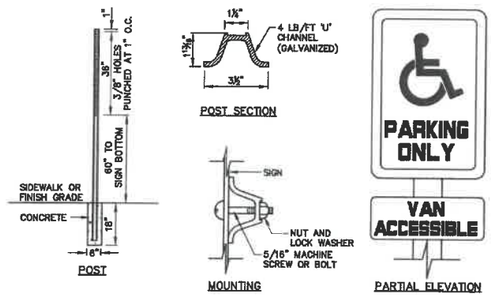
1. This unit is approved for USPS and private applications.
2. Decorative mailbox accessories sold separately and are USPS Approved products.
3. Pedestal should be installed with included Rubber Pad; mounting hardware not included, refer to installation manual for recommendations.
4. Florence "F" series CBU is Officially Licensed by USPS: License#CDSEQ-08-B-0012

DOOR CHART

DOOR TYPE	DIMENSION (HEIGHT x WIDTH)
TENANT	3-3/8"x12-13/16"
10" PARCEL	10-1/4"x12-13/16"
13" PARCEL	13-3/4"x12-13/16"
OUTGOING SLOT	3/4"x11-3/4"

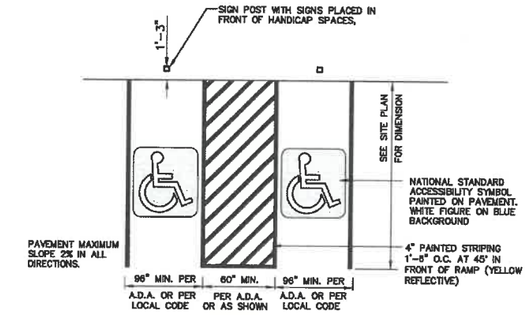
MAIL BOX KIOSK DETAIL - AF FLORENCE MANUFACTURING COMPANY (MODEL 1570-16)

NOT TO SCALE



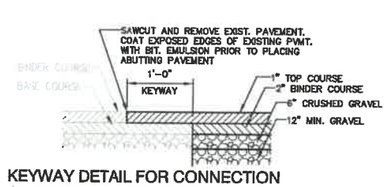
HANDICAP SIGN DETAILS

NOT TO SCALE



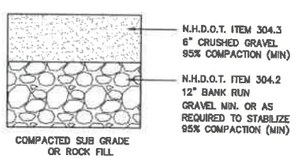
HANDICAP PARKING LAYOUT

NOT TO SCALE



KEYWAY DETAIL FOR CONNECTION TO EXISTING PAVEMENT

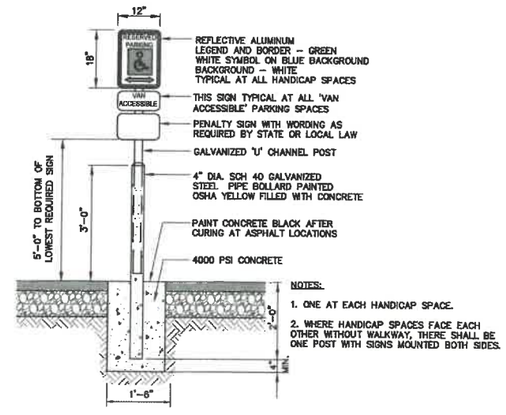
NOT TO SCALE



NOTE: IN AREAS OF ROCK EXCAVATION, MINIMUM 9" BANK RUN GRAVEL SHALL BE PLACED

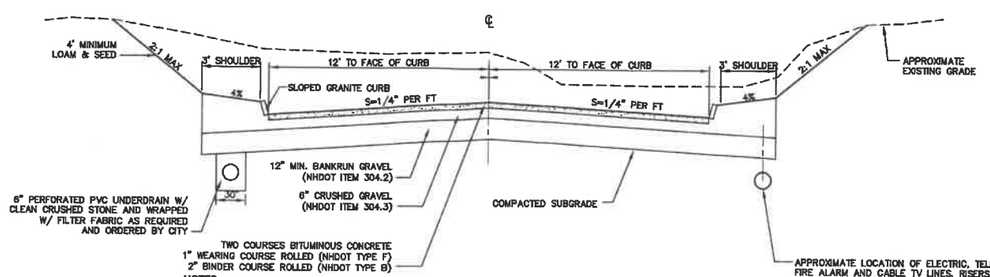
GRAVEL SECTION

NOT TO SCALE



HANDICAP PARKING SIGN (R7-8)

NOT TO SCALE

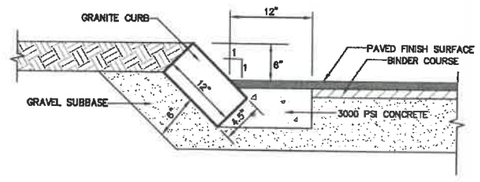


NOTES:

1. REMOVE ALL ORGANICS, TOPSOIL AND MATERIAL YIELDING TO A 10 TON ROLLER. SUBBASE AREAS THAT CONTAIN UNSUITABLE MATERIALS MUST BE EXCAVATED TO A DEPTH NO LESS THAN 36" BELOW FINISH GRADE AND BE REPLACED WITH GRAVEL COMPACTED TO 95%.
2. ALL MATERIALS TO BE AS SPECIFIED PER CITY STANDARDS AND NHDOT, WHICHEVER IS MOST STRINGENT. GRADATION AND COMPACTION TEST RESULTS (95% MIN.) SHALL BE SUBMITTED FOR REVIEW AND APPROVAL.
3. CITY MAY REQUIRE UNDERDRAIN, ADDITONAL GRAVEL AND/OR ADDITIONAL DRAINAGE IF SOIL CONDITIONS WARRANT.
4. WOVEN GEOTEXTILE FABRIC SHALL BE PLACED ABOVE SUBGRADE AT ALL WETLAND CROSSINGS.

TYPICAL ROADWAY SECTION W/CURBING

NOT TO SCALE



NOTES:

1. CURB TO BE PLACED PRIOR TO PLACING TOP SURFACE COURSE.
2. JOINTS BETWEEN STONES SHALL BE MORTARED.

SLOPED GRANITE CURB

NOT TO SCALE

Design: JAC	Draft: LAZ
Checked: JAC	Scale: AS NOTED
Drawing Name: 21090-PLAN.dwg	

Date: 04/29/21
Project No.: 21090

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

STATE OF NEW HAMPSHIRE – MICHAEL J. KERWAN No. 9649 – LICENSED PROFESSIONAL ENGINEER – 2/14/2022

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

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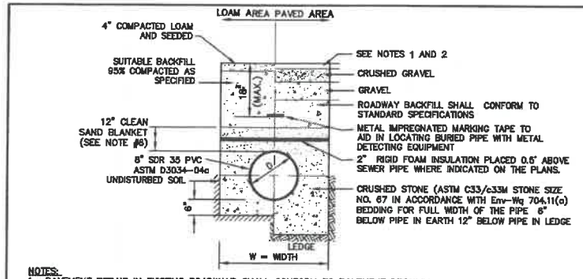
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	DETAIL SHEET
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

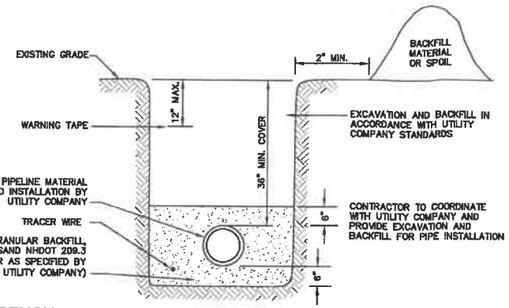
DRAWING No.
D1
SHEET 41 OF 46
JBE PROJECT NO. 21090



NOTES:
1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO PAVEMENT DETAILS.
2. NEW ROADWAY CONSTRUCTION SHALL CONFORM TO SUBDIVISION SPECIFICATIONS.
3. TRENCH BACKFILL SHALL CONFORM WITH ENV. Wq 704.11(h) AND BE FREE OF DEBRIS, PAVEMENT, ORGANIC MATTER, TOP SOIL, WET OR SOFT MUCK, PEAT OR CLAY, EXCAVATED LEDGE OR ROCKS OVER SIX INCHES.
4. W= MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12" INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, WIDTH SHALL BE NO MORE THAN 36"; FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, WIDTH SHALL BE 24 INCHES PLUS PIPE O.D. WIDTH SHALL ALSO BE THE PAYMENT WIDTH FOR LEDGE EXCAVATION AND FOR ORDERED EXCAVATION BELOW GRADE.
5. RIGID FOAM INSULATION TO BE PROVIDED WHERE COVER IN THE ROADWAY IS LESS THAN 6' AND CROSS COUNTRY IS LESS THAN 4', PURSUANT TO DES WAIVER BEING ISSUED.
6. PIPE SAND BLANKET MATERIAL SHALL BE GRADED SAND, FREE FROM ORGANIC MATERIALS, GRADED SUCH THAT 100% PASSES A 1/2 " SIEVE AND A MAXIMUM OF 15% PASSES A #200 SIEVE IN ACCORDANCE WITH Env-Wq 704.11(b).
7. JOINT SEALS FOR PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL AND CERTIFIED BY THE MANUFACTURER AS CONFORMING TO THE ASTM D3212 STANDARD IN EFFECT WHEN THE JOINT SEALS WERE MANUFACTURED, AND SHALL BE PUSH-ON, BELL-AND-SPIGOT TYPE PER Env-Wq 704.05 (a).

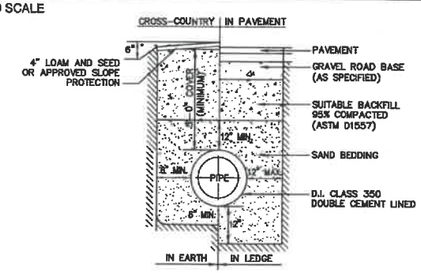
SEWER TRENCH

NOT TO SCALE



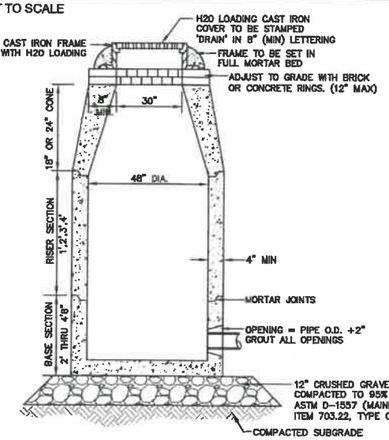
GAS TRENCH

NOT TO SCALE



WATER SYSTEM TRENCH

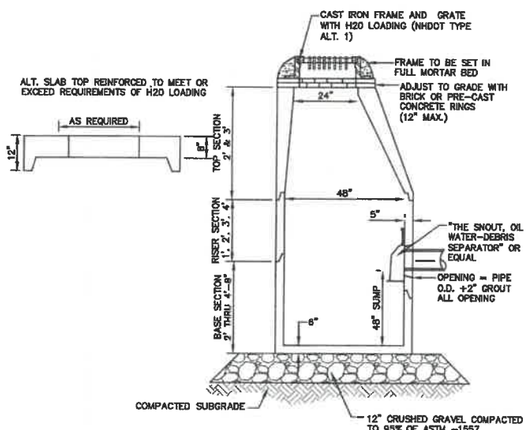
NOT TO SCALE



NOTES:
1. BASE SECTION SHALL BE MONOLITHIC WITH 48" INSIDE DIAMETER.
2. ALL SECTIONS SHALL BE DESIGNED FOR H20 LOADING.
3. CONCRETE SHALL BE COMPRESSIVE STRENGTH 4000 PSI, TYPE II CEMENT.
4. FRAMES AND GRATES SHALL BE HEAVY DUTY AND DESIGNED FOR H20 LOADING.
5. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS SO AS TO BE WATERTIGHT.
6. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.
7. ALL DRAIN MANHOLE FRAMES AND GRATES SHALL BE NEENAH R-1798 OR APPROVED EQUAL (30" DIA. TYPICAL).
8. STANDARD FRAME(S) AND GRATE(S) SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM, BUT NO MORE THAN 12"). OR PRECAST CONCRETE 'DONUTS'.

DRAIN MANHOLE (4' DIAM.)

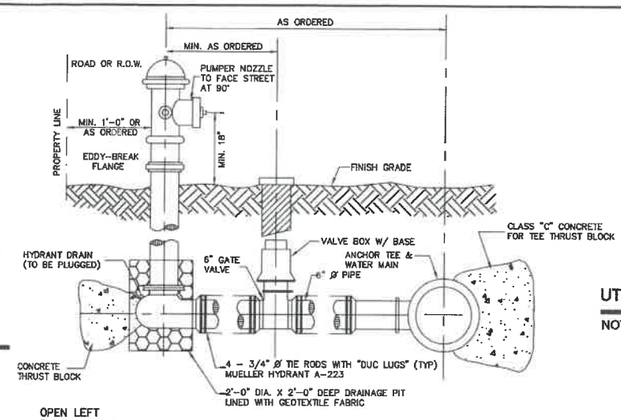
NOT TO SCALE



NOTES:
1. BASE SECTION SHALL BE MONOLITHIC WITH 48" INSIDE DIAMETER.
2. ALL SECTIONS SHALL BE DESIGNED FOR H20 LOADING.
3. CONCRETE SHALL BE COMPRESSIVE STRENGTH 4000 PSI, TYPE II CEMENT.
4. FRAMES AND GRATES SHALL BE HEAVY DUTY AND DESIGNED FOR H20 LOADING
5. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS SO AS TO BE WATERTIGHT.
6. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.
7. ALL CATCH BASIN FRAMES AND GRATES SHALL BE NHDOT CATCH BASIN TYPE ALTERNATE 1 OR NEENAH R-3570 OR APPROVED EQUAL (24"x24" TYPICAL).
8. STANDARD CATCH BASIN FRAME AND GRATE(S) SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM, BUT NO MORE THAN 12"), OR PRECAST CONCRETE 'DONUTS'.
9. ALL CATCH BASINS ARE TO BE FITTED WITH GREASE HOODS.

CATCH BASIN WITH GREASE HOOD

NOT TO SCALE

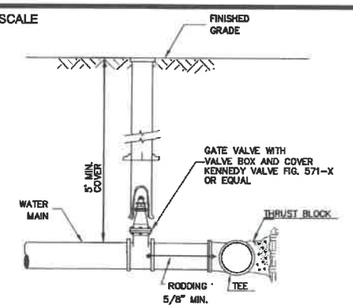


OPEN LEFT
EPPING WATER
DEPARTMENT SPECS.

NOTES
1. ALL PIPE FITTINGS TO BE D.I. PRESSURE CLASS 350, THICKNESS CLASS 52.
2. HYDRANT TO BE PAINTED RED WITH WHITE "REFLECTOR" PAINT ON BONNET.
3. MECHANICAL JOINTS SHALL HAVE MEGALUG RETAINING GLANDS AS MADE BY EBBA OR APPROVED EQUAL.
4. STEAMER NOZZLE TO BE "STORCH" TYPE.
5. NATIONAL STANDARD THREAD.

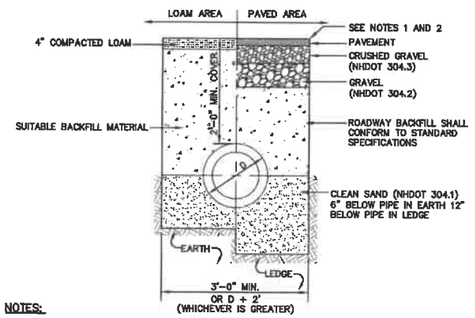
HYDRANT INSTALLATION

NOT TO SCALE



BURIED GATE VALVE DETAIL

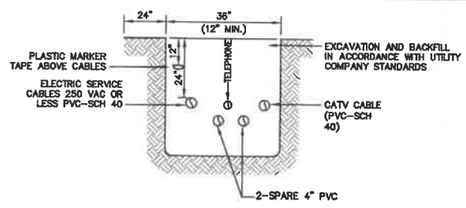
NOT TO SCALE



NOTES:
1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS.
2. NEW ROADWAY CONSTRUCTION SHALL CONFORM WITH PROJECT AND CITY SPECIFICATIONS.
3. ALL MATERIALS ARE TO BE COMPACTED TO 95% OF ASTM D-1557.

DRAINAGE TRENCH

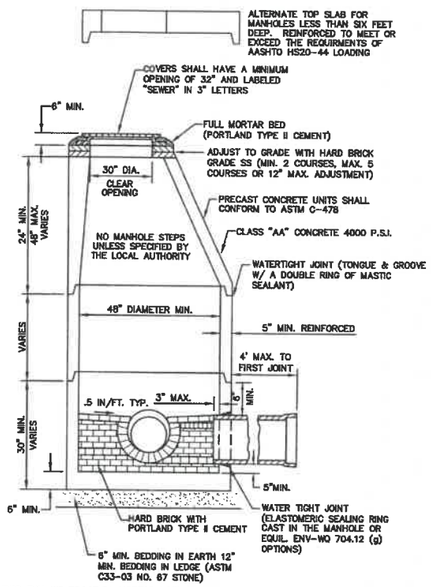
NOT TO SCALE



NOTE: ALL UTILITIES SHALL BE REVIEWED AND APPROVED BY APPROPRIATE UTILITY COMPANY.

UTILITY TRENCH

NOT TO SCALE



NOTES:
1. PER NHDES ENV-WQ 704.13(C), MORTAR USED IN MANHOLE CONSTRUCTION SHALL COMPLY WITH THE FOLLOWING:
   a. MORTAR SHALL BE COMPOSED OF TYPE II PORTLAND CEMENT AND SAND WITH OR WITHOUT HYDRATED LIME ADDITION
   b. PROPORTIONS IN MORTAR OF PARTS BY VOLUMES SHALL BE PER TABLE 704-4:
      (1) 4.5 PARTS SAND AND 1.5 PARTS CEMENT; OR
      (2) 4.5 PARTS SAND, ONE PART CEMENT AND 0.5 PART HYDRATED LIME;
   c. CEMENT SHALL BE TYPE II PORTLAND CEMENT THAT IS CERTIFIED BY ITS MANUFACTURER AS CONFORMING TO THE ASTM C150/C150M STANDARD IN EFFECT AT THE TIME THE CEMENT WAS MANUFACTURED
   d. HYDRATED LIME SHALL BE TYPE S THAT IS CERTIFIED BY ITS MANUFACTURER AS CONFORMING TO THE ASTM C207 STANDARD IN EFFECT AT THE TIME THE HYDRATED LIME WAS PROCESSED
   e. SAND SHALL CONSSST OF INERT NATURAL SAND THAT IS CERTIFIED BY ITS SUPPLIER AS CONFORMING TO THE ASTM C33 STANDARD IN EFFECT AT THE TIME THE SAND IS PROCESSED BY 'STANDARD SPECIFICATIONS FOR CONCRETE, FINE AGGREGATES
   f. CONCRETE FOR DROP SUPPORTS SHALL CONFORM TO THE REQUIREMENT FOR CLASS AAA CONCRETE OF THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION'S 'STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AS AVAILABLE AT:

   HTTP://WWW.NH.GOV/DOT/ORG/PROJECTDEVELOPMENT/HIGHWAYDESIGN/SPECIFICATIONS/INDEX.HTM
2. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPED TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL IN ACCORDANCE WITH ENV-WQ 704.12 (K).
3. ALL MANHOLES SHALL BE TESTED FOR LEAKAGE IN ACCORDANCE WITH ENV-WQ 704.17 (c) THROUGH (e).
4. SEWER MANHOLE COVERS SHALL CONFORM TO ASTM A48/48M WITH A CASTING EQUAL TO CLASS 30 IN ACCORDANCE WITH ENV-WQ 704.13 (a) (8).
5. ALL PRECAST SECTIONS SHALL BE COATED ON THE EXTERIOR WITH A BITUMINOUS DAMP-PROOFING COATING IN ACCORDANCE WITH ENV-WQ 704.12 (J).
6. ALL PRECAST SECTIONS AND BASES SHALL HAVE THE DATE OF MANUFACTURE AND THE NAME OR TRADENAME OF THE MANUFACTURER IMPRESSED OR INDELIBLY MARKED ON THE INSIDE WALL PER ENV-WQ 704.12(I).
7. BRICK MASONRY SHALL CONFORM TO ASTM C32 (ENV-WQ 704.12(c)(9))

SEWER MANHOLE

NOT TO SCALE

Design: JAC	Draft: LAZ	Date: 04/29/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-PLAN.dwg		

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STATE OF NEW HAMPSHIRE — MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER — 2/14/22

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

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Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	DETAIL SHEET
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
D2
SHEET 42 OF 46
JBE PROJECT NO. 21090

SECTION A-A

DIA.	HEADWALL LENGTH	HEADWALL HEIGHT	FILL HEIGHT	PIPE COVER	HEADWALL BOTTOM WIDTH
D	L	H	FH	h	W
12"	4'-2"	3'-9"	1'-6"	1'-3"	1'-11"
15"	5'-11"	4'-2"	1'-6"	1'-5"	2'-0"
18"	6'-11"	4'-5"	1'-6"	1'-5"	2'-1"
24"	8'-10"	4'-11"	1'-6"	1'-5"	2'-3"

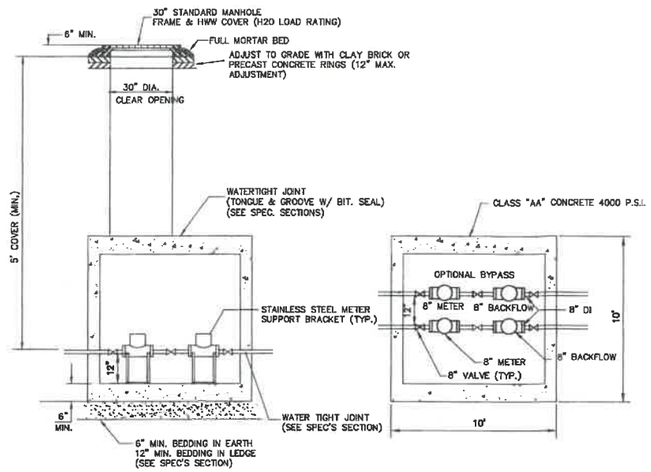
LONGITUDINAL SECTION

NOTES:

1. ALL DIMENSIONS GIVEN IN FEET & INCHES.
2. PROVIDE BELL END AT INLET HEADWALL, AND SPIGOT END AT OUTLET END HEADWALL.
3. CONCRETE: 5,000 PSI MINIMUM AFTER 28 DAYS. CEMENT TO BE TYPE III PER ASTM C-150. REINFORCING TO MEET OR EXCEED ASTM A-615 GRADE 60 DEFORMED BARS.
4. 1" THREADED INSERTS PROVED FOR FINAL ATTACHMENT IN FIELD BY OTHERS.

PRECAST CONCRETE HEADWALL

NOT TO SCALE



ELEVATION PLAN VIEW

NOTES

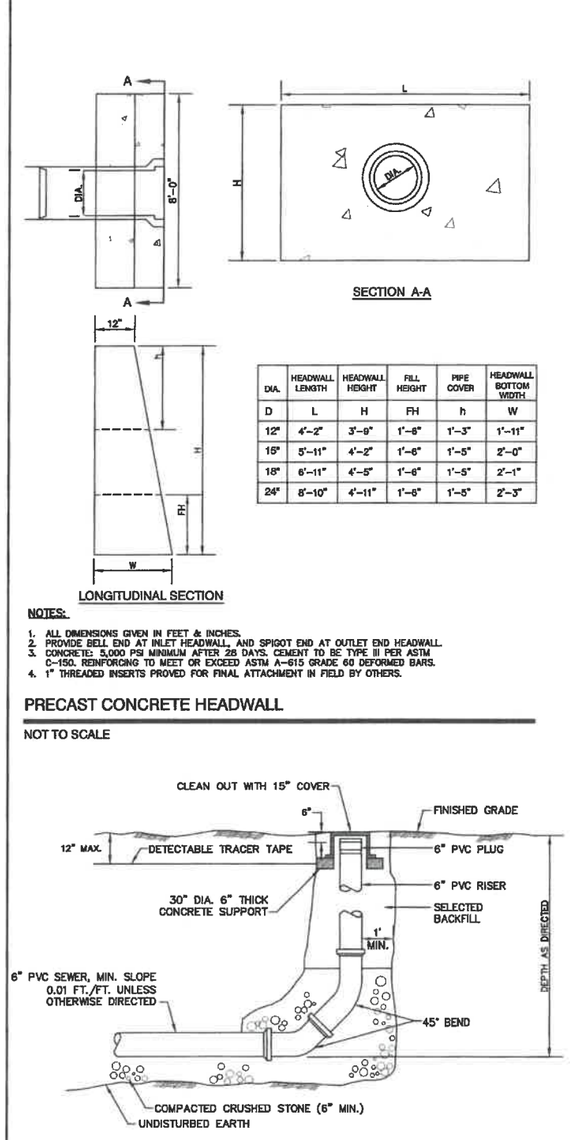
1. METER TO BE SENSUS OMNI C2 OF APPROPRIATE SIZE.
2. BACKFLOW TO BE TESTABLE DOUBLE CHECK VALVE ASSEMBLY WITH CENTER-SHAFT OR TOP HINGE CHECKS (WILKINS 350AST OR EQUAL) OF APPROPRIATE SIZE, IF APPLICATION IS DESIGNED LOW HAZARD.
3. OPTIONAL BYPASS MY BE SIZED FOR DOMESTIC SERVICE ONLY.
4. VAULT TO HAVE ADEQUATE ANTI-BOUYANCY FEATURES.
5. VAULT COVERS TO BE STAMPED WITH "WATER" AND MATCH EXISTING CITY OF ROCHESTER INFRASTRUCTURE STANDARDS
6. ISOLATION VALVES REQUIRED AROUND EQUIPMENT FOR MAINTENCE, TESTING AND SERVICE.
7. IF APPLICATION IS DESIGNATED HIGH HAZARD, THE ASSEMBLY MUST USE RPZ BACKFLOW DEVICES AND BE LOCATED IN AN ABOVE GRADE, HEATED AND INSULATED ENCLOSURE TO ALLOW FOR DRAINING.
8. VAULT AND ACCESS HATCHES SHALL BE SIZED TO ALLOW ENTRY FOR INSPECTION, TESTING AND COMPLETE REPLACEMENT OF DEVICES.

BYPASS USAGE:

9. IF OPTIONAL BYPASS LINE IS INSTALLED, WHEN MAIN FEED IS TAKEN OFLINE AND BYPASS ENGAGED, OWNER SHALL CALL 330-7128 TO COORDINATE LOW FLOW CONDITION WITH ROCHESTER FIRE DEPARTMENT AND ROCHESTER PUBLIC WORKS DEPARTMENT.

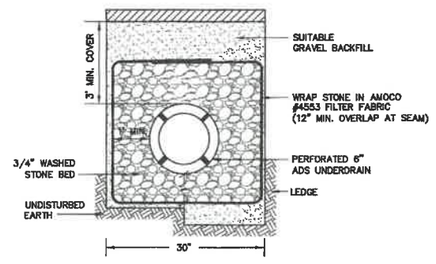
WATER METER PIT ROCHESTER

NOT TO SCALE



SEWER CLEAN OUT

NOT TO SCALE

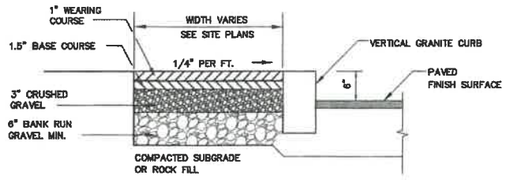


NOTES:

1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS.
2. NEW ROADWAY CONSTRUCTION SHALL CONFORM TO PROJECT AND CITY SPECIFICATIONS.
3. SLOPE UNDERDRAIN PIPE TO DAYLIGHT.

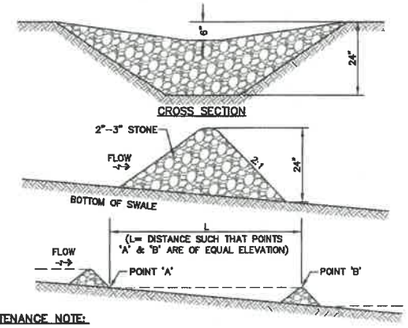
ROADWAY UNDERDRAIN TRENCH

NOT TO SCALE



BIT. SIDEWALK W/ VERTICAL GRANITE CURB

NOT TO SCALE

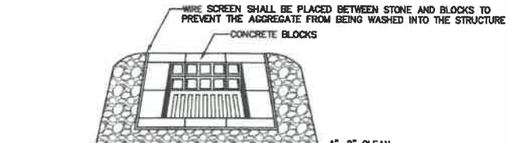


MAINTENANCE NOTE:

1. STONE CHECK DAMS SHOULD BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY NECESSARY REPAIRS SHOULD BE MADE IMMEDIATELY. PARTICULAR ATTENTION SHOULD BE GIVEN TO END RUN AND EROSION AT THE DOWNSTREAM TOE OF THE STRUCTURE. WHEN THE STRUCTURES ARE REMOVED, THE DISTURBED PORTION SHOULD BE BROUGHT TO THE EXISTING CHANNEL GRADE AND THE AREAS PREPARED, SEEDED AND MULCHED. WHILE THIS PRACTICE IS NOT INTENDED TO BE USED PRIMARILY FOR SEDIMENT TRAPPING, SOME SEDIMENT WILL ACCUMULATE BEHIND THE STRUCTURES. SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURES WHEN IT HAS ACCUMULATED TO ONE HALF OF THE ORIGINAL HEIGHT OF THE STRUCTURE.

STONE CHECK DAM

NOT TO SCALE

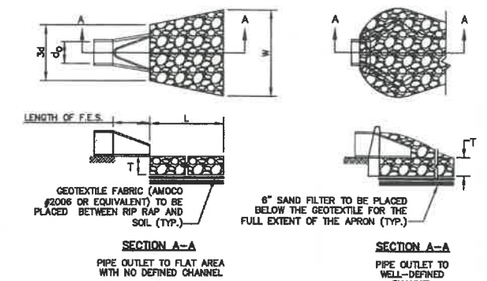


MAINTENANCE NOTE:

1. ALL STRUCTURES SHOULD BE INSPECTED AFTER EVERY RAINFALL AND REPAIRS MADE AS NECESSARY. SEDIMENT SHOULD BE REMOVED FROM TRAPPING DEVICES AFTER THE SEDIMENT HAS REACHED A MAXIMUM OF ONE HALF THE DEPTH OF THE TRAP. THE SEDIMENT SHOULD BE DISPOSED IN A SUITABLE UPLAND AREA AND PROTECTED FROM EROSION BY EITHER STRUCTURE OR VEGETATIVE MEANS. THE TEMPORARY TRAPS SHOULD BE REMOVED AND THE AREA REPAIRED AS SOON AS THE CONTRIBUTING DRAINAGE AREA TO THE INLET HAS BEEN COMPLETELY STABILIZED.

TEMPORARY CATCH BASIN INLET PROTECTION (Block and Gravel Drop Inlet Sediment Filter)

NOT TO SCALE



SECTION A-A

PIPE OUTLET TO FLAT AREA WITH NO DEFINED CHANNEL

SECTION A-A

PIPE OUTLET TO WELL-DEFINED CHANNEL

TABLE 7-24--RECOMMENDED RIP RAP GRADATION RANGES				
THICKNESS OF RIP RAP = 1.5 FEET				
d50 SIZE=	0.50	FEET	6	INCHES
% OF WEIGHT SMALLER THAN THE GIVEN d50 SIZE	SIZE OF STONE (INCHES) FROM		TO	
100%	9		12	
85%	8		11	
50%	6		9	
15%	2		3	

NOTES:

1. THE SUBGRADE FOR THE GEOTEXTILE FABRIC AND RIP RAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
2. THE RIP RAP SHALL CONFORM TO THE SPECIFIED GRADATION.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
4. STONE FOR THE RIP RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.
5. OUTLETS TO A DEFINED CHANNEL SHALL HAVE 2:1 OR FLATTER SIDE SLOPES AND SHOULD BEGIN AT THE TOP OF THE CULVERT AND TAPER DOWN TO THE CHANNEL BOTTOM THROUGH THE LENGTH OF THE APRON.
6. MAINTENANCE: THE OUTLET PROTECTION SHOULD BE CHECKED AT LEAST ANNUALLY AND AFTER EVERY MAJOR STORM. IF THE RIP RAP HAS BEEN DISPLACED, UNDERMINED OR DAMAGED, IT SHOULD BE REPAIRED IMMEDIATELY. THE CHANNEL IMMEDIATELY BELOW THE OUTLET SHOULD BE CHECKED TO SEE THAT EROSION IS NOT OCCURRING. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAILWATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO OUTLET PROTECTION.

RIP RAP OUTLET PROTECTION APRON

NOT TO SCALE

Design: JAC	Draft: LAZ
Checked: JAC	Scale: AS NOTED
Drawing Name: 21090-PLAN.dwg	

Date: 04/29/21
Project No.: 21090

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STATE OF NEW HAMPSHIRE — MICHAEL J. KERVAN No. 9648 — LICENSED PROFESSIONAL ENGINEER — 2/14/2022

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
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Stratham, NH 03885
Civil Engineering Services
603-772-4746
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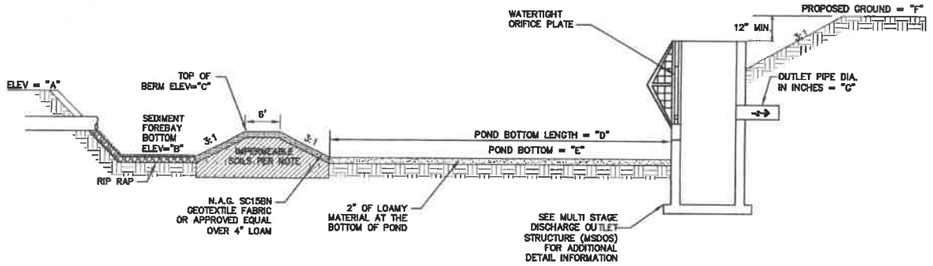
Plan Name:	DETAIL SHEET
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
D3
SHEET 43 OF 46
JBE PROJECT NO.21090



POND TABLE

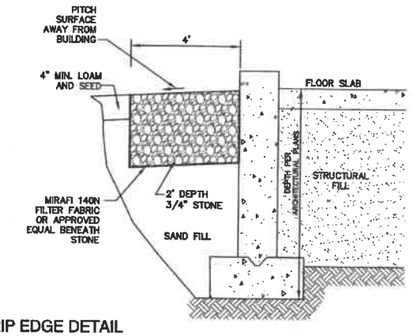
POND	ELEVATIONS/DIMENSIONS						
	A	B	C	D	E	F	G
POND 1	220.00	216.00	218.00	169'	212.00	220.00	12"
POND 2	220.00	217.00	219.00	310'	212.00	220.00	12"
POND 3	225.00	220.00	222.00	200'	216.00	225.50	12"

WET POND SECTION (PONDS 1, 2 & 3)

NOT TO SCALE

WET POND CONSTRUCTION CRITERIA

1. FOUNDATION PREPARATION --- THE FOUNDATION AREA SHALL BE CLEARED OF TREES LOGS, STUMPS, ROOTS, BRUSH, BOULDERS, SOD, AND RUBBISH. IF NEEDED TO ESTABLISH VEGETATION, THE TOPSOIL AND SOD SHALL BE STOCKPILED AND SPREAD ON THE COMPLETED DAM AND SPILLWAYS. FOUNDATION SURFACES SHALL BE SLOPED NO STEEPER THAN 1:1. THE FOUNDATION AREA SHALL BE THOROUGHLY SCARIFIED BEFORE PLACEMENT OF THE MATERIAL. THE SURFACE SHALL HAVE MOISTURE ADDED OR IT SHALL BE COMPACTED, IF NECESSARY, SO THAT THE FIRST LAYER OF FILL MATERIAL CAN BE COMPACTED AND BONDED TO THE FOUNDATIONS. THE CUTOFF TRENCH AND ANY OTHER REQUIRED EXCAVATIONS SHALL BE DUG TO THE LINES AND GRADES SHOWN ON THE PLANS OR AS STAKED IN THE FIELD. IF THEY ARE SUITABLE, EXCAVATED MATERIALS SHALL BE USED IN THE PERMANENT FILL. EXISTING STREAM CHANNELS IN THE FOUNDATION AREA SHALL BE SLOPED NO STEEPER THAN 1:1 AND DEEPENED AND WIDENED AS NECESSARY TO REMOVE ALL STONES, GRAVEL, SAND, STUMPS, ROOTS, AND OTHER OBJECTIONABLE MATERIAL AND TO ACCOMMODATE COMPACTION EQUIPMENT. FILL PLACEMENT --- THE MATERIAL PLACED IN THE FILL SHALL BE FREE OF DETRIMENTAL AMOUNTS OF SOD, ROOTS, FROZEN SOIL, STONES MORE THAN 8 INCHES IN DIAMETER (EXCEPT FOR ROCK FILLS), AND OTHER OBJECTIONABLE MATTER.
2. SELECTED BACK FILL MATERIAL SHALL BE PLACED AROUND STRUCTURES, PIPE CONDUITS AND ANTI SEEP COLLARS AT ABOUT THE SAME RATE ON ALL SIDES, TO PREVENT DAMAGE FROM UNEQUAL LOADING. THE PLACING AND SPREADING OF FILL MATERIAL SHALL BE STARTED AT THE LOWEST POINT OF THE FOUNDATION AND THE FILL BROUGHT UP IN HORIZONTAL LAYERS OF SUCH THICKNESS THAT THE REQUIRED COMPACTION CAN BE OBTAINED. THE FILL SHALL BE CONSTRUCTED IN CONTINUOUS HORIZONTAL LAYERS EXCEPT WHERE OPENINGS OR SECTIONALIZED FILLS ARE REQUIRED. IN THOSE CASES, THE SLOPE OF THE BONDING SURFACES BETWEEN THE EMBANKMENT IN PLACE AND THE EMBANKMENT TO BE PLACED SHALL NOT BE STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL. THE BONDING SURFACE SHALL BE TREATED THE SAME AS THAT SPECIFIED FOR THE FOUNDATION SO AS TO INSURE A GOOD BOND WITH THE NEW FILL. THE DISTRIBUTION AND GRADATION OF MATERIALS SHALL BE SUCH THAT NO LENSES, POCKETS, STREAKS, OR LAYERS OF MATERIAL DIFFER SUBSTANTIALLY IN TEXTURE OF GRADATION FROM THE SURROUNDING MATERIAL. IF IT IS NECESSARY TO USE MATERIALS OF VARYING TEXTURE AND GRADATION, THE MORE IMPERVIOUS MATERIAL SHALL BE PLACED IN THE CENTER AND UPSTREAM PARTS OF THE FILL. IF ZONED FILLS OF SUBSTANTIALLY DIFFERING MATERIALS ARE SPECIFIED, THE ZONES SHALL BE PLACED ACCORDING TO THE LINES AND GRADES SHOWN ON THE DRAWINGS. THE COMPLETE WORK SHALL CONFORM TO THE LINES, GRADES, AND ELEVATIONS SHOWN ON THE DRAWINGS OR AS STAKED IN THE FIELD.
3. MOISTURE CONTROL --- THE MOISTURE CONTENT OF THE FILL MATERIAL SHALL BE ADEQUATE FOR OBTAINING THE REQUIRED COMPACTION. MATERIAL THAT IS TOO WET SHALL BE DRIED TO MEET THIS REQUIREMENT, AND MATERIAL THAT IS TOO DRY SHALL HAVE WATER ADDED AND MIXED UNTIL THE REQUIREMENT IS MET.
4. COMPACTION --- CONSTRUCTION EQUIPMENT SHALL BE OPERATED OVER THE AREAS OR EACH LAYER OF FILL TO INSURE THAT THE REQUIRED COMPACTION IS OBTAINED. SPECIAL EQUIPMENT SHALL BE USED IF NEEDED TO OBTAIN THE REQUIRED COMPACTION. IF A MINIMUM REQUIRED DENSITY IS SPECIFIED, EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY. FILL ADJACENT TO STRUCTURES, PIPE CONDUITS, AND ANTI SEEP COLLARS SHALL BE COMPACTED TO A DENSITY EQUIVALENT TO THAT OF THE SURROUNDING FILL BY MEANS OF HAND TAMPING OR MANUALLY DIRECTED POWER TAMPER OR PLATE VIBRATORS. FILL ADJACENT TO CONCRETE STRUCTURES SHALL NOT BE COMPACTED UNTIL THE CONCRETE IS STRONG ENOUGH TO SUPPORT THE LOAD.
5. PROTECTION --- A PROTECTIVE COVER OF VEGETATION SHALL BE ESTABLISHED ON ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, AND BORROW AREA IF SOIL AND CLIMATIC CONDITIONS PERMIT. IF SOIL OR CLIMATIC CONDITIONS PRECLUDE THE USE OF VEGETATION AND PROTECTION IS NEEDED, NON-VEGETATIVE MEANS SUCH AS MULCHES OR GRAVEL MAY BE USED. IN SOME PLACES, TEMPORARY VEGETATION MAY BE USED UNTIL CONDITIONS PERMIT ESTABLISHMENT OF PERMANENT VEGETATION. THE EMBANKMENT AND SPILLWAY SHALL BE FENCED IF NECESSARY TO PROTECT THE VEGETATION.
6. SEEDBED PREPARATION, SEEDING, FERTILIZING, AND MULCHING SHALL COMPLY WITH THE APPROPRIATE VEGETATIVE BMP'S.
7. CONCRETE --- THE MIX DESIGN AND TESTING OF CONCRETE SHALL BE CONSISTENT WITH THE STRENGTH REQUIREMENTS OF THE JOB. MIX REQUIREMENTS OR NECESSARY STRENGTH SHALL BE SPECIFIED. THE TYPE OF CEMENT, AIR ENTRAPMENT, SLUMP, AGGREGATE, OR OTHER PROPERTIES SHALL BE SPECIFIED IF NECESSARY. ALL CONCRETE IS TO CONSIST OF A WORKABLE MIX THAT CAN BE PLACED AND FINISHED IN AN ACCEPTABLE MANNER. NECESSARY CURING SHALL BE SPECIFIED. REINFORCING STEEL SHALL BE PLACED AS INDICATED ON THE PLANS AND SHALL BE HELD SECURELY IN PLACE DURING CONCRETE PLACEMENT. SUB GRADES AND FORMS SHALL BE INSTALLED TO LINE AND GRADE, AND THE FORMS SHALL BE MORTAR TIGHT AND UNYIELDING AS THE CONCRETE IS PLACED.
8. THE CONTRACTOR WILL NOTIFY JONES AND BEACH ENGINEERS AFTER EACH OF THE GRAVEL WETLAND PONDS HAVE BEEN EXCAVATED TO THE BOTTOM OF THE SYSTEM FOR A MANDATORY INSPECTION PRIOR TO BUILDING BERMS, PLACING STONE OR INSTALLING PIPE SYSTEM.
9. BERMS AND WEIRS SEPARATING THE FOREBAY AND TREATMENT CELLS SHOULD BE CONSTRUCTED WITH CLAY, OR NON-CONDUCTIVE SOILS, AND/OR A FINE GEOTEXTILE, OR SOME COMBINATION THEREOF, TO AVOID WATER SEEPAGE AND SOIL PIPING THROUGH THESE EARTHEN DYMDERS.



DRIP EDGE DETAIL

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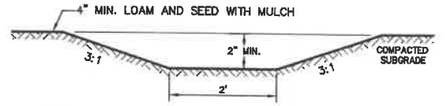

NOTE:

1. ALL VEGETATED SWALES ARE TO BE STABILIZED WITH NORTH AMERICAN GREEN EROSION CONTROL BLANKET SECURED WITH BIODEGRADABLE 'BIO' OR 'ECO-STAKES'.

VEGETATED SWALE

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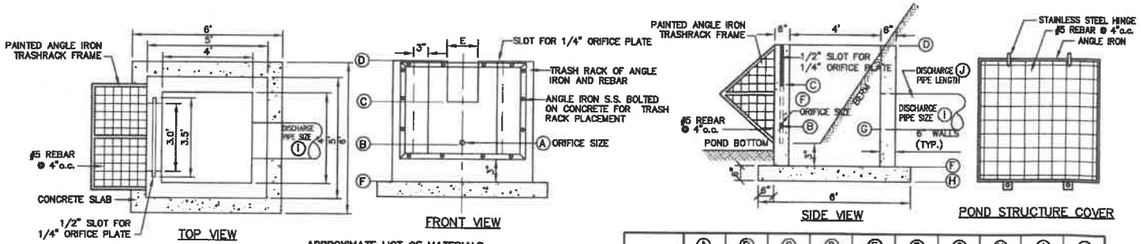


APPROXIMATE LIST OF MATERIALS

1. 3 C.Y. – 5000 PSI CONCRETE
2. 15 ANGLE IRONS @ 4' LENGTH
3. REQUIRED S.S. BOLTS AND FASTENERS
4. 1/4" STEEL PLATE WITH DRILLED ORIFICES
5. 1 C.Y. – CRUSHED STONE FOR BASE
6. 48 #5 REBARS @ 1', 2' AND 3' LENGTHS
7. 32 #4 REBARS @ 4.5' LENGTH

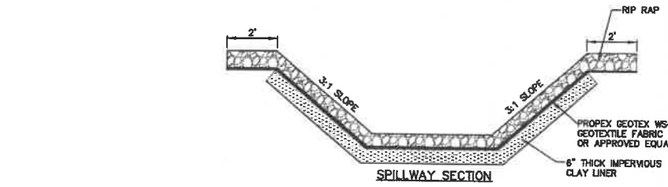
	A	E	C	D	E	F	G	H	I	J
MSDOS 1	4"	216.00	–	219.00	–	215.00	216.00	214.50	12"	198'
MSDOS 2	6.5"	216.00	217.85	219.00	36"	215.00	216.00	214.50	12"	30'
MSDOS 3	6"	220.50	–	224.00	–	219.50	220.50	219.00	12"	33'

NOTES:

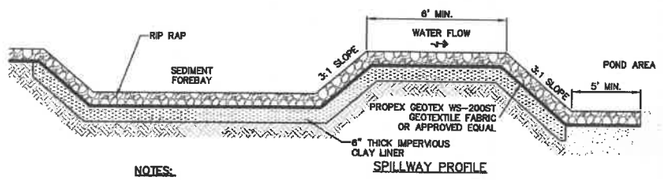
1. REINFORCING STEEL SHALL CONSIST OF A SINGLE LAYER OF HORIZONTAL AND VERTICAL PLACED #4 REBAR @ 12" O.C.
2. CONCRETE BOX TO BE CONSTRUCTED OR PRECAST OF EQUAL DIMENSIONS AND REINFORCING.
3. CONCRETE SLAB TO BE CONSTRUCTED ALONG WITH BASE. FOR PRECAST BOX, A SLOTTED CONCRETE SLAB TO BE USED.
4. SECTION JOINTS AND PIPE OPENING SHALL BE SEALED WATERTIGHT WITH MORTAR BY CONTRACTOR.
5. ALL EXPOSED REBAR TO BE PAINTED WITH RUST-RESISTANT PAINT, COLOR AT CONTRACTOR'S DISCRETION.
6. TO BE SUPPLIED BY CAPITAL CONCRETE PRODUCTS OF HENNIKER, N.H., (1-603-428-3218) OR EQUAL.
7. STRUCTURE TO HAVE TEMPORARY PLYWOOD INSTALLED IN THE ORIFICE PLATE SLOT UNTIL THE SITE IS STABILIZED.
8. STRUCTURE IS TO BE DESIGNED FOR H20 LOADING.
9. SOIL UNDERLYING THE STRUCTURE IS TO BE COMPACTED TO 95% MODIFIED PROCTOR.

