PIERCE ATWOOD LLP

Paula M. Devereaux

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Admitted in: MA

January 6, 2022

Kerri A. Martinek, Chair
Town of Northborough Planing Board
Northborough Town Offices
63 Main Street
Northborough, MA 01532-1994

RE: Special Permit and Site Plan Applications – 200 Bartlett Street, Map 66, Parcel 7 (the "Property")

Dear Chair Martinek and Members of the Board:

Enclosed, please find a combined application for a special permit and site plan approval. Please place this application on the agenda for the February 15, 2022 meeting. Several materials are appended to the application, including:

1. Certified Abutter's List
2. Filing Fee Check
3. Narrative
4. Plot Plan
5. Site Plans
6. Building Plans
7. Elevations
8. Stormwater Report
9. Related Variance Approval from the Zoning Board of Appeals
10. Groundwater Advisory Committee Letter for Related Variance Approval
11. Prior Zoning Board of Appeals Approvals
12. Deed to the Property

The following materials are not yet in final form, and will be filed under separate cover with the Board well in advance of the February 15 meeting:

1. Traffic Study
2. Photometric Study
3. Landscaping Plan

If you need any additional information please don't hesitate to contact me at 617-488-8186.

Thank you for your assistance.

Sincerely,

Paula M. Devereaux

Enclosure

cc: Town Clerk
Board of Selectmen
Fire Department
Police Department
Department of Public Works
Board of Health
Building Inspector
Conservation Commission
Town Engineer
Earth Removal Board
Town Planner

NORTHBOROUGH
13 BP
DEC ~~08~~ 2021

BOARD OF ASSESSORS

Town of Northborough
Office of the Board of Assessors

63 Main Street, Massachusetts 01532-1994
Mon, Wed, Thurs 8-4 / Tuesday 8-7 / Friday 7-12
508-393-5005 phone, 508-393-6996 fax

Certified Abutters List Request

Please allow 10 business days.

DATE of REQUEST	December 8, 2021	PROPERTY ADDRESS(es)	200 Bartlett Street
REQUESTING COMPANY	Pierce Atwood LLP	MAP/PARCEL(s)	Map 66, Parcel 7
CONTACT PERSON	Paula Devereaux	OWNER(s)	Bartlett Street Realty Trust, Jason Ducey, Jr. and John Shea Tstees
PHONE	617-488-8186	OWNER MAILING ADDRESS(es)	c/o Jason Ducey, 290 Durfee Street, Southbridge, MA 01550
EMAIL	pdevereaux@pierceatwood.com		

REQUESTING BOARD	APPLICABLE REGULATIONS	ABUTTERS / DISTANCE	#LABEL SETS	FEE
___ Planning Board – Scenic Road	Town Code Chapter 2-52-050	Owners within 100' of property	3 sets	$15
___ Planning Board – Site Plan	Planning Board Rules & Regulations Section 7.2 D(5)	Owners within 300' of property	3 sets	$15
X Planning Board – Special Permit	MGL Chapter 40A Section 11	Owners within 300' of property	3 sets	$15
___ Planning Board – Subdivisions	MGL Chapter 41 Section 81T	Owners within 300' of property	3 sets	$15
___ ZBA – Zoning Board of Appeals	MGL Chapter 40A Section 11	Owners within 300' of property	3 sets	$15
___ Conservation Commission	MGL Chapter 131, Section 40, MA Wetlands Protection Act, & the Northborough Wetlands Protection Bylaw	100' of property, unless otherwise stated	1 set	$10
___ Board of Health	Dependent on project	Owners within 100' of property	3 sets	$15
___ Board of Selectman: Fuel Storage	MGL Chapter 148, Section 13	Abutting owners & directly opposite	3 sets	$15
___ Board of Selectman: Liquor License	MGL Chapter 138, Section 15A	Abutting owners, & any school, church, or hospital within 500' of property	2 sets	$25
___ Board of Selectman: Pole Petition	MGL Chapter 166, Section 22	Abutting owners & directly opposite	1 set	$15
___ Board of Selectmen: Street Acceptance		Owners with driveways on the street	1 set	$10
___ DPW – Dept of Public Works	Dependent on project	Dependent on project: _____ feet	?	$10+
___ Engineering: Earth Works	Northborough Town Bylaws: Part 2 - General Legislation, Chapter 2-28, Earth Removal	Owners within 100' of property	1 set	$10
___ Other: _____				

To the Requesting Board/s: We certify that, from our Real Estate Property Lists, the following persons attached hereto appear as owners of all abutting property, as specified by the appropriate regulation (including, but not limited to, owners of land directly opposite said proposed activity on any public or private street or way, or across a body of water), as amended to the best of our knowledge and belief. If the property is within abutting distance of another Town, please contact their Assessors Office for another abutters list.

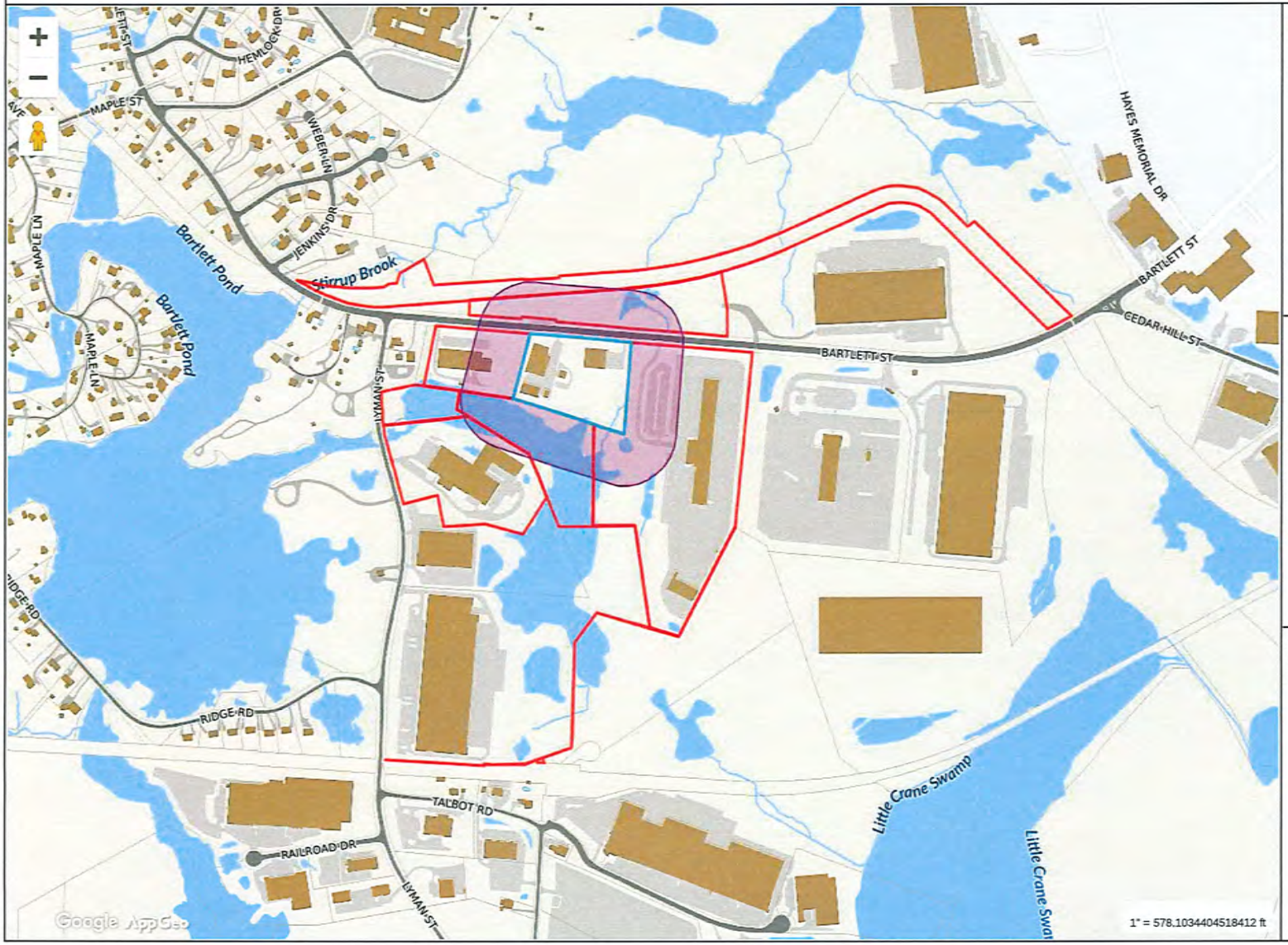
DATE of CERTIFICATION 12/16/2021

Julie Brownlee/~~Megan Hennessy~~ Brian Fernandes for the Board of Assessors
jbrownlee@town.northborough.ma.us ; mhennessy@town.northborough.ma.us

200 Bartlett Street - 300 ft Abutters
December 16, 2021

ID	Site Address	Owner Name	Owner Name 2	Owner Address 1	Owner Address 2	Owner City	Owner State	Owner Zip
066.0-0016-0000.0	0 BARTLETT STREET	NORTHBOROUGH LAND REALTY TRUST	GUTIERREZ ARTURO J & CATALDO J	200 WHEELER ROAD		BURLINGTON	MA	01803
066.0-0017-0000.0	0 BARTLETT STREET	NORTHBOROUGH LAND REALTY TRUST	GUTIERREZ ARTURO J & CATALDO J Trustees	200 WHEELER ROAD		BURLINGTON	MA	01803
051.0-0001-0000.0	0 BARTLETT STREET	COMMONWEALTH OF MASS/DCR	AQUEDUCT	251 CAUSEWAY STREET 8th Floor		BOSTON	MA	02114-2104
066.0-0008-0000.0	170 BARTLETT STREET	FUNNLORE REALTY TRUST		170 BARTLETT STREET		NORTHBOROUGH	MA	01532
066.0-0007-0000.0	200 BARTLETT STREET	DUCEY JAMES JR & SHEA JOHN Trustees	BARTLETT ST REALTY TRUST	290 DURFEE STREET	c/o JASON DUCEY	SOUTHBRIDGE	MA	01550
066.0-0015-0000.0	210 BARTLETT STREET	NBORO REALTY LLC	c/o A DUIE PYLE INC	PO BOX 564		WEST CHESTER	PA	19381-0564
066.0-0011-0000.0	29 LYMAN STREET	BLACK IRON TRUST	GOW IAN A Trustee	146 BOSTON ROAD		SOUTHBOROUGH	MA	01772-1622
066.0-0012-0000.0	35 LYMAN STREET	35 LYMAN LLC	c/o PARSONS COMMERCIAL GROUP	1881 WORCESTER ROAD STE 200		FRAMINGHAM	MA	01701

Certified Abutters List - 200 Bartlett Street - 300' Radius



Property Information

Property ID	066.0-0007-0000.0
Location	200 BARTLETT STREET
Owner	DUCEY JAMES JR & SHEA JOHN Trustees

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Town of Northborough, MA makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated Jan 28, 2020
Data updated Jan 28, 2020

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

Narrative for Special Permit and Site Plan Application

The applicant, Robert J. Devereaux Corp. (the "Applicant") proposes to use two buildings and the majority of a parcel in an industrial zoning district at 200 Bartlett Street, Map 66, Parcel 7 (the "Property"), as a training center, trailer and small equipment maintenance and contractor's yard. The Property is 6.7 acres (+/-) in size and presently has an automotive repair business, Lamy Automotive, in two buildings. The automotive repair use was allowed by a variance granted in 2007 and will continue. The Applicant obtained a zoning interpretation for the proposed use from the Inspector of Buildings dated April 12, 2021 (the "Zoning Interpretation"). The Zoning Interpretation guides the Applicant's permitting process.

Use Variance from the Zoning Board of Appeals

The Building Inspector stated in the Zoning Interpretation that because the Applicant intends to repair and service trailers, small equipment as well as some vehicles it owns or controls for its contracting business on the property, a variance from the Northborough Zoning Board of Appeals ("ZBA") was required for this accessory use. This accessory use is prohibited in Groundwater Protection Overlay District ("GOPD") Area 1. See Northborough Zoning Bylaw ("Bylaw") Section 7-07-10-D-(2)-(a)-[7]. The Property is split between GPOD Area 1 and GPOD Area 3. The Zoning Interpretation also states that the variance was required prior to filing for a special permit or other relief.

The Groundwater Advisory Committee ("GAC") reviewed the relevant activity that will occur in the GOPD areas and suggested a number of conditions for inclusion in the variance. Those conditions were outlined in a letter from Fred Litchfield on behalf of the GAC, dated October 25, 2021, which is included with this filing. The ZBA incorporated each of the proposed GAC conditions into the variance. On October 26, 2021 the ZBA voted to grant the accessory use variance, and a written decision was filed with the Town Clerk on November 24, 2021. On December 15, 2021, the Town Clerk certified that no appeal was filed for this decision. A copy of that decision is included with this filing.

Special Permit and Site Plan Approval

The Zoning Interpretation states that the Applicant requires a special permit from this Board for use of the property as a contractor's yard in the Industrial Zoning district. Site plan approval is required as part of the special permit process.

Other Approvals

The parcel has some existing contamination from a former industrial use. The Applicant has retained a Licensed Site Professional ("LSP") to analyze the extent of the existing contamination. The Applicant's LSP will continue the monitoring and carry out any remediation required in the future in accordance with MassDEP requirements. MassDEP will approve the various actions taken in the usual course under G.L. c. 21E and MassDEP regulations.

The Applicant proposes to replace and relocate the septic system in accordance with Northborough Board of Health and MassDEP requirements. The Applicant will need to obtain approval from the Board of Health for this septic system.

The Applicant will seek an Order of Conditions from the Northborough Conservation Commission because there will be some clearing and disturbance within 100 feet of a vegetated wetland. The Conservation Commission opened the hearing on the Notice of Intent application at its meeting on January 10, 2022.

Plans Showing Changes to the Property

The Applicant proposes to renovate and update the façade on two existing buildings on the Property, remove a small building, grade parts of the property and install stormwater controls, and reconfigure the entrances and tie them to the parking area. The following plans included with this filing show the proposed changes to the Property:

1. SITE PLAN OF 200-220 BARTLETT STREET, Northborough, MA by Connorstone Engineering, Sheets 1 to 6, dated November 23, 2021, Revised December 14, 2021.
2. 2102 PROPOSED SITE PLAN MAXIMUM USE (Prior version submitted to the Zoning Board of Appeals, updated on Jan. 3, 2022).
3. 2102 PROPOSED SITE PLAN TYPICAL USE (Prior version submitted to the Zoning Board of Appeals, updated on Jan. 3, 2022).
4. 2102 MAINTENANCE BLDG PLAN, dated October 13, 2021 (As submitted to the Zoning Board of Appeals).
5. 2102 ADMINISTRATIVE BLDG PLAN dated January 3, 2022.
6. 2102 MAINTENANCE BLDG FRONT ELEVATION dated January 3, 2022.
7. 2102 ADMINISTRATIVE BLDG FRONT ELEVATION dated January 3, 2022.

Site Plan Narrative
Planning Board Rules and Regulations Section 7.2.B

Proposed Uses of Buildings and Property

The Applicant proposes to use the Property as a training center, small equipment maintenance and "small contractor's yard." The "Proposed Site Plan – Typical Use" (the "Typical Use Plan") shows the proposed uses of the parking lot area, and identifies the buildings by use. The existing building marked "Devereaux Administrative Building" ("Administrative Building") on the Typical Use Plan will include administrative offices, computer, hands on training and testing facilities, storage of dry goods and parts, and classrooms. The interior areas dedicated to the various uses are shown on the plans titled "Administration Bldg. – Proposed

Plan." The existing building marked 'Devereaux Maintenance Building' ("Maintenance Building") on the Typical Use Plan will include workspace to carry out repairs on small equipment and prepare fittings and supplies or equipment for use in the field, an office, bathrooms, and two vehicle repair bays. The interior areas dedicated to the various uses are shown on the plan titled "Maintenance Bldg. – Proposed Plan."

The Applicant is a contractor primarily working on gas pipelines for utility companies. The Applicant's employees work regular shifts starting at 7:00 a.m. and ending at 4:00 p.m. The primary uses of the Property will be classroom training, administration, in-building equipment and materials storage, maintenance of trailers, small equipment and some motor vehicles, and parking of vehicles and large equipment as needed. The Applicant will use the administrative building to train and test its employees, with some hands-on training and testing and some classroom training. This training and testing is needed both to teach proper techniques and to comply with regulations and licensing requirements. The Applicant is proposing an orderly parking area for trailers, large equipment and vehicle parking, and indoor storage of small equipment. Due to the limited working hours, vehicles and small equipment are often stored on leased locations throughout the Commonwealth near job sites. The Property will only be fully utilized for parking trailers, vehicles and equipment in the winter when the pace of work typically stops or slows.

Some dry goods will be stored in the Administrative Building. Small equipment, liquids, and any hazardous or flammable materials will be stored in the Maintenance Building. As set out below, the operations on site will be confined to the premises and will conform to the environmental performance standards in Bylaw Section 7-05-040. No disturbing dust, noise, odors, or other objectionable effects will be caused by the use. The proposed use also does not pose a risk of fire, explosion, radiation release or harm to the public or the environment.

Parts of the Maintenance Building are dedicated as service bays, storage, and a small office. All oils and potentially hazardous or flammable materials will be stored securely inside this building in a manner that will prevent impacts to groundwater in the event of a spill or fire. Maintenance Building renovations and improvements include pouring a new floor that will cause all liquids spilled inside the structure to flow toward a drain leading to a tight tank. The materials submitted to the ZBA that are attached include a list of all liquids to be stored in that building with the relevant MSDS sheets. A ZBA variance condition placed a cap on the total gallons that can be stored in that building at any time.

The use of the buildings marked "Lamy's Automotive" and "Lamy's" on the Typical Use Plan will not change. These buildings will continue to be used by Lamy Automotive for automobile repair and maintenance in a manner consistent with their use variance.

The parking area to the south of the Administrative Building will be repaved to control stormwater and prevent impacts on groundwater, but will continue to be used by Lamy Automotive for vehicular parking, as will some of the parking to the east of the Administrative Building. The remaining parking to the east of the Administrative Building will be used by the

Applicant's staff who are doing hands-on training, attending classes, testing, or working in the Administrative Building.

Most of the remainder of the Property will be used for traffic circulation, trailer, vehicle and large equipment parking. The parking to the south and just to the west of the Maintenance Building will be used for trailers and vehicles owned by the Applicant. As noted, this parking may only be fully utilized during the winter months. A small section of the Property will be used for storage of gravel, sand, and other materials under cover. A small section of the Property will be used for stormwater retention.

Projected Increase in Traffic Trips

The proposed use will not notably increase traffic trips. A traffic study is attached to the application. Four different groups of the Applicant's employees will come to the Property. A few employees will be on the Property every day from around 7:00 a.m. to 4:00 p.m. doing administrative or maintenance work. Around 5 employees will arrive on many weekdays to load vehicles with small equipment and fittings and supplies before heading to nearby worksites. Groups of 6 to 12 employees will arrive for classes 3 days per week around 7 months per year. Around 5employees will arrive, largely at the end of the day, to drop off trash, small equipment, and fittings and supplies as needed. The Applicant also expects approximately 4-8 deliveries of parts, fittings and supplies or small equipment to the Property per week, 4 freight deliveries per month, and a maximum of 20 dump trucks on any given day, with the average number of dump trucks per day being 2. Most of the time, traffic to and from the Property will be minimal.

Projected Public Water and Sewer Demand

The Property is on city water, and the water demand will be relatively low. Water will be needed to clean some equipment in the Maintenance Building, for bathroom and office kitchen use, for sprinklers in the case of a fire. The Property is on a septic system that needs to be replaced due to age. The new septic system will serve the Administrative Building and the kitchen and bathrooms in the Maintenance Building. The floor drain in the Maintenance Building will flow to a tight tank to capture any spills of chemicals or hazardous materials.

Other Local, State and Federal Permits

The Applicant will continue to monitor and, if necessary, remediate existing pollution on the site in accordance with MassDEP regulations under G.L. c. 21E. The Applicant will need Northborough Board of Health approval for the relocated septic system. The Applicant will need Northborough Conservation Commission approval due to clearing, grading, and paving within the 100-foot buffer to a wetland. Should the special permit be granted with site plan approval, the Applicant will require building permits to carry out the proposed renovations and site work.

Proposed Building(s) or Addition

The Applicant does not intend to construct any new buildings or build an addition on any existing buildings. Two existing buildings will be renovated for the Applicant's use. The

Applicant will build a cover to prevent rainfall on sand, gravel and other material stored on site. This will reduce infiltration of sand, dirt, and gravel into the stormwater system.

Estimated Number of Employees for the Project

The Applicant expects to hire a contractor who will have a crew of 5 to 15 in order to complete the renovations. The Applicant may carry out any site work with its own employees and equipment; site work will involve approximately 5 people. Following building renovation, the Applicant will likely have 5 employees on site each day. Another 5-7employees will be on site for short periods of time to pick up or drop off small equipment or fittings and supplies each day, with approximately 5 employees engaging in this activity at any given time. Another 6-12 employees will attend classes in the Administrative Building approximately 1 per day 3 days per week and 7 months per year.

Parking Spaces Required

The Applicant has determined the maximum and minimum number of parking spaces required based on the uses proposed under Bylaw Section 7-09-030. Under the Bylaw a minimum of 101.6 parking spaces is required. The Applicant proposes 106 parking spaces, which will be adequate for all of the Applicant's needs and the needs of Lamy Automotive. The parking spaces proposed include 21 spaces to serve the equipment repair business, 58 spaces for the administrative/office use, and the remainder of the spaces to serve the maintenance use (24 spaces required) and for large equipment and trailers as needed. All of the parking spaces will typically not be required except during winter months when the work slows significantly, but the Applicant is committed to providing enough parking to meet all of the parking needs on the Property during a maximum use scenario by creating 4 more parking spaces than are required by the Bylaw.

Screening from Bartlett Street

The proposed screening is shown on the Typical Use Plan and Maximum Use Plan. The Applicant intends to plant trees in the grass area between the existing buildings and Bartlett Street to screen the parking as shown on these plans. The Applicant will renovate the existing buildings to improve their appearance. Certain uses will be screened by the buildings themselves from Bartlett Street.

Existing and Proposed Lot Coverage

The existing lot coverage is 79,795 square feet of impervious area. The proposed lot coverage includes 137,920 square feet of impervious area. However, the proposed lot coverage will include a comprehensive stormwater collection and management system that does not presently exist on the site. The proposed lot coverage will also increase the safety of traffic circulation within and to and from the parking lot on the Property by reconfiguring one entrance and tying that reconfigured entrance to a second existing entrance.

Additional Relevant Information

Existing conditions on the site include contamination from a prior industrial use that is and will be properly monitored and remediated as needed. Existing conditions on the site also include a parking lot that does not appropriately capture all stormwater and a septic system that needs to be replaced. What is proposed will improve the Property in several respects that are applicable to the findings the Board must make. Part of the existing hardscape will be removed in order to reconfigure one entrance. Hardscape will be added to tie that entrance to another entrance, which will aid both traffic and safety. The septic system will be relocated toward the front of the Property and placed in an existing cleared area that will also receive added screening vegetation. All of the stormwater that falls on the Property will be treated on site and curbing will be installed to assure that the stormwater does not flow off the Property. Any signage will comply with Bylaw Section 7-09-040.

Environmental Performance Standards

The Applicant's use of the Property will also comply with all of the environmental performance standards in Bylaw Section 7-05-040. The Applicant's use of the site will comply with the noise standards. Most of the activity on the Property will take place indoors, including classes, administrative functions, trailer, small equipment and vehicle maintenance, and some loading of fittings and supplies. The small equipment and vehicle maintenance that occurs on site will be minimal, major repairs will be carried out elsewhere by other professionals. There will be some limited activity outside, including loading and placement of sand, gravel and other materials, trailer and vehicle parking and unloading. This activity will occur between the hours of 7:00 a.m. and 4:00 p.m. The lighting on site will be directed toward the property and will meet environmental performance standards. The Applicant does not propose any use that would include cinders, fumes, toxic gases, smoke, fly ash, or radioactive material. Any refuse or waste materials will be handled and disposed of properly. Any dirt or dust will be minimal and will not leave the Property. Any hazardous or flammable materials on site that are required for equipment or vehicular maintenance will be properly stored and located in the Maintenance Building in accordance with the conditions on the variance decision of the ZBA. The Applicant will comply with all state and federal regulations relating to air, water, and/or soil pollution.

Special Permit Criteria
Zoning Bylaw Section 7-03-040

Impacts on the Neighborhood

The Planning Board can find, as is required by the Bylaw that the adverse effects of the proposed use will not outweigh its beneficial impacts to the town or the neighborhood, in view of the particular characteristics of the site, and of the proposal in relation to the site. The Applicant's proposal meets this standard for the following reasons.

Bartlett Street traffic should not be greatly impacted by this operation. The parking proposed is adequate to fill the maximum need, but generally the parking lot will not be at capacity. The use will adhere to the noise requirements and will not create any new light pollution. The hours of operation are normal daytime business hours. Materials will be stored indoors or under cover. There will be no objectionable odors from the use, none of the equipment or materials used by

the applicant create strong or objectionable odors. The use will not negatively impact the neighborhood character or safety. The area has several large trucking and warehousing operations, and the Applicant's traffic will be minimal in comparison and in comparison to more intensive office or other allowed uses at the site. The Applicant will not meaningfully contribute to the overall traffic loads on Bartlett Street. The public services and utilities are adequate to support the use. The Applicant's impact on the water supply will be minimal. The use will not create an overcrowding of the area. The proposed use is less impactful on the area than most of the surrounding uses in terms of personnel on site. There will be no pollution of the natural environment from the use, and preexisting pollution will be monitored and controlled. There will be no appreciable negative environmental impacts. The required setbacks from wetland resource areas for hardscape are exceeded. The site is carefully designed to avoid any impacts on groundwater. All stormwater will be controlled and infiltrated on site.

Northborough Master Plan

The use of this site for a low-impact industrial use provides the Town with the economic benefits in the commercial and industrial areas outside of the downtown contemplated in Northborough Master Plan (June 2020), specifically Land Use Goal 4, and Economic Development Goal 2.

Appropriateness of the Location for the Use

The site has a long history of industrial use. This use creates few hazards to the environment and those hazards are mitigated. All stormwater on site drains to a stormwater system that can handle the maximum expected rainfall. Any activities likely to impact the environment, such as small equipment repair, are carried out in the Maintenance Building with a complete capture of any liquids in a tight tank that will be monitored and emptied on a periodic basis. The proposed parking area can handle the maximum number of vehicles expected. The site is surrounded by other industrial uses and is not adjacent to or across the street from residential properties. The use will have a significantly lower traffic impact than many of the surrounding industrial property users.

Adverse Effect on Neighborhood

The Applicant's use of the Property will be screened from view on Bartlett Street and will not generate new significant traffic. The use will not create nuisances, noise, or light pollution. The use is a relatively low-impact use due to the nature of the construction business carried out by the Applicant.

Nuisance or Serious Hazard to Vehicles or Pedestrians

Pedestrian and vehicle safety will be improved with the reconfigured entrances and parking arrangement. By reconfiguring one entrance and connecting the parking area to the second entrance, vehicular safety is improved. The ability to select a different point of ingress or egress avoids creating bottlenecks near a single entrance. By creating longer lanes for vehicles to enter or exit the property, traffic will be properly maintained in those lanes internal to the site, thereby reducing any bottlenecks or turning issues on Bartlett Street. The improved parking lot will have

curbing and landscaping to improve vehicular safety and neatly organizes parked vehicles. Pedestrian safety to and from existing vehicles is also increased where the parking spaces for employee cars are located near the relevant building.

Adequate and Appropriate Facilities for Operations

The existing buildings and parking areas are adequate for all of the Applicant's needs. The reconfigured parking lot will provide for all of the trailer, vehicle and large equipment parking as well. The existing buildings, when renovated, will be more than adequate to meet the Applicant's needs.

Adverse Impacts on the Natural Environment and Development Compatibility

The façade of the existing buildings will be improved. The buildings and parking will be screened. The existing pollution will be monitored according to MassDEP regulations. The existing septic systems will be replaced and upgraded. All of the stormwater on the site will now be captured and infiltrated in a manner that does not harm the natural environment. The groundwater will not be impacted due to the proper and appropriate storage of any hazardous materials.

Site Plan Criteria
Zoning Bylaw Section 7-03-050

The Site Plan Meets All Applicable Bylaw Requirements

The site plans included meet all of the requirements in the Board's Rules and Regulations 7.2.C.

Clearing and Grading, Cut and Fill, and Removed Trees; Wetlands and Groundwater Resources

The proposed project has limited the site work (clearing, grading, and earthwork) to the maximum extent practical. The existing site is developed with three commercial buildings, two outbuildings, parking, and driveway access. Most of the remaining upland areas is cleared and/or previously disturbed. The proposed work would maintain an undisturbed buffer along the wetland resources in excess of the minimum required by Town Regulations. The work would not cause any displacement of wetland vegetation or any filing of the 100 year flood plain.

The site has been designed to fit with the site topography and re-use the existing structures limiting earthwork. Large earth cuts and fills would not be required for the project.

A Stormwater Report has been attached with the application to verify compliance with all of MassDEP Stormwater Standards and Regulations including stormwater treatment, recharge to groundwater, mitigation of runoff, and controlling soil erosion. The proposed plan provides stormwater treatment far in excess of the minimum required, and provides an improvement over the existing conditions.

The site plans and building plans represent a series of compromises that are designed to maximize protection of environmental resources, control stormwater, and minimize clearing and grading. Additionally, pedestrian and vehicular safety concerns drive the reconfiguration of the parking area to allow traffic to access either connection to Bartlett Street. The Bylaw sets out a maximum and minimum number of parking spaces for the proposed use, and the proposed number of parking is just above what is required and meets all of the Applicant's needs and the needs of Lamy Automotive.

There will be some clearing of trees and some grading to the south of the Maintenance Building in order to connect the two entrances. Paving this area also allows certain property uses, such as the covered sand and gravel storage, to be screened by the Maintenance Building itself. Additionally, some presently paved areas will be graded to allow the planting of screening vegetation. The GAC found that the variance conditions, if adopted, were adequate to protect the groundwater and these conditions were made part of the variance decision of the ZBA.

Groundwater Contamination Risk From Wastewater Disposal Systems or Operations

A new fully compliant on-site septic system has been proposed to replace the older failing septic systems. The new system would be designed in compliance with Title 5 and the local Board of Health Regulations. Soil conditions have been field verified with test pits witnessed by the Board of Health. Storage of and chemical would be inside the maintenance building and provided with appropriable containment and spill prevention measures.

The relocated septic system is in the vegetative buffer area away from groundwater and wetland resources. The GAC and ZBA reviewed the proposed use, storage, handling, and containment of hazardous substances. The GAC and ZBA were satisfied that the variance conditions to carry out minor automotive repair in the Maintenance Building would protect the groundwater. Interior storage of hazardous substances in proper storage cabinets and inside a building with a floor drain running to a tight tank is an appropriate means of preventing groundwater contamination.

Pedestrian, Bicycle and Vehicular Safety on Site and Egressing From the Site

The two project driveway locations have adequate sight distance in both directions to allow safe access and egress from the site. The interior of the site has provided ADA accessible parking spaces, curb cut ramp, and access route to the entrance(s). The sidewalks in front of the buildings will be removed and the entrances will be moved to the side of the buildings per the new drawings.

By connecting and reconfiguring the entrances vehicular safety is increased. The reconfigured parking lot also increases in-lot pedestrian safety by locating passenger vehicle parking near the relevant buildings. The orderly arrangement of vehicles in the parking lot also increases pedestrian safety. It is unlikely that there will be much bicycle traffic to or from the Property given the nature of the proposed and existing uses. However, bicycle safety on Bartlett Street should be improved with the reconfigured entrances.

Access to Each Structure for Fire and Other Emergency Service Equipment

The proposed driveway has been designed to allow full circulation through the site to all three buildings for the Northborough Fire Truck and other service or emergency vehicles.

The existing structures are fully accessible on at least two sides for emergency service equipment and the parking lots provide adequate clear aisles for emergency equipment movement. The site plans submitted provide adequate routes for any emergency vehicles to access any building on the Property by (1) connecting the two entrances to the parking lot on the Property, (2) providing parking for the maximum number of vehicles to keep aisles clear, (3) organizing the parked vehicles, and (4) providing wide drive aisles and clear travel lanes. The Maintenance Building, in which flammables will be stored, is accessible to full-size emergency equipment from three sides. Lamy Automotive, which also has flammables storage, is accessible to full-size emergency equipment from two sides.

Visibility of Parking, Storage, or Other Outdoor Service Areas From Bartlett Street

The parking areas have been generally kept to the side or rear of the building, and the entrances have been enhanced with landscaping. The dumpster areas have also been located to the rear of the building to limit visibility. A Landscaping Plan has been included that identifies the proposed location and type of screening vegetation

Given topography and existing vegetation, the Property is not close enough to any residentially zoned areas to be visible from residential properties. As shown on the plans, there will be increased plantings along the front of the property between the buildings and Bartlett Street to screen the parking area from view. Storage of gravel, sand, and similar materials is intentionally placed behind vegetative screening and the Maintenance Building. There are no outdoor service areas proposed by the Applicant, servicing of vehicles and equipment will occur in the Maintenance Building.

The reconfigured narrow and extended roadways leading into the parking lot on both sides allow for better screening where vegetation is placed along these entrances. Site screening is greatly improved over existing conditions with a larger vegetative barrier between parking lots and Bartlett Street. Any outdoor storage of materials will not only be screened but also covered. The large equipment parking spaces are placed at the greatest distance from Bartlett Street to remove them further from view.

Consistency and Compatibility of Building Design Scale or Site Design With the Area

No new buildings have been proposed. The existing buildings are consistent with the underlying Industrial Zoning District, and are compatible with the surrounding areas. The plans meet the required setbacks and landscape buffer requirements. A Landscape Plan has been proposed with a focus placed on enhancing the visual appearance from Bartlett Street. The exterior gravel storage will be covered.

There will also be no additions to the existing buildings. The Bartlett Street area is generally industrial in nature, with warehouse, trucking, and manufacturing facilities nearby. In general, these industrial buildings focus on function over form. However, the Applicant wishes to improve the existing buildings on the Property to provide a professional appearance. The

renderings show the proposed changes to the existing buildings, which will be renovated for the proposed use. As shown, the façade of the buildings will be changed to improve the appearance. The site design allows the three different uses on the site, automotive repair, administration and training, and maintenance and storage to work effectively.

Glare From Headlights, Light Trespass and Light Overspill

All proposed lighting would be night sky compliant, and a photometric plan has been prepared to verify spillover would not impact abutting properties.

In general, the use of the Property by the Applicant will be during normal working hours, or 7:00 a.m. to 4:00 p.m. The Applicant also tends to experience a reduction in work during winter months when the days are shorter. For these reasons headlight glare should be a minimal issue. The reconfigured entrance and vegetative screening will also reduce the glare from headlights when it does occur.

Historic, Traditional, or Significant Structures or Architectural Elements

The existing structures are not listed on any historic list or register. There are no historic, traditional or significant structures or architectural elements on the Property. The existing buildings will be renovated and repurposed.

Obstruction of Scenic views from Publicly-Accessible Locations

The site does not currently contain any scenic views from publicly-accessible locations. The proposal will not include any new buildings. The surrounding properties are industrial in nature. There should not be any impact on scenic views above existing conditions.

Development Impact Analysis

Traffic Impact

As shown on the Applicant's Traffic Study, the traffic impact is expected to be minimal. The proposed use should not impact the level of service on Bartlett Street in a meaningful way given the limited number of vehicle arriving to and leaving from the Property. The sight lines will not change. Should the Board require more information, a traffic study carried out by a professional can be submitted to the Board for review.

Environmental Impact

As set out above, this is a fairly low impact use of the Property in terms of the environment. There should be no impact on the adjacent wetland areas. The Applicant is proceeding before the Conservation Commission, which will assure that the wetlands are not adversely impacted. There should be no impact on air quality above vehicle exhaust and minimal dirt or dust, related to loading and unloading vehicles that will not leave the property. Due to the conditions in the ZBA variance approval, there will be no impact on the groundwater. The stormwater controls will prevent any impact on the surface water. There should not be an increase in flooding potential

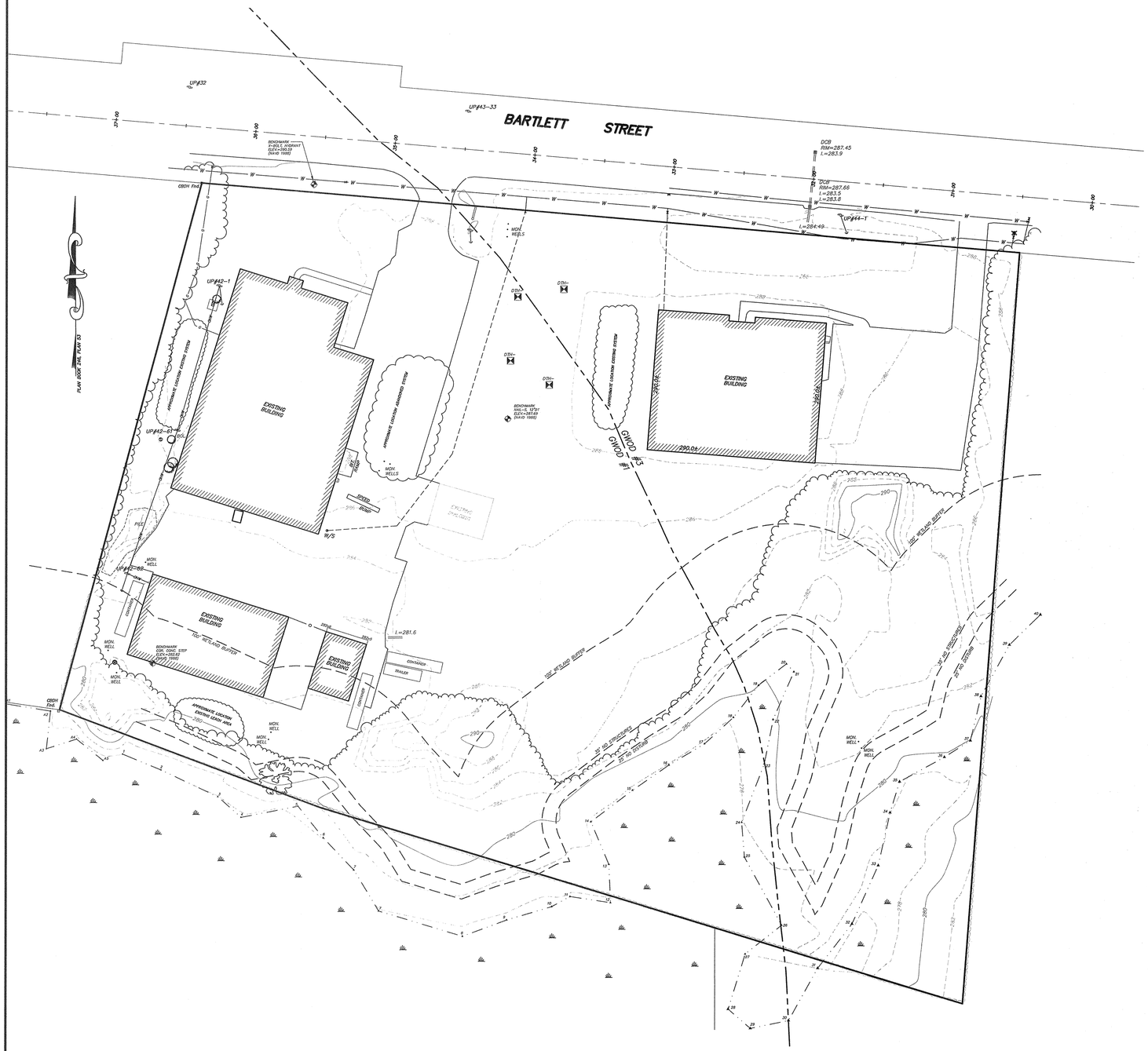
due to the same stormwater controls. Increasing the impervious surface does slightly increase flooding risk, but it also reduces the likelihood that any existing or future contamination will impact the groundwater. Any hazardous materials will be properly stored in a building that drains to a tight tank. There will be no new buildings, and the solar access to adjacent properties will remain unchanged. There will be no noise or light impacts for the reasons set out above.

