Wetlands Permitting

WP-25-15

Submitted On: Jun 18, 2025

Applicant

Charles Brown
860-428-9057
@ countryway@charter.net

Primary Location

Point Location: 41.7980, -72.3379

Applicant/Owner Information: Please note that "?" bubbles throughout the application provide additional helpful information when hovered over.

Applicant Information

Applicant's Association to Owner:

Agent

Applicant Business Name (if applicable)

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Owner Information

Owner Name

Margaret Reid and Reid Martin

Owner Phone Number

404-579-0259

Owner Email Address

--

Owner Address

83 Cider Mill Rd Bolton Ct

Additional Information

Additional Agent, Engineer, Contractor Information (if applicable):

Dory Reiser - Atty - 860-812-1765 - dreiser@kkc-law.com (mailto:dreiser@kkc-law.com)
Andrew Bushnell - Engineer - 860-643-7875 - abushnell@bushnellassociatesllc.com

Wetlands Permitting

Type of Wetlands Application:

Proposed Subdivision

# of Each Proposed Subdivision Lots Containing Wetlands or Watercourses

3

Activity/Project Information

Description of Proposed Activity(s):

Construction of a 3 lot subdivision with associated common driveway and stormwater controls

Distance in Feet from Regulated Wetlands/Watercourse:

10

Square feet of Wetlands, Watercourse and/or Regulated Area Impacted:

9,736 +/- Sq. Ft. of Upland Review Area disturbance

Describe measures (if any) that will be taken to minimize the impact on wetlands, watercourses, and the regulated areas:

See Attached Narrative and Plans for Erosion Control and Stormwater Management Measures

Any additional and/or pertinent information:

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Is any portion of the property on which the regulated activity is proposed located within 500 feet of an adjoining municipality?

No

Acknowledgments

I HEREBY ACKNOWLEDGE AND CERTIFY THAT I'M PERSONALLY FAMILIAR WITH ALL THE INFORMATION PROVIDED IN THIS APPLICATION AND THAT ALL STATEMENTS AND REPRESENTATIONS MADE ARE TRUE TO THE BEST OF MY KNOWLEDGE. I FURTHER CERTIFY THAT I AM AWARE OF THE PENALTIES FOR OBTAINING A PERMIT THROUGH DECEPTION OR THROUGH INACCURATE OR MISLEADING INFORMATION.

true

The undersigned electronic signature hereby grants permission to this Agency and its Agent to conduct any necessary inspections of this property, at reasonable times, both before and after the permit in question has been granted by the Agency/Agent.

true

I agree that my electronic signature below warrants the truth of all statements contained herein and in all supporting documents according to the best of the Agent &/or Owner(s) knowledge and belief, and that it is equivalent to a handwritten signature and is binding for all purposes related to this transaction.

true

Todd & Lindsay Review Comments

Redline Plans - page 1

Comment- Need to show entire 19 acres.

Answer- *We will provide the free cut plan which shows wetlands for entire 19 acres.*

Comment- Have wetland report prepared.

Answer – *This was one of John Ianni's last projects before he retired. He was willing to go back out to verify the wetland flags (which he did) and endorse the plans. However, he is retired and has firmly told us he would not prepare a report or attend any meetings. This was the same situation we were in for the application across the street and was discussed with the commission. To require a wetland report now would involve finding a new soil scientist. Let's discuss.*

Comment- Why is a portion of the remaining land to the east of lots 1 & 2 not included in those lots?

Answer – *That portion needs to be included in the remaining land in order to satisfy the required ratio of units per acre for the development that is proposed for the remaining land. That portion of the remaining land is planned to be designated as open space in that development.*

Redline Plans - Page 2

Comment – Add topo at street.

Answer – *Added to plans.*

Comment – Are there any improvements that might be incorporated to improve stormwater quality?

Answer – *Assume note is asking about improvements within the R.O.W.? The culvert has been re-located out of the state R.O.W.. Cannot think of any additional improvements given the space constraints to wetlands.*

Comment – Add Sightlines.

Answer – *We have met on site with CDOT and will comply with CDOT sightline requirements. A note has been added that driveway will meet the CDOT standards and is subject to CDOT approval.*

Comment – Plan is busy, move items to detail page.

Answer – *Plans have been revised to address this.*

Comment – Larger scale plan.

Answer – *Plans now include a 30-scale drawing.*

Comment – Have wetland scientist comment as to what direction wetlands continue in after WF#1.

Answer – *As discussed above, the further employment of John Ianni is questionable. It also may not be legal to have any soil scientist enter a neighbor's property to do physical borings. Todd's estimation of the wetland boundary seems reasonable and we also have the certainty of knowing where the wetlands exist, up to the stone wall along the Bay property line.*

The U.R.A.s depicted on lots 1 and 3 are based upon the field located flagging. The distance between these U.R.A.'s, parallel to the Bay property line, is approximately 300' and this area on Lots 2 & 3 is the only area where the actual U.R.A. is unknown. In this 300' gap we've made some changes to Lot 1 to relocate the stormwater chambers and the grading associated with them in order to increase the distance from the property line. The footing drains on both Lot 2 and 3 have also been pulled farther back. With these revisions the limit of the area of disturbance is now no closer than 50' +- to the property line. We know that the actual wetland boundary is not the wall or property line so 50' +- is the "worst case" scenario. Although the actual distance from the area of disturbance to the wetland boundary will be unknown, we do know that it will exceed 50' and that amount of separation, with proper E&S and stabilization should be acceptable without further investigation by a soil scientist.

Redline Plans - Page 3

Comment – Add existing and proposed topo and culvert inverts.
Answer – *Added to plan.*

Comment – Driveway is lower than infiltration trench.
Answer – *Elevations have been revised and contours adjusted on the plans.*

Comment – Does infiltration trench overflow to swale?
Answer – *The infiltration trench is expected to overtop along its length and function as a level spreader. The swale is not intended to be the outlet for the trench.*

Comment – Concerning the runoff path from the outlet.
Answer – *The runoff from the swale is not meant to cross the drive, rather it should exit into the vegetated buffer area behind the house on Lot 3. The grading has been revised on the plan.*

Comment - Depict septic tanks, sewer lines and walkout basement notes.
Answer – *Added to plans.*

Comment – Lot 2 turnout?
The driveway extension to serve lot 3 will act as a turn out for Lot 2. A 2-car garage is anticipated which will provide 4 parking spaces.

Comment – Consider a culvert under Lot 2 Driveway.
Answer – *The grading has been revised to direct more water into yards before lot 2 driveway and to create a gutter at intersection of Lot 2 driveway and common drive.*

Comment – Will stone walls need to be salvaged?
Answer – *Yes, see note on page 4.*

Comment – Consider moving footing drain on Lot 2.
Answer – *Footing drain has been pulled back.*

Comment – Why isn't the septic system on Lot 1 farther away from U.R.A.?
Answer – *To establish that a lot is buildable, Section 4.04.04 of the zoning regulations requires a minimum buildable area of 25,000 sq ft. and the house and septic need to be shown to fit within this area. Slopes in excess of 20% cannot be included in the minimum building area. The 20% slopes are shown on page 2 and the location of the 20% slopes results in the septic being depicted where it is.*

Comment – Why is drive to Lot 1 gravel when the others are paved?
Answer – *The common drive needs to be paved but the drives to Lots 1, 2 & 3 do not need to be paved. However, given the short length of Lot 2 and the grade to Lot 3 approaching 10% they seem more likely to be paved than not. The relatively gentle grade of the Lot 1 drive makes gravel a feasible option. Although none of the drives need to be paved, for the purpose of the stormwater calculations having the two drives paved and leaving one drive gravel seemed reasonable. The Stormwater Guidelines stress the application of L.I.D. and advocates directing driveway runoff in a sheet flow to adjacent impervious areas (disconnection). In the event the driveway to Lot 1 is eventually paved the area adjacent to the driveway is long enough and wide enough to accept the runoff and would not require a structural BMP. Disconnected impervious areas are not included in the WQV calculation so the paving of lot 1 would not impact those comps either way.*

Comment – Proposed contour 556 is missing by the turnout for Lot 1 resulting in a grade of 25%+-.
Answer – *Contour 556 has been inserted and the proposed grades revised.*

Narrative for the Implementation of E & S and Stormwater Management Measures
Proposed 3.86 Acre – 3 Lot Subdivision on Route 44 – *REVISED 7-21-2025*

Project Overview: This narrative is intended to describe the erosion and sediment control methods and the stormwater management measures to be used during the construction of a 3 lot residential subdivision and its associated buildings and driveways. Soil erosion and sediment controls will be provided to control impacts during construction and shall be in conformance with the methods outlined in the *2024 Connecticut Guidelines for Erosion and Sediment Control Manual*. The stormwater management measures are planned to mitigate the increase in impervious areas resulting from the proposed construction and will provide collection, treatment and infiltration of the first 1.3" of rainfall (Water Quality Volume – WQV) in a manner consistent with the 2024 *Connecticut Stormwater Quality Manual.*

Existing Conditions: The property that is the subject of this application is a 3.86-acre parcel of wooded land located on the southerly side of route 44 (Boston Turnpike), west of the intersection of Route 44 and Richmond Road. The property has approximately 526 feet of road frontage. An area of wetlands runs parallel to the frontage for a distance of approximately 375 feet, starting from the northeasterly property corner. An area of steep slope, exceeding 20%, constrains access to the property along the northwesterly frontage for a distance of approximately 100 feet. Located between the eastern edge of the steep slope area and the westerly end of the wetland area is an approximately 50-foot-wide section of frontage that contains upland soils and moderate slopes. This area is favorable for the construction of a driveway as this location will avoid wetland soils and minimize clearing and grading.

The soils in the area of the proposed building sites and storm water infiltration measures are identified by the United States Department of Agriculture (USDA) Natural Resources Conservation Services (NRCS) as Canton and Charlton fine sandy loam and Sutton fine sandy loam. Per the USDA, the NRCS Hydrologic Soil Group rating for within this area of the site is class B. The wetland soils on site are identified as Ridgebury, Leicester, and Whitman which have a Hydrologic Soil rating of class D. A copy of the USDA NRCS Hydrologic Soil Group Map is included for reference.

Deep hole tests were conducted on site by Bushnell Associates and observed by the Eastern Highlands Health District for the purpose of determining the suitability of the soil for use with septic systems. The results of these tests are included on page 2 of the plans and a review of these findings show the soils to be "fine sandy loam" consistent with the NRSC Soils map.

The property is not located in a Flood Hazard Zone Zone A per National Flood Insurance Rate Map Community Panel Number 090110 0010D June 11, 1982.

Proposed Scope of Work: In order to provide access to the buildable portion of this property and to avoid an adverse impact to the wetland area, a single, common driveway is proposed between the area of steep slope and the wetland. The proposed common driveway will be approximately 210' in length, constructed with a 12' wide paved travel way with 4' wide gravel shoulders. The common portion of the driveway will terminate at a paved parking area serving a proposed building on lot 2. Construction of the common driveway will require activity in the Upland Review Area (URA) with a total area of disturbance of 8,446 Sq. Ft. or .19 acres.

A private 12-foot-wide driveway will continue from the end of the common driveway for an additional 90 feet to service a proposed building on lot 3. For the purposes of determining the stormwater management measures needed, a conservative assumption is made that the private drive and parking area for lot 3 will be paved. Although pavement is not required, the relatively short distance and moderate grade makes it likely that this area will be paved at the time of construction.

The private driveway to lot 1 intersects the common driveway at the approximate midpoint of the common driveway. Given the relatively gentle grade of this drive and its 150-foot length it is assumed to not be paved for this analysis.

Finish grading associated with the construction of the septic system on lot 1 will add an additional 1,290 Sq. Ft. of URA disturbance bringing the total area of disturbance in the wetland URA to 9,736 Sq. Ft. or .22 acres.