MULTI-STAGE DISCHARGE OUTLET STRUCTURE (MSDOS)

NOT TO SCALE



SPILLWAY SECTION



SPILLWAY PROFILE

NOTES:

1. A 6" THICK IMPERVIOUS CLAY LINER IS TO BE PLACED UNDER ENTIRE SEDIMENT FOREBAY AND SPILLWAY AND ONLY AROUND THE SIDES OF THE ENTIRE BIORETENTION AREA.
2. SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURE WHEN IT HAS ACCUMULATED TO ONE HALF THE ORIGINAL HEIGHT OF THE STRUCTURE.
3. EMBANKMENT MATERIAL SHALL BE CLEAN MINERAL SOIL FREE OF ROOTS, ORGANIC MATTER, AND OTHER DELETERIOUS SUBSTANCES. IT SHALL CONTAIN NO ROCKS OR LUMPS OVER FOUR INCHES (4") IN DIAMETER. THIS MATERIAL SHALL BE INSTALLED IN 6" LIFTS COMPACTED TO 92% OF ASTM D-1557, AND SHALL MEET THE FOLLOWING SPECIFICATIONS: 6" PASSING 100% #4 SIEVE 40-90% #40 SIEVE 50-80% #100 SIEVE 25-40% #200 SIEVE 15-30% (OF THE TOTAL SAMPLE).
4. 6" THICK IMPERVIOUS CLAY LINER MATERIAL SHALL BE CLEAN SILTY-CLAY BORROW FREE OF ROOTS, ORGANIC MATTER, AND OTHER DELETERIOUS SUBSTANCES, AND SHALL CONTAIN NO ROCKS OR LUMPS OVER THREE INCHES (3") IN DIAMETER. THIS MATERIAL SHALL BE INSTALLED IN 6" LIFTS COMPACTED TO 92% OF ASTM D-1557, AND SHALL MEET THE FOLLOWING SPECIFICATIONS: 6" PASSING 100% #4 SIEVE 95-100% #40 SIEVE 60-90% #100 SIEVE 40-80% #200 SIEVE 25-45% (OF THE FRACTION PASSING THE #4 SIEVE). THE CLAY COMPONENT SHALL HAVE A PLASTICITY INDEX OF AT LEAST 8 AND A HYDRAULIC CONDUCTIVITY OF 10 TO THE -6 CM/SEC.
5. COMPACTION AND MATERIALS TESTING SERVICES SHALL BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER RETAINED BY THE OWNER.

SEDIMENT FOREBAY SPILLWAY

NOT TO SCALE

Design: JAC	Draft: LAZ
Checked: JAC	Scale: AS NOTED
Drawing Name: 21090-PLAN.dwg	

Date: 04/29/21
Project No.: 21090

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

STATE OF NEW HAMPSHIRE — MICHAEL J. KERVAN No. 9648 — LICENSED — PROFESSIONAL ENGINEER — 2/14/2022

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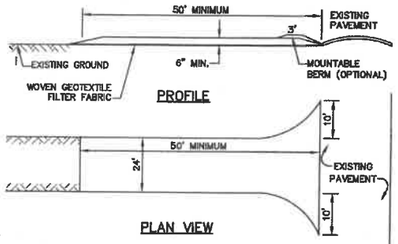
Plan Name:	DETAIL SHEET
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.

D4

SHEET 44 OF 48
JBE PROJECT NO. 21090

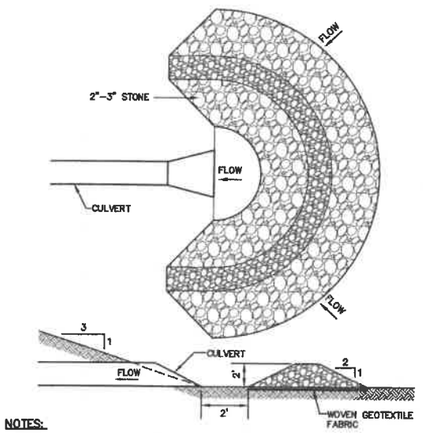


NOTES:

1. STONE FOR STABILIZED CONSTRUCTION ENTRANCE SHALL BE 1 TO 2 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET, EXCEPT FOR A SINGLE RESIDENTIAL LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY.
3. THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS, OR 10 FEET, WHICHEVER IS GREATER.
5. GEOTEXTILE FILTER FABRIC SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE. FILTER FABRIC IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENTIAL LOT.
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE, IF PIPING IS IMPRACTICAL, A STONE BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO THE PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO THE PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE



NOTES:

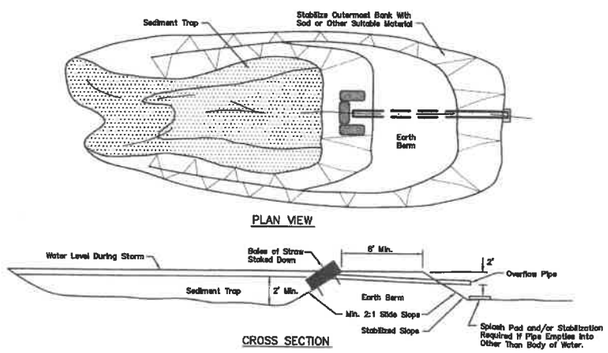
1. TEMPORARY CULVERT INLET PROTECTION CHECK DAMS SHALL BE CONSTRUCTED OF 2-3" STONE OVER WOVEN GEOTEXTILE FABRIC.
2. INLET PROTECTION MEASURES SHALL BE INSTALLED AT THE OPENINGS OF ALL EXISTING AND PROPOSED CULVERTS LOCATED BELOW (DOWNSTREAM) FROM AND WITHIN 100' OF THE PROJECT SITE.
3. SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURE WHEN IT HAS ACCUMULATED TO ONE HALF THE ORIGINAL HEIGHT OF THE STRUCTURE.
4. STRUCTURES SHALL BE REMOVED WHEN THE SITE IS STABILIZED WITH VEGETATION AND THE CHANNEL SHALL BE SMOOTHED AND REVEGETATED.

TEMPORARY CULVERT INLET PROTECTION CHECK DAM

NOT TO SCALE

TEMPORARY EROSION CONTROL NOTES

1. THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME. AT NO TIME SHALL AN AREA IN EXCESS OF 5 ACRES BE EXPOSED AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED.
2. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND AT LOCATIONS AS REQUIRED, DIRECTED BY THE ENGINEER.
3. ALL DISTURBED AREAS (INCLUDING POND AREAS BELOW THE PROPOSED WATERLINE) SHALL BE RETURNED TO PROPOSED GRADES AND ELEVATIONS. DISTURBED AREAS SHALL BE LOAMED WITH A MINIMUM OF 6" OF SCREENED ORGANIC LOAM AND SEEDED WITH SEED MIXTURE 'C' AT A RATE NOT LESS THAN 1.10 POUNDS OF SEED PER 1,000 S.F. OF AREA (48 LBS. / ACRE).
4. SILT FENCES AND OTHER BARRIERS SHALL BE INSPECTED EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 0.5" OR GREATER. ALL DAMAGED AREAS SHALL BE REPAIRED, AND SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED OF.
5. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, THE TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED AND THE AREA DISTURBED BY THE REMOVAL SMOOTHED AND RE-VEGETATED.
6. AREAS MUST BE SEEDED AND MULCHED OR OTHERWISE PERMANENTLY STABILIZED WITHIN 3 DAYS OF FINAL GRADING, OR TEMPORARILY STABILIZED WITHIN 14 DAYS OF THE INITIAL DISTURBANCE OF SOIL. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
7. IN AREAS WHERE FINAL GRADING HAS NOT OCCURRED, TEMPORARY STABILIZATION MEASURES SHOULD BE IN PLACE WITHIN 5 CALENDAR DAYS FOR EXPOSED SOIL AREAS THAT ARE WITHIN 100 FEET OF A SURFACE WATERBODY OR A WETLAND AND NO MORE THAN 14 CALENDAR DAYS FOR ALL OTHER AREAS. PERMANENT STABILIZATION SHOULD BE IN PLACE WITHIN 3 CALENDAR DAYS FOLLOWING COMPLETION OF FINAL GRADING OF EXPOSED SOIL AREAS.
8. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING NORTH AMERICAN GREEN S75 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER) ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
9. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
10. AFTER OCTOBER 15th, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3" OF CRUSHED GRAVEL PER NHDOT ITEM 304.3.
11. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
    a. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
    b. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
    c. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH STONE OR RIPRAP HAS BEEN INSTALLED; OR
    d. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
12. FUGITIVE DUST CONTROL IS REQUIRED TO BE CONTROLLED IN ACCORDANCE WITH ENV-A 1000, AND THE PROJECT IS TO MEET THE REQUIREMENTS AND INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES.
13. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR'S NAME, ADDRESS, AND PHONE NUMBER SHALL BE SUBMITTED TO DES VIA EMAIL (SEE BELOW).
14. PRIOR TO CONSTRUCTION, A PHASING PLAN THAT DELINEATES EACH PHASE OF THE PROJECT SHALL BE SUBMITTED. ALL TEMPORARY SEDIMENT BASINS THAT WILL BE NEEDED FOR DEWATERING WORK AREAS SHALL BE LOCATED AND IDENTIFIED ON THIS PLAN.
15. IN ORDER TO ENSURE THE STABILITY OF THE SITE AND EFFECTIVE IMPLEMENTATION OF THE SEDIMENT AND EROSION CONTROL MEASURES SPECIFIED IN THE PLANS FOR THE DURATION OF CONSTRUCTION, THE CONTRACTOR SHALL BE IN STRICT COMPLIANCE WITH THE FOLLOWING INSPECTION AND MAINTENANCE REQUIREMENTS IN ADDITION TO THOSE CALLED FOR IN THE SWPPP:
    a. A CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL OR A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW HAMPSHIRE ("MONITOR") SHALL BE EMPLOYED TO INSPECT THE SITE FROM THE START OF ALTERATION OF TERRAIN ACTIVITIES UNTIL THE SITE IS IN FULL COMPLIANCE WITH THE SITE SPECIFIC PERMIT ("PERMIT").
    b. DURING THIS PERIOD, THE MONITOR SHALL INSPECT THE SUBJECT SITE AT LEAST ONCE A WEEK, AND IF POSSIBLE, DURING ANY ½ INCH OR GREATER RAIN EVENT (I.E. ½ INCH OF PRECIPITATION OR MORE WITHIN A 24 HOUR PERIOD). IF UNABLE TO BE PRESENT DURING SUCH A STORM, THE MONITOR SHALL INSPECT THE SITE WITHIN 24 HOURS OF THIS EVENT.
    c. THE MONITOR SHALL PROVIDE TECHNICAL ASSISTANCE AND RECOMMENDATIONS TO THE CONTRACTOR ON THE APPROPRIATE BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROLS REQUIRED TO MEET THE REQUIREMENTS OF RSA 485 A:17 AND ALL APPLICABLE DES PERMIT CONDITIONS.
    d. WITHIN 24 HOURS OF EACH INSPECTION, THE MONITOR SHALL SUBMIT A REPORT TO DES VIA EMAIL (RIDGELY.MAUCK@DES.NH.GOV).
    e. THE MONITOR SHALL MEET WITH DES TO DECIDE UPON A REPORT FORMAT. THE REPORT FORMAT SHALL BE REVIEWED AND APPROVED BY DES PRIOR TO THE START OF CONSTRUCTION.



TEMPORARY SEDIMENT BASIN

NOT TO SCALE

SEEDING SPECIFICATIONS

1. GRADING AND SHAPING
   A. SLOPES SHALL NOT BE STEEPER THAN 2:1 WITHOUT APPROPRIATE EROSION CONTROL MEASURES AS SPECIFIED ON THE PLANS (3:1 SLOPES OR FLATTER ARE PREFERRED).
   B. WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.
2. SEEDBED PREPARATION
   A. SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
   B. STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEEDBED AND FERTILIZER AND LIME MIXED INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.
3. ESTABLISHING A STAND
   A. LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT THE TIME OF SEEDING AND INCORPORATED INTO THE SOIL. TYPES AND AMOUNTS OF LIME AND FERTILIZER SHOULD BE BASED ON AN EVALUATION OF SOIL TESTS. WHEN A SOIL TEST IS NOT AVAILABLE, THE FOLLOWING MINIMUM AMOUNTS SHOULD BE APPLIED:
      AGRICULTURAL LIMESTONE, 2 TONS PER ACRE OR 100 LBS. PER 1,000 SQ.FT.
      NITROGEN(N), 50 LBS. PER ACRE OR 1.1 LBS. PER 1,000 SQ.FT.
      PHOSPHATE(P2O5), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ.FT.
      POTASH(K2O), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ.FT.
      (NOTE: THIS IS THE EQUIVALENT OF 500 LBS. PER ACRE OF 10-20-20 FERTILIZER OR 1,000 LBS. PER ACRE OF 5-10-10.)
   B. SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING AND HYDROSEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH .25 INCH OF SOIL OR LESS, BY CULTIPACKING OR RAKING.
   C. REFER TO THE 'SEEDING GUIDE' AND 'SEEDING RATES' TABLES ON THIS SHEET FOR APPROPRIATE SEED MIXTURES AND RATES OF SEEDING. ALL LEGUMES (CROWNVETCH, BIRDSFOOT, TREFOIL AND FLATPEA) MUST BE INOCULATED WITH THEIR SPECIFIC INOCULANT PRIOR TO THEIR INTRODUCTION TO THE SITE.
   D. WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20th OR FROM AUGUST 10th TO SEPTEMBER 1st.
4. MULCH
   A. HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.
   B. MULCH WILL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE BEST MANAGEMENT PRACTICE FOR MULCHING. HAY OR STRAW MULCH SHALL BE PLACED AT A RATE OF 90 LBS PER 1000 S.F.
5. MAINTENANCE TO ESTABLISH A STAND
   A. PLANTED AREAS SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.
   B. FERTILIZATION NEEDS SHOULD BE DETERMINED BY ONSITE INSPECTIONS. SUPPLEMENTAL FERTILIZER IS USUALLY THE KEY TO FULLY COMPLETE THE ESTABLISHMENT OF THE STAND BECAUSE MOST PERENNIALS TAKE 2 TO 3 YEARS TO BECOME FULLY ESTABLISHED.
   C. IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, ANNUAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.

USE	SEEDING MIXTURE 1/	DROUGHTY	WELL DRAINED	MODERATELY WELL DRAINED	POORLY DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	FAIR	GOOD	GOOD	FAIR
	B	POOR	GOOD	FAIR	FAIR
	C	POOR	GOOD	EXCELLENT	GOOD
	D	FAIR	EXCELLENT	EXCELLENT	POOR
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER.	A	GOOD	GOOD	GOOD	FAIR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES.	A	GOOD	GOOD	GOOD	FAIR
	B	GOOD	GOOD	FAIR	POOR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
PLAY AREAS AND ATHLETIC FIELDS. (TOPSOIL IS ESSENTIAL FOR GOOD TURF.)	E	FAIR	EXCELLENT	EXCELLENT	2/
	F	FAIR	EXCELLENT	EXCELLENT	2/

GRAVEL PIT, SEE NH-PM-24 IN APPENDIX FOR RECOMMENDATION REGARDING RECLAMATION OF SAND AND GRAVEL PITS.

1/ REFER TO SEEDING MIXTURES AND RATES IN TABLE BELOW.
2/ POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAYING AREA AND ATHLETIC FIELDS.

NOTE: TEMPORARY SEED MIX FOR STABILIZATION OF TURF SHALL BE WINTER RYE OR OATS AT A RATE OF 2.5 LBS. PER 1000 S.F. AND SHALL BE PLACED PRIOR TO OCTOBER 15th, IF PERMANENT SEEDING NOT YET COMPLETE.

SEEDING GUIDE

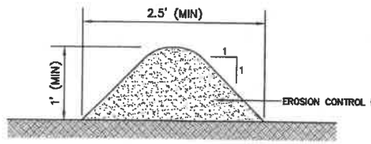
MIXTURE	POUNDS PER ACRE	POUNDS PER 1,000 Sq. Ft.
A. TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
RED TOP	2	0.05
TOTAL	42	0.95
B. TALL FESCUE	15	0.35
CREEPING RED FESCUE	10	0.25
CROWN VETCH	15	0.35
OR		
FLAT PEA	30	0.75
TOTAL	40 OR 55	0.95 OR 1.35
* C. TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
BIRDS FOOT TREFOIL	8	0.20
TOTAL	48	1.10
D. TALL FESCUE	20	0.45
FLAT PEA	30	0.75
TOTAL	50	1.20
E. CREEPING RED FESCUE 1/	50	1.15
KENTUCKY BLUEGRASS 1/	50	1.15
TOTAL	100	2.30
F. TALL FESCUE 1	150	3.60

1/ FOR HEAVY USE ATHLETIC FIELDS CONSULT THE UNIVERSITY OF NEW HAMPSHIRE COOPERATIVE EXTENSION TURF SPECIALIST FOR CURRENT VARIETIES AND SEEDING RATES.

SEEDING RATES

CONSTRUCTION SEQUENCE

1. PRIOR TO THE START OF ANY ACTIVITY, IT IS THE RESPONSIBILITY OF THE SITE'S SITE DEVELOPER (OR OWNER) TO FILE A NOTICE OF INTENT (NOI) FORM WITH THE ENVIRONMENTAL PROTECTION AGENCY (EPA) IN ORDER TO GAIN COVERAGE UNDER THE NPDES GENERAL PERMIT FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES. A PRE CONSTRUCTION MEETING IS TO BE HELD WITH ALL DEPARTMENT HEADS PRIOR TO THE START OF CONSTRUCTION.
2. WETLAND BOUNDARIES ARE TO BE CLEARLY MARKED PRIOR TO THE START OF CONSTRUCTION.
3. CUT AND REMOVE TREES IN CONSTRUCTION AREA AS REQUIRED OR DIRECTED.
4. INSTALL SILT FENCING, HAY BALES AND CONSTRUCTION ENTRANCES PRIOR TO THE START OF CONSTRUCTION. THESE ARE TO BE MAINTAINED UNTIL THE FINAL PAVEMENT SURFACING AND LANDSCAPING AREAS ARE ESTABLISHED.
5. CLEAR, CUT, GRUB AND DISPOSE OF DEBRIS IN APPROVED FACILITIES. THIS INCLUDES ANY REQUIRED DEMOLITION OF EXISTING STRUCTURES, UTILITIES, ETC.
6. CONSTRUCT AND/OR INSTALL TEMPORARY OR PERMANENT SEDIMENT AND/OR DETENTION BASIN(S) AS REQUIRED. THESE FACILITIES SHALL BE INSTALLED AND STABILIZED PRIOR TO DIRECTING RUN-OFF TO THEM.
7. STRIP LOAM AND PAVEMENT, OR RECLAIM EXISTING PAVEMENT WITHIN LIMITS OF WORK PER THE RECOMMENDATIONS OF THE PROJECT ENGINEER AND STOCKPILE EXCESS MATERIAL. STABILIZE STOCKPILE AS NECESSARY.
8. PERFORM PRELIMINARY SITE GRADING IN ACCORDANCE WITH THE PLANS, INCLUDING THE CONSTRUCTION OF ANY RETAINING WALLS.
9. PREPARE BUILDING PAD(S) TO ENABLE BUILDING CONSTRUCTION TO BEGIN.
10. INSTALL THE SEWER AND DRAINAGE SYSTEMS FIRST, THEN ANY OTHER UTILITIES IN ACCORDANCE WITH THE PLAN AND DETAILS. ANY CONFLICTS BETWEEN UTILITIES ARE TO BE RESOLVED WITH THE INVOLVEMENT AND APPROVAL OF THE ENGINEER.
11. INSTALL INLET PROTECTION AT ALL CATCH BASINS AS THEY ARE CONSTRUCTED IN ACCORDANCE WITH DETAILS.
12. ALL SWALES AND DRAINAGE STRUCTURES ARE TO BE CONSTRUCTED AND STABILIZED PRIOR TO HAVING RUN-OFF DIRECTED TO THEM.
13. DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINAGE DITCHES, CHECK DAMS, SEDIMENT TRAPS, ETC., TO PREVENT EROSION ON THE SITE AND PREVENT ANY SILTATION OF ABUTTING WATERS AND/OR PROPERTY.
14. PERFORM FINAL FINE GRADING, INCLUDING PLACEMENT OF 'SELECT' SUBGRADE MATERIALS.
15. PAVE ALL PARKING LOTS AND ROADWAYS WITH INITIAL 'BASE COURSE'.
16. PERFORM ALL REMAINING SITE CONSTRUCTION (i.e. BUILDING, CURBING, UTILITY CONNECTIONS, ETC.).
17. LOAM AND SEED ALL DISTURBED AREAS AND INSTALL ANY REQUIRED SEDIMENT AND EROSION CONTROL FACILITIES (i.e. RIP RAP, EROSION CONTROL BLANKETS, ETC.).
18. FINISH PAVING ALL ROADWAYS AND PARKING AREAS WITH 'FINISH' COURSE.
19. ALL ROADWAYS AND PARKING LOTS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
20. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
21. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
22. REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SEEDING AREAS HAVE BEEN 75%-85% ESTABLISHED AND SITE IMPROVEMENTS ARE COMPLETE. SMOOTH AND RE-VEGETATE ALL DISTURBED AREAS.
23. CLEAN SITE AND ALL DRAINAGE STRUCTURES, PIPES AND SUMPS OF ALL SILT AND DEBRIS.
24. INSTALL ALL PAINTED PAVEMENT MARKINGS AND SIGNAGE PER THE PLANS AND DETAILS.
25. ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY HALF-INCH OF RAINFALL.
26. UPON COMPLETION OF CONSTRUCTION, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY ANY RELEVANT PERMITTING AGENCIES THAT THE CONSTRUCTION HAS BEEN FINISHED IN A SATISFACTORY MANNER.



NOTES:

1. ORGANIC FILTER BERMS MAY BE UTILIZED IN LIEU OF SILT FENCE, UNLESS OTHERWISE SPECIFIED.
2. THE EROSION CONTROL MIX USED IN THE FILTER BERMS SHALL BE A WELL-GRADED MIXTURE OF PARTICLE SIZES, MAY CONTAIN ROCKS LESS THAN 4" IN DIAMETER, STUMP GRINDINGS, SHREDDED OR COMPOSTED BARK, OR ACCEPTABEL MANUFACTURED PRODUCTS, AND SHALL BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH, AND SHALL MEET THE FOLLOWING STANDARDS:
   a) THE ORGANIC CONTENT SHALL BE 80-100% OF DRY WEIGHT.
   b) PARTICLE SIZE BY WEIGHT SHALL BE 100% PASSING A 6" SCREEN, AND 70-85% PASSING A 0.75" SCREEN.
   c) THE ORGANIC PORTION SHALL BE FIBROUS AND ELONGATED.
   d) LARGE PORTIONS OF SILTS, CLAYS, OR FINE SANDS SHALL NOT BE INCLUDED IN THE MIXTURE.
   e) SOLUBLE SALTS CONTENT SHALL BE >4.0mmhoe/cm.
   f) THE pH SHALL BE BETWEEN 5.0 AND 8.0.
3. ORGANIC FILTER BERMS SHALL BE INSTALLED ALONG A RELATIVELY LEVEL CONTOUR. IT MAY BE NECESSARY TO CUT TALL GRASSES OR WOODY VEGETATION TO AVOID CREATING VOIDS AND BRIDGES THAT WOULD ENABLE FINES TO WASH UNDER THE BERM.
4. ON SLOPES LESS THAN 5% OR AT THE BOTTOM OF SLOPES STEEPER THAN 3:1, UP TO 20' LONG, THE BERM SHALL BE A MINIMUM OF 12" HIGH (AS MEASURED ON THE UPHILL SIDE), AND A MINIMUM OF 36" WIDE. ON LONGER OR STEEPER SLOPES, THE BERM SHALL BE WIDER TO ACCOMMODATE THE POTENTIAL ADDITIONAL RUNOFF.
5. FROZEN GROUND, OUTCROPS OF BEDROCK, AND VERY ROOTED FORESTED AREAS PRESENT THE MOST PRACTICAL AND EFFECTIVE LOCATIONS FOR ORGANIC FILTER BERMS. OTHER BMP'S SHOULD BE USED AT LOW POINTS OF CONCENTRATED RUNOFF, BELOW CULVERT OUTLET APRONS, AROUND CATCH BASINS, AND AT THE BOTTOM OF STEEP PERIMETER SLOPES THAT HAVE A LARGE CONTRIBUTING AREA.
6. SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURES WHEN IT HAS ACCUMULATED TO ONE HALF THE ORIGINAL HEIGHT OF THE STRUCTURE.
7. STRUCTURES MAY BE LEFT IN PLACE ONCE THE SITE IS STABILIZED.

ORGANIC FILTER BERM

NOT TO SCALE

Design: JAC	Draft: LAZ
Checked: JAC	Scale: AS NOTED
Date: 04/29/21	Project No.: 21090
Drawing Name: 21090-PLAN.dwg	

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USERS SOLE RISK AND WITHOUT LIABILITY TO JBE.

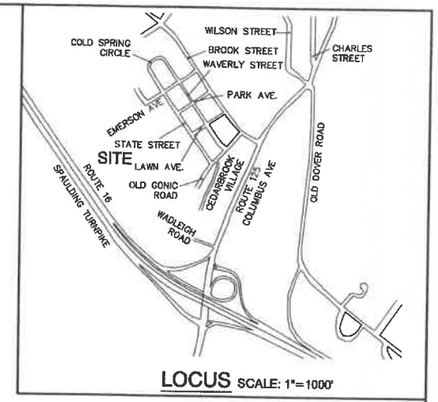
STATE OF NEW HAMPSHIRE — MICHAEL J. KERVAN No. 9648 — LICENSED PROFESSIONAL ENGINEER — 2/14/22

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EROSION AND SEDIMENT CONTROL DETAILS
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
E1
SHEET 45 OF 46
JBE PROJECT NO. 21090



LOCUS SCALE: 1"=1000'

PHASING NOTES:

1. PHASING IS MANDATORY PER NEW HAMPSIRE DEPARTMENT OF ENVIRONMENTAL SERVICES AND NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES ALTERATION OF TERRAIN SHALL BE NOTIFIED OF ANY ALTERATION OF THE PHASING PLAN.
2. EACH PHASE MUST BE STABILIZED BEFORE PROCEEDING TO SUCCESSIVE PHASES.
3. AN ENVIRONMENTAL MONITOR SHALL BE EMPLOYED TO EVALUATE THE SITE DURING CONSTRUCTION.
4. AREAS MUST BE STABILIZED PRIOR TO WINTER CONSTRUCTION SEASON FROM OCTOBER 15 THROUGH MAY 15 PURSUANT TO Env-Wq 1505.05 (1 AC OPEN) UNLESS A WINTER CONSTRUCTION/STABILIZATION PLAN IS SUBMITTED AND APPROVED.

PHASING SCHEDULE:

PHASE 1 9.6 AC

CONSTRUCT: BAYBERRY LANE
ALL BUILDINGS FRONTING ON BAYBERRY LANE
ALL PONDS

PHASE 2 3.4 AC

CONSTRUCT: APPLECREST LANE
ALL BUILDINGS FRONTING ON APPLECREST LANE

PHASE 3 4.0 ACRES

CONSTRUCT: HAWTHORNE CIRCLE AND WINTERBERRY LANE
ALL BUILDINGS FRONTING ON HAWTHORNE CIRCLE AND WINTERBERRY LANE

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 10

APPLICANT
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

Design: JAC	Draft: LAZ	Date: 04/29/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-PLAN.dwg		

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STATE OF NEW HAMPSHIRE — MICHAEL J. KERVAN No. 9646 LICENSED SURVEYOR — 10/12/22

REV.	DATE	REVISION	BY
2	2/14/22	REVISED PER CITY ENGINEERING COMMENTS	LAZ
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
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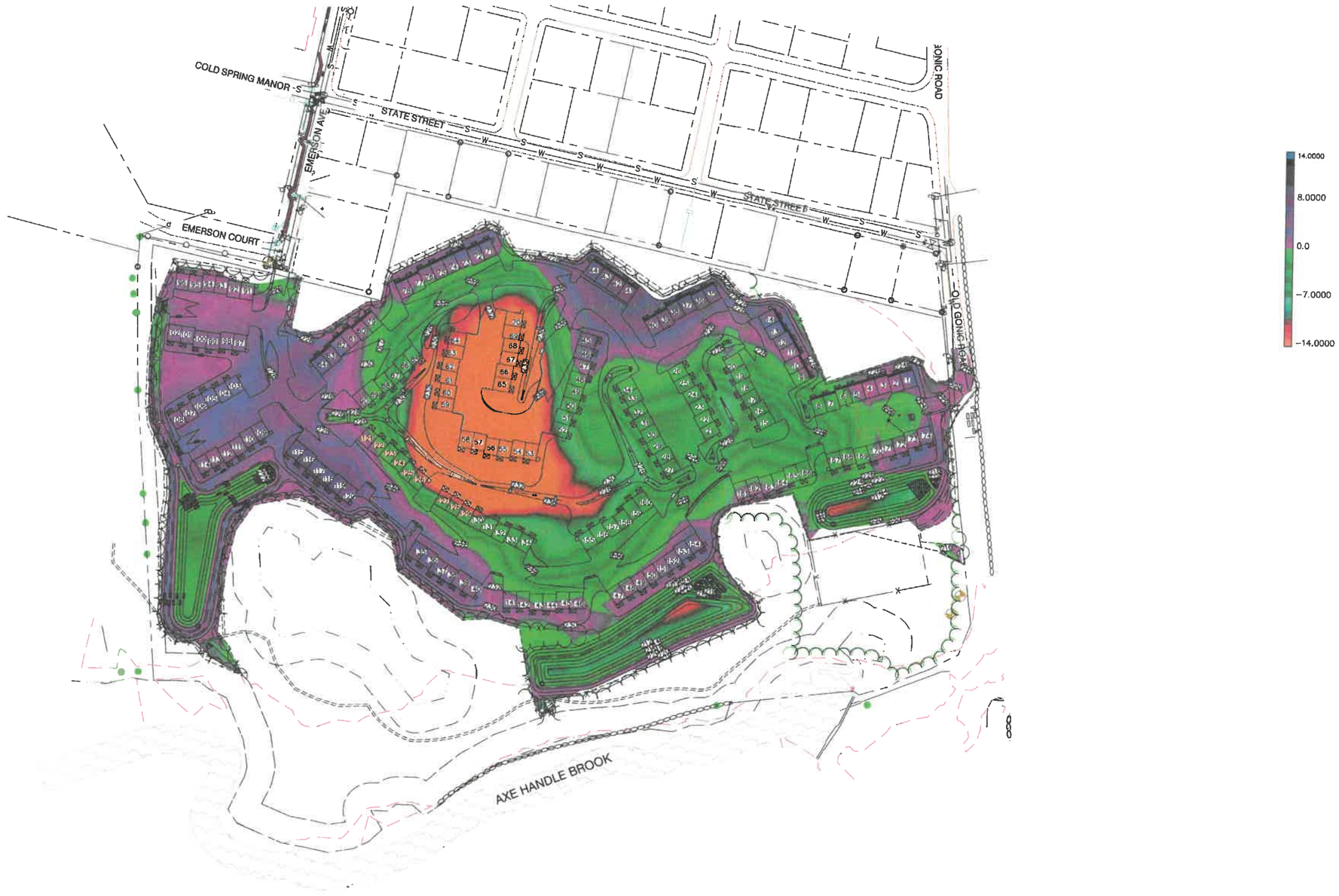
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
Civil Engineering Services
603-772-4746 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	PHASING PLAN
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
PH
SHEET 46 OF 46
JBE PROJECT NO. 21090



Design: JAC	Draft: LAZ	Date: 04/29/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

STATE OF NEW HAMPSHIRE — MICHAEL J. KERWIN No. 9846 LICENSED LAND SURVEYOR — 2/14/2022

REV.	DATE	REVISION	BY
1	1/18/22	REVISED PER CITY COMMENTS	LAZ
0	11/23/21	ISSUED FOR REVIEW	LAZ

Designed and Produced in NH
Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	CUF/FILL PLAN
Project:	BAYBERRY COMMONS 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
C/F
SHEET 1 OF 1
JBE PROJECT NO. 21090

STORMWATER MANAGEMENT OPERATION AND MAINTENANCE MANUAL

Bayberry Commons
Tax Map 131 Lot 10
19 Old Gonic Road
Rochester, NH 03839

Prepared for:

Green and Company
11 Lafayette Road
North Hampton, NH 03862

Prepared by:
Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885
(603) 772-4746
February 10, 2022
JBE Project No. 21090

JONES&BEACH ENGINEERS INC.

Inspection and Maintenance of Facilities and Property

A. Maintenance of Common Facilities or Property

1. The Residential Development, future owners and assigns are responsible to perform the maintenance obligations or hire a Professional Engineer to review the site on an annual basis for maintenance and certification of the stormwater system. The Owner shall keep receipts and records of all maintenance companies hired throughout the year to submit along with the following form. The annual report and certification shall be submitted to City of Rochester DPW upon request.

B. General Inspection and Maintenance Requirements

1. Permanent stormwater and sediment and erosion control facilities to be maintained on the site include, but are not limited to, the following:

    a. Catch basins and drain manholes
    b. Culverts
    c. Swales & Plunge Pools
    d. Vegetation and landscaping
    e. Parking lots and roadways
    f. Riprap inlet and outlet protection aprons
    g. Wet Ponds
    h. Residential Drip Edges
    i. Invasive Species Control

2. Maintenance of permanent measures shall follow the following schedule:

    a. Normal winter roadway and parking lot maintenance including plowing and snow removal.

    b. Road and parking lot sweeping at the end of every winter, preferably at the start of the spring rain season.

    c. **Inspection** of culvert inlets and outlets at least **once per month** during the rainy season (March to November). Any debris is to be removed and disposed of properly by owner or owner's agent.

    d. **Annual inspection** of the site for erosion, destabilization, settling, and sloughing. Any needed repairs are to be conducted immediately.

    e. **Annual inspection** of site's vegetation and landscaping. Any areas that are bare shall be reseeded and mulched with hay or, if the case is extreme, loamed and seeded or sodded to ensure adequate vegetative cover. Landscape specimens shall be replaced in kind, if they are found to be dead or dying.

    f. **Annual inspection** of catch basins and drain manholes to determine if they need to be cleaned. Catch basins are to be cleaned if the depth of deposits is greater than one-half the depth from the

basin bottom to the invert of the lowest pipe or opening into or out of the basin. If a catch basin significantly exceeds the one-half depth standard during the inspection, then it should be cleaned more frequently. If woody debris or trash accumulates in a catch basin, then it should be cleaned on a weekly basis. Manholes should be cleaned of any material upon inspection. Catch basins and manholes can be cleaned either manually or by specially designed equipment including, but not limited to, bucket loaders and vacuum pumps. Before any materials can be disposed, it is necessary to perform a detailed chemical analysis to determine if the materials meet the EPA criteria for hazardous waste. This will help determine how the materials should be stored, treated, and disposed. Grease hoods are to be wiped clean and the rags disposed of properly. Debris obscuring the grate inlet should also be removed.

g. Permanent stone check dams should be **inspected annually** in order to ensure that they are in good condition. Any sediment accumulated behind them shall be removed if it is deeper than six inches.

h. Rock riprap should be **inspected annually** in order to ensure that it has not been displaced, undermined, or otherwise damaged. Displaced rock should be replaced, or additional rock added in order to maintain the structure(s) in their undamaged state. Woody vegetation should not be allowed to become established in riprap areas, and/or any debris removed from the void spaces between the rocks. If the riprap is adjacent to a stream or other waterbody, the water should be kept clear of obstructions, debris, and sediment deposits.

i. Wet Ponds:

Wet Ponds should require little maintenance, but should be inspected frequently during the first year of operation, and annually thereafter. Every five years, the services of a professional engineer should be retained to perform a thorough inspection of all the aspects of the pond and its infrastructure. Any debris and sediment accumulations should be removed from the outlet structure(s) and emergency spillway(s) and disposed of properly. Inspect outlet structure for deterioration and or clogging. Wet Pond berms should be mowed at least once annually so as to prevent the establishment of woody vegetation – trees should *never* be allowed to grow on a Wet Pond berm, as they may destabilize the structure and increase the potential for failure. Areas showing signs of erosion or thin or dying vegetation should be repaired immediately by whatever means necessary, *with the exception of fertilizer.* Rodent burrows are to be repaired immediately and the suspect animals apprehended with non-lethal traps if the problem persists. The permanent water elevation should be constant at the elevation of the discharge culvert of 182.0'.

j. Cleaning Criteria for all Sedimentation Forebays: Sediment should be removed from the sedimentation chamber (forebay) when it accumulates to a depth of more than 12 inches (30 cm) or 10 percent of the pretreatment volume. The sedimentation forebay should be cleaned of vegetation if persistent standing water and wetland vegetation becomes dominant. The cleaning interval is once every year. A dry sedimentation forebay is the optimal condition while in practice this condition is rarely achieved. The sedimentation chamber, forebay, and treatment cell outlet devices should be cleaned when drawdown times exceed 60 to 72 hours. Materials can be removed with heavy construction equipment; however this equipment should not track on the wetland surface. Revegetation of disturbed areas as necessary. Removed sediments should be dewatered (if necessary) and disposed of in an acceptable manner.

k. Treatment and Vegetative Swales:

Inspect annually for erosion, sediment accumulation, vegetation loss, and presence of invasive species. Perform periodic mowing; frequency depends on location and type of grass. Do not cut shorter than Water Quality Flow depth (maximum 4-inches). Remove debris and accumulated sediment, based on inspection. Repair eroded areas, remove invasive species and dead vegetation, and reseed with applicable grass mix as warranted by inspection.

l. Vegetated Buffers:

Inspect buffer at least annually for signs of erosion, sediment buildup, or vegetation loss. If a meadow buffer, provide periodic mowing as needed to maintain a healthy stand of herbaceous vegetation. If a forested buffer, then the buffer should be maintained in an undisturbed condition, unless erosion occurs. If erosion of the buffer (forested or meadow) occurs, eroded areas should be repaired and replanted with vegetation similar to the remaining buffer. Corrective action should include eliminating the source of the erosion problem, and may require retrofit with a level spreader. Remove debris and accumulated sediment, based on inspection.

m. House Roof Drip Edges:

The following recommendations will help assure that the roof drip edges are maintained to preserve its effectiveness.

In the spring and fall, visually inspect the area around the edges and repair any erosion. Use small stones to stabilize erosion along drainage paths. Inspect stone area to ensure that it has not been displaced, undermined, or otherwise damaged. Displaced rock should be replaced, or additional rock added in order to maintain the structure(s) in their undamaged state. Woody vegetation should not be allowed to become established in stone areas, and/or any debris removed from the void spaces between the stones. Also inspect the roof collection and piping (if any) and clean and repair as necessary.

n. Invasive Species Control

An invasive plant is a non-native plant that is able to persist and proliferate outside of cultivation, resulting in ecological and/or economic harm. These plants readily colonize disturbed areas and habitat edges, such as transportation and river corridors. Once established in these areas, invasive plants often continue to spread to adjacent habitats. All invasive plant species are aggressive competitors with the ability to significantly reduce diversity of native plant and animal species.

For additional information refer to the "New Hampshire Department of Transportation: *Best Management Practices for Roadside Invasive Plants*"

1. **Invasive Plant Prevention:**

Invasive plants spread by a variety of mechanisms, including birds, wind, and water. Human activities are also a major factor in the spread of these plants, from gardening and transport of nursery stock to erosion control and wildlife plantings. Routine maintenance and construction activities along transportation corridors can also play a significant role in the spread of invasive plants by dispersing or introducing seeds and other viable plant materials.

Eliminating or reducing the spread and establishment of invasive plants requires a proactive approach, in which there are two key elements. First, new introductions, especially those that occur due to human activities, must be avoided to the maximum extent possible. Second, there must be an emphasis on early detection and eradication of new populations. Control measures are far more likely to be successful, as well as significantly less expensive, on small, young populations rather than on larger, more established populations, as shown in Figure 1.

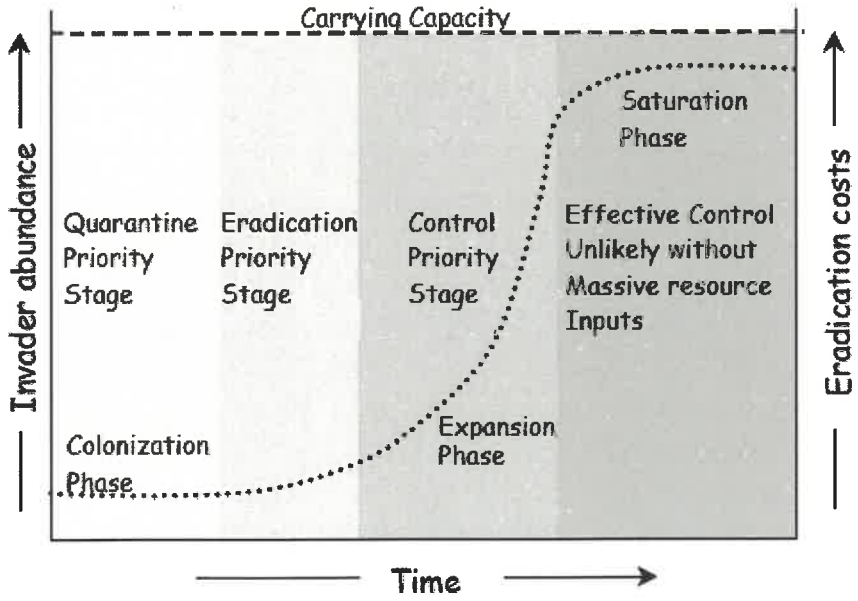


Figure 1. Typical invasive species population curve (from the University of Arizona and USGS Desert Laboratory http://wwwpaztcn.wr.usgs.gov)

2. Best Management Practices

Soil Disturbance and Stabilization:

- BMP #1: Minimize soil disturbance whenever possible. Invasive plants readily colonize areas of disturbed soil. Monitor recent work sites for the emergence of invasive plants for a minimum of two years after project completion.

- BMP #2: Stabilize disturbed soils as soon as possible by seeding and/or using mulch, hay, rip-rap, or gravel that is free of invasive plant material. Seeds of native species should be used whenever possible. Species on the prohibited invasive plant list should never be planted.

- BMP #3: Materials such as fill, loam, mulch, hay, rip-rap, and gravel should not be brought into project areas from sites where invasive plants are known to occur. If the

absence of invasive plant parts in these materials cannot be guaranteed, recent work sites should be monitored for the emergence of invasive plants for a minimum of two years after project completion.

Movement and Maintenance of Equipment:

- BMP #4: If work in areas containing invasive plants cannot be avoided, then the movement of maintenance and construction equipment should be from areas not infested by invasive plants to areas infested by invasive plants whenever possible. This is especially important during ditch cleaning and shoulder scraping activities.

- BMP #5: Locate and use staging areas that are free of invasive plants to avoid spreading seeds and other viable plant parts.

- BMP #6: If equipment must be used in areas where invasive plants occur, all equipment, machinery, and hand tools should be cleaned of all visible soil and plant material before leaving the project site. Equipment should be cleaned at the site of infestation. Acceptable methods of cleaning include, but are not limited to: *f* Portable wash station that contains runoff from washing equipment (containment must be in compliance with wastewater discharge regulations); *f* High pressure air; Brush, broom, or other hand tools (used without water).

- BMP #7: If equipment must be used in areas containing Japanese knotweed, phragmites, or purple loosestrife, aboveground plant material should be cut and properly disposed of (see BMP #11) prior to the start of work. If excavation occurs in these areas, see BMPs #13-16.

Mowing:

- BMP #8: These invasive plants have the ability to sprout from stem and root fragments: purple loosestrife, phragmites, and Japanese knotweed. Mowing these plants should be avoided whenever possible. Staking roadside populations of these plants as "do not mow" is one way to accomplish this. If these plants are cut, all plant material must be rendered nonviable and extra care should be taken to avoid spreading plant fragments (see BMP #11).

- BMP #9: In areas where invasive plants occur and the plants listed in BMP #8 (purple loosestrife, phragmites, and Japanese knotweed) are not present, an attempt should be made to mow the right-of-way prior to seed maturation (approximately August 1st). This could be accomplished by identifying specific roads that are either heavily infested with invasive plants or roads that are in sensitive habitat areas, and making those roads a priority in the mowing schedule.

- BMP #10: Mowing equipment should be cleaned at least daily, as well as prior to transport (see BMP #6). This is particularly important if mowing occurs after seed maturation (after August 1st).

Disposal of Plants:

- BMP #11: When invasive plants are cut or removed for roadside maintenance, construction, or control of plants, the spread of viable plant material must be avoided by rendering plant material nonviable. The following methods can be used to destroy plant material:
  - Drying/Liquefying: For large amounts of plant material or for plants with rigid stems, place the material on asphalt, tarps, or heavy plastic, and cover with tarps or heavy plastic to prevent the material from blowing away. For smaller amounts of plant material or for plants with pliable stems, bag the material in heavyduty (3-mil or thicker) garbage bags. Keep plant material covered or bagged for at least one month. Material is nonviable when it is partially decomposed, very slimy, or brittle. Once material is nonviable, it can be disposed of in a landfill or brush pile. Recommended for: Japanese knotweed, purple loosestrife, phragmites.
  - Brush Piles: Plant material from most invasive plants can be piled on site to dry out. However, when piling purple loosestrife, phragmites, and Japanese knotweed, care must be taken to pile stems so that cut surfaces are not in contact with the soil. Recommended for: Woody shrubs, trees, and vines; spotted knapweed; large quantities of purple loosestrife, phragmites, and Japanese knotweed. NOT recommended for: any invasive plant with seeds or fruit attached, unless plants can be piled within the limits of the infestation.
  - Burying: Plant material from most invasive plants can be buried a minimum of three feet below grade. This method is best used on a job site that already has disturbed soils. Recommended for: any invasive plant. NOT recommended for: Japanese knotweed, unless other options are not feasible and knotweed can be buried at the site of infestation at least five feet below grade. *f*
  - Burning: Plant material should be taken to a designated burn pile. (All necessary permits must be obtained before burning.) Recommended for: any invasive plant, especially purple loosestrife, phragmites, Japanese knotweed.
  - Herbicide: Herbicide applications must be carried out by a licensed applicator with a permit from the NH Department of Agriculture Division of Pesticide Control. Recommended for: any invasive plant, especially purple loosestrife, phragmites, Japanese knotweed.