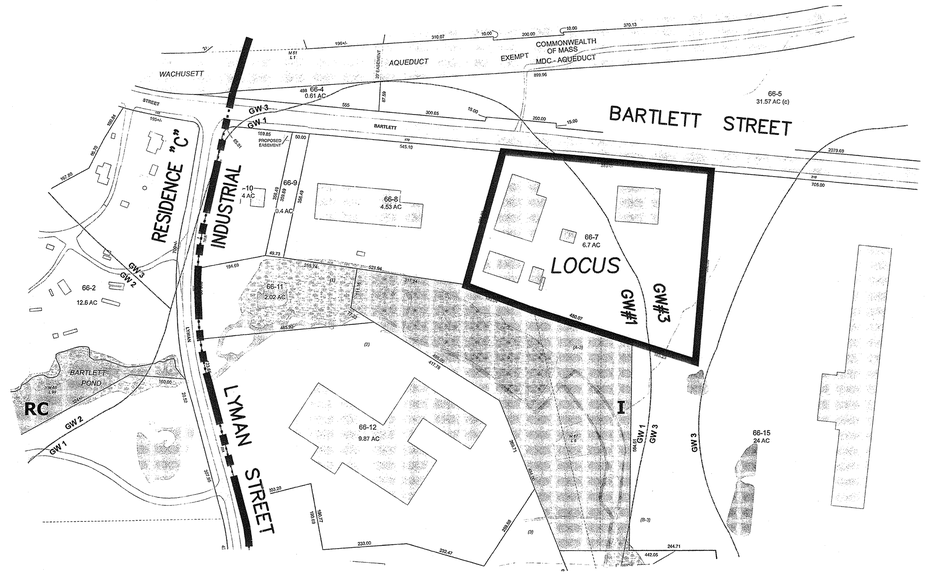
Fiscal Impact

The proposed use will be a net fiscal gain for the community. The property will use Northborough water in low quantities and will increase traffic in minimal ways. The water use and traffic increases will not be significant enough to require new water or roadway infrastructure. The Applicant is a new business to the area. The Applicant has an average of 350 employees located throughout central and eastern Massachusetts and Connecticut during its peak season. The Applicant's use of the Property will have a minimal impact and will provide a net gain in revenues for the Town. There will be employment opportunities with the Applicant for local individuals from time to time. The existing buildings have been vacant for around 5 years, and now will be put to productive use. The proposed use will not negatively impact adjacent property values, and the improvements to the building façades and Property should improve adjacent property values. All new and some existing registered trailers, small and large vehicles will be reported as being garaged in Northborough for the purpose excise tax.

Community Impact

The proposed use will not impact the surrounding architectural character of the neighborhood in a meaningful way. The area around the Property is industrial in nature. Most of the buildings on surrounding property have a function-driven industrial appearance. The on-site pedestrian safety will be greatly improved. The Applicant does not expect pedestrian and/or bicycle traffic to or from the Property given the location and the nature of the proposed use and existing uses on site. There are no existing sidewalks in front of the property. The proposed use is consistent with the 2020 Master Plan in terms of locating new industrial uses outside of the town center, and looking for ways to make use of existing industrial properties.





LOCUS MAP:
SCALE: 1"=200'

GENERAL NOTES:

1. PROPERTY LINES ARE BASED UPON EXISTING PLANS AND DEEDS OF RECORD AND DOES NOT REPRESENT A PROPERTY SURVEY.

2. EXISTING TOPOGRAPHY IS BASED UPON AN ON-GROUND TOPOGRAPHICAL SURVEY BY CONNORSTONE ENGINEERING, INC. IN FEBRUARY 2020. TBM=290.59 HYDRANT BOLT "X".

3. THE PARCEL IS LOCATED AT 200-220 BARTLETT STREET, AS SHOWN ON ASSESSORS MAP 66, PARCEL 7.

4. THE SITE IS NOT LOCATED WITHIN A FLOOD HAZARD ZONE AS SHOWN ON FEMA F.I.R.M. 25027C0653F DATED JULY 16, 2014.

5. WETLAND DELINEATION BY THREE OAKS CONSULTING DECEMBER 2019, JANUARY 2020.

IMPERVIOUS AREA SUMMARY

	TOTAL	ZONE I	ZONE III
EXISTING CONDITIONS	79,795 S.F.	55,360 S.F.	24,435 S.F.
PROPOSED CONDITIONS	138,937 S.F.	89,424 S.F.	49,513 S.F.

TOTAL LOT AREA = 6.7 ACRES±

ZONED: INDUSTRIAL

AREA = 60,000 sf
FRONTAGE = 150 feet
SETBACKS: FRONT = 40 feet
SIDE = 20 feet
REAR = 25 feet
MAXIMUM LOT COVERAGE = 50%
MINIMUM OPEN SPACE = 25%

GROUNDWATER OVERLAY PROTECTION DISTRICT #1 & #3

GRAPHIC SCALE: 1"=40'

0 10 20 30 40 50 75 100 150 200 FEET
0 5 10 15 20 30 40 50 60 METERS

COMMONWEALTH OF MASSACHUSETTS
VITO COLONNA
No. 47635
REGISTERED PROFESSIONAL ENGINEER
2-24-21

PREPARED FOR:
R.J. DEVEREAUX CORP.

CONNORSTONE ENGINEERING INC.
CIVIL ENGINEERS AND LAND SURVEYORS
10 SOUTHWEST CUTOFF, SUITE 7
NORTHBOROUGH, MASSACHUSETTS 01532
PHONE: 508-393-9727 FAX: 508-393-5242

ZBA PETITION PLAN OF 200-220 BARTLETT STREET IN NORTHBOROUGH, MA

REVISED:	DESCRIPTION:
DRAWN BY: REM	CHECK BY: VC
DATE: AUGUST 24, 2021	
SCALE: 1"=40'	SHEET 1 OF 2.

SITE PLAN
OF
200-220 BARTLETT STREET
NORTHBOROUGH, MA.

GENERAL NOTES:

1. PROPERTY LINES ARE BASED UPON EXISTING PLANS AND DEEDS OF RECORD AND DOES NOT REPRESENT A PROPERTY SURVEY.

2. EXISTING TOPOGRAPHY IS BASED UPON AN ON-GROUND TOPOGRAPHICAL SURVEY BY CONNORSTONE ENGINEERING, INC. IN 2019, 2020, MARCH 2021. TBM=290.59 HYDRANT BOLT "X".

3. THE PARCEL IS LOCATED AT 200-220 BARTLETT STREET, AS SHOWN ON ASSESSORS MAP 66, PARCEL 7.

4. THE SITE IS NOT LOCATED WITHIN A FLOOD HAZARD ZONE AS SHOWN ON FEMA F.I.R.M. 25027C0653F DATED JULY 16, 2014.

5. WETLAND DELINEATION BY THREE OAKS CONSULTING DECEMBER 2019, JANUARY 2020.

CONSTRUCTION NOTES:

1. EXISTING UTILITY LINES SHOWN ON THIS DRAWING ARE FROM AVAILABLE INFORMATION AND ARE APPROXIMATE LOCATIONS. THE ENGINEER DOES NOT GUARANTEE THEIR ACCURACY OR THAT ALL UTILITIES AND SUBSURFACE STRUCTURES ARE SHOWN. THE CONTRACTOR SHALL VERIFY SIZE, LOCATION AND INVERT ELEVATIONS OF THE UTILITIES AND STRUCTURES, AS REQUIRED PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES WITH RECORD DATA SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY. THE CONTRACTOR SHALL CONTACT DIG SAFE: 1-800-344-7233 (72 HOURS BEFORE DIGGING), AND TOWN DPW FOR UTILITY LOCATIONS PRIOR TO EXCAVATION. TEST PITS SHALL BE UTILIZED FOR UTILITY CONNECTIONS.

2. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.

3. ALL MATERIALS AND CONSTRUCTION PRACTICES SHALL BE IN CONFORMANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE NORTHBOROUGH DEPARTMENT OF PUBLIC WORKS, OR THE LATEST EDITION OF THE MASSACHUSETTS HIGHWAY DEPARTMENT (MHD) CONSTRUCTION STANDARDS AND THE MHD "STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES", WHICHEVER IS MORE STRINGENT.

4. THE WATER SYSTEM SHALL BE INSTALLED IN COMPLIANCE WITH THE TOWN OF NORTHBOROUGH DPW WATER DIVISION RULES AND REGULATIONS. CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH APPLICABLE PERMITS (TO BE OBTAINED BY THE CONTRACTOR).

5. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, TO KEEP ACCURATE AS-BUILT MEASUREMENTS / RECORDS OF ALL UNDERGROUND OR CONCEALED WORK.

6. THE LAYOUT AND INSTALLATION OF ELECTRIC, GAS, TELEPHONE AND CATV UTILITY CONNECTIONS AND SERVICES SHALL IN ACCORDANCE WITH THE REQUIREMENTS OF THE RESPECTIVE UTILITY.

7. THE CONTRACTOR SHALL UTILIZE ALL MEASURES AND MATERIALS NECESSARY TO ENSURE THE SAFETY OF ALL PERSONS AND PROPERTIES AT THE SITE DURING CONSTRUCTION. ALL EXCAVATIONS SHALL CONFORM TO CURRENT OSHA STANDARDS.

8. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE HIS WORK WITH THE APPROPRIATE HIGHWAY & UTILITY DEPARTMENTS. WORK WITHIN THE HIGHWAY LAYOUT SHALL CONFORM TO THE CONDITIONS OF THE PERMIT ISSUED BY MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION OR THE LOCAL AUTHORITY.

9. ALL SIGN SIZES AND MATERIAL SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC DEVICES" (MUTCD) AND THE OFFICE OF TRAFFIC OPERATIONS, FEDERAL HIGHWAY ADMINISTRATION, U.S. DEPARTMENT OF TRANSPORTATION.

10. ALL RAMPS, CURB CUTS, SIDEWALKS, AND ACCESSIBLE SPACES SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT REGULATIONS AND WITH ARCHITECTURAL ACCESS BOARD REGULATIONS (521 CMR 1-47).

11. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT NO EXPENSE TO THE OWNER.

12. JOINTS BETWEEN PROPOSED BITUMINOUS CONCRETE PAVEMENT AND EXISTING PAVEMENT TO REMAIN SHALL BE SAWCUT AND SEALED WITH HOT POURED RUBBERIZED ASPHALT SEALER. ALL TRENCHES SHALL BE COMPLETED IN ACCORDANCE WITH THE NORTHBOROUGH DPW AND/OR MASS DOT REGULATIONS.

13. FOUNDATION & UNDER SLAB DRAINAGE SYSTEM DESIGNED BY OTHERS AS SHOWN ON THE PROJECT ARCHITECTURAL PLANS.

ZONED: INDUSTRIAL

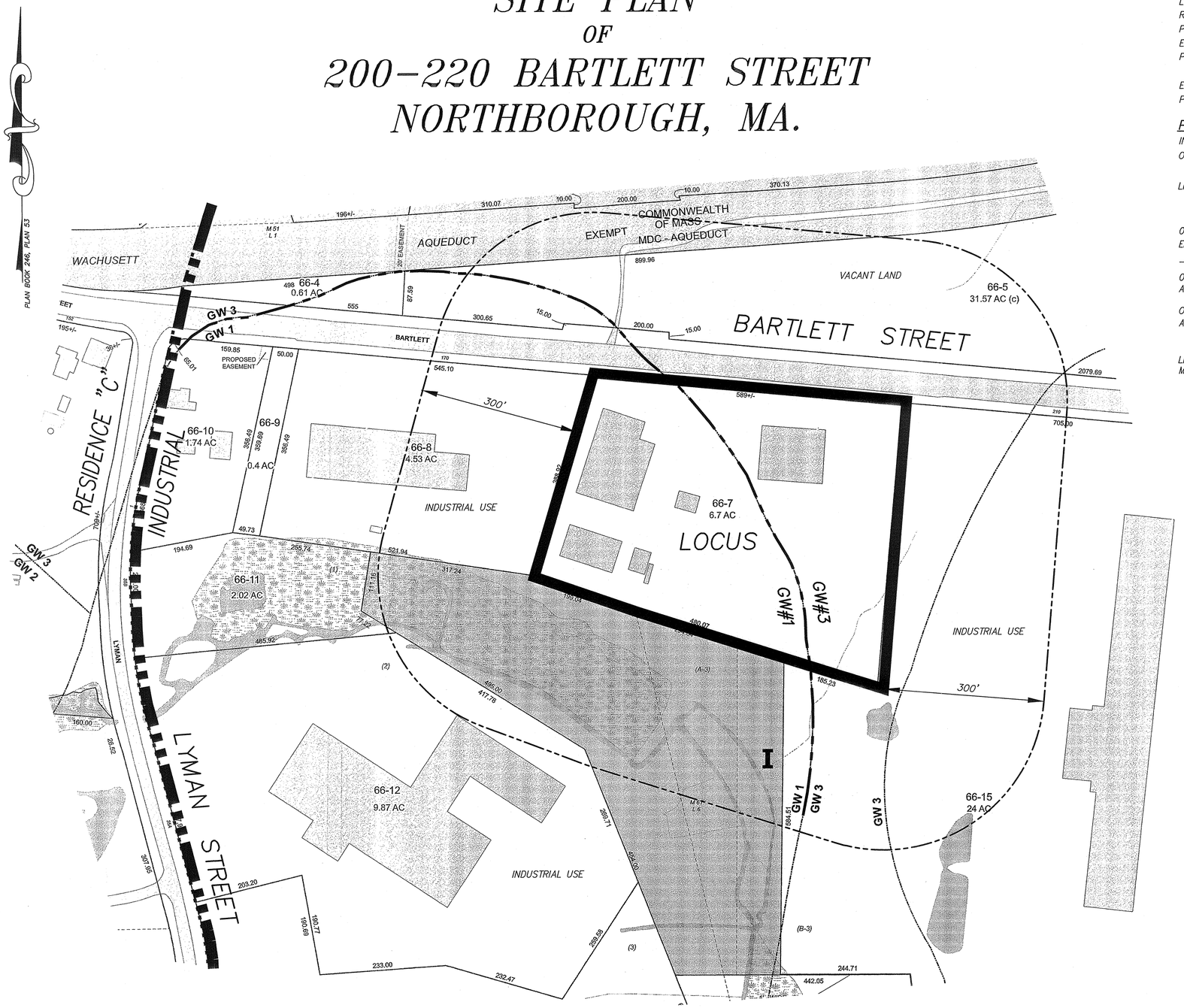
LOT REQUIREMENTS	REQUIRED	PROPOSED
AREA	60,000 s.f.	292,280 s.f.
FRONTAGE	150 FEET	586.50 FEET
FRONT YARD	40 FEET	58.6 FEET
SIDE YARD	20 FEET	35.4 FEET
REAR YARD	25 FEET	53.8 FEET
MAXIMUM LOT COVERAGE =	50%	12.0%
MINIMUM OPEN SPACE =	25%	52.8%

GROUNDWATER OVERLAY PROTECTION DISTRICT -1 & 3

SEPTIC SYSTEM DESIGN CALCULATION:

AUTO REPAIR: 3 BAYS X 150 GPD = 450 GPD
ADMIN. OFFICE 17,160 S.F./1000 = 17.16 x 75 GPD = 1287 GPD
MAINT. BUILDING 15 GPD PER EMPLOYEE = 60 EMPLOYEES = 900 GPD

DESIGN FLOW = 2637 GALLONS/DAY (GPD)
DESIGN PERC. RATE = 2 MPI (0.74 GAL/SF LOADING RATE)
2637 GPD / 0.74 GAL/SF = 3564 S.F. REQUIRED
LEACH AREA SHOWN = 4,000 S.F.
EXISTING SEPTIC DESIGN FLOW RATE =2650 GPD



LOCUS MAP:
SCALE: 1"=100'

OPEN SPACE / LANDSCAPE TABULATION:

LOT AREA = 292,280 S.F.
REQUIRED OPEN SPACE = 73,070 S.F. (25%)
PROPOSED OPEN SPACE = 154,364 S.F. (52.8%)
EXISTING IMPERVIOUS COVER = 79,795 S.F.
PROPOSED IMPERVIOUS COVER = 137,920 S.F.

EXISTING LOT COVERAGE (BUILDINGS) = 37,834 S.F.
PROPOSED LOT COVERAGE (BUILDINGS) = 36,566 S.F.

PARKING REQUIREMENTS:

INDUSTRIAL USES:
OFFICE: 1 SPACE / 300 S.F. MINIMUM
1 SPACE / 200 S.F. MAXIMUM

LIGHT INDUSTRIAL:
1 SPACE / 500 S.F. MINIMUM
1 SPACE / 300 S.F. MAXIMUM

OTHER COMMERCIAL USES: GREATER OF 1 SPACE PER (3) EMPLOYEES OR 1 SPACE PER 300 S.F. OF GROSS FLOOR AREA

OTHER COMMERCIAL USES:
AUTO REPAIR 6,130 S.F./300 = 20.4 MIN. SPACES REQUIRED

OFFICE:
ADMIN. OFFICE 17,160 S.F./300 = 57.2 MIN. SPACES REQUIRED
17,160 S.F./200 = 85.8 MAX. SPACES REQUIRED

LIGHT INDUSTRIAL:
MAINT. BUILDING 11,996 S.F./500 = 24 MIN. SPACES REQUIRED
11,996 S.F./300 = 40 MAX. SPACES REQUIRED

101.6 MIN. SPACES REQUIRED
146.2 MAX. SPACES REQUIRED

104 SPACES PROVIDED

SHEET INDEX

GRAPHIC SCALE: 1"=100'
0 50 75 100 150 200 300 400 500 FEET
0 10 20 30 40 50 75 100 125 150 METERS

APPLICANT:
R.J. DEVEREAUX CORP.

OWNER:
THE BARTLETT STREET REALTY TRUST
205 WALNUT STREET
FRAMINGHAM, MA 01701

CONNORSTONE ENGINEERING INC.
CIVIL ENGINEERS AND LAND SURVEYORS
10 SOUTHWEST CUTOFF, SUITE 7
NORTHBOROUGH, MASSACHUSETTS 01532
PHONE: 508-393-9727 FAX: 508-393-5242

COMMONWEALTH OF MASSACHUSETTS
VITO COLONNA
No. 47635
PROFESSIONAL ENGINEER
12-14-21

PROPOSED SITE PLAN
OF
200-220 BARTLETT STREET
IN
NORTHBOROUGH, MA

12/14/21	CON. COMM. EDITS
REVISED:	DESCRIPTION:
DRAWN BY: REM	CHECK BY: VC
DATE: NOVEMBER 23, 2021	
SCALE: 1"=100'	SHEET 1 OF 6.

COVER / INDEX PLAN

LEGEND

- DRAINAGE LINE
- DRAINAGE MAN HOLE
- CATCH BASIN
- SEWER LINE
- SEWER MAN HOLE
- BITUMINOUS CURBING
- EDGE OF PAVEMENT
- WATERLINE
- HYDRANT
- WATERGATE
- GAS LINE
- GAS GATE
- UTILITY POLE & GUY WIRE
- GUARD RAIL
- TELEPHONE MAN HOLE
- STONEWALL
- CHAIN LINK FENCE
- WOOD FENCE
- TREE LINE
- ZONE LINE
- RIP RAP
- WELL
- LIGHTPOST
- MAPLE TREE
- CRABAPPLE TREET
- HANDICAP SPACE
- ELECTRIC TRANSFORMER
- SIGN
- BOLLARD

MONUMENTS

• IR Set	IRON ROD FOUND
◉ DH Fnd/Set	DRILL HOLE FOUND/Set
⊡ CBDH Fnd.	CONCRETE BOUND W. DRILL HOLE FOUND
	STONE WALL

TOWN ASSESSOR MAP 66, PARCEL 7

DEED BOOK 13894, PAGE 46

PLAN BOOK 308, PLAN 12
PLAN BOOK 246, PLAN 53
PLAN BOOK 864, PLAN 117
PLAN BOOK 311, PLAN 3

ZONED: INDUSTRIAL
AREA = 60,000 sf
FRONTAGE = 150 feet
SETBACKS: FRONT = 40 feet
SIDE = 20 feet
REAR = 25 feet
MAX. LOT COVERAGE = 50%
MINIMUM OPEN SPACE = 25%

GROUNDWATER OVERLAY PROTECTION DISTRICT #1 & #3

SEPTIC SOIL LOGS:

DTH-1 9-24-19		
0–12"	Ap	LOAMY SAND 10YR3/2
12–24"	Bw	LOAMY SAND 10YR5/6
24–48"	C1	COARSE SAND 2.5Y5/4
48–118"	C2	MED. SAND 2.5YR5/4
MOTTLES AT 64" WATER AT 110"		

DTH-2 9-24-19		
0–10"	Ap	LOAMY SAND 10YR3/2
10–24"	Bw	LOAMY SAND 10YR5/6
24–48"	C1	COARSE SAND 2.5Y5/4
48–112"	C2	MED. SAND 2.5YR5/4
MOTTLES AT 54" WATER AT 99"		

DTH-3 9-24-19		
0–12"	Ap	LOAMY SAND 10YR3/2
12–24"	Bw	LOAMY SAND 10YR5/6
24–50"	C1	COARSE SAND 2.5Y5/4
50–120"	C2	MED. SAND 2.5YR5/4
MOTTLES AT 54" WATER AT 118"		

DTH-4 9-24-19		
0–10"	Ap	LOAMY SAND 10YR3/2
10–22"	Bw	LOAMY SAND 10YR5/6
22–50"	C1	COARSE SAND 2.5Y5/4
50–112"	C2	MED. SAND 2.5YR5/4
MOTTLES AT 58" WATER AT 102"		

DTH-5 9-21-21		
0–12"	Ap	LOAMY SAND 10YR3/2
12–22"	Bw	LOAMY SAND 10YR5/6
22–76"	C1	COARSE SAND 2.5Y5/4
76–108"	C2	MED. SAND 2.5YR5/4
MOTTLES AT 58" WATER AT 76"		

DRAIN SOIL LOGS:

D-1 9-21-21		
0–8"	Ap	LOAMY SAND 10YR3/2
8–10"	Bw	LOAMY SAND 10YR5/6
10–42"	C1	COARSE SAND 2.5Y5/4
42–108"	C2	MED. SAND 2.5YR5/4
MOTTLES AT 52" WATER AT 72"		

D-2 9-21-21		
0–10"	Ap	LOAMY SAND 10YR3/2
10–30"	C1	COARSE SAND 2.5Y5/4
30–102"	C2	MED. SAND 2.5YR5/4
MOTTLES AT 48" WATER AT 68"		

D-3 9-21-21		
0–12"	Ap	LOAMY SAND 10YR3/2
12–24"	Bw	LOAMY SAND 10YR5/6
24–36"	C1	COARSE SAND 2.5Y5/4
36–116"	C2	FINE SAND 2.5YR5/4
MOTTLES AT 48" WATER AT 62"		

D-4 9-21-21		
0–8"	Ap	LOAMY SAND 10YR3/2
8–22"	Bw	LOAMY SAND 10YR5/6
22–110"	C1	FINE SAND 2.5Y5/4
MOTTLES AT 50" WATER AT 84"		

D-5 9-21-21		
0–12"	Ap	LOAMY SAND 10YR3/2
12–20"	Bw	LOAMY SAND 10YR5/6
20–116"	C1	FINE SAND 2.5Y5/4
MOTTLES AT 52" WATER AT 88"		

D-6 9-21-21		
0–12"	Ap	LOAMY SAND 10YR3/2
12–24"	Bw	LOAMY SAND 10YR5/6
24–48"	C1	COARSE SAND 2.5Y5/4
48–84"	C2	FINE SAND 2.5YR5/4
MOTTLES AT 64" NO WATER		

GRAPHIC SCALE: 1"=40'

0 10 20 30 40 50 75 100 150 200 FEET
0 5 10 15 20 30 40 50 60 METERS

COMMONWEALTH OF MASSACHUSETTS
VITO COLONNA No. 47635
REGISTERED PROFESSIONAL ENGINEER
12-14-21

APPLICANT:
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PHONE: 508-393-9727 FAX: 508-393-5242

PROPOSED SITE PLAN OF 200-220 BARTLETT STREET IN NORTHBOROUGH, MA

12/14/21	CON. COMM. EDITS
REVISED:	DESCRIPTION:
DRAWN BY: REM	CHECK BY: VC
DATE: NOVEMBER 23, 2021	
SCALE: 1"=100'	SHEET 2 OF 6.

EXISTING CONDITIONS PLAN

BARTLETT STREET

MAP 66, PARCEL 7
AREA=292,280 S.F.
(6.7± ACRES)

N/F
FUNNLORE REALTY TRUST, LLC
MAP 66, PARCEL 8
DEED BK. 50874, PG. 212

N/F
NBORO REALTY, LLC
MAP 66, PARCEL 15
DEED BK. 42340, PG. 122

N/F
NORTHBOROUGH LAND REALTY TRUST
MAP 66, PARCEL 17
DEED BK. 23107, PG. 356

PLAN BOOK 246, PLAN 53

895.76'
S85°03'15"E
388.92'
N15°05'15"E
586.50'
80.00'
536.80'
S04°17'10"W
N69°22'20"W
199.04'
N73°01'05"W
450.07'

PROPOSED SEPTIC AREA (SEE SEPARATE DESIGN PLANS)

EXISTING BUILDING (PROP. ADMINISTRATION OFFICE) SLAB=288.5±

EXISTING BUILDING (PROP. MAINTENANCE BUILDING) SLAB=290.0±

EXISTING BUILDING (AUTO REPAIR) SLAB=282.6±

EXISTING BUILDING (STORAGE) SLAB=282.5±

TRUCK PARKING (7)

VEHICLE PARKING (12)

VEHICLE PARKING (28)

VEHICLE PARKING (10)

VEHICLE PARKING (2)

VEHICLE PARKING (11)

EQUIPMENT PARKING (13)

EQUIPMENT PARKING (6)

TRUCK & TRAILER PARKING (18)

HANDICAP PARKING SIGN (2)

GAS/OIL SEPARATOR WITH VENT RIM=289.7 IN=286.5 OUT=286.0

PROPOSED TIGHT TANK 8,000 GAL

RETAINING WALL x287.5

LOADING ZONE

DUMPSTER PAD

GRAVEL

SAND

PROCESSED GRAVEL

CRUSHED STONE

CANOPY OVER MATERIALS

ROOF DRAIN DRYWELL-1

ROOF DRAIN DRYWELL-2

OVERHEAD DOORS

6" PVC ROOF DRAIN @ 2%

SNOW STORAGE AREA

CONC. WALK TO BE REMOVED

BIT. CONC. WALK TO BE REMOVED

PROP. EROSION BARRIER

CONTAINER

TRAILER

ROCK HANDS ON TRAINING

STC-1 STORMCEPTOR WATER QUALITY STRUCTURE

STC-2 STORMCEPTOR WATER QUALITY STRUCTURE

STC-3 STORMCEPTOR WATER QUALITY STRUCTURE

STC-4 STORMCEPTOR WATER QUALITY STRUCTURE

INFILTRATION BASIN BOTTOM EL.=279.00

TOP BERM ELEVATION 283.75

10' WIDE SPILLWAY EL.=282.5

100' WETLAND BUFFER

LIMIT OF WORK 26' FROM WETLANDS

100 YEAR FLOOD PLAIN EL.=275

WETLAND DELINEATION BY: 3 OAKS CONSULTING, FEB. 2020

BENCHMARK X-BOLT, HYDRANT ELEV.=290.59 (NAVD 1988)

BENCHMARK NAIL-S, 12"DC ELEV.=287.69 (NAVD 1988)

BENCHMARK COR. CONC. STEP ELEV.=282.62 (NAVD 1988)

DCB RIM=287.45 I.=283.9

DCB RIM=287.66 I.=283.5 I.=283.8

DMH-1 RIM=286.95 2-12" IN=283.95 15" OUT=283.80

DMH-2 RIM=287.55 12" IN=283.50 (CB-3) 12" IN=282.60 (CB-4) 15" IN=282.60 (DMH-1) 15" OUT=282.45

DMH-3 RIM=289.10 18" IN=281.1 18" OUT=281.0

DMH-4 RIM=284.65 12" IN=281.20 (CB-7) 12" IN=281.00 (CB-8) 18" IN=281.00 (DMH-5) 18" OUT=280.90

DMH-5 RIM=285.25 12" IN=281.50 (CB-9) 12" IN=281.30 (DMH-6) 18" OUT=281.20

DMH-6 RIM=287.00 12" IN=283.00 (CB-10) 12" IN=281.85 (DMH-7) 15" OUT=281.75

DMH-7 RIM=286.65 2-12" IN=282.75 12" OUT=282.65

CB-1 RIM=287.30 12" OUT=284.30

CB-2 RIM=286.70 12" OUT=283.70

CB-3 RIM=287.00 12" OUT=284.0

CB-4 RIM=286.85 12" OUT=283.85

CB-5 RIM=288.00 12" OUT=283.50

CB-6 (DOUBLE GRATE) RIM=283.50 12" OUT=280.50

CB-7 RIM=285.00 12" OUT=281.50

CB-8 (DOUBLE GRATE) RIM=284.25 12" OUT=281.30

CB-9 RIM=284.85 12" OUT=281.85

CB-10 RIM=287.20 12" OUT=283.60

CB-11 (DOUBLE GRATE) RIM=286.00 12" OUT=283.00

CB-12 RIM=286.80 12" OUT=283.30

STC-1 STORMCEPTOR 450i RIM=288.25 12" IN=281.70 15" IN=281.70 8" IN=281.70 18" OUT=281.45

DRYWELL-1 32'x16'x3.2' STONE BED (12) CULTEC R280HD CHAMBERS BOTTOM STONE BED=283.0 BOTTOM OF CHAMBERS=283.5 6" IN=285.0

DRYWELL-2 32'x16'x3.2' STONE BED (12) CULTEC R280HD CHAMBERS BOTTOM STONE BED=284.0 BOTTOM OF CHAMBERS=284.5 6" IN=286.0

FE-1 18" OUT=280.00 W/ RIPRAP APRON

FE-2 18" OUT=280.00 W/ RIPRAP APRON

FE-3 12" OUT=280.25 W/ RIPRAP APRON

FE-4 12" OUT=280.0 W/ RIPRAP APRON

* ALL DRAIN LINES 12" OR LARGER SHALL BE HDPE (ADS N-12 OR EQUAL). ALL DRAIN LINES 8" OR LESS SHALL BE PVC DR 18.

STC-1 STORMCEPTOR 450i RIM=284.00 12" IN=280.8 12" OUT=280.55

STC-2 STORMCEPTOR 900i RIM=285.25 18" IN=280.40 12" IN=280.40 18" OUT=280.15

STC-3 STORMCEPTOR 450i RIM=284.00 12" IN=280.8 12" OUT=280.55

STC-4 STORMCEPTOR 450i RIM=284.00 12" IN=281.0 12" OUT=280.75

LEGEND

- DRAINAGE LINE
- DRAINAGE MAN HOLE
- CATCH BASIN
- SEWER LINE
- SEWER MAN HOLE
- BITUMINOUS CURBING
- EDGE OF PAVEMENT
- WATERLINE
- HYDRANT
- WATERGATE
- GAS LINE
- GAS GATE
- UTILITY POLE & GUY WIRE
- GUARD RAIL
- TELEPHONE MAN HOLE
- STONEWALL
- CHAIN LINK FENCE
- WOOD FENCE
- TREE LINE
- ZONE LINE
- RIP RAP
- WELL
- LIGHTPOST
- MAPLE TREE
- CRABAPPLE TREET
- HANDICAP SPACE
- ELECTRIC TRANSFORMER
- SIGN
- BOLLARD

GRAPHIC SCALE: 1"=30'

0 5 10 15 20 25 30 40 50 75 100 FEET
0 1 2 3 4 5 10 15 20 25 30 METERS

APPLICANT:
R.J. DEVEREAUX CORP.

OWNER:
THE BARTLETT STREET REALTY TRUST
205 WALNUT STREET
FRAMINGHAM, MA 01701

CONNORSTONE ENGINEERING INC.
CIVIL ENGINEERS AND LAND SURVEYORS
10 SOUTHWEST CUTOFF, SUITE 7
NORTHBOROUGH, MASSACHUSETTS 01532
PHONE: 508-393-9727 FAX: 508-393-5242

PROPOSED SITE PLAN OF 200-220 BARTLETT STREET IN NORTHBOROUGH, MA

COMMONWEALTH OF MASSACHUSETTS
VITO COLONNA
No. 47635
PROFESSIONAL ENGINEER
12-14-21

12/14/21	CON. COMM. EDITS
REVISED:	DESCRIPTION:
DRAWN BY: REM	CHECK BY: VC
DATE: NOVEMBER 23, 2021	
SCALE: 1"=30'	SHEET 3 OF 6.

PROPOSED SITE PLAN

DIG SAFE 1-888-344-7233

UTILIZE EXISTING PAVED AREA AS INITIAL STAGING AREA

UTILIZE EXISTING PAVED APRON AS CONSTRUCTION ENTRANCE. IF REMOVED, REPLACE WITH GRAVEL ENTRANCE.

PROPOSED EROSION BARRIER

UTILIZE EXISTING PAVED APRON AS CONSTRUCTION ENTRANCE. IF REMOVED, REPLACE WITH GRAVEL ENTRANCE.

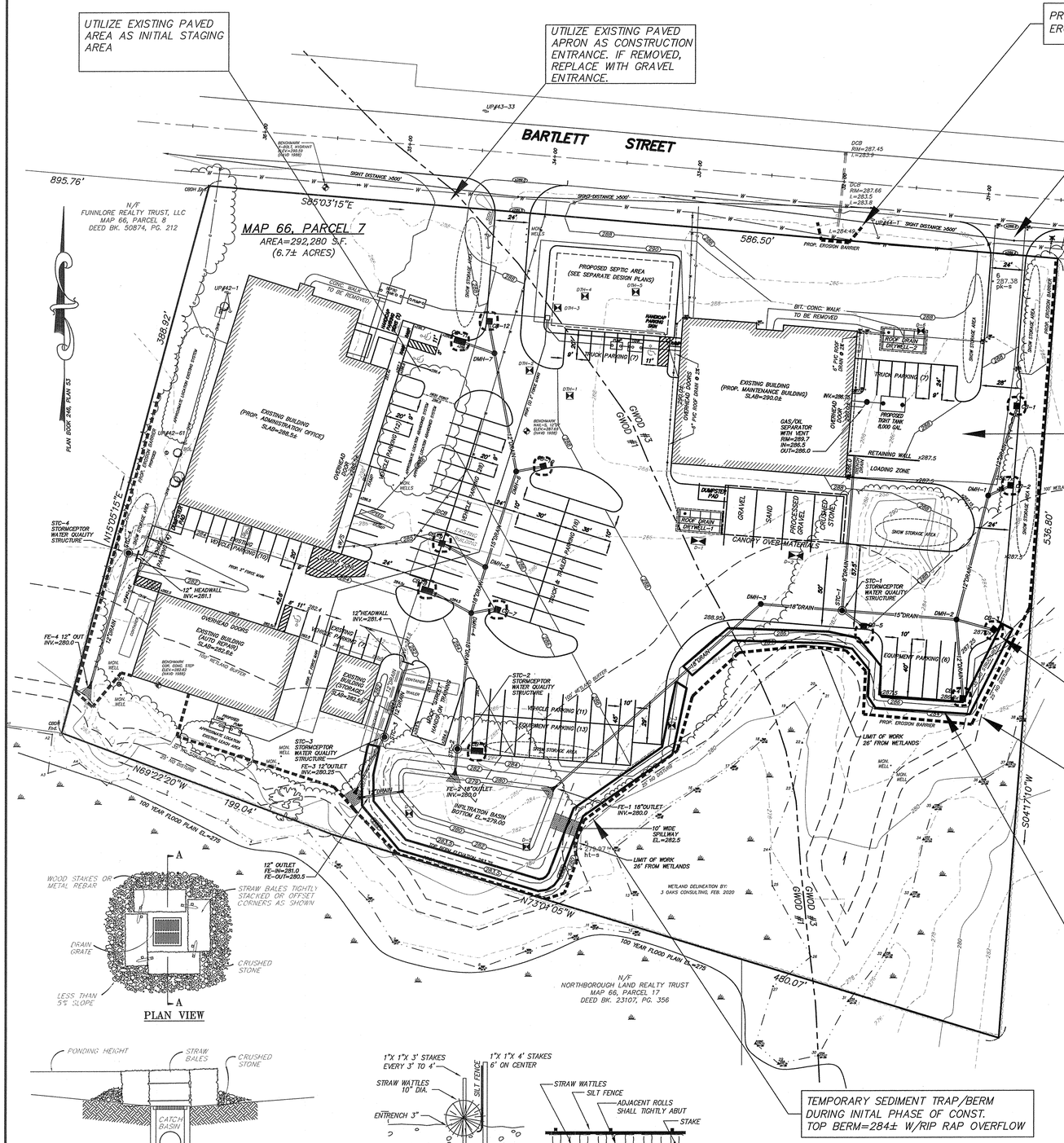
UTILIZE EXISTING PAVED AREA AS INITIAL STAGING AREA FOR BUILDING RENOVATION.

SILT SACK & STRAWBALE RING AT ALL CATCH BASINS

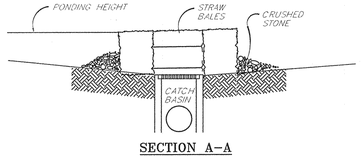
PROPOSED EROSION BARRIER

TEMPORARY SEDIMENT TRAP/BERM DURING INITAL PHASE OF CONST. TOP BERM=288-287± W/RIP RAP OVERFLOW

TEMPORARY SEDIMENT TRAP/BERM DURING INITAL PHASE OF CONST. TOP BERM=284± W/RIP RAP OVERFLOW



PLAN VIEW



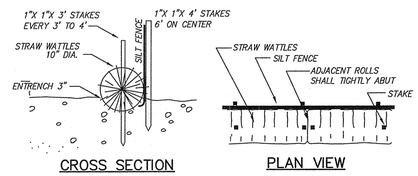
SECTION A-A

NOTES:
1. SEDIMENT BARRIERS ARE TO BE USED FOR SMALL, NEARLY LEVEL DRAINAGE AREAS. (LESS THAN 5%)

PLACE BALES WITH ENDS TIGHTLY ABUTING. STONE BACKFILL WILL PREVENT EROSION OR FLOW AROUND THE BALES.

STRAW BALE/GRAVEL SEDIMENT BARRIER AT CATCH BASINS

NOT TO SCALE



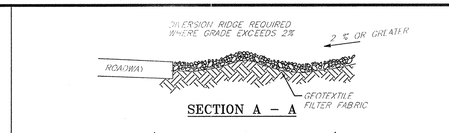
CROSS SECTION PLAN VIEW

NOTES:
1. STRAW ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 3" DEEP. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND ROLL.

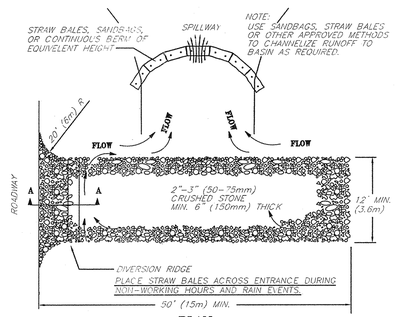
2. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFATURERS RECOMMENDATIONS.

EROSION BARRIER

NOT TO SCALE



SECTION A - A



PLAN

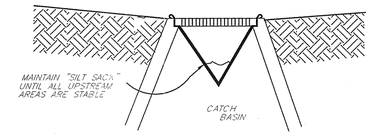
NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.

3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

4. STONE APRON SHALL BE REPLACED AS DEPOSITED SOILS BUILD UP.

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT

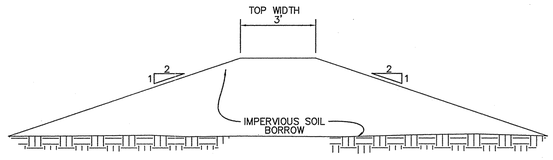


NOTES:
1. SILT SACKS ARE TO BE INSPECTED WEEKLY DURING CONSTRUCTION AND IMMEDIATELY AFTER STORM EVENTS.

2. IF SILT SACKS ARE MORE THAN 1/3RD FULL THEY SHALL BE EMPTIED IMMEDIATELY. CAPTURES SILT SHALL BE RETAINED ON SITE AND REUSED.

SILT SACK OR EQUAL SEDIMENT CONTAINMENT SYSTEM

NOT TO SCALE



TEMPORARY BERM SECTION

NOT TO SCALE

EROSION AND SEDIMENTATION CONTROL NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE PLANS AND PERMIT CONDITIONS.

2. PRIOR TO INITIATING CONSTRUCTION, ALL SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND DETAIL DRAWINGS.

3. THIS PLAN DEPICTS THE MINIMUM REQUIRED SEDIMENTATION AND EROSION CONTOLS. THE CONTRACTOR SHALL EMPLOY ADDITIONAL SEDIMENTATION AND EROSION CONTROL MEASURES AS NECESSITATED BY SITE CONDITIONS, OR AS DIRECTED BY THE OWNER, THE OWNER'S REPRESENTATIVE, OR THE CONSERVATION COMMISSION TO ENSURE PROTECTION OF ALL WETLAND RESOURCES AND CONTROL SEDIMENT TRANSPORT. IF SEDIMENTATION PLUMES OCCUR, THE CONTRACTOR SHALL STOP WORK AND INSTALL ADDITIONAL SEDIMENTATION CONTROL DEVICES IMMEDIATELY TO PREVENT FURTHER SEDIMENTATION.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL TEMPORARY AND PERMANENT SEDIMENTATION AND EROSION CONTROLS UNTIL WORK IS COMPLETE AND ALL AREAS HAVE BEEN PERMANENTLY STABILIZED. AT SUCH TIME THE CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL SEDIMENTATION AND EROSION CONTROL MEASURES.

5. THE CONTRACTOR SHALL INSPECT SEDIMENTATION AND EROSION CONTROLS ON A DAILY BASIS AND IMMEDIATELY AFTER EACH RAINFALL; REPAIRS SHALL BE MADE BY THE END OF THE WORKING DAY. ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR WHEN THE VOLUME REACHES 1/4 TO 1/2 THE HEIGHT OF SILT FENCE OR SEDIMENT TRAP, OR AS DIRECTED BY THE LOCAL AUTHORITY.

6. SOIL STOCKPILES SHALL BE STABILIZED TO PREVENT EROSION, AND A PERIMETER SEDIMENT CONTROL SYSTEM SHALL BE INSTALLED. NO MATERIALS SUBJECT TO EROSION SHALL BE STOCKPILED OVERNIGHT WITHIN 100 FEET OF A WETLAND UNLESS COVERED.