The impervious area of each of the proposed buildings is 1,560 Sq. Ft.. It should be noted that the building size used for this application is subject change. Prior to the issuance of a zoning or building permit for construction another detailed site plan will be required which will ensure that the stormwater measures proposed at the time of construction are adequate for any change in building size. A note is included on page 3 of the plans stating this requirement. The impervious roof areas of the three proposed 1,560 S.F. buildings total 4,680 S.F..

The total impervious area of the paved common drive, the paved drive to lot 3 and the paved parking areas is 5,342 Sq. Ft.. Together the total impervious area of the pavement and building roofs proposed for the ***3.86***-acre site is 10,022 S.F.. For the purpose of stormwater management an additional proposed paved area of 497 S.F. located between the end of the common driveway and the edge of Route 44 is also taken into consideration for a total of 10,519 S.F. of impervious surface being created from the development of this subdivision.

Proposed Erosion and Sediment Control Measures: To minimize the potential of erosion the sequence of construction will be phased to keep the area of land disturbance to a minimum. Prior to the start of any construction perimeter silt fencing and an anti-tracking pad shall be installed as depicted on the plans and maintained during construction. The construction of the common driveway shall be substantially complete, including the installation of a gravel surface, and stabilized prior to any excavation of the building sites. Water bars will be installed as needed and maintained to prevent erosion of the gravel surface. The paving of the common drive will occur after it is determined that the pavement will not be damaged by construction activities. A schedule of construction is included on page 2 of the plans. As noted above, site plans will be required for the development of each individual lot, prior to house construction, and these plans may contain additional or revised erosion controls specific to the individual lot conditions and designs.

Proposed Stormwater Management Measures: The addition of impervious areas resulting from the buildings and driveways will be addressed in several ways. The runoff from the total impervious area of the paved drives and parking will be divided and directed into pervious areas of the site for retention, treatment and infiltration. The division of the various areas of impervious pavement is depicted on page 3 of the plans.

4,129 S.F. of runoff from a portion of the common driveway and all of the driveway for lot 3 is intended to be directed as sheet flow to the grassed areas adjacent and down gradient to the drives. In addition to the grassed areas there are also abundant wooded areas to the rear of the lots which meet the requirements of The Manual for Qualifying Pervious Areas (QPAs). As sufficient area for QPAs exist, this 4,129 S.F. of pavement is considered to be a disconnected impervious area. The specific areas of the QPAs will be established upon the preparation of the site plans for construction. A note is included on page 3 of the plans stating this requirement.

The runoff from the upper portion of the paved common drive will be directed over a vegetated filter strip to a stone filled infiltration trench for retention and infiltration. The remainder of the paved common drive is the section nearest to Route 44 and includes the proposed pavement within the CT D.O.T. right of way. This section of the driveway will be graded with a center crown to divert the stormwater into the adjacent pervious receiving areas on either side of the driveway (simple disconnection).

The runoff from each of the 1,560 Sq. Ft. building roofs will be retained and infiltrated on each lot through the use of infiltration chambers.

In order to properly size the stormwater measures, the WQV for the site must first be determined. In accordance with The Manual the disconnected impervious areas are subtracted from the total impervious area before applying the following equation (***APPENDIX A***).

WATER QUALITY VOLUME

$$WQV = (P)(R)(A) / 12$$

WHERE:
P = 1.3" (90TH PERCENTILE RAIN EVENT)
R = 0.05 + 0.009 x I
I = POST DEVELOPMENT % OF IMPERVIOUS AREA
A = POST DEVELOPMENT TOTAL DRAINAGE AREA

The total impervious area of the pavement and building roofs proposed for the 3.86 acre site is 10,519 S.F.. Subtracting the 4,129 S.F. of disconnected area of pavement, ***as directed by the Manual,*** leaves a total of 5,763 S.F..

The resulting value of I = (5,763 S.F./168,142)x(100) = 3.4%.

The resulting calculations are:

R = 0.05 + .009 (3.4%) = .08

WQV = (1.3 inches)(.08)(***168,142*** S.F.)/12 = ***1,457*** cubic feet.

Thus the WQV = ***1,457*** cubic feet. The Manual requires 100% of the WQV be retained and infiltrated on site.

Infiltration chambers are provided for the roof area runoff and are sized to retain and infiltrate 100% of the first 1.3 inches of rainfall for the building roof areas. The chamber size is determined as follows: The building footprint of 26' x 60' = 1,560 S.F.. 1,560 S.F x 1.3" = 169 C.F. (rounded). Four Cultec 100 HD infiltration chambers, in stone, provide 170 C.F. of storage and are proposed on the plans for each lot. Details of the specified Cultec units are attached for reference. In total the Cultec chambers provide 510 C.F. of retention and infiltration.

An infiltration trench is proposed to be located down gradient and parallel to the driveway to collect and infiltrate the runoff from the upper 1,086 S.F. of impervious driveway surface. The infiltration trench is to be ***76*** feet in length by 6 feet wide and, ***as depicted in the Manual, (Appendix A),*** filled with a base layer of 15" of 1 ¼ crushed, washed stone and a 3" top layer of 3/8" pea stone. The stone will be wrapped with filter fabric along the sides and trench bottom and the top of the stone surface will be set 12 inches below the surrounding ground with side slopes of 3:1. This configuration will provide both static storage within the stone trench and ponded storage in the swale above the stone. The longitudinal slope of the trench will be level along both the top and bottom slope for the entire length with a maximum ponded depth of 12 inches. In larger storm events the trench will overflow along its length with the top of the trench acting as a level spreader to allow for a dissipated flow to filter down through the vegetated URA before entering the wetlands.

To determine the storage capacity of the infiltration trench The Manual provides the following equation (***Appendix B***):

V = (A * Dponding) + (L * W * Dstone * Nstone)

WHERE:
V = STATIC STORAGE VOLUME (C.F)
A = AVERAGE AREA BETWEEN MAXIMUM PONDING DEPTH AND THE TRENCH SURFACE (S.F.)
Dponding = MAXIMUM PONDING DEPTH (FEET)
L = LENGTH (FEET)
W = WIDTH (FEET)

Dstone = DEPTH OF STONE (FEET)
Nstone = POROSITY OF STONE (USE DEFAULT VALUE OF 0.4)

For the proposed infiltration trench:
L = *76*', W = 6', A (with 3:1 side slopes) = *684*, Dponding = 1', Dstone = 1.5', Nstone = .4

(*684**1) + (*76**6*1.5*.4) = *958* C.F.

Having determined the volume of the infiltration trench it is also necessary to confirm that the bottom of the trench is large enough so that the system will completely drain within 48 hours. The Manual provides the following equation to calculate the drain time using the static method. The static method uses a default infiltration rate based on the NRCS Hydrologic Soil Group rating for underlying soils, in this case, Class B Fine Sandy Loam. The default infiltration rate is .52 inches per hour (*Appendix C*).

$$Td = \frac{V}{K * A} * 12 \text{ inches/foot}$$

WHERE:
Td = DRAIN TIME (HOURS)
V = DESIGN INFILTRATION VOLUME OR STATIC STORAGE VOLUME
K = DESIGN INFILTRATION RATE (INCHES PER HOUR)
A = AVERAGE SURFACE AREA OF INFILTRATION SYSTEM (SQUARE FEET)

For the proposed infiltration trench: V = *958* K = .52 A = *684*

$$\frac{958}{.52 * 684} = 2.69 * 12 = 32.28 \text{ Hours}$$

A grassed swale will be created along the up-gradient edge of the common drive to facilitate the transition from the required driveway grade to the existing ground. As the driveway will cross slope away from the upper driveway edge and the existing ground generally slopes parallel to the drive, the swale will collect little surface drainage. The swale will ***direct any collected runoff to the rear of Lot 3*** where the dissipated flow will filter across the vegetated URA and likely infiltrate into the soil before entering the wetlands.

Summary: The entire Water Quality Volume of *1,457* cubic feet will be retained and infiltrated on-site. 510 C.F. will be treated using Cultec infiltrators and *958* C.F. will be retained in an infiltration trench. The total stormwater retained and infiltrated on site is *1,468* C.F.

In addition to the above measures a conservation easement is proposed to extend ***a minimum of*** 25' around the perimeter of the majority of the wetlands. To prevent possible conflicts with future maintenance of the driveway a small area of the most westerly portion of the wetlands would not be included in the easement. However, this excluded area would still remain subject to the inland wetland regulations and if future activities are ever proposed they would be subject to review and approval by the Agency or its Agent.

Construction notes, details and maintenance requirements are included on page 3 of the plans.

Water Quality Volume

Updated Water Quality Volume

The Water Quality Volume (WQV) concept is based on the "first flush" principle, which assumes that most pollutants in stormwater runoff are conveyed in the initial portion of a storm event. As such, the WQV is the volume of runoff generated by the water quality storm. The water quality storm is defined as the 90th percentile rainfall event (accounting for 90 percent of all 24-hour storms on an average annual basis). The runoff volume associated with the 90th percentile rainfall depth roughly corresponds to the volume of runoff that is infiltrated in a natural condition and thus should be managed on-site to restore and maintain pre-development hydrology for duration, rate, and volume of stormwater flows.[46]

Prior to this update, the water quality storm was defined as the 1-inch storm. This version of the Manual replaces the previous 1-inch water quality storm with an updated 90th percentile rainfall depth of 1.3 inches. Specifically, this represents the average of 90th percentile rainfall depths calculated for several locations throughout Connecticut using daily precipitation observations over an approximately 40-year period of record (1980-2021) and the procedure cited in EPA technical guidance (see Appendix G for further information).

Water Quality Volume Calculation

As described above, the WQV is a key factor in determining the Required Retention Volume and any additional treatment requirements. The WQV is the volume of stormwater runoff from a given storm event that must be retained and/or treated to remove most of the post-development stormwater pollutant load on an average annual basis and to help maintain pre-development site hydrology in terms of duration, rate, and volume of stormwater flows including groundwater recharge. The WQV is calculated using the following equation:

$$WQV = \frac{(P)(R)(A)}{12}$$

where:

WQV = water quality volume (cubic feet)
P = 1.3 inches (90th percentile rainfall event)
R = volumetric runoff coefficient = 0.05+0.009(I)
I = post- development impervious area (percent) after application of non-structural LID site planning and design strategies and before application of structural stormwater BMPs
A = post-development total drainage area of site or design point (square feet)

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[46] USEPA. Section 438 Technical Guidance December 2009. Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act. EPA 841-B-09-001. December 2009. www.epa.gov/owow/nps/lid/section438.

- For the WQV calculation, impervious area (*I*) should be measured from the post-development site plan and includes all directly connected impervious surfaces (DCIA as defined in this Manual) within boundaries of the site or for the drainage area of the each design point.

- Impervious areas that drain as sheet flow onto and over an adjacent pervious area that, due to its size, slope, vegetation, and underlying soil characteristics, meets the criteria for "simple disconnection criteria for "impervious area (simple) disconnection" can be subtracted from the post development impervious area term in the WQV equation. This provides further incentive to use simple disconnection and other non-structural LID site planning and design strategies to reduce the need for and size of structural stormwater BMPs to meet the retention and treatment performance criterion.

Water Quality Flow

The Water Quality Flow (WQF) is the peak flow rate associated with the water quality storm or WQV, as described above. Although most of the structural stormwater BMPs in this Manual should be sized based on a design volume (Required Retention Volume and any additional treatment volume), some BMPs such as grass channels and proprietary treatment/pretreatment BMPs should be designed based on peak flow rate. In this approach, the stormwater BMP (including inlet structure) must have a flow rate capacity equal to or greater than the design WQF in order to prevent bypass and treat the associated design WQV for the site. Flow diversion structures (also called flow splitters) are typically used to bypass flows in excess of the design WQF for off-line stormwater BMPs.