- BMP #12: Invasive plant material must be covered during transport.

Excavated Material:

- BMP #13: Excavated material taken from sites that contain invasive plants cannot be used away from the site of infestation until all viable plant material is destroyed. Excavated material from areas containing invasive plants may be reused within the exact limits of the infestation.

- BMP #14: Any excavated material that contains viable plant material and is not reused within the limits of the infestation must be stockpiled on an impervious surface until viable plant material is destroyed OR the material must be disposed of by burying a minimum of three feet below grade. Japanese knotweed must be buried at least five feet below grade.

- BMP #15: Whenever possible, excavation should be avoided in areas containing Japanese knotweed, purple loosestrife, and phragmites. If excavation does occur in these areas, the BMPs described in Section II must be followed.

- BMP #16: Soil and other materials containing invasive plants must be covered during transport.

See attached sample forms as a guideline.

Any inquiries in regards to the design, function, and/or maintenance of any one of the above mentioned facilities or tasks shall be directed to the project engineer:

Jones & Beach Engineers, Inc.
85 Portsmouth Avenue
P.O. Box 219
Stratham, NH 03885

T#: (603) 772-4746
F#: (603) 772-0227

Commitment to maintenance requirements

I agree to complete and/or observe all of the required maintenance practices and their respective schedules as outlined above.

_____

Signature

_____

Print Name

_____

Title

_____

Date

Annual Operations and Maintenance Report

The Residential Development Owner, future owners and assigns are responsible to perform the maintenance obligations or hire a Professional Engineer to review the site on an annual basis for maintenance and certification of the stormwater system. The Owner or Owner's Agent shall keep receipts and records of all maintenance companies hired throughout the year to submit along with the following form. The annual report and certification shall be submitted to the City of Rochester DPW upon request.

Construction Activity	Date of Inspection	Who Inspected	Findings of Inspector
Catch basins and drain manholes			
Culverts			
Swales & Plunge Pools			
Vegetation and landscaping			
Parking lots and roadways			

Wet Ponds			
Drip Edges			

JONES & BEACH ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

DRAINAGE ANALYSIS

SEDIMENT AND EROSION CONTROL PLAN

Prepared for:

Old Gonic Road Townhouses
Tax Map 131, Lot 1
19 Old Gonic Road
Rochester, NH 03867

November 23, 2021
Revised February 15, 2022
JBE Project No. 21090

1. EXECUTIVE SUMMARY

Green and Company proposes to construct a 174-unit townhouse development on a ±30.07-acre parcel of land located on the west side of Old Gonic Road in Rochester, NH. A drainage analysis of the entire site and its offsite contributing watershed areas was conducted for the purpose of estimating the peak rate of stormwater runoff and to subsequently design adequate drainage structures. Two models were compiled, one for the area in its existing (pre-construction) condition, and a second for its proposed (post-construction) condition. A summary of the existing and proposed conditions peak rates of runoff is as follows:

COMPONENT	PEAK DISCHARGE COMPARISON							
	2 Year		10 Year		25 Year		100 Year	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Analysis Point #1	2.29	0.98	4.98	2.37	7.27	3.59	12.10	6.24
Analysis Point #2	6.45	6.18	16.18	13.85	24.81	20.47	43.60	37.19
Analysis Point #3	2.61	0.75	6.35	1.76	9.62	2.63	16.74	4.51
Analysis Point #4	4.89	4.05	12.58	9.46	19.52	14.17	34.80	24.33
Analysis Point #5	1.96	1.94	4.62	4.16	6.94	6.04	11.94	10.01

The drainage design intent for this site is to maintain the post-development peak flow to the pre-development peak flow conditions to the extent practicable and to effectively treat stormwater from the development of this site. This has been accomplished through the use of wet ponds to maintain the peak discharge and effectively treat stormwater exiting the site.

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6. BMP Worksheets
7. Rip Rap Calculations
8. Plans
    - 8.1. Existing Conditions Watershed Plan - W1
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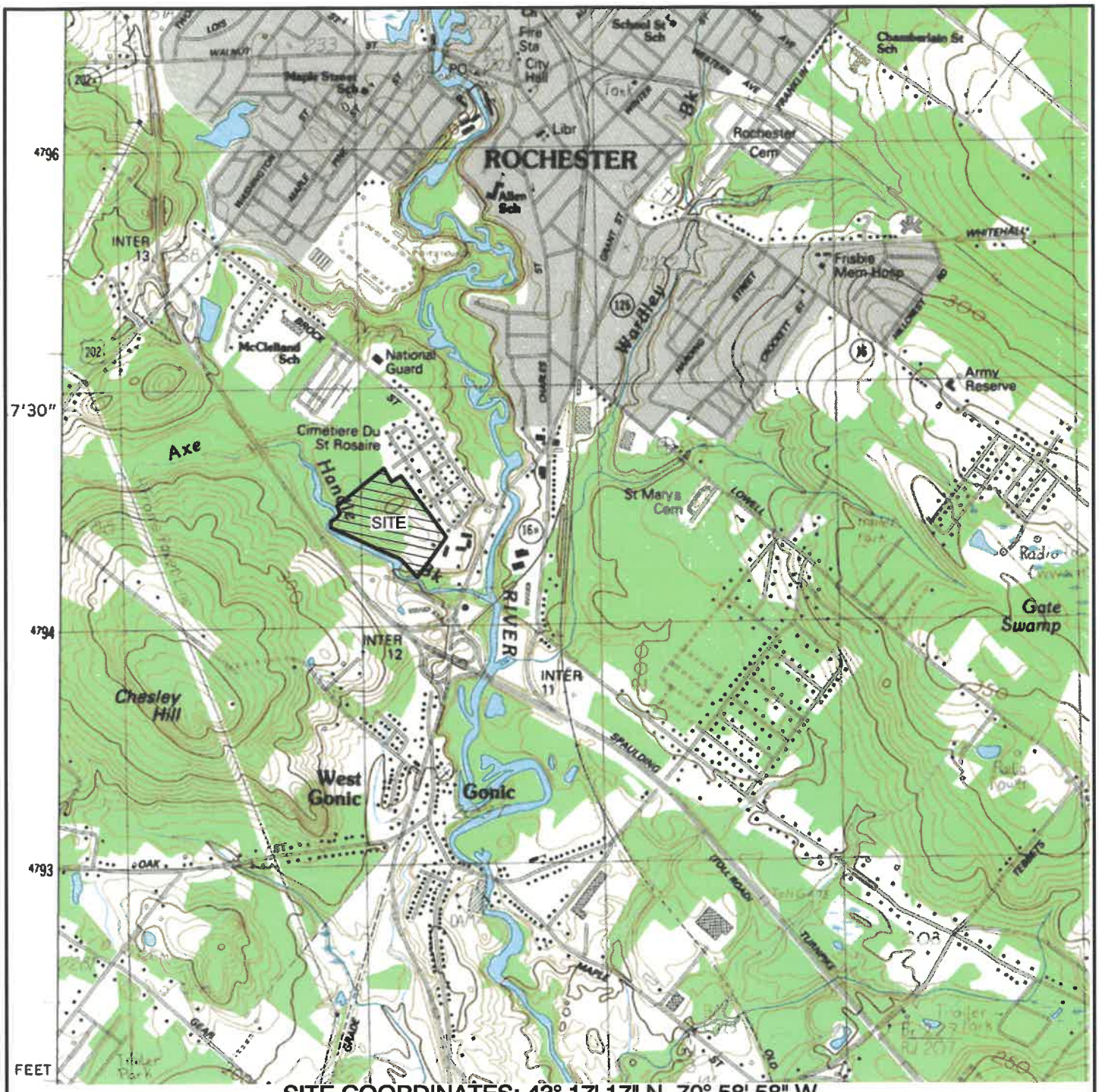


SITE COORDINATES: 43° 17' 17" N, 70° 58' 58" W

GRAPHIC SCALE

2000 0 1000 2000 4000 8000

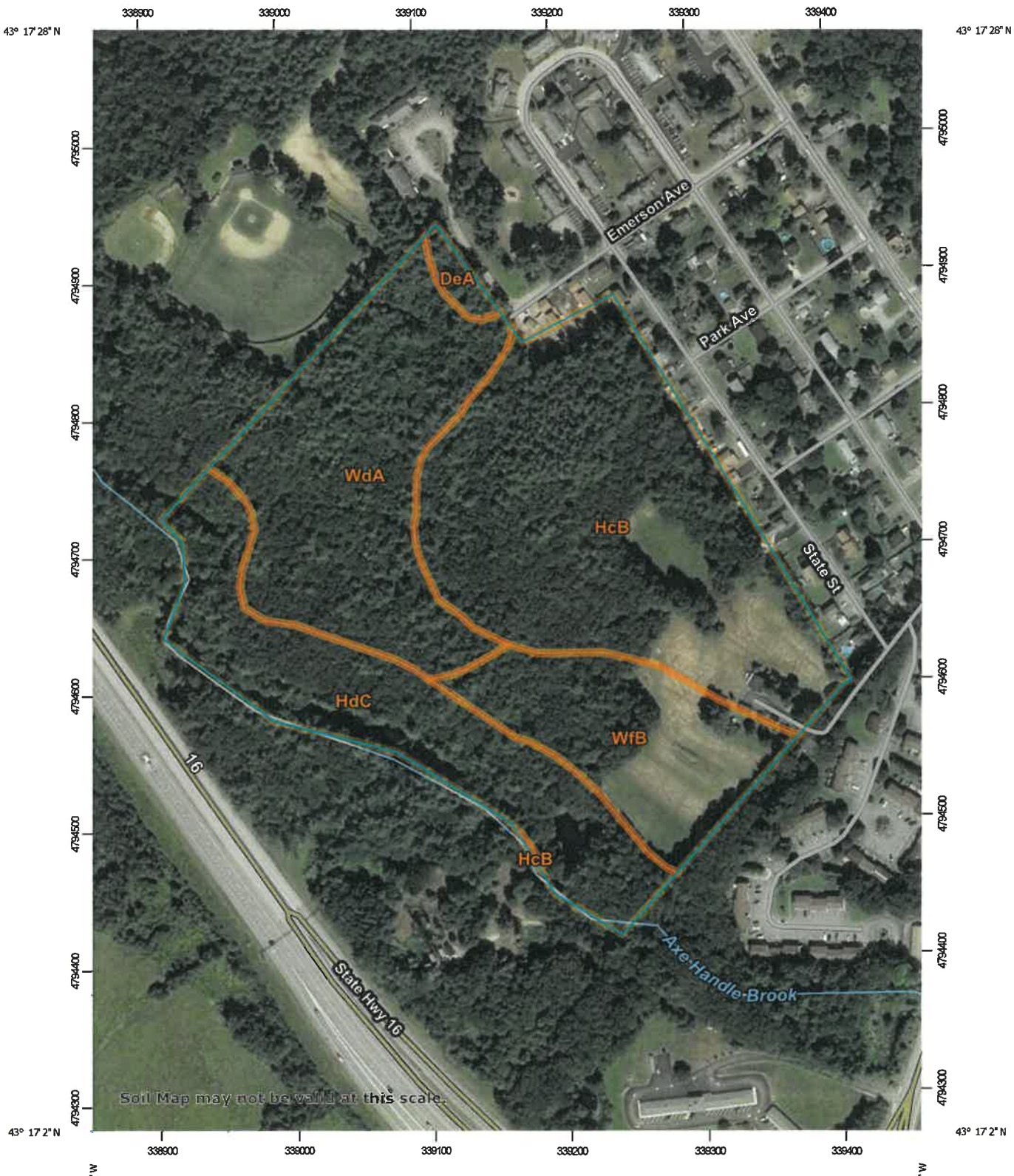
(IN FEET)

1 inch = 2000ft.

Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-Mail: JBE@jonesandbeach.com

Drawing Name:	USGS
Project:	OLD GONIC ROAD TOWNHOUSES
Applicant:	GREEN AND COMPANY 11 LAFAYETTE ROAD, NORTH HAMPTON, NH 03862

DRAWING No.
USGS1
SHEET 1 OF 1
JBE PROJECT No. 21090


70° 59' 10" W
70° 58' 43" W
43° 17' 28" N
43° 17' 2" N
338900
339000
339100
339200
339300
339400
4795000
4794900
4794800
4794700
4794600
4794500
4794400
4794300
DeA
WdA
HcB
HdC
WfB
HcB
Emerson Ave
Park Ave
State St
16
State Hwy 16
Axe Handle Brook
Soil Map may not be valid at this scale.
Map Scale: 1:3,910 if printed on A portrait (8.5" x 11") sheet.
N
Meters
0 50 100 200 300
Feet
0 150 300 600 900
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Strafford County, New Hampshire
Survey Area Data: Version 22, Aug 31, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 12, 2019—Aug 30, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
DeA	Deerfield loamy fine sand, 0 to 3 percent slopes	0.4	1.1%
HcB	Hollis-Charlton fine sandy loams, 3 to 8 percent slopes	13.7	38.7%
HdC	Hollis-Charlton very rocky fine sandy loams, 8 to 15 percent slopes	7.3	20.5%
WdA	Windsor loamy sand, 0 to 3 percent slopes	9.0	25.4%
WfB	Windsor loamy fine sand, clay subsoil variant, 0 to 8 percent slopes	5.1	14.3%
Totals for Area of Interest		**35.4**	**100.0%**

4. DRAINAGE ANALYSIS

4.1 METHODOLOGY

This drainage report includes an existing conditions analysis of the area involved in the proposed development, as well as a proposed condition, or post-construction analysis, of the same location. These analyses were accomplished using the USDA SCS TR-20 Method within the HydroCAD Stormwater Modeling System. The curve numbers were developed using the SCS TR-55 Runoff Curve numbers for Urban Areas. A Type III SCS 24-hour rainfall distribution was utilized in analyzing the data for the 2 Year – 24 Hour (3.08"), 10 Year – 24 Hour (4.63"), 25 Year – 24 Hour (5.84") and 50 Year – 24 Hour (6.96") storm events.

4.2 EXISTING CONDITIONS ANALYSIS

The study area consists of the subject property and downstream contributing area. The study area contains 27.95 acres including offsite contributing areas. The existing site currently contains an existing dwelling with various out buildings and paved parking/driveway area, grass and meadow area, and woods. The existing site contains a high point located in the central portion of the subject parcel. The site drains away in all directions from this high point resulting in the Analysis Points as defined below.

The majority of the soils for this site are described as Hydrological Soils "C". A small section of soils in the northeast quadrant of the site are described as Hydrological Soils "D".

Five (5) Analysis Points (AP's) were defined for this project.

Analysis Point #1 is defined as the most easterly corner of the property. Stormwater to this Analysis Point is collected from the south-east portion of the proposed project. Stormwater drains from a ridge located in the eastern quadrant of the site.

Analysis Point #2 is defined as the southerly property line adjacent to Axe Handle Brook. This watershed generally drains southwest to the Analysis Point from the high point located near the central point of the proposed site.

Analysis Point #3 is defined as the existing 12" culvert located on an abutters property to the east. This watershed generally drains east to the Analysis Point from the high point located near the central point of the proposed site.

Analysis Point #4 is defined as the existing wetland in the western portion of the subject parcel. This analysis point includes drainage from the central high point of the subject parcel and includes area located in the south-west corner of the subject parcel.

Analysis Point #5 is defined as the northern corner of the subject parcel adjacent to Emerson Avenue. This analysis point includes drainage from the central high point of the subject parcel and includes areas located in the northern corner of the subject parcel.

4.3 PROPOSED CONDITIONS ANALYSIS

The proposed site includes the construction of a 174-unit townhouse development with associated parking, utilities, and drainage. This project will increase the impervious area from an existing 0.175 Acres to a proposed 7.646 Acres, an increase of 7.471 Acres.

Drainage from the roadway and some of the roof areas is collected in a closed drainage system, including deep sump hooded catch basins, and distributed to three (3) separate wet ponds (Ponds 1, 2 and 3). These ponds are equipped with forebays for pretreatment of the runoff. Houses along the easterly perimeter (building 1, 2, 6, 7, 12, 13 and 15) will have roof drip edges at the rears to store roof runoff. The proposed wet ponds have a pollutant removal efficiency of 80% for total suspended solids (TSS).

The following calculations relate to the post-construction area treatment. These calculations have been derived from the New Hampshire MS4 General Permit, Appendix F, Attachment 3.

For a load reduction of 50%, the BMP capacity for a wet pond will need to be 0.9" (Table 3-23 and Figure 3-18).

For Wet Pond 1-
There are 1.214 Acres of pervious area with a hydrologic soil group (HSG) 'C' and 1.325 Acres of impervious area. The runoff depth for the pervious area = 0.11" (Table 3-4).

1.214 Ac x 0.11" x 3,630 ft^3/acre-in = 485 ft^3 (Equation 3-5)
485 ft^3 + ((0.11" x 1.325 Ac) x 3,630 ft^3/acre-in) = 1,014 ft^3
1,014 ft^3 < 21,306 ft^3 (permanent pool volume) OK

For Wet Pond 2-
There are 2.538 Acres of pervious area with a HSG 'C', 0.209 Acres of pervious area with a HSG 'D', and 2.783 Acres of impervious area. The runoff depth for the pervious area = 0.11" for HSG 'C' and 0.19" for HSG 'D' (Table 3-4).

Runoff depth = (2.538 Ac (0.11") + 0.209 Ac (0.19"))/2.747 Ac = 0.12"
2.747 Ac x 0.12" x 3,630 ft^3/acre-in = 1197 ft^3 (Equation 3-5)
1197 ft^3 + ((0.12" x 2.783 Ac) x 3,630 ft^3/acre-in) = 2,409 ft^3
2,409 ft^3 < 41,273 ft^3 (permanent pool volume) OK

For Wet Pond 3-
There are 2.514 Acres of pervious area with a HSG 'C' and 2.870 Acres of impervious area. The runoff depth for the pervious area = 0.11" (Table 3-4).

2.514 Ac x 0.11" x 3,630 ft^3/acre-in = 1,004 ft^3 (Equation 3-5)
1,004 ft^3 + ((0.11" x 2.870 Ac) x 3,630 ft^3/acre-in) = 2,150 ft^3
2,150 ft^3 < 46,820 ft^3 (permanent pool volume) OK

4.4 CONCLUSION

This proposed site development will have minimal effect on abutting infrastructures or properties by way of stormwater runoff or siltation. Peak runoff rate from the proposed site have been maintained to the existing conditions peak rate. Treatment is obtained through the use of deep sump hooded catch basins, and bioretention ponds with forebays as described above.

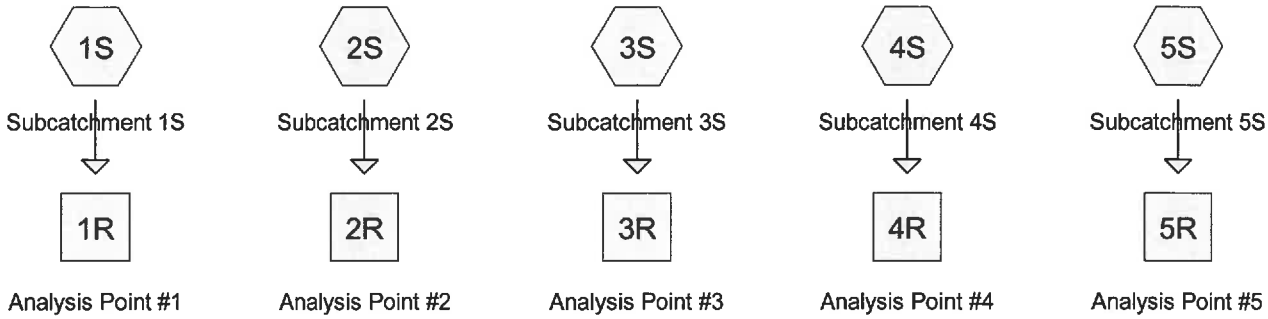
The area of disturbance is greater than 100,000 square feet and will require an NHDES Alteration of Terrain Permit.

Respectfully Submitted,
JONES & BEACH ENGINEERS, INC.

Michael Kerivan, P.E.
Project Engineer

4.5 EXISTING CONDITIONS ANALYSIS
APPENDIX I

2 Year - 24 Hour Summary
10 Year - 24 Hour Summary
25 Year - 24 Hour Complete
100 Year - 24 Hour Summary



Subcat Reach Pond Link

Routing Diagram for 21090 EXISTING CONDITION
Prepared by Jones and Beach Engineers, Inc., Printed 2/15/2022
HydroCAD® 10.10-5a s/n 10589 © 2020 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.561	83	1/4 acre lots, 38% imp, HSG C (5S)
6.263	74	>75% Grass cover, Good, HSG C (1S, 2S, 3S)
0.127	98	Paved parking, HSG C (1S)
0.048	98	Roofs, HSG C (1S)
20.152	70	Woods, Good, HSG C (1S, 2S, 3S, 4S, 5S)
0.795	77	Woods, Good, HSG D (3S, 5S)
27.946	**72**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
27.151	HSG C	1S, 2S, 3S, 4S, 5S
0.795	HSG D	3S, 5S
0.000	Other	
27.946		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcatchment 1S Runoff Area=98,896 sf 7.71% Impervious Runoff Depth>1.07"
Flow Length=273' Tc=11.2 min CN=76 Runoff=2.29 cfs 0.202 af

Subcatchment 2S: Subcatchment 2S Runoff Area=413,279 sf 0.00% Impervious Runoff Depth>0.80"
Flow Length=521' Tc=12.5 min CN=71 Runoff=6.45 cfs 0.636 af

Subcatchment 3S: Subcatchment 3S Runoff Area=165,866 sf 0.00% Impervious Runoff Depth>0.85"
Flow Length=661' Tc=15.0 min CN=72 Runoff=2.61 cfs 0.270 af

Subcatchment 4S: Subcatchment 4S Runoff Area=417,054 sf 0.00% Impervious Runoff Depth>0.75"
Flow Length=688' Tc=21.4 min CN=70 Runoff=4.89 cfs 0.602 af

Subcatchment 5S: Subcatchment 5S Runoff Area=122,239 sf 7.59% Impervious Runoff Depth>0.90"
Flow Length=630' Tc=17.3 min CN=73 Runoff=1.96 cfs 0.211 af

Reach 1R: Analysis Point #1 Inflow=2.29 cfs 0.202 af
Outflow=2.29 cfs 0.202 af

Reach 2R: Analysis Point #2 Inflow=6.45 cfs 0.636 af
Outflow=6.45 cfs 0.636 af

Reach 3R: Analysis Point #3 Inflow=2.61 cfs 0.270 af
Outflow=2.61 cfs 0.270 af

Reach 4R: Analysis Point #4 Inflow=4.89 cfs 0.602 af
Outflow=4.89 cfs 0.602 af

Reach 5R: Analysis Point #5 Inflow=1.96 cfs 0.211 af
Outflow=1.96 cfs 0.211 af

Total Runoff Area = 27.946 ac Runoff Volume = 1.921 af Average Runoff Depth = 0.82"
98.61% Pervious = 27.558 ac 1.39% Impervious = 0.388 ac

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcatchment 1S Runoff Area=98,896 sf 7.71% Impervious Runoff Depth>2.23"
Flow Length=273' Tc=11.2 min CN=76 Runoff=4.98 cfs 0.422 af

Subcatchment 2S: Subcatchment 2S Runoff Area=413,279 sf 0.00% Impervious Runoff Depth>1.84"
Flow Length=521' Tc=12.5 min CN=71 Runoff=16.18 cfs 1.451 af

Subcatchment 3S: Subcatchment 3S Runoff Area=165,866 sf 0.00% Impervious Runoff Depth>1.91"
Flow Length=661' Tc=15.0 min CN=72 Runoff=6.35 cfs 0.606 af

Subcatchment 4S: Subcatchment 4S Runoff Area=417,054 sf 0.00% Impervious Runoff Depth>1.76"
Flow Length=688' Tc=21.4 min CN=70 Runoff=12.58 cfs 1.402 af

Subcatchment 5S: Subcatchment 5S Runoff Area=122,239 sf 7.59% Impervious Runoff Depth>1.99"
Flow Length=630' Tc=17.3 min CN=73 Runoff=4.62 cfs 0.464 af

Reach 1R: Analysis Point #1 Inflow=4.98 cfs 0.422 af
Outflow=4.98 cfs 0.422 af

Reach 2R: Analysis Point #2 Inflow=16.18 cfs 1.451 af
Outflow=16.18 cfs 1.451 af

Reach 3R: Analysis Point #3 Inflow=6.35 cfs 0.606 af
Outflow=6.35 cfs 0.606 af

Reach 4R: Analysis Point #4 Inflow=12.58 cfs 1.402 af
Outflow=12.58 cfs 1.402 af

Reach 5R: Analysis Point #5 Inflow=4.62 cfs 0.464 af
Outflow=4.62 cfs 0.464 af

Total Runoff Area = 27.946 ac Runoff Volume = 4.345 af Average Runoff Depth = 1.87"
98.61% Pervious = 27.558 ac 1.39% Impervious = 0.388 ac

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcatchment 1S Runoff Area=98,896 sf 7.71% Impervious Runoff Depth>3.24"
Flow Length=273' Tc=11.2 min CN=76 Runoff=7.27 cfs 0.612 af

Subcatchment 2S: Subcatchment 2S Runoff Area=413,279 sf 0.00% Impervious Runoff Depth>2.76"
Flow Length=521' Tc=12.5 min CN=71 Runoff=24.81 cfs 2.184 af

Subcatchment 3S: Subcatchment 3S Runoff Area=165,866 sf 0.00% Impervious Runoff Depth>2.85"
Flow Length=661' Tc=15.0 min CN=72 Runoff=9.62 cfs 0.905 af

Subcatchment 4S: Subcatchment 4S Runoff Area=417,054 sf 0.00% Impervious Runoff Depth>2.67"
Flow Length=688' Tc=21.4 min CN=70 Runoff=19.52 cfs 2.127 af

Subcatchment 5S: Subcatchment 5S Runoff Area=122,239 sf 7.59% Impervious Runoff Depth>2.95"
Flow Length=630' Tc=17.3 min CN=73 Runoff=6.94 cfs 0.689 af

Reach 1R: Analysis Point #1 Inflow=7.27 cfs 0.612 af
Outflow=7.27 cfs 0.612 af

Reach 2R: Analysis Point #2 Inflow=24.81 cfs 2.184 af
Outflow=24.81 cfs 2.184 af

Reach 3R: Analysis Point #3 Inflow=9.62 cfs 0.905 af
Outflow=9.62 cfs 0.905 af

Reach 4R: Analysis Point #4 Inflow=19.52 cfs 2.127 af
Outflow=19.52 cfs 2.127 af

Reach 5R: Analysis Point #5 Inflow=6.94 cfs 0.689 af
Outflow=6.94 cfs 0.689 af

Total Runoff Area = 27.946 ac Runoff Volume = 6.518 af Average Runoff Depth = 2.80"
98.61% Pervious = 27.558 ac 1.39% Impervious = 0.388 ac

Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 7.27 cfs @ 12.16 hrs, Volume= 0.612 af, Depth> 3.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
5,544	98	Paved parking, HSG C
2,084	98	Roofs, HSG C
82,845	74	>75% Grass cover, Good, HSG C
8,423	70	Woods, Good, HSG C
98,896	76	Weighted Average
91,268		92.29% Pervious Area
7,628		7.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	50	0.0500	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.08"
0.1	11	0.1400	1.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	72	0.0710	1.87		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	75	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	65	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.2	273	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 24.81 cfs @ 12.18 hrs, Volume= 2.184 af, Depth> 2.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
152,388	74	>75% Grass cover, Good, HSG C
260,891	70	Woods, Good, HSG C
413,279	71	Weighted Average
413,279		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	50	0.0950	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.08"
1.9	140	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.9	331	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
12.5	521	Total			

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 9.62 cfs @ 12.21 hrs, Volume= 0.905 af, Depth> 2.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
37,589	74	>75% Grass cover, Good, HSG C
108,827	70	Woods, Good, HSG C
19,450	77	Woods, Good, HSG D
165,866	72	Weighted Average
165,866		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	50	0.0650	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.08"
2.0	190	0.1050	1.62		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.4	144	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.8	277	0.0550	1.64		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
15.0	661	Total			

Summary for Subcatchment 4S: Subcatchment 4S

Runoff = 19.52 cfs @ 12.30 hrs, Volume= 2.127 af, Depth> 2.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
417,054	70	Woods, Good, HSG C
417,054		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	50	0.0870	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.08"
0.4	33	0.0920	1.52		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	108	0.1980	2.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.1	163	0.0650	1.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
11.1	334	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.4	688	Total			

Summary for Subcatchment 5S: Subcatchment 5S

Runoff = 6.94 cfs @ 12.24 hrs, Volume= 0.689 af, Depth> 2.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
24,429	83	1/4 acre lots, 38% imp, HSG C
82,612	70	Woods, Good, HSG C
15,198	77	Woods, Good, HSG D
122,239	73	Weighted Average
112,956		92.41% Pervious Area
9,283		7.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	50	0.0680	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.08"
0.6	47	0.0720	1.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	60	0.0330	0.91		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.5	247	0.1080	1.64		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.4	226	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
17.3	630	Total			

Summary for Reach 1R: Analysis Point #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.270 ac, 7.71% Impervious, Inflow Depth > 3.24" for 25-YR STORM event
Inflow = 7.27 cfs @ 12.16 hrs, Volume= 0.612 af
Outflow = 7.27 cfs @ 12.16 hrs, Volume= 0.612 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3

Summary for Reach 2R: Analysis Point #2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.488 ac, 0.00% Impervious, Inflow Depth > 2.76" for 25-YR STORM event
Inflow = 24.81 cfs @ 12.18 hrs, Volume= 2.184 af
Outflow = 24.81 cfs @ 12.18 hrs, Volume= 2.184 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3

Summary for Reach 3R: Analysis Point #3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 3.808 ac, 0.00% Impervious, Inflow Depth > 2.85" for 25-YR STORM event
Inflow = 9.62 cfs @ 12.21 hrs, Volume= 0.905 af
Outflow = 9.62 cfs @ 12.21 hrs, Volume= 0.905 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3

Summary for Reach 4R: Analysis Point #4

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.574 ac, 0.00% Impervious, Inflow Depth > 2.67" for 25-YR STORM event
Inflow = 19.52 cfs @ 12.30 hrs, Volume= 2.127 af
Outflow = 19.52 cfs @ 12.30 hrs, Volume= 2.127 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3

Summary for Reach 5R: Analysis Point #5

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.806 ac, 7.59% Impervious, Inflow Depth > 2.95" for 25-YR STORM event
Inflow = 6.94 cfs @ 12.24 hrs, Volume= 0.689 af
Outflow = 6.94 cfs @ 12.24 hrs, Volume= 0.689 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcatchment 1S Runoff Area=98,896 sf 7.71% Impervious Runoff Depth>5.42"
Flow Length=273' Tc=11.2 min CN=76 Runoff=12.10 cfs 1.026 af

Subcatchment 2S: Subcatchment 2S Runoff Area=413,279 sf 0.00% Impervious Runoff Depth>4.83"
Flow Length=521' Tc=12.5 min CN=71 Runoff=43.60 cfs 3.818 af

Subcatchment 3S: Subcatchment 3S Runoff Area=165,866 sf 0.00% Impervious Runoff Depth>4.94"
Flow Length=661' Tc=15.0 min CN=72 Runoff=16.74 cfs 1.569 af

Subcatchment 4S: Subcatchment 4S Runoff Area=417,054 sf 0.00% Impervious Runoff Depth>4.70"
Flow Length=688' Tc=21.4 min CN=70 Runoff=34.80 cfs 3.752 af

Subcatchment 5S: Subcatchment 5S Runoff Area=122,239 sf 7.59% Impervious Runoff Depth>5.06"
Flow Length=630' Tc=17.3 min CN=73 Runoff=11.94 cfs 1.183 af

Reach 1R: Analysis Point #1 Inflow=12.10 cfs 1.026 af
Outflow=12.10 cfs 1.026 af

Reach 2R: Analysis Point #2 Inflow=43.60 cfs 3.818 af
Outflow=43.60 cfs 3.818 af

Reach 3R: Analysis Point #3 Inflow=16.74 cfs 1.569 af
Outflow=16.74 cfs 1.569 af

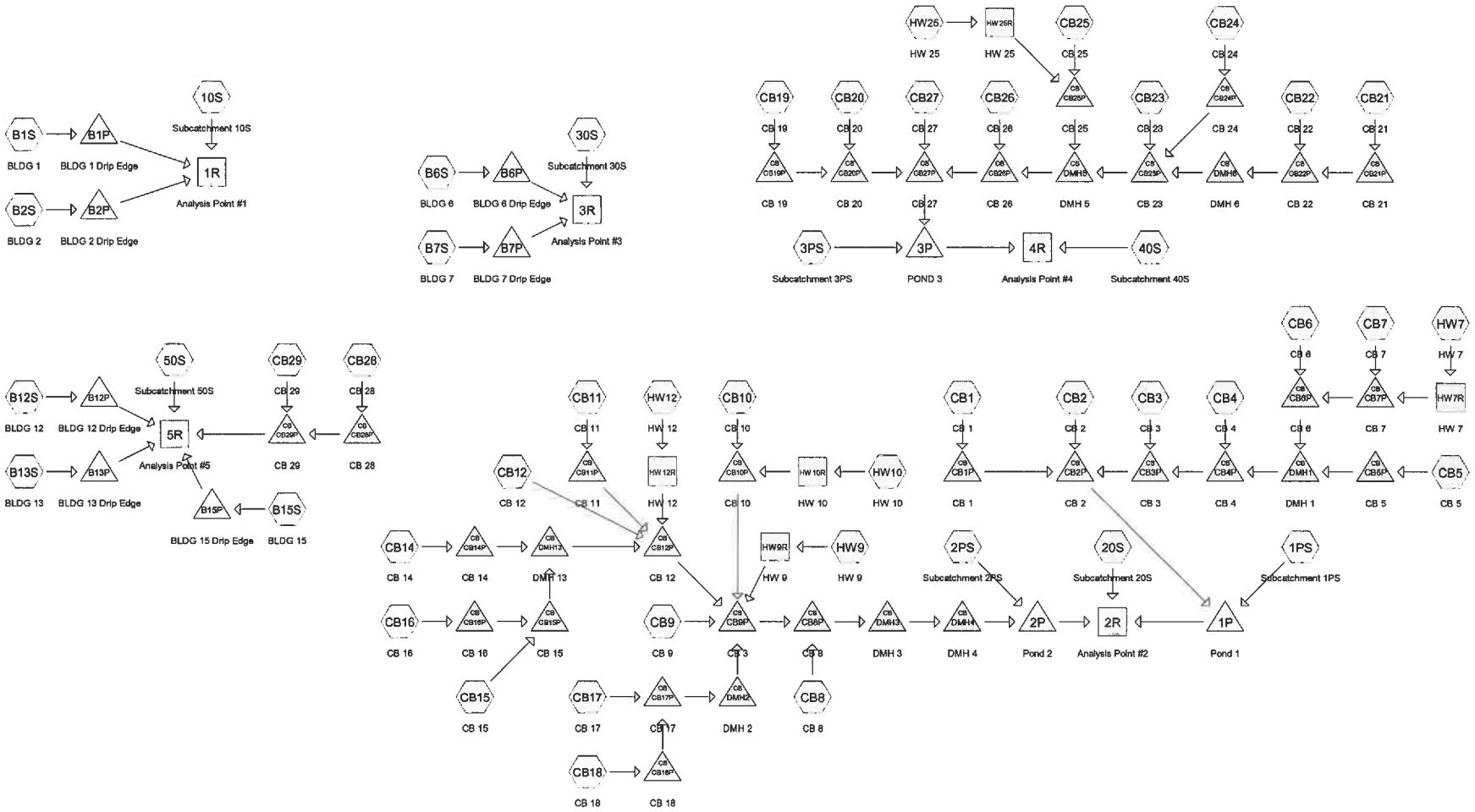
Reach 4R: Analysis Point #4 Inflow=34.80 cfs 3.752 af
Outflow=34.80 cfs 3.752 af

Reach 5R: Analysis Point #5 Inflow=11.94 cfs 1.183 af
Outflow=11.94 cfs 1.183 af

Total Runoff Area = 27.946 ac Runoff Volume = 11.348 af Average Runoff Depth = 4.87"
98.61% Pervious = 27.558 ac 1.39% Impervious = 0.388 ac

4.6 PROPOSED CONDITIONS ANALYSIS
APPENDIX II

2 Year - 24 Hour Summary
10 Year - 24 Hour Summary
25 Year - 24 Hour Complete
100 Year - 24 Hour Summary



Routing Diagram for 21090 PROPOSED CONDITION_2-15-2022

Prepared by Jones and Beach Engineers, Inc., Printed 2/15/2022

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.561	83	1/4 acre lots, 38% imp, HSG C (50S)
10.647	74	>75% Grass cover, Good, HSG C (1PS, 2PS, 3PS, 10S, 20S, 30S, 40S, 50S, CB10, CB11, CB12, CB14, CB15, CB16, CB17, CB20, CB21, CB23, CB25, CB26, CB27, CB28, CB29, CB4, CB5, CB6, CB7, CB8, CB9, HW10, HW12, HW25, HW7, HW9)
0.335	80	>75% Grass cover, Good, HSG D (30S, 50S, CB14, CB16)
4.663	98	Paved parking, HSG C (3PS, 10S, CB1, CB10, CB11, CB12, CB14, CB15, CB16, CB17, CB18, CB19, CB2, CB20, CB21, CB22, CB23, CB24, CB25, CB26, CB27, CB28, CB29, CB3, CB4, CB5, CB6, CB7, CB8, CB9, HW10, HW7)
0.210	98	Paved parking, HSG D (CB14, CB15, CB16)
2.744	98	Roofs, HSG C (1PS, 2PS, 3PS, 20S, 40S, B12S, B13S, B15S, B1S, B2S, B6S, B7S, CB1, CB10, CB11, CB12, CB14, CB15, CB16, CB17, CB18, CB19, CB2, CB20, CB21, CB22, CB23, CB24, CB25, CB26, CB27, CB3, CB5, CB6, CB7, CB8, CB9, HW12, HW25, HW9)
0.033	98	Roofs, HSG D (B12S, CB14, CB15)
0.095	98	Water Surface, HSG C (B12S, B13S, B15S, B1S, B2S, B6S, B7S)
0.006	98	Water Surface, HSG D (B12S)
8.441	70	Woods, Good, HSG C (10S, 20S, 30S, 40S, 50S)
0.211	77	Woods, Good, HSG D (30S, 50S)
27.946	**80**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
27.151	HSG C	1PS, 2PS, 3PS, 10S, 20S, 30S, 40S, 50S, B12S, B13S, B15S, B1S, B2S, B6S, B7S, CB1, CB10, CB11, CB12, CB14, CB15, CB16, CB17, CB18, CB19, CB2, CB20, CB21, CB22, CB23, CB24, CB25, CB26, CB27, CB28, CB29, CB3, CB4, CB5, CB6, CB7, CB8, CB9, HW10, HW12, HW25, HW7, HW9
0.795	HSG D	30S, 50S, B12S, CB14, CB15, CB16
0.000	Other	
27.946		**TOTAL AREA**

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	HW10R	222.80	222.62	10.0	0.0180	0.012	0.0	15.0	0.0
2	HW12R	224.60	224.52	18.0	0.0044	0.012	0.0	15.0	0.0
3	HW25R	223.40	223.24	15.0	0.0107	0.012	0.0	15.0	0.0
4	HW7R	224.30	223.21	10.0	0.1090	0.012	0.0	15.0	0.0
5	HW9R	221.98	221.88	10.0	0.0100	0.012	0.0	15.0	0.0
6	1P	216.00	215.00	198.0	0.0051	0.012	0.0	12.0	0.0
7	2P	216.00	215.50	30.0	0.0167	0.012	0.0	12.0	0.0
8	3P	220.50	220.00	33.0	0.0152	0.012	0.0	12.0	0.0
9	CB10P	222.52	221.88	32.0	0.0200	0.012	0.0	15.0	0.0
10	CB11P	224.67	224.52	30.0	0.0050	0.012	0.0	15.0	0.0
11	CB12P	222.70	221.63	214.0	0.0050	0.012	0.0	24.0	0.0
12	CB14P	224.06	223.95	22.0	0.0050	0.012	0.0	24.0	0.0
13	CB15P	224.55	223.95	60.0	0.0100	0.012	0.0	18.0	0.0
14	CB16P	225.13	224.65	48.0	0.0100	0.012	0.0	15.0	0.0
15	CB17P	225.70	223.78	128.0	0.0150	0.012	0.0	15.0	0.0
16	CB18P	226.13	225.80	22.0	0.0150	0.012	0.0	15.0	0.0
17	CB19P	226.37	226.26	22.0	0.0050	0.012	0.0	15.0	0.0
18	CB1P	218.55	218.44	22.0	0.0050	0.012	0.0	15.0	0.0
19	CB20P	226.16	222.61	296.0	0.0120	0.012	0.0	15.0	0.0
20	CB21P	226.93	226.79	28.0	0.0050	0.012	0.0	15.0	0.0
21	CB22P	226.69	226.53	32.0	0.0050	0.012	0.0	15.0	0.0
22	CB23P	225.74	223.09	220.0	0.0120	0.012	0.0	15.0	0.0
23	CB24P	226.06	225.84	22.0	0.0100	0.012	0.0	15.0	0.0
24	CB25P	223.14	223.09	5.0	0.0100	0.012	0.0	24.0	0.0
25	CB26P	222.62	222.46	32.0	0.0050	0.012	0.0	30.0	0.0
26	CB27P	222.36	221.86	100.0	0.0050	0.012	0.0	36.0	0.0
27	CB28P	221.00	220.89	22.0	0.0050	0.012	0.0	15.0	0.0
28	CB29P	220.79	220.70	18.0	0.0050	0.012	0.0	15.0	0.0
29	CB2P	218.34	217.80	106.0	0.0051	0.012	0.0	18.0	0.0
30	CB3P	221.32	218.44	228.0	0.0126	0.012	0.0	15.0	0.0
31	CB4P	221.54	221.42	24.0	0.0050	0.012	0.0	15.0	0.0
32	CB5P	224.32	224.22	20.0	0.0050	0.012	0.0	15.0	0.0
33	CB6P	222.90	221.81	220.0	0.0050	0.012	0.0	15.0	0.0
34	CB7P	223.11	223.00	22.0	0.0050	0.012	0.0	15.0	0.0
35	CB8P	221.29	221.19	20.0	0.0050	0.012	0.0	36.0	0.0
36	CB9P	221.53	221.39	28.0	0.0050	0.012	0.0	36.0	0.0
37	DMH1	221.71	221.64	14.0	0.0050	0.012	0.0	15.0	0.0
38	DMH13	223.85	222.95	90.0	0.0100	0.012	0.0	24.0	0.0
39	DMH2	223.68	221.64	136.0	0.0150	0.012	0.0	15.0	0.0
40	DMH3	221.09	220.49	120.0	0.0050	0.012	0.0	36.0	0.0
41	DMH4	220.39	220.29	20.0	0.0050	0.012	0.0	36.0	0.0

Pipe Listing (all nodes) (continued)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
42	DMH5	222.84	222.72	24.0	0.0050	0.012	0.0	24.0	0.0
43	DMH6	226.45	225.84	118.0	0.0052	0.012	0.0	15.0	0.0

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1PS: Subcatchment 1PS Runoff Area=40,775 sf 12.36% Impervious Runoff Depth>1.13"
Flow Length=120' Tc=6.0 min CN=77 Runoff=1.20 cfs 0.088 af

Subcatchment 2PS: Subcatchment 2PS Runoff Area=19,258 sf 11.45% Impervious Runoff Depth>1.13"
Tc=6.0 min CN=77 Runoff=0.57 cfs 0.041 af

Subcatchment 3PS: Subcatchment 3PS Runoff Area=93,185 sf 39.58% Impervious Runoff Depth>1.58"
Flow Length=435' Tc=12.6 min CN=84 Runoff=3.20 cfs 0.281 af

Subcatchment 10S: Subcatchment 10S Runoff Area=54,014 sf 4.87% Impervious Runoff Depth>0.85"
Flow Length=160' Slope=0.0500 '/' Tc=10.3 min CN=72 Runoff=0.98 cfs 0.088 af

Subcatchment 20S: Subcatchment 20S Runoff Area=255,002 sf 1.08% Impervious Runoff Depth>0.85"
Flow Length=284' Tc=7.4 min CN=72 Runoff=5.10 cfs 0.417 af

Subcatchment 30S: Subcatchment 30S Runoff Area=33,099 sf 0.00% Impervious Runoff Depth>0.91"
Flow Length=103' Tc=6.0 min CN=73 Runoff=0.75 cfs 0.057 af

Subcatchment 40S: Subcatchment 40S Runoff Area=176,380 sf 2.04% Impervious Runoff Depth>0.81"
Tc=6.0 min CN=71 Runoff=3.44 cfs 0.272 af

Subcatchment 50S: Subcatchment 50S Runoff Area=73,087 sf 12.70% Impervious Runoff Depth>1.06"
Flow Length=476' Tc=15.8 min CN=76 Runoff=1.49 cfs 0.149 af

Subcatchment B12S: BLDG 12 Runoff Area=3,680 sf 100.00% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=98 Runoff=0.25 cfs 0.020 af

Subcatchment B13S: BLDG 13 Runoff Area=2,768 sf 100.00% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=98 Runoff=0.19 cfs 0.015 af

Subcatchment B15S: BLDG 15 Runoff Area=2,768 sf 100.00% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=98 Runoff=0.19 cfs 0.015 af

Subcatchment B1S: BLDG 1 Runoff Area=3,680 sf 100.00% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=98 Runoff=0.25 cfs 0.020 af

Subcatchment B2S: BLDG 2 Runoff Area=2,768 sf 100.00% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=98 Runoff=0.19 cfs 0.015 af

Subcatchment B6S: BLDG 6 Runoff Area=2,768 sf 100.00% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=98 Runoff=0.19 cfs 0.015 af

Subcatchment B7S: BLDG 7 Runoff Area=1,824 sf 100.00% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.010 af

Subcatchment CB1: CB 1 Runoff Area=10,333 sf 100.00% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=98 Runoff=0.71 cfs 0.056 af

Subcatchment CB10: CB 10 Runoff Area=9,718 sf 95.22% Impervious Runoff Depth>2.74"
Tc=6.0 min CN=97 Runoff=0.66 cfs 0.051 af

Subcatchment CB11: CB 11 Runoff Area=2,613 sf 77.69% Impervious Runoff Depth>2.33"
Tc=6.0 min CN=93 Runoff=0.16 cfs 0.012 af

Subcatchment CB12: CB 12 Runoff Area=9,300 sf 52.69% Impervious Runoff Depth>1.81"
Tc=6.0 min CN=87 Runoff=0.45 cfs 0.032 af