7. DISTURBED AREAS SHALL BE STABILIZED BY LOAMING AND SEEDING, OR BY ANOTHER APPROVED METHOD, AS SOON AS POSSIBLE AFTER THE FINISHED GRADE HAS BEEN MET. DISTURBED AREAS WITH SLOPES 3:1 (H:V) OR GREATER SHALL BE COVERED WITH LOAM AND STABILIZED WITH HYDROSEED AND SOIL TACKIFIER. IF FINAL GRADING DOES NOT OCCUR DURING THE GROWING SEASON, THESE AREAS SHALL BE MULCHED WITH HAY SECURED.

8. DEWATERING OPERATIONS, IF REQUIRED, SHALL DISCHARGE ONTO STABILIZED AREAS, AND ALL DISCHARGE WATER IS TO PASS THROUGH SEDIMENTATION CONTROL DEVICES TO PREVENT IMPACTS UPON WATER BODIES, BORDERING VEGETATED WETLANDS, DRAINAGE SYSTEMS AND ABUTTING PROPERTIES. AT A MINIMUM ALL DISCHARGES SHALL BE INTERCEPTED BY HAYBALE CORRAL AND HAYBALE CHECK DAMS SPACED 10' APART.

9. STAKED WATTLES AND SILT FENCE SHALL BE INSTALLED ALONG THE EDGE OF PROPOSED DEVELOPMENT OR AS INDICATED ON THE PLANS. ADDITIONAL WATTLES AND SILT FENCE SHALL BE LOCATED AS CONDITIONS WARRANT, AND IN SOME AREAS STRUCTURES MAY HAVE TO BE DUPLICATED AT REGULAR INTERVALS.

10. STREET SWEEPING IN THE VICINITY OF THE PROJECT AREA SHALL BE PERFORMED AS NEEDED UNTIL THE PROJECT LIMITS HAVE BEEN STABILIZED. ALL SEDIMENT TRACKED ONTO PUBLIC RIGHT-OF-WAYS SHALL BE SWEPT AT THE END OF EACH WORKING DAY.

11. ALL EXISTING AND PROPOSED DRAINAGE SYSTEM INLETS, WHICH MAY RECEIVE STORMWATER FLOW FROM DISTURBED AREAS, SHALL BE PROVIDED WITH SILT SACKS. THE CONTRACTOR SHALL MAINTAIN THESE DEVICES PER THE MANUFACTURERS RECOMMENDATIONS UNTIL ALL WORK IS COMPLETED AND ALL AREAS HAVE BEEN ADEQUATELY STABILIZED.

12. DUST CONTROL MEASURES SHALL BE IMPLEMENTED AND MAINTAINED PROPERLY THROUGHOUT DRY WEATHER PERIODS UNTIL ALL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED. METHODS FOR DUST CONTROL SHALL INCLUDE WATER SPRINKLING AND/OR OTHER METHODS APPROVED BY THE ENGINEER.

13. ALL VEHICLES SHALL ENTER AND EXIT THE SIT VIA THE STABILIZED CONSTRUCTION ENTRANCE CONSISTING OF CRUSHED STONE TO A DEPTH OF 6" FOR THE FIRST 50 FEET FROM EXISTING PAVED STREETS. IF THE SITE CONDITIONS ARE SUCH THAT THE GRAVEL PAD DOES NOT REMOVE THE MAJORITY OF THE MUD AND DEBRIS, THEN THE TIRES SHALL BE WASHED BEFORE ANY VEHICLES ENTER ADJACENT ROADWAYS. ALL WATER USED FOR TIRE WASHING SHALL BE COLLECTED AND TREATED PRIOR TO ENTERING THE DRAINAGE SYSTEM. THE CONTRACTOR SHALL INSPECT THE CONSTRUCTION ENTRANCE DAILY AND AFTER HEAVY USE.

GRAPHIC SCALE: 1"=40'

0 10 20 30 40 50 75 100 150 200 FEET
0 5 10 15 20 30 40 50 60 METERS

APPLICANT:
R.J. DEVEREAUX CORP.

OWNER:
THE BARTLETT STREET REALTY TRUST
205 WALNUT STREET
FRAMINGHAM, MA 01701

CONNORSTONE ENGINEERING INC.
CIVIL ENGINEERS AND LAND SURVEYORS
10 SOUTHWEST CUTOFF, SUITE 7
NORTHBOROUGH, MASSACHUSETTS 01532
PHONE: 508-393-9727 FAX: 508-393-5242

COMMONWEALTH OF MASSACHUSETTS VITO COLONNA No. 47635 PROFESSIONAL ENGINEER 12-14-21

DIG SAFE 1-888-344-7233

PROPOSED SITE PLAN OF 200-220 BARTLETT STREET IN NORTHBOROUGH, MA

12/14/21	CON. COMM. EDITS
REVISED:	DESCRIPTION:
DRAWN BY: REM	CHECK BY: VC
DATE: NOVEMBER 23, 2021	
SCALE: 1"=40'	SHEET 4 OF 6.

EROSION CONTROL PLAN

BARTLETT STREET

N/F
FUNNLORE REALTY TRUST, LLC
MAP 66, PARCEL 8
DEED BK. 50874, PG. 212

MAP 66, PARCEL 7
AREA=292,280 S.F.
(6.7± ACRES)

N/F
NBORO REALTY, LLC
MAP 66, PARCEL 15
DEED BK. 42340, PG. 122

PLAN BOOK 246, PLAN 53

895.76'
S85°03'15"E
586.50'
80.00'
388.92'
N15°05'15"E
536.80'
S04°17'10"W
N69°22'20"W
199.04'
N73°07'05"W
480.07'

BENCHMARK
X=BOLT, HYDRANT
ELEV=290.59
(NAVD 1988)

BENCHMARK
NAIL-S, 12"DT
ELEV=287.69
(NAVD 1988)

DCB
RIM=287.45
I.=283.9

DCB
RIM=287.66
I.=283.5
I.=283.8

I.=284.49

CBDH Fnd.

CONC. WALK TO BE REMOVED

EXISTING BUILDING
(PROP. ADMINISTRATION OFFICE)
SLAB=288.5±

EXISTING BUILDING
(PROP. MAINTENANCE BUILDING)
SLAB=290.0±

EXISTING BUILDING
(AUTO REPAIR)
SLAB=282.6±

EXISTING BUILDING
(STORAGE)
SLAB=282.5±

EXISTING BUILDING

OVERHEAD DOORS
OVERHEAD DOOR 288.2±
OVERHEAD DOORS 290.0±
OVERHEAD DOOR 290.0±

HANDICAP PARKING SIGNS (TYP.)
HANDICAP PARKING SIGN
RAMP
WALKWAY
MCCB
R=24'
R=12'
R=4'
R=6'
R=22'
R=50'

TRUCK PARKING (7)
VEHICLE PARKING (12)
VEHICLE PARKING (10)
VEHICLE PARKING (4)
VEHICLE PARKING (11)
EQUIPMENT PARKING (13)
EQUIPMENT PARKING (8)
TRUCK & TRAILER PARKING (18)
EXISTING VEHICLE PARKING (7)
EXISTING VEHICLE PARKING (10)

20' x 9'
24'
28'
30'
36'
40'
45'
50'
57.5'
29'
10'
11'
42.8'

SNOW STORAGE AREA
DUMPSTER PAD
RETAINING WALL
LOADING ZONE
CANOPY OVER MATERIALS
GRAVEL
SAND
PROCESSED GRAVEL
CRUSHED STONE

PROP. EROSION BARRIER
FIRST EROSION BARRIER

GWOD #3
GWOD #1

6 • 287.38 pk-s
279.97 ht-s

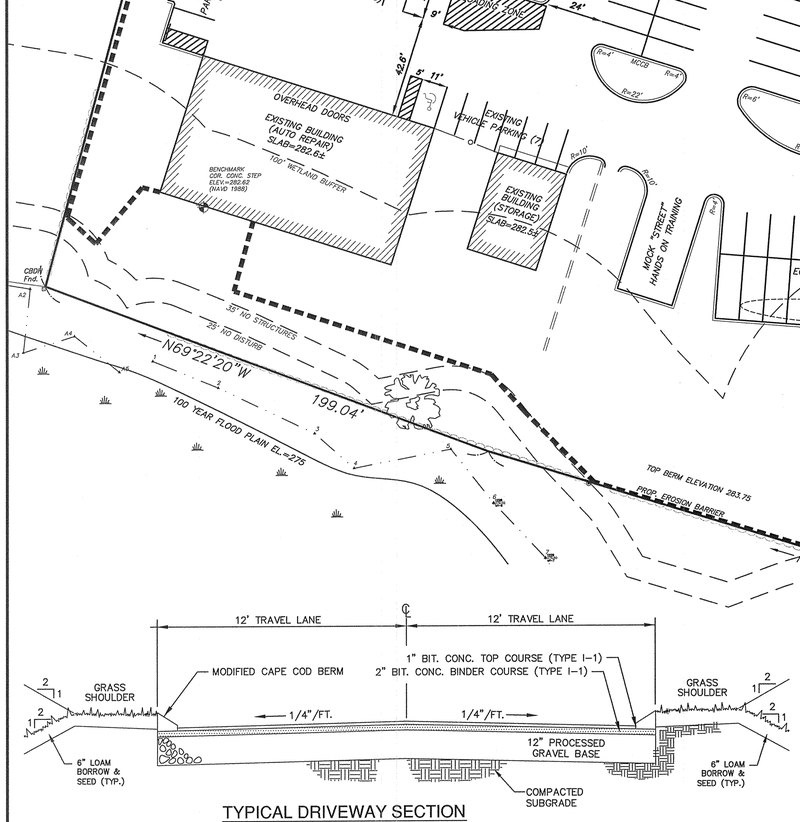
100' WETLAND BUFFER
25' NO DISTURB
35' NO. STRUCTURES
23' NO DISTURB
45' NO. STRUCTURES
25' NO DISTURB

MOCK "STREET" HANDS ON TRAINING

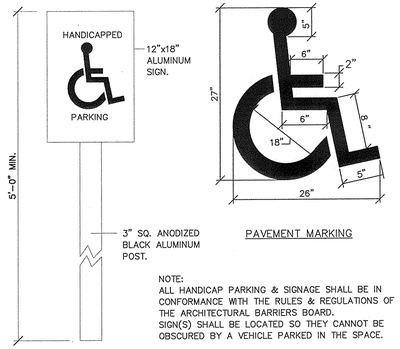
100 YEAR FLOOD PLAIN EL.=275

TOP BERM ELEVATION 283.75
PROP. EROSION BARRIER

WETLAND DELINEATION BY:
3 OAKS CONSULTING, FEB. 2020



TYPICAL DRIVEWAY SECTION
NOT TO SCALE



PAVEMENT MARKING

NOTE:
ALL HANDICAP PARKING & SIGNAGE SHALL BE IN CONFORMANCE WITH THE RULES & REGULATIONS OF THE ARCHITECTURAL BARRIERS BOARD.
SIGN(S) SHALL BE LOCATED SO THEY CANNOT BE OBSCURED BY A VEHICLE PARKED IN THE SPACE.

HANDICAP SIGN & PAVEMENT MARKING DETAIL
NOT TO SCALE

GRAPHIC SCALE: 1"=30'
0 5 10 15 20 25 30 40 50 75 100 FEET
0 1 2 3 4 5 10 15 20 25 30 METERS

APPLICANT:
R.J. DEVEREAUX CORP.

OWNER:
THE BARTLETT STREET REALTY TRUST
205 WALNUT STREET
FRAMINGHAM, MA 01701

CONNORSTONE ENGINEERING INC.
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10 SOUTHWEST CUTOFF, SUITE 7
NORTHBOROUGH, MASSACHUSETTS 01532
PHONE: 508-393-9727 FAX: 508-393-5242

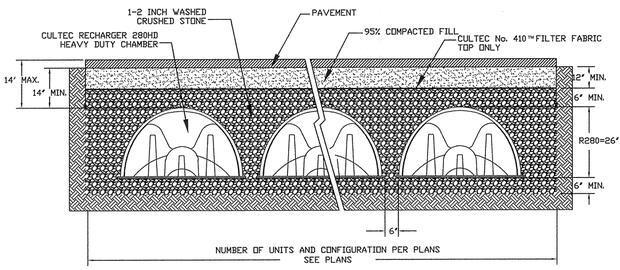
PROPOSED SITE PLAN
OF
200-220 BARTLETT STREET
IN
NORTHBOROUGH, MA

12/14/21	CON. COMM. EDITS
REVISED:	DESCRIPTION:
DRAWN BY: REM	CHECK BY: VC
DATE: NOVEMBER 23, 2021	
SCALE: 1"=30'	SHEET 5 OF 6.

PROPOSED LAYOUT PLAN

COMMONWEALTH OF MASSACHUSETTS
VITO COLONNA
No. 47635
PROFESSIONAL ENGINEER
12-14-21

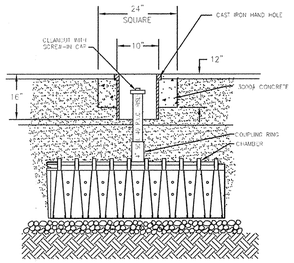
DIG SAFE
1-888-344-7233



GENERAL NOTES
CULTEC, INC. OF BROOKFIELD, CT.
ALL CHAMBERS MUST BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

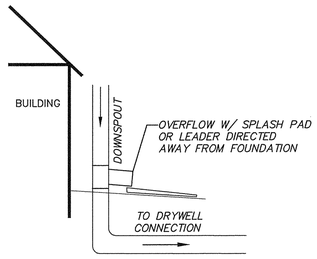
REFER TO CULTEC, INC.'S CURRENT RECOMMENDED INSTALLATION GUIDELINES. ALL RECHARGER 100HD HEAVY DUTY UNITS ARE MARKED WITH A COLOR STRIPE FORMED INTO THE PART ALONG THE LENGTH OF THE CHAMBER.

CULTEC, Inc. P.O. Box 280 878 Federal Road Brookfield, CT 06804 USA	PH: (203) 775-4416 PH: (800) 4-CULTEC FX: (203) 775-1462 www.cultec.com	CULTEC	**CULTEC Contactor® and Recharger®** Plastic Septic and Stormwater Chambers DATE / SCALE: N/S / FILENAME: LUIS

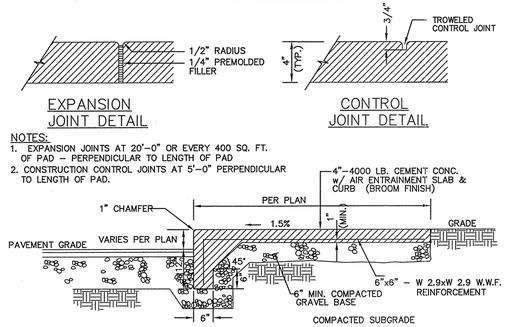


INSPECTION PORT DETAIL
NOT TO SCALE

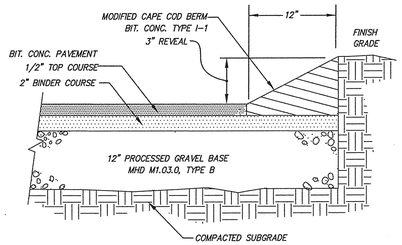
CULTEC RECHARGER INSPECTION PORT PAVED TRAFFIC APPLICATION TYPICAL CROSS SECTION DETAIL



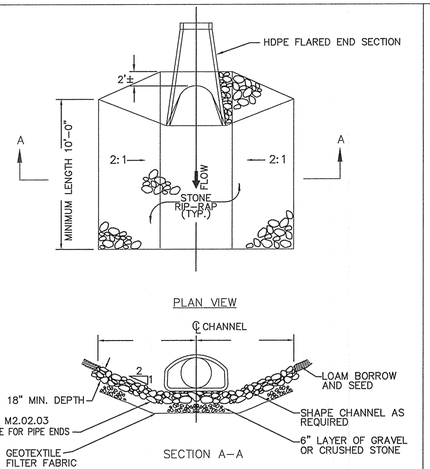
ROOF GUTTER CONNECTION SCHEMATIC
NOT TO SCALE



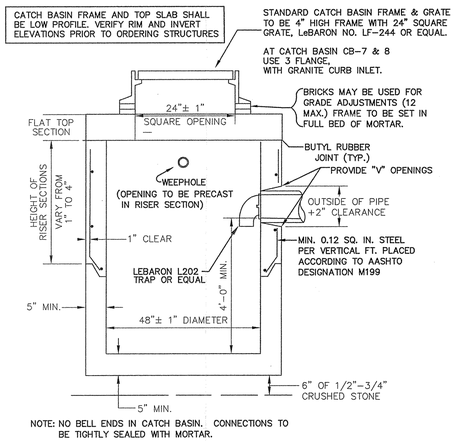
CONCRETE PAD / CURB DETAIL
NOT TO SCALE



MODIFIED CAPE COD BERM & TYPICAL PAVEMENT SECTION
NOT TO SCALE

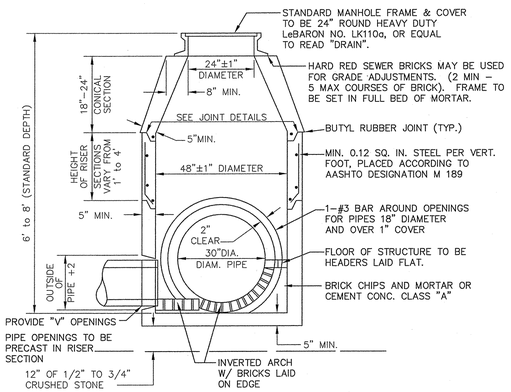


RIP-RAP APRON
NOT TO SCALE

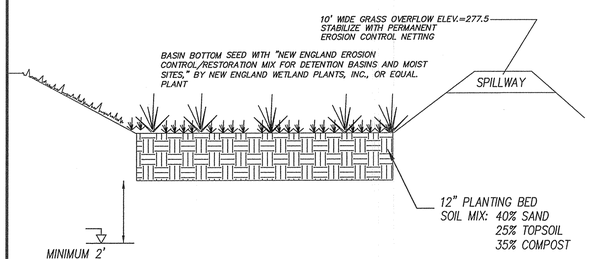


NOTE: NO BELL ENDS IN CATCH BASIN. CONNECTIONS TO BE TIGHTLY SEALED WITH MORTAR.

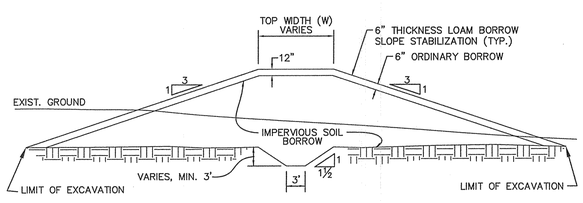
PRECAST CONCRETE DRAIN CATCH BASIN DETAIL
NOT TO SCALE



PRECAST CONCRETE DRAIN MANHOLE DETAIL
NOT TO SCALE



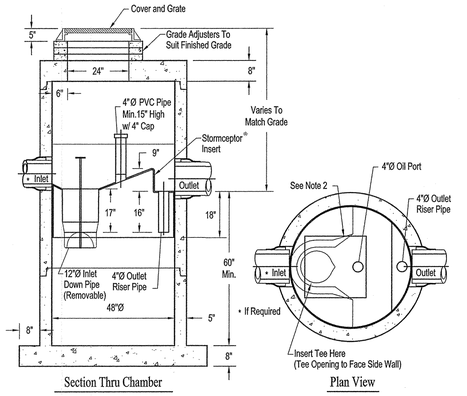
INFILTRATION BASIN DETAIL
NOT TO SCALE



TYPICAL DIKE SECTION
NOT TO SCALE

Rinker MATERIALS
Concrete Pipe Division

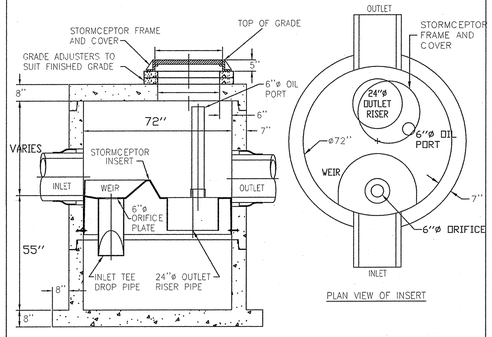
STC 450i Precast Concrete Stormceptor®
(450 U.S. Gallon Capacity)



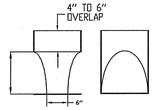
Notes:
1. The Use Of Flexible Connection is Recommended at The Inlet and Outlet Where Applicable.
2. The Cover Should be Positioned Over The Inlet Drop Pipe and The Oil Port.
3. The Stormceptor System is protected by one or more of the following U.S. Patents: #4985148, #5498331, #5725760, #5753115, #5849181, #6068765, #6371690.
4. Contact a Concrete Pipe Division representative for further details not listed on this drawing.

Rinker 027

Hydro Conduit	DR. BY: N. BALDWIN
STC 900 Precast Concrete Stormceptor (900 US Gallon Capacity)	CK. BY:
PROJECT: LOCATION:	DATE: FEB. 13, 2001
	SCALE: N.T.S.
	DWG.#

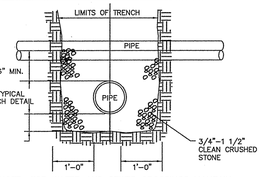


NOTE :
1. THE USE OF FLEXIBLE CONNECTIONS IS RECOMMENDED AT THE INLET AND OUTLET WHERE APPLICABLE.
2. THE COVER SHOULD BE POSITIONED OVER THE 24"ø OUTLET RISER PIPE AND THE 6"ø OIL PORT.
3. THE STORMCEPTOR SYSTEM IS PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: #4985148, #5498331, #5725760, #5753115, #5849181.



ENLARGED INLET TEE DROP PIPE

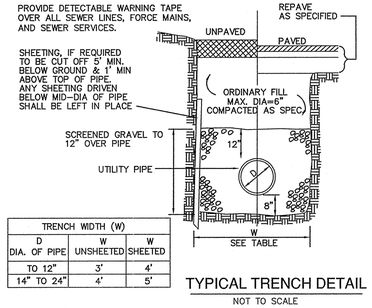
REV.	DESCRIPTION	BY:	DATE



NOTE: FOR WATER AND SEWER CROSSINGS MANTAIN 18 INCHES OF SEPERATION BETWEEN PIPES. LAY PIPES SUCH THAT CONNECTION JOINTS ARE 10 FEET EITHER SIDE OF THE CROSSING. ALL WATER PIPES LAID OVER SEWER PIPES.

SEWER PIPE SHALL BE CLASS 150 PRESSURE PIPE.

UTILITY CROSSING DETAIL
NOT TO SCALE



TRENCH WIDTH (W)		
D DIA. OF PIPE	W UNSHEETED	W SHEETED
TO 12"	3'	4'
14" TO 24"	4'	5'

TYPICAL TRENCH DETAIL
NOT TO SCALE

COMMONWEALTH OF MASSACHUSETTS
VITO COLONNA
No. 47635
REGISTERED PROFESSIONAL ENGINEER
12-14-21

APPLICANT:
R.J. DEVEREAUX CORP.

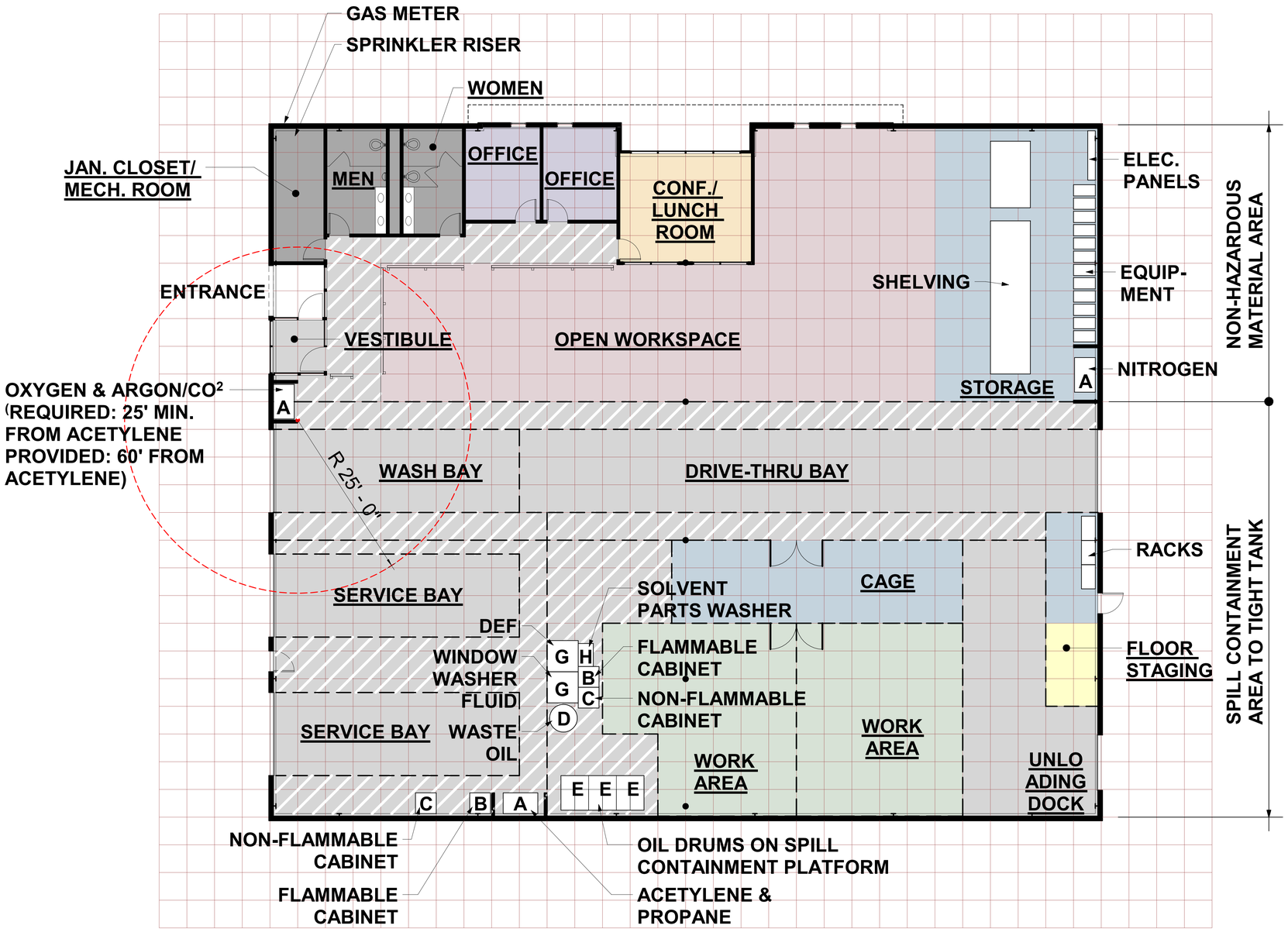
OWNER:
THE BARTLETT STREET REALTY TRUST
205 WALNUT STREET
FRAMINGHAM, MA 01701

CONNORSTONE ENGINEERING INC.
CIVIL ENGINEERS AND LAND SURVEYORS
10 SOUTHWEST CUTOFF, SUITE 7
NORTHBOROUGH, MASSACHUSETTS 01532
PHONE: 508-393-9727 FAX: 508-393-5242

PROPOSED SITE PLAN OF 200-220 BARTLETT STREET IN NORTHBOROUGH, MA

12/14/21	CON. COMM. EDITS
REVISED:	DESCRIPTION:
DRAWN BY: REM	CHECK BY: VC
DATE: NOVEMBER 23, 2021	
SCALE: NONE	SHEET 6 OF 6

CONSTRUCTION DETAILS



NOTES:

1. ALL FLOORS IN BUILDING SLOPED TO DRAINS TO CONTAIN HAZARDOUS MATERIALS IN TIGHT TANKS.

2. TIGHT TANKS DESIGNED TO HOLD ALL CHEMICALS AND SPRINKLER DISCHARGE AS PER FIRE DEPARTMENT.

3. ALL FLAMMABLES WILL BE STORED IN FLAMMABLE STORAGE CABINETS.

AMOUNT OF FLAMMABLES IN FLAMMABLE STORAGE CABINETS:
32 GALLONS

AMOUNT OF STORAGE PROVIDED IN FLAMMABLE STORAGE CABINETS:
(2) CABINETS X 60 GALLON CAPACITY = 120 GALLONS

AMOUNT OF NON-FLAMMABLES IN HAZARDOUS MATERIAL STORAGE CABINETS:
22 GALLONS

AMOUNT OF STORAGE PROVIDED IN HAZARDOUS STORAGE CABINETS:
(2) CABINETS X 60 GALLON CAPACITY = 120 GALLONS

1/8" = 1'-0"

NORTH

0' 4' 8' 16' 32'

MP-1

10/13/2021 2:28:45 PM

DARIO DESIGNS INC.
ARCHITECTURE
DESIGN
PLANNING
CONSULTING

200 BARTLETT STREET
NORTHBOROUGH, MA 01532

MAINTENANCE BLDG - PROPOSED PLAN

PROJECT #: 2102

DATE: 10/13/21

318 MAIN STREET, SUITE 210
NORTHBOROUGH, MA 01532
TEL. 508-877-4444
FAX. 508-877-4474

STORMWATER REPORT

FOR

R.J. Devereaux Corp.
Proposed Site Plan
200 Bartlett Street
Northborough, MA

November 23, 2021

PREPARED FOR:
R.J. Devereaux Corp.

PREPARED BY:
Connorstone Engineering, Inc.
10 Southwest Cutoff, Suite 7
Northborough, MA 01532
Phone: (508) 393-9727 Fax: (508) 393-5242

TABLE OF CONTENTS

PROJECT NARRATIVE

200 Bartlett Street
Northborough MA 01532

Connorstone Engineering, Inc.
November 23, 2021

Site Location

The subject site consists of a 6.7 acre parcel of land located at 200 Bartlett Street in the Town of Northborough, MA. The site is shown on assessor's map 66 as parcel 7, and is within the Industrial Zoning District and Groundwater Overlay Districts, Area 1 and 3.

Existing Conditions

The existing site is currently developed with three primary buildings and two outbuildings along with associated parking, driveways, utilities, etc. The buildings were constructed at various times all prior to 1986. Two of the larger buildings closest to Bartlett Street are currently unoccupied and the rear building is occupied by an Auto repair garage. The rear southeast corner of the site is undeveloped. The existing conditions currently include 79,795 square feet of impervious surfaces. The existing structures are serviced by Town water and three on-site septic systems.

Wetland resource areas on-site include bordering vegetated wetlands along the southern property line. The wetlands were delineated by Three Oaks Environmental in the fall of 2019 and updated in February of 2020. The wetlands are bordering on an intermittent stream that flows from east to west through a culvert under Lyman Street and ultimately to Bartlett Pond. This stream is shown on the USGS maps as a heavy blue line, but was determined to be intermittent during the ANRAD process of the downgradient project at 1 Lyman Street. The intermittent stream also has areas associated with the 100 year flood hazard as shown on the Town of Northborough Flood Insurance Rate Map 25027C0653F, dated July 16, 2014. The mapping has shown the area as Zone A, which does not have an assigned based flood elevation. The Zone A boundary generally follows the elevation 275 contour line and is fully contained offsite. The Natural Heritage and Endangered Species Program (NHESP) have not identified any areas on-site as lying within the reported Priority or Estimated Habitat Areas.

The Natural Resource Conservation Service has mapped the soils within the site as Merrimac soils, which are all well drained sandy soils classified as hydrologic soil group A. Soils within the wetland areas was mapped as Freetown Muck. The mapping agrees with the soil testing performed on-site by Connorstone for design of the on-site septic system and drainage system. The mapping is attached and the soil test results are provided on the plans. The testing showed highly permeable sandy soil with groundwater varying from 64 to 48 inches below grade.

Proposed Work

The proposed plan includes renovation of the two main structures closest to Bartlett Street and removal of one of the outbuildings. The building to the East side of the site will be primarily utilized for maintenance and the other building to the west will be used for training and dry storage. The rear auto repair garage and outbuilding will remain in the current condition. The overall use of the site will be for a Contractor's Yard. Work will also include new parking and driveway access, a new septic system to replace the older failed system(s), a new stormwater management system that will include upgrades to the existing areas around the auto repair shop, site Landscaping, lighting, and related site work. The overall proposed impervious area will be 137,920 square feet (or an increase of 58,125 sq. ft.)

The proposed driveway and parking layout will provide access through the site and around the rear of the maintenance building. The layout will allow for full access to emergency and firefighting apparatus. The existing loading docks at the buildings would be maintained for the proposed use. The site grading has been designed to fit with the existing topography sloping down away from Bartlett Street, which will reduce the required fill on-site.

The building will be connected Town water and be serviced by a proposed on-site septic system. All required soil testing witnessed by the Board of Health has been performed to verify the design and adequacy of the proposed septic system.

Stormwater Management

Under the existing conditions, stormwater flows overland to the rear wetlands with no pretreatment or detention. There is also a small area to the front of the Maintenance Building that flows to a culvert under Bartlett Street. The proposed plan has been designed to provide increased groundwater recharge, treatment of all existing and proposed paved surfaces, and reduce the peak rate of runoff leaving the site.

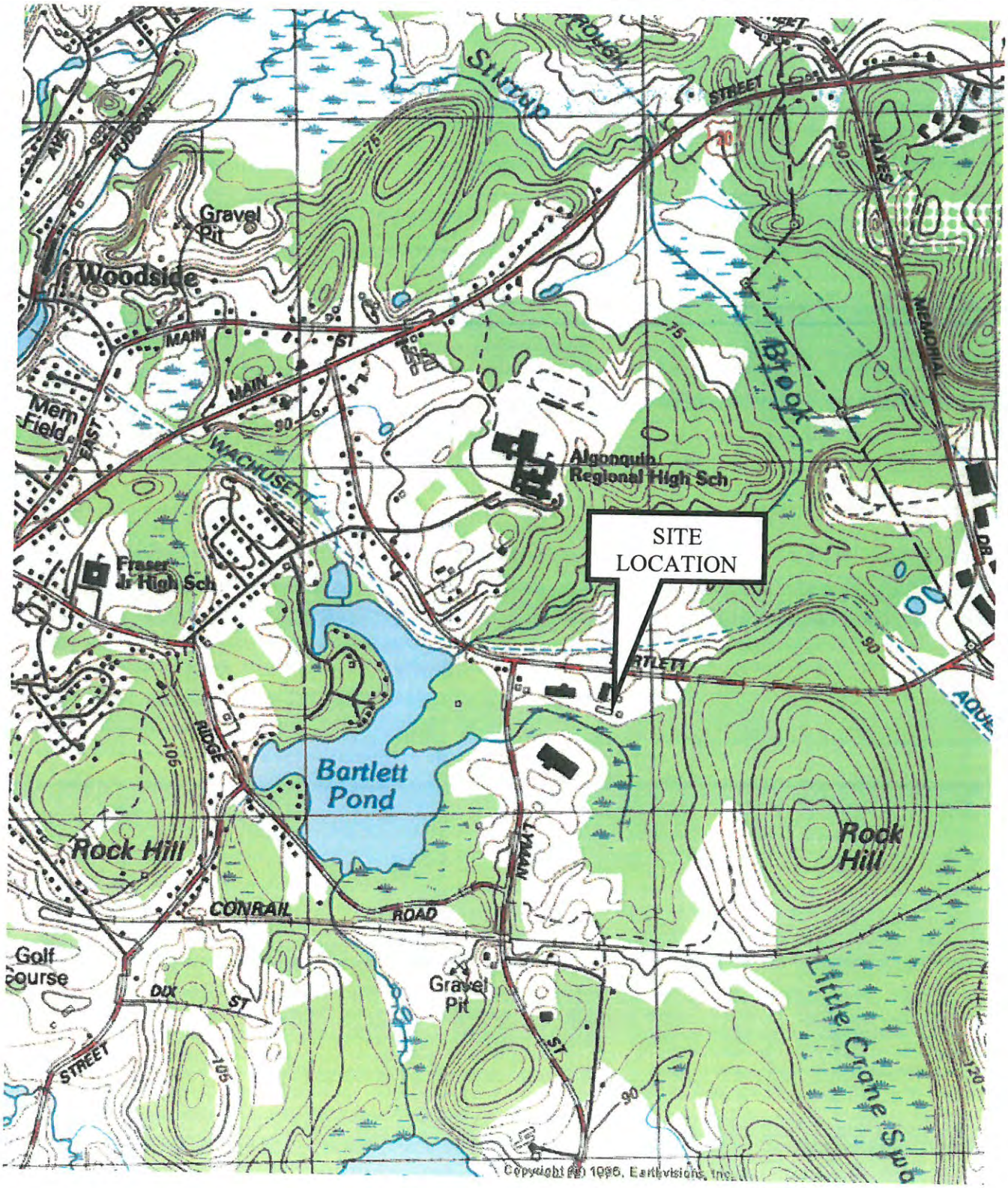
The proposed development will increase the site impervious area by 58,125 sq. ft.. In order to mitigate the runoff from the increased impervious area three infiltration structures have been proposed. These include two subsurface drywells and one surface infiltration basin. Soil testing has been performed in the BMP locations to verify suitable soil conditions and separation to groundwater.

All paved surfaces will be treated prior to discharge with Water Quality Structures (Stormceptor), which will provide both oil/gas separation and sediment removal. Within the new development areas additional treatment will also be provided with deep sump catch basins and infiltration BMPs'. This system will remove 96% of the annual total suspended solids and 60-70% of the phosphorus load.

The redevelopment areas at the existing auto garage will provide a significant improvement with the use of Water Quality Structures (Stormceptor), which will provide both oil/gas separation and sediment removal where none exists today.

The proposed site has been designed to meet the Massachusetts Stormwater Standards and the Northborough Land Disturbance Bylaw. Additional description of the standards is provided later in this report.

LOCUS MAPPING



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature

11-23-21

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

☐ New development

☐ Redevelopment

☑ Mix of New Development and Redevelopment

Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- [x] No disturbance to any Wetland Resource Areas
- [ ] Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- [ ] Reduced Impervious Area (Redevelopment Only)
- [ ] Minimizing disturbance to existing trees and shrubs
- [ ] LID Site Design Credit Requested:
  - [ ] Credit 1
  - [ ] Credit 2
  - [ ] Credit 3
- [ ] Use of "country drainage" versus curb and gutter conveyance and pipe
- [ ] Bioretention Cells (includes Rain Gardens)
- [ ] Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- [ ] Treebox Filter
- [ ] Water Quality Swale
- [ ] Grass Channel
- [ ] Green Roof
- [x] Other (describe): Roof Drains

Standard 1: No New Untreated Discharges

- [x] No new untreated discharges
- [x] Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- [x] Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.

Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.

☑ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.

☑ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

☑ Soil Analysis provided.

☑ Required Recharge Volume calculation provided.

☐ Required Recharge volume reduced through use of the LID site Design Credits.

☑ Sizing the infiltration, BMPs is based on the following method: Check the method used.

☑ Static ☐ Simple Dynamic ☐ Dynamic Field[1]

☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.

☑ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.

☑ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:

- ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
- ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
- ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
- ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

☑ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.

☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

[1] 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

☑ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.

☑ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
- Provisions for storing materials and waste products inside or under cover;
- Vehicle washing controls;
- Requirements for routine inspections and maintenance of stormwater BMPs;
- Spill prevention and response plans;
- Provisions for maintenance of lawns, gardens, and other landscaped areas;
- Requirements for storage and use of fertilizers, herbicides, and pesticides;
- Pet waste management provisions;
- Provisions for operation and management of septic systems;
- Provisions for solid waste management;
- Snow disposal and plowing plans relative to Wetland Resource Areas;
- Winter Road Salt and/or Sand Use and Storage restrictions;
- Street sweeping schedules;
- Provisions for prevention of illicit discharges to the stormwater management system;
- Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
- Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.

☑ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.

☑ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:

- ☐ is within the Zone II or Interim Wellhead Protection Area
- ☐ is near or to other critical areas
- ☑ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
- ☐ involves runoff from land uses with higher potential pollutant loads.

☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.

☑ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

- [x] The BMP is sized (and calculations provided) based on:
  - [x] The ½" or 1" Water Quality Volume or
  - [x] The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- [x] The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- [ ] A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- [ ] The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- [ ] The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted ***prior to*** the discharge of stormwater to the post-construction stormwater BMPs.
- [x] The NPDES Multi-Sector General Permit does ***not*** cover the land use.
- [ ] LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- [ ] All exposure has been eliminated.
- [ ] All exposure has ***not*** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- [ ] The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

- [ ] The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- [ ] Critical areas and BMPs are identified in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

☑ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:

- ☐ Limited Project
- ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
- ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
- ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
- ☐ Bike Path and/or Foot Path
- ☐ Redevelopment Project
- ☑ Redevelopment portion of mix of new and redevelopment.

☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.

☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
- Construction Period Operation and Maintenance Plan;
- Names of Persons or Entity Responsible for Plan Compliance;
- Construction Period Pollution Prevention Measures;
- Erosion and Sedimentation Control Plan Drawings;
- Detail drawings and specifications for erosion control BMPs, including sizing calculations;
- Vegetation Planning;
- Site Development Plan;
- Construction Sequencing Plan;
- Sequencing of Erosion and Sedimentation Controls;
- Operation and Maintenance of Erosion and Sedimentation Controls;
- Inspection Schedule;
- Maintenance Schedule;
- Inspection and Maintenance Log Form.

☑ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has ***not*** been included in the Stormwater Report but will be submitted ***before*** land disturbance begins.

☐ The project is ***not*** covered by a NPDES Construction General Permit.