The design WQF is calculated based on the design WQV for the site using a modified NRCS Runoff Curve Number for small storm events. The procedure is based on the approach described in Claytor and Schueler, 1996.[47] The Inlet and Outlet Controls section of Chapter 13 - Structural Stormwater BMP Design Guidance provides design guidance for flow diversion structures.

Demonstrating Compliance with Standard 1

Stormwater management systems should be designed to achieve the average annual pollutant load reductions from directly connected impervious area for sediment (Total Suspended Solids) and nutrients (Total Phosphorus and Total Nitrogen) shown in Table 4. 3.

Achieving these minimum required load reductions for sediment and nutrients is assumed to provide adequate reductions of other stormwater pollutants including floatable materials. However, it is important to note that if the full retention goal (i.e., Required Retention Volume) is

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[47] Claytor, R.A. and T. R. Schueler. 1996. Design of Stormwater Filtering Systems. Center for Watershed Protection. Silver Spring, Maryland.

 APPENDIX A 3 OF 4

- Use roadside vegetated open channels or swales as an alternative to traditional curb and gutter drainage (i.e., curbing, catch basins, and pipes) in low or medium density developments and where roadside erosion is not a concern (typically slopes of less than 8 percent).
- Use swales on one side of the road where roads with a cross slope are allowed. Otherwise, use a crowned road cross section and swales on both sides of the road.
- Completely eliminate curbing to promote sheet flow to roadside swales or use curb openings to convey gutter flow to roadside swales.
- For roads with grades generally greater than 8%, use catch basins and curb/gutter drainage, with catch basin outlets connected to roadside swales or other structural stormwater BMPs within the road right-of-way.

Driveways

- Grade driveways to adjacent open space and lawn areas (simple disconnection), rain gardens, or water quality swales to retain and infiltrate runoff on the lot and prevent driveway runoff from reaching the road.
- Consider use of driveway infiltration trenches, which are stone-filled trenches along the edge of a driveway to collect water from the driveway, allowing it to soak into the ground and reducing erosion along the edge of the driveway.
- Consider use of permeable surfaces such as porous asphalt, porous concrete, permeable concrete pavers, grass pavers, plastic turf reinforcing grids, and geocells (cellular confinement systems).

Roofs

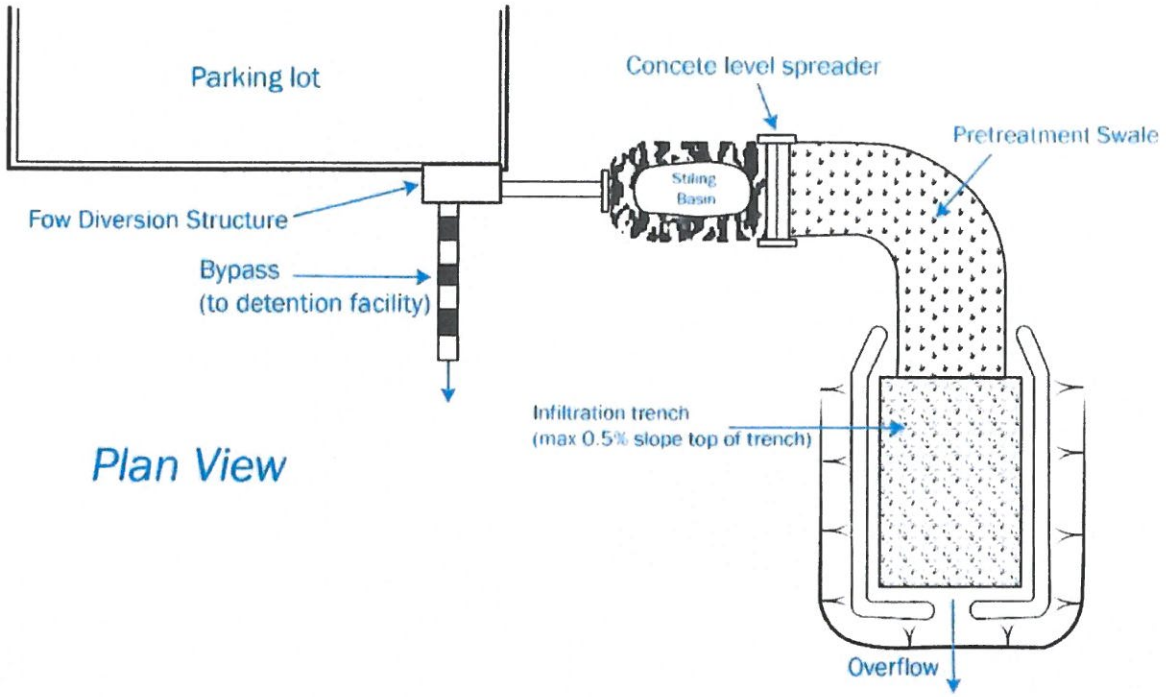
- Direct roof downspouts to pervious vegetated areas (simple disconnection), dry wells or other small-scale infiltration systems (i.e., rain gardens), or to rain barrels for non-potable reuse such as lawn, landscape, or garden watering.

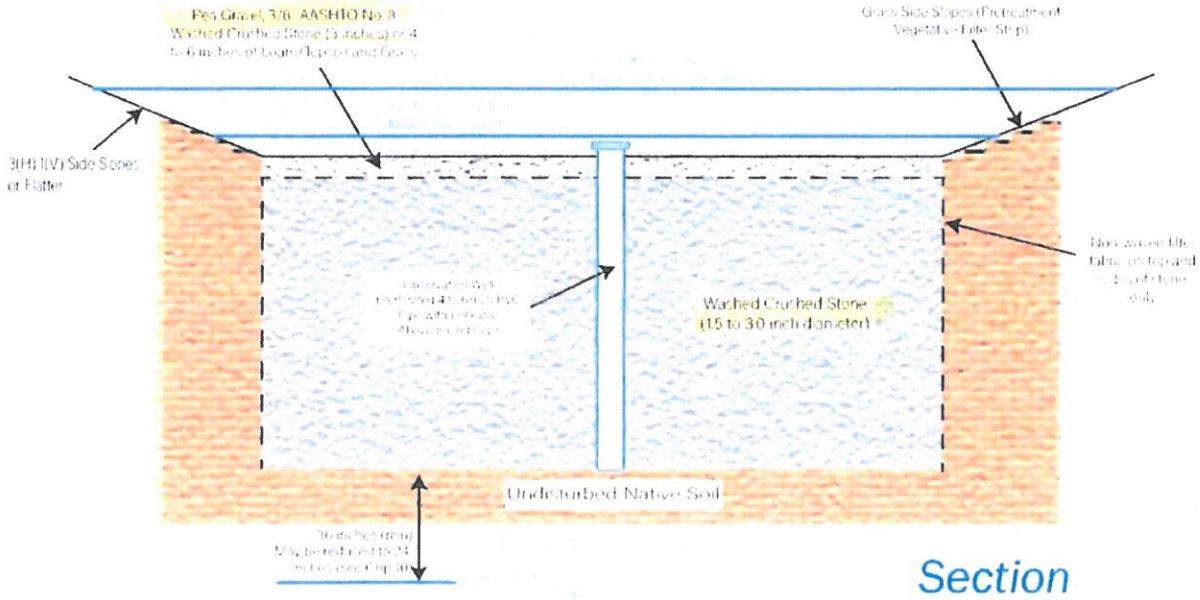
Lawns

- Use low-maintenance LID landscaping techniques to minimize lawn area and maintenance needs (e.g., irrigation, fertilizers, and pesticides).
- Use diverse selection of native vegetation species.
- Create shade by maintaining existing tree canopy and preserving natural/wild areas.
- Maintain pre-development flow path lengths in natural drainage patterns.

APPENIX A 4 OF 4

Figure 13-7. Infiltration Trench Schematic 1





BMP Performance Curve Category[1]	Stormwater BMP Type Connecticut Stormwater Quality Manual	Static Storage Volume Equation[2]
Infiltration Trench	**Infiltration Trench** Static Storage Volume = ponding water storage volume and void space volume of stone	$V = (A * D_{ponding}) + (L * W * D_{stone} * n_{stone})$ V = static storage volume (cubic feet) A = average area between maximum ponding depth and the trench surface (square feet) $D_{ponding}$ = maximum ponding depth (feet) L = length (feet) W = width (feet) D_{stone} = depth of stone (feet) n_{stone} = porosity of stone (use default value of 0.4). Other porosity values may be used as determined from testing of the proposed materials.
	Dry Well **Infiltrating Catch Basin** **Underground Infiltration System (Chambers)** Static Storage Volume = water storage volume of storage structures and void space volume of stone underlying and surrounding the storage structures	• Static storage volume equations vary based on type of system. • Refer to manufacturer's design guidance for calculating static storage volume for manufactured infiltration chambers and similar subsurface storage units. • When calculating the stone storage capacity, subtract the storage volume of the chambers from the calculated storage volume of the stone layer before multiplying by stone porosity.
	Permeable Pavement (no underdrain) Static Storage Volume = void space volume of choker course (stone), filter course (sand), and stone reservoir	$V = L * W * (D_{stone} * n_{stone} + D_{sand} * n_{sand})$ V = static storage volume (cubic feet) L = length (feet) W = width (feet) D_{stone} = depth of stone courses (feet) D_{sand} = depth of sand filter course (feet) n_{stone} = porosity of stone courses (use default value of 0.4) n_{sand} = porosity of sand filter course (use default value of 0.3)

APPENDIX B 1 of 1

Table 10- 2 Default (Rawls) Infiltration Rates for Use as Design Infiltration Rates with Static Method Sizing

USDA Soil Textural Class[1]	Hydrologic Soil Group	Default Infiltration Rate (inches/hour)
Sand	A	8.27
Loamy Sand	A	2.41
Sandy Loam	A	1.02
Loam	B	0.52
Silt Loam	B	0.27
Sandy Clay Loam	C	50% of Slowest Field Measured Infiltration Rate Determined from Field Infiltration Testing
Clay Loam	D	50% of Slowest Field Measured Infiltration Rate Determined from Field Infiltration Testing
Silty Clay Loam	D	50% of Slowest Field Measured Infiltration Rate Determined from Field Infiltration Testing
Sandy Clay	D	50% of Slowest Field Measured Infiltration Rate Determined from Field Infiltration Testing
Silty Clay	D	50% of Slowest Field Measured Infiltration Rate Determined from Field Infiltration Testing
Clay	D	50% of Slowest Field Measured Infiltration Rate Determined from Field Infiltration Testing

Source: The infiltration rates shown in this table are saturated hydraulic conductivities for uncompacted soils adapted from Rawls, Brakensiek, and Saxton (1982).[12]

Notes:
[1] Soil textural class as determined from field soil evaluation described in Soil Evaluation Guidance.

[12] Rawls, W. J., D. L. Brakensiek, and K. E. Saxton. 1982. Soil water characteristics. Transactions of the American Society of Agricultural Engineers, 25(5):1316-1328.

Narrative for the Implementation of E & S and Stormwater Management Measures
Proposed 3.86 Acre – 3 Lot Subdivision on Route 44 – *REVISED 8-7-2025*

Project Overview: This narrative is intended to describe the erosion and sediment control methods and the stormwater management measures to be used during the construction of a 3 lot residential subdivision and its associated buildings and driveways. Soil erosion and sediment controls will be provided to control impacts during construction and shall be in conformance with the methods outlined in the *2024 Connecticut Guidelines for Erosion and Sediment Control Manual*. The stormwater management measures are planned to mitigate the increase in impervious areas resulting from the proposed construction and will provide collection, treatment and infiltration of the first 1.3" of rainfall (Water Quality Volume – WQV) in a manner consistent with the 2024 *Connecticut Stormwater Quality Manual.*

Existing Conditions: The property that is the subject of this application is a 3.86-acre parcel of wooded land located on the southerly side of route 44 (Boston Turnpike), west of the intersection of Route 44 and Richmond Road. The property has approximately 526 feet of road frontage. An area of wetlands runs parallel to the frontage for a distance of approximately 375 feet, starting from the northeasterly property corner. An area of steep slope, exceeding 20%, constrains access to the property along the northwesterly frontage for a distance of approximately 100 feet. Located between the eastern edge of the steep slope area and the westerly end of the wetland area is an approximately 50-foot-wide section of frontage that contains upland soils and moderate slopes. This area is favorable for the construction of a driveway as this location will avoid wetland soils and minimize clearing and grading.