Subcatchment CB14: CB 14 Runoff Area=18,289 sf 81.80% Impervious Runoff Depth>2.43"
Tc=6.0 min CN=94 Runoff=1.15 cfs 0.085 af

Subcatchment CB15: CB 15 Runoff Area=18,293 sf 95.04% Impervious Runoff Depth>2.74"
Tc=6.0 min CN=97 Runoff=1.23 cfs 0.096 af

Subcatchment CB16: CB 16 Runoff Area=24,364 sf 37.70% Impervious Runoff Depth>1.65"
Tc=6.0 min CN=85 Runoff=1.09 cfs 0.077 af

Subcatchment CB17: CB 17 Runoff Area=8,833 sf 92.66% Impervious Runoff Depth>2.63"
Tc=6.0 min CN=96 Runoff=0.58 cfs 0.044 af

Subcatchment CB18: CB 18 Runoff Area=4,283 sf 100.00% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=98 Runoff=0.29 cfs 0.023 af

Subcatchment CB19: CB 19 Runoff Area=8,214 sf 100.00% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=98 Runoff=0.56 cfs 0.045 af

Subcatchment CB2: CB 2 Runoff Area=10,931 sf 100.00% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=98 Runoff=0.75 cfs 0.060 af

Subcatchment CB20: CB 20 Runoff Area=7,938 sf 93.07% Impervious Runoff Depth>2.63"
Tc=6.0 min CN=96 Runoff=0.52 cfs 0.040 af

Subcatchment CB21: CB 21 Runoff Area=9,716 sf 85.07% Impervious Runoff Depth>2.43"
Tc=6.0 min CN=94 Runoff=0.61 cfs 0.045 af

Subcatchment CB22: CB 22 Runoff Area=9,755 sf 100.00% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=98 Runoff=0.67 cfs 0.053 af

Subcatchment CB23: CB 23 Runoff Area=10,948 sf 21.30% Impervious Runoff Depth>1.25"
Tc=6.0 min CN=79 Runoff=0.36 cfs 0.026 af

Subcatchment CB24: CB 24 Runoff Area=5,087 sf 100.00% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=98 Runoff=0.35 cfs 0.028 af

Subcatchment CB25: CB 25 Runoff Area=18,502 sf 92.36% Impervious Runoff Depth>2.63"
Tc=6.0 min CN=96 Runoff=1.22 cfs 0.093 af

Subcatchment CB26: CB 26 Runoff Area=13,963 sf 74.40% Impervious Runoff Depth>2.23"
Tc=6.0 min CN=92 Runoff=0.82 cfs 0.060 af

Subcatchment CB27: CB 27 Runoff Area=16,516 sf 76.08% Impervious Runoff Depth>2.23"
Tc=6.0 min CN=92 Runoff=0.97 cfs 0.071 af

Subcatchment CB28: CB 28 Runoff Area=15,650 sf 12.88% Impervious Runoff Depth>1.12"
Flow Length=155' Slope=0.0100 '/' Tc=10.1 min CN=77 Runoff=0.40 cfs 0.034 af

Subcatchment CB29: CB 29 Runoff Area=3,826 sf 63.83% Impervious Runoff Depth>1.97"
Tc=6.0 min CN=89 Runoff=0.20 cfs 0.014 af

Subcatchment CB3: CB 3 Runoff Area=2,586 sf 100.00% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=98 Runoff=0.18 cfs 0.014 af

Subcatchment CB4: CB 4 Runoff Area=5,748 sf 19.78% Impervious Runoff Depth>1.25"
Tc=6.0 min CN=79 Runoff=0.19 cfs 0.014 af

Subcatchment CB5: CB 5 Runoff Area=4,607 sf 55.72% Impervious Runoff Depth>1.81"
Tc=6.0 min CN=87 Runoff=0.22 cfs 0.016 af

Subcatchment CB6: CB 6 Runoff Area=16,597 sf 91.90% Impervious Runoff Depth>2.63"
Tc=6.0 min CN=96 Runoff=1.10 cfs 0.083 af

Subcatchment CB7: CB 7 Runoff Area=8,306 sf 95.32% Impervious Runoff Depth>2.74"
Tc=6.0 min CN=97 Runoff=0.56 cfs 0.043 af

Subcatchment CB8: CB 8 Runoff Area=19,568 sf 87.44% Impervious Runoff Depth>2.53"
Tc=6.0 min CN=95 Runoff=1.26 cfs 0.095 af

Subcatchment CB9: CB 9 Runoff Area=18,538 sf 99.15% Impervious Runoff Depth>2.85"
Tc=6.0 min CN=98 Runoff=1.27 cfs 0.101 af

Subcatchment HW10: HW 10 Runoff Area=10,317 sf 23.07% Impervious Runoff Depth>1.31"
Tc=6.0 min CN=80 Runoff=0.36 cfs 0.026 af

Subcatchment HW12: HW 12 Runoff Area=9,350 sf 24.90% Impervious Runoff Depth>1.31"
Tc=6.0 min CN=80 Runoff=0.33 cfs 0.023 af

Subcatchment HW25: HW 25 Runoff Area=40,728 sf 17.33% Impervious Runoff Depth>1.18"
Tc=6.0 min CN=78 Runoff=1.27 cfs 0.092 af

Subcatchment HW7: HW 7 Runoff Area=10,701 sf 18.13% Impervious Runoff Depth>1.18"
Tc=6.0 min CN=78 Runoff=0.33 cfs 0.024 af

Subcatchment HW9: HW 9 Runoff Area=68,163 sf 12.68% Impervious Runoff Depth>1.12"
Flow Length=320' Tc=8.8 min CN=77 Runoff=1.81 cfs 0.147 af

Reach 1R: Analysis Point #1 Inflow=0.98 cfs 0.088 af
Outflow=0.98 cfs 0.088 af

Reach 2R: Analysis Point #2 Inflow=6.18 cfs 1.490 af
Outflow=6.18 cfs 1.490 af

Reach 3R: Analysis Point #3 Inflow=0.75 cfs 0.057 af
Outflow=0.75 cfs 0.057 af

Reach 4R: Analysis Point #4 Inflow=4.05 cfs 0.975 af
Outflow=4.05 cfs 0.975 af

Reach 5R: Analysis Point #5 Inflow=1.94 cfs 0.197 af
Outflow=1.94 cfs 0.197 af

Reach HW10R: HW 10 Avg. Flow Depth=0.17' Max Vel=3.68 fps Inflow=0.36 cfs 0.026 af
15.0" Round Pipe n=0.012 L=10.0' S=0.0180 '/' Capacity=9.39 cfs Outflow=0.36 cfs 0.026 af

Reach HW12R: HW 12 Avg. Flow Depth=0.22' Max Vel=2.19 fps Inflow=0.33 cfs 0.023 af
15.0" Round Pipe n=0.012 L=18.0' S=0.0044 '/' Capacity=4.67 cfs Outflow=0.33 cfs 0.023 af

Reach HW25R: HW 25 Avg. Flow Depth=0.35' Max Vel=4.43 fps Inflow=1.27 cfs 0.092 af
15.0" Round Pipe n=0.012 L=15.0' S=0.0107 '/' Capacity=7.23 cfs Outflow=1.27 cfs 0.092 af

Reach HW7R: HW 7 Avg. Flow Depth=0.10' Max Vel=6.76 fps Inflow=0.33 cfs 0.024 af
15.0" Round Pipe n=0.012 L=10.0' S=0.1090 '/' Capacity=23.10 cfs Outflow=0.33 cfs 0.024 af

Reach HW9R: HW 9 Avg. Flow Depth=0.43' Max Vel=4.79 fps Inflow=1.81 cfs 0.147 af
15.0" Round Pipe n=0.012 L=10.0' S=0.0100 '/' Capacity=7.00 cfs Outflow=1.81 cfs 0.147 af

Pond 1P: Pond 1 Peak Elev=217.08' Storage=30,540 cf Inflow=5.23 cfs 0.398 af
Outflow=0.40 cfs 0.334 af

Pond 2P: Pond 2 Peak Elev=217.16' Storage=60,524 cf Inflow=11.02 cfs 0.853 af
Outflow=1.04 cfs 0.739 af

Pond 3P: POND 3 Peak Elev=221.69' Storage=66,156 cf Inflow=9.84 cfs 0.834 af
Outflow=0.92 cfs 0.703 af

Pond B12P: BLDG 12 Drip Edge Peak Elev=231.09' Storage=873 cf Inflow=0.25 cfs 0.020 af
Outflow=0.00 cfs 0.000 af

Pond B13P: BLDG 13 Drip Edge Peak Elev=229.08' Storage=656 cf Inflow=0.19 cfs 0.015 af
Outflow=0.00 cfs 0.000 af

Pond B15P: BLDG 15 Drip Edge Peak Elev=227.08' Storage=656 cf Inflow=0.19 cfs 0.015 af
Outflow=0.00 cfs 0.000 af

Pond B1P: BLDG 1 Drip Edge Peak Elev=225.09' Storage=873 cf Inflow=0.25 cfs 0.020 af
Outflow=0.00 cfs 0.000 af

Pond B2P: BLDG 2 Drip Edge Peak Elev=227.08' Storage=656 cf Inflow=0.19 cfs 0.015 af
Outflow=0.00 cfs 0.000 af

Pond B6P: BLDG 6 Drip Edge Peak Elev=228.08' Storage=656 cf Inflow=0.19 cfs 0.015 af
Outflow=0.00 cfs 0.000 af

Pond B7P: BLDG 7 Drip Edge Peak Elev=228.63' Storage=433 cf Inflow=0.13 cfs 0.010 af
Outflow=0.00 cfs 0.000 af

Pond CB10P: CB 10 Peak Elev=223.44' Inflow=1.01 cfs 0.077 af
15.0" Round Culvert n=0.012 L=32.0' S=0.0200 '/' Outflow=1.01 cfs 0.077 af

Pond CB11P: CB 11 Peak Elev=224.89' Inflow=0.16 cfs 0.012 af
15.0" Round Culvert n=0.012 L=30.0' S=0.0050 '/' Outflow=0.16 cfs 0.012 af

Pond CB12P: CB 12 Peak Elev=223.96' Inflow=4.40 cfs 0.325 af
24.0" Round Culvert n=0.012 L=214.0' S=0.0050 '/' Outflow=4.40 cfs 0.325 af

Pond CB14P: CB 14 Peak Elev=224.83' Inflow=1.15 cfs 0.085 af
24.0" Round Culvert n=0.012 L=22.0' S=0.0050 '/' Outflow=1.15 cfs 0.085 af

Pond CB15P: CB 15 Peak Elev=225.35' Inflow=2.32 cfs 0.173 af
18.0" Round Culvert n=0.012 L=60.0' S=0.0100 '/' Outflow=2.32 cfs 0.173 af

Pond CB16P: CB 16 Peak Elev=225.73' Inflow=1.09 cfs 0.077 af
15.0" Round Culvert n=0.012 L=48.0' S=0.0100 '/' Outflow=1.09 cfs 0.077 af

Pond CB17P: CB 17 Peak Elev=226.20' Inflow=0.88 cfs 0.068 af
15.0" Round Culvert n=0.012 L=128.0' S=0.0150 '/' Outflow=0.88 cfs 0.068 af

Pond CB18P: CB 18 Peak Elev=226.42' Inflow=0.29 cfs 0.023 af
15.0" Round Culvert n=0.012 L=22.0' S=0.0150 '/' Outflow=0.29 cfs 0.023 af

Pond CB19P: CB 19 Peak Elev=226.86' Inflow=0.56 cfs 0.045 af
15.0" Round Culvert n=0.012 L=22.0' S=0.0050 '/' Outflow=0.56 cfs 0.045 af

Pond CB1P: CB 1 Peak Elev=219.50' Inflow=0.71 cfs 0.056 af
15.0" Round Culvert n=0.012 L=22.0' S=0.0050 '/' Outflow=0.71 cfs 0.056 af

Pond CB20P: CB 20 Peak Elev=226.72' Inflow=1.09 cfs 0.085 af
15.0" Round Culvert n=0.012 L=296.0' S=0.0120 '/' Outflow=1.09 cfs 0.085 af

Pond CB21P: CB 21 Peak Elev=227.50' Inflow=0.61 cfs 0.045 af
15.0" Round Culvert n=0.012 L=28.0' S=0.0050 '/' Outflow=0.61 cfs 0.045 af

Pond CB22P: CB 22 Peak Elev=227.39' Inflow=1.28 cfs 0.098 af
15.0" Round Culvert n=0.012 L=32.0' S=0.0050 '/' Outflow=1.28 cfs 0.098 af

Pond CB23P: CB 23 Peak Elev=226.54' Inflow=1.99 cfs 0.152 af
15.0" Round Culvert n=0.012 L=220.0' S=0.0120 '/' Outflow=1.99 cfs 0.152 af

Pond CB24P: CB 24 Peak Elev=226.58' Inflow=0.35 cfs 0.028 af
15.0" Round Culvert n=0.012 L=22.0' S=0.0100 '/' Outflow=0.35 cfs 0.028 af

Pond CB25P: CB 25 Peak Elev=224.29' Inflow=2.49 cfs 0.185 af
24.0" Round Culvert n=0.012 L=5.0' S=0.0100 '/' Outflow=2.49 cfs 0.185 af

Pond CB26P: CB 26 Peak Elev=223.88' Inflow=5.29 cfs 0.397 af
30.0" Round Culvert n=0.012 L=32.0' S=0.0050 '/' Outflow=5.29 cfs 0.397 af

Pond CB27P: CB 27 Peak Elev=223.55' Inflow=7.35 cfs 0.552 af
36.0" Round Culvert n=0.012 L=100.0' S=0.0050 '/' Outflow=7.35 cfs 0.552 af

Pond CB28P: CB 28 Peak Elev=221.38' Inflow=0.40 cfs 0.034 af
15.0" Round Culvert n=0.012 L=22.0' S=0.0050 '/' Outflow=0.40 cfs 0.034 af

Pond CB29P: CB 29 Peak Elev=221.23' Inflow=0.57 cfs 0.048 af
15.0" Round Culvert n=0.012 L=18.0' S=0.0050 '/' Outflow=0.57 cfs 0.048 af

Pond CB2P: CB 2 Peak Elev=219.47' Inflow=4.04 cfs 0.311 af
18.0" Round Culvert n=0.012 L=106.0' S=0.0051 '/' Outflow=4.04 cfs 0.311 af

Pond CB3P: CB 3 Peak Elev=222.26' Inflow=2.58 cfs 0.195 af
15.0" Round Culvert n=0.012 L=228.0' S=0.0126 '/' Outflow=2.58 cfs 0.195 af

Pond CB4P: CB 4 Peak Elev=222.59' Inflow=2.40 cfs 0.181 af
15.0" Round Culvert n=0.012 L=24.0' S=0.0050 '/' Outflow=2.40 cfs 0.181 af

Pond CB5P: CB 5 Peak Elev=224.58' Inflow=0.22 cfs 0.016 af
15.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=0.22 cfs 0.016 af

Pond CB6P: CB 6 Peak Elev=223.76' Inflow=1.99 cfs 0.151 af
15.0" Round Culvert n=0.012 L=220.0' S=0.0050 '/' Outflow=1.99 cfs 0.151 af

Pond CB7P: CB 7 Peak Elev=223.86' Inflow=0.89 cfs 0.068 af
15.0" Round Culvert n=0.012 L=22.0' S=0.0050 '/' Outflow=0.89 cfs 0.068 af

Pond CB8P: CB 8 Peak Elev=223.08' Inflow=10.45 cfs 0.811 af
36.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=10.45 cfs 0.811 af

Pond CB9P: CB 3 Peak Elev=223.36' Inflow=9.20 cfs 0.717 af
36.0" Round Culvert n=0.012 L=28.0' S=0.0050 '/' Outflow=9.20 cfs 0.717 af

Pond DMH1: DMH 1 Peak Elev=222.84' Inflow=2.21 cfs 0.167 af
15.0" Round Culvert n=0.012 L=14.0' S=0.0050 '/' Outflow=2.21 cfs 0.167 af

Pond DMH13: DMH 13 Peak Elev=224.75' Inflow=3.47 cfs 0.258 af
24.0" Round Culvert n=0.012 L=90.0' S=0.0100 '/' Outflow=3.47 cfs 0.258 af

Pond DMH2: DMH 2 Peak Elev=224.18' Inflow=0.88 cfs 0.068 af
15.0" Round Culvert n=0.012 L=136.0' S=0.0150 '/' Outflow=0.88 cfs 0.068 af

Pond DMH3: DMH 3 Peak Elev=222.68' Inflow=10.45 cfs 0.811 af
36.0" Round Culvert n=0.012 L=120.0' S=0.0050 '/' Outflow=10.45 cfs 0.811 af

Pond DMH4: DMH 4 Peak Elev=221.99' Inflow=10.45 cfs 0.811 af
36.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=10.45 cfs 0.811 af

Pond DMH5: DMH 5 Peak Elev=224.17' Inflow=4.47 cfs 0.337 af
24.0" Round Culvert n=0.012 L=24.0' S=0.0050 '/' Outflow=4.47 cfs 0.337 af

Pond DMH6: DMH 6 Peak Elev=227.12' Inflow=1.28 cfs 0.098 af
15.0" Round Culvert n=0.012 L=118.0' S=0.0052 '/' Outflow=1.28 cfs 0.098 af

Total Runoff Area = 27.946 ac Runoff Volume = 3.226 af Average Runoff Depth = 1.39"
71.50% Pervious = 19.982 ac 28.50% Impervious = 7.964 ac

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1PS: Subcatchment 1PS Runoff Area=40,775 sf 12.36% Impervious Runoff Depth>2.31"
Flow Length=120' Tc=6.0 min CN=77 Runoff=2.54 cfs 0.180 af

Subcatchment 2PS: Subcatchment 2PS Runoff Area=19,258 sf 11.45% Impervious Runoff Depth>2.31"
Tc=6.0 min CN=77 Runoff=1.20 cfs 0.085 af

Subcatchment 3PS: Subcatchment 3PS Runoff Area=93,185 sf 39.58% Impervious Runoff Depth>2.93"
Flow Length=435' Tc=12.6 min CN=84 Runoff=5.93 cfs 0.522 af

Subcatchment 10S: Subcatchment 10S Runoff Area=54,014 sf 4.87% Impervious Runoff Depth>1.91"
Flow Length=160' Slope=0.0500 '/' Tc=10.3 min CN=72 Runoff=2.37 cfs 0.198 af

Subcatchment 20S: Subcatchment 20S Runoff Area=255,002 sf 1.08% Impervious Runoff Depth>1.91"
Flow Length=284' Tc=7.4 min CN=72 Runoff=12.32 cfs 0.934 af

Subcatchment 30S: Subcatchment 30S Runoff Area=33,099 sf 0.00% Impervious Runoff Depth>1.99"
Flow Length=103' Tc=6.0 min CN=73 Runoff=1.76 cfs 0.126 af

Subcatchment 40S: Subcatchment 40S Runoff Area=176,380 sf 2.04% Impervious Runoff Depth>1.84"
Tc=6.0 min CN=71 Runoff=8.56 cfs 0.620 af

Subcatchment 50S: Subcatchment 50S Runoff Area=73,087 sf 12.70% Impervious Runoff Depth>2.23"
Flow Length=476' Tc=15.8 min CN=76 Runoff=3.24 cfs 0.311 af

Subcatchment B12S: BLDG 12 Runoff Area=3,680 sf 100.00% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=98 Runoff=0.38 cfs 0.031 af

Subcatchment B13S: BLDG 13 Runoff Area=2,768 sf 100.00% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=98 Runoff=0.29 cfs 0.023 af

Subcatchment B15S: BLDG 15 Runoff Area=2,768 sf 100.00% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=98 Runoff=0.29 cfs 0.023 af

Subcatchment B1S: BLDG 1 Runoff Area=3,680 sf 100.00% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=98 Runoff=0.38 cfs 0.031 af

Subcatchment B2S: BLDG 2 Runoff Area=2,768 sf 100.00% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=98 Runoff=0.29 cfs 0.023 af

Subcatchment B6S: BLDG 6 Runoff Area=2,768 sf 100.00% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=98 Runoff=0.29 cfs 0.023 af

Subcatchment B7S: BLDG 7 Runoff Area=1,824 sf 100.00% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=98 Runoff=0.19 cfs 0.015 af

Subcatchment CB1: CB 1 Runoff Area=10,333 sf 100.00% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=98 Runoff=1.07 cfs 0.087 af

Subcatchment CB10: CB 10 Runoff Area=9,718 sf 95.22% Impervious Runoff Depth>4.28"
Tc=6.0 min CN=97 Runoff=1.00 cfs 0.079 af

Subcatchment CB11: CB 11 Runoff Area=2,613 sf 77.69% Impervious Runoff Depth>3.83"
Tc=6.0 min CN=93 Runoff=0.25 cfs 0.019 af

Subcatchment CB12: CB 12 Runoff Area=9,300 sf 52.69% Impervious Runoff Depth>3.22"
Tc=6.0 min CN=87 Runoff=0.79 cfs 0.057 af

Subcatchment CB14: CB 14 Runoff Area=18,289 sf 81.80% Impervious Runoff Depth>3.94"
Tc=6.0 min CN=94 Runoff=1.81 cfs 0.138 af

Subcatchment CB15: CB 15 Runoff Area=18,293 sf 95.04% Impervious Runoff Depth>4.28"
Tc=6.0 min CN=97 Runoff=1.89 cfs 0.150 af

Subcatchment CB16: CB 16 Runoff Area=24,364 sf 37.70% Impervious Runoff Depth>3.02"
Tc=6.0 min CN=85 Runoff=1.97 cfs 0.141 af

Subcatchment CB17: CB 17 Runoff Area=8,833 sf 92.66% Impervious Runoff Depth>4.16"
Tc=6.0 min CN=96 Runoff=0.90 cfs 0.070 af

Subcatchment CB18: CB 18 Runoff Area=4,283 sf 100.00% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=98 Runoff=0.44 cfs 0.036 af

Subcatchment CB19: CB 19 Runoff Area=8,214 sf 100.00% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=98 Runoff=0.85 cfs 0.069 af

Subcatchment CB2: CB 2 Runoff Area=10,931 sf 100.00% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=98 Runoff=1.14 cfs 0.092 af

Subcatchment CB20: CB 20 Runoff Area=7,938 sf 93.07% Impervious Runoff Depth>4.16"
Tc=6.0 min CN=96 Runoff=0.81 cfs 0.063 af

Subcatchment CB21: CB 21 Runoff Area=9,716 sf 85.07% Impervious Runoff Depth>3.94"
Tc=6.0 min CN=94 Runoff=0.96 cfs 0.073 af

Subcatchment CB22: CB 22 Runoff Area=9,755 sf 100.00% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=98 Runoff=1.01 cfs 0.082 af

Subcatchment CB23: CB 23 Runoff Area=10,948 sf 21.30% Impervious Runoff Depth>2.48"
Tc=6.0 min CN=79 Runoff=0.73 cfs 0.052 af

Subcatchment CB24: CB 24 Runoff Area=5,087 sf 100.00% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=98 Runoff=0.53 cfs 0.043 af

Subcatchment CB25: CB 25 Runoff Area=18,502 sf 92.36% Impervious Runoff Depth>4.16"
Tc=6.0 min CN=96 Runoff=1.89 cfs 0.147 af

Subcatchment CB26: CB 26 Runoff Area=13,963 sf 74.40% Impervious Runoff Depth>3.73"
Tc=6.0 min CN=92 Runoff=1.34 cfs 0.100 af

Subcatchment CB27: CB 27 Runoff Area=16,516 sf 76.08% Impervious Runoff Depth>3.73"
Tc=6.0 min CN=92 Runoff=1.58 cfs 0.118 af

Subcatchment CB28: CB 28 Runoff Area=15,650 sf 12.88% Impervious Runoff Depth>2.31"
Flow Length=155' Slope=0.0100 '/' Tc=10.1 min CN=77 Runoff=0.85 cfs 0.069 af

Subcatchment CB29: CB 29 Runoff Area=3,826 sf 63.83% Impervious Runoff Depth>3.42"
Tc=6.0 min CN=89 Runoff=0.34 cfs 0.025 af

Subcatchment CB3: CB 3 Runoff Area=2,586 sf 100.00% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=98 Runoff=0.27 cfs 0.022 af

Subcatchment CB4: CB 4 Runoff Area=5,748 sf 19.78% Impervious Runoff Depth>2.48"
Tc=6.0 min CN=79 Runoff=0.38 cfs 0.027 af

Subcatchment CB5: CB 5 Runoff Area=4,607 sf 55.72% Impervious Runoff Depth>3.22"
Tc=6.0 min CN=87 Runoff=0.39 cfs 0.028 af

Subcatchment CB6: CB 6 Runoff Area=16,597 sf 91.90% Impervious Runoff Depth>4.16"
Tc=6.0 min CN=96 Runoff=1.69 cfs 0.132 af

Subcatchment CB7: CB 7 Runoff Area=8,306 sf 95.32% Impervious Runoff Depth>4.28"
Tc=6.0 min CN=97 Runoff=0.86 cfs 0.068 af

Subcatchment CB8: CB 8 Runoff Area=19,568 sf 87.44% Impervious Runoff Depth>4.05"
Tc=6.0 min CN=95 Runoff=1.97 cfs 0.152 af

Subcatchment CB9: CB 9 Runoff Area=18,538 sf 99.15% Impervious Runoff Depth>4.39"
Tc=6.0 min CN=98 Runoff=1.93 cfs 0.156 af

Subcatchment HW10: HW 10 Runoff Area=10,317 sf 23.07% Impervious Runoff Depth>2.57"
Tc=6.0 min CN=80 Runoff=0.71 cfs 0.051 af

Subcatchment HW12: HW 12 Runoff Area=9,350 sf 24.90% Impervious Runoff Depth>2.57"
Tc=6.0 min CN=80 Runoff=0.65 cfs 0.046 af

Subcatchment HW25: HW 25 Runoff Area=40,728 sf 17.33% Impervious Runoff Depth>2.40"
Tc=6.0 min CN=78 Runoff=2.63 cfs 0.187 af

Subcatchment HW7: HW 7 Runoff Area=10,701 sf 18.13% Impervious Runoff Depth>2.40"
Tc=6.0 min CN=78 Runoff=0.69 cfs 0.049 af

Subcatchment HW9: HW 9 Runoff Area=68,163 sf 12.68% Impervious Runoff Depth>2.31"
Flow Length=320' Tc=8.8 min CN=77 Runoff=3.85 cfs 0.302 af

Reach 1R: Analysis Point #1 Inflow=2.37 cfs 0.198 af
Outflow=2.37 cfs 0.198 af

Reach 2R: Analysis Point #2 Inflow=13.85 cfs 2.699 af
Outflow=13.85 cfs 2.699 af

Reach 3R: Analysis Point #3 Inflow=1.76 cfs 0.126 af
Outflow=1.76 cfs 0.126 af

Reach 4R: Analysis Point #4 Inflow=9.46 cfs 1.758 af
Outflow=9.46 cfs 1.758 af

Reach 5R: Analysis Point #5 Inflow=4.16 cfs 0.405 af
Outflow=4.16 cfs 0.405 af

Reach HW10R: HW 10 Avg. Flow Depth=0.23' Max Vel=4.52 fps Inflow=0.71 cfs 0.051 af
15.0" Round Pipe n=0.012 L=10.0' S=0.0180 '/' Capacity=9.39 cfs Outflow=0.71 cfs 0.051 af

Reach HW12R: HW 12 Avg. Flow Depth=0.31' Max Vel=2.67 fps Inflow=0.65 cfs 0.046 af
15.0" Round Pipe n=0.012 L=18.0' S=0.0044 '/' Capacity=4.67 cfs Outflow=0.65 cfs 0.046 af

Reach HW25R: HW 25 Avg. Flow Depth=0.52' Max Vel=5.42 fps Inflow=2.63 cfs 0.187 af
15.0" Round Pipe n=0.012 L=15.0' S=0.0107 '/' Capacity=7.23 cfs Outflow=2.63 cfs 0.187 af

Reach HW7R: HW 7 Avg. Flow Depth=0.15' Max Vel=8.42 fps Inflow=0.69 cfs 0.049 af
15.0" Round Pipe n=0.012 L=10.0' S=0.1090 '/' Capacity=23.10 cfs Outflow=0.69 cfs 0.049 af

Reach HW9R: HW 9 Avg. Flow Depth=0.66' Max Vel=5.84 fps Inflow=3.85 cfs 0.302 af
15.0" Round Pipe n=0.012 L=10.0' S=0.0100 '/' Capacity=7.00 cfs Outflow=3.85 cfs 0.302 af

Pond 1P: Pond 1 Peak Elev=217.84' Storage=38,101 cf Inflow=9.03 cfs 0.686 af
Outflow=0.54 cfs 0.517 af

Pond 2P: Pond 2 Peak Elev=217.94' Storage=75,634 cf Inflow=19.06 cfs 1.481 af
Outflow=1.71 cfs 1.248 af

Pond 3P: POND 3 Peak Elev=222.53' Storage=82,468 cf Inflow=17.05 cfs 1.455 af
Outflow=1.26 cfs 1.137 af

Pond B12P: BLDG 12 Drip Edge Peak Elev=231.68' Storage=1,346 cf Inflow=0.38 cfs 0.031 af
Outflow=0.00 cfs 0.000 af

Pond B13P: BLDG 13 Drip Edge Peak Elev=229.67' Storage=1,013 cf Inflow=0.29 cfs 0.023 af
Outflow=0.00 cfs 0.000 af

Pond B15P: BLDG 15 Drip Edge Peak Elev=227.67' Storage=1,013 cf Inflow=0.29 cfs 0.023 af
Outflow=0.00 cfs 0.000 af

Pond B1P: BLDG 1 Drip Edge Peak Elev=225.68' Storage=1,346 cf Inflow=0.38 cfs 0.031 af
Outflow=0.00 cfs 0.000 af

Pond B2P: BLDG 2 Drip Edge Peak Elev=227.67' Storage=1,013 cf Inflow=0.29 cfs 0.023 af
Outflow=0.00 cfs 0.000 af

Pond B6P: BLDG 6 Drip Edge Peak Elev=228.67' Storage=1,013 cf Inflow=0.29 cfs 0.023 af
Outflow=0.00 cfs 0.000 af

Pond B7P: BLDG 7 Drip Edge Peak Elev=229.24' Storage=667 cf Inflow=0.19 cfs 0.015 af
Outflow=0.00 cfs 0.000 af

Pond CB10P: CB 10 Peak Elev=224.38' Inflow=1.72 cfs 0.130 af
15.0" Round Culvert n=0.012 L=32.0' S=0.0200 '/' Outflow=1.72 cfs 0.130 af

Pond CB11P: CB 11 Peak Elev=224.95' Inflow=0.25 cfs 0.019 af
15.0" Round Culvert n=0.012 L=30.0' S=0.0050 '/' Outflow=0.25 cfs 0.019 af

Pond CB12P: CB 12 Peak Elev=224.72' Inflow=7.37 cfs 0.551 af
24.0" Round Culvert n=0.012 L=214.0' S=0.0050 '/' Outflow=7.37 cfs 0.551 af

Pond CB14P: CB 14 Peak Elev=225.28' Inflow=1.81 cfs 0.138 af
24.0" Round Culvert n=0.012 L=22.0' S=0.0050 '/' Outflow=1.81 cfs 0.138 af

Pond CB15P: CB 15 Peak Elev=225.74' Inflow=3.86 cfs 0.291 af
18.0" Round Culvert n=0.012 L=60.0' S=0.0100 '/' Outflow=3.86 cfs 0.291 af

Pond CB16P: CB 16 Peak Elev=226.07' Inflow=1.97 cfs 0.141 af
15.0" Round Culvert n=0.012 L=48.0' S=0.0100 '/' Outflow=1.97 cfs 0.141 af

Pond CB17P: CB 17 Peak Elev=226.34' Inflow=1.35 cfs 0.106 af
15.0" Round Culvert n=0.012 L=128.0' S=0.0150 '/' Outflow=1.35 cfs 0.106 af

Pond CB18P: CB 18 Peak Elev=226.52' Inflow=0.44 cfs 0.036 af
15.0" Round Culvert n=0.012 L=22.0' S=0.0150 '/' Outflow=0.44 cfs 0.036 af

Pond CB19P: CB 19 Peak Elev=227.02' Inflow=0.85 cfs 0.069 af
15.0" Round Culvert n=0.012 L=22.0' S=0.0050 '/' Outflow=0.85 cfs 0.069 af

Pond CB1P: CB 1 Peak Elev=220.08' Inflow=1.07 cfs 0.087 af
15.0" Round Culvert n=0.012 L=22.0' S=0.0050 '/' Outflow=1.07 cfs 0.087 af

Pond CB20P: CB 20 Peak Elev=226.88' Inflow=1.66 cfs 0.132 af
15.0" Round Culvert n=0.012 L=296.0' S=0.0120 '/' Outflow=1.66 cfs 0.132 af

Pond CB21P: CB 21 Peak Elev=227.75' Inflow=0.96 cfs 0.073 af
15.0" Round Culvert n=0.012 L=28.0' S=0.0050 '/' Outflow=0.96 cfs 0.073 af

Pond CB22P: CB 22 Peak Elev=227.65' Inflow=1.98 cfs 0.155 af
15.0" Round Culvert n=0.012 L=32.0' S=0.0050 '/' Outflow=1.98 cfs 0.155 af

Pond CB23P: CB 23 Peak Elev=226.84' Inflow=3.24 cfs 0.250 af
15.0" Round Culvert n=0.012 L=220.0' S=0.0120 '/' Outflow=3.24 cfs 0.250 af

Pond CB24P: CB 24 Peak Elev=226.87' Inflow=0.53 cfs 0.043 af
15.0" Round Culvert n=0.012 L=22.0' S=0.0100 '/' Outflow=0.53 cfs 0.043 af

Pond CB25P: CB 25 Peak Elev=224.96' Inflow=4.51 cfs 0.334 af
24.0" Round Culvert n=0.012 L=5.0' S=0.0100 '/' Outflow=4.51 cfs 0.334 af

Pond CB26P: CB 26 Peak Elev=224.38' Inflow=9.09 cfs 0.684 af
30.0" Round Culvert n=0.012 L=32.0' S=0.0050 '/' Outflow=9.09 cfs 0.684 af

Pond CB27P: CB 27 Peak Elev=223.96' Inflow=12.33 cfs 0.933 af
36.0" Round Culvert n=0.012 L=100.0' S=0.0050 '/' Outflow=12.33 cfs 0.933 af

Pond CB28P: CB 28 Peak Elev=221.60' Inflow=0.85 cfs 0.069 af
15.0" Round Culvert n=0.012 L=22.0' S=0.0050 '/' Outflow=0.85 cfs 0.069 af

Pond CB29P: CB 29 Peak Elev=221.43' Inflow=1.14 cfs 0.094 af
15.0" Round Culvert n=0.012 L=18.0' S=0.0050 '/' Outflow=1.14 cfs 0.094 af

Pond CB2P: CB 2 Peak Elev=220.02' Inflow=6.49 cfs 0.505 af
18.0" Round Culvert n=0.012 L=106.0' S=0.0051 '/' Outflow=6.49 cfs 0.505 af

Pond CB3P: CB 3 Peak Elev=222.79' Inflow=4.28 cfs 0.327 af
15.0" Round Culvert n=0.012 L=228.0' S=0.0126 '/' Outflow=4.28 cfs 0.327 af

Pond CB4P: CB 4 Peak Elev=223.53' Inflow=4.02 cfs 0.305 af
15.0" Round Culvert n=0.012 L=24.0' S=0.0050 '/' Outflow=4.02 cfs 0.305 af

Pond CB5P: CB 5 Peak Elev=224.68' Inflow=0.39 cfs 0.028 af
15.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=0.39 cfs 0.028 af

Pond CB6P: CB 6 Peak Elev=224.80' Inflow=3.24 cfs 0.249 af
15.0" Round Culvert n=0.012 L=220.0' S=0.0050 '/' Outflow=3.24 cfs 0.249 af

Pond CB7P: CB 7 Peak Elev=224.91' Inflow=1.55 cfs 0.117 af
15.0" Round Culvert n=0.012 L=22.0' S=0.0050 '/' Outflow=1.55 cfs 0.117 af

Pond CB8P: CB 8 Peak Elev=223.86' Inflow=17.86 cfs 1.396 af
36.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=17.86 cfs 1.396 af

Pond CB9P: CB 3 Peak Elev=224.25' Inflow=15.90 cfs 1.244 af
36.0" Round Culvert n=0.012 L=28.0' S=0.0050 '/' Outflow=15.90 cfs 1.244 af

Pond DMH1: DMH 1 Peak Elev=224.14' Inflow=3.63 cfs 0.278 af
15.0" Round Culvert n=0.012 L=14.0' S=0.0050 '/' Outflow=3.63 cfs 0.278 af

Pond DMH13: DMH 13 Peak Elev=225.23' Inflow=5.67 cfs 0.428 af
24.0" Round Culvert n=0.012 L=90.0' S=0.0100 '/' Outflow=5.67 cfs 0.428 af

Pond DMH2: DMH 2 Peak Elev=224.55' Inflow=1.35 cfs 0.106 af
15.0" Round Culvert n=0.012 L=136.0' S=0.0150 '/' Outflow=1.35 cfs 0.106 af

Pond DMH3: DMH 3 Peak Elev=223.33' Inflow=17.86 cfs 1.396 af
36.0" Round Culvert n=0.012 L=120.0' S=0.0050 '/' Outflow=17.86 cfs 1.396 af

Pond DMH4: DMH 4 Peak Elev=222.57' Inflow=17.86 cfs 1.396 af
36.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=17.86 cfs 1.396 af

Pond DMH5: DMH 5 Peak Elev=224.80' Inflow=7.75 cfs 0.584 af
24.0" Round Culvert n=0.012 L=24.0' S=0.0050 '/' Outflow=7.75 cfs 0.584 af

Pond DMH6: DMH 6 Peak Elev=227.36' Inflow=1.98 cfs 0.155 af
15.0" Round Culvert n=0.012 L=118.0' S=0.0052 '/' Outflow=1.98 cfs 0.155 af

Total Runoff Area = 27.946 ac Runoff Volume = 6.075 af Average Runoff Depth = 2.61"
71.50% Pervious = 19.982 ac 28.50% Impervious = 7.964 ac

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1PS: Subcatchment 1PS Runoff Area=40,775 sf 12.36% Impervious Runoff Depth>3.34"
Flow Length=120' Tc=6.0 min CN=77 Runoff=3.67 cfs 0.260 af

Subcatchment 2PS: Subcatchment 2PS Runoff Area=19,258 sf 11.45% Impervious Runoff Depth>3.34"
Tc=6.0 min CN=77 Runoff=1.73 cfs 0.123 af

Subcatchment 3PS: Subcatchment 3PS Runoff Area=93,185 sf 39.58% Impervious Runoff Depth>4.04"
Flow Length=435' Tc=12.6 min CN=84 Runoff=8.11 cfs 0.720 af

Subcatchment 10S: Subcatchment 10S Runoff Area=54,014 sf 4.87% Impervious Runoff Depth>2.86"
Flow Length=160' Slope=0.0500 '/' Tc=10.3 min CN=72 Runoff=3.59 cfs 0.295 af

Subcatchment 20S: Subcatchment 20S Runoff Area=255,002 sf 1.08% Impervious Runoff Depth>2.86"
Flow Length=284' Tc=7.4 min CN=72 Runoff=18.66 cfs 1.394 af

Subcatchment 30S: Subcatchment 30S Runoff Area=33,099 sf 0.00% Impervious Runoff Depth>2.95"
Flow Length=103' Tc=6.0 min CN=73 Runoff=2.63 cfs 0.187 af

Subcatchment 40S: Subcatchment 40S Runoff Area=176,380 sf 2.04% Impervious Runoff Depth>2.77"
Tc=6.0 min CN=71 Runoff=13.10 cfs 0.934 af

Subcatchment 50S: Subcatchment 50S Runoff Area=73,087 sf 12.70% Impervious Runoff Depth>3.23"
Flow Length=476' Tc=15.8 min CN=76 Runoff=4.73 cfs 0.452 af

Subcatchment B12S: BLDG 12 Runoff Area=3,680 sf 100.00% Impervious Runoff Depth>5.60"
Tc=6.0 min CN=98 Runoff=0.48 cfs 0.039 af

Subcatchment B13S: BLDG 13 Runoff Area=2,768 sf 100.00% Impervious Runoff Depth>5.60"
Tc=6.0 min CN=98 Runoff=0.36 cfs 0.030 af

Subcatchment B15S: BLDG 15 Runoff Area=2,768 sf 100.00% Impervious Runoff Depth>5.60"
Tc=6.0 min CN=98 Runoff=0.36 cfs 0.030 af

Subcatchment B1S: BLDG 1 Runoff Area=3,680 sf 100.00% Impervious Runoff Depth>5.60"
Tc=6.0 min CN=98 Runoff=0.48 cfs 0.039 af

Subcatchment B2S: BLDG 2 Runoff Area=2,768 sf 100.00% Impervious Runoff Depth>5.60"
Tc=6.0 min CN=98 Runoff=0.36 cfs 0.030 af

Subcatchment B6S: BLDG 6 Runoff Area=2,768 sf 100.00% Impervious Runoff Depth>5.60"
Tc=6.0 min CN=98 Runoff=0.36 cfs 0.030 af

Subcatchment B7S: BLDG 7 Runoff Area=1,824 sf 100.00% Impervious Runoff Depth>5.60"
Tc=6.0 min CN=98 Runoff=0.24 cfs 0.020 af

Subcatchment CB1: CB 1 Runoff Area=10,333 sf 100.00% Impervious Runoff Depth>5.60"
Tc=6.0 min CN=98 Runoff=1.36 cfs 0.111 af

Subcatchment CB10: CB 10 Runoff Area=9,718 sf 95.22% Impervious Runoff Depth>5.48"
Tc=6.0 min CN=97 Runoff=1.27 cfs 0.102 af

Subcatchment CB11: CB 11 Runoff Area=2,613 sf 77.69% Impervious Runoff Depth>5.02"
Tc=6.0 min CN=93 Runoff=0.33 cfs 0.025 af

Subcatchment CB12: CB 12 Runoff Area=9,300 sf 52.69% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=87 Runoff=1.06 cfs 0.078 af

Subcatchment CB14: CB 14 Runoff Area=18,289 sf 81.80% Impervious Runoff Depth>5.13"
Tc=6.0 min CN=94 Runoff=2.33 cfs 0.180 af

Subcatchment CB15: CB 15 Runoff Area=18,293 sf 95.04% Impervious Runoff Depth>5.48"
Tc=6.0 min CN=97 Runoff=2.39 cfs 0.192 af

Subcatchment CB16: CB 16 Runoff Area=24,364 sf 37.70% Impervious Runoff Depth>4.15"
Tc=6.0 min CN=85 Runoff=2.67 cfs 0.193 af

Subcatchment CB17: CB 17 Runoff Area=8,833 sf 92.66% Impervious Runoff Depth>5.36"
Tc=6.0 min CN=96 Runoff=1.15 cfs 0.091 af

Subcatchment CB18: CB 18 Runoff Area=4,283 sf 100.00% Impervious Runoff Depth>5.60"
Tc=6.0 min CN=98 Runoff=0.56 cfs 0.046 af

Subcatchment CB19: CB 19 Runoff Area=8,214 sf 100.00% Impervious Runoff Depth>5.60"
Tc=6.0 min CN=98 Runoff=1.08 cfs 0.088 af

Subcatchment CB2: CB 2 Runoff Area=10,931 sf 100.00% Impervious Runoff Depth>5.60"
Tc=6.0 min CN=98 Runoff=1.44 cfs 0.117 af

Subcatchment CB20: CB 20 Runoff Area=7,938 sf 93.07% Impervious Runoff Depth>5.36"
Tc=6.0 min CN=96 Runoff=1.03 cfs 0.081 af

Subcatchment CB21: CB 21 Runoff Area=9,716 sf 85.07% Impervious Runoff Depth>5.13"
Tc=6.0 min CN=94 Runoff=1.24 cfs 0.095 af

Subcatchment CB22: CB 22 Runoff Area=9,755 sf 100.00% Impervious Runoff Depth>5.60"
Tc=6.0 min CN=98 Runoff=1.28 cfs 0.104 af

Subcatchment CB23: CB 23 Runoff Area=10,948 sf 21.30% Impervious Runoff Depth>3.53"
Tc=6.0 min CN=79 Runoff=1.04 cfs 0.074 af

Subcatchment CB24: CB 24 Runoff Area=5,087 sf 100.00% Impervious Runoff Depth>5.60"
Tc=6.0 min CN=98 Runoff=0.67 cfs 0.054 af

Subcatchment CB25: CB 25 Runoff Area=18,502 sf 92.36% Impervious Runoff Depth>5.36"
Tc=6.0 min CN=96 Runoff=2.40 cfs 0.190 af

Subcatchment CB26: CB 26 Runoff Area=13,963 sf 74.40% Impervious Runoff Depth>4.91"
Tc=6.0 min CN=92 Runoff=1.73 cfs 0.131 af

Subcatchment CB27: CB 27 Runoff Area=16,516 sf 76.08% Impervious Runoff Depth>4.91"
Tc=6.0 min CN=92 Runoff=2.05 cfs 0.155 af

Subcatchment CB28: CB 28 Runoff Area=15,650 sf 12.88% Impervious Runoff Depth>3.33"
Flow Length=155' Slope=0.0100 '/' Tc=10.1 min CN=77 Runoff=1.22 cfs 0.100 af

Subcatchment CB29: CB 29 Runoff Area=3,826 sf 63.83% Impervious Runoff Depth>4.58"
Tc=6.0 min CN=89 Runoff=0.45 cfs 0.033 af

Subcatchment CB3: CB 3 Runoff Area=2,586 sf 100.00% Impervious Runoff Depth>5.60"
Tc=6.0 min CN=98 Runoff=0.34 cfs 0.028 af

Subcatchment CB4: CB 4 Runoff Area=5,748 sf 19.78% Impervious Runoff Depth>3.53"
Tc=6.0 min CN=79 Runoff=0.55 cfs 0.039 af

Subcatchment CB5: CB 5 Runoff Area=4,607 sf 55.72% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=87 Runoff=0.53 cfs 0.038 af

Subcatchment CB6: CB 6 Runoff Area=16,597 sf 91.90% Impervious Runoff Depth>5.36"
Tc=6.0 min CN=96 Runoff=2.15 cfs 0.170 af

Subcatchment CB7: CB 7 Runoff Area=8,306 sf 95.32% Impervious Runoff Depth>5.48"
Tc=6.0 min CN=97 Runoff=1.09 cfs 0.087 af

Subcatchment CB8: CB 8 Runoff Area=19,568 sf 87.44% Impervious Runoff Depth>5.25"
Tc=6.0 min CN=95 Runoff=2.52 cfs 0.196 af

Subcatchment CB9: CB 9 Runoff Area=18,538 sf 99.15% Impervious Runoff Depth>5.60"
Tc=6.0 min CN=98 Runoff=2.44 cfs 0.199 af