☒ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.

☐ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:

- ☒ Name of the stormwater management system owners;
- ☒ Party responsible for operation and maintenance;
- ☒ Schedule for implementation of routine and non-routine maintenance tasks;
- ☒ Plan showing the location of all stormwater BMPs maintenance access areas; - site plan
- ☐ Description and delineation of public safety features;
- ☒ Estimated operation and maintenance budget; and
- ☒ Operation and Maintenance Log Form.

☐ The responsible party is ***not*** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:

- ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
- ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

☑ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;

☒ An Illicit Discharge Compliance Statement is attached;

☐ NO Illicit Discharge Compliance Statement is attached but will be submitted ***prior to*** the discharge of any stormwater to post-construction BMPs.

MA D.E.P. STORMWATER STANDARDS

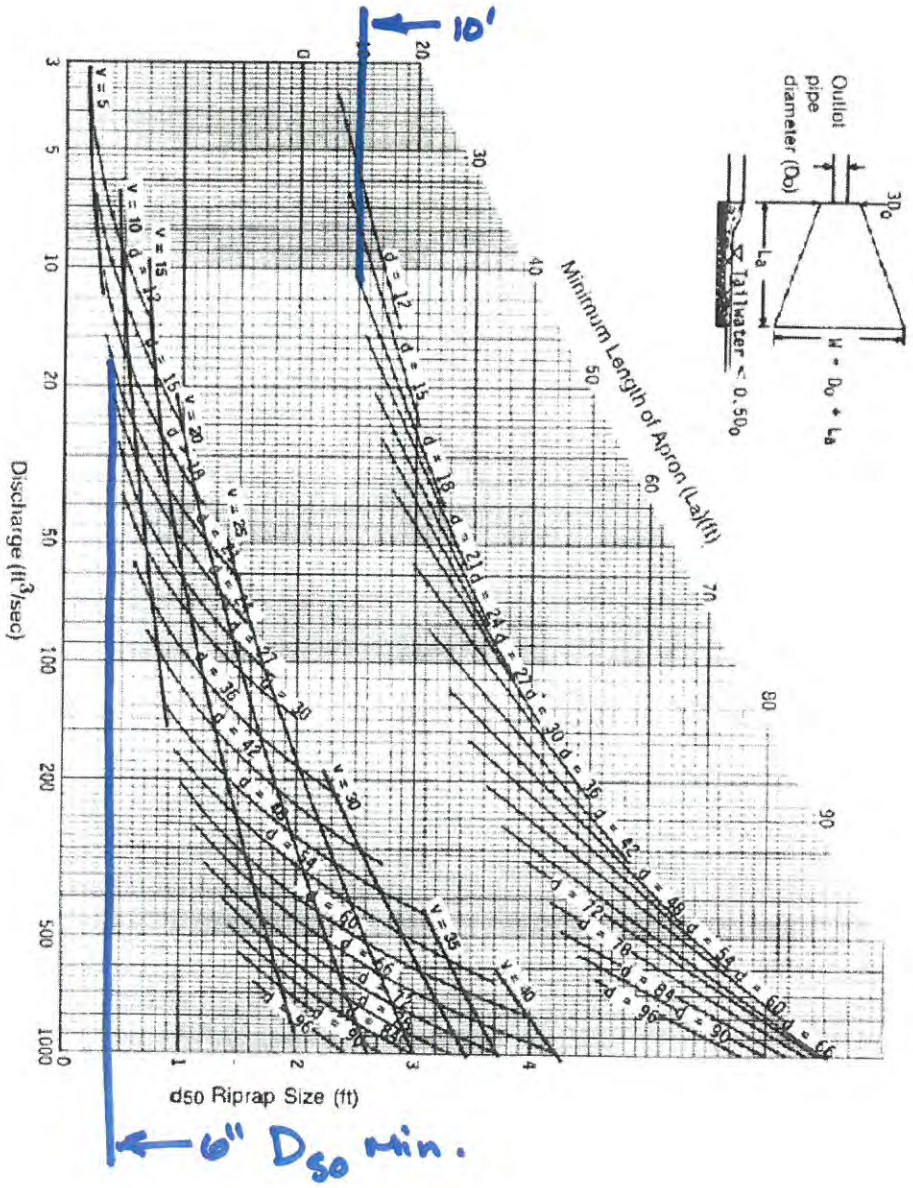
Standard 1: No New Untreated Discharges

There are no new untreated discharges to any areas subject to protection or the 100 foot buffer zone.

Pipe Point Discharge Design:

1. Stormwater Discharge Velocity:
   18" FE: $Q_{Full\ Fflow}$= 11.4 cfs / $V_{Full\ Flow}$= 6.5 fps (1% slope)
   12" FE: $Q_{Full\ Fflow}$= 5.5 cfs / $V_{Full\ Flow}$= 6.9 fps (2% slope)

2. Riprap sizing: Use: Riprap Size = 6" D_{50}
   Length= = 10 feet



Standard 2: Peak Rate Attenuation

The proposed Stormwater management system has been designed so that the post-development peak discharge rates and volumes do not exceed pre-development levels. The Hydrologic Model output has been attached to this report.

The pre- and post-development stormwater runoff has been analyzed using HydroCAD 9.10, which is a stormwater modeling computer program utilizing a collection of techniques for the generation and routing of hydrographs, including Soil Conservation Service (SCS) Technical Release No. 20 (TR-20) and SCS Technical Release 55 (TR-55), *Urban Hydrology for Small Watersheds.* Rainfall depths for the design storms were taken from the most recent NOAA Atlas 14 for Northborough, MA. A copy of teh point precipitation data is included in teh model output section of this report. The rainfall depths used in the calculations are listed below:

Return Period	Inches
2 year	3.3
10 year	5.05
25 year	6.15
100year	7.85

Two analysis points were utilized for the existing and proposed conditions:

1. Rear Property Line
2. Culvert at Bartlett Street

Existing conditions were compared to proposed conditions to ensure that the proposed design will not increase the rate of runoff from the site and/or result in downstream impacts.

Table 1 – Summary of Analysis Point 1 – Rear Property Line

	2-Year Storm Existing (Proposed)	**10-Year Storm Existing (Proposed)**	**25-Year Storm Existing (Proposed)**	**100-Year Storm Existing (Proposed)**
Rate of Runoff	0.6 cfs (0.3 cfs)	4.2 cfs (3..3 cfs)	7.6 cfs (5.7 cfs)	13.6 cfs (10.0 cfs)
Volume of Runoff	0.12 ac-ft (0.06 ac-ft)	0.48 ac-ft (0.27 ac-ft)	0.77 ac-ft (0.50 ac-ft)	1.28 ac-ft (0.92 ac-ft)

Table 2 – Summary of Analysis Point 2 – Culvert at Bartlett Street

	2-Year Storm Existing (Proposed)	**10-Year Storm Existing (Proposed)**	**25-Year Storm Existing (Proposed)**	**100-Year Storm Existing (Proposed)**
Rate of Runoff	0.0 cfs (0.0 cfs)	0.0 cfs (0.0 cfs)	0.1 cfs (0.1 cfs)	0.4 cfs (0.3 cfs)
Volume of Runoff	0.0 ac-ft (0.0 ac-ft)	0.01 ac-ft (0.01 ac-ft)	0.02 ac-ft (0.02 ac-ft)	0.04 ac-ft (0.04 ac-ft)

Standard 3: Stormwater Recharge

The proposed Stormwater management system has been designed to provide recharge of stormwater in excess of that required by Standard 3. Recharge has been provided through the proposed bio-retention area, drywells, and infiltration basin.

Required Recharge Volume:

Post development increased impervious area = 58,125 S.F.
Onsite hydrologic soil group = A (0.60 inches of runoff)
Required Volume = 58,125 S.F. x 0.60 = **2,907 Cubic Feet**

Proposed Recharge Volume: (Static Method)

Volume within Infiltration Basin 1	=	7,460 Cubic Feet (up to outlet)
Volume within Drywell 1	=	880 Cubic Feet
Volume within Drywell 2	=	880 Cubic Feet
Total	=	**9,140 Cubic Feet**

Pretreatment

Pretreatment of 80% has been provided prior to recharge through Water Quality Structures (Stormceptor).

Separation to Groundwater

Soil testing performed on-site and has been shown on the plans. Groundwater was maintained at least two feet below the bottom of infiltration systems.

Soil Permeability

The design calculations are based upon the permeability rates listed in the stormwater handbook, also known as the 'Rales Rate.' This rate is based on the soil texture. The on-site soils are a sandy material and would have an assumed permeability rate of 8.27 inches per hour. Field testing was performed to verify the permeability within the proposed infiltration basin. The field measure rate varied between 12.4 inches per hour in the fine sand layer to >50 inches per hour in teh coarse sand layer. These values exceed the assumed value of 8.27 inches per hour.

Draw down Time (maximum 72 hours allowable):

Infiltration Basin -	(7,460 cubic feet) / (8.27 in/hr * 1/12 * 3,000 sq. ft.) = 4 hours
Drywell 1 & 2 -	(880 cubic feet) / (8.27 in/hr * 1/12 * 450 sq. ft.) = 3 hours
	(Rawles rate = 8.27 in/hr)

Mounding Analysis

A mounding analysis was performed for the infiltration system. The analysis demonstrates that the infiltration basin storage is fully dewatered within 72 hours, and the groundwater mound will not break out above the land or water surface of a wetland. The analysis was performed utilizing the Hantush method. The application rate was based upon the storage volume, and the hydraulic conductivity was based upon the field measured rate at each location.

Standard 4: Water Quality

The proposed project has been designed to provide removal of the annual post construction load of total suspended solids at required discharge points through use of water quality structures and stormwater basins. A recommended long-term pollution prevention plan is provided as part of the attached Operation and Maintenance Plan.

Area to Infiltration Basin:

Pretreatment: Water Quality Structure (Stormceptor)

STC-1: TSS removal = 80%
Water quality flow rate = 0.81 cfs
WQF = (qu) x (imp. area in square miles) x (1-inch)
where qu = 795 (per MassDEP guidance table)
A = 28,600 sq. ft. = 0.001 sq. mi.

STC-2: TSS removal = 80%
Water quality flow rate = 1.64 cfs
WQF = (qu) x (imp. area in square miles) x (1-inch)
where qu = 795 (per MassDEP guidance table)
A = 57,720 sq. ft. = 0.002 sq. mi.

Infiltration Basin Design:

Required WQV: (1.0 in / 12 in/ft) * (86,320 s.f.) = 7,194 C.F.
Provided WQV: Available volume below spillway = 7,460 C.F

Total Phosphorus Removal = 60% - 70%

1 **BMP**	2 **TSS removal**	3 **Starting TSS** (5 from previous BMP)	4 **TSS Removal** **(2 * 3)**	5 **Remaining TSS** **(3 - 4)**
Stormceptor	80%	100%	80%	20%
Infiltration Basin	80%	20%	16%	4%
		Total TSS Removal =	96%	

Redevelopment Areas at Existing Garage

Water Quality Structure (Stormceptor)

STC-3: **TSS removal = 86%**
Water quality flow rate = 0.52 cfs
WQF = (qu) x (imp. area in square miles) x (1-inch)
where qu = 795 (per MassDEP guidance table)
A = 18,300 sq. ft. = 0.0006 sq. mi.

STC-4: **TSS removal = 89%**
Water quality flow rate = 0.29 cfs
WQF = (qu) x (imp. area in square miles) x (1-inch)
where qu = 795 (per MassDEP guidance table)
A = 10,100 sq. ft. = 0.00036 sq. mi.

Standard 5: Land Uses With Higher pollutant Loads

Not applicable - The proposed use is not classified as a land use with higher pollutant loads.

Standard 6: Critical Areas

Not applicable – The site is not located within any critical areas.

Standard 7: Redevelopment

The site is a partial re-development. However, the site has been designed to meet the new-construction MassDEP standards

Standard 8: Construction Period Controls

1. A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan have been attached with this report (SWPPP)

2. The temporary sediment traps have been provided along the downgradient edge of work. The plans have shown berms to be placed in teh two lower areas that would collect runoff from the work areas. Perimeter erosion controls have also been included with straw wattles and silt fence. During the initial phases of construction the existing paved areas would be utilized as stabilized construction entrances and staging areas.

3. The project is covered by the NPDES General Construction Permit, and a NOI filing with EPA will be required prior to construction

Standard 9: Operation and Maintenance Plan

A recommended Operation and Maintenance Plan has been attached with this report.

Standard 10: Illicit Discharges

Illicit discharges are prohibited. Existing buildings will be serviced by a new on-site septic systems installed per Board of Health requirements.

STORMWATER DRAINAGE SYSTEM DESIGN

The street drainage system has been designed from calculations based upon the 25-year design storm to ensure capacity to convey stormwater.

Storm intensities were determined from exhibit 8-14 "*Intensity – Duration – Frequency Curve for Worcester, MA*" from the MassHighway Design Manual. The resulting analysis was performed using the Rational Method of determining peak storm flows. All storm sewer pipe sizes were determined using Manning's Equation for pipes flowing full.

The following table presents the hydraulic calculations performed for sizing the site drainage system. The structure references refer to those as shown on the site plan submitted with this report.

DRAIN PIPE SIZING CALCULATIONS

PROJECT 200 Bartlett Street LOCATION Northborough, MA BY: VC n= 0.012

CLIENT RJ Devereaux Corp. SHEET 1 OF 1 DATE: 11/23/2021 RETURN PERIOD **25 YEAR**

Line		Area	C	Ca	Tc	rain	Inlet flow Q	Pipe flow Qd	Pipe Size	Pipe Length	Slope	flowing full		Rim (feet)		Inv. El.	
FROM	TO	ac			min.	in/hr	cfs	cfs	in	ft	ft/ft	Qf	Vf	Upper	Lower	Upper	Lower
CB-1	DMH-1	0.06	0.95	1.1	5	6.5	0.41	**0.41**	12	60	0.013	**4.32**	5.50	287.30	286.95	284.30	283.55
CB-2	DMH-1	0.24	0.85	1.1	5	6.5	1.46	**1.46**	12	15	0.010	**3.86**	4.92	286.70	286.95	283.70	283.55
DMH-1	DMH-2							**1.87**	12	85	0.010	**3.86**	4.92	286.95	287.55	283.45	282.60
CB-3	DMH-2	0.13	0.80	1.1	5	6.5	0.74	**0.74**	12	25	0.020	**5.46**	6.95	287.00	287.55	284.00	283.50
CB-4	DMH-2	0.16	0.95	1.1	5	6.5	1.09	**1.09**	12	50	0.025	**6.11**	7.77	286.85	287.55	283.85	282.60
DMH-2	STC-1							**3.70**	15	75	0.010	**7.00**	5.71	287.55	288.25	282.45	281.70
CB-5	STC-1	0.15	0.95	1.1	5	6.5	1.02	**1.02**	12	20	0.090	**11.58**	14.75	288.00	288.25	283.50	281.70
Trech Drain	STC-1	0.02	0.95	1.1	5	6.5	0.14	**0.14**	6	90	0.031	**1.07**	5.46	286.00	288.25	284.50	281.70
STC-1	DMH-3							**4.85**	18	55	0.006	**9.08**	5.14	288.25	289.10	281.45	281.10
DMH-3	FE-1							**4.85**	18	190	0.005	**8.26**	4.67	289.10	---	281.00	280.00
CB-12	DMH-7	0.06	0.70	1.1	5	6.5	0.30	**0.30**	12	20	0.028	**6.40**	8.15	286.80	286.65	283.30	282.75
CB-11	DMH-7	0.64	0.55	1.1	5	6.5	2.52	**2.52**	12	22	0.011	**4.12**	5.24	286.00	286.65	283.00	282.75
DMH-7	DMH-6							**2.82**	12	80	0.010	**3.86**	4.92	286.65	287.00	282.65	281.85
CB-10	DMH-6	0.07	0.95	1.1	5	6.5	0.48	**0.48**	12	20	0.030	**6.69**	8.52	287.20	287.00	283.60	283.00
DMH-6	DMH-5							**3.29**	15	70	0.006	**5.61**	4.57	287.00	285.25	281.75	281.30
CB-9	DMH-5	0.25	0.95	1.1	5	6.5	1.70	**1.70**	12	30	0.012	**4.17**	5.31	284.85	285.25	281.85	281.50
DMH-5	DMH-4							**4.99**	18	30	0.007	**9.30**	5.26	285.25	284.65	281.20	281.00
CB-8	DMH-4	0.18	0.95	1.1	5	6.5	1.22	**1.22**	12	30	0.010	**3.86**	4.92	284.25	284.65	281.30	281.00
CB-7	DMH-4	0.22	0.95	1.1	5	6.5	1.49	**1.49**	12	15	0.020	**5.46**	6.95	285.00	284.65	281.50	281.20
DMH-4	STC-2							**7.71**	18	90	0.006	**8.49**	4.80	284.65	285.85	280.90	280.40
CB-6	STC-2	0.31	0.95	1.1	5	6.5	2.11	**2.11**	12	10	0.050	**8.63**	10.99	284.00	285.85	280.90	280.40
STC-2	FE-2							**9.81**	18	15	0.010	**11.39**	6.44	285.25	---	280.15	280.00
HW-1	STC-3	0.42	0.95	1.1	5	6.5	2.85	**2.85**	12	10	0.060	**9.46**	12.04	---	284.00	281.40	280.80
STC-3	FE-3							**2.85**	12	30	0.010	**3.86**	4.92	284.00	---	280.55	280.25
HW-2	STC-4	0.23	0.95	1.1	5	6.5	1.56	**1.56**	12	8	0.013	**4.32**	5.50	---	284.00	281.10	281.00
STC-4	FE-4							**1.56**	12	80	0.008	**3.48**	4.43	284.00	---	280.75	280.10

HYDROCAD CALCULATIONS

EXISTING CONDITION
2 Year, 10 Year, 25 Year
& 100 Year Storm
Calculation Sheets

AND

PROPOSED CONDITION
2 Year, 10 Year, 25 Year
& 100 Year Storm
Calculation Sheets

NOAA Atlas 14, Volume 10, Version 3
Location name: Northborough, Massachusetts, USA*
Latitude: 42.3197°, Longitude: -71.6098°
Elevation: 285.58 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.342 (0.261-0.441)	0.405 (0.309-0.524)	0.509 (0.387-0.660)	0.596 (0.451-0.777)	0.715 (0.526-0.972)	0.805 (0.581-1.12)	0.898 (0.631-1.29)	1.00 (0.671-1.48)	1.15 (0.743-1.75)	1.27 (0.802-1.97)
10-min	0.484 (0.370-0.625)	0.574 (0.438-0.742)	0.722 (0.549-0.935)	0.844 (0.639-1.10)	1.01 (0.745-1.38)	1.14 (0.823-1.58)	1.27 (0.894-1.83)	1.42 (0.951-2.09)	1.63 (1.05-2.48)	1.79 (1.14-2.79)
15-min	0.570 (0.435-0.735)	0.676 (0.516-0.873)	0.850 (0.646-1.10)	0.994 (0.753-1.30)	1.19 (0.876-1.62)	1.34 (0.968-1.86)	1.50 (1.05-2.15)	1.67 (1.12-2.46)	1.91 (1.24-2.92)	2.11 (1.34-3.28)
30-min	0.773 (0.590-0.998)	0.918 (0.700-1.19)	1.16 (0.879-1.50)	1.35 (1.02-1.76)	1.62 (1.19-2.21)	1.83 (1.32-2.54)	2.04 (1.43-2.93)	2.28 (1.53-3.35)	2.61 (1.69-3.98)	2.88 (1.83-4.49)
60-min	0.976 (0.746-1.26)	1.16 (0.885-1.50)	1.46 (1.11-1.90)	1.71 (1.29-2.23)	2.05 (1.51-2.79)	2.31 (1.67-3.21)	2.58 (1.82-3.72)	2.88 (1.93-4.25)	3.31 (2.14-5.05)	3.66 (2.31-5.69)
2-hr	1.22 (0.935-1.56)	1.47 (1.13-1.89)	1.88 (1.44-2.42)	2.22 (1.69-2.88)	2.69 (2.00-3.65)	3.04 (2.22-4.22)	3.42 (2.43-4.93)	3.86 (2.59-5.65)	4.51 (2.93-6.84)	5.06 (3.21-7.82)
3-hr	1.39 (1.07-1.78)	1.69 (1.30-2.16)	2.18 (1.67-2.80)	2.58 (1.97-3.34)	3.14 (2.34-4.25)	3.55 (2.60-4.92)	4.00 (2.86-5.76)	4.53 (3.05-6.61)	5.33 (3.47-8.05)	6.02 (3.83-9.25)
6-hr	1.78 (1.38-2.26)	2.16 (1.68-2.76)	2.80 (2.16-3.57)	3.32 (2.55-4.26)	4.04 (3.02-5.44)	4.57 (3.36-6.30)	5.15 (3.70-7.38)	5.84 (3.95-8.47)	6.89 (4.49-10.3)	7.79 (4.97-11.9)
12-hr	2.27 (1.77-2.87)	2.75 (2.15-3.48)	3.54 (2.75-4.49)	4.19 (3.24-5.34)	5.08 (3.88-6.80)	5.75 (4.25-7.86)	6.47 (4.66-9.19)	7.32 (4.97-10.5)	8.60 (5.63-12.8)	9.69 (6.20-14.7)
24-hr	2.71 (2.13-3.40)	3.29 (2.59-4.14)	4.25 (3.33-5.37)	5.05 (3.93-6.40)	6.14 (4.65-8.16)	6.95 (5.17-9.45)	7.83 (5.68-11.1)	8.88 (6.05-12.7)	10.5 (6.87-15.5)	11.8 (7.58-17.8)
2-day	3.01 (2.38-3.76)	3.71 (2.93-4.64)	4.85 (3.82-6.08)	5.79 (4.54-7.30)	7.09 (5.41-9.39)	8.05 (6.03-10.9)	9.10 (6.66-12.8)	10.4 (7.10-14.8)	12.4 (8.15-18.2)	14.1 (9.08-21.1)
3-day	3.26 (2.59-4.06)	4.01 (3.18-4.99)	5.23 (4.14-6.54)	6.25 (4.92-7.85)	7.65 (5.85-10.1)	8.68 (6.52-11.7)	9.81 (7.20-13.8)	11.2 (7.67-15.8)	13.4 (8.81-19.5)	15.2 (9.82-22.7)
4-day	3.50 (2.79-4.34)	4.28 (3.41-5.32)	5.56 (4.41-6.93)	6.62 (5.22-8.30)	8.08 (6.20-10.6)	9.16 (6.89-12.3)	10.3 (7.59-14.5)	11.8 (8.08-16.6)	14.0 (9.25-20.4)	15.9 (10.3-23.6)
7-day	4.19 (3.36-5.17)	5.03 (4.03-6.22)	6.40 (5.11-7.94)	7.54 (5.98-9.41)	9.11 (7.01-11.9)	10.3 (7.75-13.7)	11.5 (8.47-16.0)	13.0 (8.98-18.3)	15.3 (10.1-22.1)	17.2 (11.1-25.4)
10-day	4.86 (3.91-5.99)	5.74 (4.61-7.07)	7.16 (5.74-8.86)	8.35 (6.65-10.4)	9.98 (7.69-12.9)	11.2 (8.46-14.8)	12.5 (9.17-17.2)	14.0 (9.68-19.5)	16.2 (10.8-23.4)	18.1 (11.7-26.6)
20-day	6.91 (5.59-8.46)	7.84 (6.34-9.61)	9.37 (7.55-11.5)	10.6 (8.53-13.2)	12.4 (9.58-15.9)	13.7 (10.4-17.9)	15.1 (11.0-20.3)	16.5 (11.5-22.9)	18.5 (12.4-26.5)	20.1 (13.1-29.4)
30-day	8.61 (7.00-10.5)	9.58 (7.78-11.7)	11.2 (9.04-13.7)	12.5 (10.1-15.4)	14.3 (11.1-18.2)	15.7 (11.9-20.4)	17.1 (12.5-22.8)	18.5 (12.9-25.5)	20.4 (13.6-29.0)	21.7 (14.2-31.6)
45-day	10.7 (8.74-13.0)	11.7 (9.57-14.3)	13.4 (10.9-16.4)	14.8 (11.9-18.2)	16.7 (13.0-21.1)	18.2 (13.8-23.4)	19.6 (14.3-25.9)	21.0 (14.7-28.7)	22.6 (15.2-32.0)	23.8 (15.5-34.4)
60-day	12.5 (10.2-15.1)	13.5 (11.1-16.4)	15.3 (12.4-18.6)	16.7 (13.5-20.4)	18.7 (14.6-23.5)	20.3 (15.4-25.9)	21.7 (15.8-28.5)	23.0 (16.2-31.4)	24.6 (16.5-34.7)	25.6 (16.7-36.8)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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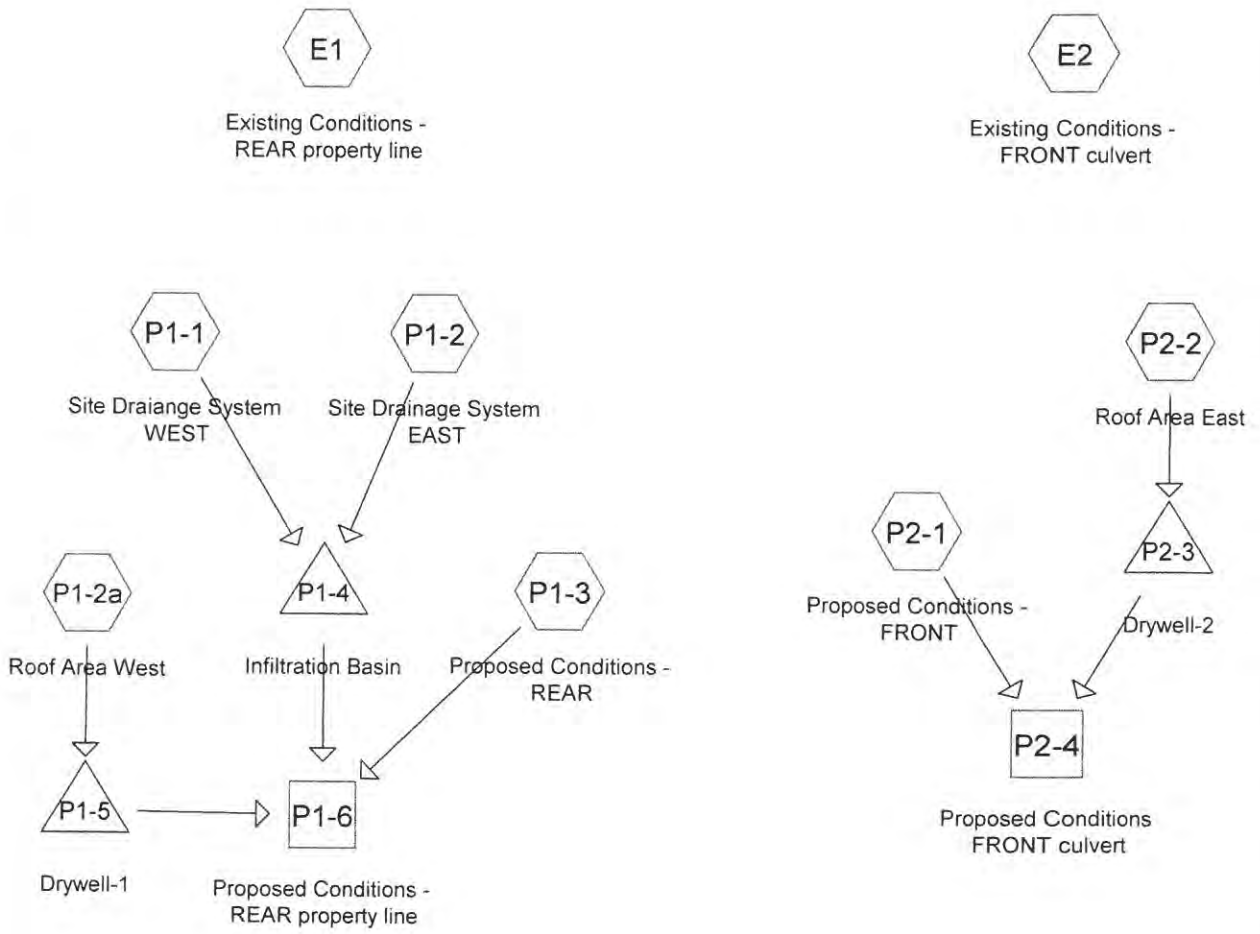
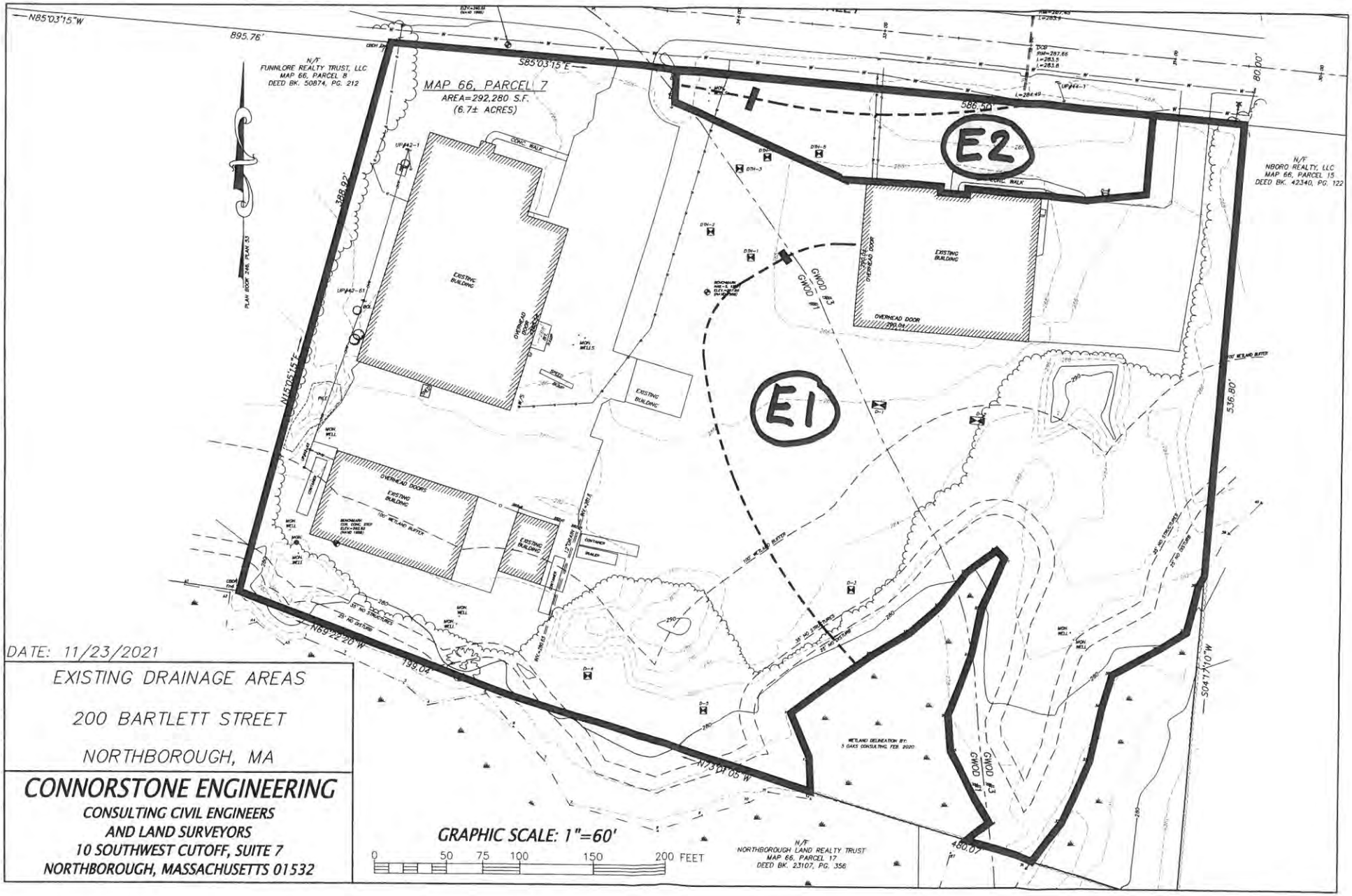


Subcat Reach Pond Link

Drainage Diagram for Bartlett
Prepared by Microsoft, Printed 11/23/2021



DATE: 11/23/2021

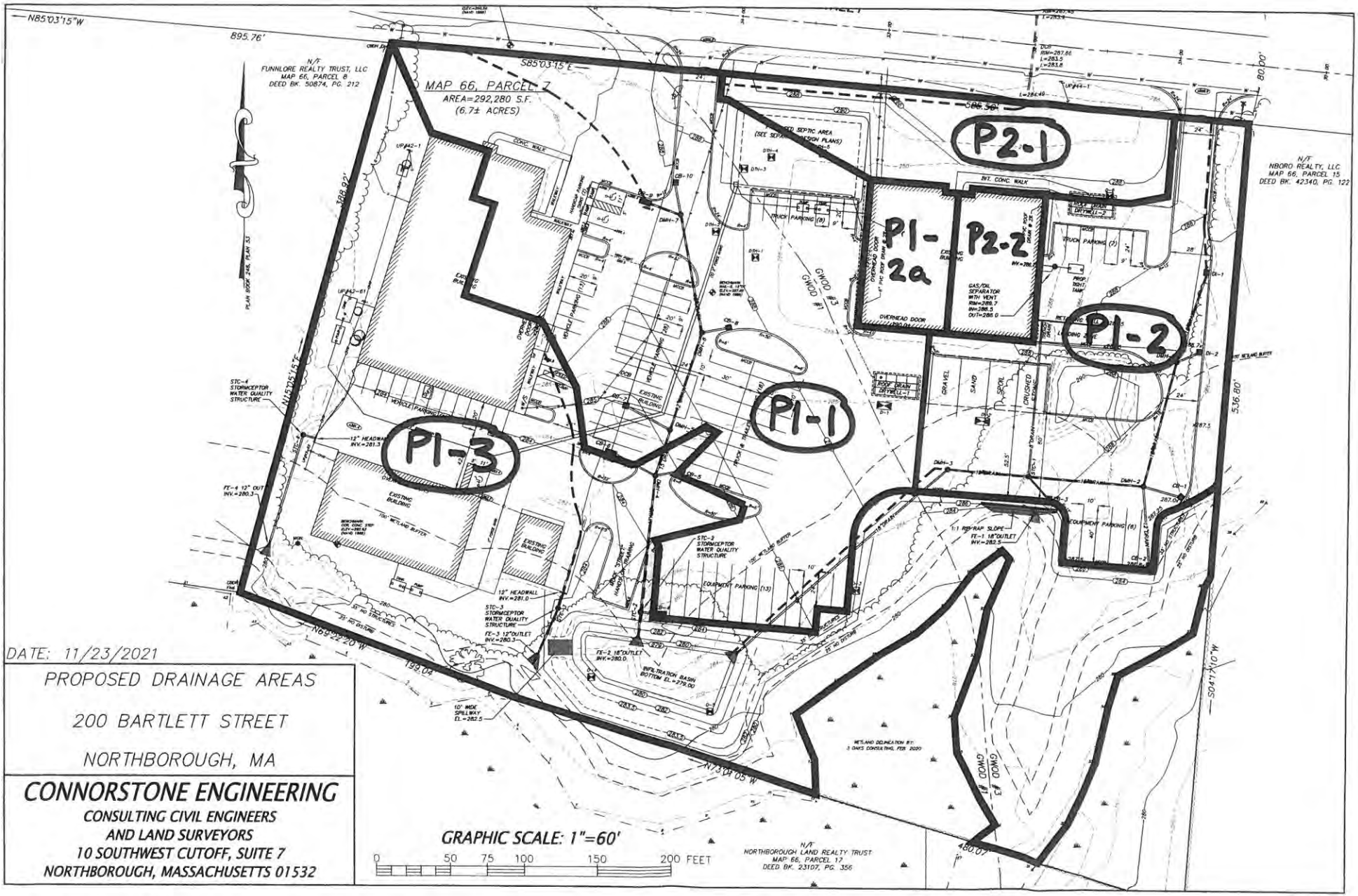
EXISTING DRAINAGE AREAS

200 BARTLETT STREET

NORTHBOROUGH, MA

CONNORSTONE ENGINEERING

CONSULTING CIVIL ENGINEERS
AND LAND SURVEYORS
10 SOUTHWEST CUTOFF, SUITE 7
NORTHBOROUGH, MASSACHUSETTS 01532



DATE: 11/23/2021

PROPOSED DRAINAGE AREAS

200 BARTLETT STREET

NORTHBOROUGH, MA

CONNORSTONE ENGINEERING
CONSULTING CIVIL ENGINEERS
AND LAND SURVEYORS
10 SOUTHWEST CUTOFF, SUITE 7
NORTHBOROUGH, MASSACHUSETTS 01532

Summary for Subcatchment E1: Existing Conditions - REAR property line

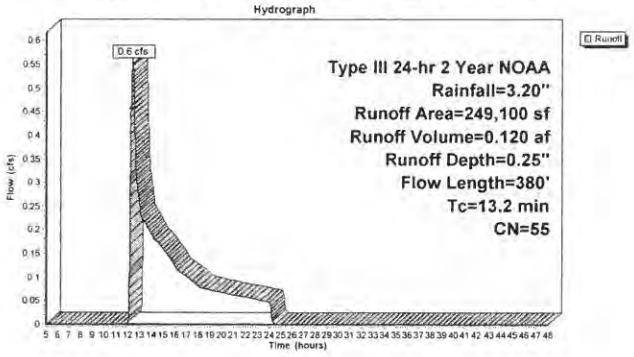
Runoff = 0.6 cfs @ 12.45 hrs, Volume= 0.120 af, Depth= 0.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year NOAA Rainfall=3.20"

Area (sf)	CN	Description
76,700	30	Woods, Good, HSG A
93,225	39	>75% Grass cover, Good, HSG A
79,175	98	Paved parking, HSG A
249,100	55	Weighted Average
169,925		68.22% Pervious Area
79,175		31.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.30"
4.7	300	0.0230	1.06		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	30	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.2	380	Total			

Subcatchment E1: Existing Conditions - REAR property line



Summary for Subcatchment E2: Existing Conditions - FRONT culvert

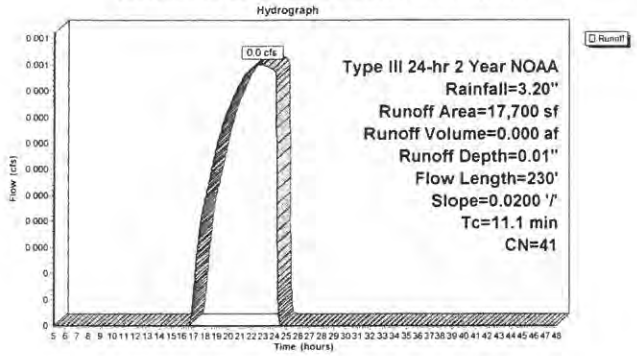
Runoff = 0.0 cfs @ 22.78 hrs, Volume= 0.000 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year NOAA Rainfall=3.20"

Area (sf)	CN	Description
0	30	Woods, Good, HSG A
17,080	39	>75% Grass cover, Good, HSG A
620	98	Paved parking, HSG A
17,700	41	Weighted Average
17,080		96.50% Pervious Area
620		3.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.30"
3.0	180	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.1	230	Total			

Subcatchment E2: Existing Conditions - FRONT culvert



Summary for Subcatchment P1-1: Site Draiange System WEST

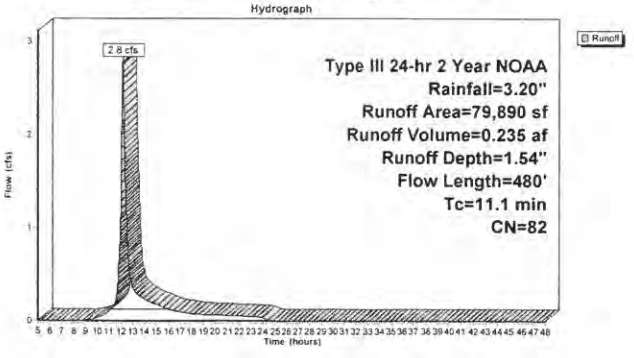
Runoff = 2.8 cfs @ 12.16 hrs, Volume= 0.235 af, Depth= 1.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year NOAA Rainfall=3.20"

Area (sf)	CN	Description
* 57,720	98	Paved Parking
22,170	39	>75% Grass cover, Good, HSG A
79,890	82	Weighted Average
22,170		27.75% Pervious Area
57,720		72.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.30"
1.9	110	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	320	0.0100	4.91	3.86	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
11.1	480	Total			

Subcatchment P1-1: Site Draiange System WEST



Summary for Subcatchment P1-2: Site Drainage System EAST

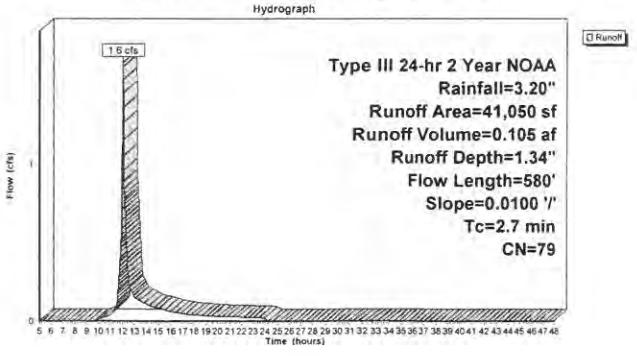
Runoff = 1.6 cfs @ 12.04 hrs, Volume= 0.105 af, Depth= 1.34"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year NOAA Rainfall=3.20"