The soils in the area of the proposed building sites and storm water infiltration measures are identified by the United States Department of Agriculture (USDA) Natural Resources Conservation Services (NRCS) as Canton and Charlton fine sandy loam and Sutton fine sandy loam. Per the USDA, the NRCS Hydrologic Soil Group rating for within this area of the site is class B. The wetland soils on site are identified as Ridgebury, Leicester, and Whitman which have a Hydrologic Soil rating of class D. A copy of the USDA NRCS Hydrologic Soil Group Map is included for reference.

Deep hole tests were conducted on site by Bushnell Associates and observed by the Eastern Highlands Health District for the purpose of determining the suitability of the soil for use with septic systems. The results of these tests are included on page 2 of the plans and a review of these findings show the soils to be "fine sandy loam" consistent with the NRSC Soils map.

The property is not located in a Flood Hazard Zone Zone A per National Flood Insurance Rate Map Community Panel Number 090110 0010D June 11, 1982.

Proposed Scope of Work: In order to provide access to the buildable portion of this property and to avoid an adverse impact to the wetland area, a single, common driveway is proposed between the area of steep slope and the wetland. The proposed common driveway will be approximately 210' in length, constructed with a 12' wide paved travel way with 4' wide gravel shoulders. The common portion of the driveway will terminate at a paved parking area serving a proposed building on lot 2. Construction of the common driveway will require activity in the Upland Review Area (URA) with a total area of disturbance of 8,446 Sq. Ft. or .19 acres.

A private 12-foot-wide driveway will continue from the end of the common driveway for an additional 90 feet to service a proposed building on lot 3. For the purposes of determining the stormwater management measures needed, a conservative assumption is made that the private drive and parking area for lot 3 will be paved. Although pavement is not required, the relatively short distance and moderate grade makes it likely that this area will be paved at the time of construction.

The private driveway to lot 1 intersects the common driveway at the approximate midpoint of the common driveway. Given the relatively gentle grade of this drive and its 150-foot length it is assumed to not be paved for this analysis.

Finish grading associated with the construction of the septic system on lot 1 will add an additional 1,290 Sq. Ft. of URA disturbance bringing the total area of disturbance in the wetland URA to 9,736 Sq. Ft. or .22 acres.

The impervious area of each of the proposed buildings is 1,560 Sq. Ft.. It should be noted that the building size used for this application is subject to change. Prior to the issuance of a zoning or building permit for construction another detailed site plan will be required which will ensure that the stormwater measures proposed at the time of construction are adequate for any change in building size. A note is included on page 3 of the plans stating this requirement. The impervious roof areas of the three proposed 1,560 S.F. buildings total 4,680 S.F..

The total impervious area of the paved common drive, the paved drive to lot 3 and the paved parking areas is 5,342 Sq. Ft.. Together the total impervious area of the pavement and building roofs proposed for the *3.86*-acre site is 10,022 S.F.. For the purpose of stormwater management an additional proposed paved area of 497 S.F. located between the end of the common driveway and the edge of Route 44 is also taken into consideration for a total of 10,519 S.F. of impervious surface being created from the development of this subdivision.

Proposed Erosion and Sediment Control Measures: To minimize the potential of erosion the sequence of construction will be phased to keep the area of land disturbance to a minimum. Prior to the start of any construction perimeter silt fencing and an anti-tracking pad shall be installed as depicted on the plans and maintained during construction. The construction of the common driveway shall be substantially complete, including the installation of a gravel surface, and stabilized prior to any excavation of the building sites. Water bars will be installed as needed and maintained to prevent erosion of the gravel surface. The paving of the common drive will occur after it is determined that the pavement will not be damaged by construction activities. A schedule of construction is included on page 2 of the plans. As noted above, site plans will be required for the development of each individual lot, prior to house construction, and these plans may contain additional or revised erosion controls specific to the individual lot conditions and designs.

Proposed Stormwater Management Measures: The addition of impervious areas resulting from the buildings and driveways will be addressed in several ways. The runoff from the total impervious area of the paved drives and parking will be divided and directed into pervious areas of the site for retention, treatment and infiltration. The division of the various areas of impervious pavement is depicted on page 3 of the plans.

4,129 S.F. of runoff from a portion of the common driveway and all of the driveway for lot 3 is intended to be directed as sheet flow to the grassed areas adjacent and down gradient to the drives. In addition to the grassed areas there are also abundant wooded areas to the rear of the lots which meet the requirements of The Manual for Qualifying Pervious Areas (QPAs). As sufficient area for QPAs exist, this 4,129 S.F. of pavement is considered to be a disconnected impervious area. The specific areas of the QPAs will be established upon the preparation of the site plans for construction. A note is included on page 3 of the plans stating this requirement.

The runoff from the upper portion of the paved common drive will be directed over a vegetated filter strip to a stone filled infiltration trench for retention and infiltration. The remainder of the paved common drive is the section nearest to Route 44 and includes the proposed pavement within the CT D.O.T. right of way. This section of the driveway will be graded with a center crown to divert the stormwater into the adjacent pervious receiving areas on either side of the driveway (simple disconnection).

The runoff from each of the 1,560 Sq. Ft. building roofs will be retained and infiltrated on each lot through the use of infiltration chambers.

In order to properly size the stormwater measures, the WQV for the site must first be determined. In accordance with The Manual the disconnected impervious areas are subtracted from the total impervious area before applying the following equation (*APPENDIX A*).

WATER QUALITY VOLUME

WQV = (P)(R)(A) / 12

WHERE:

P = 1.3" (90TH PERCENTILE RAIN EVENT)

R = 0.05 + 0.009 x I

I = POST DEVELOPMENT % OF IMPERVIOUS AREA

= POST DEVELOPMENT TOTAL DRAINAGE AREA

A

The total impervious area of the pavement and building roofs proposed for the 3.86 acre site is 10,519 S.F.. Subtracting the 4,129 S.F. of disconnected area of pavement, ***as directed by the Manual,*** leaves a total of 5,763 S.F..

The resulting value of I = (5,763 S.F./168,142)x(100) = 3.4%.

The resulting calculations are:

R = 0.05 + .009 (3.4%) = .08

WQV = (1.3 inches)(.08)(***168,142*** S.F.)/12 = ***1,457*** cubic feet.

Thus the WQV = ***1,457*** cubic feet. The Manual requires 100% of the WQV be retained and infiltrated on site.

Infiltration chambers are provided for the roof area runoff and are sized to retain and infiltrate 100% of the first 1.3 inches of rainfall for the building roof areas. The chamber size is determined as follows: The building footprint of 26' x 60' = 1,560 S.F.. 1,560 S.F x 1.3" = 169 C.F. (rounded). Four Cultec 100 HD infiltration chambers, in stone, provide 170 C.F. of storage and are proposed on the plans for each lot. Details of the specified Cultec units are attached for reference. In total the Cultec chambers provide 510 C.F. of retention and infiltration.

An infiltration trench is proposed to be located down gradient and parallel to the driveway to collect and infiltrate the runoff from the upper 1,086 S.F. of impervious driveway surface. The infiltration trench is to be ***76*** feet in length by 6 feet wide and, ***as depicted in the Manual, (Appendix A),*** filled with a base layer of 15" of 1 ¼ crushed, washed stone and a 3" top layer of 3/8" pea stone. The stone will be wrapped with filter fabric along the sides and trench bottom and the top of the stone surface will be set 12 inches below the surrounding ground with side slopes of 3:1. This configuration will provide both static storage within the stone trench and ponded storage in the swale above the stone. The longitudinal slope of the trench will be level along both the top and bottom slope for the entire length with a maximum ponded depth of 12 inches. In larger storm events the trench will overflow along its length with the top of the trench acting as a level spreader to allow for a dissipated flow to filter down through the vegetated URA before entering the wetlands.

To determine the storage capacity of the infiltration trench The Manual provides the following equation (***Appendix B***):

V = (A * Dponding) + (L * W * Dstone * Nstone)

WHERE:

V = STATIC STORAGE VOLUME (C.F)

A = AVERAGE AREA BETWEEN MAXIMUM PONDING DEPTH AND THE TRENCH SURFACE (S.F.)

Dponding = MAXIMUM PONDING DEPTH (FEET)

L = LENGTH (FEET)
W = WIDTH (FEET)

Dstone = DEPTH OF STONE (FEET)
Nstone = POROSITY OF STONE (USE DEFAULT VALUE OF 0.4)

For the proposed infiltration trench:
L = *76*', W = 6', A (with 3:1 side slopes) = *684*, Dponding = 1', Dstone = 1.5', Nstone = .4

(*684**1) + (*76**6*1.5*.4) = *958* C.F.

Having determined the volume of the infiltration trench it is also necessary to confirm that the bottom of the trench is large enough so that the system will completely drain within 48 hours. The Manual provides the following equation to calculate the drain time using the static method. The static method uses a default infiltration rate based on the NRCS Hydrologic Soil Group rating for underlying soils, in this case, Class B Fine Sandy Loam. The default infiltration rate is .52 inches per hour (*Appendix C*).

$$Td = \frac{V}{K * A} * 12 \text{ inches/foot}$$

WHERE:
Td = DRAIN TIME (HOURS)
V = DESIGN INFILTRATION VOLUME OR STATIC STORAGE VOLUME
K = DESIGN INFILTRATION RATE (INCHES PER HOUR)
A = AVERAGE SURFACE AREA OF INFILTRATION SYSTEM (SQUARE FEET)

For the proposed infiltration trench: V = *958* K = .52 A = *684*

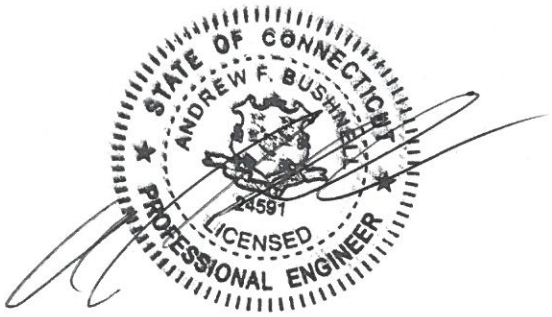
$$\frac{958}{.52 * 684} = 2.69 * 12 = 32.28 \text{ Hours}$$

A grassed swale will be created along the up-gradient edge of the common drive to facilitate the transition from the required driveway grade to the existing ground. As the driveway will cross slope away from the upper driveway edge and the existing ground generally slopes parallel to the drive, the swale will collect little surface drainage. The swale will *direct any collected runoff to the rear of Lot 3* where the dissipated flow will filter across the vegetated URA and likely infiltrate into the soil before entering the wetlands.