Subcatchment HW10: HW 10 Runoff Area=10,317 sf 23.07% Impervious Runoff Depth>3.63"
Tc=6.0 min CN=80 Runoff=1.01 cfs 0.072 af

Subcatchment HW12: HW 12 Runoff Area=9,350 sf 24.90% Impervious Runoff Depth>3.63"
Tc=6.0 min CN=80 Runoff=0.91 cfs 0.065 af

Subcatchment HW25: HW 25 Runoff Area=40,728 sf 17.33% Impervious Runoff Depth>3.43"
Tc=6.0 min CN=78 Runoff=3.77 cfs 0.268 af

Subcatchment HW7: HW 7 Runoff Area=10,701 sf 18.13% Impervious Runoff Depth>3.43"
Tc=6.0 min CN=78 Runoff=0.99 cfs 0.070 af

Subcatchment HW9: HW 9 Runoff Area=68,163 sf 12.68% Impervious Runoff Depth>3.33"
Flow Length=320' Tc=8.8 min CN=77 Runoff=5.57 cfs 0.435 af

Reach 1R: Analysis Point #1 Inflow=3.59 cfs 0.300 af
Outflow=3.59 cfs 0.300 af

Reach 2R: Analysis Point #2 Inflow=20.47 cfs 3.732 af
Outflow=20.47 cfs 3.732 af

Reach 3R: Analysis Point #3 Inflow=2.63 cfs 0.191 af
Outflow=2.63 cfs 0.191 af

Reach 4R: Analysis Point #4 Inflow=14.17 cfs 2.348 af
Outflow=14.17 cfs 2.348 af

Reach 5R: Analysis Point #5 Inflow=6.04 cfs 0.591 af
Outflow=6.04 cfs 0.591 af

Reach HW10R: HW 10 Avg. Flow Depth=0.28' Max Vel=4.99 fps Inflow=1.01 cfs 0.072 af
15.0" Round Pipe n=0.012 L=10.0' S=0.0180 '/' Capacity=9.39 cfs Outflow=1.01 cfs 0.072 af

Reach HW12R: HW 12 Avg. Flow Depth=0.37' Max Vel=2.95 fps Inflow=0.91 cfs 0.065 af
15.0" Round Pipe n=0.012 L=18.0' S=0.0044 '/' Capacity=4.67 cfs Outflow=0.91 cfs 0.065 af

Reach HW25R: HW 25 Avg. Flow Depth=0.64' Max Vel=5.95 fps Inflow=3.77 cfs 0.268 af
15.0" Round Pipe n=0.012 L=15.0' S=0.0107 '/' Capacity=7.23 cfs Outflow=3.77 cfs 0.268 af

Reach HW7R: HW 7 Avg. Flow Depth=0.18' Max Vel=9.37 fps Inflow=0.99 cfs 0.070 af
15.0" Round Pipe n=0.012 L=10.0' S=0.1090 '/' Capacity=23.10 cfs Outflow=0.99 cfs 0.070 af

Reach HW9R: HW 9 Avg. Flow Depth=0.84' Max Vel=6.33 fps Inflow=5.57 cfs 0.435 af
15.0" Round Pipe n=0.012 L=10.0' S=0.0100 '/' Capacity=7.00 cfs Outflow=5.57 cfs 0.435 af

Pond 1P: Pond 1 Peak Elev=218.42' Storage=44,689 cf Inflow=12.10 cfs 0.921 af
Outflow=0.63 cfs 0.635 af

Pond 2P: Pond 2 Peak Elev=218.35' Storage=84,040 cf Inflow=25.52 cfs 1.995 af
Outflow=4.06 cfs 1.702 af

Pond 3P: POND 3 Peak Elev=223.14' Storage=96,495 cf Inflow=22.80 cfs 1.961 af
Outflow=1.46 cfs 1.414 af

Pond B12P: BLDG 12 Drip Edge Peak Elev=232.00' Storage=1,600 cf Inflow=0.48 cfs 0.039 af
Outflow=0.01 cfs 0.003 af

Pond B13P: BLDG 13 Drip Edge Peak Elev=230.00' Storage=1,216 cf Inflow=0.36 cfs 0.030 af
Outflow=0.01 cfs 0.002 af

Pond B15P: BLDG 15 Drip Edge Peak Elev=228.00' Storage=1,216 cf Inflow=0.36 cfs 0.030 af
Outflow=0.01 cfs 0.002 af

Pond B1P: BLDG 1 Drip Edge Peak Elev=226.00' Storage=1,600 cf Inflow=0.48 cfs 0.039 af
Outflow=0.01 cfs 0.003 af

Pond B2P: BLDG 2 Drip Edge Peak Elev=228.00' Storage=1,216 cf Inflow=0.36 cfs 0.030 af
Outflow=0.01 cfs 0.002 af

Pond B6P: BLDG 6 Drip Edge Peak Elev=229.00' Storage=1,216 cf Inflow=0.36 cfs 0.030 af
Outflow=0.01 cfs 0.002 af

Pond B7P: BLDG 7 Drip Edge Peak Elev=229.50' Storage=768 cf Inflow=0.24 cfs 0.020 af
Outflow=0.01 cfs 0.002 af

Pond CB10P: CB 10 Peak Elev=225.47' Inflow=2.28 cfs 0.174 af
15.0" Round Culvert n=0.012 L=32.0' S=0.0200 '/' Outflow=2.28 cfs 0.174 af

Pond CB11P: CB 11 Peak Elev=225.89' Inflow=0.33 cfs 0.025 af
15.0" Round Culvert n=0.012 L=30.0' S=0.0050 '/' Outflow=0.33 cfs 0.025 af

Pond CB12P: CB 12 Peak Elev=225.89' Inflow=9.70 cfs 0.732 af
24.0" Round Culvert n=0.012 L=214.0' S=0.0050 '/' Outflow=9.70 cfs 0.732 af

Pond CB14P: CB 14 Peak Elev=226.28' Inflow=2.33 cfs 0.180 af
24.0" Round Culvert n=0.012 L=22.0' S=0.0050 '/' Outflow=2.33 cfs 0.180 af

Pond CB15P: CB 15 Peak Elev=226.80' Inflow=5.06 cfs 0.385 af
18.0" Round Culvert n=0.012 L=60.0' S=0.0100 '/' Outflow=5.06 cfs 0.385 af

Pond CB16P: CB 16 Peak Elev=227.12' Inflow=2.67 cfs 0.193 af
15.0" Round Culvert n=0.012 L=48.0' S=0.0100 '/' Outflow=2.67 cfs 0.193 af

Pond CB17P: CB 17 Peak Elev=226.43' Inflow=1.71 cfs 0.137 af
15.0" Round Culvert n=0.012 L=128.0' S=0.0150 '/' Outflow=1.71 cfs 0.137 af

Pond CB18P: CB 18 Peak Elev=226.60' Inflow=0.56 cfs 0.046 af
15.0" Round Culvert n=0.012 L=22.0' S=0.0150 '/' Outflow=0.56 cfs 0.046 af

Pond CB19P: CB 19 Peak Elev=227.13' Inflow=1.08 cfs 0.088 af
15.0" Round Culvert n=0.012 L=22.0' S=0.0050 '/' Outflow=1.08 cfs 0.088 af

Pond CB1P: CB 1 Peak Elev=220.75' Inflow=1.36 cfs 0.111 af
15.0" Round Culvert n=0.012 L=22.0' S=0.0050 '/' Outflow=1.36 cfs 0.111 af

Pond CB20P: CB 20 Peak Elev=226.99' Inflow=2.11 cfs 0.169 af
15.0" Round Culvert n=0.012 L=296.0' S=0.0120 '/' Outflow=2.11 cfs 0.169 af

Pond CB21P: CB 21 Peak Elev=228.00' Inflow=1.24 cfs 0.095 af
15.0" Round Culvert n=0.012 L=28.0' S=0.0050 '/' Outflow=1.24 cfs 0.095 af

Pond CB22P: CB 22 Peak Elev=227.92' Inflow=2.52 cfs 0.200 af
15.0" Round Culvert n=0.012 L=32.0' S=0.0050 '/' Outflow=2.52 cfs 0.200 af

Pond CB23P: CB 23 Peak Elev=227.19' Inflow=4.23 cfs 0.328 af
15.0" Round Culvert n=0.012 L=220.0' S=0.0120 '/' Outflow=4.23 cfs 0.328 af

Pond CB24P: CB 24 Peak Elev=227.21' Inflow=0.67 cfs 0.054 af
15.0" Round Culvert n=0.012 L=22.0' S=0.0100 '/' Outflow=0.67 cfs 0.054 af

Pond CB25P: CB 25 Peak Elev=225.78' Inflow=6.16 cfs 0.457 af
24.0" Round Culvert n=0.012 L=5.0' S=0.0100 '/' Outflow=6.16 cfs 0.457 af

Pond CB26P: CB 26 Peak Elev=224.76' Inflow=12.12 cfs 0.917 af
30.0" Round Culvert n=0.012 L=32.0' S=0.0050 '/' Outflow=12.12 cfs 0.917 af

Pond CB27P: CB 27 Peak Elev=224.25' Inflow=16.28 cfs 1.241 af
36.0" Round Culvert n=0.012 L=100.0' S=0.0050 '/' Outflow=16.28 cfs 1.241 af

Pond CB28P: CB 28 Peak Elev=221.76' Inflow=1.22 cfs 0.100 af
15.0" Round Culvert n=0.012 L=22.0' S=0.0050 '/' Outflow=1.22 cfs 0.100 af

Pond CB29P: CB 29 Peak Elev=221.57' Inflow=1.62 cfs 0.133 af
15.0" Round Culvert n=0.012 L=18.0' S=0.0050 '/' Outflow=1.62 cfs 0.133 af

Pond CB2P: CB 2 Peak Elev=220.67' Inflow=8.43 cfs 0.660 af
18.0" Round Culvert n=0.012 L=106.0' S=0.0051 '/' Outflow=8.43 cfs 0.660 af

Pond CB3P: CB 3 Peak Elev=223.41' Inflow=5.64 cfs 0.433 af
15.0" Round Culvert n=0.012 L=228.0' S=0.0126 '/' Outflow=5.64 cfs 0.433 af

Pond CB4P: CB 4 Peak Elev=224.70' Inflow=5.30 cfs 0.405 af
15.0" Round Culvert n=0.012 L=24.0' S=0.0050 '/' Outflow=5.30 cfs 0.405 af

Pond CB5P: CB 5 Peak Elev=225.73' Inflow=0.53 cfs 0.038 af
15.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=0.53 cfs 0.038 af

Pond CB6P: CB 6 Peak Elev=226.88' Inflow=4.23 cfs 0.328 af
15.0" Round Culvert n=0.012 L=220.0' S=0.0050 '/' Outflow=4.23 cfs 0.328 af

Pond CB7P: CB 7 Peak Elev=227.07' Inflow=2.07 cfs 0.157 af
15.0" Round Culvert n=0.012 L=22.0' S=0.0050 '/' Outflow=2.07 cfs 0.157 af

Pond CB8P: CB 8 Peak Elev=224.62' Inflow=23.79 cfs 1.872 af
36.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=23.79 cfs 1.872 af

Pond CB9P: CB 3 Peak Elev=225.24' Inflow=21.28 cfs 1.676 af
36.0" Round Culvert n=0.012 L=28.0' S=0.0050 '/' Outflow=21.28 cfs 1.676 af

Pond DMH1: DMH 1 Peak Elev=225.74' Inflow=4.75 cfs 0.366 af
15.0" Round Culvert n=0.012 L=14.0' S=0.0050 '/' Outflow=4.75 cfs 0.366 af

Pond DMH13: DMH 13 Peak Elev=226.26' Inflow=7.39 cfs 0.565 af
24.0" Round Culvert n=0.012 L=90.0' S=0.0100 '/' Outflow=7.39 cfs 0.565 af

Pond DMH2: DMH 2 Peak Elev=225.37' Inflow=1.71 cfs 0.137 af
15.0" Round Culvert n=0.012 L=136.0' S=0.0150 '/' Outflow=1.71 cfs 0.137 af

Pond DMH3: DMH 3 Peak Elev=223.84' Inflow=23.79 cfs 1.872 af
36.0" Round Culvert n=0.012 L=120.0' S=0.0050 '/' Outflow=23.79 cfs 1.872 af

Pond DMH4: DMH 4 Peak Elev=222.98' Inflow=23.79 cfs 1.872 af
36.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=23.79 cfs 1.872 af

Pond DMH5: DMH 5 Peak Elev=225.52' Inflow=10.39 cfs 0.786 af
24.0" Round Culvert n=0.012 L=24.0' S=0.0050 '/' Outflow=10.39 cfs 0.786 af

Pond DMH6: DMH 6 Peak Elev=227.62' Inflow=2.52 cfs 0.200 af
15.0" Round Culvert n=0.012 L=118.0' S=0.0052 '/' Outflow=2.52 cfs 0.200 af

Total Runoff Area = 27.946 ac Runoff Volume = 8.489 af Average Runoff Depth = 3.65"
71.50% Pervious = 19.982 ac 28.50% Impervious = 7.964 ac

Summary for Subcatchment 1PS: Subcatchment 1PS

Runoff = 3.67 cfs @ 12.09 hrs, Volume= 0.260 af, Depth> 3.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
5,040	98	Roofs, HSG C
35,735	74	>75% Grass cover, Good, HSG C
40,775	77	Weighted Average
35,735		87.64% Pervious Area
5,040		12.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	80	0.0350	1.31		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	40	0.3300	4.02		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	120	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 2PS: Subcatchment 2PS

Runoff = 1.73 cfs @ 12.09 hrs, Volume= 0.123 af, Depth> 3.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
2,206	98	Roofs, HSG C
17,052	74	>75% Grass cover, Good, HSG C
19,258	77	Weighted Average
17,052		88.55% Pervious Area
2,206		11.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 3PS: Subcatchment 3PS

Runoff = 8.11 cfs @ 12.17 hrs, Volume= 0.720 af, Depth> 4.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
15,840	98	Roofs, HSG C
21,046	98	Paved parking, HSG C
56,299	74	>75% Grass cover, Good, HSG C
93,185	84	Weighted Average
56,299		60.42% Pervious Area
36,886		39.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	50	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.08"
4.3	180	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	205	0.0050	5.00	39.99	**Parabolic Channel,** W=6.00' D=2.00' Area=8.0 sf Perim=7.5' n= 0.022 Earth, clean & straight
12.6	435	Total			

Summary for Subcatchment 10S: Subcatchment 10S

Runoff = 3.59 cfs @ 12.15 hrs, Volume= 0.295 af, Depth> 2.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
2,629	98	Paved parking, HSG C
14,555	74	>75% Grass cover, Good, HSG C
36,830	70	Woods, Good, HSG C
54,014	72	Weighted Average
51,385		95.13% Pervious Area
2,629		4.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	50	0.0500	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.08"
1.6	110	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.3	160	Total			

Summary for Subcatchment 20S: Subcatchment 20S

Runoff = 18.66 cfs @ 12.11 hrs, Volume= 1.394 af, Depth> 2.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
2,744	98	Roofs, HSG C
100,230	74	>75% Grass cover, Good, HSG C
152,028	70	Woods, Good, HSG C
255,002	72	Weighted Average
252,258		98.92% Pervious Area
2,744		1.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	50	0.0330	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.08"
1.7	130	0.0330	1.27		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.0	104	0.0570	1.67		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
7.4	284	Total			

Summary for Subcatchment 30S: Subcatchment 30S

Runoff = 2.63 cfs @ 12.09 hrs, Volume= 0.187 af, Depth> 2.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
15,506	74	>75% Grass cover, Good, HSG C
1,595	80	>75% Grass cover, Good, HSG D
15,104	70	Woods, Good, HSG C
894	77	Woods, Good, HSG D
33,099	73	Weighted Average
33,099		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	50	0.0550	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.08"
0.8	53	0.0460	1.07		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.6	103	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 40S: Subcatchment 40S

Runoff = 13.10 cfs @ 12.09 hrs, Volume= 0.934 af, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
3,600	98	Roofs, HSG C
34,787	74	>75% Grass cover, Good, HSG C
137,993	70	Woods, Good, HSG C
176,380	71	Weighted Average
172,780		97.96% Pervious Area
3,600		2.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 50S: Subcatchment 50S

Runoff = 4.73 cfs @ 12.22 hrs, Volume= 0.452 af, Depth> 3.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
24,429	83	1/4 acre lots, 38% imp, HSG C
10,701	74	>75% Grass cover, Good, HSG C
3,923	80	>75% Grass cover, Good, HSG D
25,752	70	Woods, Good, HSG C
8,282	77	Woods, Good, HSG D
73,087	76	Weighted Average
63,804		87.30% Pervious Area
9,283		12.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	50	0.0800	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.08"
8.1	243	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.4	183	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
15.8	476	Total			

Summary for Subcatchment B12S: BLDG 12

Runoff = 0.48 cfs @ 12.08 hrs, Volume= 0.039 af, Depth> 5.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
2,068	98	Roofs, HSG C
812	98	Roofs, HSG D
534	98	Water Surface, HSG C
266	98	Water Surface, HSG D
3,680	98	Weighted Average
3,680		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment B13S: BLDG 13

Runoff = 0.36 cfs @ 12.08 hrs, Volume= 0.030 af, Depth> 5.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
2,160	98	Roofs, HSG C
608	98	Water Surface, HSG C
2,768	98	Weighted Average
2,768		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment B15S: BLDG 15

Runoff = 0.36 cfs @ 12.08 hrs, Volume= 0.030 af, Depth> 5.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
2,160	98	Roofs, HSG C
608	98	Water Surface, HSG C
2,768	98	Weighted Average
2,768		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment B1S: BLDG 1

Runoff = 0.48 cfs @ 12.08 hrs, Volume= 0.039 af, Depth> 5.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
2,880	98	Roofs, HSG C
800	98	Water Surface, HSG C
3,680	98	Weighted Average
3,680		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment B2S: BLDG 2

Runoff = 0.36 cfs @ 12.08 hrs, Volume= 0.030 af, Depth> 5.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
2,160	98	Roofs, HSG C
608	98	Water Surface, HSG C
2,768	98	Weighted Average
2,768		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment B6S: BLDG 6

Runoff = 0.36 cfs @ 12.08 hrs, Volume= 0.030 af, Depth> 5.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
2,160	98	Roofs, HSG C
608	98	Water Surface, HSG C
2,768	98	Weighted Average
2,768		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment B7S: BLDG 7

Runoff = 0.24 cfs @ 12.08 hrs, Volume= 0.020 af, Depth> 5.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
1,440	98	Roofs, HSG C
384	98	Water Surface, HSG C
1,824	98	Weighted Average
1,824		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB1: CB 1

Runoff = 1.36 cfs @ 12.08 hrs, Volume= 0.111 af, Depth> 5.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
2,880	98	Roofs, HSG C
7,453	98	Paved parking, HSG C
10,333	98	Weighted Average
10,333		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB10: CB 10

Runoff = 1.27 cfs @ 12.08 hrs, Volume= 0.102 af, Depth> 5.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
1,880	98	Roofs, HSG C
7,373	98	Paved parking, HSG C
465	74	>75% Grass cover, Good, HSG C
9,718	97	Weighted Average
465		4.78% Pervious Area
9,253		95.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB11: CB 11

Runoff = 0.33 cfs @ 12.08 hrs, Volume= 0.025 af, Depth> 5.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
359	98	Roofs, HSG C
1,671	98	Paved parking, HSG C
583	74	>75% Grass cover, Good, HSG C
2,613	93	Weighted Average
583		22.31% Pervious Area
2,030		77.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB12: CB 12

Runoff = 1.06 cfs @ 12.09 hrs, Volume= 0.078 af, Depth> 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
1,272	98	Roofs, HSG C
3,628	98	Paved parking, HSG C
4,400	74	>75% Grass cover, Good, HSG C
9,300	87	Weighted Average
4,400		47.31% Pervious Area
4,900		52.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB14: CB 14

Runoff = 2.33 cfs @ 12.08 hrs, Volume= 0.180 af, Depth> 5.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
2,358	98	Roofs, HSG C
563	98	Roofs, HSG D
8,826	98	Paved parking, HSG C
3,213	98	Paved parking, HSG D
3,111	74	>75% Grass cover, Good, HSG C
218	80	>75% Grass cover, Good, HSG D
18,289	94	Weighted Average
3,329		18.20% Pervious Area
14,960		81.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB15: CB 15

Runoff = 2.39 cfs @ 12.08 hrs, Volume= 0.192 af, Depth> 5.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
4,982	98	Roofs, HSG C
58	98	Roofs, HSG D
9,952	98	Paved parking, HSG C
2,393	98	Paved parking, HSG D
908	74	>75% Grass cover, Good, HSG C
18,293	97	Weighted Average
908		4.96% Pervious Area
17,385		95.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB16: CB 16

Runoff = 2.67 cfs @ 12.09 hrs, Volume= 0.193 af, Depth> 4.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
2,160	98	Roofs, HSG C
3,471	98	Paved parking, HSG C
3,554	98	Paved parking, HSG D
6,307	74	>75% Grass cover, Good, HSG C
8,872	80	>75% Grass cover, Good, HSG D
24,364	85	Weighted Average
15,179		62.30% Pervious Area
9,185		37.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB17: CB 17

Runoff = 1.15 cfs @ 12.08 hrs, Volume= 0.091 af, Depth> 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
2,160	98	Roofs, HSG C
6,025	98	Paved parking, HSG C
648	74	>75% Grass cover, Good, HSG C
8,833	96	Weighted Average
648		7.34% Pervious Area
8,185		92.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB18: CB 18

Runoff = 0.56 cfs @ 12.08 hrs, Volume= 0.046 af, Depth> 5.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
720	98	Roofs, HSG C
3,563	98	Paved parking, HSG C
4,283	98	Weighted Average
4,283		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB19: CB 19

Runoff = 1.08 cfs @ 12.08 hrs, Volume= 0.088 af, Depth> 5.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
2,160	98	Roofs, HSG C
6,054	98	Paved parking, HSG C
8,214	98	Weighted Average
8,214		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB2: CB 2

Runoff = 1.44 cfs @ 12.08 hrs, Volume= 0.117 af, Depth> 5.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
2,880	98	Roofs, HSG C
8,051	98	Paved parking, HSG C
10,931	98	Weighted Average
10,931		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB20: CB 20

Runoff = 1.03 cfs @ 12.08 hrs, Volume= 0.081 af, Depth> 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
2,160	98	Roofs, HSG C
5,228	98	Paved parking, HSG C
550	74	>75% Grass cover, Good, HSG C
7,938	96	Weighted Average
550		6.93% Pervious Area
7,388		93.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB21: CB 21

Runoff = 1.24 cfs @ 12.08 hrs, Volume= 0.095 af, Depth> 5.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
2,160	98	Roofs, HSG C
6,105	98	Paved parking, HSG C
1,451	74	>75% Grass cover, Good, HSG C
9,716	94	Weighted Average
1,451		14.93% Pervious Area
8,265		85.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB22: CB 22

Runoff = 1.28 cfs @ 12.08 hrs, Volume= 0.104 af, Depth> 5.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
2,160	98	Roofs, HSG C
7,595	98	Paved parking, HSG C
9,755	98	Weighted Average
9,755		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB23: CB 23

Runoff = 1.04 cfs @ 12.09 hrs, Volume= 0.074 af, Depth> 3.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
863	98	Roofs, HSG C
1,469	98	Paved parking, HSG C
8,616	74	>75% Grass cover, Good, HSG C
10,948	79	Weighted Average
8,616		78.70% Pervious Area
2,332		21.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB24: CB 24

Runoff = 0.67 cfs @ 12.08 hrs, Volume= 0.054 af, Depth> 5.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
1,399	98	Roofs, HSG C
3,688	98	Paved parking, HSG C
5,087	98	Weighted Average
5,087		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB25: CB 25

Runoff = 2.40 cfs @ 12.08 hrs, Volume= 0.190 af, Depth> 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
4,320	98	Roofs, HSG C
12,769	98	Paved parking, HSG C
1,413	74	>75% Grass cover, Good, HSG C
18,502	96	Weighted Average
1,413		7.64% Pervious Area
17,089		92.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB26: CB 26

Runoff = 1.73 cfs @ 12.08 hrs, Volume= 0.131 af, Depth> 4.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
2,160	98	Roofs, HSG C
8,228	98	Paved parking, HSG C
3,575	74	>75% Grass cover, Good, HSG C
13,963	92	Weighted Average
3,575		25.60% Pervious Area
10,388		74.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB27: CB 27

Runoff = 2.05 cfs @ 12.08 hrs, Volume= 0.155 af, Depth> 4.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
2,160	98	Roofs, HSG C
10,405	98	Paved parking, HSG C
3,951	74	>75% Grass cover, Good, HSG C
16,516	92	Weighted Average
3,951		23.92% Pervious Area
12,565		76.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB28: CB 28

Runoff = 1.22 cfs @ 12.14 hrs, Volume= 0.100 af, Depth> 3.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
2,015	98	Paved parking, HSG C
13,635	74	>75% Grass cover, Good, HSG C
15,650	77	Weighted Average
13,635		87.12% Pervious Area
2,015		12.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	50	0.0100	0.11		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.08"
2.5	105	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.1	155	Total			

Summary for Subcatchment CB29: CB 29

Runoff = 0.45 cfs @ 12.08 hrs, Volume= 0.033 af, Depth> 4.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
2,442	98	Paved parking, HSG C
1,384	74	>75% Grass cover, Good, HSG C
3,826	89	Weighted Average
1,384		36.17% Pervious Area
2,442		63.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB3: CB 3

Runoff = 0.34 cfs @ 12.08 hrs, Volume= 0.028 af, Depth> 5.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
720	98	Roofs, HSG C
1,866	98	Paved parking, HSG C
2,586	98	Weighted Average
2,586		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB4: CB 4

Runoff = 0.55 cfs @ 12.09 hrs, Volume= 0.039 af, Depth> 3.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
1,137	98	Paved parking, HSG C
4,611	74	>75% Grass cover, Good, HSG C
5,748	79	Weighted Average
4,611		80.22% Pervious Area
1,137		19.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB5: CB 5

Runoff = 0.53 cfs @ 12.09 hrs, Volume= 0.038 af, Depth> 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
438	98	Roofs, HSG C
2,129	98	Paved parking, HSG C
2,040	74	>75% Grass cover, Good, HSG C
4,607	87	Weighted Average
2,040		44.28% Pervious Area
2,567		55.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB6: CB 6

Runoff = 2.15 cfs @ 12.08 hrs, Volume= 0.170 af, Depth> 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
4,320	98	Roofs, HSG C
10,932	98	Paved parking, HSG C
1,345	74	>75% Grass cover, Good, HSG C
16,597	96	Weighted Average
1,345		8.10% Pervious Area
15,252		91.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB7: CB 7

Runoff = 1.09 cfs @ 12.08 hrs, Volume= 0.087 af, Depth> 5.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
1,722	98	Roofs, HSG C
6,195	98	Paved parking, HSG C
389	74	>75% Grass cover, Good, HSG C
8,306	97	Weighted Average
389		4.68% Pervious Area
7,917		95.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB8: CB 8

Runoff = 2.52 cfs @ 12.08 hrs, Volume= 0.196 af, Depth> 5.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
4,320	98	Roofs, HSG C
12,790	98	Paved parking, HSG C
2,458	74	>75% Grass cover, Good, HSG C
19,568	95	Weighted Average
2,458		12.56% Pervious Area
17,110		87.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment CB9: CB 9

Runoff = 2.44 cfs @ 12.08 hrs, Volume= 0.199 af, Depth> 5.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
4,320	98	Roofs, HSG C
14,060	98	Paved parking, HSG C
158	74	>75% Grass cover, Good, HSG C
18,538	98	Weighted Average
158		0.85% Pervious Area
18,380		99.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment HW10: HW 10

Runoff = 1.01 cfs @ 12.09 hrs, Volume= 0.072 af, Depth> 3.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
2,380	98	Paved parking, HSG C
7,937	74	>75% Grass cover, Good, HSG C
10,317	80	Weighted Average
7,937		76.93% Pervious Area
2,380		23.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment HW12: HW 12

Runoff = 0.91 cfs @ 12.09 hrs, Volume= 0.065 af, Depth> 3.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
2,328	98	Roofs, HSG C
7,022	74	>75% Grass cover, Good, HSG C
9,350	80	Weighted Average
7,022		75.10% Pervious Area
2,328		24.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment HW25: HW 25

Runoff = 3.77 cfs @ 12.09 hrs, Volume= 0.268 af, Depth> 3.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
7,057	98	Roofs, HSG C
33,671	74	>75% Grass cover, Good, HSG C
40,728	78	Weighted Average
33,671		82.67% Pervious Area
7,057		17.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment HW7: HW 7

Runoff = 0.99 cfs @ 12.09 hrs, Volume= 0.070 af, Depth> 3.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
1,940	98	Paved parking, HSG C
8,761	74	>75% Grass cover, Good, HSG C
10,701	78	Weighted Average
8,761		81.87% Pervious Area
1,940		18.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment HW9: HW 9

Runoff = 5.57 cfs @ 12.12 hrs, Volume= 0.435 af, Depth> 3.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR STORM Rainfall=5.84"

Area (sf)	CN	Description
8,640	98	Roofs, HSG C
59,523	74	>75% Grass cover, Good, HSG C
68,163	77	Weighted Average
59,523		87.32% Pervious Area
8,640		12.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	50	0.0150	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.08"
2.1	110	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	160	0.0110	8.33	166.61	**Parabolic Channel,** W=15.00' D=2.00' Area=20.0 sf Perim=15.7' n= 0.022 Earth, clean & straight
8.8	320	Total			

Summary for Reach 1R: Analysis Point #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.388 ac, 15.01% Impervious, Inflow Depth > 2.59" for 25-YR STORM event
Inflow = 3.59 cfs @ 12.15 hrs, Volume= 0.300 af
Outflow = 3.59 cfs @ 12.15 hrs, Volume= 0.300 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3

Summary for Reach 2R: Analysis Point #2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 13.923 ac, 29.96% Impervious, Inflow Depth > 3.22" for 25-YR STORM event
Inflow = 20.47 cfs @ 12.11 hrs, Volume= 3.732 af
Outflow = 20.47 cfs @ 12.11 hrs, Volume= 3.732 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3

Summary for Reach 3R: Analysis Point #3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.865 ac, 12.18% Impervious, Inflow Depth > 2.64" for 25-YR STORM event
Inflow = 2.63 cfs @ 12.09 hrs, Volume= 0.191 af
Outflow = 2.63 cfs @ 12.09 hrs, Volume= 0.191 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3

Summary for Reach 4R: Analysis Point #4

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.434 ac, 31.30% Impervious, Inflow Depth > 2.99" for 25-YR STORM event
Inflow = 14.17 cfs @ 12.09 hrs, Volume= 2.348 af
Outflow = 14.17 cfs @ 12.09 hrs, Volume= 2.348 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3

Summary for Reach 5R: Analysis Point #5

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.337 ac, 22.55% Impervious, Inflow Depth > 3.04" for 25-YR STORM event
Inflow = 6.04 cfs @ 12.20 hrs, Volume= 0.591 af
Outflow = 6.04 cfs @ 12.20 hrs, Volume= 0.591 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3

Summary for Reach HW10R: HW 10

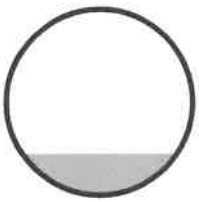
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 0.237 ac, 23.07% Impervious, Inflow Depth > 3.63" for 25-YR STORM event
Inflow = 1.01 cfs @ 12.09 hrs, Volume= 0.072 af
Outflow = 1.01 cfs @ 12.09 hrs, Volume= 0.072 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 4.99 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 1.72 fps, Avg. Travel Time= 0.1 min

Peak Storage= 2 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.28' , Surface Width= 1.04'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 9.39 cfs

15.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 10.0' Slope= 0.0180 '/'
Inlet Invert= 222.80', Outlet Invert= 222.62'



Summary for Reach HW12R: HW 12

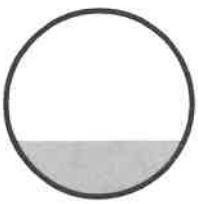
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 0.215 ac, 24.90% Impervious, Inflow Depth > 3.63" for 25-YR STORM event
Inflow = 0.91 cfs @ 12.09 hrs, Volume= 0.065 af
Outflow = 0.91 cfs @ 12.09 hrs, Volume= 0.065 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 2.95 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.02 fps, Avg. Travel Time= 0.3 min

Peak Storage= 6 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.37' , Surface Width= 1.15'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 4.67 cfs

15.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 18.0' Slope= 0.0044 '/'
Inlet Invert= 224.60', Outlet Invert= 224.52'



Summary for Reach HW25R: HW 25

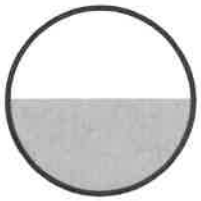
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 0.935 ac, 17.33% Impervious, Inflow Depth > 3.43" for 25-YR STORM event
Inflow = 3.77 cfs @ 12.09 hrs, Volume= 0.268 af
Outflow = 3.77 cfs @ 12.09 hrs, Volume= 0.268 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 5.95 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.14 fps, Avg. Travel Time= 0.1 min

Peak Storage= 9 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.64' , Surface Width= 1.25'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 7.23 cfs

15.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 15.0' Slope= 0.0107 '/'
Inlet Invert= 223.40', Outlet Invert= 223.24'



Summary for Reach HW7R: HW 7

[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 0.246 ac, 18.13% Impervious, Inflow Depth > 3.43" for 25-YR STORM event
Inflow = 0.99 cfs @ 12.09 hrs, Volume= 0.070 af
Outflow = 0.99 cfs @ 12.09 hrs, Volume= 0.070 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 9.37 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.27 fps, Avg. Travel Time= 0.1 min

Peak Storage= 1 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.18' , Surface Width= 0.87'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 23.10 cfs

15.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 10.0' Slope= 0.1090 '/'
Inlet Invert= 224.30', Outlet Invert= 223.21'

Summary for Reach HW9R: HW 9

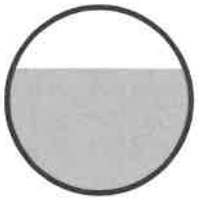
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 1.565 ac, 12.68% Impervious, Inflow Depth > 3.33" for 25-YR STORM event
Inflow = 5.57 cfs @ 12.12 hrs, Volume= 0.435 af
Outflow = 5.57 cfs @ 12.12 hrs, Volume= 0.435 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 6.33 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.43 fps, Avg. Travel Time= 0.1 min

Peak Storage= 9 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.84' , Surface Width= 1.17'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 7.00 cfs

15.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 10.0' Slope= 0.0100 '/'
Inlet Invert= 221.98', Outlet Invert= 221.88'



Summary for Pond 1P: Pond 1

Inflow Area = 2.539 ac, 52.18% Impervious, Inflow Depth > 4.35" for 25-YR STORM event
Inflow = 12.10 cfs @ 12.09 hrs, Volume= 0.921 af
Outflow = 0.63 cfs @ 14.32 hrs, Volume= 0.635 af, Atten= 95%, Lag= 133.8 min
Primary = 0.63 cfs @ 14.32 hrs, Volume= 0.635 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Starting Elev= 216.00' Surf.Area= 7,855 sf Storage= 21,306 cf
Peak Elev= 218.42' @ 14.32 hrs Surf.Area= 12,033 sf Storage= 44,689 cf (23,383 cf above start)

Plug-Flow detention time= 798.6 min calculated for 0.146 af (16% of inflow)
Center-of-Mass det. time= 236.6 min (1,017.3 - 780.7)

Volume	Invert	Avail.Storage	Storage Description
#1	212.00'	65,697 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
212.00	3,019	361.3	0	0	3,019
214.00	5,311	400.6	8,223	8,223	5,521
216.00	7,855	441.8	13,083	21,306	8,408
217.99	10,650	483.4	18,342	39,648	11,606
218.00	11,385	520.4	110	39,758	14,562
220.00	14,621	558.1	25,939	65,697	17,972

Device	Routing	Invert	Outlet Devices
#1	Primary	216.00'	**12.0" Round Culvert** L= 198.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 216.00' / 215.00' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	216.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	219.00'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	219.50'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.63 cfs @ 14.32 hrs HW=218.42' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.63 cfs of 3.66 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 0.63 cfs @ 7.23 fps)
  - **3=Orifice/Grate** (Controls 0.00 cfs)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Pond 2

Inflow Area = 5.530 ac, 50.32% Impervious, Inflow Depth > 4.33" for 25-YR STORM event
Inflow = 25.52 cfs @ 12.09 hrs, Volume= 1.995 af
Outflow = 4.06 cfs @ 12.59 hrs, Volume= 1.702 af, Atten= 84%, Lag= 30.1 min
Primary = 4.06 cfs @ 12.59 hrs, Volume= 1.702 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Starting Elev= 216.00' Surf.Area= 15,215 sf Storage= 41,273 cf
Peak Elev= 218.35' @ 12.59 hrs Surf.Area= 21,324 sf Storage= 84,040 cf (42,767 cf above start)

Plug-Flow detention time= 528.9 min calculated for 0.754 af (38% of inflow)
Center-of-Mass det. time= 175.3 min (960.5 - 785.2)

Volume	Invert	Avail.Storage	Storage Description
#1	212.00'	124,645 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
212.00	5,819	697.0	0	0	5,819
214.00	10,305	762.4	15,912	15,912	13,553
216.00	15,215	826.9	25,361	41,273	21,864
218.00	20,403	880.1	35,491	76,764	29,290
218.99	23,072	898.9	21,507	98,271	32,093
219.00	24,753	919.7	239	98,510	35,103
220.00	27,541	938.5	26,135	124,645	38,034

Device	Routing	Invert	Outlet Devices
#1	Primary	216.00'	**12.0" Round Culvert** L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 216.00' / 215.50' S= 0.0167 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	216.00'	**6.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	217.85'	**36.0" W x 10.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	219.00'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Primary	219.50'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=4.06 cfs @ 12.59 hrs HW=218.35' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Inlet Controls 4.06 cfs @ 5.17 fps)
  - **2=Orifice/Grate** (Passes < 1.60 cfs potential flow)
  - **3=Orifice/Grate** (Passes < 3.39 cfs potential flow)
  - **4=Orifice/Grate** (Controls 0.00 cfs)
- **5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 3P: POND 3

Inflow Area = 5.385 ac, 53.30% Impervious, Inflow Depth > 4.37" for 25-YR STORM event
Inflow = 22.80 cfs @ 12.10 hrs, Volume= 1.961 af
Outflow = 1.46 cfs @ 14.10 hrs, Volume= 1.414 af, Atten= 94%, Lag= 120.0 min
Primary = 1.46 cfs @ 14.10 hrs, Volume= 1.414 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Starting Elev= 220.50' Surf.Area= 14,976 sf Storage= 46,820 cf
Peak Elev= 223.14' @ 14.10 hrs Surf.Area= 24,305 sf Storage= 96,495 cf (49,675 cf above start)

Plug-Flow detention time= 751.1 min calculated for 0.339 af (17% of inflow)
Center-of-Mass det. time= 238.3 min (1,027.5 - 789.2)

Volume	Invert	Avail.Storage	Storage Description
#1	216.00'	150,016 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
216.00	6,199	472.1	0	0	6,199
218.00	9,857	657.6	15,915	15,915	22,913
220.00	13,938	698.6	23,677	39,593	27,541
221.99	18,291	742.3	31,970	71,563	32,753
222.00	19,106	788.4	187	71,750	38,369
224.00	28,616	1,508.5	47,403	119,153	170,010
225.00	33,166	1,527.2	30,863	150,016	174,775

Device	Routing	Invert	Outlet Devices
#1	Primary	220.50'	**12.0" Round Culvert** L= 33.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 220.50' / 220.00' S= 0.0152 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	220.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	224.00'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	224.50'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=1.46 cfs @ 14.10 hrs HW=223.14' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 1.46 cfs of 4.37 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 1.46 cfs @ 7.45 fps)
  - **3=Orifice/Grate** (Controls 0.00 cfs)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond B12P: BLDG 12 Drip Edge

Inflow Area = 0.084 ac,100.00% Impervious, Inflow Depth > 5.60" for 25-YR STORM event
Inflow = 0.48 cfs @ 12.08 hrs, Volume= 0.039 af
Outflow = 0.01 cfs @ 18.56 hrs, Volume= 0.003 af, Atten= 98%, Lag= 388.7 min
Primary = 0.01 cfs @ 18.56 hrs, Volume= 0.003 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 232.00' @ 18.56 hrs Surf.Area= 800 sf Storage= 1,600 cf

Plug-Flow detention time= 954.0 min calculated for 0.003 af (7% of inflow)
Center-of-Mass det. time= 514.5 min (1,259.5 - 745.0)

Volume	Invert	Avail.Storage	Storage Description
#1	230.00'	2,000 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
230.00	800	0	0
232.00	800	1,600	1,600
232.50	800	400	2,000

Device	Routing	Invert	Outlet Devices
#1	Primary	232.00'	**200.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.01 cfs @ 18.56 hrs HW=232.00' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.06 fps)

Summary for Pond B13P: BLDG 13 Drip Edge

Inflow Area = 0.064 ac,100.00% Impervious, Inflow Depth > 5.60" for 25-YR STORM event
Inflow = 0.36 cfs @ 12.08 hrs, Volume= 0.030 af
Outflow = 0.01 cfs @ 19.19 hrs, Volume= 0.002 af, Atten= 99%, Lag= 426.1 min
Primary = 0.01 cfs @ 19.19 hrs, Volume= 0.002 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 230.00' @ 19.19 hrs Surf.Area= 608 sf Storage= 1,216 cf

Plug-Flow detention time= 996.7 min calculated for 0.002 af (6% of inflow)
Center-of-Mass det. time= 536.5 min (1,281.5 - 745.0)

Volume	Invert	Avail.Storage	Storage Description
#1	228.00'	1,520 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
228.00	608	0	0
230.00	608	1,216	1,216
230.50	608	304	1,520

Device	Routing	Invert	Outlet Devices
#1	Primary	230.00'	**152.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.01 cfs @ 19.19 hrs HW=230.00' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.06 fps)

Summary for Pond B15P: BLDG 15 Drip Edge

Inflow Area = 0.064 ac,100.00% Impervious, Inflow Depth > 5.60" for 25-YR STORM event
Inflow = 0.36 cfs @ 12.08 hrs, Volume= 0.030 af
Outflow = 0.01 cfs @ 19.19 hrs, Volume= 0.002 af, Atten= 99%, Lag= 426.1 min
Primary = 0.01 cfs @ 19.19 hrs, Volume= 0.002 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 228.00' @ 19.19 hrs Surf.Area= 608 sf Storage= 1,216 cf

Plug-Flow detention time= 996.7 min calculated for 0.002 af (6% of inflow)
Center-of-Mass det. time= 536.5 min (1,281.5 - 745.0)

Volume	Invert	Avail.Storage	Storage Description
#1	226.00'	1,520 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
226.00	608	0	0
228.00	608	1,216	1,216
228.50	608	304	1,520

Device	Routing	Invert	Outlet Devices
#1	Primary	228.00'	**152.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.01 cfs @ 19.19 hrs HW=228.00' TW=0.00' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.06 fps)

Summary for Pond B1P: BLDG 1 Drip Edge

Inflow Area = 0.084 ac,100.00% Impervious, Inflow Depth > 5.60" for 25-YR STORM event
Inflow = 0.48 cfs @ 12.08 hrs, Volume= 0.039 af
Outflow = 0.01 cfs @ 18.56 hrs, Volume= 0.003 af, Atten= 98%, Lag= 388.7 min
Primary = 0.01 cfs @ 18.56 hrs, Volume= 0.003 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 226.00' @ 18.56 hrs Surf.Area= 800 sf Storage= 1,600 cf

Plug-Flow detention time= 954.0 min calculated for 0.003 af (7% of inflow)
Center-of-Mass det. time= 514.5 min (1,259.5 - 745.0)

Volume	Invert	Avail.Storage	Storage Description
#1	224.00'	2,000 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
224.00	800	0	0
226.00	800	1,600	1,600
226.50	800	400	2,000

Device	Routing	Invert	Outlet Devices
#1	Primary	226.00'	**200.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31

3.30 3.31 3.32

Primary OutFlow Max=0.01 cfs @ 18.56 hrs HW=226.00' TW=0.00' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 0.01 cfs @ 0.06 fps)

Summary for Pond B2P: BLDG 2 Drip Edge

Inflow Area = 0.064 ac,100.00% Impervious, Inflow Depth > 5.60" for 25-YR STORM event
Inflow = 0.36 cfs @ 12.08 hrs, Volume= 0.030 af
Outflow = 0.01 cfs @ 19.19 hrs, Volume= 0.002 af, Atten= 99%, Lag= 426.1 min
Primary = 0.01 cfs @ 19.19 hrs, Volume= 0.002 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 228.00' @ 19.19 hrs Surf.Area= 608 sf Storage= 1,216 cf

Plug-Flow detention time= 996.7 min calculated for 0.002 af (6% of inflow)
Center-of-Mass det. time= 536.5 min (1,281.5 - 745.0)

Volume	Invert	Avail.Storage	Storage Description
#1	226.00'	1,520 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
226.00	608	0	0
228.00	608	1,216	1,216
228.50	608	304	1,520

Device	Routing	Invert	Outlet Devices
#1	Primary	228.00'	**152.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.01 cfs @ 19.19 hrs HW=228.00' TW=0.00' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 0.01 cfs @ 0.06 fps)

Summary for Pond B6P: BLDG 6 Drip Edge

Inflow Area = 0.064 ac,100.00% Impervious, Inflow Depth > 5.60" for 25-YR STORM event
Inflow = 0.36 cfs @ 12.08 hrs, Volume= 0.030 af
Outflow = 0.01 cfs @ 19.19 hrs, Volume= 0.002 af, Atten= 99%, Lag= 426.1 min
Primary = 0.01 cfs @ 19.19 hrs, Volume= 0.002 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 229.00' @ 19.19 hrs Surf.Area= 608 sf Storage= 1,216 cf

Plug-Flow detention time= 996.7 min calculated for 0.002 af (6% of inflow)
Center-of-Mass det. time= 536.5 min (1,281.5 - 745.0)

Volume	Invert	Avail.Storage	Storage Description
#1	227.00'	1,520 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
227.00	608	0	0
229.00	608	1,216	1,216
229.50	608	304	1,520

Device	Routing	Invert	Outlet Devices
#1	Primary	229.00'	**152.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.01 cfs @ 19.19 hrs HW=229.00' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.06 fps)

Summary for Pond B7P: BLDG 7 Drip Edge

Inflow Area = 0.042 ac,100.00% Impervious, Inflow Depth > 5.60" for 25-YR STORM event
Inflow = 0.24 cfs @ 12.08 hrs, Volume= 0.020 af
Outflow = 0.01 cfs @ 16.99 hrs, Volume= 0.002 af, Atten= 98%, Lag= 294.2 min
Primary = 0.01 cfs @ 16.99 hrs, Volume= 0.002 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 229.50' @ 16.99 hrs Surf.Area= 384 sf Storage= 768 cf