Area (sf)	CN	Description
* 28,600	98	Pavement Areas
9,050	39	>75% Grass cover, Good, HSG A
3,400	30	Woods, Good, HSG A
41,050	79	Weighted Average
12,450		30.33% Pervious Area
28,600		69.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.92		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.30"
0.4	50	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.4	480	0.0100	5.70	7.00	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
2.7	580	Total			

Subcatchment P1-2: Site Drainage System EAST



Summary for Subcatchment P1-2a: Roof Area West

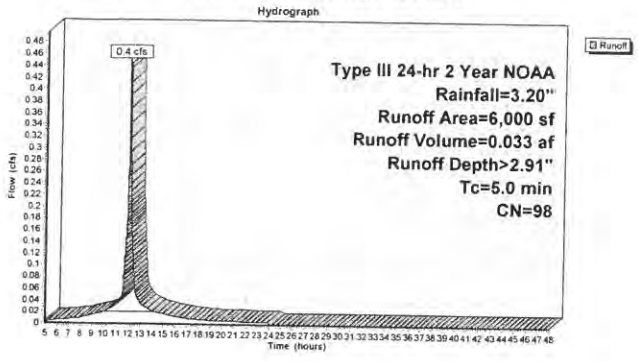
Runoff = 0.4 cfs @ 12.07 hrs, Volume= 0.033 af, Depth> 2.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year NOAA Rainfall=3.20"

	Area (sf)	CN	Description
*	6,000	98	Roof
	6,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment P1-2a: Roof Area West



Summary for Subcatchment P1-3: Proposed Conditions - REAR

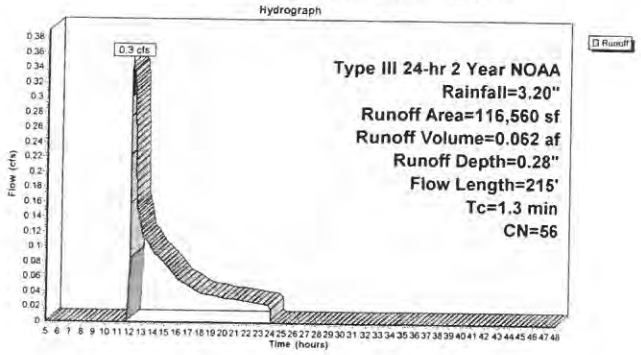
Runoff = 0.3 cfs @ 12.08 hrs, Volume= 0.062 af, Depth= 0.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year NOAA Rainfall=3.20"

Area (sf)	CN	Description
36,400	30	Woods, Good, HSG A
40,560	39	>75% Grass cover, Good, HSG A
39,600	98	Paved parking, HSG A
116,560	56	Weighted Average
76,960		66.03% Pervious Area
39,600		33.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.60		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.30"
0.6	120	0.0300	3.52		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	45	0.0100	4.91	3.86	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
1.3	215	Total			

Subcatchment P1-3: Proposed Conditions - REAR



Summary for Subcatchment P2-1: Proposed Conditions - FRONT

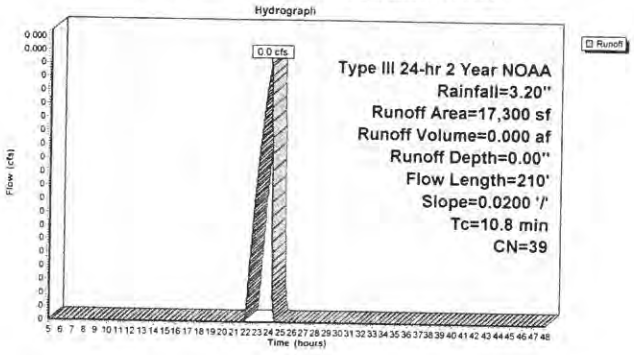
Runoff = 0.0 cfs @ 24.03 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year NOAA Rainfall=3.20"

Area (sf)	CN	Description
17,300	39	>75% Grass cover, Good, HSG A
17,300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 3.30"
2.7	160	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
10.8	210	Total			

Subcatchment P2-1: Proposed Conditions - FRONT



Summary for Subcatchment P2-2: Roof Area East

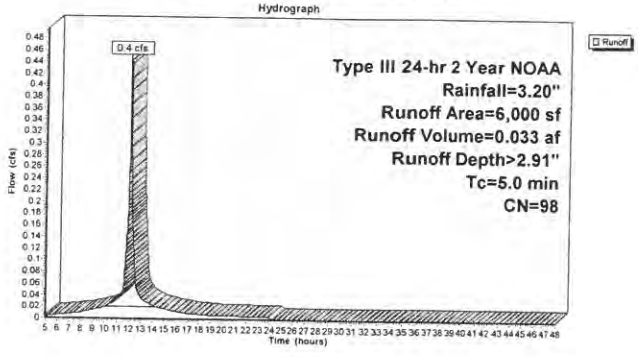
Runoff = 0.4 cfs @ 12.07 hrs, Volume= 0.033 af, Depth> 2.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year NOAA Rainfall=3.20"

Area (sf)	CN	Description
6,000	98	Roofs, HSG A
6,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment P2-2: Roof Area East

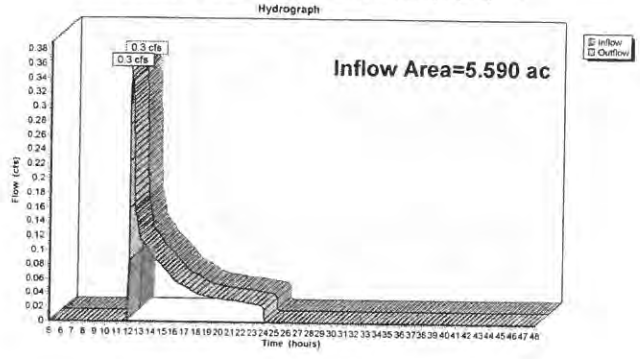


Summary for Reach P1-6: Proposed Conditions - REAR property line

Inflow Area = 5.590 ac, 54.18% Impervious, Inflow Depth = 0.13" for 2 Year NOAA event
Inflow = 0.3 cfs @ 12.08 hrs, Volume= 0.062 af
Outflow = 0.3 cfs @ 12.08 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs

Reach P1-6: Proposed Conditions - REAR property line

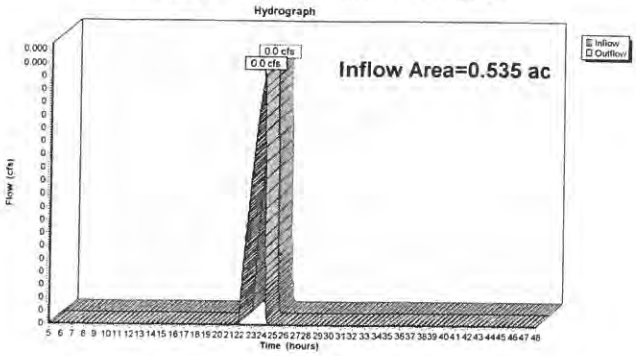


Summary for Reach P2-4: Proposed Conditions FRONT culvert

Inflow Area = 0.535 ac, 25.75% Impervious, Inflow Depth = 0.00" for 2 Year NOAA event
Inflow = 0.0 cfs @ 24.03 hrs, Volume= 0.000 af
Outflow = 0.0 cfs @ 24.03 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs

Reach P2-4: Proposed Conditions FRONT culvert



Summary for Pond P1-4: Infiltration Basin

Inflow Area = 2.776 ac, 71.37% Impervious, Inflow Depth = 1.47" for 2 Year NOAA event
Inflow = 3.7 cfs @ 12.11 hrs, Volume= 0.340 af
Outflow = 1.0 cfs @ 12.58 hrs, Volume= 0.340 af, Atten= 71%, Lag= 28.1 min
Discarded = 1.0 cfs @ 12.58 hrs, Volume= 0.340 af
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 280.19' @ 12.58 hrs Surf.Area= 3,853 sf Storage= 4,050 cf

Plug-Flow detention time= 30.2 min calculated for 0.340 af (100% of inflow)
Center-of-Mass det. time= 30.2 min (871.8 - 841.6)

Volume	Invert	Avail.Storage	Storage Description
#1	279.00'	18,380 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

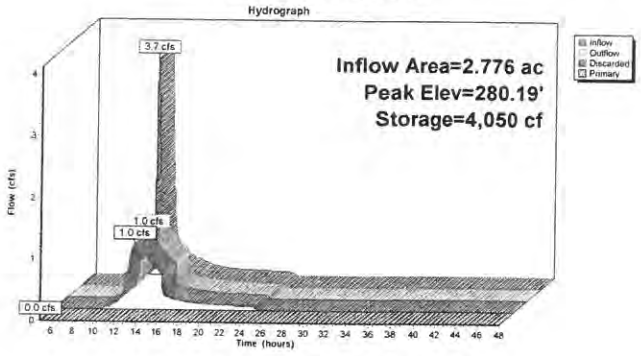
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
279.00	3,000	0	0	3,000
280.00	3,700	3,344	3,344	3,729
282.00	5,500	9,141	12,485	5,592
283.00	6,300	5,895	18,380	6,437

Device	Routing	Invert	Outlet Devices
#1	Discarded	279.00'	**8.270 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 276.50'
#2	Primary	282.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Primary	281.00'	**12.0" Round Culvert** L= 25.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 281.00' / 280.50' S= 0.0200 '/' Cc= 0.900 n= 0.012

Discarded OutFlow Max=1.0 cfs @ 12.58 hrs HW=280.19' (Free Discharge)
└**1=Exfiltration** (Controls 1.0 cfs)

Primary OutFlow Max=0.0 cfs @ 5.00 hrs HW=279.00' (Free Discharge)
├**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)
└**3=Culvert** (Controls 0.0 cfs)

Pond P1-4: Infiltration Basin



Summary for Pond P1-5: Drywell-1

Inflow Area = 0.138 ac,100.00% Impervious, Inflow Depth > 2.91" for 2 Year NOAA event
Inflow = 0.4 cfs @ 12.07 hrs, Volume= 0.033 af
Outflow = 0.2 cfs @ 12.32 hrs, Volume= 0.033 af, Atten= 66%, Lag= 15.0 min
Discarded = 0.2 cfs @ 12.32 hrs, Volume= 0.033 af
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 283.85' @ 12.32 hrs Surf.Area= 512 sf Storage= 239 cf

Plug-Flow detention time= 9.1 min calculated for 0.033 af (100% of inflow)
Center-of-Mass det. time= 9.1 min (774.6 - 765.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	283.00'	453 cf	**16.00'W x 32.00'L x 3.21'H Field A** 1,643 cf Overall - 510 cf Embedded = 1,133 cf x 40.0% Voids
#2A	283.50'	510 cf	**Cultec R-280** x 12 Inside #1 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap
		963 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	283.00'	**8.270 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 280.70'
#2	Primary	290.00'	**6.0" Vert. Downspouts** C= 0.600

Discarded OutFlow Max=0.2 cfs @ 12.32 hrs HW=283.85' (Free Discharge)
└**1=Exfiltration** (Controls 0.2 cfs)

Primary OutFlow Max=0.0 cfs @ 5.00 hrs HW=283.00' (Free Discharge)
└**2=Downspouts** (Controls 0.0 cfs)

Pond P1-5: Drywell-1 - Chamber Wizard Field A

Chamber Model = Cultec R-280
Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf
Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap

47.0" Wide + 6.0" Spacing = 53.0" C-C

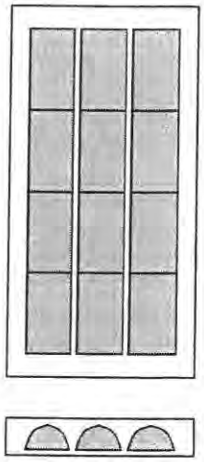
4 Chambers/Row x 7.00' Long = 28.00' + 24.0" End Stone x 2 = 32.00' Base Length
3 Rows x 47.0" Wide + 6.0" Spacing x 2 + 19.5" Side Stone x 2 = 16.00' Base Width
6.0" Base + 26.5" Chamber Height + 6.0" Cover = 3.21' Field Height

12 Chambers x 42.5 cf = 510.0 cf Chamber Storage

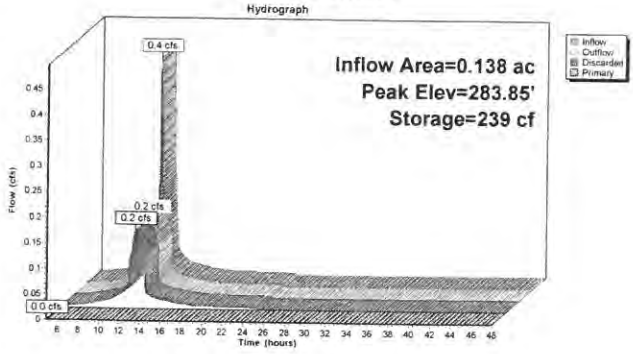
1,642.7 cf Field - 510.0 cf Chambers = 1,132.6 cf Stone x 40.0% Voids = 453.1 cf Stone Storage

Stone + Chamber Storage = 963.1 cf = 0.022 af

12 Chambers
60.8 cy Field
41.9 cy Stone



Pond P1-5: Drywell-1



Summary for Pond P2-3: Drywell-2

Inflow Area = 0.138 ac,100.00% Impervious, Inflow Depth > 2.91" for 2 Year NOAA event
Inflow = 0.4 cfs @ 12.07 hrs, Volume= 0.033 af
Outflow = 0.2 cfs @ 12.32 hrs, Volume= 0.033 af, Atten= 66%, Lag= 15.1 min
Discarded = 0.2 cfs @ 12.32 hrs, Volume= 0.033 af
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 284.84' @ 12.32 hrs Surf.Area= 512 sf Storage= 238 cf

Plug-Flow detention time= 8.9 min calculated for 0.033 af (100% of inflow)
Center-of-Mass det. time= 8.9 min (774.3 - 765.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	284.00'	453 cf	**16.00'W x 32.00'L x 3.21'H Field A** 1,643 cf Overall - 510 cf Embedded = 1,133 cf x 40.0% Voids
#2A	284.50'	510 cf	**Cultec R-280** x 12 Inside #1 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap
		963 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	284.00'	**8.270 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 281.70'
#2	Primary	290.00'	**6.0" Vert. Downspouts** C= 0.600

Discarded OutFlow Max=0.2 cfs @ 12.32 hrs HW=284.84' (Free Discharge)
└**1=Exfiltration** (Controls 0.2 cfs)

Primary OutFlow Max=0.0 cfs @ 5.00 hrs HW=284.00' (Free Discharge)
└**2=Downspouts** (Controls 0.0 cfs)

Pond P2-3: Drywell-2 - Chamber Wizard Field A

Chamber Model = Cultec R-280
Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf
Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap

47.0" Wide + 6.0" Spacing = 53.0" C-C

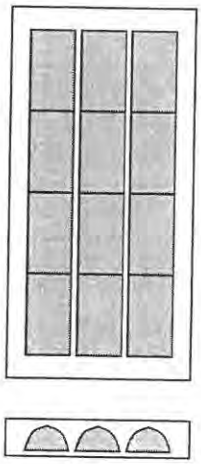
4 Chambers/Row x 7.00' Long = 28.00' + 24.0" End Stone x 2 = 32.00' Base Length
3 Rows x 47.0" Wide + 6.0" Spacing x 2 + 19.5" Side Stone x 2 = 16.00' Base Width
6.0" Base + 26.5" Chamber Height + 6.0" Cover = 3.21' Field Height

12 Chambers x 42.5 cf = 510.0 cf Chamber Storage

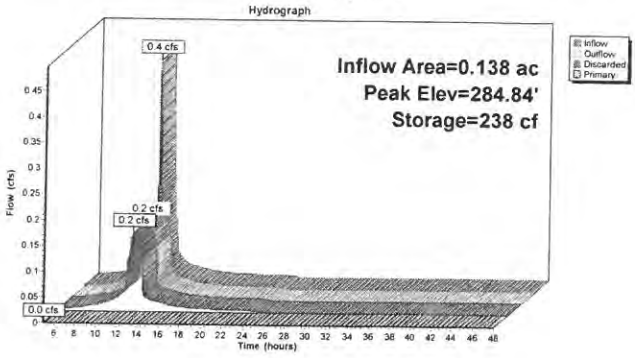
1,642.7 cf Field - 510.0 cf Chambers = 1,132.6 cf Stone x 40.0% Voids = 453.1 cf Stone Storage

Stone + Chamber Storage = 963.1 cf = 0.022 af

12 Chambers
60.8 cy Field
41.9 cy Stone



Pond P2-3: Drywell-2



Summary for Subcatchment E1: Existing Conditions - REAR property line

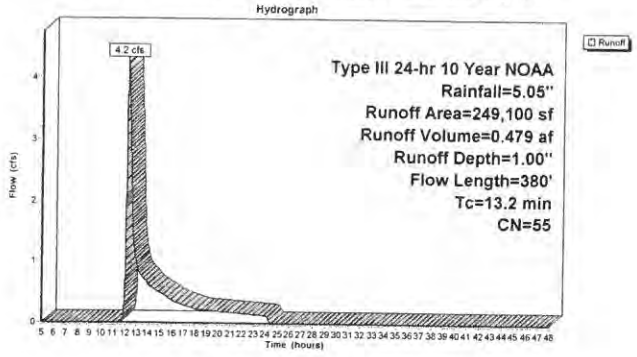
Runoff = 4.2 cfs @ 12.22 hrs, Volume= 0.479 af, Depth= 1.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year NOAA Rainfall=5.05"

Area (sf)	CN	Description
76,700	30	Woods, Good, HSG A
93,225	39	>75% Grass cover, Good, HSG A
79,175	98	Paved parking, HSG A
249,100	55	Weighted Average
169,925		68.22% Pervious Area
79,175		31.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.30"
4.7	300	0.0230	1.06		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	30	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.2	380	Total			

Subcatchment E1: Existing Conditions - REAR property line



Summary for Subcatchment E2: Existing Conditions - FRONT culvert

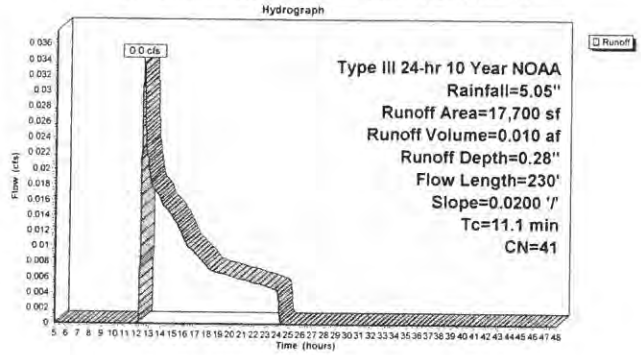
Runoff = 0.0 cfs @ 12.48 hrs, Volume= 0.010 af, Depth= 0.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year NOAA Rainfall=5.05"

Area (sf)	CN	Description
0	30	Woods, Good, HSG A
17,080	39	>75% Grass cover, Good, HSG A
620	98	Paved parking, HSG A
17,700	41	Weighted Average
17,080		96.50% Pervious Area
620		3.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.30"
3.0	180	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.1	230	Total			

Subcatchment E2: Existing Conditions - FRONT culvert



Summary for Subcatchment P1-1: Site Draiange System WEST

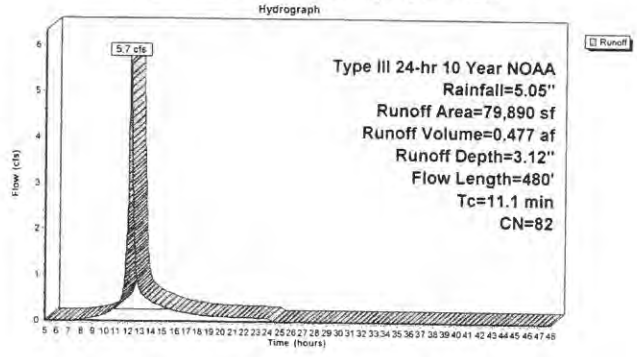
Runoff = 5.7 cfs @ 12.15 hrs, Volume= 0.477 af, Depth= 3.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year NOAA Rainfall=5.05"

	Area (sf)	CN	Description
*	57,720	98	Paved Parking
	22,170	39	>75% Grass cover, Good, HSG A
	79,890	82	Weighted Average
	22,170		27.75% Pervious Area
	57,720		72.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.30"
1.9	110	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	320	0.0100	4.91	3.86	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
11.1	480	Total			

Subcatchment P1-1: Site Draiange System WEST



Summary for Subcatchment P1-2: Site Drainage System EAST

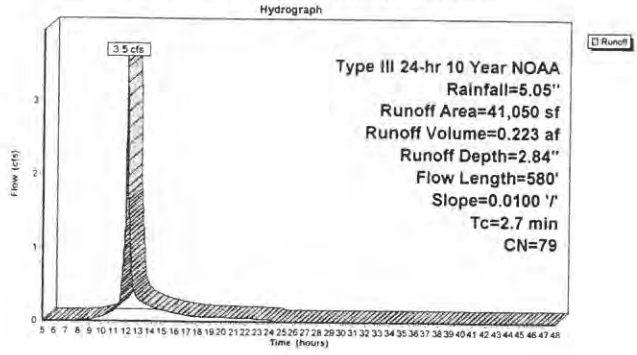
Runoff = 3.5 cfs @ 12.04 hrs, Volume= 0.223 af, Depth= 2.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year NOAA Rainfall=5.05"

	Area (sf)	CN	Description
*	28,600	98	Pavement Areas
	9,050	39	>75% Grass cover, Good, HSG A
	3,400	30	Woods, Good, HSG A
	41,050	79	Weighted Average
	12,450		30.33% Pervious Area
	28,600		69.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.92		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.30"
0.4	50	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.4	480	0.0100	5.70	7.00	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
2.7	580	Total			

Subcatchment P1-2: Site Drainage System EAST



Summary for Subcatchment P1-2a: Roof Area West

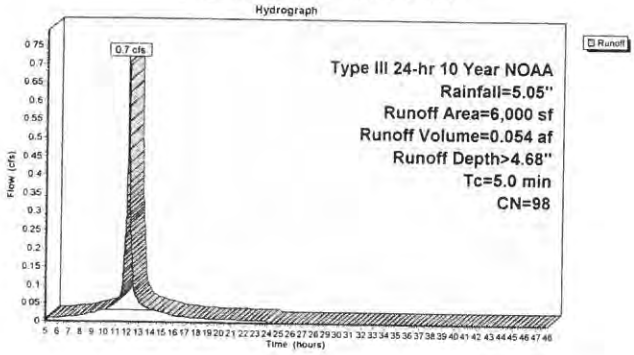
Runoff = 0.7 cfs @ 12.07 hrs, Volume= 0.054 af, Depth> 4.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year NOAA Rainfall=5.05"

Area (sf)	CN	Description
* 6,000	98	Roof
6,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment P1-2a: Roof Area West



Summary for Subcatchment P1-3: Proposed Conditions - REAR

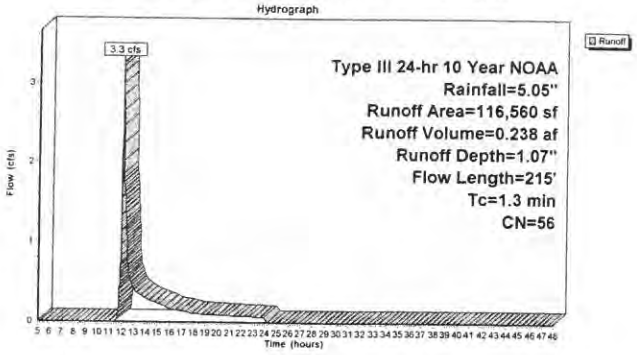
Runoff = 3.3 cfs @ 12.03 hrs, Volume= 0.238 af, Depth= 1.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year NOAA Rainfall=5.05"

Area (sf)	CN	Description
36,400	30	Woods, Good, HSG A
40,560	39	>75% Grass cover, Good, HSG A
39,600	98	Paved parking, HSG A
116,560	56	Weighted Average
76,960		66.03% Pervious Area
39,600		33.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.60		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.30"
0.6	120	0.0300	3.52		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.2	45	0.0100	4.91	3.86	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
1.3	215	Total			

Subcatchment P1-3: Proposed Conditions - REAR



Summary for Subcatchment P2-1: Proposed Conditions - FRONT

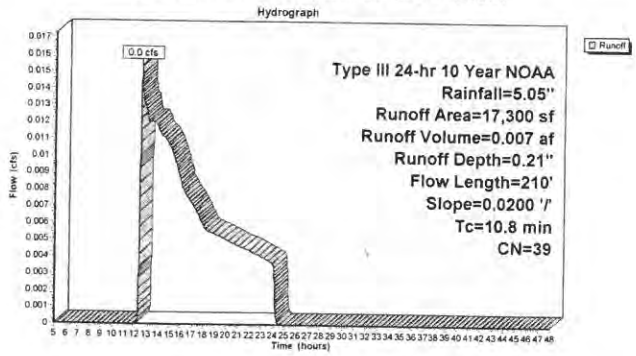
Runoff = 0.0 cfs @ 12.54 hrs, Volume= 0.007 af, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year NOAA Rainfall=5.05"

Area (sf)	CN	Description
17,300	39	>75% Grass cover, Good, HSG A
17,300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.30"
2.7	160	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.8	210	Total			

Subcatchment P2-1: Proposed Conditions - FRONT



Summary for Subcatchment P2-2: Roof Area East

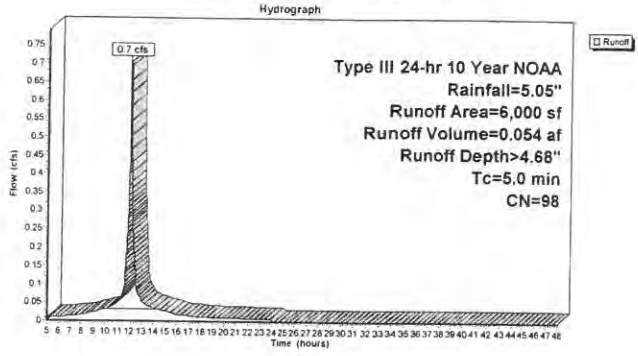
Runoff = 0.7 cfs @ 12.07 hrs, Volume= 0.054 af, Depth> 4.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year NOAA Rainfall=5.05"

Area (sf)	CN	Description
6,000	98	Roofs, HSG A
6,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment P2-2: Roof Area East

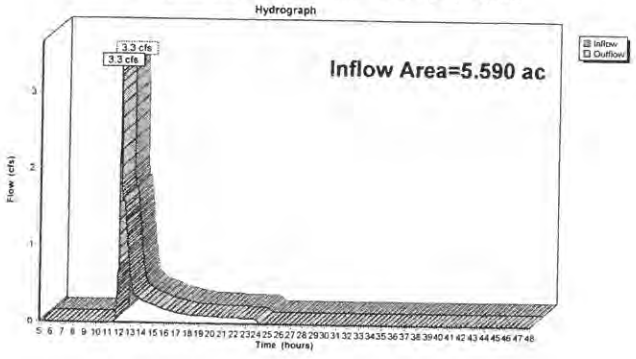


Summary for Reach P1-6: Proposed Conditions - REAR property line

Inflow Area = 5.590 ac, 54.18% Impervious, Inflow Depth = 0.58" for 10 Year NOAA event
Inflow = 3.3 cfs @ 12.03 hrs, Volume= 0.270 af
Outflow = 3.3 cfs @ 12.03 hrs, Volume= 0.270 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs

Reach P1-6: Proposed Conditions - REAR property line

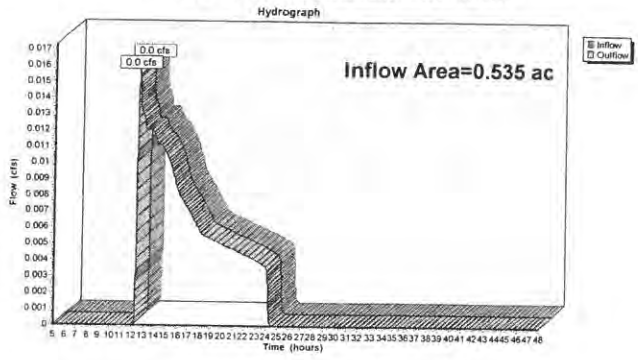


Summary for Reach P2-4: Proposed Conditions FRONT culvert

Inflow Area = 0.535 ac, 25.75% Impervious, Inflow Depth = 0.16" for 10 Year NOAA event
Inflow = 0.0 cfs @ 12.54 hrs, Volume= 0.007 af
Outflow = 0.0 cfs @ 12.54 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs

Reach P2-4: Proposed Conditions FRONT culvert



Summary for Pond P1-4: Infiltration Basin

Inflow Area = 2.776 ac, 71.37% Impervious, Inflow Depth = 3.03" for 10 Year NOAA event
Inflow = 7.7 cfs @ 12.10 hrs, Volume= 0.701 af
Outflow = 2.4 cfs @ 12.53 hrs, Volume= 0.701 af, Atten= 68%, Lag= 25.5 min
Discarded = 1.7 cfs @ 12.53 hrs, Volume= 0.669 af
Primary = 0.7 cfs @ 12.53 hrs, Volume= 0.032 af

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 281.47' @ 12.53 hrs Surf.Area= 4,986 sf Storage= 9,694 cf

Plug-Flow detention time= 50.2 min calculated for 0.701 af (100% of inflow)
Center-of-Mass det. time= 50.2 min (870.9 - 820.7)

Volume	Invert	Avail.Storage	Storage Description
#1	279.00'	18,380 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

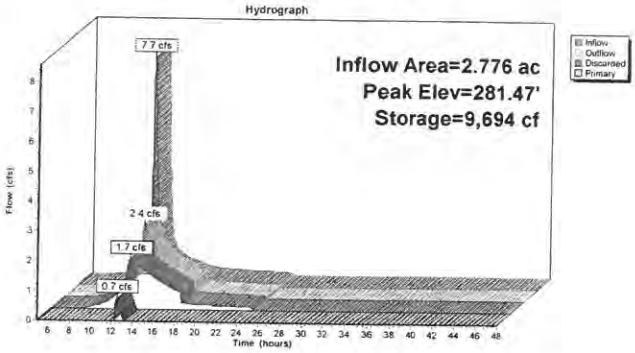
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
279.00	3,000	0	0	3,000
280.00	3,700	3,344	3,344	3,729
282.00	5,500	9,141	12,485	5,592
283.00	6,300	5,895	18,380	6,437

Device	Routing	Invert	Outlet Devices
#1	Discarded	279.00'	**8.270 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 276.50'
#2	Primary	282.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Primary	281.00'	**12.0" Round Culvert** L= 25.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 281.00' / 280.50' S= 0.0200 '/' Cc= 0.900 n= 0.012

Discarded OutFlow Max=1.7 cfs @ 12.53 hrs HW=281.47' (Free Discharge)
└**1=Exfiltration** (Controls 1.7 cfs)

Primary OutFlow Max=0.7 cfs @ 12.53 hrs HW=281.47' (Free Discharge)
├**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)
└**3=Culvert** (Inlet Controls 0.7 cfs @ 2.05 fps)

Pond P1-4: Infiltration Basin



Summary for Pond P1-5: Drywell-1

Inflow Area = 0.138 ac,100.00% Impervious, Inflow Depth > 4.68" for 10 Year NOAA event
Inflow = 0.7 cfs @ 12.07 hrs, Volume= 0.054 af
Outflow = 0.2 cfs @ 12.39 hrs, Volume= 0.054 af, Atten= 72%, Lag= 19.1 min
Discarded = 0.2 cfs @ 12.39 hrs, Volume= 0.054 af
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 284.53' @ 12.39 hrs Surf.Area= 512 sf Storage= 499 cf

Plug-Flow detention time= 15.7 min calculated for 0.054 af (100% of inflow)
Center-of-Mass det. time= 15.7 min (777.4 - 761.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	283.00'	453 cf	**16.00'W x 32.00'L x 3.21'H Field A** 1,643 cf Overall - 510 cf Embedded = 1,133 cf x 40.0% Voids
#2A	283.50'	510 cf	**Cultec R-280** x 12 Inside #1 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap
		963 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	283.00'	**8.270 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 280.70'
#2	Primary	290.00'	**6.0" Vert. Downspouts** C= 0.600

Discarded OutFlow Max=0.2 cfs @ 12.39 hrs HW=284.53' (Free Discharge)
↑**1=Exfiltration** (Controls 0.2 cfs)

Primary OutFlow Max=0.0 cfs @ 5.00 hrs HW=283.00' (Free Discharge)
↑**2=Downspouts** (Controls 0.0 cfs)

Pond P1-5: Drywell-1 - Chamber Wizard Field A

Chamber Model = Cultec R-280
Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf
Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap

47.0" Wide + 6.0" Spacing = 53.0" C-C

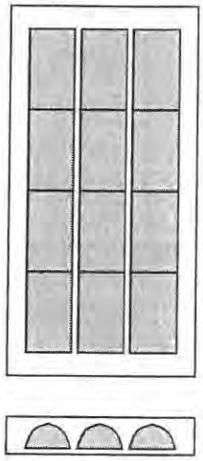
4 Chambers/Row x 7.00' Long = 28.00' + 24.0" End Stone x 2 = 32.00' Base Length
3 Rows x 47.0" Wide + 6.0" Spacing x 2 + 19.5" Side Stone x 2 = 16.00' Base Width
6.0" Base + 26.5" Chamber Height + 6.0" Cover = 3.21' Field Height

12 Chambers x 42.5 cf = 510.0 cf Chamber Storage

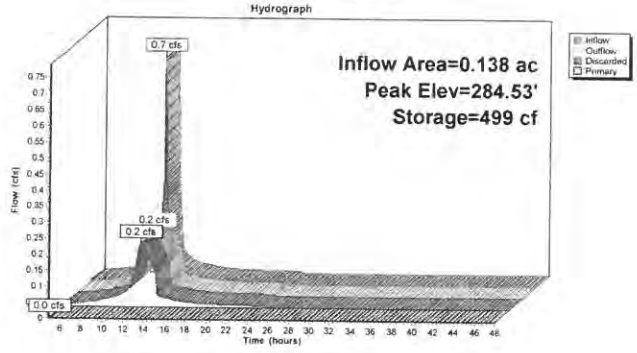
1,642.7 cf Field - 510.0 cf Chambers = 1,132.6 cf Stone x 40.0% Voids = 453.1 cf Stone Storage

Stone + Chamber Storage = 963.1 cf = 0.022 af

12 Chambers
60.8 cy Field
41.9 cy Stone



Pond P1-5: Drywell-1



Summary for Pond P2-3: Drywell-2

Inflow Area = 0.138 ac,100.00% Impervious, Inflow Depth > 4.68" for 10 Year NOAA event
Inflow = 0.7 cfs @ 12.07 hrs, Volume= 0.054 af
Outflow = 0.2 cfs @ 12.39 hrs, Volume= 0.054 af, Atten= 72%, Lag= 19.1 min
Discarded = 0.2 cfs @ 12.39 hrs, Volume= 0.054 af
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 285.53' @ 12.39 hrs Surf.Area= 512 sf Storage= 498 cf

Plug-Flow detention time= 15.5 min calculated for 0.054 af (100% of inflow)
Center-of-Mass det. time= 15.5 min (777.2 - 761.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	284.00'	453 cf	**16.00'W x 32.00'L x 3.21'H Field A** 1,643 cf Overall - 510 cf Embedded = 1,133 cf x 40.0% Voids
#2A	284.50'	510 cf	**Cultec R-280** x 12 Inside #1 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap
		963 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	284.00'	**8.270 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 281.70'
#2	Primary	290.00'	**6.0" Vert. Downspouts** C= 0.600

Discarded OutFlow Max=0.2 cfs @ 12.39 hrs HW=285.53' (Free Discharge)
↑**1=Exfiltration** (Controls 0.2 cfs)

Primary OutFlow Max=0.0 cfs @ 5.00 hrs HW=284.00' (Free Discharge)
↑**2=Downspouts** (Controls 0.0 cfs)

Pond P2-3: Drywell-2 - Chamber Wizard Field A

Chamber Model = Cultec R-280
Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf
Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap

47.0" Wide + 6.0" Spacing = 53.0" C-C

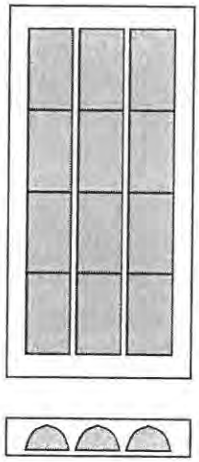
4 Chambers/Row x 7.00' Long = 28.00' + 24.0" End Stone x 2 = 32.00' Base Length
3 Rows x 47.0" Wide + 6.0" Spacing x 2 + 19.5" Side Stone x 2 = 16.00' Base Width
6.0" Base + 26.5" Chamber Height + 6.0" Cover = 3.21' Field Height

12 Chambers x 42.5 cf = 510.0 cf Chamber Storage

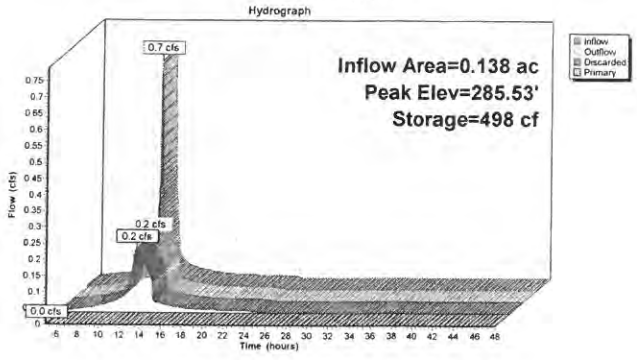
1,642.7 cf Field - 510.0 cf Chambers = 1,132.6 cf Stone x 40.0% Voids = 453.1 cf Stone Storage

Stone + Chamber Storage = 963.1 cf = 0.022 af

12 Chambers
60.8 cy Field
41.9 cy Stone



Pond P2-3: Drywell-2



Summary for Subcatchment E1: Existing Conditions - REAR property line

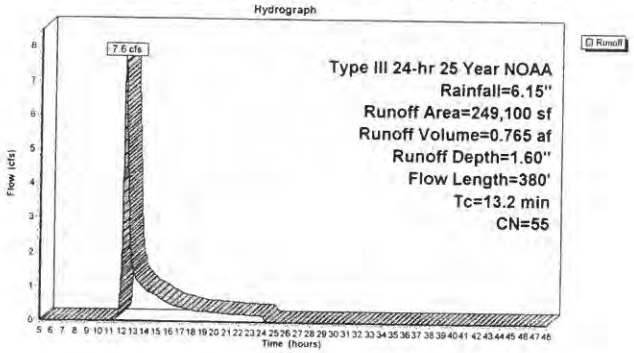
Runoff = 7.6 cfs @ 12.20 hrs, Volume= 0.765 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year NOAA Rainfall=6.15"

Area (sf)	CN	Description
76,700	30	Woods, Good, HSG A
93,225	39	>75% Grass cover, Good, HSG A
79,175	98	Paved parking, HSG A
249,100	55	Weighted Average
169,925		68.22% Pervious Area
79,175		31.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.30"
4.7	300	0.0230	1.06		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	30	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.2	380	Total			

Subcatchment E1: Existing Conditions - REAR property line



Summary for Subcatchment E2: Existing Conditions - FRONT culvert

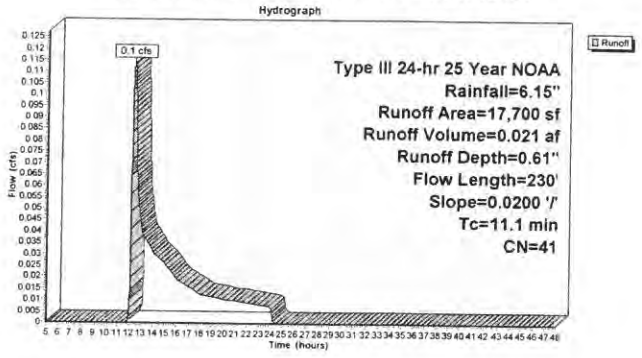
Runoff = 0.1 cfs @ 12.35 hrs, Volume= 0.021 af, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year NOAA Rainfall=6.15"

Area (sf)	CN	Description
0	30	Woods, Good, HSG A
17,080	39	>75% Grass cover, Good, HSG A
620	98	Paved parking, HSG A
17,700	41	Weighted Average
17,080		96.50% Pervious Area
620		3.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.30"
3.0	180	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
11.1	230	Total			

Subcatchment E2: Existing Conditions - FRONT culvert



Summary for Subcatchment P1-1: Site Draiange System WEST

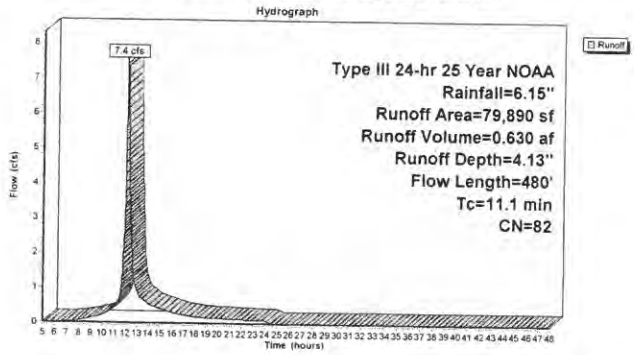
Runoff = 7.4 cfs @ 12.15 hrs, Volume= 0.630 af, Depth= 4.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year NOAA Rainfall=6.15"