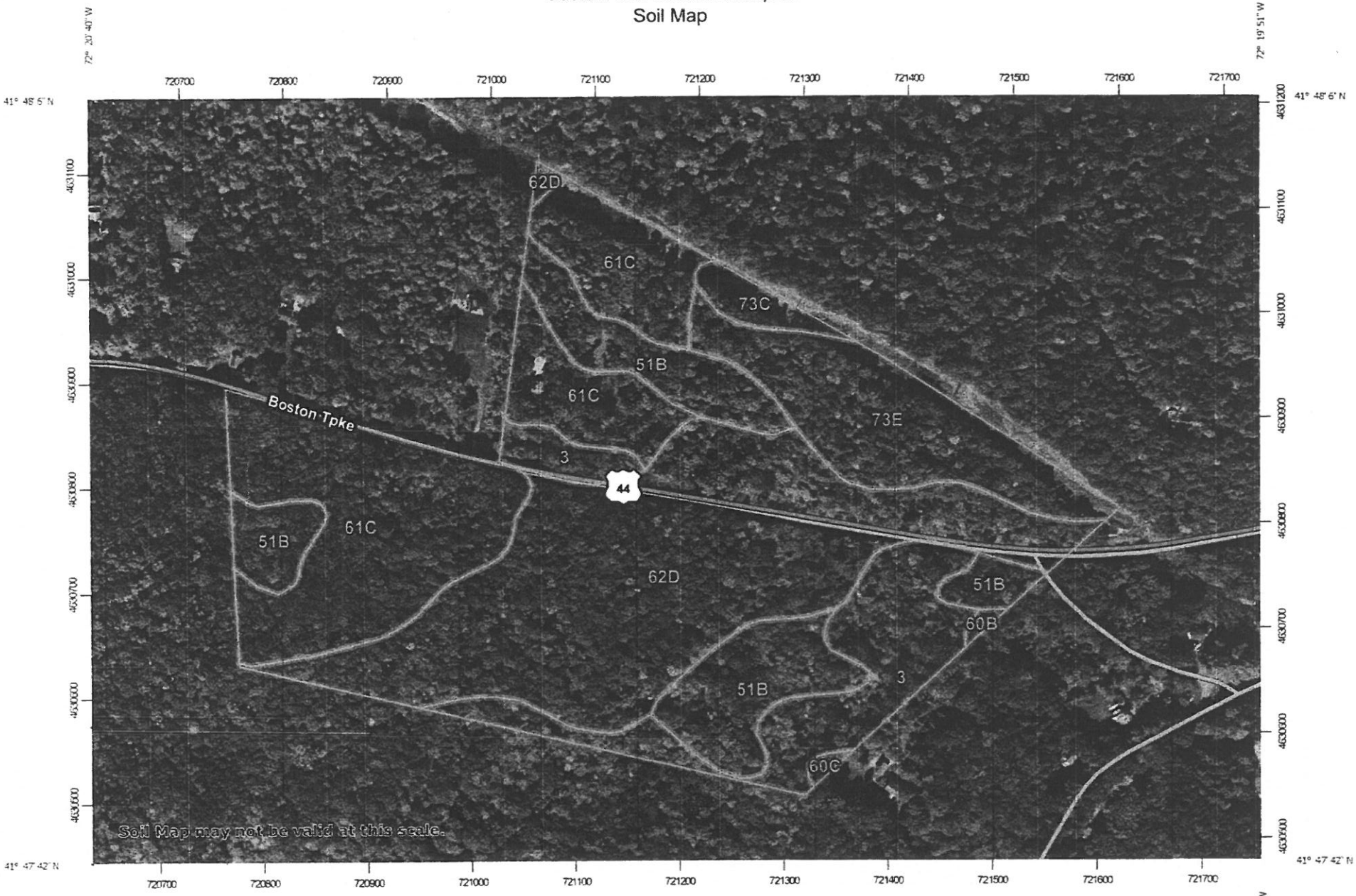
Summary: The entire Water Quality Volume of *1,457* cubic feet will be retained and infiltrated on-site. 510 C.F. will be treated using Cultec infiltrators and *958* C.F. will be retained in an infiltration trench. The total stormwater retained and infiltrated on site is *1,468* C.F. **The installation of the Cultec infiltrators, grass lined swale along the common driveway, infiltration trench and stormwater flow across grassed surfaces will also provide for a reduction of peak stormwater run-off volume from the post developed site.**

In addition to the above measures a conservation easement is proposed to extend *a minimum of* 25' around the perimeter of the majority of the wetlands. To prevent possible conflicts with future maintenance of the driveway a small area of the most westerly portion of the wetlands would not be included in the easement. However, this excluded area would still remain subject to the inland wetland regulations and if future activities are ever proposed they would be subject to review and approval by the Agency or its Agent.

Construction notes, details and maintenance requirements are included on page 4 of the plans.



Soil Map



Map Scale: 1:5,130 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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

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

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

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

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

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

Soil Survey Area: State of Connecticut, Eastern Part
Survey Area Data: Version 2, Aug 30, 2024

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

Date(s) aerial images were photographed: Jun 14, 2022—Oct 6, 2022

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	8.3	11.9%
51B	Sutton fine sandy loam, 0 to 8 percent slopes, very stony	9.8	14.2%
60B	Canton and Charlton fine sandy loams, 3 to 8 percent slopes	0.1	0.2%
60C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes	0.2	0.2%
61C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes, very stony	18.1	26.2%
62D	Canton and Charlton fine sandy loams, 15 to 35 percent slopes, extremely stony	24.0	34.6%
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	1.1	1.5%
73E	Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky	7.7	11.1%
Totals for Area of Interest		**69.2**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties

CULTEC
StormGenie

USER INPUTS

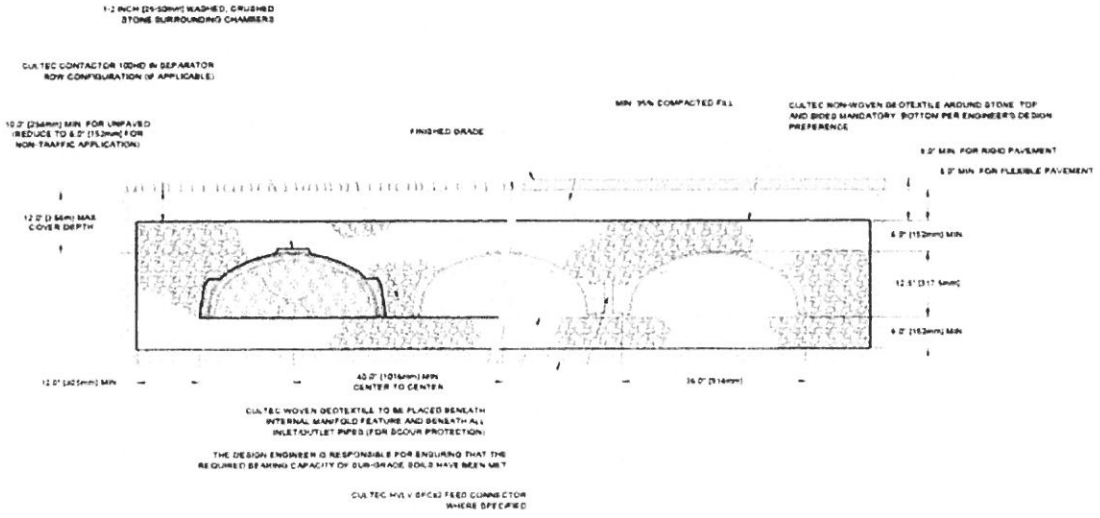
Project Name:	15 acre
Engineer:	Charles Brown
Project Location:	Connecticut
Measurement Type:	Imperial
Chamber Model:	Contactor 100HD
Required Storage Volume:	170 cf
Available Length:	20 ft
Available Width:	10 ft
Stone Above Chambers:	8 in
Stone Below Chambers:	8 in
Base Stone Elevation:	585.33 ft
Stone Porosity:	40%
Maximum Allowable Finished Grade	598.87 ft
Minimum Allowable Finished Grade	588.04 ft
Outlet Control Structure:	Yes

RESULTS

Installed Storage Volume:	173.27 cf
Storage Volume Per Chamber:	14 cf
Chamber Rows:	2
Maximum Length:	17.50 ft
Maximum Width:	8.33 ft
Approx. Bed Area Required:	145.83 sf

SYSTEM COMPONENTS - NOT FOR CONSTRUCTION

Number of Chambers Required:	4
Number of End Caps Required:	4
Number of Feed Connectors Required:	0
Amount of Stone Required:	11 cy
Volume of Excavation (Not Including Fill):	13 cy
Non-woven Geotextile Required:	72 sy
Woven Geotextile Required (Beneath Internal Manifold):	19 ft
Woven Geotextile Required (Separator Row):	20 ft
Total Woven Geotextile Required:	38 ft



CULTEC Contactor® 100HD Residential Drainage Chamber

The Contactor® 100HD is a 12" (305 mm) tall, low profile chamber and is typically used for installations with depth restrictions or when a larger infiltrative area is required. The Contactor 100HD has the side portal internal manifold feature. The HVLV® SFCx2 Feed Connector is inserted into the side portal of the Contactor 100HD to create the internal manifold.

Size (L x W x H)	8' x 36" x 12"
	2.44 m x 914 mm x 305 mm
Installed Length	
R-model as Stand Alone Unit	96"
R-model as Row Starter Unit	93"
E-model as Row Middle Unit	90"
E-model as Row End Unit	93"
Chamber Storage	1.87 ft^3/ft
	0.17 m^3/m
	14.00 ft^3/unit
	0.40 m^3/unit
Chamber Weight	38.0 lbs
	17.24 kg
Shipping	55 chambers/skid
	2,195 lbs/skid
	16 skids/48' flatbed
Max. Allowable Cover	12'
	3.66 m
Max. Inlet Opening in End Wall	10" HDPE, PVC
	250 mm HDPE, PVC
Max. Allowable O.D. in Side Portal	6" HDPE, PVC
	150 mm HDPE, PVC
Compatible Feed Connector	HVLV SFCx2 Feed Connector

Calculations are based on installed chamber length.
All above values are nominal.

Visit our website for more information.