Plug-Flow detention time= 840.5 min calculated for 0.002 af (10% of inflow)
Center-of-Mass det. time= 454.1 min (1,199.1 - 745.0)

Volume	Invert	Avail.Storage	Storage Description
#1	227.50'	960 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
227.50	384	0	0
229.50	384	768	768
230.00	384	192	960

Device	Routing	Invert	Outlet Devices
#1	Primary	229.50'	**96.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.01 cfs @ 16.99 hrs HW=229.50' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.07 fps)

Summary for Pond CB10P: CB 10

[63] Warning: Exceeded Reach HW10R INLET depth by 2.39' @ 12.10 hrs

Inflow Area = 0.460 ac, 58.06% Impervious, Inflow Depth > 4.53" for 25-YR STORM event
Inflow = 2.28 cfs @ 12.09 hrs, Volume= 0.174 af
Outflow = 2.28 cfs @ 12.09 hrs, Volume= 0.174 af, Atten= 0%, Lag= 0.0 min
Primary = 2.28 cfs @ 12.09 hrs, Volume= 0.174 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 225.47' @ 12.10 hrs
Flood Elev= 227.34'

Device	Routing	Invert	Outlet Devices
#1	Primary	222.52'	**15.0" Round Culvert** L= 32.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 222.52' / 221.88' S= 0.0200 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.18 cfs @ 12.09 hrs HW=225.42' TW=225.21' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 2.18 cfs @ 1.78 fps)

Summary for Pond CB11P: CB 11

Inflow Area = 0.060 ac, 77.69% Impervious, Inflow Depth > 5.02" for 25-YR STORM event
Inflow = 0.33 cfs @ 12.08 hrs, Volume= 0.025 af
Outflow = 0.33 cfs @ 12.08 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min
Primary = 0.33 cfs @ 12.08 hrs, Volume= 0.025 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 225.89' @ 12.10 hrs
Flood Elev= 228.92'

Device	Routing	Invert	Outlet Devices
#1	Primary	224.67'	**15.0" Round Culvert** L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 224.67' / 224.52' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.00 cfs @ 12.08 hrs HW=225.81' TW=225.83' (Dynamic Tailwater)
↑**1=Culvert** (Controls 0.00 cfs)

Summary for Pond CB12P: CB 12

[63] Warning: Exceeded Reach HW12R INLET depth by 0.91' @ 12.09 hrs
[80] Warning: Exceeded Pond CB11P by 0.05' @ 12.07 hrs (0.82 cfs 0.002 af)

Inflow Area = 1.887 ac, 61.78% Impervious, Inflow Depth > 4.66" for 25-YR STORM event
Inflow = 9.70 cfs @ 12.08 hrs, Volume= 0.732 af
Outflow = 9.70 cfs @ 12.08 hrs, Volume= 0.732 af, Atten= 0%, Lag= 0.0 min
Primary = 9.70 cfs @ 12.08 hrs, Volume= 0.732 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 225.89' @ 12.09 hrs
Flood Elev= 229.24'

Device	Routing	Invert	Outlet Devices
#1	Primary	222.70'	**24.0" Round Culvert** L= 214.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 222.70' / 221.63' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=9.54 cfs @ 12.08 hrs HW=225.84' TW=225.20' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 9.54 cfs @ 3.04 fps)

Summary for Pond CB14P: CB 14

Inflow Area = 0.420 ac, 81.80% Impervious, Inflow Depth > 5.13" for 25-YR STORM event
Inflow = 2.33 cfs @ 12.08 hrs, Volume= 0.180 af
Outflow = 2.33 cfs @ 12.08 hrs, Volume= 0.180 af, Atten= 0%, Lag= 0.0 min
Primary = 2.33 cfs @ 12.08 hrs, Volume= 0.180 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 226.28' @ 12.10 hrs
Flood Elev= 228.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	224.06'	**24.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 224.06' / 223.95' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=0.00 cfs @ 12.08 hrs HW=226.17' TW=226.19' (Dynamic Tailwater)
↑**1=Culvert** (Controls 0.00 cfs)

Summary for Pond CB15P: CB 15

Inflow Area = 0.979 ac, 62.29% Impervious, Inflow Depth > 4.72" for 25-YR STORM event
Inflow = 5.06 cfs @ 12.08 hrs, Volume= 0.385 af
Outflow = 5.06 cfs @ 12.08 hrs, Volume= 0.385 af, Atten= 0%, Lag= 0.0 min
Primary = 5.06 cfs @ 12.08 hrs, Volume= 0.385 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 226.80' @ 12.10 hrs
Flood Elev= 229.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	224.55'	**18.0" Round Culvert** L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 224.55' / 223.95' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.81 cfs @ 12.08 hrs HW=226.71' TW=226.20' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 4.81 cfs @ 2.72 fps)

Summary for Pond CB16P: CB 16

Inflow Area = 0.559 ac, 37.70% Impervious, Inflow Depth > 4.15" for 25-YR STORM event
Inflow = 2.67 cfs @ 12.09 hrs, Volume= 0.193 af
Outflow = 2.67 cfs @ 12.09 hrs, Volume= 0.193 af, Atten= 0%, Lag= 0.0 min
Primary = 2.67 cfs @ 12.09 hrs, Volume= 0.193 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 227.12' @ 12.10 hrs
Flood Elev= 229.49'

Device	Routing	Invert	Outlet Devices
#1	Primary	225.13'	**15.0" Round Culvert** L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 225.13' / 224.65' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.51 cfs @ 12.09 hrs HW=227.01' TW=226.72' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 2.51 cfs @ 2.05 fps)

Summary for Pond CB17P: CB 17

Inflow Area = 0.301 ac, 95.06% Impervious, Inflow Depth > 5.44" for 25-YR STORM event
Inflow = 1.71 cfs @ 12.08 hrs, Volume= 0.137 af
Outflow = 1.71 cfs @ 12.08 hrs, Volume= 0.137 af, Atten= 0%, Lag= 0.0 min
Primary = 1.71 cfs @ 12.08 hrs, Volume= 0.137 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 226.43' @ 12.08 hrs
Flood Elev= 230.56'

Device	Routing	Invert	Outlet Devices
#1	Primary	225.70'	**15.0" Round Culvert** L= 128.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 225.70' / 223.78' S= 0.0150 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.71 cfs @ 12.08 hrs HW=226.43' TW=225.31' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 1.71 cfs @ 2.30 fps)

Summary for Pond CB18P: CB 18

Inflow Area = 0.098 ac,100.00% Impervious, Inflow Depth > 5.60" for 25-YR STORM event
Inflow = 0.56 cfs @ 12.08 hrs, Volume= 0.046 af
Outflow = 0.56 cfs @ 12.08 hrs, Volume= 0.046 af, Atten= 0%, Lag= 0.0 min
Primary = 0.56 cfs @ 12.08 hrs, Volume= 0.046 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 226.60' @ 12.08 hrs
Flood Elev= 230.56'

Device	Routing	Invert	Outlet Devices
#1	Primary	226.13'	**15.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 226.13' / 225.80' S= 0.0150 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.56 cfs @ 12.08 hrs HW=226.60' TW=226.43' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.56 cfs @ 2.00 fps)

Summary for Pond CB19P: CB 19

Inflow Area = 0.189 ac,100.00% Impervious, Inflow Depth > 5.60" for 25-YR STORM event
Inflow = 1.08 cfs @ 12.08 hrs, Volume= 0.088 af
Outflow = 1.08 cfs @ 12.08 hrs, Volume= 0.088 af, Atten= 0%, Lag= 0.0 min
Primary = 1.08 cfs @ 12.08 hrs, Volume= 0.088 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 227.13' @ 12.08 hrs
Flood Elev= 230.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	226.37'	**15.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 226.37' / 226.26' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.08 cfs @ 12.08 hrs HW=227.13' TW=226.99' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 1.08 cfs @ 1.97 fps)

Summary for Pond CB1P: CB 1

Inflow Area = 0.237 ac,100.00% Impervious, Inflow Depth > 5.60" for 25-YR STORM event
Inflow = 1.36 cfs @ 12.08 hrs, Volume= 0.111 af
Outflow = 1.36 cfs @ 12.08 hrs, Volume= 0.111 af, Atten= 0%, Lag= 0.0 min
Primary = 1.36 cfs @ 12.08 hrs, Volume= 0.111 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 220.75' @ 12.08 hrs
Flood Elev= 222.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	218.55'	**15.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 218.55' / 218.44' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.36 cfs @ 12.08 hrs HW=220.74' TW=220.66' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 1.36 cfs @ 1.10 fps)

Summary for Pond CB20P: CB 20

Inflow Area = 0.371 ac, 96.59% Impervious, Inflow Depth > 5.48" for 25-YR STORM event
Inflow = 2.11 cfs @ 12.08 hrs, Volume= 0.169 af
Outflow = 2.11 cfs @ 12.08 hrs, Volume= 0.169 af, Atten= 0%, Lag= 0.0 min
Primary = 2.11 cfs @ 12.08 hrs, Volume= 0.169 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 226.99' @ 12.08 hrs
Flood Elev= 230.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	226.16'	**15.0" Round Culvert** L= 296.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 226.16' / 222.61' S= 0.0120 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.11 cfs @ 12.08 hrs HW=226.99' TW=224.25' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 2.11 cfs @ 2.44 fps)

Summary for Pond CB21P: CB 21

Inflow Area = 0.223 ac, 85.07% Impervious, Inflow Depth > 5.13" for 25-YR STORM event
Inflow = 1.24 cfs @ 12.08 hrs, Volume= 0.095 af
Outflow = 1.24 cfs @ 12.08 hrs, Volume= 0.095 af, Atten= 0%, Lag= 0.0 min
Primary = 1.24 cfs @ 12.08 hrs, Volume= 0.095 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 228.00' @ 12.09 hrs
Flood Elev= 231.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	226.93'	**15.0" Round Culvert** L= 28.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 226.93' / 226.79' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.19 cfs @ 12.08 hrs HW=227.99' TW=227.91' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 1.19 cfs @ 1.07 fps)

Summary for Pond CB22P: CB 22

Inflow Area = 0.447 ac, 92.55% Impervious, Inflow Depth > 5.37" for 25-YR STORM event
Inflow = 2.52 cfs @ 12.08 hrs, Volume= 0.200 af
Outflow = 2.52 cfs @ 12.08 hrs, Volume= 0.200 af, Atten= 0%, Lag= 0.0 min
Primary = 2.52 cfs @ 12.08 hrs, Volume= 0.200 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 227.92' @ 12.08 hrs
Flood Elev= 231.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	226.69'	**15.0" Round Culvert** L= 32.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 226.69' / 226.53' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.51 cfs @ 12.08 hrs HW=227.91' TW=227.62' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 2.51 cfs @ 2.06 fps)

Summary for Pond CB23P: CB 23

Inflow Area = 0.815 ac, 71.65% Impervious, Inflow Depth > 4.83" for 25-YR STORM event
Inflow = 4.23 cfs @ 12.08 hrs, Volume= 0.328 af
Outflow = 4.23 cfs @ 12.08 hrs, Volume= 0.328 af, Atten= 0%, Lag= 0.0 min
Primary = 4.23 cfs @ 12.08 hrs, Volume= 0.328 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 227.19' @ 12.08 hrs
Flood Elev= 230.66'

Device	Routing	Invert	Outlet Devices
#1	Primary	225.74'	**15.0" Round Culvert** L= 220.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 225.74' / 223.09' S= 0.0120 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.22 cfs @ 12.08 hrs HW=227.18' TW=225.51' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 4.22 cfs @ 3.44 fps)

Summary for Pond CB24P: CB 24

Inflow Area = 0.117 ac,100.00% Impervious, Inflow Depth > 5.60" for 25-YR STORM event
Inflow = 0.67 cfs @ 12.08 hrs, Volume= 0.054 af
Outflow = 0.67 cfs @ 12.08 hrs, Volume= 0.054 af, Atten= 0%, Lag= 0.0 min
Primary = 0.67 cfs @ 12.08 hrs, Volume= 0.054 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 227.21' @ 12.08 hrs
Flood Elev= 230.66'

Device	Routing	Invert	Outlet Devices
#1	Primary	226.06'	**15.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 226.06' / 225.84' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.67 cfs @ 12.08 hrs HW=227.20' TW=227.18' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.67 cfs @ 0.57 fps)

Summary for Pond CB25P: CB 25

[63] Warning: Exceeded Reach HW25R INLET depth by 1.74' @ 12.09 hrs

Inflow Area = 1.360 ac, 40.77% Impervious, Inflow Depth > 4.04" for 25-YR STORM event
Inflow = 6.16 cfs @ 12.09 hrs, Volume= 0.457 af
Outflow = 6.16 cfs @ 12.09 hrs, Volume= 0.457 af, Atten= 0%, Lag= 0.0 min
Primary = 6.16 cfs @ 12.09 hrs, Volume= 0.457 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 225.78' @ 12.09 hrs
Flood Elev= 227.24'

Device	Routing	Invert	Outlet Devices
#1	Primary	223.14'	**24.0" Round Culvert** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 223.14' / 223.09' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=6.11 cfs @ 12.09 hrs HW=225.77' TW=225.51' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 6.11 cfs @ 1.94 fps)

Summary for Pond CB26P: CB 26

Inflow Area = 2.495 ac, 55.17% Impervious, Inflow Depth > 4.41" for 25-YR STORM event
Inflow = 12.12 cfs @ 12.09 hrs, Volume= 0.917 af
Outflow = 12.12 cfs @ 12.09 hrs, Volume= 0.917 af, Atten= 0%, Lag= 0.0 min
Primary = 12.12 cfs @ 12.09 hrs, Volume= 0.917 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 224.76' @ 12.09 hrs
Flood Elev= 227.24'

Device	Routing	Invert	Outlet Devices
#1	Primary	222.62'	**30.0" Round Culvert** L= 32.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 222.62' / 222.46' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=12.10 cfs @ 12.09 hrs HW=224.76' TW=224.25' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 12.10 cfs @ 2.71 fps)

Summary for Pond CB27P: CB 27

Inflow Area = 3.245 ac, 62.35% Impervious, Inflow Depth > 4.59" for 25-YR STORM event
Inflow = 16.28 cfs @ 12.09 hrs, Volume= 1.241 af
Outflow = 16.28 cfs @ 12.09 hrs, Volume= 1.241 af, Atten= 0%, Lag= 0.0 min
Primary = 16.28 cfs @ 12.09 hrs, Volume= 1.241 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 224.25' @ 12.09 hrs
Flood Elev= 227.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	222.36'	**36.0" Round Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 222.36' / 221.86' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=16.25 cfs @ 12.09 hrs HW=224.25' TW=222.02' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 16.25 cfs @ 4.95 fps)

Summary for Pond CB28P: CB 28

Inflow Area = 0.359 ac, 12.88% Impervious, Inflow Depth > 3.33" for 25-YR STORM event
Inflow = 1.22 cfs @ 12.14 hrs, Volume= 0.100 af
Outflow = 1.22 cfs @ 12.14 hrs, Volume= 0.100 af, Atten= 0%, Lag= 0.0 min
Primary = 1.22 cfs @ 12.14 hrs, Volume= 0.100 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 221.76' @ 12.13 hrs
Flood Elev= 225.24'

Device	Routing	Invert	Outlet Devices
#1	Primary	221.00'	**15.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 221.00' / 220.89' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.22 cfs @ 12.14 hrs HW=221.76' TW=221.57' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 1.22 cfs @ 2.26 fps)

Summary for Pond CB29P: CB 29

Inflow Area = 0.447 ac, 22.88% Impervious, Inflow Depth > 3.58" for 25-YR STORM event
Inflow = 1.62 cfs @ 12.12 hrs, Volume= 0.133 af
Outflow = 1.62 cfs @ 12.12 hrs, Volume= 0.133 af, Atten= 0%, Lag= 0.0 min
Primary = 1.62 cfs @ 12.12 hrs, Volume= 0.133 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 221.57' @ 12.12 hrs
Flood Elev= 225.24'

Device	Routing	Invert	Outlet Devices
#1	Primary	220.79'	**15.0" Round Culvert** L= 18.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 220.79' / 220.70' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.61 cfs @ 12.12 hrs HW=221.57' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 1.61 cfs @ 2.84 fps)

Summary for Pond CB2P: CB 2

Inflow Area = 1.603 ac, 75.44% Impervious, Inflow Depth > 4.94" for 25-YR STORM event
Inflow = 8.43 cfs @ 12.08 hrs, Volume= 0.660 af
Outflow = 8.43 cfs @ 12.08 hrs, Volume= 0.660 af, Atten= 0%, Lag= 0.0 min
Primary = 8.43 cfs @ 12.08 hrs, Volume= 0.660 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 220.67' @ 12.08 hrs
Flood Elev= 222.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	218.34'	**18.0" Round Culvert** L= 106.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 218.34' / 217.80' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=8.42 cfs @ 12.08 hrs HW=220.66' TW=217.46' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 8.42 cfs @ 4.76 fps)

Summary for Pond CB3P: CB 3

Inflow Area = 1.114 ac, 64.68% Impervious, Inflow Depth > 4.66" for 25-YR STORM event
Inflow = 5.64 cfs @ 12.08 hrs, Volume= 0.433 af
Outflow = 5.64 cfs @ 12.08 hrs, Volume= 0.433 af, Atten= 0%, Lag= 0.0 min
Primary = 5.64 cfs @ 12.08 hrs, Volume= 0.433 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 223.41' @ 12.08 hrs
Flood Elev= 228.19'

Device	Routing	Invert	Outlet Devices
#1	Primary	221.32'	**15.0" Round Culvert** L= 228.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 221.32' / 218.44' S= 0.0126 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.63 cfs @ 12.08 hrs HW=223.40' TW=220.66' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 5.63 cfs @ 4.59 fps)

Summary for Pond CB4P: CB 4

Inflow Area = 1.055 ac, 62.69% Impervious, Inflow Depth > 4.61" for 25-YR STORM event
Inflow = 5.30 cfs @ 12.09 hrs, Volume= 0.405 af
Outflow = 5.30 cfs @ 12.09 hrs, Volume= 0.405 af, Atten= 0%, Lag= 0.0 min
Primary = 5.30 cfs @ 12.09 hrs, Volume= 0.405 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 224.70' @ 12.09 hrs
Flood Elev= 228.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	221.54'	**15.0" Round Culvert** L= 24.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 221.54' / 221.42' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.29 cfs @ 12.09 hrs HW=224.69' TW=223.40' (Dynamic Tailwater)
1=Culvert (Inlet Controls 5.29 cfs @ 4.31 fps)

Summary for Pond CB5P: CB 5

Inflow Area = 0.106 ac, 55.72% Impervious, Inflow Depth > 4.36" for 25-YR STORM event
Inflow = 0.53 cfs @ 12.09 hrs, Volume= 0.038 af
Outflow = 0.53 cfs @ 12.09 hrs, Volume= 0.038 af, Atten= 0%, Lag= 0.0 min
Primary = 0.53 cfs @ 12.09 hrs, Volume= 0.038 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 225.73' @ 12.09 hrs
Flood Elev= 228.59'

Device	Routing	Invert	Outlet Devices
#1	Primary	224.32'	**15.0" Round Culvert** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 224.32' / 224.22' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=225.71' TW=225.72' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Summary for Pond CB6P: CB 6

Inflow Area = 0.817 ac, 70.52% Impervious, Inflow Depth > 4.81" for 25-YR STORM event
Inflow = 4.23 cfs @ 12.08 hrs, Volume= 0.328 af
Outflow = 4.23 cfs @ 12.08 hrs, Volume= 0.328 af, Atten= 0%, Lag= 0.0 min
Primary = 4.23 cfs @ 12.08 hrs, Volume= 0.328 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 226.88' @ 12.09 hrs
Flood Elev= 227.36'

Device	Routing	Invert	Outlet Devices
#1	Primary	222.90'	**15.0" Round Culvert** L= 220.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 222.90' / 221.81' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.18 cfs @ 12.08 hrs HW=226.85' TW=225.72' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 4.18 cfs @ 3.40 fps)

Summary for Pond CB7P: CB 7

[63] Warning: Exceeded Reach HW7R INLET depth by 2.59' @ 12.09 hrs

Inflow Area = 0.436 ac, 51.86% Impervious, Inflow Depth > 4.33" for 25-YR STORM event
Inflow = 2.07 cfs @ 12.09 hrs, Volume= 0.157 af
Outflow = 2.07 cfs @ 12.09 hrs, Volume= 0.157 af, Atten= 0%, Lag= 0.0 min
Primary = 2.07 cfs @ 12.09 hrs, Volume= 0.157 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 227.07' @ 12.09 hrs
Flood Elev= 227.36'

Device	Routing	Invert	Outlet Devices
#1	Primary	223.11'	**15.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 223.11' / 223.00' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.98 cfs @ 12.09 hrs HW=227.04' TW=226.85' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 1.98 cfs @ 1.62 fps)

Summary for Pond CB8P: CB 8

Inflow Area = 5.088 ac, 53.70% Impervious, Inflow Depth > 4.42" for 25-YR STORM event
Inflow = 23.79 cfs @ 12.09 hrs, Volume= 1.872 af
Outflow = 23.79 cfs @ 12.09 hrs, Volume= 1.872 af, Atten= 0%, Lag= 0.0 min
Primary = 23.79 cfs @ 12.09 hrs, Volume= 1.872 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 224.62' @ 12.09 hrs
Flood Elev= 227.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	221.29'	**36.0" Round Culvert** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 221.29' / 221.19' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=23.77 cfs @ 12.09 hrs HW=224.62' TW=223.83' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 23.77 cfs @ 3.36 fps)

Summary for Pond CB9P: CB 3

[63] Warning: Exceeded Reach HW9R INLET depth by 2.45' @ 12.09 hrs

Inflow Area = 4.639 ac, 50.43% Impervious, Inflow Depth > 4.34" for 25-YR STORM event
Inflow = 21.28 cfs @ 12.09 hrs, Volume= 1.676 af
Outflow = 21.28 cfs @ 12.09 hrs, Volume= 1.676 af, Atten= 0%, Lag= 0.0 min
Primary = 21.28 cfs @ 12.09 hrs, Volume= 1.676 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 225.24' @ 12.09 hrs
Flood Elev= 227.41'

Device	Routing	Invert	Outlet Devices
#1	Primary	221.53'	**36.0" Round Culvert** L= 28.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 221.53' / 221.39' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=21.15 cfs @ 12.09 hrs HW=225.23' TW=224.61' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 21.15 cfs @ 2.99 fps)

Summary for Pond DMH1: DMH 1

[80] Warning: Exceeded Pond CB5P by 0.10' @ 12.06 hrs (1.37 cfs 0.004 af)

Inflow Area = 0.923 ac, 68.83% Impervious, Inflow Depth > 4.76" for 25-YR STORM event
Inflow = 4.75 cfs @ 12.08 hrs, Volume= 0.366 af
Outflow = 4.75 cfs @ 12.08 hrs, Volume= 0.366 af, Atten= 0%, Lag= 0.0 min
Primary = 4.75 cfs @ 12.08 hrs, Volume= 0.366 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 225.74' @ 12.08 hrs
Flood Elev= 228.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	221.71'	**15.0" Round Culvert** L= 14.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 221.71' / 221.64' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.74 cfs @ 12.08 hrs HW=225.72' TW=224.69' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 4.74 cfs @ 3.87 fps)

Summary for Pond DMH13: DMH 13

[80] Warning: Exceeded Pond CB14P by 0.05' @ 12.07 hrs (2.58 cfs 0.006 af)

Inflow Area = 1.399 ac, 68.14% Impervious, Inflow Depth > 4.84" for 25-YR STORM event
Inflow = 7.39 cfs @ 12.08 hrs, Volume= 0.565 af
Outflow = 7.39 cfs @ 12.08 hrs, Volume= 0.565 af, Atten= 0%, Lag= 0.0 min
Primary = 7.39 cfs @ 12.08 hrs, Volume= 0.565 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 226.26' @ 12.10 hrs
Flood Elev= 228.48'

Device	Routing	Invert	Outlet Devices
#1	Primary	223.85'	**24.0" Round Culvert** L= 90.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 223.85' / 222.95' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=7.13 cfs @ 12.08 hrs HW=226.19' TW=225.84' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 7.13 cfs @ 2.27 fps)

Summary for Pond DMH2: DMH 2

Inflow Area = 0.301 ac, 95.06% Impervious, Inflow Depth > 5.44" for 25-YR STORM event
Inflow = 1.71 cfs @ 12.08 hrs, Volume= 0.137 af
Outflow = 1.71 cfs @ 12.08 hrs, Volume= 0.137 af, Atten= 0%, Lag= 0.0 min
Primary = 1.71 cfs @ 12.08 hrs, Volume= 0.137 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 225.37' @ 12.10 hrs
Flood Elev= 229.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	223.68'	**15.0" Round Culvert** L= 136.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 223.68' / 221.64' S= 0.0150 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.57 cfs @ 12.08 hrs HW=225.31' TW=225.19' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 1.57 cfs @ 1.28 fps)

Summary for Pond DMH3: DMH 3

Inflow Area = 5.088 ac, 53.70% Impervious, Inflow Depth > 4.42" for 25-YR STORM event
Inflow = 23.79 cfs @ 12.09 hrs, Volume= 1.872 af
Outflow = 23.79 cfs @ 12.09 hrs, Volume= 1.872 af, Atten= 0%, Lag= 0.0 min
Primary = 23.79 cfs @ 12.09 hrs, Volume= 1.872 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 223.84' @ 12.09 hrs
Flood Elev= 228.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	221.09'	**36.0" Round Culvert**

L= 120.0' CPP, projecting, no headwall, Ke= 0.900
Inlet / Outlet Invert= 221.09' / 220.49' S= 0.0050 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=23.77 cfs @ 12.09 hrs HW=223.83' TW=222.98' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 23.77 cfs @ 3.51 fps)

Summary for Pond DMH4: DMH 4

Inflow Area = 5.088 ac, 53.70% Impervious, Inflow Depth > 4.42" for 25-YR STORM event
Inflow = 23.79 cfs @ 12.09 hrs, Volume= 1.872 af
Outflow = 23.79 cfs @ 12.09 hrs, Volume= 1.872 af, Atten= 0%, Lag= 0.0 min
Primary = 23.79 cfs @ 12.09 hrs, Volume= 1.872 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 222.98' @ 12.09 hrs
Flood Elev= 225.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	220.39'	**36.0" Round Culvert** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 220.39' / 220.29' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=23.77 cfs @ 12.09 hrs HW=222.98' TW=217.60' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 23.77 cfs @ 4.90 fps)

Summary for Pond DMH5: DMH 5

Inflow Area = 2.175 ac, 52.34% Impervious, Inflow Depth > 4.34" for 25-YR STORM event
Inflow = 10.39 cfs @ 12.09 hrs, Volume= 0.786 af
Outflow = 10.39 cfs @ 12.09 hrs, Volume= 0.786 af, Atten= 0%, Lag= 0.0 min
Primary = 10.39 cfs @ 12.09 hrs, Volume= 0.786 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 225.52' @ 12.09 hrs
Flood Elev= 227.39'

Device	Routing	Invert	Outlet Devices
#1	Primary	222.84'	**24.0" Round Culvert** L= 24.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 222.84' / 222.72' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=10.37 cfs @ 12.09 hrs HW=225.51' TW=224.76' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 10.37 cfs @ 3.30 fps)

Summary for Pond DMH6: DMH 6

Inflow Area = 0.447 ac, 92.55% Impervious, Inflow Depth > 5.37" for 25-YR STORM event
Inflow = 2.52 cfs @ 12.08 hrs, Volume= 0.200 af
Outflow = 2.52 cfs @ 12.08 hrs, Volume= 0.200 af, Atten= 0%, Lag= 0.0 min
Primary = 2.52 cfs @ 12.08 hrs, Volume= 0.200 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 227.62' @ 12.08 hrs
Flood Elev= 232.16'

Device	Routing	Invert	Outlet Devices
#1	Primary	226.45'	**15.0" Round Culvert** L= 118.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 226.45' / 225.84' S= 0.0052 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.51 cfs @ 12.08 hrs HW=227.62' TW=227.18' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 2.51 cfs @ 2.73 fps)

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1PS: Subcatchment 1PS Runoff Area=40,775 sf 12.36% Impervious Runoff Depth>5.54"
Flow Length=120' Tc=6.0 min CN=77 Runoff=6.04 cfs 0.433 af

Subcatchment 2PS: Subcatchment 2PS Runoff Area=19,258 sf 11.45% Impervious Runoff Depth>5.54"
Tc=6.0 min CN=77 Runoff=2.85 cfs 0.204 af

Subcatchment 3PS: Subcatchment 3PS Runoff Area=93,185 sf 39.58% Impervious Runoff Depth>6.37"
Flow Length=435' Tc=12.6 min CN=84 Runoff=12.56 cfs 1.136 af

Subcatchment 10S: Subcatchment 10S Runoff Area=54,014 sf 4.87% Impervious Runoff Depth>4.95"
Flow Length=160' Slope=0.0500 '/' Tc=10.3 min CN=72 Runoff=6.24 cfs 0.511 af

Subcatchment 20S: Subcatchment 20S Runoff Area=255,002 sf 1.08% Impervious Runoff Depth>4.95"
Flow Length=284' Tc=7.4 min CN=72 Runoff=32.39 cfs 2.416 af

Subcatchment 30S: Subcatchment 30S Runoff Area=33,099 sf 0.00% Impervious Runoff Depth>5.07"
Flow Length=103' Tc=6.0 min CN=73 Runoff=4.51 cfs 0.321 af

Subcatchment 40S: Subcatchment 40S Runoff Area=176,380 sf 2.04% Impervious Runoff Depth>4.84"
Tc=6.0 min CN=71 Runoff=22.98 cfs 1.632 af

Subcatchment 50S: Subcatchment 50S Runoff Area=73,087 sf 12.70% Impervious Runoff Depth>5.42"
Flow Length=476' Tc=15.8 min CN=76 Runoff=7.88 cfs 0.757 af

Subcatchment B12S: BLDG 12 Runoff Area=3,680 sf 100.00% Impervious Runoff Depth>8.05"
Tc=6.0 min CN=98 Runoff=0.69 cfs 0.057 af

Subcatchment B13S: BLDG 13 Runoff Area=2,768 sf 100.00% Impervious Runoff Depth>8.05"
Tc=6.0 min CN=98 Runoff=0.52 cfs 0.043 af

Subcatchment B15S: BLDG 15 Runoff Area=2,768 sf 100.00% Impervious Runoff Depth>8.05"
Tc=6.0 min CN=98 Runoff=0.52 cfs 0.043 af

Subcatchment B1S: BLDG 1 Runoff Area=3,680 sf 100.00% Impervious Runoff Depth>8.05"
Tc=6.0 min CN=98 Runoff=0.69 cfs 0.057 af

Subcatchment B2S: BLDG 2 Runoff Area=2,768 sf 100.00% Impervious Runoff Depth>8.05"
Tc=6.0 min CN=98 Runoff=0.52 cfs 0.043 af

Subcatchment B6S: BLDG 6 Runoff Area=2,768 sf 100.00% Impervious Runoff Depth>8.05"
Tc=6.0 min CN=98 Runoff=0.52 cfs 0.043 af

Subcatchment B7S: BLDG 7 Runoff Area=1,824 sf 100.00% Impervious Runoff Depth>8.05"
Tc=6.0 min CN=98 Runoff=0.34 cfs 0.028 af

Subcatchment CB1: CB 1 Runoff Area=10,333 sf 100.00% Impervious Runoff Depth>8.05"
Tc=6.0 min CN=98 Runoff=1.93 cfs 0.159 af

Subcatchment CB10: CB 10 Runoff Area=9,718 sf 95.22% Impervious Runoff Depth>7.93"
Tc=6.0 min CN=97 Runoff=1.81 cfs 0.147 af

Subcatchment CB11: CB 11 Runoff Area=2,613 sf 77.69% Impervious Runoff Depth>7.45"
Tc=6.0 min CN=93 Runoff=0.48 cfs 0.037 af

Subcatchment CB12: CB 12 Runoff Area=9,300 sf 52.69% Impervious Runoff Depth>6.74"
Tc=6.0 min CN=87 Runoff=1.61 cfs 0.120 af

Subcatchment CB14: CB 14 Runoff Area=18,289 sf 81.80% Impervious Runoff Depth>7.57"
Tc=6.0 min CN=94 Runoff=3.36 cfs 0.265 af

Subcatchment CB15: CB 15 Runoff Area=18,293 sf 95.04% Impervious Runoff Depth>7.93"
Tc=6.0 min CN=97 Runoff=3.41 cfs 0.278 af

Subcatchment CB16: CB 16 Runoff Area=24,364 sf 37.70% Impervious Runoff Depth>6.50"
Tc=6.0 min CN=85 Runoff=4.10 cfs 0.303 af

Subcatchment CB17: CB 17 Runoff Area=8,833 sf 92.66% Impervious Runoff Depth>7.81"
Tc=6.0 min CN=96 Runoff=1.64 cfs 0.132 af

Subcatchment CB18: CB 18 Runoff Area=4,283 sf 100.00% Impervious Runoff Depth>8.05"
Tc=6.0 min CN=98 Runoff=0.80 cfs 0.066 af

Subcatchment CB19: CB 19 Runoff Area=8,214 sf 100.00% Impervious Runoff Depth>8.05"
Tc=6.0 min CN=98 Runoff=1.54 cfs 0.127 af

Subcatchment CB2: CB 2 Runoff Area=10,931 sf 100.00% Impervious Runoff Depth>8.05"
Tc=6.0 min CN=98 Runoff=2.05 cfs 0.168 af

Subcatchment CB20: CB 20 Runoff Area=7,938 sf 93.07% Impervious Runoff Depth>7.81"
Tc=6.0 min CN=96 Runoff=1.48 cfs 0.119 af

Subcatchment CB21: CB 21 Runoff Area=9,716 sf 85.07% Impervious Runoff Depth>7.57"
Tc=6.0 min CN=94 Runoff=1.79 cfs 0.141 af

Subcatchment CB22: CB 22 Runoff Area=9,755 sf 100.00% Impervious Runoff Depth>8.05"
Tc=6.0 min CN=98 Runoff=1.83 cfs 0.150 af

Subcatchment CB23: CB 23 Runoff Area=10,948 sf 21.30% Impervious Runoff Depth>5.78"
Tc=6.0 min CN=79 Runoff=1.68 cfs 0.121 af

Subcatchment CB24: CB 24 Runoff Area=5,087 sf 100.00% Impervious Runoff Depth>8.05"
Tc=6.0 min CN=98 Runoff=0.95 cfs 0.078 af

Subcatchment CB25: CB 25 Runoff Area=18,502 sf 92.36% Impervious Runoff Depth>7.81"
Tc=6.0 min CN=96 Runoff=3.44 cfs 0.277 af

Subcatchment CB26: CB 26 Runoff Area=13,963 sf 74.40% Impervious Runoff Depth>7.33"
Tc=6.0 min CN=92 Runoff=2.53 cfs 0.196 af

Subcatchment CB27: CB 27 Runoff Area=16,516 sf 76.08% Impervious Runoff Depth>7.33"
Tc=6.0 min CN=92 Runoff=3.00 cfs 0.232 af

Subcatchment CB28: CB 28 Runoff Area=15,650 sf 12.88% Impervious Runoff Depth>5.54"
Flow Length=155' Slope=0.0100 '/' Tc=10.1 min CN=77 Runoff=2.02 cfs 0.166 af

Subcatchment CB29: CB 29 Runoff Area=3,826 sf 63.83% Impervious Runoff Depth>6.98"
Tc=6.0 min CN=89 Runoff=0.68 cfs 0.051 af

Subcatchment CB3: CB 3 Runoff Area=2,586 sf 100.00% Impervious Runoff Depth>8.05"
Tc=6.0 min CN=98 Runoff=0.48 cfs 0.040 af

Subcatchment CB4: CB 4 Runoff Area=5,748 sf 19.78% Impervious Runoff Depth>5.78"
Tc=6.0 min CN=79 Runoff=0.88 cfs 0.064 af

Subcatchment CB5: CB 5 Runoff Area=4,607 sf 55.72% Impervious Runoff Depth>6.74"
Tc=6.0 min CN=87 Runoff=0.80 cfs 0.059 af

Subcatchment CB6: CB 6 Runoff Area=16,597 sf 91.90% Impervious Runoff Depth>7.81"
Tc=6.0 min CN=96 Runoff=3.08 cfs 0.248 af

Subcatchment CB7: CB 7 Runoff Area=8,306 sf 95.32% Impervious Runoff Depth>7.93"
Tc=6.0 min CN=97 Runoff=1.55 cfs 0.126 af

Subcatchment CB8: CB 8 Runoff Area=19,568 sf 87.44% Impervious Runoff Depth>7.69"
Tc=6.0 min CN=95 Runoff=3.62 cfs 0.288 af

Subcatchment CB9: CB 9 Runoff Area=18,538 sf 99.15% Impervious Runoff Depth>8.05"
Tc=6.0 min CN=98 Runoff=3.47 cfs 0.286 af

Subcatchment HW10: HW 10 Runoff Area=10,317 sf 23.07% Impervious Runoff Depth>5.90"
Tc=6.0 min CN=80 Runoff=1.61 cfs 0.116 af

Subcatchment HW12: HW 12 Runoff Area=9,350 sf 24.90% Impervious Runoff Depth>5.90"
Tc=6.0 min CN=80 Runoff=1.46 cfs 0.106 af

Subcatchment HW25: HW 25 Runoff Area=40,728 sf 17.33% Impervious Runoff Depth>5.66"
Tc=6.0 min CN=78 Runoff=6.14 cfs 0.441 af

Subcatchment HW7: HW 7 Runoff Area=10,701 sf 18.13% Impervious Runoff Depth>5.66"
Tc=6.0 min CN=78 Runoff=1.61 cfs 0.116 af

Subcatchment HW9: HW 9 Runoff Area=68,163 sf 12.68% Impervious Runoff Depth>5.54"
Flow Length=320' Tc=8.8 min CN=77 Runoff=9.17 cfs 0.723 af

Reach 1R: Analysis Point #1 Inflow=6.24 cfs 0.546 af
Outflow=6.24 cfs 0.546 af

Reach 2R: Analysis Point #2 Inflow=37.19 cfs 6.030 af
Outflow=37.19 cfs 6.030 af

Reach 3R: Analysis Point #3 Inflow=4.51 cfs 0.346 af
Outflow=4.51 cfs 0.346 af

Reach 4R: Analysis Point #4 Inflow=24.33 cfs 3.615 af
Outflow=24.33 cfs 3.615 af

Reach 5R: Analysis Point #5 Inflow=10.01 cfs 1.024 af
Outflow=10.01 cfs 1.024 af

Reach HW10R: HW 10 Avg. Flow Depth=0.35' Max Vel=5.72 fps Inflow=1.61 cfs 0.116 af
15.0" Round Pipe n=0.012 L=10.0' S=0.0180 '/' Capacity=9.39 cfs Outflow=1.61 cfs 0.116 af

Reach HW12R: HW 12 Avg. Flow Depth=0.48' Max Vel=3.36 fps Inflow=1.46 cfs 0.106 af
15.0" Round Pipe n=0.012 L=18.0' S=0.0044 '/' Capacity=4.67 cfs Outflow=1.46 cfs 0.106 af

Reach HW25R: HW 25 Avg. Flow Depth=0.89' Max Vel=6.61 fps Inflow=6.14 cfs 0.441 af
15.0" Round Pipe n=0.012 L=15.0' S=0.0107 '/' Capacity=7.23 cfs Outflow=6.14 cfs 0.441 af

Reach HW7R: HW 7 Avg. Flow Depth=0.22' Max Vel=10.83 fps Inflow=1.61 cfs 0.116 af
15.0" Round Pipe n=0.012 L=10.0' S=0.1090 '/' Capacity=23.10 cfs Outflow=1.61 cfs 0.116 af

Reach HW9R: HW 9 Avg. Flow Depth=1.25' Max Vel=6.50 fps Inflow=9.17 cfs 0.723 af
15.0" Round Pipe n=0.012 L=10.0' S=0.0100 '/' Capacity=7.00 cfs Outflow=7.35 cfs 0.723 af

Pond 1P: Pond 1 Peak Elev=219.15' Storage=53,864 cf Inflow=18.42 cfs 1.413 af
Outflow=3.08 cfs 0.952 af

Pond 2P: Pond 2 Peak Elev=219.37' Storage=107,861 cf Inflow=37.22 cfs 3.071 af
Outflow=5.06 cfs 2.662 af

Pond 3P: POND 3 Peak Elev=224.11' Storage=122,240 cf Inflow=34.54 cfs 3.017 af
Outflow=3.17 cfs 1.984 af

Pond B12P: BLDG 12 Drip Edge Peak Elev=232.01' Storage=1,604 cf Inflow=0.69 cfs 0.057 af
Outflow=0.23 cfs 0.020 af

Pond B13P: BLDG 13 Drip Edge Peak Elev=230.01' Storage=1,219 cf Inflow=0.52 cfs 0.043 af
Outflow=0.16 cfs 0.015 af

Pond B15P: BLDG 15 Drip Edge Peak Elev=228.01' Storage=1,219 cf Inflow=0.52 cfs 0.043 af
Outflow=0.16 cfs 0.015 af

Pond B1P: BLDG 1 Drip Edge Peak Elev=226.01' Storage=1,604 cf Inflow=0.69 cfs 0.057 af
Outflow=0.23 cfs 0.020 af

Pond B2P: BLDG 2 Drip Edge Peak Elev=228.01' Storage=1,219 cf Inflow=0.52 cfs 0.043 af
Outflow=0.16 cfs 0.015 af

Pond B6P: BLDG 6 Drip Edge Peak Elev=229.01' Storage=1,219 cf Inflow=0.52 cfs 0.043 af
Outflow=0.16 cfs 0.015 af

Pond B7P: BLDG 7 Drip Edge Peak Elev=229.51' Storage=770 cf Inflow=0.34 cfs 0.028 af
Outflow=0.13 cfs 0.010 af

Pond CB10P: CB 10 Peak Elev=228.81' Inflow=3.42 cfs 0.264 af
15.0" Round Culvert n=0.012 L=32.0' S=0.0200 '/' Outflow=3.42 cfs 0.264 af

Pond CB11P: CB 11 Peak Elev=229.74' Inflow=0.48 cfs 0.037 af
15.0" Round Culvert n=0.012 L=30.0' S=0.0050 '/' Outflow=0.48 cfs 0.037 af

Pond CB12P: CB 12 Peak Elev=229.73' Inflow=14.42 cfs 1.108 af
24.0" Round Culvert n=0.012 L=214.0' S=0.0050 '/' Outflow=14.42 cfs 1.108 af

Pond CB14P: CB 14 Peak Elev=230.61' Inflow=3.36 cfs 0.265 af
24.0" Round Culvert n=0.012 L=22.0' S=0.0050 '/' Outflow=3.36 cfs 0.265 af

Pond CB15P: CB 15 Peak Elev=231.78' Inflow=7.51 cfs 0.580 af
18.0" Round Culvert n=0.012 L=60.0' S=0.0100 '/' Outflow=7.51 cfs 0.580 af

Pond CB16P: CB 16 Peak Elev=232.53' Inflow=4.10 cfs 0.303 af
15.0" Round Culvert n=0.012 L=48.0' S=0.0100 '/' Outflow=4.10 cfs 0.303 af

Pond CB17P: CB 17 Peak Elev=228.83' Inflow=2.44 cfs 0.198 af
15.0" Round Culvert n=0.012 L=128.0' S=0.0150 '/' Outflow=2.44 cfs 0.198 af

Pond CB18P: CB 18 Peak Elev=228.85' Inflow=0.80 cfs 0.066 af
15.0" Round Culvert n=0.012 L=22.0' S=0.0150 '/' Outflow=0.80 cfs 0.066 af

Pond CB19P: CB 19 Peak Elev=227.36' Inflow=1.54 cfs 0.127 af
15.0" Round Culvert n=0.012 L=22.0' S=0.0050 '/' Outflow=1.54 cfs 0.127 af

Pond CB1P: CB 1 Peak Elev=222.66' Inflow=1.93 cfs 0.159 af
15.0" Round Culvert n=0.012 L=22.0' S=0.0050 '/' Outflow=1.93 cfs 0.159 af

Pond CB20P: CB 20 Peak Elev=227.21' Inflow=3.01 cfs 0.245 af
15.0" Round Culvert n=0.012 L=296.0' S=0.0120 '/' Outflow=3.01 cfs 0.245 af

Pond CB21P: CB 21 Peak Elev=231.35' Inflow=1.79 cfs 0.141 af
15.0" Round Culvert n=0.012 L=28.0' S=0.0050 '/' Outflow=1.79 cfs 0.141 af

Pond CB22P: CB 22 Peak Elev=231.20' Inflow=3.61 cfs 0.291 af
15.0" Round Culvert n=0.012 L=32.0' S=0.0050 '/' Outflow=3.61 cfs 0.291 af

Pond CB23P: CB 23 Peak Elev=230.03' Inflow=6.24 cfs 0.491 af
15.0" Round Culvert n=0.012 L=220.0' S=0.0120 '/' Outflow=6.24 cfs 0.491 af

Pond CB24P: CB 24 Peak Elev=230.06' Inflow=0.95 cfs 0.078 af
15.0" Round Culvert n=0.012 L=22.0' S=0.0100 '/' Outflow=0.95 cfs 0.078 af

Pond CB25P: CB 25 Peak Elev=228.15' Inflow=9.58 cfs 0.718 af
24.0" Round Culvert n=0.012 L=5.0' S=0.0100 '/' Outflow=9.58 cfs 0.718 af

Pond CB26P: CB 26 Peak Elev=225.76' Inflow=18.35 cfs 1.404 af
30.0" Round Culvert n=0.012 L=32.0' S=0.0050 '/' Outflow=18.35 cfs 1.404 af

Pond CB27P: CB 27 Peak Elev=224.79' Inflow=24.36 cfs 1.881 af
36.0" Round Culvert n=0.012 L=100.0' S=0.0050 '/' Outflow=24.36 cfs 1.881 af

Pond CB28P: CB 28 Peak Elev=222.06' Inflow=2.02 cfs 0.166 af
15.0" Round Culvert n=0.012 L=22.0' S=0.0050 '/' Outflow=2.02 cfs 0.166 af

Pond CB29P: CB 29 Peak Elev=221.84' Inflow=2.60 cfs 0.217 af
15.0" Round Culvert n=0.012 L=18.0' S=0.0050 '/' Outflow=2.60 cfs 0.217 af

Pond CB2P: CB 2 Peak Elev=222.49' Inflow=12.39 cfs 0.981 af
18.0" Round Culvert n=0.012 L=106.0' S=0.0051 '/' Outflow=12.39 cfs 0.981 af

Pond CB3P: CB 3 Peak Elev=227.18' Inflow=8.41 cfs 0.653 af
15.0" Round Culvert n=0.012 L=228.0' S=0.0126 '/' Outflow=8.41 cfs 0.653 af

Pond CB4P: CB 4 Peak Elev=230.06' Inflow=7.92 cfs 0.613 af
15.0" Round Culvert n=0.012 L=24.0' S=0.0050 '/' Outflow=7.92 cfs 0.613 af

Pond CB5P: CB 5 Peak Elev=232.33' Inflow=0.80 cfs 0.059 af
15.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=0.80 cfs 0.059 af

Pond CB6P: CB 6 Peak Elev=234.81' Inflow=6.25 cfs 0.490 af
15.0" Round Culvert n=0.012 L=220.0' S=0.0050 '/' Outflow=6.25 cfs 0.490 af

Pond CB7P: CB 7 Peak Elev=235.27' Inflow=3.16 cfs 0.242 af
15.0" Round Culvert n=0.012 L=22.0' S=0.0050 '/' Outflow=3.16 cfs 0.242 af

Pond CB8P: CB 8 Peak Elev=226.98' Inflow=34.37 cfs 2.866 af
36.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=34.37 cfs 2.866 af

Pond CB9P: CB 3 Peak Elev=228.28' Inflow=30.75 cfs 2.578 af
36.0" Round Culvert n=0.012 L=28.0' S=0.0050 '/' Outflow=30.75 cfs 2.578 af

Pond DMH1: DMH 1 Peak Elev=232.31' Inflow=7.04 cfs 0.549 af
15.0" Round Culvert n=0.012 L=14.0' S=0.0050 '/' Outflow=7.04 cfs 0.549 af

Pond DMH13: DMH 13 Peak Elev=230.56' Inflow=10.88 cfs 0.845 af
24.0" Round Culvert n=0.012 L=90.0' S=0.0100 '/' Outflow=10.88 cfs 0.845 af

Pond DMH2: DMH 2 Peak Elev=228.56' Inflow=2.44 cfs 0.198 af
15.0" Round Culvert n=0.012 L=136.0' S=0.0150 '/' Outflow=2.44 cfs 0.198 af

Pond DMH3: DMH 3 Peak Elev=225.35' Inflow=34.37 cfs 2.866 af
36.0" Round Culvert n=0.012 L=120.0' S=0.0050 '/' Outflow=34.37 cfs 2.866 af

Pond DMH4: DMH 4 Peak Elev=223.71' Inflow=34.37 cfs 2.866 af
36.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=34.37 cfs 2.866 af

Pond DMH5: DMH 5 Peak Elev=227.51' Inflow=15.82 cfs 1.208 af
24.0" Round Culvert n=0.012 L=24.0' S=0.0050 '/' Outflow=15.82 cfs 1.208 af

Pond DMH6: DMH 6 Peak Elev=230.61' Inflow=3.61 cfs 0.291 af
15.0" Round Culvert n=0.012 L=118.0' S=0.0052 '/' Outflow=3.61 cfs 0.291 af

Total Runoff Area = 27.946 ac Runoff Volume = 13.667 af Average Runoff Depth = 5.87"
71.50% Pervious = 19.982 ac 28.50% Impervious = 7.964 ac

Table 3-4 provides values of runoff depth from pervious areas for various rainfall depths and HSGs. Soils are assigned to an HSG on the basis of their permeability. HSG A is the most permeable, and HSG D is the least permeable. HSG categories for pervious areas in the drainage area shall be estimated by consulting local soil surveys prepared by the National Resource Conservation Service (NRCS) or by a storm water professional evaluating soil testing results from the drainage area. If the HSG condition is not known, a HSG C soil condition should be assumed.