Area (sf)	CN	Description
* 57,720	98	Paved Parking
22,170	39	>75% Grass cover, Good, HSG A
79,890	82	Weighted Average
22,170		27.75% Pervious Area
57,720		72.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.30"
1.9	110	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	320	0.0100	4.91	3.86	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
11.1	480	Total			

Subcatchment P1-1: Site Draiange System WEST



Summary for Subcatchment P1-2: Site Drainage System EAST

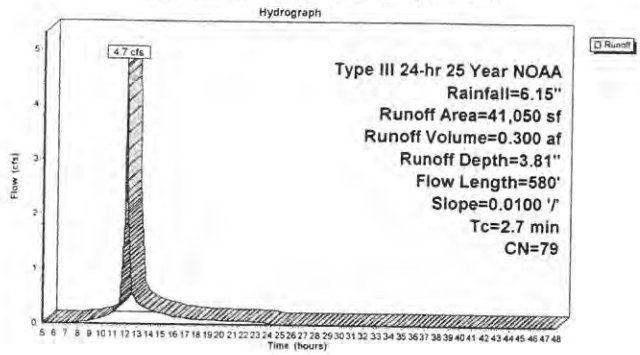
Runoff = 4.7 cfs @ 12.04 hrs, Volume= 0.300 af, Depth= 3.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year NOAA Rainfall=6.15"

Area (sf)	CN	Description
* 28,600	98	Pavement Areas
9,050	39	>75% Grass cover, Good, HSG A
3,400	30	Woods, Good, HSG A
41,050	79	Weighted Average
12,450		30.33% Pervious Area
28,600		69.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.92		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.30"
0.4	50	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.4	480	0.0100	5.70	7.00	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
2.7	580	Total			

Subcatchment P1-2: Site Drainage System EAST



Summary for Subcatchment P1-2a: Roof Area West

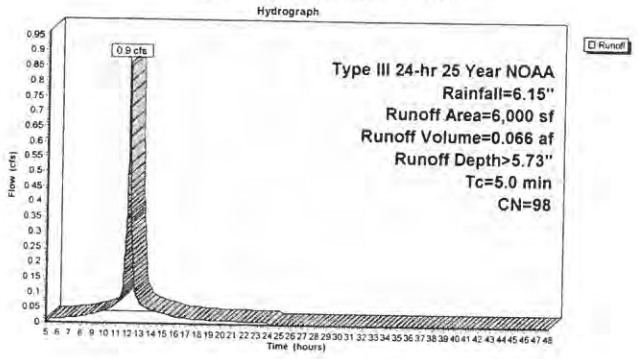
Runoff = 0.9 cfs @ 12.07 hrs, Volume= 0.066 af, Depth> 5.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year NOAA Rainfall=6.15"

Area (sf)	CN	Description
* 6,000	98	Roof
6,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment P1-2a: Roof Area West



Summary for Subcatchment P1-3: Proposed Conditions - REAR

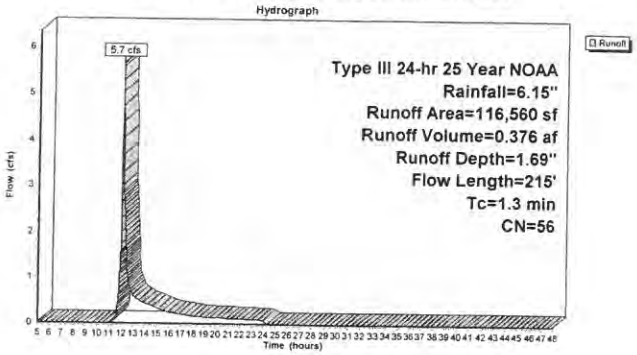
Runoff = 5.7 cfs @ 12.03 hrs, Volume= 0.376 af, Depth= 1.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year NOAA Rainfall=6.15"

Area (sf)	CN	Description
36,400	30	Woods, Good, HSG A
40,560	39	>75% Grass cover, Good, HSG A
39,600	98	Paved parking, HSG A
116,560	56	Weighted Average
76,960		66.03% Pervious Area
39,600		33.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.60		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.30"
0.6	120	0.0300	3.52		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.2	45	0.0100	4.91	3.86	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
1.3	215	Total			

Subcatchment P1-3: Proposed Conditions - REAR



Summary for Subcatchment P2-1: Proposed Conditions - FRONT

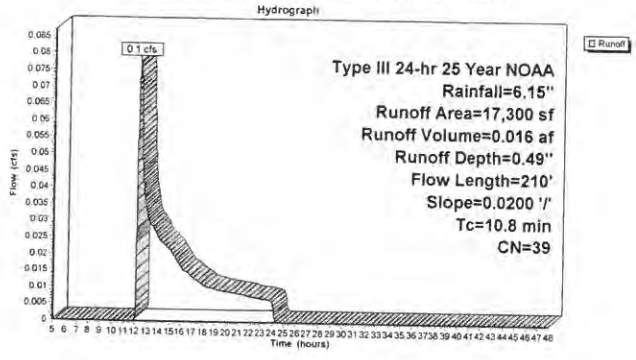
Runoff = 0.1 cfs @ 12.40 hrs, Volume= 0.016 af, Depth= 0.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year NOAA Rainfall=6.15"

Area (sf)	CN	Description
17,300	39	>75% Grass cover, Good, HSG A
17,300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.30"
2.7	160	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.8	210	Total			

Subcatchment P2-1: Proposed Conditions - FRONT



Summary for Subcatchment P2-2: Roof Area East

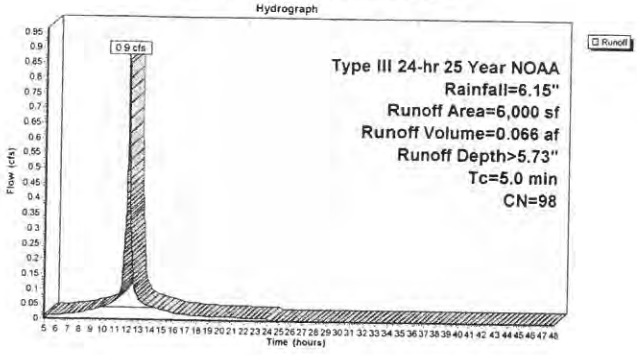
Runoff = 0.9 cfs @ 12.07 hrs, Volume= 0.066 af, Depth> 5.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year NOAA Rainfall=6.15"

Area (sf)	CN	Description
6,000	98	Roofs, HSG A
6,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment P2-2: Roof Area East

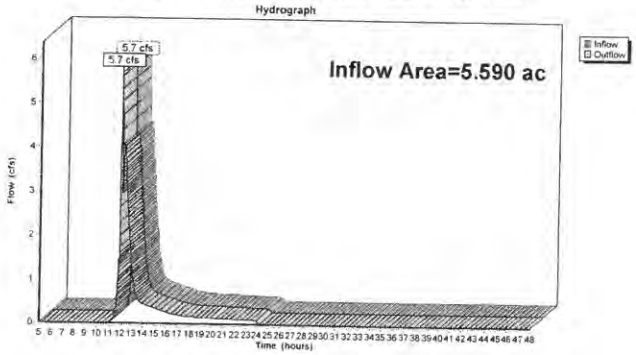


Summary for Reach P1-6: Proposed Conditions - REAR property line

Inflow Area = 5.590 ac, 54.18% Impervious, Inflow Depth = 1.07" for 25 Year NOAA event
Inflow = 5.7 cfs @ 12.03 hrs, Volume= 0.500 af
Outflow = 5.7 cfs @ 12.03 hrs, Volume= 0.500 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs

Reach P1-6: Proposed Conditions - REAR property line

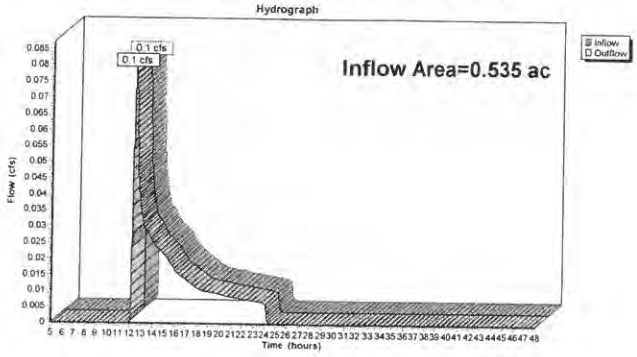


Summary for Reach P2-4: Proposed Conditions FRONT culvert

Inflow Area = 0.535 ac, 25.75% Impervious, Inflow Depth = 0.36" for 25 Year NOAA event
Inflow = 0.1 cfs @ 12.40 hrs, Volume= 0.016 af
Outflow = 0.1 cfs @ 12.40 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs

Reach P2-4: Proposed Conditions FRONT culvert



Summary for Pond P1-4: Infiltration Basin

Inflow Area = 2.776 ac, 71.37% Impervious, Inflow Depth = 4.02" for 25 Year NOAA event
Inflow = 10.1 cfs @ 12.10 hrs, Volume= 0.930 af
Outflow = 4.1 cfs @ 12.45 hrs, Volume= 0.930 af, Atten= 59%, Lag= 20.9 min
Discarded = 1.9 cfs @ 12.45 hrs, Volume= 0.806 af
Primary = 2.2 cfs @ 12.45 hrs, Volume= 0.124 af

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 281.93' @ 12.45 hrs Surf.Area= 5,436 sf Storage= 12,129 cf

Plug-Flow detention time= 48.6 min calculated for 0.930 af (100% of inflow)
Center-of-Mass det. time= 48.6 min (861.3 - 812.7)

Volume	Invert	Avail.Storage	Storage Description
#1	279.00'	18,380 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

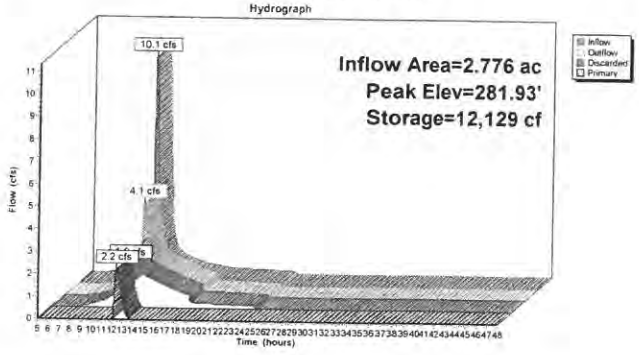
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
279.00	3,000	0	0	3,000
280.00	3,700	3,344	3,344	3,729
282.00	5,500	9,141	12,485	5,592
283.00	6,300	5,895	18,380	6,437

Device	Routing	Invert	Outlet Devices
#1	Discarded	279.00'	**8.270 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 276.50'
#2	Primary	282.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Primary	281.00'	**12.0" Round Culvert** L= 25.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 281.00' / 280.50' S= 0.0200 '/' Cc= 0.900 n= 0.012

Discarded OutFlow Max=1.9 cfs @ 12.45 hrs HW=281.93' (Free Discharge)
└**1=Exfiltration** (Controls 1.9 cfs)

Primary OutFlow Max=2.2 cfs @ 12.45 hrs HW=281.93' (Free Discharge)
├**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)
└**3=Culvert** (Inlet Controls 2.2 cfs @ 2.90 fps)

Pond P1-4: Infiltration Basin



Summary for Pond P1-5: Drywell-1

Inflow Area = 0.138 ac,100.00% Impervious, Inflow Depth > 5.73" for 25 Year NOAA event
Inflow = 0.9 cfs @ 12.07 hrs, Volume= 0.066 af
Outflow = 0.2 cfs @ 12.40 hrs, Volume= 0.066 af, Atten= 73%, Lag= 20.1 min
Discarded = 0.2 cfs @ 12.40 hrs, Volume= 0.066 af
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 284.98' @ 12.40 hrs Surf.Area= 512 sf Storage= 658 cf

Plug-Flow detention time= 18.9 min calculated for 0.066 af (100% of inflow)
Center-of-Mass det. time= 18.9 min (779.5 - 760.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	283.00'	453 cf	**16.00'W x 32.00'L x 3.21'H Field A** 1,643 cf Overall - 510 cf Embedded = 1,133 cf x 40.0% Voids
#2A	283.50'	510 cf	**Cultec R-280** x 12 Inside #1 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap
		963 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	283.00'	**8.270 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 280.70'
#2	Primary	290.00'	**6.0" Vert. Downspouts** C= 0.600

Discarded OutFlow Max=0.2 cfs @ 12.40 hrs HW=284.98' (Free Discharge)
↳**1=Exfiltration** (Controls 0.2 cfs)

Primary OutFlow Max=0.0 cfs @ 5.00 hrs HW=283.00' (Free Discharge)
↳**2=Downspouts** (Controls 0.0 cfs)

Pond P1-5: Drywell-1 - Chamber Wizard Field A

Chamber Model = Cultec R-280
Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf
Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap

47.0" Wide + 6.0" Spacing = 53.0" C-C

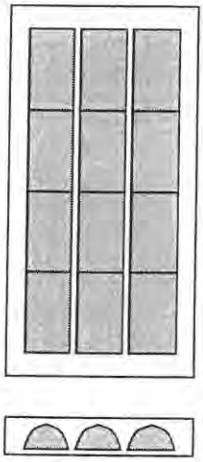
4 Chambers/Row x 7.00' Long = 28.00' + 24.0" End Stone x 2 = 32.00' Base Length
3 Rows x 47.0" Wide + 6.0" Spacing x 2 + 19.5" Side Stone x 2 = 16.00' Base Width
6.0" Base + 26.5" Chamber Height + 6.0" Cover = 3.21' Field Height

12 Chambers x 42.5 cf = 510.0 cf Chamber Storage

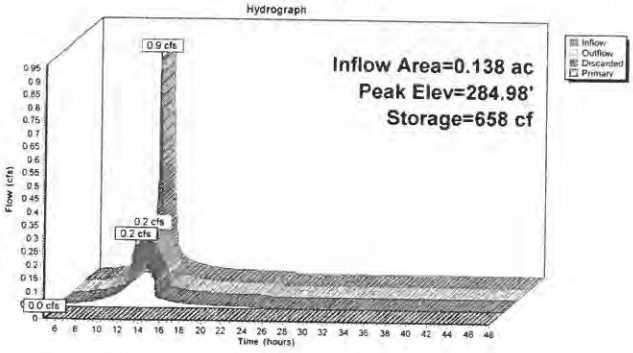
1,642.7 cf Field - 510.0 cf Chambers = 1,132.6 cf Stone x 40.0% Voids = 453.1 cf Stone Storage

Stone + Chamber Storage = 963.1 cf = 0.022 af

12 Chambers
60.8 cy Field
41.9 cy Stone



Pond P1-5: Drywell-1



Summary for Pond P2-3: Drywell-2

Inflow Area = 0.138 ac,100.00% Impervious, Inflow Depth > 5.73" for 25 Year NOAA event
Inflow = 0.9 cfs @ 12.07 hrs, Volume= 0.066 af
Outflow = 0.2 cfs @ 12.40 hrs, Volume= 0.066 af, Atten= 73%, Lag= 20.1 min
Discarded = 0.2 cfs @ 12.40 hrs, Volume= 0.066 af
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 285.98' @ 12.40 hrs Surf.Area= 512 sf Storage= 657 cf

Plug-Flow detention time= 18.7 min calculated for 0.066 af (100% of inflow)
Center-of-Mass det. time= 18.7 min (779.3 - 760.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	284.00'	453 cf	**16.00'W x 32.00'L x 3.21'H Field A** 1,643 cf Overall - 510 cf Embedded = 1,133 cf x 40.0% Voids
#2A	284.50'	510 cf	**Cultec R-280** x 12 Inside #1 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap
		963 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	284.00'	**8.270 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 281.70'
#2	Primary	290.00'	**6.0" Vert. Downspouts** C= 0.600

Discarded OutFlow Max=0.2 cfs @ 12.40 hrs HW=285.98' (Free Discharge)
↳**1=Exfiltration** (Controls 0.2 cfs)

Primary OutFlow Max=0.0 cfs @ 5.00 hrs HW=284.00' (Free Discharge)
↳**2=Downspouts** (Controls 0.0 cfs)

Pond P2-3: Drywell-2 - Chamber Wizard Field A

Chamber Model = Cultec R-280
Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf
Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap

47.0" Wide + 6.0" Spacing = 53.0" C-C

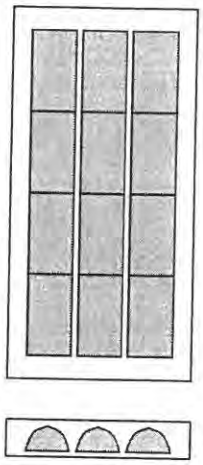
4 Chambers/Row x 7.00' Long = 28.00' + 24.0" End Stone x 2 = 32.00' Base Length
3 Rows x 47.0" Wide + 6.0" Spacing x 2 + 19.5" Side Stone x 2 = 16.00' Base Width
6.0" Base + 26.5" Chamber Height + 6.0" Cover = 3.21' Field Height

12 Chambers x 42.5 cf = 510.0 cf Chamber Storage

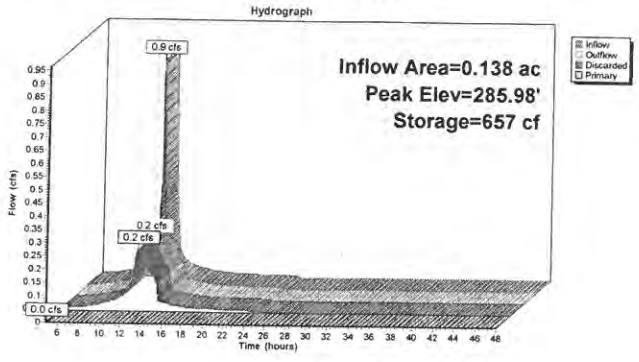
1,642.7 cf Field - 510.0 cf Chambers = 1,132.6 cf Stone x 40.0% Voids = 453.1 cf Stone Storage

Stone + Chamber Storage = 963.1 cf = 0.022 af

12 Chambers
60.8 cy Field
41.9 cy Stone



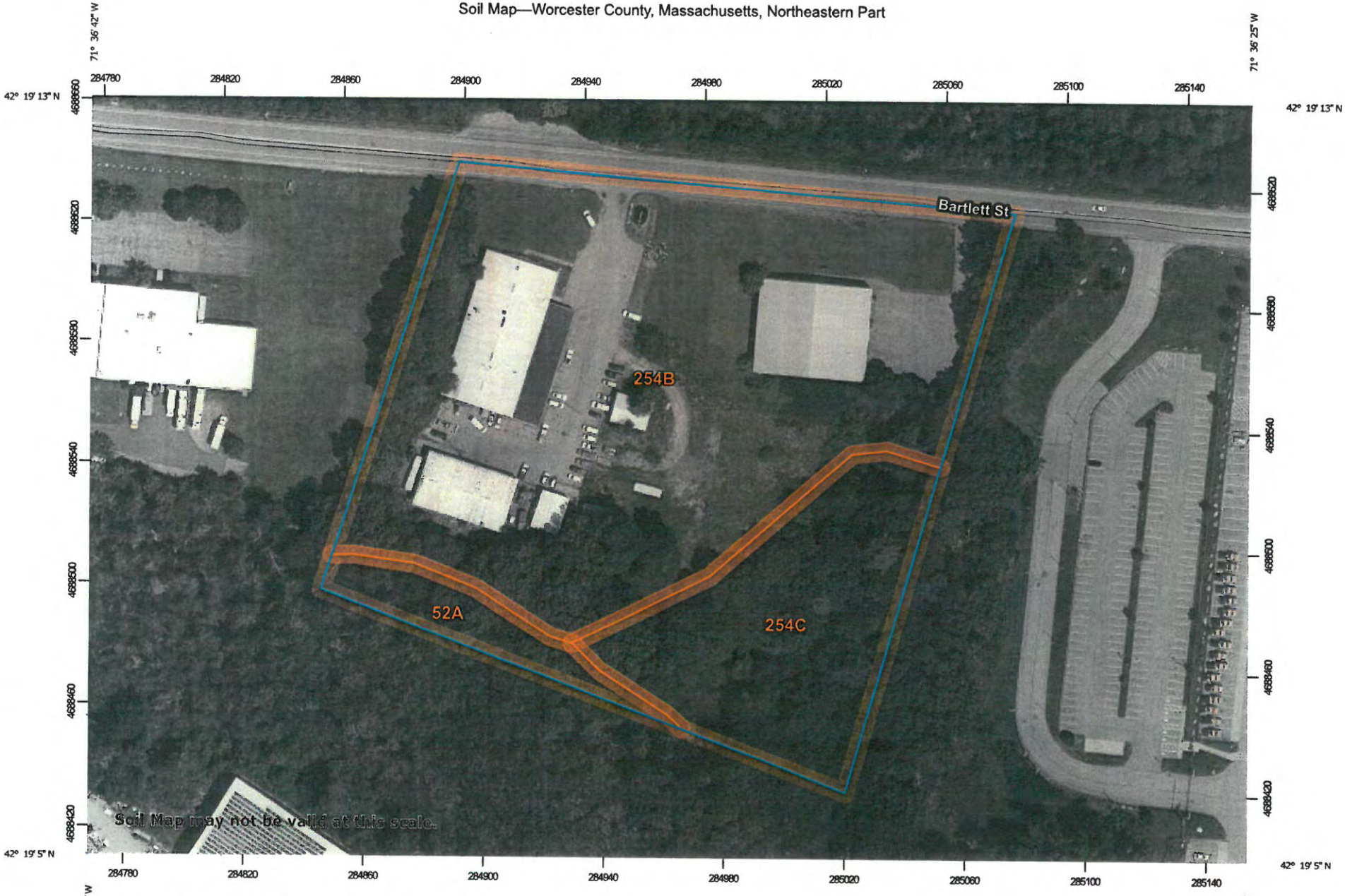
Pond P2-3: Drywell-2



SUBSURFACE SOIL DATA

NRCS Soil Mapping

Soil Map—Worcester County, Massachusetts, Northeastern Part



Map Scale: 1:1,760 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

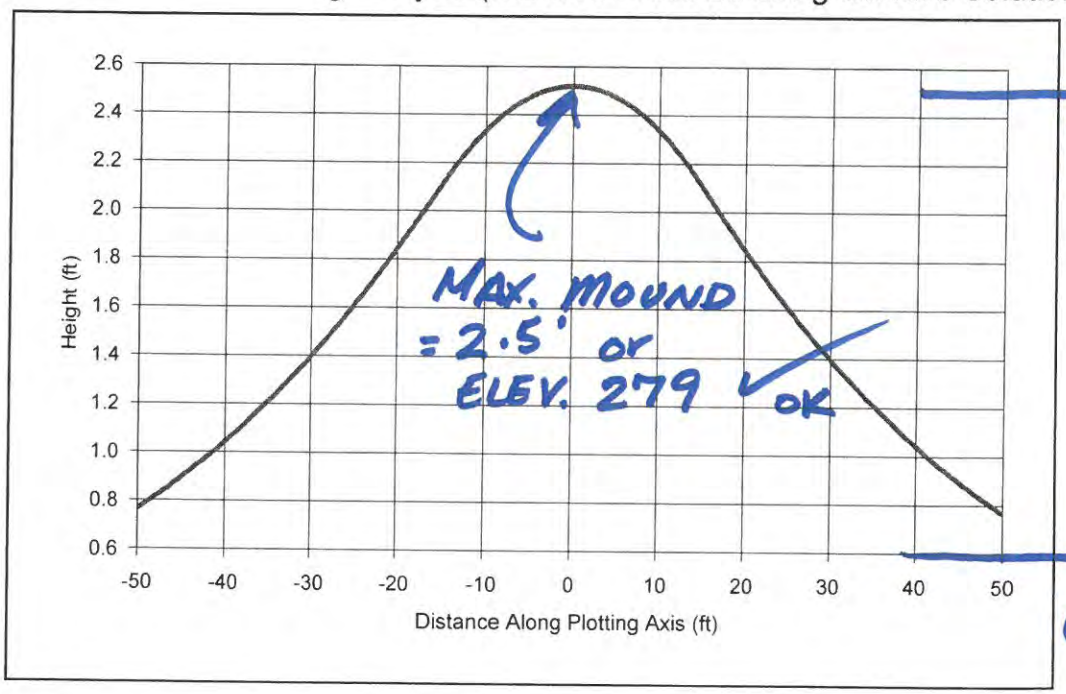
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
52A	Freetown muck, 0 to 1 percent slopes	0.4	5.2%
254B	Merrimac fine sandy loam, 3 to 8 percent slopes	5.8	73.6%
254C	Merrimac fine sandy loam, 8 to 15 percent slopes	1.7	21.3%
Totals for Area of Interest		**7.9**	**100.0%**

GROUNDWATER MOUNDING CALCULATION

INFILTRATION BASIN - MOUNDING SUMMARY.

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: CSEI

PROJECT: Bartlett

ANALYST: vc

DATE: 11/23/2021 TIME: 11:14:06 AM

INPUT PARAMETERS

Application rate: 2.487 c.ft/day/sq. ft
Duration of application: 1 days
Fillable porosity: 0.28
Hydraulic conductivity: 25.6 ft/day = 12.8 in/hr
Initial saturated thickness: 20 ft
Length of application area: 100 ft
Width of application area: 30 ft
No constant head boundary used
Plotting axis from Y-Axis: 90 degrees
Edge of recharge area:
positive X: 15 ft
positive Y: 0 ft
Total volume applied: 7461 c.ft ✓ OK

WQV = 7,460

MODEL RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
-50	0	-50	0.76
-42	0	-42	0.98
-34.1	0	-34	1.24
-26.1	0	-26	1.56
-19.9	0	-20	1.85
-15	0	-15	2.1
-11.1	0	-11	2.29
-7.7	0	-8	2.41
-4.8	0	-5	2.48
-2.9	0	-3	2.5
-1.6	0	-2	2.52
0	0	0	2.52
1.6	0	2	2.52
2.9	0	3	2.5
4.8	0	5	2.48
7.7	0	8	2.41
11.1	0	11	2.29
15	0	15	2.1
19.9	0	20	1.85
26.1	0	26	1.56
34.1	0	34	1.24
42	0	42	0.98
50	0	50	0.76

WATER QUALITY STRUCTURE (STORMCEPTOR) SIZING CALCULATIONS

Stormceptor®

STC-1

Stormceptor Design Summary

PCSWMM for Stormceptor

Project Information

Date	11/22/2021
Project Name	Bartlett Street
Project Number	N/A
Location	STC-1

Designer Information

Company	N/A
Contact	N/A

Notes

N/A

Drainage Area

Total Area (ac)	0.94
Imperviousness (%)	70

The Stormceptor System model STC 450i achieves the water quality objective removing 82% TSS for a Fine (organics, silts and sand) particle size distribution; providing continuous positive treatment for a stormwater quality flow rate of 0.81 cfs.

Rainfall

Name	WORCESTER WSO AP
State	MA
ID	9923
Years of Records	1948 to 2005
Latitude	42°16'2"N
Longitude	71°52'34"W

Water Quality Objective

TSS Removal (%)	80
WQ Flow Rate (cfs)	0.81

Upstream Storage

Storage (ac-ft)	Discharge (cfs)
0	0

Stormceptor Sizing Summary

Stormceptor Model	TSS Removal %
STC 450i	**82**
STC 900	88
STC 1200	88
STC 1800	88
STC 2400	91
STC 3600	91
STC 4800	93
STC 6000	94
STC 7200	95
STC 11000	96
STC 13000	96
STC 16000	97

Rinker MATERIALS™

Stormceptor®

STC-2

Stormceptor Design Summary

PCSWMM for Stormceptor

Project Information

Date	11/22/2021
Project Name	Bartlett Street
Project Number	N/A
Location	STC-2

Designer Information

Company	N/A
Contact	N/A

Notes

N/A

Drainage Area

Total Area (ac)	1.83
Imperviousness (%)	73

The Stormceptor System model STC 900 achieves the water quality objective removing 81% TSS for a Fine (organics, silts and sand) particle size distribution; providing continuous positive treatment for a stormwater quality flow rate of 1.64 cfs.

Rainfall

Name	WORCESTER WSO AP
State	MA
ID	9923
Years of Records	1948 to 2005
Latitude	42°16'2"N
Longitude	71°52'34"W

Water Quality Objective

TSS Removal (%)	80
WQ Flow Rate (cfs)	1.64

Upstream Storage

Storage (ac-ft)	Discharge (cfs)
0	0

Stormceptor Sizing Summary

Stormceptor Model	TSS Removal %
STC 450i	72
STC 900	**81**
STC 1200	81
STC 1800	81
STC 2400	85
STC 3600	86
STC 4800	88
STC 6000	89
STC 7200	91
STC 11000	93
STC 13000	93
STC 16000	94

Rinker MATERIALS™

Stormceptor®

STC-3

Stormceptor Design Summary

PCSWMM for Stormceptor

Project Information

Date	11/22/2021
Project Name	Bartlett Street
Project Number	N/A
Location	STC-3

Designer Information

Company	N/A
Contact	N/A

Notes

N/A

Drainage Area

Total Area (ac)	0.42
Imperviousness (%)	100

The Stormceptor System model STC 450i achieves the water quality objective removing 86% TSS for a Fine (organics, silts and sand) particle size distribution; providing continuous positive treatment for a stormwater quality flow rate of 0.52 cfs.

Rainfall

Name	WORCESTER WSO AP
State	MA
ID	9923
Years of Records	1948 to 2005
Latitude	42°16'2"N
Longitude	71°52'34"W

Water Quality Objective

TSS Removal (%)	80
WQ Flow Rate (cfs)	0.52

Upstream Storage

Storage (ac-ft)	Discharge (cfs)
0	0

Stormceptor Sizing Summary

Stormceptor Model	TSS Removal %
STC 450i	**86**
STC 900	91
STC 1200	91
STC 1800	91
STC 2400	93
STC 3600	94
STC 4800	95
STC 6000	95
STC 7200	96
STC 11000	97
STC 13000	97
STC 16000	98

Rinker MATERIALS™

Stormceptor®

STC-4

Stormceptor Design Summary

PCSWMM for Stormceptor

Project Information

Date	11/22/2021
Project Name	Bartlett Street
Project Number	N/A
Location	STC-4

Designer Information

Company	N/A
Contact	N/A

Notes

N/A

Drainage Area

Total Area (ac)	0.23
Imperviousness (%)	100

The Stormceptor System model STC 450i achieves the water quality objective removing 89% TSS for a Fine (organics, silts and sand) particle size distribution; providing continuous positive treatment for a stormwater quality flow rate of 0.28 cfs.

Rainfall

Name	WORCESTER WSO AP
State	MA
ID	9923
Years of Records	1948 to 2005
Latitude	42°16'2"N
Longitude	71°52'34"W

Water Quality Objective

TSS Removal (%)	80
WQ Flow Rate (cfs)	0.28

Upstream Storage

Storage (ac-ft)	Discharge (cfs)
0	0

Stormceptor Sizing Summary

Stormceptor Model	TSS Removal %
STC 450i	**89**
STC 900	94
STC 1200	94
STC 1800	94
STC 2400	95
STC 3600	96
STC 4800	97
STC 6000	97
STC 7200	98
STC 11000	98
STC 13000	98
STC 16000	99

Rinker MATERIALS™

STORMWATER OPERATION AND MAINTNANCE PLAN

Stormwater Operations and Management Plan and Long-term Pollution Prevention Program

200 Bartlett Street
Northborough, MA

Stormwater Management System Owner: AND Responsible Party R.J. Devereaux Corporation

This Operation and Maintenance Plan has been prepared in accordance with the MA Department of Environmental Protection stormwater standards and recommendations outlined in the stormwater handbook. This plan outlines the minimum efforts necessary to ensure that the stormwater collection and treatment system and sedimentation and erosion control system for this site operates in accordance with Massachusetts Department of Environmental Protection (DEP) stormwater management policy. Efforts in addition to the minimum listed herein may be required to ensure adequate stormwater management.

This plan includes general site restrictions, routing/non-routine operation and maintenance; reporting and record keeping; and an estimated budget.

General Conditions

1. The following site conditions are imposed as part of this Plan.
   - Illicit discharges into stormwater management system are perpetually prohibited.
   - The use of fertilizers should be limited to slow-release, low-nitrogen fertilizers.

2. The Town Engineer shall be notified before maintenance work is preformed and shall be afforded the opportunity to inspect the work. Copies of any contracts, inspection reports, and invoices for the work performed shall be retained and made available to the Town Engineer upon request.

3. All material removed from the drainage system (i.e. catch basin cleanings) shall be legally disposed of off-site.

Operation and Maintenance:

Stormwater management facilities should be inspected a minimum of four times per year and following at least one major storm per year. Upon completion of inspection, the inspector should specify any necessary corrective actions to be taken by ownership of the facility. The items to be inspected and maintained are described in the following sections.

Based on the observed conditions, the Responsible Party shall immediately schedule the appropriate maintenance. Some minor maintenance, such as the removal of blockages, debris and saplings in the basins may be conducted at the time of the inspection. More difficult maintenance activities, requiring special equipment, will have to be scheduled, such as the removal of excessive sediment or the repair of eroded areas. All sediment must be removed at least once per year.

Catch Basins, and Stormceptors.
The actual removal of sediments and associated pollutants and trash occurs only when sumps are cleaned out; therefore, regular maintenance is required. The more frequent the cleaning, the less likely sediments will be resuspended and subsequently discharged. Frequent cleaning also results in more volume available for future storms and enhances the overall performance.

At a minimum, catch basins and Stormceptors should be inspected four times annually, and cleaned whenever sediment accumulation exceeds 12 inches in catch basins and 8 inches in Stormceptors. Disposal of the accumulated sediment and hydrocarbons must be in accordance with applicable local, state, and federal guidelines and regulations. At each inspection, inspect gas trap hoods and repair as necessary. Inspect outlet pipe and remove debris .Vaccum trucks shall be utilized for all cleanings.

Drywells / Infiltration Chambers
The Inspection ports should be opened and the infiltration chambers checked for accumulated debris and sediment at four times annually (spring and fall) with at least one after a major storm to see if they have fully drained. The inspector shall utilize the inspection port on the Cultec Chambers that receive flow to determine if any sediment or debris is entering the system. If any sediment is present and/or if the infiltration chambers do not drain within 72 hours of the end of a storm, then remediation may be necessary. It may be possible to flood the system to suspend sediment and debris and remove it with a vacuum truck. Otherwise replacement of the soil around and under the infiltration chambers may be required.

Gutters should be inspected and cleaned a minimum of twice per year (or cleaned whenever debris is noted). Downspouts should be inspected for connection and any evidence of overflow.

Infiltration Basin
After every major storm during the first 3 months of operation and thereafter at least twice annually, the inspector shall visually inspect the basin, noting each of the items listed below (Vegetation, Dewatering, Inlets, Outlets and Structural Stability). If any of the items are in need of attention, it shall be noted and the proper remedial action initiated, as described below, as soon as possible.

The inspector shall visit the site three to four days after the rainfall of a major storm has ended to ensure that the facility has drained to the appropriate level. If significant water remains ponded in the system three (3) days after the latest rainfall, sediment removal/blockage removal activities shall be investigated and/or performed.

The embankment and side slopes of the detention basins should exhibit no visible signs of erosion, settlement, slope failure, wildlife damage, or vehicle damage. Damaged side slopes should be repaired using similar fill of adequate permeability. Damaged embankments should be filled and compacted with impermeable soils to prevent seepage. Eroded areas should be reseeded as discussed under "vegetation". Repeated repairs to side slopes may necessitate the flattening of the slopes to ensure structural stability. Signs of vehicle damage may necessitate the construction of fences around certain areas.

Vegetation should be dense (and aesthetically acceptable on all portions of the device, including the side slopes, basin floor, buffer strips and the embankments. The inspector shall determine: (1) whether fertilizing is required (2) the areas where grass should be mowed, and (3) the areas which should be protected against erosion. In addition, recently seeded areas should be inspected for failures. Grasses of the fescue family can be mowed a minimum of twice per year, in July and late September. In addition to grass maintenance, any other vegetation in the basin area or access areas which has reached nuisance levels, (e.g., bushes, trees and weeds) should be trimmed or removed.

The inspector shall ensure that there are no signs of scour around the inlets. Vegetation and riprap shall be in good condition (e.g., grass shall be dense and healthy looking; riprap shall be free from undermining and/or deterioration). Inlet structures shall be free from cracks, breaks, or deterioration of materials. If scour is evident, the damaged area shall be filled, compacted and reseeded, stabilized with a geotextile fabric, or

lined with riprap in that order. If rip rapped areas have been damaged, the riprap shall be replaced or supplemented. The use of concentrated flow dissipation devices, such as level spreaders, may help to eliminate inlet scour problems.

The outlet channel itself should be free from obstruction (e.g., fallen trees) and bank scour, or the undermining of riprap. The spillway should show no signs of settlement, erosion, or slope failure. Damaged natural areas along the outlet channel should be filled, compacted, and reseeded, to lined with geotextile fabric. Damaged rip rapped areas should be replaced and supplemented.

Street Sweeping

Street sweeping of the roadway should be performed at least twice per year, preferably in the spring after the snow has melted and in the fall, prior to snowfall. Disposal of the sweepings must be in accordance with applicable local, state, and federal guidelines and regulations.

Debris Accumulation

The inspector shall check basins and channels for both sediment and debris accumulations. Debris and sediment shall be removed at the time of the inspection, if feasible. Sediment shall not be allowed to accumulate and restrict flows. Most debris can be removed by hand or with hand tools (e.g. shovel). Some larger objects, such as fallen tree limbs, may have to be cut up before removal by hand is possible.

Vegetation

The initial vegetation inspection shall occur four (4) weeks after final stabilization of the site; vegetation shall be dense (and aesthetically acceptable on all portions of the project, including the side slopes, buffer strips and the embankments). The inspector shall determine and document: (1) whether fertilizing is required (2) the areas where grass shall be mowed, and (3) the areas which shall be protected against erosion. In addition, recently seeded areas shall be inspected for failures.

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Pipe Outlets

Pipe outlets shall be checked for: (1) signs of seepage, (2) signs of scour, (3) cracks, breaks, or deterioration of materials, and (4) rip rap condition / undermining. The outlet channel itself shall be free from obstruction (e.g., fallen trees). Vegetation and riprap shall be in good condition (e.g., grass shall be dense and healthy looking; riprap shall be free from undermining and/or deterioration). If scour is evident, the damaged area shall be filled, compacted and reseeded, stabilized with a geotextile fabric, or lined with riprap in that order. If rip rapped areas have been damaged, the riprap shall be replaced or supplemented. The use of concentrated flow dissipation devices, such as level spreaders, may help to eliminate inlet scour problems.

Snow Removal

Snow shall not be plowed toward the wetland areas. All catch basins shall be uncovered and functional immediately after snow plowing.

Public Safety Features

The driveway shall be kept free of snow and debris for emergency vehicle access. Storage shall not be allowed in these areas.

Activity	Frequency
Perform Inspection of all System Components and Prepare Report	Four times per year
Clean Catch Basins & Stormceptor	Minimum once per year or when sediment reaches 12-inches in catch basins or 8-inches in Stormceptor
Mow surface Infiltration area. Remove trash and debris; remove grass clippings and accumulated organic matter.	Minimum of twice per year
Street Sweeping	Minimum twice per year (spring and fall)
Clean / remediation of Infiltration system	As required based upon inspection
Clean Gutters	Minimum twice per year or whenever debris is noted

Reporting and Record Keeping

The responsible party will be responsible for maintaining accurate Maintenance Logs for all maintenance and inspections. The maintenance logs shall be kept on site for a minimum of three (3) years and be available for inspection by the Town municipal departments or other auditing authority, including inspections, repairs, replacement and disposal (for disposal, the log shall indicate the type of material and the disposal location). This will be a perpetual requirement of the Owners or their Designated Party.

The Site Maintenance Log will be completed as described above, and at a minimum will include the following items:

- Date activity performed;
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- BMP's inspected and condition;
- Specific maintenance task;
- Staff or contractor performing activity;
- Verification of maintenance activity;
- For disposal include type of material and the disposal location; and
- Recommended additional maintenance tasks.

Estimated Budget

The estimated annual budget to perform the routine scheduled maintenance is approximately $4,000.00. This estimate does not include the repair of structures, pipes, embankments; cleaning drain lines; snow plowing; or other non-routine tasks.

Emergency Response Plan / Spill Control Practices

On-site storage of hazardous materials shall not be allowed.

In the event of an accident in the roadway or on individual lots, where a significant amount of gasoline or other petroleum product is released, the following procedure should be followed:

1. Immediately contact the following agencies:

Northborough Fire Department	(508) 393-1537
MassDEP Emergency response	(888) 304-1133

2. Provide support to agencies listed above, which may include contacting an outside contractor to provide clean-up or contacting a Licensed Site Professional (LSP) to lead the clean-up.

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MAINTENANCE INSPECTION FORM
200 Bartlett Street
Northborough, MA

Date:_____ Inspector:_____ Signature:_____

Drainage Structures

DESIGNATION	DEPTH OF SEDIMENT	ACTION REQUIRED / TAKEN
CB-1		
CB-2		
CB-3		
CB-4		
CB-5		
Cb-6		
CB-7		
CB-8		
CB-9		
CB-10		
CB-11		
CB-12		
STC-1		
STC-2		
STC-3		
STC-4		
Dry Well 1		Dewatered (Y/N)
Dry Well 2		Dewatered (Y/N)
Infiltration Basin		Dewatered (Y/N)

Inspect Vegetation_____

Inspect Pavement Condition_____

COMMENTS / MAINTENANCE REQUIRED:_____

Stormwater Operations and Management Plan and Long-term Pollution Prevention Program

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- Staff or contractor performing activity;
- Verification of maintenance activity;
- For disposal include type of material and the disposal location; and
- Recommended additional maintenance tasks.