Scan to Learn More

System Calculator

CAD / PDF Drawings

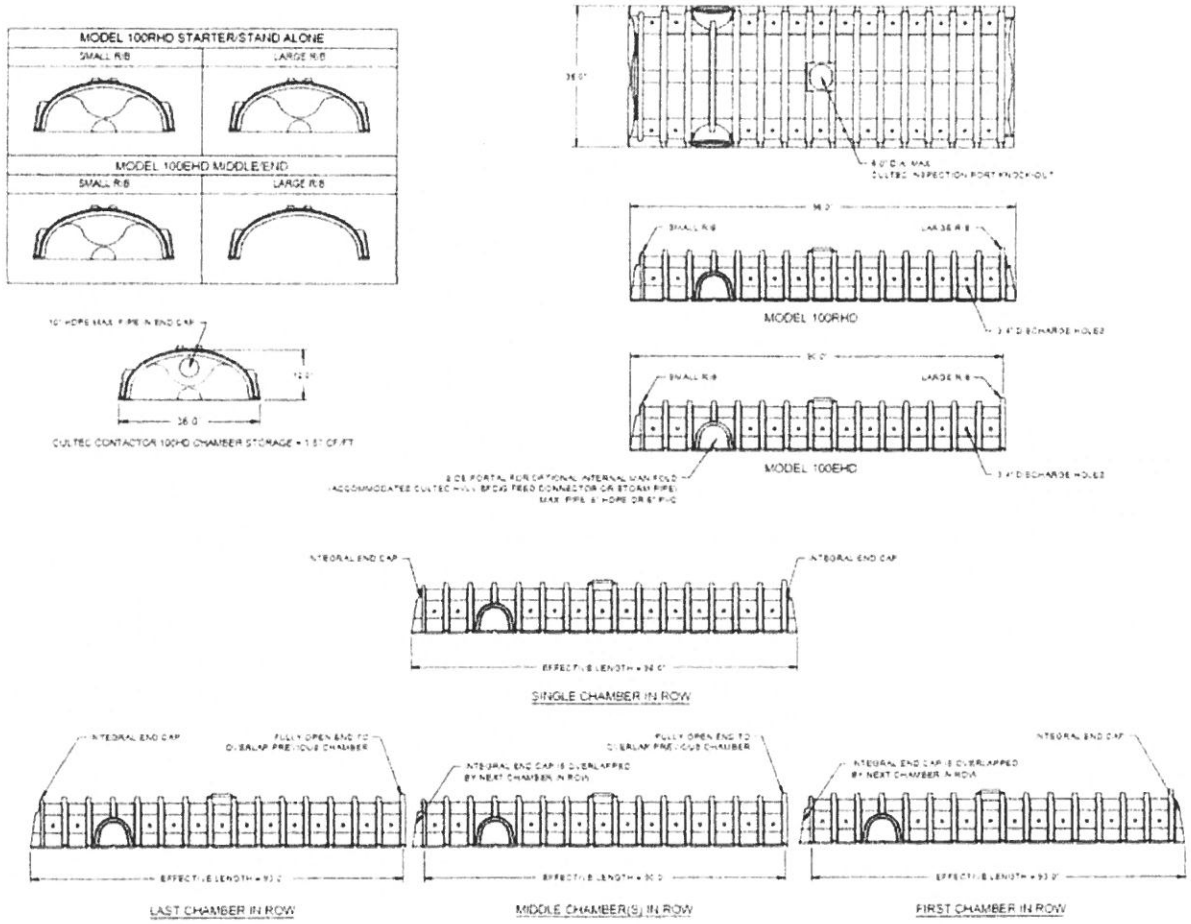
Installation Instructions

CULTEC

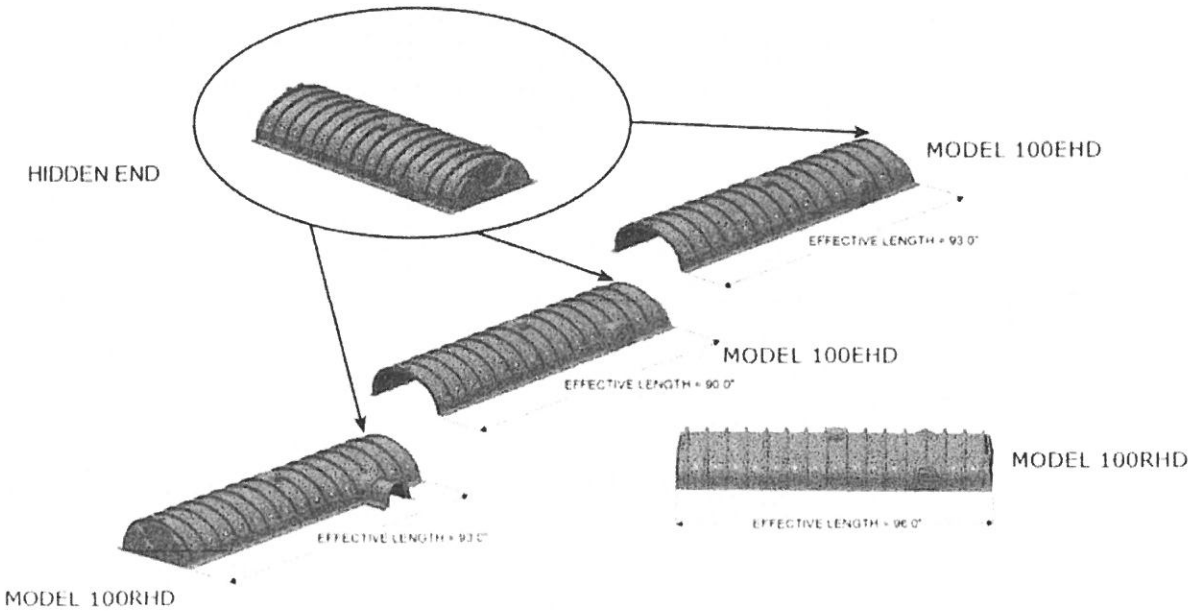
We Have Solutions.

cultec.com
1.800.4.CULTEC

Three View Drawing



Typical Interlock Installation



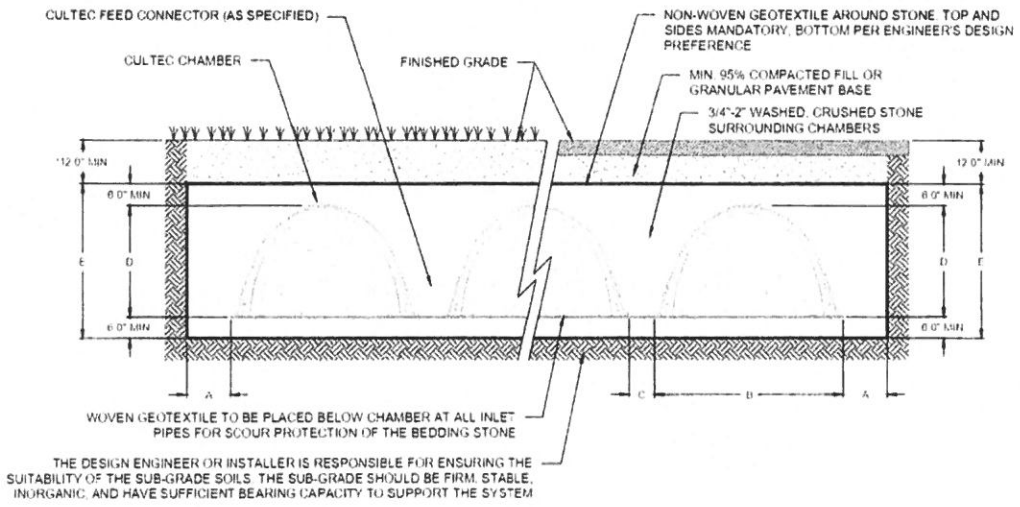
SHOWN WITH SIDE PORTAL TRIMMED AND OPTIONAL CULTEC HVLV SFCX2 FEED CONNECTOR INSERTED.

For more information, contact CULTEC at (203) 775-4416 or visit www.cultec.com.

Typical Residential Drainage Details

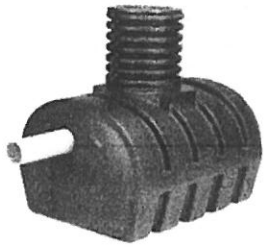
Ref.		Contactor 100HD
	Bare Chamber Volume	1.87 ft³/ft 14.00 ft³/unit 105 gal
A	Stone Border	12"
B	Chamber Width	36"
C	Row Spacing	6"
D	Chamber Height	12"
E	Effective Depth	24"
	Chamber Length*	8'

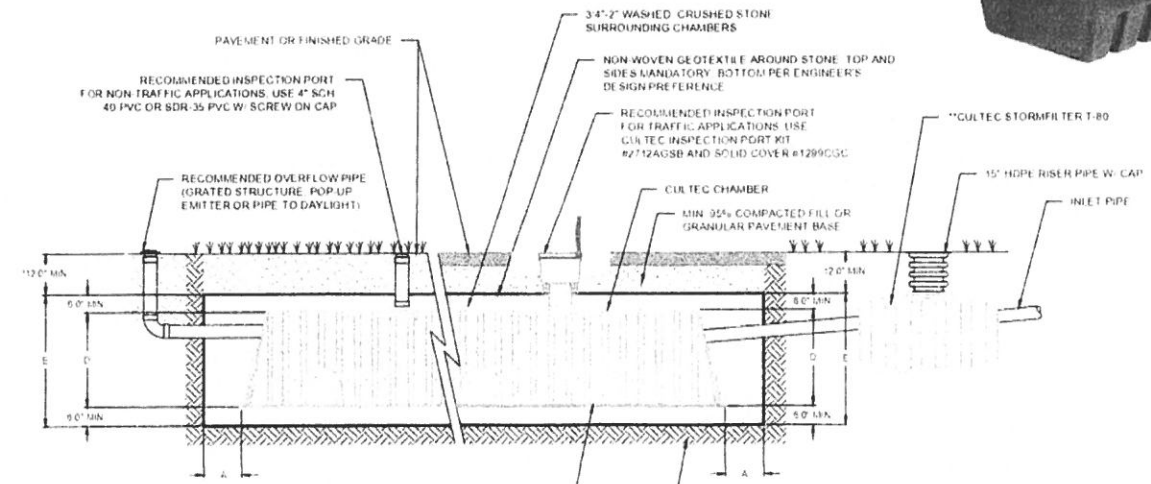
*Chamber length includes integral end walls.



PRODUCT IMAGES ARE FOR ILLUSTRATIVE PURPOSES ONLY.

*FOR NON-TRAFFIC APPLICATIONS, THE DEPTH OF COVER ABOVE THE EMBEDMENT STONE LAYER MAY BE REDUCED TO 6.0"





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*FOR NON-TRAFFIC APPLICATIONS, THE DEPTH OF COVER ABOVE THE EMBEDMENT STONE LAYER MAY BE REDUCED TO 6.0"

**CULTEC RECOMMENDS THE USE OF THE STORMFILTER T-80 UPSTREAM OF ALL SYSTEM INLETS. THE STORMFILTER T-80 MUST BE LOCATED IN A NON-TRAFFIC AREA

CULTEC Contactor® 100HD Specifications

GENERAL

CULTEC Contactor® 100HD chambers are designed for underground residential drainage. The chambers may be used for retention, recharging, detention, or controlling the flow of on-site stormwater runoff or greywater.

CHAMBER PARAMETERS

1. The chambers shall be manufactured in the U.S.A. by CULTEC of Brookfield, CT (cultec.com, 203-775-4416).
2. The chamber shall be vacuum thermoformed of polyethylene with a black interior and blue exterior.
3. The chamber shall be arched in shape.
4. The chamber shall be open-bottomed.
5. The chamber shall be joined using an interlocking overlapping rib method. Connections must be fully shouldered overlapping ribs, having no separate couplings or separate end walls.
6. The nominal chamber dimensions of the CULTEC Contactor® 100HD shall be 12 inches (305 mm) tall, 36 inches (914 mm) wide and 8 feet (2.44 m) long. The installed length of a joined Contactor® 100HD shall be 7.5 feet (2.29 m).
7. Maximum inlet opening on the chamber end wall is 10 inches (250 mm) HDPE, PVC.
8. The chamber shall have two side portals to accept CULTEC HVLV® SFCx2 Feed Connectors to create an internal manifold. The nominal I.D. dimensions of each side portal shall be 5.75 inches (146 mm) high by 7.5 inches (191 mm) wide. Maximum allowable O.D. in the side portal is 6 inches (150 mm) HDPE, PVC.
9. The nominal chamber dimensions of the CULTEC HVLV® SFCx2 Feed Connector shall be 7.6 inches (194 mm) tall, 12 inches (305 mm) wide and 19.7 inches (500 mm) long.
10. The nominal storage volume of the Contactor® 100HD chamber shall be 1.866 ft^3 / ft (0.173 m^3 / m) - without stone. The nominal storage volume of the HVLV® SFCx2 Feed Connector shall be 0.294 ft^3 / ft (0.027 m^3 / m) - without stone.
11. The Contactor® 100HD chamber shall have twenty-four discharge holes bored into the sidewalls of the unit's core to promote lateral conveyance of water.
12. The Contactor® 100HD chamber shall have 16 corrugations.
13. The end wall of the chamber, when present, shall be an integral part of the continuously formed unit. Separate end plates cannot be used with this unit.
14. The Contactor® 100RHD Starter/Stand Alone unit must be formed as a whole chamber having two fully formed integral end walls and having no separate end plates or separate end walls.
15. The Contactor® 100EHD Middle/End unit must be formed as a whole chamber having one fully formed integral end wall and one fully open end wall and having no separate end plates or end walls.
16. The HVLV® SFCx2 Feed Connector must be formed as a whole chamber having two open end walls and having no separate end plates or separate end walls. The unit shall fit into the side portals of the Contactor® 100HD and act as cross feed connections.
17. Chambers must have horizontal stiffening flex reduction steps between the ribs.
18. The chamber shall have a raised integral cap at the top of the arch in the center of each unit to be used as an optional inspection port or clean-out.
19. The units may be trimmed to custom lengths by cutting back to any corrugation on the large rib end.
20. The chamber shall be manufactured in an ISO 9001:2015 certified facility.
21. Maximum allowable cover over the top of the chamber shall be 12' (3.66 m).
22. The chamber shall be designed to withstand traffic loads when installed according to CULTEC's recommended installation instructions.