Table 3- 4: Developed Land Pervious Area Runoff Depths based on Precipitation depth and Hydrological Soil Groups (HSGs)

Developed Land Pervious Area Runoff Depths based on Precipitation depth and Hydrological Soil Groups					
	Runoff Depth, inches				
Rainfall Depth, Inches	Pervious HSG A	Pervious HSG B	Pervious HSG C	Pervious HSG C/D	Pervious HSG D
0.10	0.00	0.00	0.00	0.00	0.00
0.20	0.00	0.00	0.01	0.02	0.02
0.40	0.00	0.00	0.03	0.05	0.06
0.50	0.00	0.01	0.05	0.07	0.09
0.60	0.01	0.02	0.06	0.09	0.11
0.80	0.02	0.03	0.09	0.13	0.16
1.00	0.03	0.04	0.12	0.17	0.21
1.20	0.04	0.05	0.14	0.27	0.39
1.50	0.08	0.11	0.39	0.55	0.72
2.00	0.14	0.22	0.69	0.89	1.08

Notes: Runoff depths derived from combination of volumetric runoff coefficients from Table 5 of *Small Storm Hydrology and Why it is Important for the Design of Stormwater Control Practices*, (Pitt, 1999), and using the Stormwater Management Model (SWMM) in continuous model mode for hourly precipitation data for Boston, MA, 1998-2002.

Example 3-3: Determine the design storage volume of a structural BMP to achieve a known phosphorus load reduction target when the contributing drainage area has impervious and pervious surfaces*:

*The approach used in this example for phosphorus is equally applicable for nitrogen.

A permittee is considering a gravel wetland system to treat runoff from a high-density residential (HDR) site. The site is 7.5 acres of which 4.0 acres are impervious surfaces and 3.50 acres are pervious surfaces. The pervious area is made up of 2.5 acres of lawns in good condition surrounding cluster housing units and 1.0 acre of stable unmanaged woodland. Soils information indicates that all of the woodland and 0.5 acres of the lawn is hydrologic soil group (HSG) B and the other 2.0 acres of lawn are HSG C. The permittee wants to size the gravel wetland system to achieve a cumulative phosphorus load reduction (P_{Target}) of 55% from the entire 7.5 acres.

0.9"

BMP Capacity: Depth of Runoff from Impervious Area (inches)	0.1	0.2	0.4	0.6	0.8	1.0	1.5	2.0
Cumulative Phosphorus Load Reduction	14%	25%	37%	44%	48%	53%	58%	63%
Cumulative Nitrogen Load Reduction	9%	16%	23%	28%	31%	32%	37%	40%

50%

Figure 3-18: BMP Performance Curve: Wet Pond

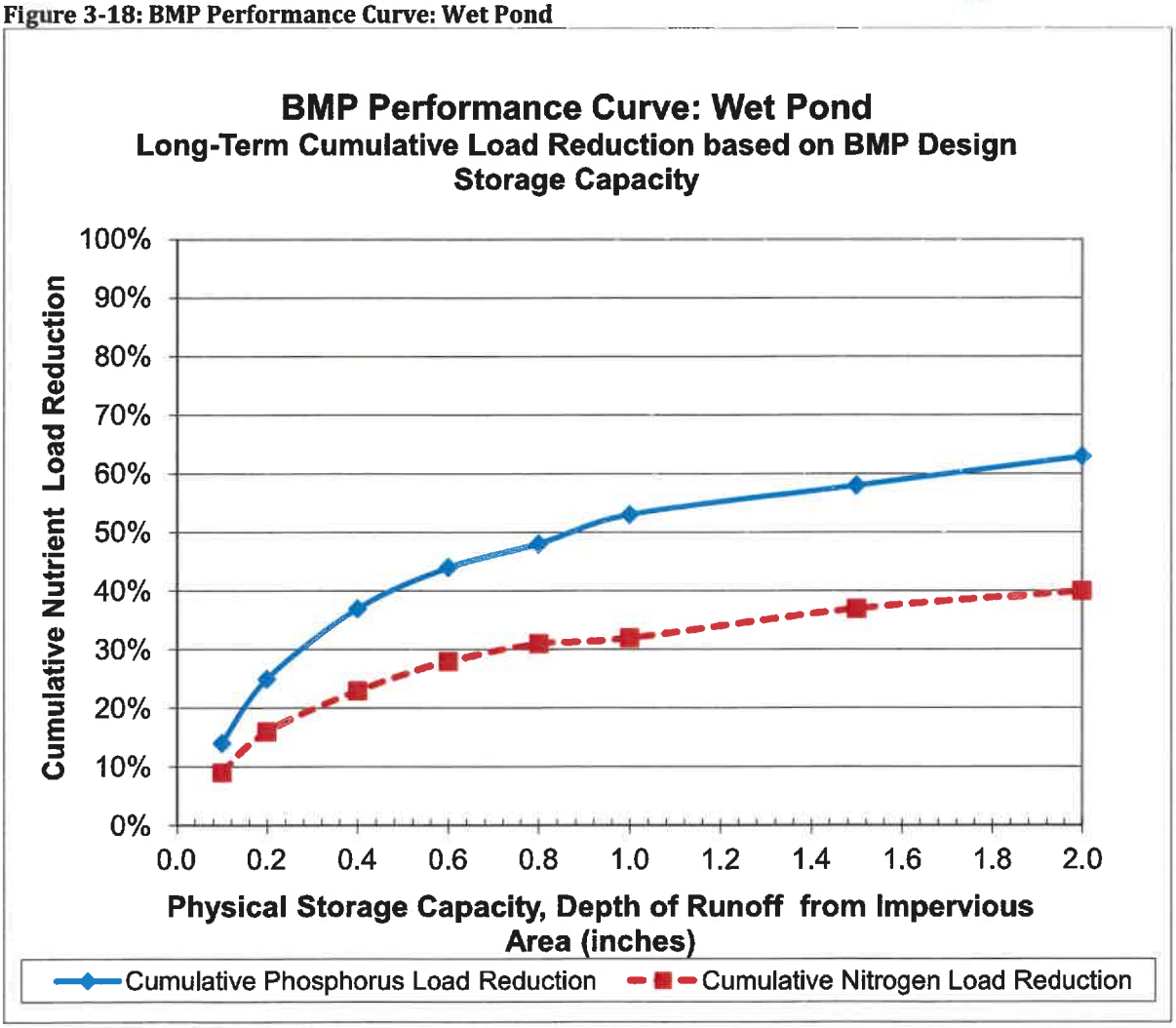


Table 3-24: Dry Pond BMP Performance Table

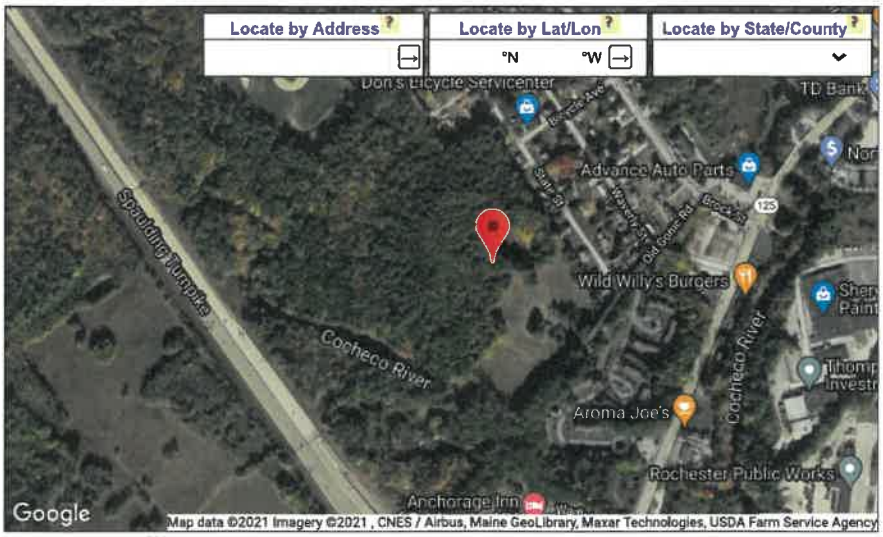
Extended Dry Pond BMP Performance Table: Long-Term Phosphorus & Nitrogen Load Reduction

Select Product

- Extreme Precipitation Tables - HTML
- Extreme Precipitation Tables - Text/CSV
- Partial Duration Series - by Point
- Partial Duration Series - by Station
- Distribution Curves - Graphical
- Distribution Curves - Text/TBL
- Intensity Frequency Duration Graphs
- Precipitation Frequency Duration Graphs
- GIS Data Files
- Regional/State Maps

Select Location Double-click the map to place a marker, or enter address or latitude/longitude.

Locate by Address | Locate by Lat/Lon (°N °W) | Locate by State/County



Select Options

Smoothing	Delivery
Yes	Popup

Submit

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This project is a joint collaboration between:

Northeast Regional Climate Center (NRCC) | Natural Resources Conservation Service (NRCS)

Contact: precip@cornell.edu

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.981 degrees West
Latitude	43.288 degrees North
Elevation	0 feet
Date/Time	Tue, 09 Nov 2021 08:17:37 -0500

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.49	0.65	0.81	1.02	**1yr**	0.70	0.97	1.19	1.53	1.97	2.55	2.83	**1yr**	2.26	2.72	3.14	3.86	4.43	**1yr**
2yr	0.32	0.49	0.61	0.80	1.01	1.28	**2yr**	0.87	1.16	1.49	1.89	2.41	3.08	3.44	**2yr**	2.73	3.31	3.81	4.54	5.18	**2yr**
5yr	0.37	0.57	0.72	0.96	1.23	1.58	**5yr**	1.06	1.44	1.85	2.36	3.03	3.88	4.40	**5yr**	3.44	4.23	4.86	5.71	6.45	**5yr**
10yr	0.41	0.64	0.81	1.10	1.43	1.85	**10yr**	1.23	1.69	2.18	2.80	3.60	4.63	5.30	**10yr**	4.10	5.09	5.84	6.79	7.63	**10yr**
25yr	0.47	0.75	0.95	1.31	1.74	2.28	**25yr**	1.50	2.08	2.70	3.51	4.53	5.84	6.77	**25yr**	5.17	6.51	7.46	8.54	9.53	**25yr**
50yr	0.52	0.84	1.08	1.51	2.03	2.69	**50yr**	1.75	2.45	3.20	4.17	5.40	6.96	8.16	**50yr**	6.16	7.85	8.98	10.16	11.27	**50yr**
100yr	0.59	0.96	1.23	1.74	2.37	3.17	**100yr**	2.04	2.88	3.78	4.94	6.42	8.30	9.84	**100yr**	7.35	9.46	10.81	12.11	13.35	**100yr**
200yr	0.66	1.07	1.39	2.00	2.76	3.73	**200yr**	2.39	3.40	4.48	5.88	7.66	9.91	11.87	**200yr**	8.77	11.41	13.01	14.42	15.81	**200yr**
500yr	0.78	1.28	1.67	2.43	3.40	4.63	**500yr**	2.93	4.22	5.58	7.37	9.65	12.53	15.21	**500yr**	11.09	14.62	16.65	18.19	19.78	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.24	0.36	0.44	0.60	0.73	0.90	**1yr**	0.63	0.88	0.92	1.25	1.47	2.01	2.44	**1yr**	1.78	2.35	2.91	3.32	3.96	**1yr**
2yr	0.31	0.48	0.59	0.80	0.99	1.17	**2yr**	0.85	1.15	1.35	1.80	2.32	2.99	3.34	**2yr**	2.64	3.21	3.69	4.41	5.03	**2yr**
5yr	0.35	0.54	0.67	0.91	1.16	1.40	**5yr**	1.00	1.36	1.60	2.12	2.75	3.59	4.04	**5yr**	3.18	3.88	4.52	5.32	6.02	**5yr**
10yr	0.38	0.59	0.73	1.02	1.32	1.59	**10yr**	1.14	1.56	1.81	2.40	3.09	4.10	4.66	**10yr**	3.63	4.48	5.22	6.12	6.86	**10yr**
25yr	0.44	0.67	0.83	1.19	1.57	1.90	**25yr**	1.35	1.86	2.11	2.81	3.58	4.88	5.62	**25yr**	4.32	5.40	6.34	7.32	8.08	**25yr**
50yr	0.49	0.74	0.92	1.33	1.79	2.19	**50yr**	1.54	2.14	2.37	3.16	3.98	5.56	6.46	**50yr**	4.92	6.22	7.35	8.40	9.30	**50yr**
100yr	0.55	0.83	1.03	1.49	2.05	2.51	**100yr**	1.77	2.45	2.68	3.55	4.41	6.33	7.43	**100yr**	5.60	7.14	8.53	9.64	10.58	**100yr**
200yr	0.61	0.92	1.16	1.68	2.34	2.88	**200yr**	2.02	2.82	3.01	3.99	4.89	7.19	8.54	**200yr**	6.36	8.21	9.89	11.06	12.05	**200yr**
500yr	0.71	1.06	1.37	1.98	2.82	3.49	**500yr**	2.43	3.41	3.54	4.65	5.62	8.47	10.27	**500yr**	7.50	9.87	12.02	13.27	14.26	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.43	0.53	0.71	0.87	1.07	**1yr**	0.75	1.05	1.23	1.70	2.15	2.78	3.05	**1yr**	2.46	2.93	3.38	4.16	4.76	**1yr**
2yr	0.33	0.50	0.62	0.84	1.04	1.24	**2yr**	0.89	1.21	1.45	1.93	2.51	3.20	3.57	**2yr**	2.83	3.44	3.95	4.69	5.34	**2yr**
5yr	0.39	0.60	0.75	1.02	1.30	1.57	**5yr**	1.13	1.53	1.83	2.46	3.16	4.18	4.75	**5yr**	3.70	4.57	5.21	6.10	6.86	**5yr**
10yr	0.46	0.70	0.87	1.21	1.57	1.89	**10yr**	1.35	1.85	2.21	3.00	3.81	5.15	5.91	**10yr**	4.56	5.68	6.51	7.44	8.32	**10yr**
25yr	0.56	0.85	1.06	1.51	1.98	2.43	**25yr**	1.71	2.38	2.84	3.90	4.91	6.81	7.90	**25yr**	6.03	7.60	8.67	9.86	10.78	**25yr**
50yr	0.65	0.98	1.23	1.76	2.37	2.93	**50yr**	2.05	2.86	3.44	4.74	5.96	8.41	9.86	**50yr**	7.44	9.48	10.78	12.10	13.24	**50yr**
100yr	0.76	1.14	1.43	2.07	2.84	3.52	**100yr**	2.45	3.44	4.17	5.79	7.25	10.39	12.30	**100yr**	9.20	11.83	13.41	14.88	16.15	**100yr**
200yr	0.88	1.33	1.68	2.44	3.40	4.25	**200yr**	2.93	4.16	5.07	7.06	8.81	12.88	15.38	**200yr**	11.40	14.79	16.68	18.28	19.74	**200yr**
500yr	1.09	1.61	2.08	3.02	4.29	5.44	**500yr**	3.70	5.31	6.53	9.21	11.43	17.14	20.66	**500yr**	15.17	19.87	22.28	24.05	25.74	**500yr**

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Northeast Regional Climate Center

SITE-SPECIFIC SOIL SURVEY REPORT
For
19 Old Gonic Road, Rochester, NH
By
Gove Environmental Services, Inc.

1. MAPPING STANDARDS

Site-Specific Soil Mapping Standards for New Hampshire and Vermont. SSSNNE Special Publication No. 3, current version. This map product is within the technical standards of the National Cooperative Soil Survey. It is a special product, intended for the submission to NH DES Alteration of Terrain. It was produced by a professional soil scientist and is not a product of the USDA Natural Resource Conservation Service.

OVERVIEW:

The area has two separate land forms. At the lower, flatter elevations, the soils are dominated by sand over clay or silts. In some areas, the silts are at the surface, but, for the most part a mantle of sand overlays the silts and clays. These soils extend down to Axe Handle Brook.

The upper land form is a large hill that is dominated by bedrock and a sandy hard pan. One side of the hill (south slope) there is exposed bedrock and very shallow soils. On the majority of the hill, the soils are deep (greater than 40 inches), but the sandy hard pan is within the 40 inch control section and thus is both a mineral restrictive layer and the estimated seasonal high water table.

On the southwestern corner of the area is a rock dam in the Axe Handle Brook and man-made fill area to the south of the dam. Rock and loam were dumped into this area.

This map product is within the technical standards of the National Cooperative Soil Survey. It is a special purpose product, intended for infiltration requirements by the NH DES Alteration of Terrain Bureau. It was produced by a professional soil scientist, and is not a product of the USDA Natural Resources Conservation Service. There is a report that accompanies this map.

The site specific soil survey (SSSS) was produced July 21, 2021, and was prepared by James P. Gove, CSS # 004, Gove Environmental Services, Inc. The survey area is located at 19 Old Gonic Road, Rochester, NH.

Soils were identified with the New Hampshire State-wide Numerical Soils Legend, USDA NRCS, Durham, NH. Issue # 10, January 2011. The numeric legend was amended to identify the correct soil components of the complex.

Hydrologic Soil Group from Ksat Values for New Hampshire Soils, Society of Soil Scientists of New England, Special Publication No. 5, September, 2009.

SSSS SYM.	SSSS MAP NAME	HISS SYM.	HYDRO. SOIL GRP.
953	Boxford (somewhat poorly drained)	453	C
38	Eldridge loamy sand	343	C
141	Hollis-Rock Outcrop-Chatfield	228	D
448	Scituate fine sandy loam	323	C
500	Udorthents, loamy	762	N/A
538	Squamscott loamy sand	543	C

SLOPE PHASE:

0-8%	B	8-15%	C	15-25%	D
25%+	E				

Scale of soil map:

Approximately 1" equals 100'

Contours:

Intervals of 2 feet

2. DATE SOIL MAP PRODUCED

Date(s) of on-site field work: June and July of 2021

Date(s) of test pits: 07-12-2021

Test pits recorded by: J.P. Gove

3. GEOGRAPHIC LOCATION AND SIZE OF SITE

City or town where soil mapping was conducted: Rochester

Location: North of Old Gonic Road, Tax map 131, lot 1

Size of area: approximately 32 acres

Was the map for the entire lots? yes

If no, where was the mapping conducted on the parcel: n/a

4. PURPOSE OF THE SOIL MAP

Was the map prepared to meet the requirement of Alteration of Terrain? Yes

If no, what was the purpose of the map? N/A

Who was the map prepared for? Green and Company

5. SOIL MAP UNIT DESCRIPTIONS – SOIL DESCRIPTIONS - PHOTOS

SSSS SYM.	SSSS MAP NAME	HISS SYM.	HYDRO. SOIL GRP.
953	Boxford (somewhat poorly drained)	453	C

Boxford silt loam is a marine silt/clay that is somewhat poorly drained, with water tables of less than 15 inches, but not hydric. This is a minor soil area for the site and limited to the southern portion. This soil wets up quickly and drains slowly.

38	Eldridge loamy sand	343	C

Eldridge loamy sand has a topsoil subsoil of sand/loamy sand over a substratum of silt and clay. The water tables range from 15 to 30 inches. This map unit dominates the northern and western portion of the site, in the flat areas away from the major hill that covers the middle and southern portion of the site. While the silt/clay substratum retains water, the sands above allow the water to move away toward the brook.

141	Hollis-Rock Outcrop-Chatfield	228	D

This bedrock controlled map unit is a small area that is on the southern steep slopes of the hill. Bedrock is virtually at the surface or covered with a thin mantle of loam. This map unit is mostly Hollis and Rock Outcrop, with Chatfield being a very minor component.

448	Scituate fine sandy loam	323	C

Scituate fine sandy loam is a moderately well drained soil with a sandy dense hard pan in the substratum. The water tables are 20 to 30 inches. What is more interesting about these soil map units are the fact they are deep (greater than 40 inches) but not very deep (greater than 60 to 80 inches). Bedrock was found in the majority of the soil profiles between 40 and 60 inches. These soil map units are over the hill and side slopes of the hill landform in the middle and southern portion of the site.

500	Udorthents, loamy	762	N/A

This map unit represents the old rock dam and fill/boulders/rock that was placed behind the dam and downstream of the structure. There was no attempt made to characterize this man-made area. No slopes were assigned to this broken landscape.

538	Squamscott loamy sand	543	C

These map units represent the wetlands on the site. The water tables are at or near the surface. The soils are either sand over silts or mostly silts (which would be an inclusion).

Detail soil descriptions are in the test pit report for the site. This is a separate document from this report.

6. RESPONSIBLE SOIL SCIENTIST

Name: James P. Gove

Certified Soil Scientist Number: 004

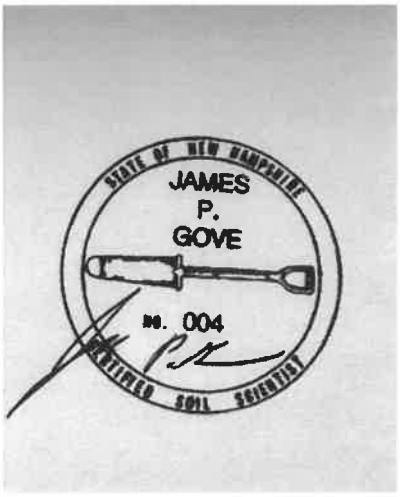
7. OTHER DISTINGUISHING FEATURES OF SITE

Is the site in a natural condition? For the majority of the site.

If no, what is the nature of the disturbance? Area at the dam and south of the dam.

Stamp of CSS

7-21-2021



NEW HAMPSHIRE DEPARTMENT OF Environmental Services

STORMWATER POND DESIGN CRITERIA

Env-Wq 1508.03

Type/Node Name: **Wet Pond 1 - 1P**

Enter the type of stormwater pond (e.g., Wet Pond) and the node name in the drainage analysis, if applicable.

2.54	ac	A = Area draining to the practice	
1.32	ac	A_I = Impervious area draining to the practice	
0.52	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.52	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
1.32	ac-in	WQV= 1" x Rv x A	
4,789	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
479	cf	10% x WQV (check calc for sediment forebay and micropool volume)	
2,395	cf	50% x WQV (check calc for extended detention volume)	
600	cf	V_{SED} = Sediment forebay volume	≥ 10%WQV
21,306	cf	V_{PP} = Permanent pool volume (volume below the lowest invert of the outlet structure) Attach stage-storage table.	
no	cf	Extended Detention?[1]	≤ 50% WQV
-		V_{ED} = Volume of extended detention (if "yes" is given in box above)	
		E_{ED} = Elevation of WQV if "yes" is given in box above[2]	
-	cfs	$2Q_{avg}$ = 2* V_{ED} / 24 hrs * (1hr / 3600 sec) (used to check against Q_{EDmax} below)	
	cfs	Q_{EDmax} = Discharge at the E_{ED} (attach stage-discharge table)	< $2Q_{avg}$
-	hours	T_{ED} = Drawdown time of extended detention = $2V_{ED}/Q_{EDmax}$	≥ 24-hrs
3.00	:1	Pond side slopes	≥3:1
224.10	ft	Elevation of seasonal high water table	
216.00	ft	Elevation of lowest pond outlet	
213.00	ft	Max floor = Maximum elevation of pond bottom (ft)	
208.00	ft	Minimum floor (to maintain depth at less than 8')	≤ 8 ft
212.00	ft	Elevation of pond floor[3]	≤ Max floor and > Min floor
210.00	ft	Length of the flow path between the inlet and outlet at mid-depth	
41.00	ft	Average width ([average of the top width + average bottom width]/2)	
5.12	:1	Length to average width ratio	≥ 3:1
Yes	Yes/No	Is the perimeter curvilinear.	← Yes
Yes	Yes/No	Are the inlet and outlet located as far apart as possible.	← Yes
No	Yes/No	Is there a manually-controlled drain to dewater the pond over a 24hr period?	
If no state why:		Adjacent ground elevation too high	
Trash Rack		What mechanism is proposed to prevent the outlet structure from clogging (applicable for orifices/weirs with a dimension of <6")?	
218.94	ft	Peak elevation of the 50-year storm event	
220.00	ft	Berm elevation of the pond	
YES		50 peak elevation ≤ the berm elevation?	←yes

1. If the entire WQV is stored in the perm. pool, there is no extended det., and the following five lines do not apply.

2. This is the elevation of WQV **if** the hydrologic analysis is set up to include the permanent pool storage in the node description.

3. If the pond floor elevation is above the max floor elev., a hydrologic budget must be submitted to demonstrate that a minimum depth of 3 feet can be maintained. (First check whether a revised "lowest pond outlet" elev. will resolve the issue.)

Designer's Notes:

Stage-Area-Storage for Pond 1P: Pond 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
212.00	3,019	0
212.10	3,118	307
212.20	3,219	624
212.30	3,322	951
212.40	3,426	1,288
212.50	3,532	1,636
212.60	3,639	1,995
212.70	3,748	2,364
212.80	3,859	2,744
212.90	3,971	3,136
213.00	4,085	3,538
213.10	4,200	3,953
213.20	4,317	4,378
213.30	4,436	4,816
213.40	4,556	5,266
213.50	4,678	5,727
213.60	4,801	6,201
213.70	4,926	6,688
213.80	5,053	7,187
213.90	5,181	7,698
214.00	5,311	8,223
214.10	5,426	8,760
214.20	5,543	9,308
214.30	5,661	9,868
214.40	5,780	10,440
214.50	5,900	11,024
214.60	6,022	11,621
214.70	6,145	12,229
214.80	6,269	12,850
214.90	6,394	13,483
215.00	6,521	14,128
215.10	6,649	14,787
215.20	6,778	15,458
215.30	6,908	16,143
215.40	7,040	16,840
215.50	7,172	17,551
215.60	7,307	18,274
215.70	7,442	19,012
215.80	7,578	19,763
215.90	7,716	20,528
216.00	7,855	21,306
216.10	7,985	22,098
216.20	8,117	22,903
216.30	8,249	23,722
216.40	8,383	24,553
216.50	8,517	25,398
216.60	8,653	26,257
216.70	8,790	27,129
216.80	8,928	28,015
216.90	9,066	28,914
217.00	9,206	29,828
217.10	9,347	30,756
217.20	9,490	31,697
217.30	9,633	32,654
217.40	9,777	33,624
217.50	9,922	34,609
217.60	10,069	35,609
217.70	10,216	36,623
217.80	10,365	37,652
217.90	10,514	38,696
218.00	11,385	39,758
218.10	11,537	40,904
218.20	11,690	42,066
218.30	11,845	43,243
218.40	12,000	44,435
218.50	12,156	45,643
218.60	12,313	46,866
218.70	12,472	48,105
218.80	12,631	49,360
218.90	12,791	50,631
219.00	12,952	51,919
219.10	13,115	53,222
219.20	13,278	54,542
219.30	13,442	55,878
219.40	13,608	57,230
219.50	13,774	58,599
219.60	13,941	59,985
219.70	14,110	61,388
219.80	14,279	62,807
219.90	14,450	64,243
220.00	**14,621**	**65,697**

Summary for Pond 1P: Pond 1

Inflow Area = 2.539 ac, 52.18% Impervious, Inflow Depth > 5.40" for 50-YR STORM event
Inflow = 14.97 cfs @ 12.09 hrs, Volume= 1.143 af
Outflow = 0.70 cfs @ 14.68 hrs, Volume= 0.730 af, Atten= 95%, Lag= 155.8 min
Primary = 0.70 cfs @ 14.68 hrs, Volume= 0.730 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Starting Elev= 216.00' Surf.Area= 7,855 sf Storage= 21,306 cf
Peak Elev= 218.94' @ 14.68 hrs Surf.Area= 12,862 sf Storage= 51,195 cf (29,889 cf above start)

Plug-Flow detention time= 727.5 min calculated for 0.241 af (21% of inflow)
Center-of-Mass det. time= 237.8 min (1,014.8 - 777.0)

Volume	Invert	Avail.Storage	Storage Description
#1	212.00'	65,697 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
212.00	3,019	361.3	0	0	3,019
214.00	5,311	400.6	8,223	8,223	5,521
216.00	7,855	441.8	13,083	21,306	8,408
217.99	10,650	483.4	18,342	39,648	11,606
218.00	11,385	520.4	110	39,758	14,562
220.00	14,621	558.1	25,939	65,697	17,972

Device	Routing	Invert	Outlet Devices
#1	Primary	216.00'	**12.0" Round Culvert** L= 198.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 216.00' / 215.00' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	216.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	219.00'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	219.50'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.70 cfs @ 14.68 hrs HW=218.94' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.70 cfs of 4.03 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 0.70 cfs @ 8.02 fps)
  - **3=Orifice/Grate** (Controls 0.00 cfs)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

STORMWATER POND DESIGN CRITERIA

Env-Wq 1508.03

Type/Node Name: **Wet Pond 2 - 2P**

Enter the type of stormwater pond (e.g., Wet Pond) and the node name in the drainage analysis, if applicable.

5.53	ac	A = Area draining to the practice	
2.78	ac	A_I = Impervious area draining to the practice	
0.50	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.50	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
2.78	ac-in	WQV= 1" x Rv x A	
10,095	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
1,009	cf	10% x WQV (check calc for sediment forebay and micropool volume)	
5,047	cf	50% x WQV (check calc for extended detention volume)	
1,282	cf	V_{SED} = Sediment forebay volume	**≥ 10%WQV**
41,273	cf	V_{PP} = Permanent pool volume (volume below the lowest invert of the outlet structure) Attach stage-storage table.	
no	cf	Extended Detention?[1]	**≤ 50% WQV**
-		V_{ED} = Volume of extended detention (if "yes" is given in box above)	
		E_{ED} = Elevation of WQV if "yes" is given in box above[2]	
-	cfs	$2Q_{avg}$ = 2* V_{ED} / 24 hrs * (1hr / 3600 sec) (used to check against Q_{EDmax} below)	
	cfs	Q_{EDmax} = Discharge at the E_{ED} (attach stage-discharge table)	**< $2Q_{avg}$**
-	hours	T_{ED} = Drawdown time of extended detention = $2V_{ED}/Q_{EDmax}$	**≥ 24-hrs**
3.00	:1	Pond side slopes	**≥3:1**
224.10	ft	Elevation of seasonal high water table	
216.00	ft	Elevation of lowest pond outlet	
213.00	ft	Max floor = Maximum elevation of pond bottom (ft)	
208.00	ft	Minimum floor (to maintain depth at less than 8')	**≤ 8 ft**
212.00	ft	Elevation of pond floor[3]	**≤ Max floor and > Min floor**
360.00	ft	Length of the flow path between the inlet and outlet at mid-depth	
45.00	ft	Average width ([average of the top width + average bottom width]/2)	
8.00	:1	Length to average width ratio	**≥ 3:1**
Yes	Yes/No	Is the perimeter curvilinear.	**← Yes**
Yes	Yes/No	Are the inlet and outlet located as far apart as possible.	**← Yes**
No	Yes/No	Is there a manually-controlled drain to dewater the pond over a 24hr period?	
If no state why:		Adjacent ground too high	
N/A		What mechanism is proposed to prevent the outlet structure from clogging (applicable for orifices/weirs with a dimension of <6")?	
218.82	ft	Peak elevation of the 50-year storm event	
220.00	ft	Berm elevation of the pond	
YES		50 peak elevation ≤ the berm elevation?	**←yes**

1. If the entire WQV is stored in the perm. pool, there is no extended det., and the following five lines do not apply.

2. This is the elevation of WQV **if** the hydrologic analysis is set up to include the permanent pool storage in the node description.

3. If the pond floor elevation is above the max floor elev., a hydrologic budget must be submitted to demonstrate that a minimum depth of 3 feet can be maintained. (First check whether a revised "lowest pond outlet" elev. will resolve the issue.)

Designer's Notes:

Stage-Area-Storage for Pond 2P: Pond 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
212.00	5,819	0
212.10	6,013	592
212.20	6,210	1,203
212.30	6,411	1,834
212.40	6,614	2,485
212.50	6,821	3,157
212.60	7,031	3,849
212.70	7,244	4,563
212.80	7,461	5,298
212.90	7,680	6,055
213.00	7,903	6,834
213.10	8,129	7,636
213.20	8,358	8,460
213.30	8,590	9,308
213.40	8,826	10,178
213.50	9,064	11,073
213.60	9,306	11,991
213.70	9,551	12,934
213.80	9,799	13,902
213.90	10,050	14,894
214.00	10,305	15,912
214.10	10,528	16,953
214.20	10,753	18,017
214.30	10,981	19,104
214.40	11,211	20,214
214.50	11,443	21,346
214.60	11,678	22,502
214.70	11,915	23,682
214.80	12,155	24,885
214.90	12,396	26,113
215.00	12,641	27,365
215.10	12,887	28,641
215.20	13,137	29,942
215.30	13,388	31,269
215.40	13,642	32,620
215.50	13,898	33,997
215.60	14,157	35,400
215.70	14,418	36,828
215.80	14,681	38,283
215.90	14,947	39,765
216.00	15,215	41,273
216.10	15,456	42,806
216.20	15,700	44,364
216.30	15,945	45,946
216.40	16,192	47,553
216.50	16,441	49,185
216.60	16,692	50,841
216.70	16,944	52,523
216.80	17,199	54,230
216.90	17,456	55,963
217.00	17,714	57,722
217.10	17,974	59,506
217.20	18,237	61,316
217.30	18,501	63,153
217.40	18,767	65,017
217.50	19,035	66,907
217.60	19,305	68,824
217.70	19,576	70,768
217.80	19,850	72,739
217.90	20,126	74,738
218.00	20,403	76,764
218.10	20,665	78,818
218.20	20,929	80,897
218.30	21,194	83,003
218.40	21,462	85,136
218.50	21,730	87,296
218.60	22,001	89,482
218.70	22,273	91,696
218.80	22,547	93,937
218.90	22,823	96,206
219.00	24,753	98,510
219.10	25,025	100,999
219.20	25,299	103,515
219.30	25,574	106,059
219.40	25,850	108,630
219.50	26,128	111,229
219.60	26,408	113,856
219.70	26,689	116,510
219.80	26,972	119,193
219.90	27,256	121,905
220.00	**27,541**	**124,645**

Summary for Pond 2P: Pond 2

Inflow Area = 5.530 ac, 50.32% Impervious, Inflow Depth > 5.38" for 50-YR STORM event
Inflow = 31.55 cfs @ 12.09 hrs, Volume= 2.481 af
Outflow = 4.55 cfs @ 12.62 hrs, Volume= 2.136 af, Atten= 86%, Lag= 31.9 min
Primary = 4.55 cfs @ 12.62 hrs, Volume= 2.136 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Starting Elev= 216.00' Surf.Area= 15,215 sf Storage= 41,273 cf
Peak Elev= 218.82' @ 12.62 hrs Surf.Area= 22,596 sf Storage= 94,341 cf (53,068 cf above start)

Plug-Flow detention time= 427.8 min calculated for 1.188 af (48% of inflow)
Center-of-Mass det. time= 158.1 min (939.0 - 780.9)

Volume	Invert	Avail.Storage	Storage Description
#1	212.00'	124,645 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
212.00	5,819	697.0	0	0	5,819
214.00	10,305	762.4	15,912	15,912	13,553
216.00	15,215	826.9	25,361	41,273	21,864
218.00	20,403	880.1	35,491	76,764	29,290
218.99	23,072	898.9	21,507	98,271	32,093
219.00	24,753	919.7	239	98,510	35,103
220.00	27,541	938.5	26,135	124,645	38,034

Device	Routing	Invert	Outlet Devices
#1	Primary	216.00'	**12.0" Round Culvert** L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 216.00' / 215.50' S= 0.0167 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	216.00'	**6.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	217.85'	**36.0" W x 10.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	219.00'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Primary	219.50'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=4.55 cfs @ 12.62 hrs HW=218.82' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Inlet Controls 4.55 cfs @ 5.79 fps)
  - **2=Orifice/Grate** (Passes < 1.77 cfs potential flow)
  - **3=Orifice/Grate** (Passes < 8.69 cfs potential flow)
  - **4=Orifice/Grate** (Controls 0.00 cfs)
- **5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

STORMWATER POND DESIGN CRITERIA

Env-Wq 1508.03

Type/Node Name: **Wet Pond 3 - 3P**

Enter the type of stormwater pond (e.g., Wet Pond) and the node name in the drainage analysis, if applicable.

5.39	ac	A = Area draining to the practice	
2.87	ac	A_I = Impervious area draining to the practice	
0.53	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.53	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
2.85	ac-in	WQV= 1" x Rv x A	
10,354	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
1,035	cf	10% x WQV (check calc for sediment forebay and micropool volume)	
5,177	cf	50% x WQV (check calc for extended detention volume)	
2,161	cf	V_{SED} = Sediment forebay volume	**≥ 10%WQV**
46,820	cf	V_{PP} = Permanent pool volume (volume below the lowest invert of the outlet structure) Attach stage-storage table.	
no	cf	Extended Detention?[1]	**≤ 50% WQV**
-		V_{ED} = Volume of extended detention (if "yes" is given in box above)	
		E_{ED} = Elevation of WQV if "yes" is given in box above[2]	
-	cfs	$2Q_{avg}$ = 2* V_{ED} / 24 hrs * (1hr / 3600 sec) (used to check against Q_{EDmax} below)	
	cfs	Q_{EDmax} = Discharge at the E_{ED} (attach stage-discharge table)	**< $2Q_{avg}$**
-	hours	T_{ED} = Drawdown time of extended detention = $2V_{ED}/Q_{EDmax}$	**≥ 24-hrs**
3.00	:1	Pond side slopes	**≥3:1**
221.80	ft	Elevation of seasonal high water table	
220.50	ft	Elevation of lowest pond outlet	
216.80	ft	Max floor = Maximum elevation of pond bottom (ft)	
212.50	ft	Minimum floor (to maintain depth at less than 8')	**≤ 8 ft**
216.00	ft	Elevation of pond floor[3]	**≤ Max floor and > Min floor**
225.00	ft	Length of the flow path between the inlet and outlet at mid-depth	
60.00	ft	Average width ([average of the top width + average bottom width]/2)	
3.75	:1	Length to average width ratio	**≥ 3:1**
Yes	Yes/No	Is the perimeter curvilinear.	**← Yes**
Yes	Yes/No	Are the inlet and outlet located as far apart as possible.	**← Yes**
No	Yes/No	Is there a manually-controlled drain to dewater the pond over a 24hr period?	
If no state why:		Adjacent ground too high	
		What mechanism is proposed to prevent the outlet structure from clogging (applicable for orifices/weirs with a dimension of <6")?	
223.68	ft	Peak elevation of the 50-year storm event	
225.00	ft	Berm elevation of the pond	
YES		50 peak elevation ≤ the berm elevation?	**←yes**

1. If the entire WQV is stored in the perm. pool, there is no extended det., and the following five lines do not apply.

2. This is the elevation of WQV if the hydrologic analysis is set up to include the permanent pool storage in the node description.

3. If the pond floor elevation is above the max floor elev., a hydrologic budget must be submitted to demonstrate that a minimum depth of 3 feet can be maintained. (First check whether a revised "lowest pond outlet" elev. will resolve the issue.)

Designer's Notes:

Stage-Area-Storage for Pond 3P: POND 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
216.00	6,199	0
216.10	6,362	628
216.20	6,527	1,272
216.30	6,694	1,933
216.40	6,863	2,611
216.50	7,034	3,306
216.60	7,208	4,018
216.70	7,383	4,748
216.80	7,561	5,495
216.90	7,741	6,260
217.00	7,922	7,043
217.10	8,106	7,845
217.20	8,292	8,664
217.30	8,481	9,503
217.40	8,671	10,361
217.50	8,863	11,237
217.60	9,058	12,133
217.70	9,254	13,049
217.80	9,453	13,984
217.90	9,654	14,940
218.00	9,857	15,915
218.10	10,044	16,910
218.20	10,233	17,924
218.30	10,424	18,957
218.40	10,617	20,009
218.50	10,811	21,080
218.60	11,007	22,171
218.70	11,205	23,282
218.80	11,405	24,412
218.90	11,606	25,563
219.00	11,809	26,734
219.10	12,014	27,925
219.20	12,221	29,137
219.30	12,429	30,369
219.40	12,640	31,623
219.50	12,852	32,897
219.60	13,065	34,193
219.70	13,281	35,510
219.80	13,498	36,849
219.90	13,717	38,210
220.00	13,938	39,593
220.10	14,143	40,997
220.20	14,349	42,421
220.30	14,556	43,867
220.40	14,766	45,333
220.50	14,976	46,820
220.60	15,188	48,328
220.70	15,402	49,857
220.80	15,617	51,408
220.90	15,834	52,981
221.00	16,052	54,575
221.10	16,271	56,191
221.20	16,492	57,829
221.30	16,715	59,490
221.40	16,939	61,172
221.50	17,164	62,878
221.60	17,391	64,605
221.70	17,620	66,356
221.80	17,850	68,129
221.90	18,081	69,926
222.00	19,106	71,750
222.10	19,536	73,682
222.20	19,971	75,657
222.30	20,410	77,676
222.40	20,855	79,739
222.50	21,304	81,847
222.60	21,758	84,000
222.70	22,217	86,199
222.80	22,680	88,444
222.90	23,149	90,735
223.00	23,622	93,074
223.10	24,100	95,460
223.20	24,582	97,894
223.30	25,070	100,376
223.40	25,562	102,908
223.50	26,059	105,489
223.60	26,561	108,120
223.70	27,067	110,801
223.80	27,579	113,533
223.90	28,095	116,317
224.00	28,616	119,153
224.10	29,056	122,036
224.20	29,499	124,964
224.30	29,946	127,936
224.40	30,396	130,953
224.50	30,849	134,015
224.60	31,306	137,123
224.70	31,766	140,277
224.80	32,229	143,476
224.90	32,696	146,723
225.00	**33,166**	**150,016**

Summary for Pond 3P: POND 3

Inflow Area = 5.385 ac, 53.30% Impervious, Inflow Depth > 5.43" for 50-YR STORM event
Inflow = 28.14 cfs @ 12.10 hrs, Volume= 2.439 af
Outflow = 1.62 cfs @ 14.44 hrs, Volume= 1.632 af, Atten= 94%, Lag= 140.6 min
Primary = 1.62 cfs @ 14.44 hrs, Volume= 1.632 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 3
Starting Elev= 220.50' Surf.Area= 14,976 sf Storage= 46,820 cf
Peak Elev= 223.68' @ 14.44 hrs Surf.Area= 26,960 sf Storage= 110,231 cf (63,411 cf above start)

Plug-Flow detention time= 690.7 min calculated for 0.557 af (23% of inflow)
Center-of-Mass det. time= 240.8 min (1,025.2 - 784.4)

Volume	Invert	Avail.Storage	Storage Description
#1	216.00'	150,016 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
216.00	6,199	472.1	0	0	6,199
218.00	9,857	657.6	15,915	15,915	22,913
220.00	13,938	698.6	23,677	39,593	27,541
221.99	18,291	742.3	31,970	71,563	32,753
222.00	19,106	788.4	187	71,750	38,369
224.00	28,616	1,508.5	47,403	119,153	170,010
225.00	33,166	1,527.2	30,863	150,016	174,775

Device	Routing	Invert	Outlet Devices
#1	Primary	220.50'	**12.0" Round Culvert** L= 33.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 220.50' / 220.00' S= 0.0152 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	220.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	224.00'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	224.50'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=1.62 cfs @ 14.44 hrs HW=223.68' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 1.62 cfs of 4.89 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 1.62 cfs @ 8.24 fps)
  - **3=Orifice/Grate** (Controls 0.00 cfs)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

RIP RAP CALCULATIONS
"Bayberry Commons"
19 Old Gonic Road
Rochester, NH

Jones & Beach Engineers, Inc.
P.O. Box 219
Stratham, NH 03885
23-Nov-21

Rip Rap equations were obtained from the *Stormwater Management and Erosion Control Handbook for Urban and Developing Areas in New Hampshire.*
Aprons are sized for the 25-Year storm event.