Estimated Budget

The estimated annual budget to perform the routine scheduled maintenance is approximately $4,000.00. This estimate does not include the repair of structures, pipes, embankments; cleaning drain lines; snow plowing; or other non-routine tasks.

Emergency Response Plan / Spill Control Practices

On-site storage of hazardous materials shall not be allowed.

In the event of an accident in the roadway or on individual lots, where a significant amount of gasoline or other petroleum product is released, the following procedure should be followed:

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MAINTENANCE INSPECTION FORM
200 Bartlett Street
Northborough, MA

Date:_____ Inspector:_____ Signature:_____

Drainage Structures

DESIGNATION	DEPTH OF SEDIMENT	ACTION REQUIRED / TAKEN
CB-1		
CB-2		
CB-3		
CB-4		
CB-5		
Cb-6		
CB-7		
CB-8		
CB-9		
CB-10		
CB-11		
CB-12		
STC-1		
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STC-3		
STC-4		
Dry Well 1		Dewatered (Y/N)
Dry Well 2		Dewatered (Y/N)
Infiltration Basin		Dewatered (Y/N)

Inspect Vegetation_____

Inspect Pavement Condition_____

COMMENTS / MAINTENANCE REQUIRED:_____

CONSTRCUTION PERIOD STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

Stormwater Pollution Prevention Plan

for

Proposed Site Plan
200 Bartlett Street
Northborough, MA

This Stormwater Pollution Prevention Pan has been prepared in accordance with the MA Department of Environmental Protection Stormwater Standards and NPDES General Construction Permit for Stormwater Discharges from Construction Activities. All work shall be in accordance with the order of conditions issued by the Local Conservation Commission.

1.1 Project Information

Project Name and Location:	Contractors Yard 200 Bartlett Street Northborough, MA
Owner Name and Address:	RJ Devereaux Corp. 10 Emerson Place Boston, MA 02114
Site Operator:	Same as Owner
Accompanying Documents:	Plans titled "Site Plan, 200 Bartlett Street in Northborough, MA," prepared by Connorstone Engineering, Inc., are to be considered a part of this document.
NDPES Tracking Number:	_____
Latitude/Longitude:	Lat: 42.31950 Long: 71.60940
Project Description:	Contractors Yard
Estimated Dates:	Start: Spring 2022 Completion: Fall 2023
Name of Receiving Waters:	Bartlett Pond
Estimated Area of Disturbance:	4.1 Acres

1.2 Contact Information / Responsible Parties (complete prior to construction)

Operator(s):
Company Name:
Address:
Telephone #:
Area of Control: Entire Site

Project Manager(s) or Site Supervisor(s):
Company Name: Same as Operator
Address:
Telephone #:
Area of Control:

This SWPPP was Prepared by:
Connorstone Engineering, Inc.:
10 Southwest Cutoff
Northborough, MA 01532 / 508-393-9727

Emergency 24-Hour Contact:
Company Name: Same as Operator
Address:
Telephone #:
Area of Control:

Subcontractors:
Each subcontractor engaged in activities at the construction site that could impact stormwater must be identified and sign the Subcontractor Certifications/Agreement (Attached).

1.3 Existing Conditions

The subject site consists of a 6.7 acre parcel of land located at 200 Bartlett Street in the Town of Northborough, MA. The site is shown on assessor's map 66 as parcel 7, and is within the Industrial Zoning District and Groundwater Overlay Districts, Area 1 and 3. The existing site is currently developed with three primary buildings and two outbuildings along with associated parking, driveways, utilities, etc. The buildings were constructed at various times all prior to 1986. Two of the larger buildings closest to Bartlett Street are currently unoccupied and the rear building is occupied by an Auto repair garage. The rear southeast corner of the site is undeveloped. The existing conditions currently include 79,795 square feet of impervious surfaces. The existing structures are serviced by Town water and three on-site septic systems.

1.4 Proposed Development / Nature of Construction Activities

The proposed plan includes renovation of the two main structures closest to Bartlett Street and removal of one of the outbuildings. The building to the East side of the site will be primarily utilized for maintenance and the other building to the west will be used for training and dry storage. The rear auto repair garage and outbuilding will remain in the current condition. The overall use of the site will be for a Contractor's Yard. Work will also include new parking and driveway access, a new septic system to replace the older failed system(s), a new stormwater management system that will include upgrades to the existing areas around the auto repair shop, site Landscaping, lighting, and related site work. The overall proposed impervious area will be 137,920 square feet (or an increase of 58,125 sq. ft.)

The proposed driveway and parking layout will provide access through the site and around the rear of the maintenance building. The layout will allow for full access to emergency and firefighting apparatus. The existing loading docks at the buildings would be maintained for the proposed use. The site grading has been designed to fit with the existing topography sloping down away from Bartlett Street, which will reduce the required fill on-site. The building will be connected Town water and be serviced by a proposed on-site septic system. All required soil testing witnessed by the Board of Health has been performed to verify the design and adequacy of the proposed septic system.

1.5 Construction Site Estimates

Total parcel area:	6.7 acres
Total land disturbance:	4.1 acres
Impervious area before construction:	1.8 acres
Impervious area after construction:	3.2 acres

1.6 Sensitive Areas / Wetland Resources

Wetland resource areas on-site include bordering vegetated wetlands along the southern property line. The wetlands were delineated by Three Oaks Environmental in the fall of 2019 and updated in February of 2020. The wetlands are bordering on an intermittent stream that flows from east to west through a culvert under Lyman Street and ultimately to Bartlett Pond. This stream is shown on the USGS maps as a heavy blue line, but was determined to be intermittent during the ANRAD process of the downgradient project at 1 Lyman Street. The intermittent stream also has areas associated with the 100 year flood hazard as shown on the Town of Northborough Flood Insurance Rate Map 25027C0653F, dated July 16, 2014. The mapping has shown the area as Zone A, which does not have an assigned based flood elevation. The Zone A boundary generally follows the elevation 275 contour line and is fully contained offsite. The Natural Heritage and Endangered Species Program (NHESP) have not identified any areas on-site as lying within the reported Priority or Estimated Habitat Areas..

1.7 Discharge Information

The proposed drainage system will discharge to the on-site wetland system that flows toward a culvert under Lyman Street. This system ultimately discharges to Bartlett Pond. This pond is listed in the Massachusetts year 2016 integrated list of waters as Category 4c, Impairment not caused by pollutant – TMDL not required, due to non-native plants. Bartlett Pond flows to the Assebett River, which is a Class B Warm Water Stream.

1.8 Endangered Species Certification

The proposed project is not located in an Estimated or Priority Habitat of Rare Wildlife as indicated on the 2021 Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)

1.9 Potential Sources of Pollution

Potential sources of sediment to stormwater runoff:

- Clearing and grubbing operations
- Grading and site excavation operations
- Vehicle tracking
- Topsoil stripping and stockpiling
- Landscaping operations

Potential pollutants and sources, other than sediment, to stormwater runoff:

- Combined Staging Area—small fueling activities, minor equipment maintenance, sanitary facilities, and hazardous waste storage.
- Materials Storage Area—general building materials, solvents, adhesives, paving materials, paints, aggregates, trash, etc.
- Construction Activity—paving, curb/gutter installation, concrete pouring/mortar/stucco, and building construction.
- Concrete Washout Area

1.10 REQUIREMENT TO POST A NOTICE OF YOUR PERMIT COVERAGE.

- The operator must post a sign or other notice conspicuously at a safe, publicly accessible location in close proximity to the project site. The notice must be located so that it is visible from the public road that is nearest to the active part of the construction site, and it must use a font large enough to be readily viewed from a public right-of-way. At a minimum, the notice must include
- a. The NPDES ID (i.e., permit tracking number assigned to your NOI);
- b. A contact name and phone number for obtaining additional construction site information;
- c. The Uniform Resource Locator (URL) for the SWPPP (if available), or the following statement: "If you would like to obtain a copy of the Stormwater Pollution Prevention Plan (SWPPP) for this site, contact the EPA Regional Office at [include the appropriate CGP Regional Office contact information found at https://www.epa.gov/npdes/contact-us-stormwater#regional];" and
- d. The following statement "If you observe indicators of stormwater pollutants in the discharge or in the receiving waterbody, contact the EPA through the following website: https://www.epa.gov/enforcement/report-environmental-violations."

2.1 General Construction Sequencing of Major Activities

It is assumed that under normal conditions work will proceed in accordance with the following schedule. Major shifts in the schedule must be approved by the department of public works or their designate.

Typical hours of operation: Mon-Sat. 7:00 - 5:00

General Sequencing Plan

1. Install siltation barriers - erosion barriers as indicated on the plans
2. Utilize existing paved areas as construction entrance.
3. Begin building renovations.
4. Begin site preparation & Cut and remove trees within limit of work.
5. Install Berm to create temporary sediment basin with outlet.
6. Strip and stockpile top and sub soil.
7. Rough grade and cut/fill as necessary to subgrade. Fill to be placed such that runoff will be conveyed to sediment basin.
8. Stabilize slopes with hydroseed and/or woodchips or weed free straw or hay.
9. Install drain lines, underground utilities, and structures.
10. Install septic system and connections to existing buildings.
11. Place and compact driveway gravel.
12. Install binder pavement course.
13. Begin sweeping of all paved surfaces within the project site as necessary to prevent tracking off-site and siltation buildup in the completed drainage system.
14. Loam and seed road shoulders, drainage swales and exposed slopes.
15. Complete driveway construction including final pavement, and loam and seed all disturbed areas.
16. Once site is stabilized remove sediment basin, install the infiltration basin per the detail drawings.
17. Remove all sediment control devices and perform final cleanup.

2.2 Erosion and Sediment Controls

General Conditions – Prior to initiating construction, all sedimentation and erosion control measures shall be installed as shown on the plans and detail drawings. This plan depicts the minimum required sedimentation and erosion controls. The contractor shall employ additional sedimentation and erosion control measures as necessitated by site conditions, or as directed by the owner, the owner's representative, or the conservation commission to ensure protection of all wetland resources and control sediment transport. if sedimentation plumes occur, the contractor shall stop work and install additional sedimentation control devices immediately to prevent further sedimentation.

Temporary Stabilization – Topsoil stockpiles and disturbed portions of the site where construction activity temporarily ceases for at least 7 days will be stabilized with a temporary seed and mulch no later than 7 days from the last construction activity in that area. The temporary seed shall be Erosion Control mix. Seeding shall be nutrient enriched hydroseed and cellulose or other degradable fibers capable of retaining moisture.

Permanent Stabilization – Initiate the installation of stabilization measures immediately in any areas of exposed soil where construction activities have permanently ceased or will be temporarily inactive for 7 or more calendar days; and Complete the installation of stabilization measures as soon as practicable, but no later than 7 calendar days after stabilization has been initiated. Final Stabilization Criteria (for any areas not covered by permanent structures). Establish uniform, perennial vegetation (i.e., evenly distributed, without large bare areas) that provides 70 percent or more of the cover that is provided by vegetation native to local undisturbed areas; and/or implement permanent non-vegetative stabilization measures to provide effective cover. The permanent seed mix consists of tall fescue, and annual rye. Prior to seeding, ground agricultural limestone shall be applied. Seeding shall be nutrient enriched hydroseed and cellulose or other degradable fibers capable of retaining moisture.

Erosion Barriers (Perimeter Controls) – Erosion Barriers shall consist of straw bales and silt fence. All devices shall be weed free to prevent spread of invasive species. Prior to the commencement of work, barriers shall be installed along the edge of proposed development, and as indicated on the plans. Additional barriers shall be located as conditions warrant or as directed by the owner, his representatives, or the local authority. In some areas barriers may have to be duplicated at regular intervals up gradient of wetlands, and it may be necessary to provide crushed stone armor when anticipated flows are expected to be heavy or fast.

Track out controls / Construction Entrance – Once pavement has been removed, a stabilized stone apron construction entrance shall be at all construction entrances to help prevent vehicle tracking of sediments. All vehicles shall enter and exit the sit via the stabilized construction entrance. The contractor shall inspect the construction entrance daily and after heavy use. If mud and soil clogs the voids in the crushed stone reducing the effectiveness, the pad shall be top dressed with new, clean stone. If the pad becomes completely clogged, replacement of the entire pad may be necessary. Dump trucks hauling material from the construction site will be covered with a tarpaulin.

Track out controls / Street Sweeping – Street sweeping in the vicinity of the project area shall be performed as needed until the project limits have been stabilized. All sediment tracked outside the limit of work shall be swept at the end of each working day.

Inlet Protection – All existing and proposed drainage system inlets, which may receive stormwater flow from disturbed areas, shall be provided with inlet protection (ring of weed free straw bales and catch basin inserts). The contractor shall maintain these devices until all work is completed and all areas have been adequately stabilized.

Temporary Sediment Traps / Basins – Sediment traps and/or basins shall be constructed as shown on the approved plans and as necessitated by field conditions. The minimum volume shall be 3600 cubic feet of storage for each acre of drainage area. Sediment traps/basins should be readily accessible for maintenance and sediment removal, and should remain in operation and be properly maintained until the site area is permanently stabilized by vegetation and/or when permanent structures are in place. Remove basin after drainage area has been permanently stabilized, inspected, and approved. Before removing dam, drain water and remove sediment; place waste material in designated disposal areas. Smooth site to blend with surrounding area and stabilize.

Dust Control – Dust control measures shall be implemented and maintained properly throughout dry weather periods until all disturbed areas have been permanently stabilized. Methods for dust control shall include water sprinkling and/or other methods approved by the engineer.

Soil Stockpiles – Soil stockpiles that are to remain inactive for 7 days or more shall be covered (tarps, blown straw, hydroseed, etc.) or temporarily stabilized to prevent erosion along with perimeter sedimentation controls. No materials subject to erosion shall be stockpiled overnight within 100 feet of a wetland unless covered.

Dewatering Operations – Dewatering operations, if required, shall discharge onto stabilized areas. All discharge water is to pass through sedimentation control devices to prevent impacts upon water bodies, bordering vegetated wetlands, drainage systems and abutting properties. No discharges from dewatering operations shall be discharged directly to the drainage system.

Snow Removal – Snow shall be plowed to the shoulder of the roadway. Any excess of that which can be stored on-site shall be removed. Snow shall not be plowed into the basin or into the 20-foot buffer zone to any wetland area. All catch basins shall be uncovered and functional immediately after snow plowing. Any snow piles shall be placed so that it will not interfere with runoff flow.

Topsoil – Topsoil shall be stripped and stockpiled on-site for reuse, unless otherwise noted on the plans (per stockpile requirements). Materials shall be re-used on-site to the maximum extent practical. Any excess shall be properly exported off-site.

Minimize Soil Compaction – Within the limits of the infiltration basins, the use of heavy equipment shall be limited to the maximum extent practical.

Vehicle Washing – Vehicle and equipment washing, other than hose down with clean water, shall not be allowed. All wash down water shall be directed to a sediment control device (not directly to any stormwater drainage system or wetland).

Fertilizer Discharge Restrictions.

- Apply at a rate and in amounts consistent with manufacturer's specifications,
- Apply during the growing season, and preferably timed to coincide as closely as possible to the period of maximum vegetation uptake and growth;
- Avoid applying before heavy rains that could cause excess nutrients to be discharged;
- Never apply to frozen ground;
- Never apply to stormwater conveyance channels with flowing water; and
- Follow all other federal, state, tribal, and local requirements regarding fertilizer application.

Washing of Applicators and Containers used for Paint, Concrete, or Other Materials. - Direct all wash water into a leak-proof container or leak-proof pit. The container or pit must be designed so that no overflows can occur due to inadequate sizing or precipitation Handle washout or cleanout wastes as follows: Do not dump liquid wastes in storm sewers; Dispose of liquid wastes in accordance with applicable regulations; and. Remove and dispose of hardened concrete waste consistent with your handling of other construction wastes. Locate any washout or cleanout activities as far away as possible from surface waters and stormwater inlets or conveyances, and, to the extent practicable, designate areas to be used for these activities and conduct such activities only in these areas.

2.3 Buffers

A minimum 25 Buffer has been provided to the wetland resource areas. Additional controls including perimeter barriers and sediment basins have been provided as an equivalent to a 50 foot buffer.

2.4 Inspection and Maintenance Schedule

The responsible party shall be responsible for maintaining all temporary and permanent sedimentation and erosion controls until work is complete and all areas have been permanently stabilized. At such time all sedimentation and erosion control measures shall be removed. These are the inspection and maintenance practices that will be used to maintain erosion and sediment controls during construction.

Schedule:

- All control measures will be inspected at least *once each week*.
- All erosion components shall be inspected with 24 hours of the occurrence of any precipitation event of 0.25 inches or greater.
- Depth of precipitation events shall be based upon NCDC reporting or on-site rain gauge.

Maintenance Practices:

- All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of report of any deficiencies.
- Built up sediment shall be removed from the silt fence when it reaches a depth equal to one-third the height of the fence.
- The sediment traps shall be inspected for depth of sediment, and built up sediment will be removed when it reached 25 percent of the design capacity or at the end of the job. Check embankment for: settlement, seepage, or slumping along the toe or around pipe. Look for signs of piping. Repair immediately. Remove trash and other debris from principal spillway, emergency spillway, and pool area. Clean or replace gravel when sediment pool does not drain properly.
- Any diversion dikes will be inspected for breaches and promptly repaired.
- Temporary and permanent seeding and planting will be inspected for bare spots, washouts and healthy growth.
- Contractor to maintain a supply of erosion control devises on site at all times to repair any broken or damaged materials.

The site superintendent, will select three individuals who will be responsible for inspections, maintenance and repair activities, and filling out the inspection and maintenance reports. Personnel selected for inspection and maintenance responsibilities shall be a "qualified personnel" as defined in section 4. D of the GCP. Staff shall be trained in all inspection and maintenance practices for keeping the erosion and sediment controls used onsite in good working order.

An *inspection report* will be made after each inspection. Copies of the reports shall be maintained on site. At a minimum, the inspection report must include:

- The inspection date;
- Names, titles, and qualifications of personnel making the inspection;
- Weather information for the period since the last inspection including estimate of the beginning and duration of each storm event, approximate amount of rainfall for each storm event (in inches), and whether any discharges occurred;
- Location(s) of discharges of sediment or other pollutants from the site;
- Location(s) of BMPs that need to be maintained;
- Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location;
- Location(s) where additional BMPs are needed that did not exist at the time of inspection; and
- Corrective action required including implementation dates.

The inspection report must be signed in accordance with Appendix G, Section 11 of the GCP.

2.5 Staff and Training Requirements.

Prior to the commencement of earth-disturbing activities or pollutant-generating activities, whichever occurs first, you must ensure that the following personnel understand the requirements of this permit and their specific responsibilities with respect to those requirements:

- Personnel who are responsible for the design, installation, maintenance, and/or repair of stormwater controls (including pollution prevention measures);
- Personnel responsible for the application and storage of treatment chemicals (if applicable);
- Personnel who are responsible for conducting inspections as required in Part 4.1.1; and
- Personnel who are responsible for taking corrective actions.

Notes: (1) If the person requiring training is a new employee, who starts after you commence earth-disturbing or pollutant-generating activities, you must ensure that this person has the proper understanding as required above prior to assuming particular responsibilities related to compliance with this permit. (2) For emergency-related construction activities, the requirement to train personnel prior to commencement of earth-disturbing activities does not apply, however, such personnel must have the required training prior to NOI submission.

The operator is responsible for ensuring that all activities on the site comply with the requirements of the permit. The operator is not required to provide or document formal training for subcontractors or other outside service providers, but you must ensure that such personnel understand any requirements of the permit that may be affected by the work they are subcontracted to perform. At a minimum, personnel must be trained to understand the following if related to the scope of their job duties (e.g., only personnel responsible for conducting inspections need to understand how to conduct inspections):

- The location of all stormwater controls on the site required by this permit, and how they are to be maintained;
- The proper procedures to follow with respect to the permit's pollution prevention requirements;
- When and how to conduct inspections, record applicable findings, and take corrective actions.

3.1 Storage, Handling, and Waste Disposal

Building Products - Shall be covered or stored inside to prevent any discharge of pollutants. Comply with all application, disposal, and registration requirements.

Pesticides, herbicides, insecticides and fertilizers - Shall be covered or stored inside to prevent any discharge of pollutants. Comply with all application, disposal, and registration requirements.

Diesel fuel, oil, hydraulic fluids, other petroleum products, and other chemicals- store chemicals in water-tight containers, and provide either (1) cover (e.g., plastic sheeting or temporary roofs) to prevent these containers from coming into contact with rainwater, or (2) a similarly effective means designed to prevent the discharge of pollutants from these areas (e.g., spill kits), or provide secondary containment (e.g., spill berms, decks, spill containment pallets). Clean up spills immediately, using dry clean-up methods where possible, and dispose of used materials properly. Do not clean surfaces or spills by hosing the area down. Eliminate the source of the spill to prevent a discharge or a continuation of an ongoing discharge

Hazardous Waste - Separate hazardous or toxic waste from construction and domestic waste. Store waste in sealed containers, which are constructed of suitable materials to prevent leakage and corrosion, and which are labeled in accordance with applicable Resource Conservation and Recovery Act (RCRA) requirements and all other applicable federal, state, tribal, or local requirements; iii. Store all containers that will be stored outside within appropriately sized secondary containment (e.g., spill berms, decks, spill containment pallets) to prevent spills from being discharged, or provide a similarly effective means designed to prevent the discharge of pollutants from these areas (e.g., storing chemicals in covered area or having a spill kit available on site);

Dispose of hazardous or toxic waste in accordance with the manufacturer's recommended method of disposal and in compliance with federal, state, tribal, and local requirements. site personnel will be instructed in these practice and the individual who manages the day to day site operations, will be responsible for seeing that these procedures are followed.

Clean up spills immediately, using dry clean-up methods where possible, and dispose of used materials properly. Do not clean surfaces or spills by hosing the area down. Eliminate the source of the spill to prevent a discharge or a furtherance of an ongoing discharge

Sanitary Waste – All sanitary waste will be collected from the portable units a minimum of once per week by the sanitary pumping company, licensed by the Commonwealth of Massachusetts and as required by the local regulation. Position units in a secure location where they cannot be tipped over.

Waste Materials – All waste materials will be collected and stored in a securely lidded metal dumpster rented from a licensed waster management company. The dumpster will meet all local and State solid waster management regulations. All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied at least twice per month or more often if necessary, and the waste will be hauled to the waste management company. On work days, clean up and dispose of waste in designated waste containers. Clean up immediately if containers overflow. No construction waste materials will be buried onsite. All personnel will be instructed regarding the correct procedure for waste disposal. Notices stating these practices will be posted in the office trailer. The individual managing the day-to-day site operations will be responsible for seeing that these procedures are followed.

3.2 Building Material Inventory for Pollution Prevention Plan

The materials or substances listed below are expected to be present onsite during construction:

- Concrete
- Petroleum based products including asphalt concrete/emulsions, fuel(s), oil, etc.
- Wood
- Fertilizers and tachifiers
- Paints (enamel, latex and oil based stains)
- Metal studs and products
- Masonry block
- Roofing shingles
- Gypsum and plaster
- Stone products

Construction equipment and maintenance materials will be stored at the combined staging area and materials storage areas. A watertight container will be used to store hand tools, small parts, and other construction materials.

3.2 Spill Prevention Material Management Practices

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff.

Good Housekeeping – The following good housekeeping practices will be followed onsite during the construction project.

- An effort will be made to store only enough products to do the job.
- All materials stored onsite will be stored in a neat, orderly manner in this appropriate containers and, if possible, under a roof or other enclosure.
- Products will be kept in their original containers and with the original manufacturers' label.
- Substances will not be mixed with one another unless recommended by the manufactures.
- Whenever possible, all of a product will be used up before disposing of the container.
- Manufacturers' recommendation for proper use and disposal will be followed.
- The Site Superintendent will inspect daily to ensure proper use and disposal of materials.
- Hazardous Procedures – In accordance with industry standards and Applicable regulations

Product Specific Practices – The following product specific practices will be followed onsite:
Petroleum Products – Transport and delivery of fuel in approved containers only.
Fertilizers – In accordance with labeling
Paints – In accordance with labeling

Spill Control Practices – Any spills of hazardous materials shall be contained and cleaned up immediately. If appropriate, the Massachusetts Department of Environmental Protection (DEP) shall be notified. There shall, at all times when work is underway on-site, be an individual present who is trained in proper spill control practices.

In the event that hazardous material, gasoline or other petroleum is released, the following procedure should be followed:

1. Immediately contact the following agencies:
   Northborough Fire Department (508) 393-1537
   MassDEP Emergency Response (888) 304-1133

2. Provide support to agencies listed above, which may include contacting an outside contractor to provide clean-up or contacting a Licensed Site Professional (LSP) to lead the clean-up.

Where a release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117 or 40 CFR Part 302, occurs during a 24-hour period:

- Provide notice to the National Response Center (NRC) (800–424–8802; in the Washington, DC, metropolitan area call 202–267–2675) in accordance with the requirements of 40 CFR Part 110, 40 CFR Part 117 and 40 CFR Part 302 as soon as site staff have knowledge of the discharge; and

- Within 7 calendar days of knowledge of the release, provide a description of the release, the circumstances leading to the release, and the date of the release. You must also implement measures to prevent the reoccurrence of such releases and to respond to such releases.

Vehicle Fueling and Maintenance – All major equipment/vehicle fueling and maintenance will be performed off-site. When vehicle fueling must occur on-site, the fueling activity will occur in the staging area. Only minor equipment maintenance will occur on-site. All equipment fluids generated from maintenance activities will be disposed of into designated drums stored on spill pallets in accordance with Part 3.1 of the GCP. Absorbent, spill-cleanup materials and spill kits will be available at the combined staging and materials storage area. Drip pans will be placed under all equipment receiving maintenance and vehicles and equipment parked overnight.

3.3 Non-Storm Water Discharges

It is expected that the following non-storm water discharge will occur from the site during the construction period:

- Pavement wash waters (where no spills or leaks of toxic or hazardous material have occurred).
- Discharges from Fire Fighting activities
- Hydrant and water line flushing
- Landscape irrigation
- Vehicle wash
- Water for dust control
- Foundation / footing drains
- Construction dewatering water

4.0 Record Keeping / Updating of Documentation

This document is intended as a living document to be continuously revised and updated based on changing site conditions and the progression of construction. The SWPPP shall be continuously revised to indicate the condition and location of the various Best Management Practices.

Copies of the GCP, signed and certified NOI, and EPA notification of receipt must be included in the SWPPP. This SWPPP plan, the approved drawings made part of this document, inspection reports (made at least weekly), and required logs shall be maintained on site at all times. Inspection reports shall be retained with the SWPPP for at least three years.

The following inspection reports and logs shall be maintained:

- Inspection Reports
- Corrective Action Log
- SWPPP Amendment Log
- Grading and Stabilization Activities Log

5.0 Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: _____ Title: _____

Signature: _____ Date: _____

Contact information: _____

_____

SWPPP Attachments

- *NOI and Acknowledgement Letter from EPA/State (Insert once received)*
- *Inspection Reports*
- *Corrective Action Log*
- *Subcontractor Certifications/Agreements*
- *NPDES Construction General Permit*
  - *can be found at https://www.epa.gov/npdes/2017-construction-general-permit-cgp*

Stormwater Construction Site Inspection Report

General Information			
Project Name	**200 Bartlett Street**		
	Northborough, MA	**Location**	
Date of Inspection		**Start/End Time**	
Inspector's Name(s)			
Inspector's Title(s)			
Inspector's Contact Information			
Describe present phase of construction			

Type of Inspection:
❑ Regular ❑ Pre-storm event ❑ During storm event ❑ Post-storm event

Weather Information

Has there been a storm event since the last inspection? ❑Yes ❑No
If yes, provide:
Within 24 Hours: _____ inches
Within 72 Hours: _____ inches
Within 7 days: _____ inches

Weather at time of this inspection?
❑ Clear ❑Cloudy ❑ Rain ❑ Sleet ❑ Fog ❑ Snowing ❑ High Winds
❑ Other: Temperature:

Have any discharges occurred since the last inspection? ❑Yes ❑No
If yes, describe:

Are there any discharges at the time of inspection? ❑Yes ❑No
If yes, describe:

	BMP/activity	Implemented?	Maintenance Required?	Corrective Action Needed and Notes
1	Construction Entrance and Street Sweeping	❑Yes ❑No	❑Yes ❑No	
2	Sediment Basin -1	❑Yes ❑No	❑Yes ❑No	Any Evidence of Overtopping_____ Sediment Depth_____
3	Wattles and Silt Fence (or equivalent)	❑Yes ❑No	❑Yes ❑No	Any Evidence of Overtopping_____ Sediment Depth_____
4	Soil Stockpile Protection / Stabilization	❑Yes ❑No	❑Yes ❑No	
5	Designated Construction Material Stockpile Areas	❑Yes ❑No	❑Yes ❑No	

	BMP/activity	Implemented?	Maintenance Required?	Corrective Action Needed and Notes
6	Catch Basin Inlet Protection	❑Yes ❑No	❑Yes ❑No	Any Evidence of Bypass_____
7	Are all slopes and disturbed areas not actively being worked properly stabilized?	❑Yes ❑No	❑Yes ❑No	
8	Are natural resource areas protected with barriers or similar BMPs?	❑Yes ❑No	❑Yes ❑No	
9	Are discharge points and receiving waters free of any sediment deposits?	❑Yes ❑No	❑Yes ❑No	
10	Is trash/litter from work areas collected and placed in covered dumpsters?	❑Yes ❑No	❑Yes ❑No	
11	Are materials that are potential stormwater contaminants stored inside or under cover?	❑Yes ❑No	❑Yes ❑No	
12	Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?	❑Yes ❑No	❑Yes ❑No	
13	Are washout facilities (e.g., paint, stucco, concrete) available, clearly marked, and maintained?	❑Yes ❑No	❑Yes ❑No	
14	Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other deleterious material?	❑Yes ❑No	❑Yes ❑No	
15	(Other)	❑Yes ❑No	❑Yes ❑No	

Non-Compliance

Describe any incidents of non-compliance not described above:

Additional Comments / Description of Current Site Work

CERTIFICATION STATEMENT

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Print name and title: _____

Signature: _____ **Date:** _____

Corrective Action Log

Project Name:
SWPPP Contact:

Inspection Date	Inspector Name(s)	Description of BMP Deficiency	Corrective Action Needed (including planned date/responsible person)	Date Action Taken/Responsible person

SUBCONTRACTOR CERTIFICATION
STORMWATER POLLUTION PREVENTION PLAN

Project Number: _____

Project Title: _____

Operator(s): _____

As a subcontractor, you are required to comply with the Stormwater Pollution Prevention Plan (SWPPP) for any work that you perform on-site. Any person or group who violates any condition of the SWPPP may be subject to substantial penalties or loss of contract. You are encouraged to advise each of your employees working on this project of the requirements of the SWPPP. A copy of the SWPPP is available for your review at the office trailer.

Each subcontractor engaged in activities at the construction site that could impact stormwater must be identified and sign the following certification statement:

I certify under the penalty of law that I have read and understand the terms and conditions of the SWPPP for the above designated project and agree to follow the BMPs and practices described in the SWPPP.

This certification is hereby signed in reference to the above named project:

Company: _____

Address: _____

Telephone Number: _____

Type of construction service to be provided: _____

_____

_____

Signature: _____

Title: _____

Date: _____

2007 Variance

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Town of Northborough
Andrew T. Dowd
TOWN CLERK
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Northborough, Massachusetts 01532-1994
(508) 393-5001 Office (508) 393-6996 Fax
E-mail: adowd@town.northborough.ma.us
Website: Town.Northborough.MA.US

ZONING BOARD OF APPEALS
CERTIFICATION
(20 DAYS HAVE ELAPSED)
CASE NO. (07-10)

I, Andrew Dowd, Town Clerk of the Town of Northborough, Massachusetts, hereby certify as follows:

1. The original Zoning Board of Appeals Application for **200 Bartlett Street** thereof was filed with me as said Town Clerk on **July 16, 2007.**

2. The Northborough Zoning Board of Appeals decision dated: **September 11, 2007** relative to an application for **Kevin Lamy for a Variance AT 200 Bartlett Street, NORTHBOROUGH** was filed with the Town Clerk's Office on **September 11, 2007, at 6:00 pm.**

3. **Twenty (20) days have elapsed** since filing the Zoning Board of Appeals Decision with the Town Clerk; and

4. **NO APPEAL THEREFROM HAS BEEN FILED.**

Witness my Hand and the TOWN SEAL of Northborough this **20 day of February 2008 at 9:15 AM.**

A true copy attest: _____
Andrew Dowd, Town Clerk

TOWN OF NORTHBOROUGH

Zoning Board of Appeals

63 Main Street
Northborough, Massachusetts 01532
508-393-5019 ~ 508-393-6996 Fax

DECISION

ZBA CASE NO. 07-10
PROPERTY LOCATION: 200 Bartlett Street
PETITIONER: Kevin Lamy
PROPERTY OWNER: James M. Ducey & John P. Shea, Trustees of the Bartlett Street Realty Trust
RECORDED WITH WORCESTER REGISTRY OF DEEDS: Book 13894, Page 0046

This document is the DECISION of the Northborough Zoning Board of Appeals on the petition of Kevin Lamy for a VARIANCE to allow use of an automotive repair business on the property located at 200 Bartlett Street, Assessors' Map 66, Parcel 7.

APPLICATION

1. On July 16, 2007 the Applicant filed with the Town Clerk an Application for Hearing before the Zoning Board of Appeals for the purpose of obtaining a VARIANCE from the Zoning Bylaw.

2. Notice of the public hearing was duly published in "THE WORCESTER TELEGRAM & GAZETTE" on August 13, 2007 and August 20, 2007 and was mailed to abutters and other parties in interest on August 10, 2007.

EXHIBITS

Submitted for the Board's deliberation were the following exhibits:

1. Application for Hearing before the Zoning Board of Appeals; and
2. Copy of portion of an unidentified Assessors map with Bartlett Street notation

HEARING

The Applicant, Kevin Lamy, and his representative, Attorney Aldo Cipriano, presented the Application at a duly noticed public hearing of the Board on August 28, 2007 in the Northborough Town Hall Selectmen's Meeting Room. Voting board members Richard Rand, Richard Kane and Mark Rutan, and non-voting members Sandra Landau, Dan Ginsberg and Gerry Benson were present throughout the proceedings.

The Applicant is seeking a Variance to allow use of an automotive repair business as needed per Section 7-24-040 of the Northborough Zoning Bylaw. The applicant intends to move his established automotive repair business, Lamy Automotive, to the subject premises for routine consumer repairs and maintenance of motor vehicles. He will not relocate his service station business to the site. The automotive repair service proposed will continue traditional consumer services to town residents who are the established customer base. The Applicant will use the existing structure on the premises for his automotive repair business. In addition, he will use the existing 4-foot by 8-foot sign frame for his signage. The site is set off the main access way and the lot is irregularly shaped with little rear yard area. Site visibility from the street is poor. The Applicant expects no more than thirty (30) cars to enter and exit the site per day, which will have very

little impact on existing traffic conditions on Bartlett Street. The Applicant will file for a special permit for relief from Groundwater Overlay Protection District regulations if he is granted a variance to allow the use in this location.

No abutters were present. No objections were filed.

The hearing was closed on August 28, 2007.

FINDINGS OF FACT

1. The subject property is located in the Industrial District A and is in Areas 1 and 3 of the Groundwater Protection Overlay District.
2. The automotive repair business is not an allowed use in Industrial District A.
3. The lot is contiguous to other parcels with industrial and commercial uses and the proposed use will not impact residences in the area.
4. The proposed use will encourage the most appropriate use of the property as a business site providing motor vehicle maintenance and repair services.
5. A literal enforcement of the application of the Zoning Bylaw would involve substantial hardship to the applicant.
6. The zoning relief sought by the Applicant may be granted without substantial detriment to the public good and without nullifying or substantially derogating from the intent or purpose of the bylaw.

DECISION

1. After due consideration of the Application, the Board voted unanimously to **GRANT** the **VARIANCE** to allow the use of an automotive repair business on the premises located at 200 Bartlett Street, as per Section 7-24-040 of the Northborough Zoning Bylaw.

2. If the rights authorized by this Variance are not exercised within one year from the time of granting, it shall lapse in accordance with the provisions of Massachusetts General Laws, Ch. 40A, Sec. 10.

3. This Variance shall not take effect until a copy of the decision bearing the certificate of the Town Clerk is recorded with the Worcester District Registry of Deeds in accordance with the provisions of Massachusetts General Laws, Ch. 40A, Sec. 11 and 15 stating that "twenty (20) days have elapsed after the decision has been filed in the office of the Town Clerk and no appeal has been filed, or if such appeal has been filed it has been dismissed or denied."

4. Appeals, if any from this decision shall be made pursuant to Massachusetts General Laws, Ch. 40A, Sec. 17 and shall be filed within twenty (20) days after the date of filing of this decision in the office of the Town Clerk.

TOWN OF NORTHBOROUGH, MASSACHUSETTS
ZONING BOARD OF APPEALS

Richard Rand

RICHARD RAND, CHAIRMAN

2008 Special Permit

TOWN OF NORTHBOROUGH Zoning Board of Appeals
Town Hall Offices • 63 Main Street • Northborough, MA 01532 • 508-393-5019 • 508-393-6996 Fax

DECISION

ZBA CASE NO. 08-04
PROPERTY LOCATION: 200 Bartlett Street
PETITIONER: Kevin Lamy
PROPERTY OWNER: James M. Ducey & John P. Shea, Trustees of the Bartlett Street Realty Trust
RECORDED WITH WORCESTER REGISTRY OF DEEDS: Book 13894, Page 0046

This document is the DECISION of the Northborough Zoning Board of Appeals on the petition of Kevin Lamy for a Special Permit under Section 7-28-040, Groundwater Protection Overlay District, to allow use of an automotive repair business on the property located at 200 Bartlett Street, Assessors' Map 66, Parcel 7.

APPLICATION

1. On February 27, 2008 the Applicant filed with the Town Clerk an Application for Hearing before the Zoning Board of Appeals for the purpose of obtaining a SPECIAL PERMIT under Section 7-28-040, Groundwater Protection Overlay District, from the Zoning Bylaw.

2. Notice of the public hearing was duly published in "THE WORCESTER TELEGRAM & GAZETTE" on March 10, 2008 and March 17, 2008 and was mailed to abutters and other parties in interest on February 28, 2008.

EXHIBITS

Submitted for the Board's deliberation were the following exhibits:

1. Application for Hearing before the Zoning Board of Appeals;
2. Two plan sheets entitled as follows: Sheet 1 - "Proposed Drainage Improvements" and Sheet 2 – Construction Details, Drainage Improvements", 200 Bartlett Street, dated February 15, 2008, signed and stamped by Stephen E. Poole, Civil Registered Professional Engineer;
3. A list of materials entitled "Exhibit B", Application of Kevin Lamy (Lamy Automotive) and
4. A letter to the Zoning Board of Appeals from the Groundwater Advisory Committee, dated March 25, 2008, re: 200 Bartlett Street, Map 66, Parcel 7.

HEARING

The Applicant, Kevin Lamy, and his representative, Attorney Aldo Cipriano, presented the Application at a duly noticed public hearing of the Board on March 25, 2008 in the Northborough Town Hall Selectmen's Meeting Room. Voting board members Richard Rand, Richard Kane and Mark Rutan, and non-voting members Sandra Landau, Dan Ginsberg and Gerry Benson were present throughout the proceedings.

The Applicant is seeking a Special Permit to allow use of an automotive repair business in Groundwater Protection Overlay District Areas 1 and 3, under Section 7-28-040 of the Northborough Zoning Bylaw. The Applicant will be leasing the existing building off Bartlett Street. A variance was granted last year for the use, under ZBA Case No. 07-10. The business will continue with traditional consumer services to town residents. New drainage facilities proposed will be constructed as per the plan submitted and dated February 15, 2008. Impervious cover on the site will not

change. Runoff will be draining to the back of the site and a hydrocarbon filter will pull out any contaminants from the water. A waste oil furnace with an attached double-walled tank will be used to heat the building. The Applicant met with the Town Engineer regarding groundwater issues for the site. In a letter to the Zoning Board of Appeals from Fred Litchfield, Town Engineer, dated March 25, 2008, the Groundwater Advisory Committee stated they found the plans and application in conformance with Section 7-28-040 of the Zoning Bylaw and recommended approval. Mr. Cipriano stated all comments from the Groundwater Advisory Committee in their March 25, 2008 letter would be addressed.

Mr. Cipriano stated the business is one in a cluster of similar uses in the area and will not be detrimental to anyone in the neighborhood or to other uses in the area. It is appropriate for auto repair uses and, subject to conditions, would be in line with the purpose and intent of the zoning bylaw.

No abutters were present and the Board did not receive any letters in opposition to the project.

The hearing was closed on March 25, 2008.

FINDINGS OF FACT

1. The subject property is located in the Industrial District A and is in Areas 1 and 3 of the Groundwater Protection Overlay District.
2. A Variance for the automotive repair business use in the Industrial District A was issued to the Applicant under ZBA Case No. 07-10. A Special Permit is required for the use in Groundwater Protection Overlay District Areas 1 and 3.
3. The existing impervious cover on the lot will not change and, therefore, will meet the requirement that impervious cover shall not be increased by more than fifteen (15) percent
4. A list of hazardous waste to be used and stored on the site was submitted with the Application.
5. The proposed use will not adversely affect the quality or the yield of an existing or potential water supply.
6. The proposed use will not impair ambient groundwater quality or reduce existing recharge capacity beyond that allowed per Section 7-28 of the Northborough Zoning Bylaw.
7. The proposed use meets, and will not derogate from, the purpose and intent of the Groundwater Protection Overlay, Section 7-28 of the Northborough Zoning Bylaw.