APPENDIX A 1 OF 4

Water Quality Volume

Updated Water Quality Volume

The Water Quality Volume (WQV) concept is based on the "first flush" principle, which assumes that most pollutants in stormwater runoff are conveyed in the initial portion of a storm event. As such, the WQV is the volume of runoff generated by the water quality storm. The water quality storm is defined as the 90th percentile rainfall event (accounting for 90 percent of all 24-hour storms on an average annual basis). The runoff volume associated with the 90th percentile rainfall depth roughly corresponds to the volume of runoff that is infiltrated in a natural condition and thus should be managed on-site to restore and maintain pre-development hydrology for duration, rate, and volume of stormwater flows.[46]

Prior to this update, the water quality storm was defined as the 1-inch storm. This version of the Manual replaces the previous 1-inch water quality storm with an updated 90th percentile rainfall depth of 1.3 inches. Specifically, this represents the average of 90th percentile rainfall depths calculated for several locations throughout Connecticut using daily precipitation observations over an approximately 40-year period of record (1980-2021) and the procedure cited in EPA technical guidance (see Appendix G for further information).

Water Quality Volume Calculation

As described above, the WQV is a key factor in determining the Required Retention Volume and any additional treatment requirements. The WQV is the volume of stormwater runoff from a given storm event that must be retained and/or treated to remove most of the post-development stormwater pollutant load on an average annual basis and to help maintain pre-development site hydrology in terms of duration, rate, and volume of stormwater flows including groundwater recharge. The WQV is calculated using the following equation:

$$WQV = \frac{(P)(R)(A)}{12}$$

where:

WQV = water quality volume (cubic feet)
P = 1.3 inches (90th percentile rainfall event)
R = volumetric runoff coefficient = 0.05+0.009(I)
I = post- development impervious area (percent) after application of non-structural LID site planning and design strategies and before application of structural stormwater BMPs
A = post-development total drainage area of site or design point (square feet)

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[46] USEPA. Section 438 Technical Guidance December 2009. Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act. EPA 841-B-09-001. December 2009. www.epa.gov/owow_nps/lid/section438/

APPENDIX A 2 OF 4

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- Impervious areas that drain as sheet flow onto and over an adjacent pervious area that, due to its size, slope, vegetation, and underlying soil characteristics, meets the criteria for "simple disconnection criteria for "impervious area (simple) disconnection" can be subtracted from the post development impervious area term in the WQV equation. This provides further incentive to use simple disconnection and other non-structural LID site planning and design strategies to reduce the need for and size of structural stormwater BMPs to meet the retention and treatment performance criterion.

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The design WQF is calculated based on the design WQV for the site using a modified NRCS Runoff Curve Number for small storm events. The procedure is based on the approach described in Claytor and Schueler, 1996.[47] The Inlet and Outlet Controls section of Chapter 13 Structural Stormwater BMP Design Guidance provides design guidance for flow diversion structures.

Demonstrating Compliance with Standard 1

Stormwater management systems should be designed to achieve the average annual pollutant load reductions from directly connected impervious area for sediment (Total Suspended Solids) and nutrients (Total Phosphorus and Total Nitrogen) shown in Table 4. 3

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[47] Claytor, R.A. and T. R. Schueler. 1996. Design of Stormwater Filtering Systems. Center for Watershed Protection, Silver Spring, Maryland.

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- Use roadside vegetated open channels or swales as an alternative to traditional curb and gutter drainage (i.e., curbing, catch basins, and pipes) in low or medium density developments and where roadside erosion is not a concern (typically slopes of less than 8 percent).
- Use swales on one side of the road where roads with a cross slope are allowed. Otherwise, use a crowned road cross section and swales on both sides of the road.
- Completely eliminate curbing to promote sheet flow to roadside swales or use curb openings to convey gutter flow to roadside swales.
- For roads with grades generally greater than 8%, use catch basins and curb/gutter drainage, with catch basin outlets connected to roadside swales or other structural stormwater BMPs within the road right-of-way.

Driveways

- Grade driveways to adjacent open space and lawn areas (simple disconnection), rain gardens, or water quality swales to retain and infiltrate runoff on the lot and prevent driveway runoff from reaching the road.
- Consider use of driveway infiltration trenches, which are stone-filled trenches along the edge of a driveway to collect water from the driveway, allowing it to soak into the ground and reducing erosion along the edge of the driveway.
- Consider use of permeable surfaces such as porous asphalt, porous concrete, permeable concrete pavers, grass pavers, plastic turf reinforcing grids, and geocells (cellular confinement systems).

Roofs

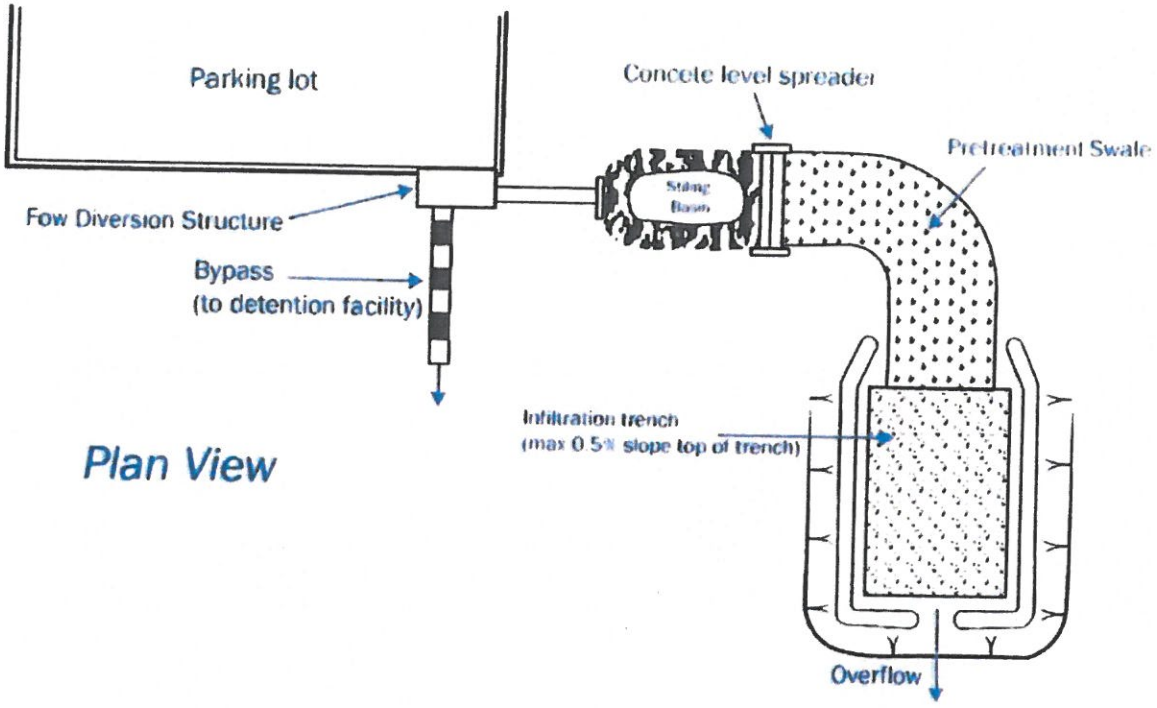
- Direct roof downspouts to pervious vegetated areas (simple disconnection), dry wells or other small-scale infiltration systems (i.e., rain gardens), or to rain barrels for non-potable reuse such as lawn, landscape, or garden watering.

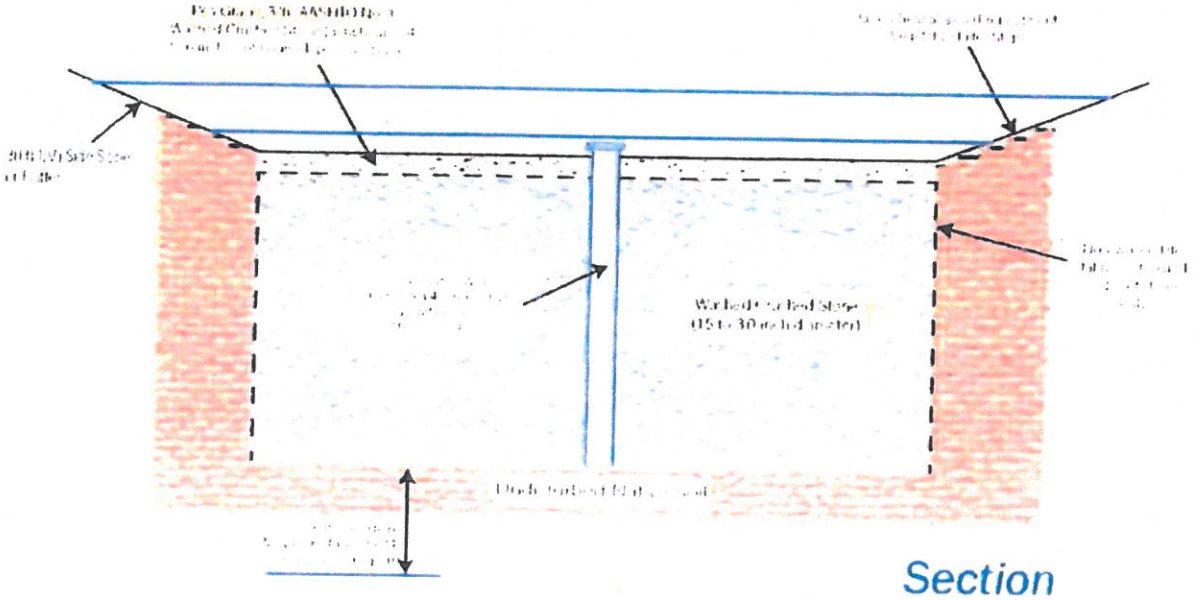
Lawns

- Use low-maintenance LID landscaping techniques to minimize lawn area and maintenance needs (e.g., irrigation, fertilizers, and pesticides).
- Use diverse selection of native vegetation species.
- Create shade by maintaining existing tree canopy and preserving natural/wild areas.
- Maintain pre-development flow path lengths in natural drainage patterns.

APPENIX A 4 OF 4

Figure 13-7. Infiltration Trench Schematic 1





BMP Performance Curve Category[1]	Stormwater BMP Type Connecticut Stormwater Quality Manual	Static Storage Volume Equation[2]
Infiltration Trench	**Infiltration Trench** Static Storage Volume = ponding water storage volume and void space volume of stone	$V = (A * D_{ponding}) + (L * W * D_{stone} * n_{stone})$ V = static storage volume (cubic feet) A = average area between maximum ponding depth and the trench surface (square feet) $D_{ponding}$ = maximum ponding depth (feet) L = length (feet) W = width (feet) D_{stone} = depth of stone (feet) n_{stone} = porosity of stone (use default value of 0.4). Other porosity values may be used as determined from testing of the proposed materials.
	Dry Well **Infiltrating Catch Basin** **Underground Infiltration System (Chambers)** Static Storage Volume = water storage volume of storage structures and void space volume of stone underlying and surrounding the storage structures	• Static storage volume equations vary based on type of system. • Refer to manufacturer's design guidance for calculating static storage volume for manufactured infiltration chambers and similar subsurface storage units. • When calculating the stone storage capacity, subtract the storage volume of the chambers from the calculated storage volume of the stone layer before multiplying by stone porosity.
	Permeable Pavement (no underdrain) Static Storage Volume = void space volume of choker course (stone), filter course (sand), and stone reservoir	$V = L * W * (D_{stone} * n_{stone} + D_{sand} * n_{sand})$ V = static storage volume (cubic feet) L = length (feet) W = width (feet) D_{stone} = depth of stone courses (feet) D_{sand} = depth of sand filter course (feet) n_{stone} = porosity of stone courses (use default value of 0.4) n_{sand} = porosity of sand filter course (use default value of 0.3)

APPENDIX B 1 of 1

APPENDIX C 1 of 1

Table 10- 2 Default (Rawls) Infiltration Rates for Use as Design Infiltration Rates with Static Method Sizing

USDA Soil Textural Class[1]	Hydrologic Soil Group	Default Infiltration Rate (inches/hour)
Sand	A	8.27
Loamy Sand	A	2.41
Sandy Loam	A	1.02
Loam	B	0.52
Silt Loam	B	0.27
Sandy Clay Loam	C	50% of Slowest Field Measured Infiltration Rate Determined from Field Infiltration Testing
Clay Loam	D	50% of Slowest Field Measured Infiltration Rate Determined from Field Infiltration Testing
Silty Clay Loam	D	50% of Slowest Field Measured Infiltration Rate Determined from Field Infiltration Testing
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Source: The infiltration rates shown in this table are saturated hydraulic conductivities for uncompacted soils adapted from Rawls, Brakensiek, and Saxton (1982).[12]

Notes:
[1] Soil textural class as determined from field soil evaluation described in Soil Evaluation Guidance

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- For the WQV calculation, impervious area (*I*) should be measured from the post-development site plan and includes all directly connected impervious surfaces (DCIA as defined in this Manual) within boundaries of the site or for the drainage area of the each design point.