TAILWATER < HALF THE D_o

$L_a = (1.8 \times Q) / D_0^{3/2} + (7 \times D_o)$
$W = L_a + (3 \times D_o)$ or defined channel width
$d_{50} = (0.02 \times Q^{4/3}) / (T_w \times D_0)$

Culvert or Catch Basin (Sta. No.)	Tailwater (Feet) T_w	Discharge (C.F.S.) Q	Diameter of Pipe D_o	Length of Rip Rap L_a (feet)	Width of Rip Rap W (feet)	d_{50}-Median Stone Rip Rap d50 (feet)
12" ADS (Pond #1)	0.32	0.61	1	8.1	11	0.03
12" ADS (Pond #3)	0.38	1.43	1	9.6	13	0.08

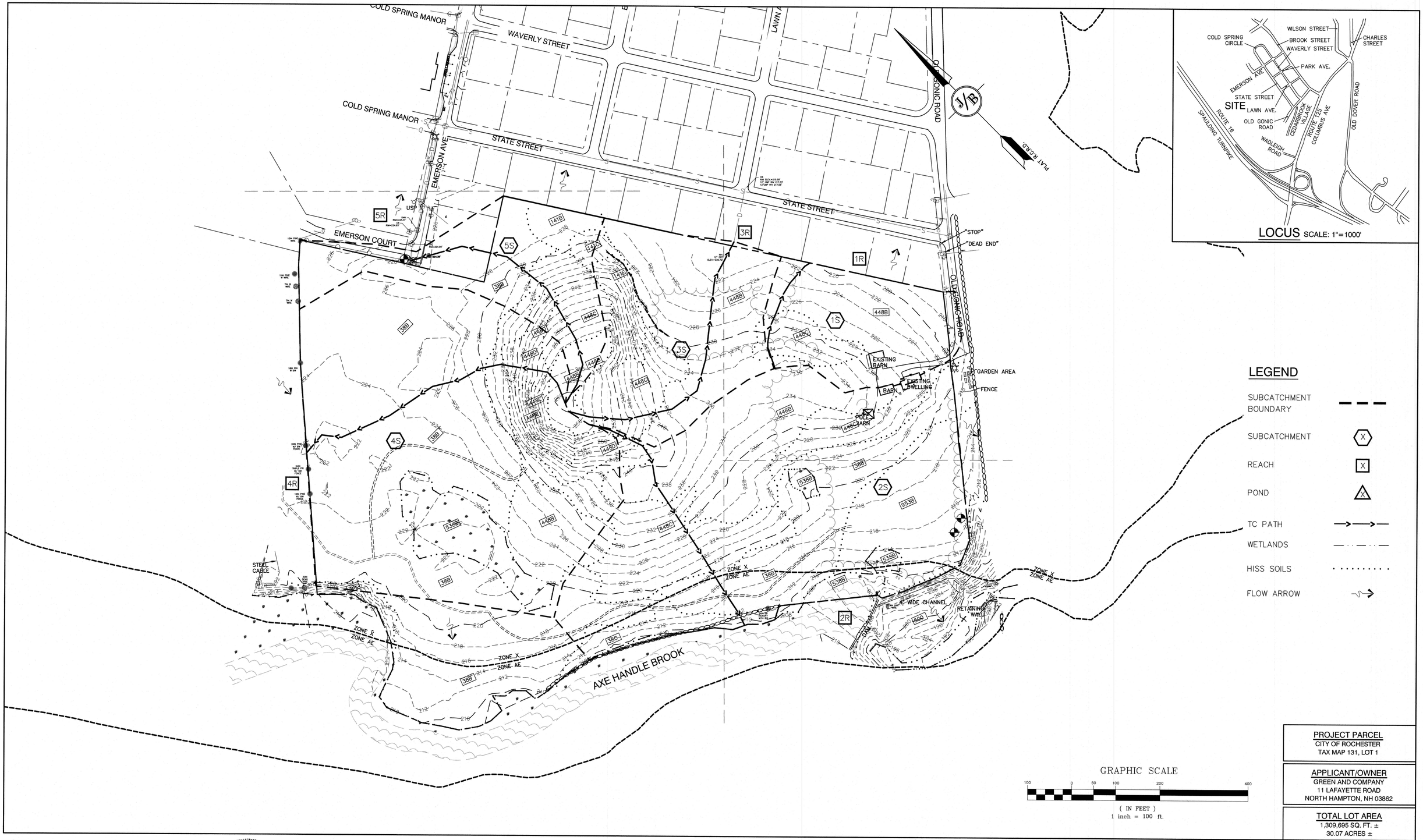
TAILWATER > HALF THE D_o

$L_a = (3.0 \times Q) / D_0^{3/2} + (7 \times D_o)$
$W = (0.4 \times L_a) + (3 \times D_o)$ or defined channel width
$d_{50} = (0.02 \times Q^{4/3}) / (T_w \times D_0)$

Culvert or Catch Basin (Sta. No.)	Tailwater (Feet) T_w	Discharge (C.F.S.) Q	Diameter of Pipe D_o	Length of Rip Rap L_a (feet)	Width of Rip Rap W (feet)	d_{50}-Median Stone Rip Rap d50 (feet)
12" ADS (Pond #2)	0.77	4.68	1	21.0	11	0.20

Table 7-24 -- Recommended Rip Rap Gradation Ranges				
d_{50} Size =	0.25	Feet	3	Inches
% of Weight Smaller		Size of Stone (Inches)		
Than the Given d_{50} Size		From		To
100%		5		6
85%		4		5
50%		3		5
15%		1		2

Table 7-24 -- Recommended Rip Rap Gradation Ranges				
d_{50} Size =	0.5	Feet	6	Inches
% of Weight Smaller		Size of Stone (Inches)		
Than the Given d_{50} Size		From		To
100%		9		12
85%		8		11
50%		6		9
15%		2		3



LOCUS SCALE: 1"=1000'

LEGEND

- SUBCATCHMENT BOUNDARY
- SUBCATCHMENT (X)
- REACH [X]
- POND
- TC PATH
- WETLANDS
- HISS SOILS
- FLOW ARROW

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 1

APPLICANT/OWNER
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

Design: JAC	Draft: MJK	Date: 11/23/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-WATERSHED.dwg		

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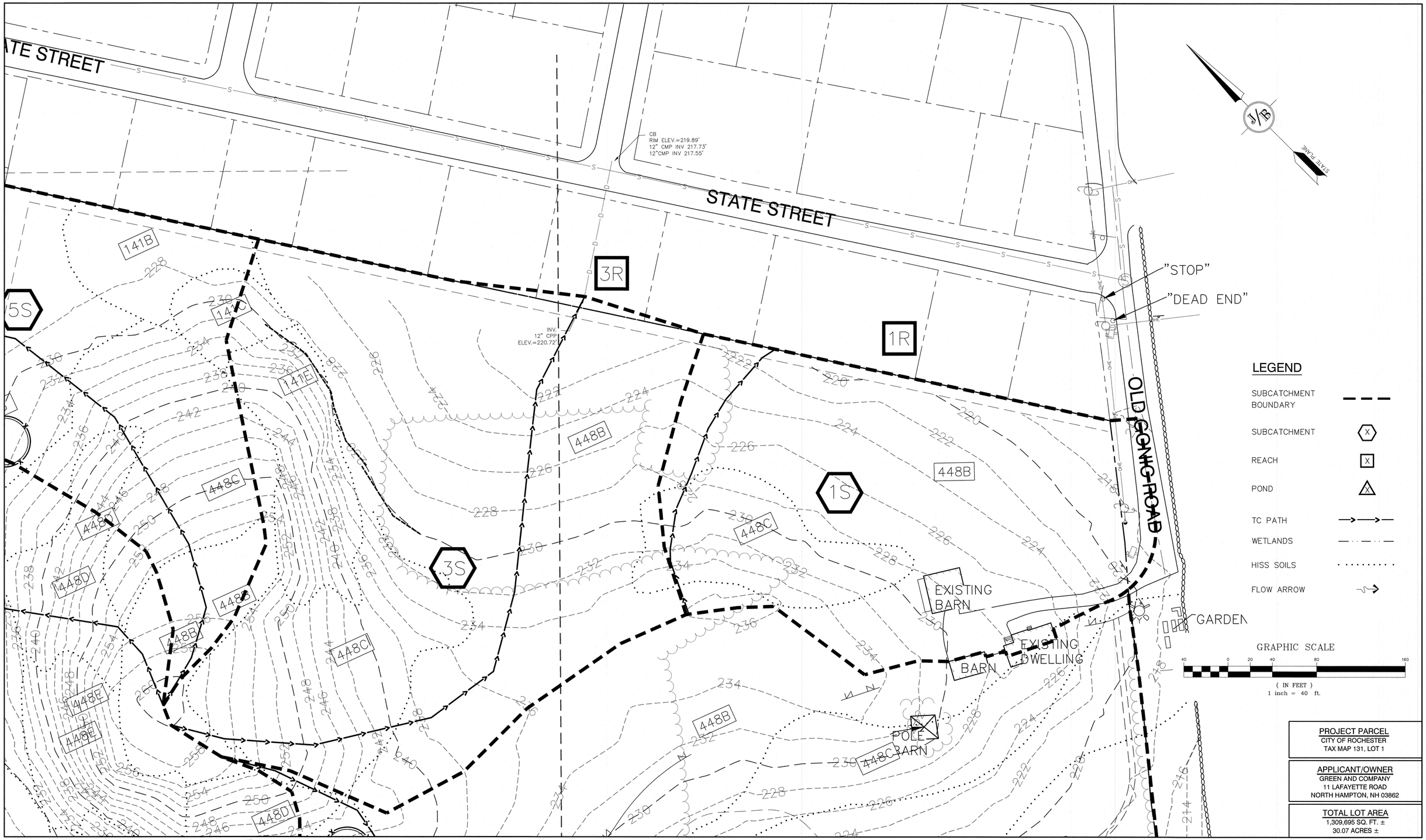
STATE OF NEW HAMPSHIRE – MICHAEL J. KERVAN No. 9646 LICENSED PROFESSIONAL ENGINEER

REV.	DATE	REVISION	BY
1	02/15/22	REVISED PER TOWN COMMENTS	MJK
0	11/23/21	ISSUED FOR REVIEW	MJK

Designed and Produced in NH
Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: EXISTING WATERSHED PLAN
Project: OLD GONIC ROAD TOWNHOUSES
19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record: LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE
19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
W1
SHEET 1 OF 10
JBE PROJECT NO. 21090



PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 1

APPLICANT/OWNER
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

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30.07 ACRES ±

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STATE OF NEW HAMPSHIRE – MICHAEL J. KERIVAN No. 9848 LICENSED PROFESSIONAL ENGINEER

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Civil Engineering Services
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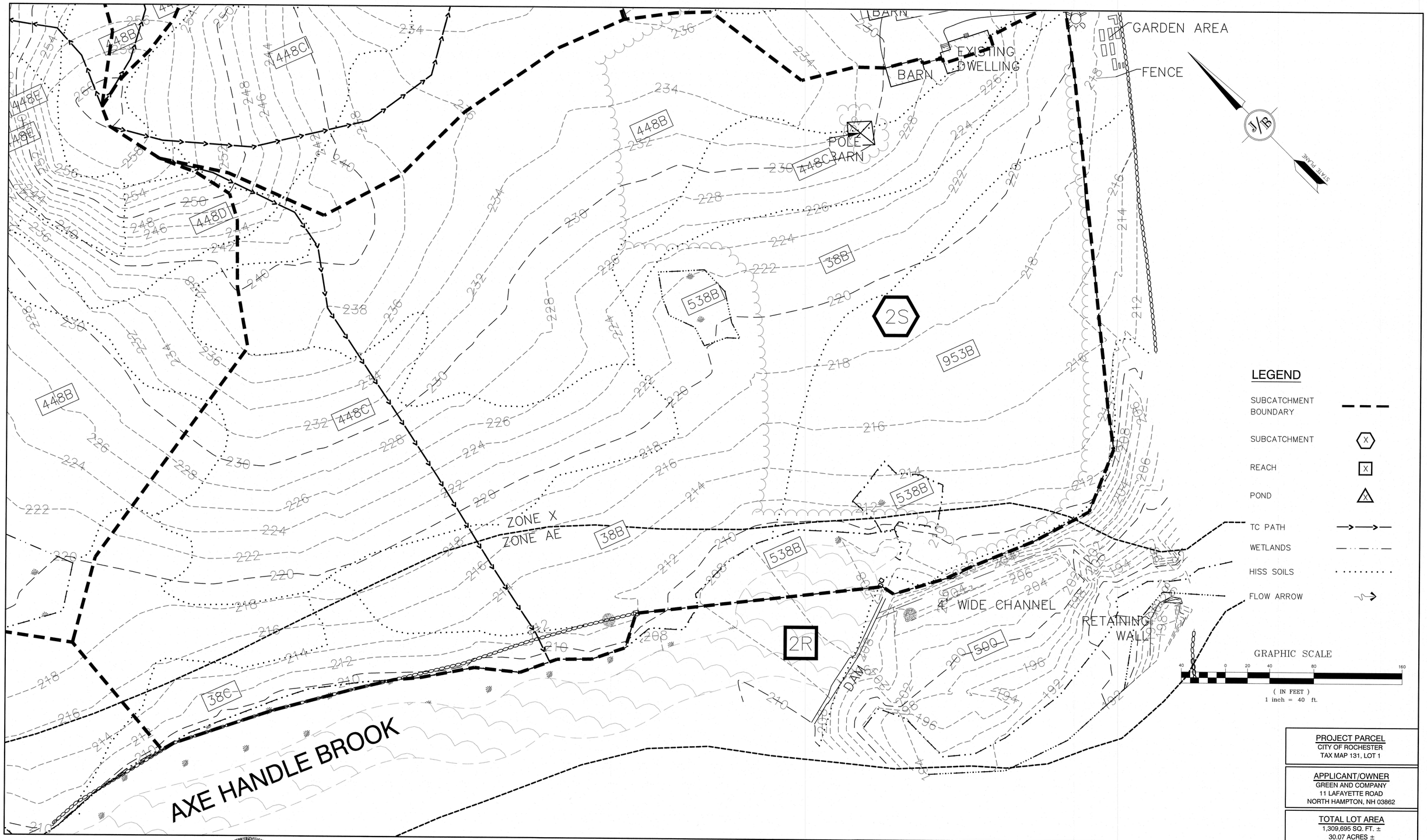
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EXISTING WATERSHED PLAN
Project:	OLD GONIC ROAD TOWNHOUSES 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
W1
SHEET 2 OF 10
JBE PROJECT NO. 21090



PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 1

APPLICANT/OWNER
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

Design: JAC	Draft: MJK
Checked: JAC	Scale: AS NOTED
Drawing Name: 21090-WATERSHED.dwg	

Date: 11/23/21
Project No.: 21090

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STATE OF NEW HAMPSHIRE — MICHAEL J. KERVAN No. 9346 LICENSED PROFESSIONAL ENGINEER

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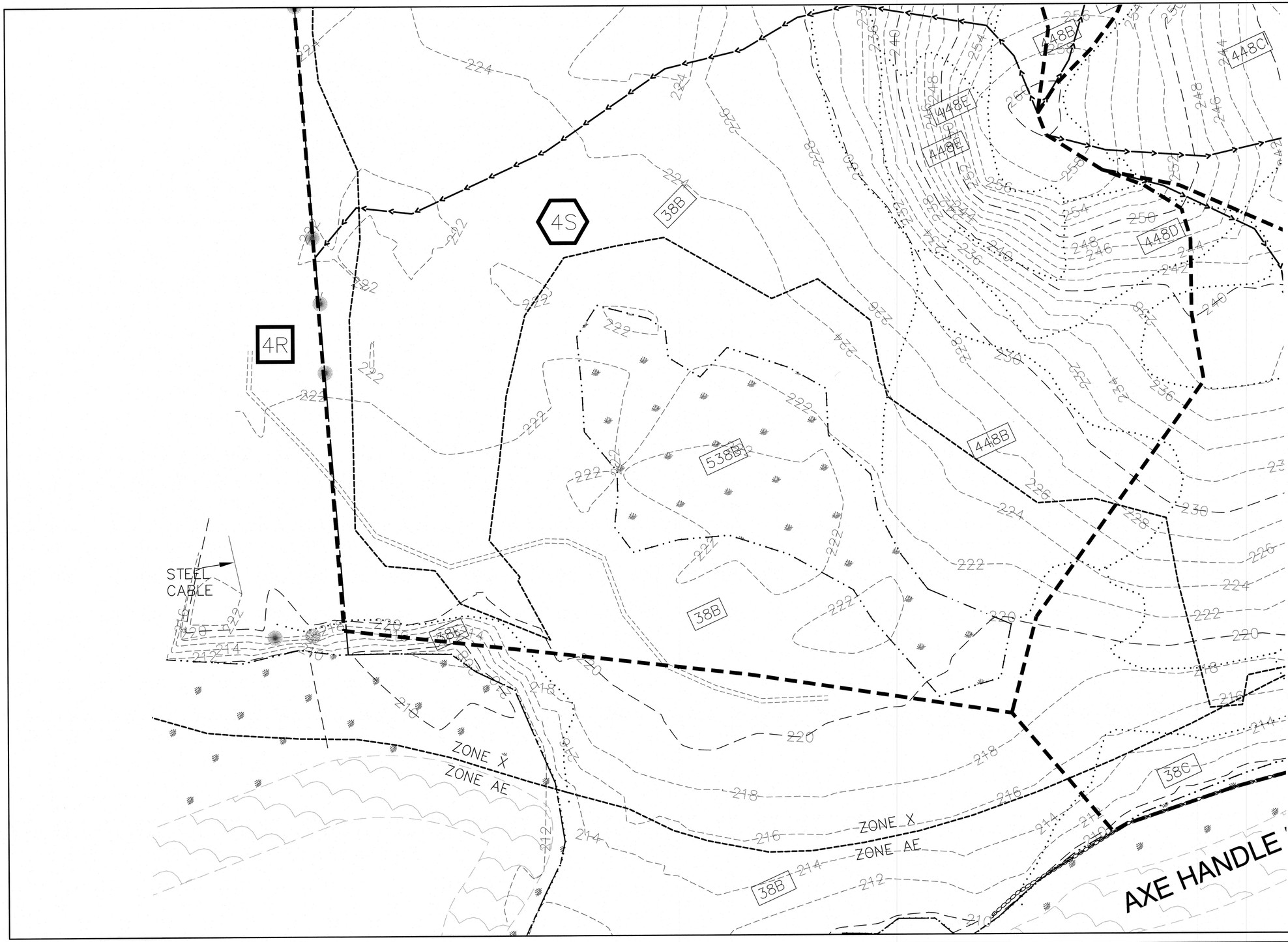
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: EXISTING WATERSHED PLAN
Project: OLD GONIC ROAD TOWNHOUSES
19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record: LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE
19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
W1
SHEET 3 OF 10
JBE PROJECT NO. 21090



LEGEND

- SUBCATCHMENT BOUNDARY
- SUBCATCHMENT (X)
- REACH (X)
- POND (X)
- TC PATH
- WETLANDS
- HISS SOILS
- FLOW ARROW

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 1

APPLICANT/OWNER
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

Design: JAC	Draft: MJK	Date: 11/23/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-WATERSHED.dwg		

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STATE OF NEW HAMPSHIRE – MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER

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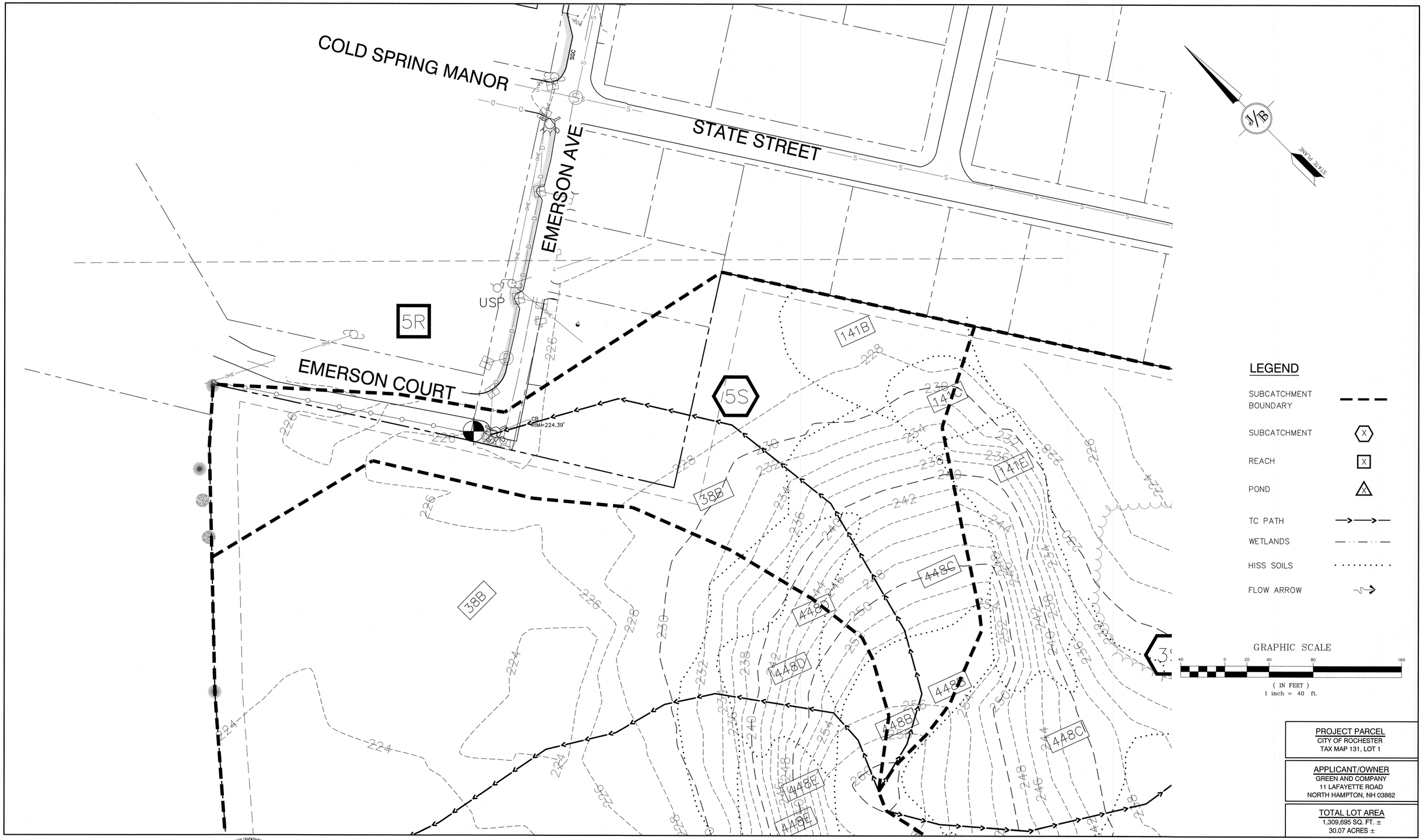
Plan Name:	EXISTING WATERSHED PLAN
Project:	OLD GONIC ROAD TOWNHOUSES 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
W1
SHEET 4 OF 10
JBE PROJECT NO. **21090**



PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 1

APPLICANT/OWNER
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

Design: JAC	Draft: MJK	Date: 11/23/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-WATERSHED.dwg		

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STATE OF NEW HAMPSHIRE – MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER

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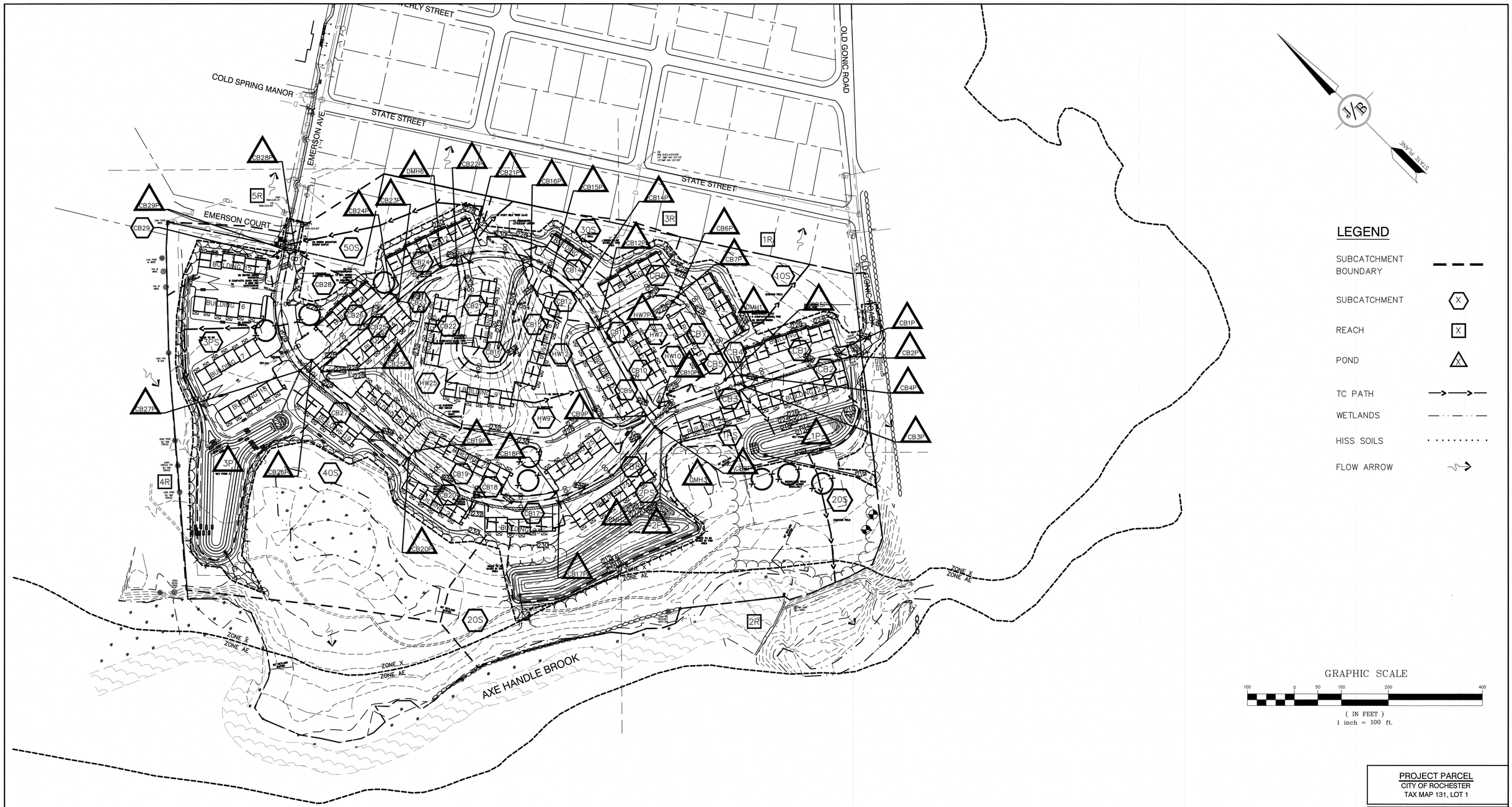
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: **EXISTING WATERSHED PLAN**

Project: OLD GONIC ROAD TOWNHOUSES
19 OLD GONIC ROAD, ROCHESTER, NH

Owner of Record: LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE
19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
W1
SHEET 5 OF 10
JBE PROJECT NO. **21090**



LEGEND

- SUBCATCHMENT BOUNDARY
- SUBCATCHMENT (X)
- REACH (X)
- POND (X)
- TC PATH
- WETLANDS
- HISS SOILS
- FLOW ARROW

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 1

APPLICANT/OWNER
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

Design: JAC	Draft: MJK	Date: 11/23/21
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Drawing Name: 21090-WATERSHED.dwg		

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STATE OF NEW HAMPSHIRE — MICHAEL J. KERVAN No. 9546 — LICENSED PROFESSIONAL ENGINEER

REV.	DATE	REVISION	BY
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0	11/23/21	ISSUED FOR REVIEW	MJK

Designed and Produced in NH
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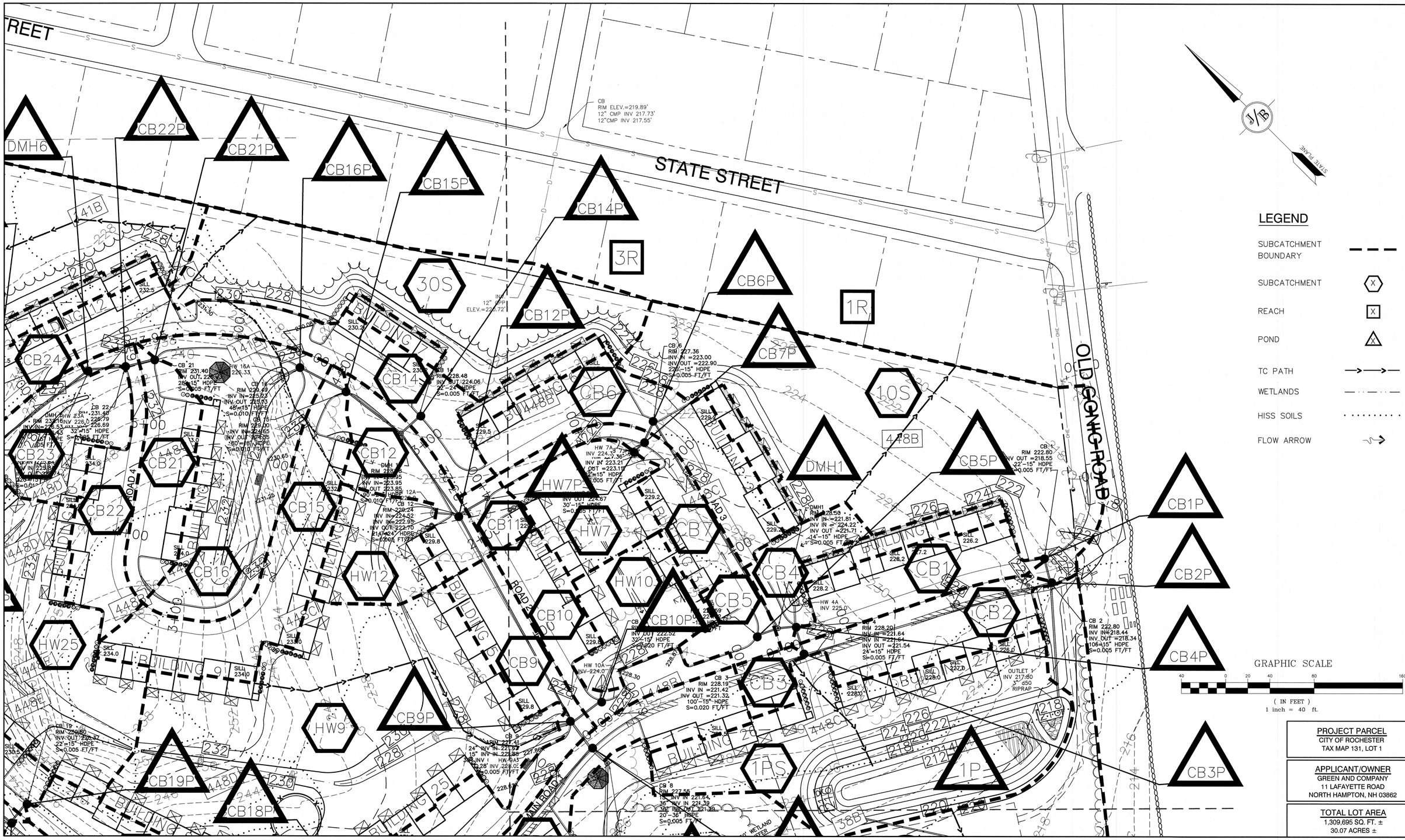
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	PROPOSED WATERSHED PLAN
Project:	OLD GONIC ROAD TOWNHOUSES 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
W2
SHEET 6 OF 10
JBE PROJECT NO. 21090



PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 1

APPLICANT/OWNER
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

Design: JAC	Draft: MJK	Date: 11/23/21
Checked: JAC	Scale: AS NOTED	Project No.:21090
Drawing Name: 21090-WATERSHED.dwg		

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STATE OF NEW HAMPSHIRE
MICHAEL J. KERVAN
No. 9646
LICENSED
PROFESSIONAL ENGINEER

REV.	DATE	REVISION	BY
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0	11/23/21	ISSUED FOR REVIEW	MJK

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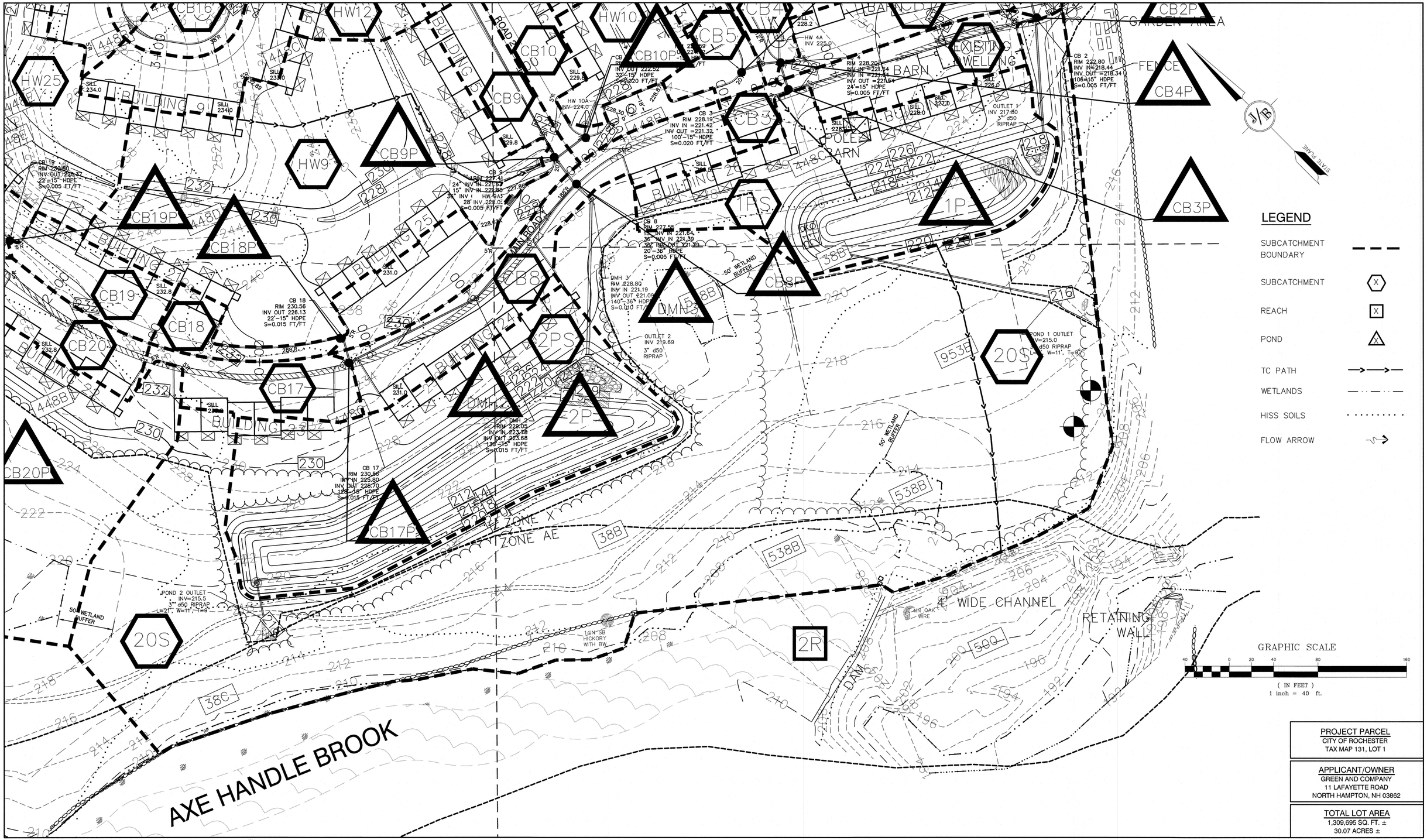
Stratham, NH 03885 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	PROPOSED WATERSHED PLAN
Project:	OLD GONIC ROAD TOWNHOUSES 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
W2
SHEET 7 OF 10
JBE PROJECT NO. 21090



PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 1

APPLICANT/OWNER
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

Design: JAC	Draft: MJK
Checked: JAC	Scale: AS NOTED
Drawing Name: 21090-WATERSHED.dwg	

Date: 11/23/21
Project No.:21090

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

STATE OF NEW HAMPSHIRE — MICHAEL J. KERVAN No. 9846 — LICENSED PROFESSIONAL ENGINEER

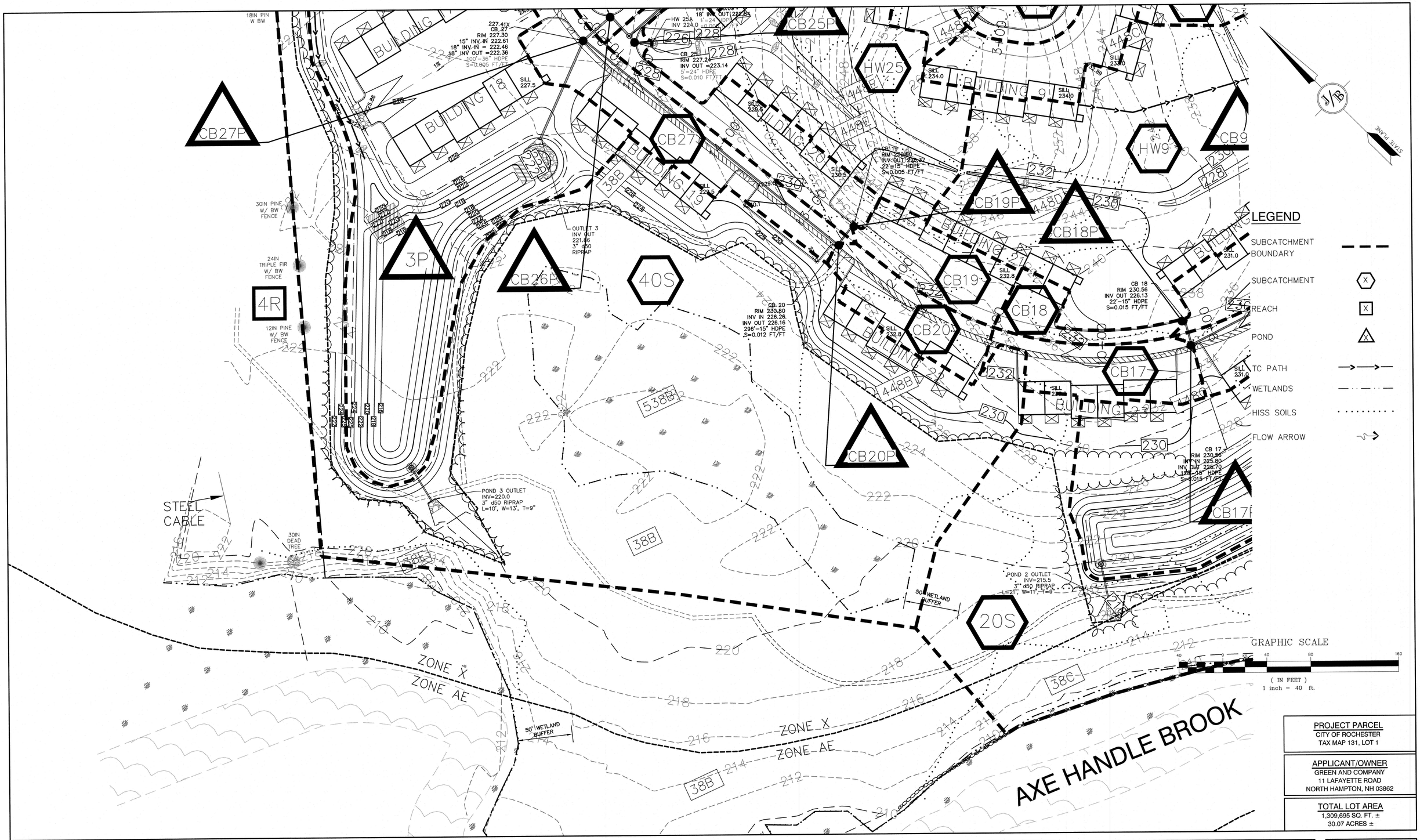
REV.	DATE	REVISION	BY
1	02/15/22	REVISED PER TOWN COMMENTS	MJK
0	11/23/21	ISSUED FOR REVIEW	MJK

Designed and Produced in NH

J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: PROPOSED WATERSHED PLAN
Project: OLD GONIC ROAD TOWNHOUSES
19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record: LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE
19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
W2
SHEET 8 OF 10
JBE PROJECT NO. 21090



Design: JAC	Draft: MJK	Date: 11/23/21
Checked: JAC	Scale: AS NOTED	Project No.: 21090
Drawing Name: 21090-WATERSHED.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

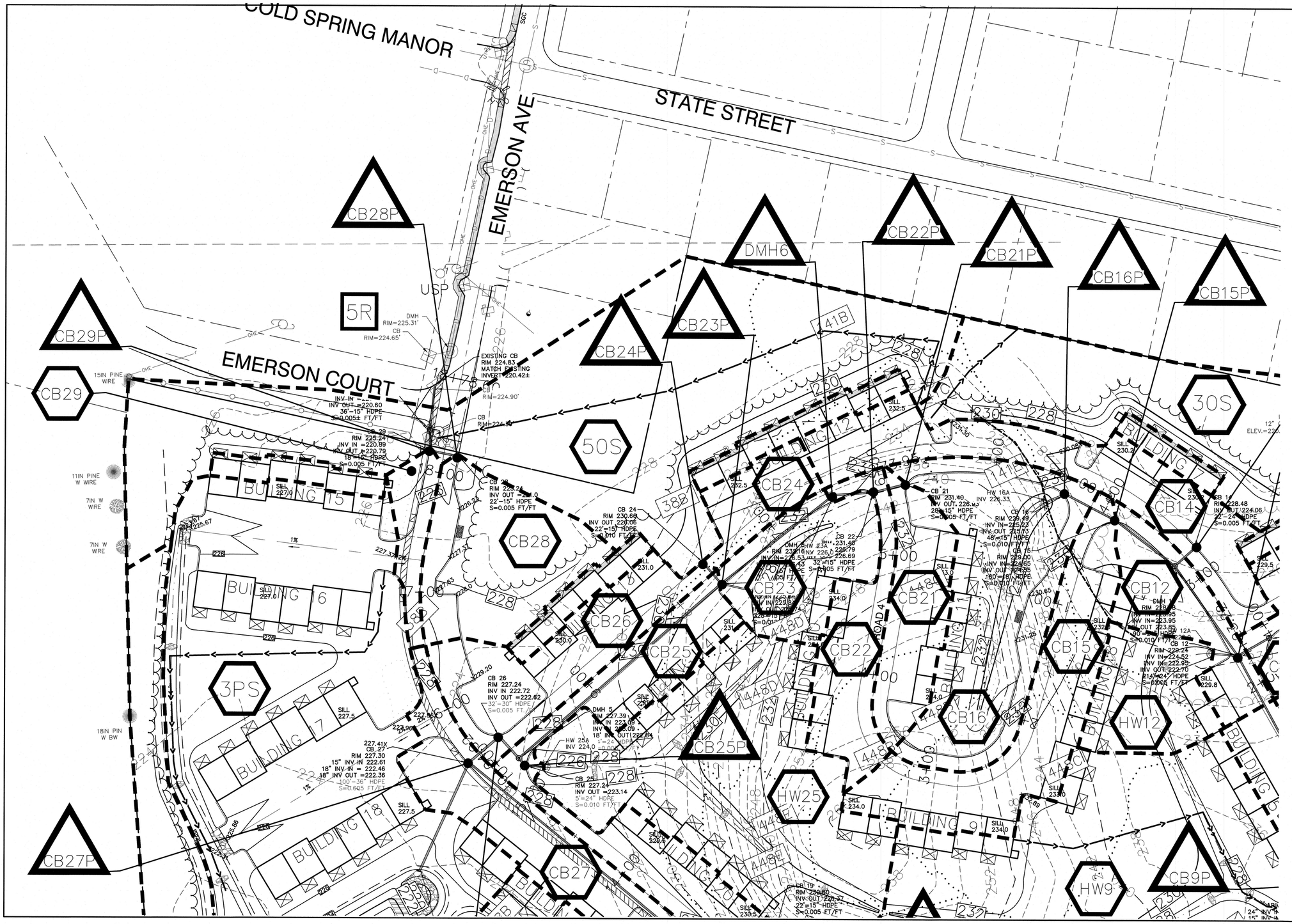
STATE OF NEW HAMPSHIRE — MICHAEL J. KERIVAN No. 9646 LICENSED PROFESSIONAL ENGINEER

REV.	DATE	REVISION	BY
1	02/15/22	REVISED PER TOWN COMMENTS	MJK
0	11/23/21	ISSUED FOR REVIEW	MJK

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	PROPOSED WATERSHED PLAN
Project:	OLD GONIC ROAD TOWNHOUSES 19 OLD GONIC ROAD, ROCHESTER, NH
Owner of Record:	LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE 19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
W2
SHEET 9 OF 10
JBE PROJECT NO. 21090



PROJECT PARCEL
CITY OF ROCHESTER
TAX MAP 131, LOT 1

APPLICANT/OWNER
GREEN AND COMPANY
11 LAFAYETTE ROAD
NORTH HAMPTON, NH 03862

TOTAL LOT AREA
1,309,695 SQ. FT. ±
30.07 ACRES ±

Design: JAC	Draft: MJK	Date: 11/23/21
Checked: JAC	Scale: AS NOTED	Project No.:21090
Drawing Name: 21090-WATERSHED.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

STATE OF NEW HAMPSHIRE — MICHAEL J. KERIVAN No. 9846 LICENSED PROFESSIONAL ENGINEER

REV.	DATE	REVISION	BY
1	02/15/22	REVISED PER TOWN COMMENTS	MJK
0	11/23/21	ISSUED FOR REVIEW	MJK

Designed and Produced in NH
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85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: **PROPOSED WATERSHED PLAN**

Project: OLD GONIC ROAD TOWNHOUSES
19 OLD GONIC ROAD, ROCHESTER, NH

Owner of Record: LEO P. LACOUTURE REV. TRUST & WILLIAN B. LACOUTURE
19 OLD GONIC RD., ROCHESTER, NH 03867 BK 4093 PG 148

DRAWING No.
W2
SHEET 10 OF 10
JBE PROJECT NO. **21090**