DECISION

1. On March 25, 2008, after due consideration of the Application, the Board voted unanimously to **GRANT** the **Special Permit under Section 7-28, Groundwater Protection Overlay District,** to allow the use of an automotive repair business on the premises located at 200 Bartlett Street with the following conditions from the Town Engineer's letter to the Zoning Board of Appeals on behalf of the Groundwater Advisory Committee, dated March 25, 2008:
    a. The proposed impervious cover is not changing and appears to meet the requirement of not exceeding the existing impervious cover by more than 15%. However, a calculation sheet for the entire site should be submitted for future reference indicating the exact amount of impervious area, which may be accomplished at the time the as-built plan is submitted.
    b. The applicant does not indicate the type of proposed heat and, if oil is to be used, the location of any tanks should be shown on the plan.
    c. The plan should show the location and type of containment for the chemicals listed in the application. Some information has been submitted, however the plan is not drawn to scale and

again this could be accomplished at the time the as-built plan is submitted as the type of containment appears to be appropriate.

d. An as-built site plan shall be submitted to the Town Engineer for approval prior to the issuance of a certificate of occupancy. The as-built plan shall include, at a minimum, and as applicable to the project, elevation of all pipe inverts and outlets, pipe sizes, materials, slopes; all other drainage structures; limits of clearing, grading and fill; all structures, pavement; contours; and all dates of fieldwork. Upon approval by the Town Engineer one (1) Mylar and three (3) paper copies of the as-built plan shall be submitted in addition to an electronic copy compatible with the Town's GIS system.

e. An operation and maintenance plan for the drainage system should be submitted and approved by the Town Engineer prior to the issuance of any building permit. The O&M plan shall include a log of all inspection and maintenance performed on the drainage system and a copy of all records shall be forwarded to the Town Engineer on an annual basis.

2. If the rights authorized by this SPECIAL PERMIT are not exercised within two years from the time of granting, it shall lapse in accordance with the provisions of Massachusetts General Laws, Ch. 40A, Sec. 10.

3. This Special Permit shall not take effect until a copy of the decision bearing the certificate of the Town Clerk is recorded with the Worcester District Registry of Deeds in accordance with the provisions of Massachusetts General Laws, Ch. 40A, Sec. 11 and 15 stating that "twenty (20) days have elapsed after the decision has been filed in the office of the Town Clerk and no appeal has been filed, or if such appeal has been filed it has been dismissed or denied."

4. Appeals, if any from this decision shall be made pursuant to Massachusetts General Laws, Ch. 40A, Sec. 17 and shall be filed within twenty (20) days after the date of filing of this decision in the office of the Town Clerk.

TOWN OF NORTHBOROUGH, MASSACHUSETTS
ZONING BOARD OF APPEALS

Richard Rand

RICHARD RAND, CHAIRMAN

Town of Northborough

Andrew T. Dowd
TOWN CLERK
63 Main Street
Northborough, Massachusetts 01532-1994
(508) 393-5001 Office (508) 393-6996 Fax
E-mail: adowd@town.northborough.ma.us
Website: Town.Northborough.MA.US

ZONING BOARD OF APPEALS
CERTIFICATION
(20 DAYS HAVE ELAPSED)
CASE NO. 08-04

I, Teresa K. Kelly, Assistant Town Clerk of the Town of Northborough, Massachusetts, hereby certify as follows:

1. The original Zoning Board of Appeals Application for **200 Bartlett Street** thereof was filed with me as said Town Clerk on **February 27, 2008.**

2. The Northborough Zoning Board of Appeals decision dated: **April 7, 2008** relative to an application for **Kevin Lamy for a Special Permit at 200 Bartlett Street, NORTHBOROUGH** was filed with the Town Clerk's Office on **April 7, 2008 at 1:58 pm.**

3. **Twenty (20) days have elapsed** since filing the Zoning Board of Appeals Decision with the Town Clerk; and

4. **NO APPEAL THEREFROM HAS BEEN FILED.**

Witness my Hand and the TOWN SEAL of Northborough this **29th day of April 2008** at **2:30 pm.**

A true copy attest: Teresa K. Kelly
Teresa K. Kelly, Assistant Town Clerk

Zoning Interpretation Request and Response

Town of Northborough

Building Department
63 Main Street
Northborough, MA 01532-1994
Office (508) 393-5010
Fax (508) 393-3130

April 12, 2021

Paula Devereaux
RE: 200 Bartlett Street, map parcel 66-7 zoning district I GPOD #1&3
Northborough, MA 01532

Greetings:

You have submitted a Request for zoning information at the address listed above.
The property at 200 Bartlett Street consists of 3 main buildings(there are other smaller buildings on the lot). The southernmost building is an auto repair business and is properly permitted. It is not a part of your zoning interpretation request, as you propose to occupy the 2 buildings closest to Bartlett Street. Your zoning interpretation form states that the proposed occupant is a contracting company whose main clients are the Utilities and that this new occupant performs underground contracting work. It's also stated that all repair work will occur within these buildings, and that no toxic or otherwise hazardous materials will be stored, applied, or otherwise used beyond normal house hold amounts. There will be no storage or sale of any oils or fuels, and that the new owner will upgrade the septic system, and modernize the existing structures.

The largest building at the northwest corner proposes: *One forklift to be stored inside the building/ 5-20 employees – when undertaking training (1-2 times per week) up to 20 people. Existing building to be used for office and training use.*

The building in the northeast corner proposes: *10-20 trailers including landscape box style, sign board, small shoring box trailers, equipment trailers, and water tank trailers; 3-5 large dump trucks, 1-2 small dump trucks; 2-3 backhoes/hoe rams; 2-3 bobcats; 1-2 vacuum excavation trucks; 1 ramp tow truck. Utility and pick-up trucks driven by employees (not stored overnight).*
Interior use would include forklift; storage and parts inventory; small engine repair along with small hand tool repair and maintenance; small and large vehicle maintenance; preventive maintenance and repair; all waste oil and fluids will be professionally managed and subject to town inspection. All work to be done inside existing building. With respect to employees: 7-15.

The use described is that of a contractors yard with associated offices, truck parking, and vehicle maintenance.
*Contractors yards in the industrial Zoning District requires a Special Permit from the Special Permit Granting Authority (Planning Board)7-05-030Table 1, Part B. This is for the overall use of a contractors yard in an Industrial Zoning District.
*The property lies within the Groundwater Protection Overlay District #1 & #3. Special permits are required from the Planning Board for this use in a Groundwater protection overlay district.
*The proposed use includes automotive (truck) service and repair shops. This is a prohibited use in a groundwater overlay district #1. Therefore, a variance from the Zoning Board of Appeals will be required(7-07-010D(2)(a)[7]. The ZBA will need to hear the application for a variance before any special permits are discussed.

*Prior to the ZBA/Planning Board hearings, a favorable determination from the Groundwater Advisory Committee is required. Please contact Fred Litchfield, Town Engineer for details.
*The Northborough Conservation Commission will have some items to discuss. Please contact Mia McDonald in the Conservation department for further instruction.

I have included the Town Planner, Town Engineer, and Town Conservation Agent for further comment.

Sincerely,

Robert Frederico, CBO
Building Inspector
Zoning Enforcement Officer

GW 1, 3
I

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Town of Northborough, MA makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated Jan 28, 2020
Data updated Jan 28, 2020

TOWN OF NORTHBOROUGH Building Department

Town Hall Offices • 63 Main Street • Northborough, MA 01532 • 508-393-5010 • Fax 508-393-3130

ZONING INTERPRETATION REQUEST FORM

Property Address: **200 Bartlett Street, Northborough, MA 01532**

Does the Property Have: Public Water: Yes__X__ No____ Public Sewer: Yes____ No__X__

Current Use: Lamy Automotive/ not sure of use of other 2 buildings on Property- those buildings are currently vacant

Proposed Use: Lamy Automotive to remain/ New owner will use the other 2 buildings for office; storage; training facility for employees; equipment maintenance and repair (interior); no toxic or hazardous materials will be kept in excess of household use; no waste disposal on-site; no sales or storage of fuel oil and/or gasoline; new owner will install new septic system and modernize the existing structures – no structural additions are planned at this time. New owner is family-run 50-year old company that does underground utility work for gas companies such as Eversource and National Grid.

Applicant Name:_Paula Devereaux, Esq._____ Phone Number: _781-248-7813___

Email Address: ____pdevereaux@pierceatwood.com_____

For Official Use Only

Map & Parcel: 66-7 Property Zoning District: I Floodplain, wetlands_____
Groundwater Protection Overlay District: Area 1 X Area 2____ Area 3 X N/A____
Lot Area Required _____ Have 21852 Street Frontage Required _____ Have ✓
Setbacks Required _____ Have _____ Bylaw Citation for Proposed Use:_____

Comments:_____

SP. VARIANCE ?

Is the proposed use allowed in the Zoning District: Yes____ By PB X By ZBA X No____
Does the use require a GPOD Special Permit: Yes X No____ N/A____ Conservation required: Yes X No____
Special permit required: Yes X No____ N/A____ Special Permit w/ Site Plan Approval: Yes X No_____
Earthwork permit required: Yes_____ No _____ Design Review required(7-03-060): Yes ____ No X
Minor Site Plan Approval required: Yes____ No X Historical/Scenic/Stone Wall required: Yes____ No X

Signature: _____ Date: 4-12-21

Robert J. Frederico
Inspector of Buildings/Zoning Enforcement Officer

This Zoning Interpretation is for informational purposes only. This Zoning Interpretation does not give permission to construct, alter, demolish or change the use of a property. This Interpretation may require a variance and/or special permit which is granted by either the Zoning Board of Appeals (ZBA)/Planning Board (PB) or both.

Current Deed

MASSACHUSETTS QUITCLAIM DEED

I, James Ducey, of 1327 Old Worcester Road, Framingham, Middlesex County, Massachusetts, being married, for consideration paid of less than one hundred dollars ($100) grant to James M. Ducey, of 1518 Washington Avenue, Houston, Harris County, Texas, and John P. Shea, of 31 Paul Street, Auburn, Worcester County, Massachusetts, as Trustees of the Bartlett Street Realty Trust (mailing address: c/o CASTLEGATE TRUST CORP., 205 Walnut Street, Framingham, Middlesex County, Massachusetts), executed contemporaneously herewith, WITH QUITCLAIM COVENANTS, the land in Northboro, Worcester County, Massachusetts, bounded and described as follows:

A certain parcel of land situated on the southerly side of Bartlett Street, a Worcester County Highway, in the Town of Northboro, County of Worcester, bounded and described as follows:

Beginning at a point on the southerly line of Bartlett Street at the northwesterly corner of the herein described premises and at the northeasterly corner of land now or formerly of F.H. French Co., Inc. said point being distant S 84 degrees 43' 15" E 754.95' from the easterly terminus of a curve that connects the southerly line of Bartlett Street with the easterly line of Lyman Street;

THENCE S 84 degrees 43' 15" E by said Bartlett Street 586.50' to a point on a stone wall at the northwesterly corner of land now or formerly of Peter J. Kanavos, Trustee;

THENCE, S 4 degrees 37' 10" by the line of a stone wall 536.79' to a corner of stone walls;

THENCE, N 72 degrees 41' 05" W by the line of a stone wall 480.07' to a point at an angle in said wall;

THENCE N 69 degrees 02' 20" W by the line of a stone wall 199.04' to a corner of stone walls at the southeasterly corner of land now or formerly of the aforementioned F.H. French Co., Inc., the last three courses being by land now or formerly of Peter J. Kanavos, Trustee;

THENCE N 15 degrees 25' 15" E by the line of a stone wall and by the easterly line of land, now or formerly of F.H. French Co., Inc. 388.92' to the point of beginning.

Containing by calculation 6.708 acres of land.

For my title see Deed from James Ducey, Jr. and Rosarie A. Ducey to me dated June 12, 1985, and recorded with the Worcester County Registry of Deeds at Book 8755, Page 71.

Witness my hand and seal this 26 day of Dec, 1991.

James Ducey (L.S.)

Premises: Bartlett Street, Northboro, MA

JAN 15 1992 RECORDED 9 AM

COMMONWEALTH OF MASSACHUSETTS)
) SS:
COUNTY OF MIDDLESEX)

On this 26TH day of DECEMBER, 1991, before me, a Notary Public of the said Commonwealth, personally appeared JAMES DUCEY, to me known to be the same person described in and who executed the foregoing Instrument and acknowledged the same as his free and voluntary act and deed.

Robert J. Shea
Notary Public
MASSACHUSETTS
My Commission Expires: 14 OCT 94

ATTEST: WORC., Anthony J. Vigliotti, Register

Town of Northborough

Office of the Town Engineer
63 Main Street
Northborough, Massachusetts 01532-1994
Office (508) 393-5015 Fax (508) 393-6996

October 25, 2021

Dick Rand, Chairman
Northborough Zoning Board of Appeals
63 Main Street
Northborough, MA 01532

RE: 200 Bartlett Street, Map 66, Parcel 7

Dear Mr. Rand,

The Groundwater Advisory Committee at their meeting held on October 20th reviewed the additional information as submitted by R.J. Devereaux Corp. in support of the variance application for the above referenced property as requested by your Board at your meeting on September 28th. The additional information dated October 13, 2021 included a revised list of chemicals, with MSDS sheets for each along with proposed containment pallets and cabinets. Also included was a floor plan for the proposed maintenance building dated October 20, 2021 prepared by Dario Designs, Inc. The site is located within Groundwater Areas 1 and 3.

The Groundwater Advisory Committee recommends the following conditions be attached to any approval:

1) The total volume of chemicals allowed to be stored on site Shall be 758 gallons. The material list of chemicals and proposed floor plan for the proposed maintenance building, (both are attached) and should be referenced in any approval for future reference. The proposed floor plan is intended to be for reference only and modifications within the building are acceptable provided the floor drains capture the entire floor area and there are adequate storage cabinets for all chemicals listed above.

2) The proposed maintenance building shall be equipped with floor drains connected to a tight tank which is to be sized to accommodate all chemicals stored within the building and any sprinkler water discharged during a catastrophic event for a period of time to be determined by the Fire Chief.

3) Each of the proposed buildings shall be heated with natural gas.

4) The construction materials stored on site shall be permanently covered.

5) The entire site shall be regraded and repaved to include a berm around the entire limit of the paved surfaces to allow the drainage system to capture all runoff. The site plan shall include a drainage system design which shall be in conformance with all Federal, State, and local stormwater regulations.

6) The applicant shall submit a status report from a Licensed Site Professional (LSP) regarding environmental compliance of any, and all previous contamination on this site prior to the issuance of a building permit.

7) The applicant shall submit the following items with the site plan application:
[1] Evidence of approval by the Massachusetts Department of Environmental Protection (DEP) of any industrial waste treatment or disposal system or any wastewater treatment system over fifteen thousand (15,000) gallons per day capacity.

[2] For underground storage of toxic or hazardous materials, evidence of qualified professional supervision of system design and installation.

[3] Analysis by a technically qualified expert certifying that the quality and supply of the underlying groundwater resources will not be degraded to the point whereby a hazard to public health or ecological damage results.

8) The applicant's site plan shall confirm that the increase in post-development net runoff volume shall not exceed existing conditions by more than fifteen percent (15%), the impervious cover of the building lot is increased over existing conditions by no more than forty percent (40%) or the lot coverage does not exceed that amount of lot coverage permitted by underlying zoning where proponent can demonstrate and certify, except to the extent of naturally occurring pH and temperature components of surface water quality and groundwater quality standards, that runoff waters leaving the developed site via surface flow will not cause a violation of Class B water quality standards (314 CMR 4.00) and runoff waters leaving the site via groundwater recharge will not cause a violation of Class I groundwater quality standards (314 CMR 6.00), and on-site sewage disposal is less than or equal to two hundred twenty (220) gallons per day per ten thousand (10,000) square feet of lot area and any water supply developed on site shall not diminish total safe yield of any Town of Northborough water supply.

9) The applicant's site plan shall confirm that there shall be no on-site disposal of any waste or process materials, no outside storage of toxic or hazardous materials, have controlled/contained drainage facilities in areas of potential spillage or release, adequate contingency plans in case of spillage or release and approved routing of suppliers and haulers of any toxic or hazardous materials to or from the site. The proponent for a building or occupancy permit must demonstrate on an annual basis to the Building Department and Board of Health that all applicable federal, state and Town of Northborough licenses, permits and standards for the handling, use, storage, and disposal of any regulated materials have been obtained or met.

Please feel free to contact me with any questions.

Sincerely,

Fred Litchfield

Fred Litchfield
Town Engineer

Cc: Bartlett Street Realty Trust, Owner
R.J. Devereaux, Corp., applicant
Connorstone Engineering, Inc
Dario Designs, Inc. Presenter
Richard Gates, Devereaux Facilities
Dave Parenti, Fire Chief
Robert Frederico, Building Inspector
Kathy Joubert, Town Planner
file

Y:\Groundwater\decisions\2021\f October\200 Bartlett Street 10-25-2021.doc

TOWN OF NORTHBOROUGH TOWN CLERK
Town Hall Offices • 63 Main Street • Northborough, MA 01532 • 508-393-5001 • 508-393-6996 Fax

ZONING BOARD OF APPEALS
CERTIFICATION
(20 DAYS HAVE ELAPSED)

ZBA CASE NO. 21-12
PROPERTY LOCATION: 200 Bartlett Street
PETITIONERS: Paula Devereaux o/b/o R.J. Devereaux Corporation
PROPERTY OWNERS: Bartlett Street Realty Trust
Recorded with the Worcester District Registry of Deeds: Book: 13894 Page: 46

I, Andrew T. Dowd, Town Clerk of the Town of Northborough, Massachusetts, hereby certify as follows:

1. The original Zoning Board of Appeals Application for a **Variance** for an industrial use on the property located at **200 Bartlett Street** thereof was filed with me as said Town Clerk on **August 25, 2021.**

2. The Northborough Zoning Board of Appeals decision dated: **October 26, 2021** relative to an application by **Paula Devereaux o/b/o R.J. Devereaux Corporation** for a **Variance** for an industrial use on the property located at **200 Bartlett Street, NORTHBOROUGH** was filed with the Town Clerk's Office on **November 24, 2021.**

3. **Twenty (20) days have elapsed** since filing the Zoning Board of Appeals Decision with the Town Clerk; and

4. **NO APPEAL THEREFROM HAS BEEN FILED.**

Witness my Hand and the TOWN SEAL of Northborough this **15th of December 2021.**

A true copy attest: _____
Andrew T. Dowd, Town Clerk

TOWN OF NORTHBOROUGH Zoning Board of Appeals
Town Hall Offices • 63 Main Street • Northborough, MA 01532 • 508-393-5019 • 508-393-6996 Fax

DECISION

ZBA CASE NO. 21-12
PROPERTY LOCATION: 200 Bartlett Street
PETITIONERS: Paula Devereaux o/b/o R.J. Devereaux Corporation
PROPERTY OWNERS: Bartlett Street Realty Trust
Recorded with the Worcester District Registry of Deeds: Bk: 13894, Pg 46

This document is the **DECISION** of the Northborough Zoning Board of Appeals to consider the petition of Paula Devereaux o/b/o R.J. Devereaux Corporation for a Variance for an industrial use on the property located at 200 Bartlett Street, Map 66, Parcel 7, in the Industrial Zoning District and Groundwater Overlay District Areas 1 and 3.

Pursuant to Chapter 20 of the Acts of 2021, An Act Relative to Extending Certain COVID-19 Measures Adopted During the State of Emergency, signed into law on June 16, 2021, this meeting of the Northborough Board of Appeals will be conducted via remote participation.

APPLICATION

1. On August 25, 2021, the Applicant filed with the Town Clerk an Application for Hearing before the Zoning Board of Appeals for a Variance for an industrial use on the property located at 200 Bartlett Street, Map 66, Parcel 7, in the Industrial Zoning District and Groundwater Overlay District Areas 1 and 3.
2. Notice of the public hearing was duly published in "THE WORCESTER TELEGRAM & GAZETTE" on September 3 and September 10, 2021; and was mailed to abutters and other parties of interest on September 1, 2021.

EXHIBITS

Submitted for the Board's deliberation were the following exhibits:

1. Application for Hearing before the Zoning Board of Appeals, including:
    a. A set of three 8.5" x 11" sheets entitled ' Variance Application Narrative';
    b. A Zoning Interpretation Request Form for 200 Bartlett Street, submitted by Paula Devereaux, Esq., signed by Robert J. Frederico, Inspector of Buildings/Zoning Enforcement Officer, dated April 12, 2021; and
    c. A two-page letter ('Response Letter') to Paula Devereaux from Robert Frederico, Inspector of Buildings/Zoning Enforcement Officer, dated April 12, 2021; and
    d. A certified abutters list for parcels 300 feet from 200 Bartlett Street, Northborough, MA prepared by the Northborough Board of Assessors, and a GIS Viewer Map of the site, titled 200 Bartlett Street-300ft abutters, both dated August 11, 2021; and
    e. A set of two 2 8.5" x 11" sheets entitled 'Decision, ZBA Case No. 07-10'; and
    f. A one page 8.5" x 11" sheet entitled 'Certificate of No Appeal' for ZBA Case No. 07-10; and
    g. A set of three 8.5" x 11" sheets entitled 'Decision, ZBA Case No. 08-04'; and

h. A one page 8.5" x 11" sheet entitled 'Certificate of No Appeal' for ZBA Case No. 08-04; and

i. A Deed for 200 Ridge Road, Northborough, Worcester Country, Massachusetts, recorded at the Worcester District Registry of Deeds on December 26, 1991, Bk 13894, Pg 46; and

j. An 8.5" x 11" color copy of a GIS map depicting the location of buildings and structures on the property at 200 Bartlett Street, dated March 19, 2021;

k. A set of four 8.5" x 11" sheets entitled '2102 Devereaux Corp. Facilities, 200-202 Bartlett Street, Northborough, MA 01532, dated August 24, 2021; and

l. An 8.5" x 11" sheet entitled 'Vehicles, 200-202 Bartlett Street, dated August 23, 2021; and

m. An 11" x 17" sheet entitled 'Vehicles, 200-202 Bartlett Street, dated August 24, 2021; and

n. A set of two 24" x 36" black and white sheets entitled 'ZBA Petition Plan of 200-220 Bartlett Street', prepared by Connorstone Engineering, Inc., dated August 24, 2021; and

o. One 24" x 36" color sheet entitled 'Proposed Site Plan-Typical Use' for the property at 200 Bartlett Street, prepared by Dario Designs, Inc., dated August 24, 2021; and

p. One 24" x 36" color sheet entitled 'Proposed Site Plan-Maximum Use' for the property at 200 Bartlett Street, prepared by Dario Designs, Inc., dated August 24, 2021; and

q. A set of four 8.5" x 11" sheets entitled 'Material List, 2102-200 Bartlett Street', prepared by Dario Designs, Inc., dated October 13, 2021; and

r. A set of four 8.5" x 11" sheets entitled '2102 Devereaux Corp. Facilities', prepared by Dario Designs, Inc., dated August 23, 2021; and

s. A set of eight exhibits comprised of a total of ninety-five 8.5" x 11" sheets ('Materials & MSDS Sheets'); and

t. An 8.5" x 11" color sheet entitled 'Maintenance Building, Proposed Plan', dated October 20, 2021.

2. A letter to the Groundwater Advisory Committee from the Town Engineer regarding 200 Bartlett Street, Map 66, Parcel 7, dated September 13, 2021; and

3. A letter to the Chairman of the Zoning Board of Appeals from the Town Engineer, on behalf of the Groundwater Advisory Committee, regarding 200 Bartlett Street, Map 66, Parcel 7, dated September 28, 2021; and

4. A 349-page document entitled 'Revised Material List', prepared by Dario Designs, Inc., dated October 13, 2021;

5. An 8.5" x 11" floor plan entitled 'Maintenance Building-Proposed Plan', prepared by Dario Designs, Inc., dated October 13, 2021;

6. A letter to the Groundwater Advisory Committee from the Town Engineer regarding 200 Bartlett Street, Map 66, Parcel 7, dated October 19, 2021;

7. A letter to the Chairman of the Zoning Board of Appeals from the Town Engineer, on behalf of the Groundwater Advisory Committee, regarding 200 Bartlett Street, Map 66, Parcel 7, dated October 25, 2021; and

8. An email from Janeen Callaghan to the Groundwater Advisory Committee, forwarded to the ZBA, dated September 23, 2021.

HEARING

Attorney Paula Devereaux, representing the R.J. Devereaux Corporation, presented the Application at a duly noticed public hearing of the Board on September 28, 2021 and was present at the continued public hearing on October 26, 2021. At the request of the board, the September 28, 2021 meeting was continued to October 28, 2021. The hearing was closed on October 26, 2021.

Voting members present throughout the September 28, 2021 hearing were Fran Bakstran, Chair, Richard Rand, Paul Tagliaferri, Mark Rutan, Brad Blanchette and alternate member Suzy Cieslica. Voting members present throughout the October 26, 2021 hearing were Richard Rand, Chair, Fran Bakstran, Paul Tagliaferri, Brad Blanchette and alternate member Jeff Leland; alternate member Suzy Cieslica was promoted to a voting member.

The R.J. Devereaux Corporation is a family-run business that does underground utility work for gas companies such as Eversource and National Grid. They have a purchase and sale agreement with the current owners at 200 Bartlett Street but it is conditioned on getting the approvals needed to operate its business at that location. The Applicant intends to repair and service vehicles used for its contracting business and a variance for this accessory use is required because the accessory use is prohibited in Groundwater Overlay Protection District 1.

The property at 200 Bartlett Street is located in two different Groundwater Overlay Protection Districts ("GOPD"), Areas 1 and 3. Three buildings occupy the property, including Lamy's Automotive, an auto repair business which is a pre-existing use in a building located in GOPD 1 and properly permitted. The Applicant is proposing to occupy the two other buildings on the property. The largest building on the property is located in GOPD 1 and is proposed for the administrative uses of computer and safety training purposes and will not house any hazardous waste. The other building, located in GOPD 3, is proposed to be a support yard for their fleet of approximately 27 vehicles and also where small equipment will be periodically maintained. Heavy maintenance will be farmed out elsewhere.

The R.J. Devereaux Corp. is before the board for a variance for the accessory use of automotive repair. The main use will be as a contractor's yard which requires a special permit from the Planning Board, but the Applicant is first before the ZBA because automotive repair is an accessory use which is prohibited in Groundwater 1.

The Applicant was before the Groundwater Advisory Committee on September 14, 2021 and was asked to return and provide a more detailed list of chemicals and their MSDS sheets. The Applicant returned before that board on October 20, 2021 and provided a revised list of chemicals with MSDS sheets for each along with proposed containment pallets and cabinets, as well as a floor plan for the proposed maintenance building. In his letter to the ZBA, drafted on October 25, 2021, Mr. Litchfield said the Groundwater Advisory Committee recommends that the following conditions be attached to any approval:

1. The total volume of chemicals allowed to be stored on site shall be 758 gallons. The material list of chemicals and proposed floor plan for the proposed maintenance building should be referenced in any approval for future reference. The proposed floor plan is intended to be for reference only and modifications within the building are acceptable provided the floor drains capture the entire floor area and there are adequate storage cabinets for all chemicals listed above.
2. The proposed maintenance building shall be equipped with floor drains connected to a tight tank which is to be sized to accommodate all chemicals stored within the building and any sprinkler water discharged during a catastrophic event for a period of time to be determined by the Fire Chief.
3. Each of the proposed buildings shall be heated with natural gas.
4. The construction materials stored on site shall be permanently covered.

5. The entire site shall be regraded and repaved to include a berm around the entire limit of the paved surfaces to allow the drainage system to capture all runoff. The site plan shall include a drainage system design which shall be in conformance with all Federal, State, and local stormwater regulations.

6. The applicant shall submit a status report from a Licensed Site Professional (LSP) regarding environmental compliance of any, and all previous contamination on this site prior to the issuance of a building permit.

7. The applicant shall submit the following items with the site plan application:

    a. Evidence of approval by the Massachusetts Department of Environmental Protection (DEP) of any industrial waste treatment or disposal system or any wastewater treatment system over fifteen thousand (15,000) gallons per day capacity.

    b. For underground storage of toxic or hazardous materials, evidence of qualified professional supervision of system design and installation.

    c. Analysis by a technically qualified expert certifying that the quality and supply of the underlying groundwater resources will not be degraded to the point whereby a hazard to public health or ecological damage results.

8. The applicant's site plan shall confirm that the increase in post-development net runoff volume shall not exceed existing conditions by more than fifteen percent (15%), the impervious cover of the building lot is increased over existing conditions by no more than forty percent (40%) or the lot coverage does not exceed that amount of lot coverage permitted by underlying zoning where proponent can demonstrate and certify, except to the extent of naturally occurring pH and temperature components of surface water quality and groundwater quality standards, that runoff waters leaving the developed site via surface flow will not cause a violation of Class B water quality standards (314 CMR 4.00) and runoff waters leaving the site via groundwater recharge will not cause a violation of Class I groundwater quality standards (314 CMR 6.00), and on-site sewage disposal is less than or equal to two hundred twenty (220) gallons per day per ten thousand (10,000) square feet of lot area and any water supply developed on site shall not diminish total safe yield of any Town of Northborough water supply.

9. The applicant's site plan shall confirm that there shall be no on-site disposal of any waste or process materials, no outside storage of toxic or hazardous materials, have controlled/contained drainage facilities in areas of potential spillage or release, adequate contingency plans in case of spillage or release and approved routing of suppliers and haulers of any toxic or hazardous materials to or from the site. The proponent for a building or occupancy permit must demonstrate on an annual basis to the Building Department and Board of Health that all applicable federal, state and Town of Northborough licenses, permits and standards for the handling, use, storage, and disposal of any regulated materials have been obtained or met.

Attorney Devereaux stated the R. J. Devereaux Corp. is accepting of all those conditions and intends to comply with them during ownership of the property.

Mr. DiMare noted the location of the maintenance building in Groundwater Overlay District Area 3 which will house hazardous waste. He next shared the floor plan of that building, which showed the locations of the chemical storage in what he said was a 'belt and suspenders' type of approach; every chemical they are storing will be kept in specific storage containers, there will be floor drains and a tight tank.

Mr. DiMare also wanted to note that they did not encroach on any of the wetlands setbacks in order to be a little greener.

Mr. Tagliaferri asked Mr. Frederico about his April 12, 2021 letter to Attorney Devereaux. He wanted to confirm that the main use will be as a contractor's yard and that they are asking for the accessory use of auto repair within the building located in Groundwater 3. Mr. Frederico said their use is primarily as a contractor's yard in order to perform the maintenance needed to be done on some of their equipment. The maintenance division is

subordinate to the use of the property. Mr. Frederico said the Applicant will still require a Special Permit from the Planning Board.

There were no further questions from the board.

The Chair noted that the board received an email from Janeen Callaghan (a presumed resident although no address was provided) that she had written to the Groundwater Advisory Committee and forwarded to the ZBA. The Chair assumed that those questions were reviewed and discussed at their meeting. There were no other questions or comments from the public.

Mr. Blanchette made a motion to close the hearing, Ms. Bakstran seconded. All were in favor.

The public hearing was closed on October 26, 2021.

FINDINGS OF FACT

1. The subject property is located at 200 Bartlett Street, Map 66, Parcel 7, in the Industrial Zoning District and Groundwater Protection Overlay Districts 1 and 3.
2. The Applicant is seeking a Variance for an industrial use on the property located at 200 Bartlett Street, Map 66, Parcel 7, in the Industrial Zoning District and Groundwater Protection Overlay District Areas 1 and 3.
3. Per 7-07-010D(2)(a)[7], automotive service and repair shops are prohibited in Groundwater Protection Overlay District Area 1.
4. Contractor's yards in the industrial Zoning District require a Special Permit from the Special Permit Granting Authority (Planning Board) per 7-05-030, Table 1, Part B.
5. The hardship is owing to circumstances relating to soil conditions, shape or topography of the land or structures, affecting only the subject land or structures but not affecting generally land or structures in the same zoning district.
6. A literal enforcement of the applicable provision of the Zoning Bylaw would involve substantial hardship, financial or otherwise, but not of a personal nature, to the petitioner or appellant;
7. The relief sought may be granted without substantial detriment to the public good and without nullifying or substantially derogating from the intent or purpose of the Bylaw.

DECISION

1. **On October 26, 2021**, after due consideration of the Application, the Board unanimously voted to Grant a **VARIANCE** to allow the accessory use of automotive repair on the property located at 200 Bartlett Street, Map 66, Parcel 7, in the Industrial Zoning District and Groundwater Protection Overlay Districts 1 and 3, with the following conditions:
    a. The accessory use of automotive repair shall be contained within the maintenance building located in Groundwater Overlay District Area 3;
    b. An annual inspection for review of chemicals and volumes;
    c. The servicing and maintenance of vehicles and equipment shall be limited to vehicles and equipment owned and/or used in the ordinary course of business by R. J. Devereau as the owner of the property. The owner or subsequent owners of this property shall also be limited to servicing and maintaining vehicles and equipment owned and/or used in the ordinary course of the business owned by the property owner. The service and maintenance of other vehicles not owned or used by the property owner shall be prohibited.
    d. Servicing of small and large autos shall be owned or in the care, custody or control of the present owner, their subcontractors, or their employees;
    e. All types of maintenance work to be performed will be done in Groundwater Overlay Protection District Area 3.

f. The total volume of chemicals allowed to be stored on site Shall be 758 gallons. The material list of chemicals and proposed floor plan for the proposed maintenance building, (both are attached) and should be referenced in any approval for future reference. The proposed floor plan is intended to be for reference only and modifications within the building are acceptable provided the floor drains capture the entire floor area and there are adequate storage cabinets for all chemicals listed above.

g. The proposed maintenance building shall be equipped with floor drains connected to a tight tank which is to be sized to accommodate all chemicals stored within the building and any sprinkler water discharged during a catastrophic event for a period of time to be determined by the Fire Chief.

h. Each of the proposed buildings shall be heated with natural gas.

i. The construction materials stored on site shall be permanently covered.

j. The entire site shall be regraded and repaved to include a berm around the entire limit of the paved surfaces to allow the drainage system to capture all runoff. The site plan shall include a drainage system design which shall be in conformance with all Federal, State, and local stormwater regulations.

k. The applicant shall submit a status report from a Licensed Site Professional (LSP) regarding environmental compliance of any, and all previous contamination on this site prior to the issuance of a building permit.

l. The applicant shall submit the following items with the site plan application:

   [1] Evidence of approval by the Massachusetts Department of Environmental Protection (DEP) of any industrial waste treatment or disposal system or any wastewater treatment system over fifteen thousand (15,000) gallons per day capacity.

   [2] For underground storage of toxic or hazardous materials, evidence of qualified professional supervision of system design and installation.

   [3] Analysis by a technically qualified expert certifying that the quality and supply of the underlying groundwater resources will not be degraded to the point whereby a hazard to public health or ecological damage results.

m. The applicant's site plan shall confirm that the increase in post-development net runoff volume shall not exceed existing conditions by more than fifteen percent (15%), the impervious cover of the building lot is increased over existing conditions by no more than forty percent (40%) or the lot coverage does not exceed that amount of lot coverage permitted by underlying zoning where proponent can demonstrate and certify, except to the extent of naturally occurring pH and temperature components of surface water quality and groundwater quality standards, that runoff waters leaving the developed site via surface flow will not cause a violation of Class B water quality standards (314 CMR 4.00) and runoff waters leaving the site via groundwater recharge will not cause a violation of Class I groundwater quality standards (314 CMR 6.00), and on-site sewage disposal is less than or equal to two hundred twenty (220) gallons per day per ten thousand (10,000) square feet of lot area and any water supply developed on site shall not diminish total safe yield of any Town of Northborough water supply.

n. The applicant's site plan shall confirm that there shall be no on-site disposal of any waste or process materials, no outside storage of toxic or hazardous materials, have controlled/contained drainage facilities in areas of potential spillage or release, adequate contingency plans in case of spillage or release and approved routing of suppliers and haulers of any toxic or hazardous materials to or from the site. The proponent for a building or occupancy permit must demonstrate on an annual basis to the Building Department and Board of Health that all applicable federal, state and Town of Northborough licenses, permits and standards for the handling, use, storage, and disposal of any regulated materials have been obtained or met.

2. The **VARIANCE** shall not take effect until a copy of the decision bearing the certificate of the Town Clerk is recorded with the Worcester District Registry of Deeds in accordance with the provisions of Massachusetts General Laws, Ch. 40A, Sec. 11 and 15 stating that "twenty (20) days have elapsed after the decision has been filed in the office of the Town Clerk and no appeal has been filed, or if such appeal has been filed it has been dismissed or denied."
3. If the rights authorized by the **VARIANCE** are not exercised within one year from the time of granting, they shall lapse in accordance with the provisions of Massachusetts General Laws, Ch. 40A, Sec. 9.
4. **Appeals**, if any from this decision shall be made pursuant to Massachusetts General Laws, Ch. 40A, Sec. 17 and shall be filed within twenty (20) days after the date of filing of this decision in the office of the Town Clerk.

TOWN OF NORTHBOROUGH, MASSACHUSETTS
ZONING BOARD OF APPEALS

Richard Rand

Richard Rand, Chair

TOWN OF NORTHBOROUGH Zoning Board of Appeals
Town Hall Offices • 63 Main Street • Northborough, MA 01532 • 508-393-5019 • 508-393-6996 Fax

December 15, 2021

Paula Devereaux
Pierce Atwood LLP
100 Summer Street, 22nd Floor
Boston, MA 02110

Re: 200 Bartlett Street

Dear Ms. Devereaux:

Enclosed is your Zoning Board of Appeals decision. As per State statute, there is a 20-day appeal period, which commences according to the date and time stamp on your decision. After this 20-day period has passed, and if no appeal has been filed against this decision, a "Certificate of No Appeal" will be sent to you.

The Certificate, along with the enclosed original decision, must be filed with the Worcester Registry of Deeds, located at 90 Front Street, C201, Worcester, MA 01608, and a recorded copy given to the Town Clerk's Office and the Building Inspector.

Should you have any questions, please feel free to contact our office at (508)393-5019.

Respectfully,

Michelle Cilley

Michelle Cilley
Administrative Assistant
Zoning Board of Appeals

MASSACHUSETTS QUITCLAIM DEED

I, James Ducey, of 1327 Old Worcester Road, Framingham, Middlesex County, Massachusetts, being married, for consideration paid of less than one hundred dollars ($100) grant to James M. Ducey, of 1518 Washington Avenue, Houston, Harris County, Texas, and John P. Shea, of 31 Paul Street, Auburn, Worcester County, Massachusetts, as Trustees of the Bartlett Street Realty Trust (mailing address: c/o CASTLEGATE TRUST CORP., 205 Walnut Street, Framingham, Middlesex County, Massachusetts), executed contemporaneously herewith, WITH QUITCLAIM COVENANTS, the land in Northboro, Worcester County, Massachusetts, bounded and described as follows:

A certain parcel of land situated on the southerly side of Bartlett Street, a Worcester County Highway, in the Town of Northboro, County of Worcester, bounded and described as follows:

Beginning at a point on the southerly line of Bartlett Street at the northwesterly corner of the herein described premises and at the northeasterly corner of land now or formerly of F.H. French Co., Inc. said point being distant S 84 degrees 43' 15" E 754.95' from the easterly terminus of a curve that connects the southerly line of Bartlett Street with the easterly line of Lyman Street;

THENCE S 84 degrees 43' 15" E by said Bartlett Street 586.50' to a point on a stone wall at the northwesterly corner of land now or formerly of Peter J. Kanavos, Trustee;

THENCE, S 4 degrees 37' 10" by the line of a stone wall 536.79' to a corner of stone walls;

THENCE, N 72 degrees 41' 05" W by the line of a stone wall 480.07' to a point at an angle in said wall;

THENCE N 69 degrees 02' 20" W by the line of a stone wall 199.04' to a corner of stone walls at the southeasterly corner of land now or formerly of the aforementioned F.H. French Co., Inc., the last three courses being by land now or formerly of Peter J. Kanavos, Trustee;

THENCE N 15 degrees 25' 15" E by the line of a stone wall and by the easterly line of land, now or formerly of F.H. French Co., Inc. 388.92' to the point of beginning.

Containing by calculation 6.708 acres of land.

For my title see Deed from James Ducey, Jr. and Rosarie A. Ducey to me dated June 12, 1985, and recorded with the Worcester County Registry of Deeds at Book 8755, Page 71.

Witness my hand and seal this 26 day of Dec, 1991.

James Ducey (L.S.)

Premises: Bartlett Street, Northboro, MA

JAN 15 1992 RECORDED 8 AM

COMMONWEALTH OF MASSACHUSETTS)
) SS:
COUNTY OF MIDDLESEX)

On this 26TH day of DECEMBER, 1991, before me, a Notary Public of the said Commonwealth, personally appeared JAMES DUCEY, to me known to be the same person described in and who executed the foregoing Instrument and acknowledged the same as his free and voluntary act and deed.

Robert J. Ahern
Notary Public
MASSACHUSETTS
My Commission Expires: 14 OCT 94

ATTEST: WORC., Anthony J. Vigliotti, Register