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2024 TECH STANDARDS

IX. GROUNDWATER AND SURFACE WATER DRAINAGE

Storm water swales shall be constructed to lead storm water away from SSDSs. Minimum separating distances between storm water collection/drainage/infiltration systems and SSDSs are stipulated in Table 1 (Item E, F and H). See Section II A for SSDS separating distance considerations for SWISs. Refer to Section III D and Table 3 for storm water drainage piping requirements.

Impervious cover storm water that discharges via sheet flow or through minor leak-offs is not considered a drainage system. Pervious pavement material is not considered a SWIS. SWISs should not concentrate large quantities of water in close proximity of SSDSs as they can create localized groundwater mounding that can interfere with the operation of the SSDS and diminish wastewater renovation. See Section II for additional storm water system separation distance requirements.

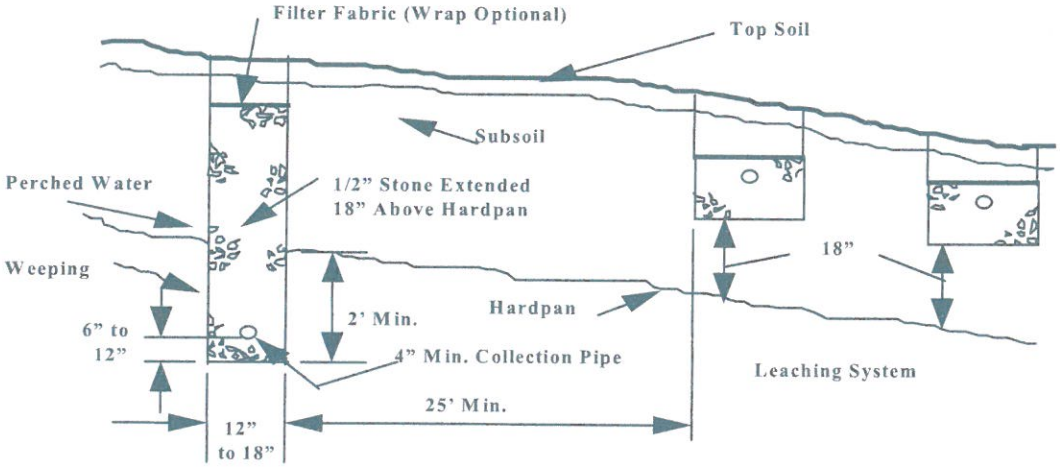

Figure 17 - Typical Curtain Drain Construction

Groundwater control drains (when utilized) shall be located up-gradient of the leaching system, and on the sides if necessary. The depth of these drains shall be designed to lower the groundwater at least 2 feet below the bottom of the entire leaching system (Figure 17). Drains shall be equipped with a collection pipe located 6 to 12 inches above the bottom of the trench to collect and discharge groundwater away from the leaching system area. This collection pipe shall have a minimum diameter of 4 inches and shall consist of open-joint tile, porous or perforated pipe. Perforated collection pipes are typically installed with holes on the bottom of the pipe and surrounded by clean stone or gravel to a depth necessary to control groundwater. Groundwater control drains shall be designed as indicated in Figure 17, or as otherwise designed by a P.E.

Minimum separation distances for all groundwater drainage systems (e.g., curtain, foundation) are stipulated in Table 1 (Items E and G). Groundwater drainage shall not discharge into or within 25 feet of a SSDS, and increased separation distance may be needed if the discharge location may impact the operation of the leaching system.

X. WATER TREATMENT WASTEWATER

The Commissioners of the Department of Energy and Environmental Protection and the Department entered into a delegation agreement in July 2017 that provides the authority for the DOH to approve and permit discharges of water treatment wastewater (WTW) on properties governed by PHC Sections 19-13-B103a through f. The agreement authorizes WTW discharges to approved WTW disposal systems which include (1) WTW dispersal systems, (2) SSDSs, and (3) holding tanks. All WTW disposal systems shall prevent the discharge of WTW to the ground surface, wetlands, or open watercourse, and shall comply with the following requirements and any future regulations promulgated by the Department:

1. The applicant (property owner or duly authorized agent) shall submit to the DOH a design plan/sketch of the proposed WTW dispersal system, WTW holding tank, or connection to the SSDS. The submittal shall also include the name and contact information of the installer.
2. The DOH should consider requiring a PHC Section 19-13-B100a (e) review for WTW daily discharges that exceed the building's sewage design flow. Note: Certain water treatment systems (e.g., whole house/building reverse osmosis systems) can produce very large quantities of WTW that may require significant area for a

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Updated Water Quality Volume

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CATCHMENT #1
PRE - DEVELOPMENT
.48 ACRES

CATCHMENT #2
PRE - DEVELOPMENT
.88 ACRES

CATCHMENT #3
PRE - DEVELOPMENT
.82ACRES

CATCHMENT #4
PRE - DEVELOPMENT
9.06 ACRES

CATCHMENT #6
PRE - DEVELOPMENT
1.01 ACRES

CATCHMENT #5
PRE - DEVELOPMENT
7.24 ACRES

CL&P #3762
CL&P #3763
CL&P #3760
CL&P #3759
CL&P #375(8?)
CL&P #3757

C.H.D
IR
IP

DRY
LAND

LARGE ROCK

CATCHMENT
BOUNDARY

"WATER DROP"
FLOW PATH

GRAPHIC SCALE
0' 60 120 180
SCALE 1"=60'

WATERSHEDS

SURVEY NOTES:

1. THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300b-1 THRU 20-300b-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES "MINIMUM STANDARDS FOR ACCURACY, CONTENT AND CERTIFICATIONS FOR SURVEYS AND MAPS". AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON AUGUST 29, 2019. IT IS A LIMITED PROPERTY/BOUNDARY SURVEY SUBDIVISION MAP. THE PORTION OF THE EXTERIOR BOUNDARY SHOWN IS BASED ON A RESURVEY CONFORMING TO HORIZONTAL ACCURACY CLASS A-2 AND THE BOUNDARY LINE OF THE PROPOSED LOTS IS AN ORIGINAL SURVEY CONFORMING TO HORIZONTAL ACCURACY CLASS A-2. TOPOGRAPHY SHOWN CONFORMS TO TOPOGRAPHIC SURVEY ACCURACY CLASS T-3.

2. THE PROPERTY IS LOCATED IN A GENERAL RESIDENTIAL ZONE-40

3. THE INLAND WETLAND BOUNDARIES SHOWN WERE FIELD DELINEATED BY HIGHLAND SOILS LLC. AND FIELD LOCATED BY BUSHNELL ASSOCIATES LLC.

4. THE PROPERTY IS NOT LOCATED IN A FLOOD HAZARD ZONE A PER NATIONAL FLOOD INSURANCE RATE MAP COMMUNITY-PANEL NUMBER 090110 0010D JUNE 11, 1982

5. THE PROPERTY IS NOT SHOWN AS AN AREA OF STATE AND FEDERAL LISTED SPECIES OR CRITICAL HABITAT ON THE CONNECTICUT DEPARTMENT OF ENERGY ENVIRONMENTAL PROTECTION DATA BASE AREAS MAP FOR COVENTRY, CT. DATED DECEMBER 2024.

6. MINOR IRREGULARITIES MAY EXIST IN STONEWALLS BETWEEN PRINCIPAL COURSES SHOWN.

7. TOPOGRAPHY SHOWN WAS PROVIDED BY GOLDEN AERIAL SURVEYS BASED ON GROUND CONTROL PROVIDED BY BUSHNELL ASSOCIATES LLC.

MAP REFERENCES:

1.) PLAN PREPARED FOR CHARLES A. BROWN LAND OF MARGARET REID AND REID MARTIN CT. ROUTE 44 / BOSTON TURNPIKE COVENTRY, CT. FIRST CUT PLAN SCALE: 1"=40' DATE: 5/19/2025 FILE NO. 2024-93 SHEET 1 OF 1 BUSHNELL ASSOCIATES LLC. CIVIL ENGINEERING AND LAND SURVEYING 563 WOODBRIDGE STREET MANCHESTER, CT. 06042 860-643-7875

2.) PLAN PREPARED FOR VIOLA REID CONN. RTE. 44 COVENTRY, CONN. BOUNDARY SURVEY SCALE 1"=50' DATE 1/23/86 DRN. R.E.D. TRD. E.S.E. FILE NO. 85855 SHEET NO.1 OF 2 MEEHAN, ASSOCIATES CONSULTING ENGINEERS-SURVEYORS, P.C. 387 NORTH MAIN STREET MANCHESTER, CT. 06040

3.) PLAN PREPARED FOR VIOLA REID CONN. RTE. 44 COVENTRY, CONN. BOUNDARY SURVEY SCALE 1"=50' DATE 1/23/86 DRN. R.E.D. TRD. E.S.E. FILE NO. 85855 SHEET NO.2 OF 2 MEEHAN, ASSOCIATES CONSULTING ENGINEERS-SURVEYORS, P.C. 387 NORTH MAIN STREET MANCHESTER, CT. 06040

4.) SUBDIVISION PLAN PREPARED FOR ESTATE OF EUGENE BAY 431 SAM GREENE ROAD COVENTRY, CT. SCALE 1"=100' DATE 5/15/95 FILE NO. 94126 SHEET 1 OF 4 REVISED TO 7/1/96 HOLMES & HENRY ASSOCIATES CONSULTING ENGINEERS LAND SURVEYORS LAND PLANNERS 2179 BOSTON TPKE. COVENTRY, CT 06238

5.) CONNECTICUT STATE HIGHWAY DEPARTMENT RIGHT OF WAY MAP TOWN OF COVENTRY COVENTRY-MANSFIELD DEPOT ROAD FROM THE MANSFIELD TOWN LINE WESTERLY ABOUT 7,300 FEET ROUTE NO. 109 SCALE 1"-40' SURVEY BY H.T.F.D. OFFICE PLOTTED BY " " TRACED BY H.C.S. APPROVED H.R.M. NUMBER 189 SHEET NO. 1 OF 3

6.) CONNECTICUT STATE HIGHWAY DEPARTMENT RIGHT OF WAY MAP TOWN OF COVENTRY COVENTRY-MANSFIELD DEPOT ROAD FROM SOUTH COVENTRY ROAD EASTERLY ABOUT 9,000 FEET ROUTE NO. 109 SCALE 1"-40' SURVEY BY H.T.F.D. OFFICE PLOTTED BY " " TRACED BY H.C.S. APPROVED H.R.M. NUMBER 188 SHEET NO. 3 OF 3

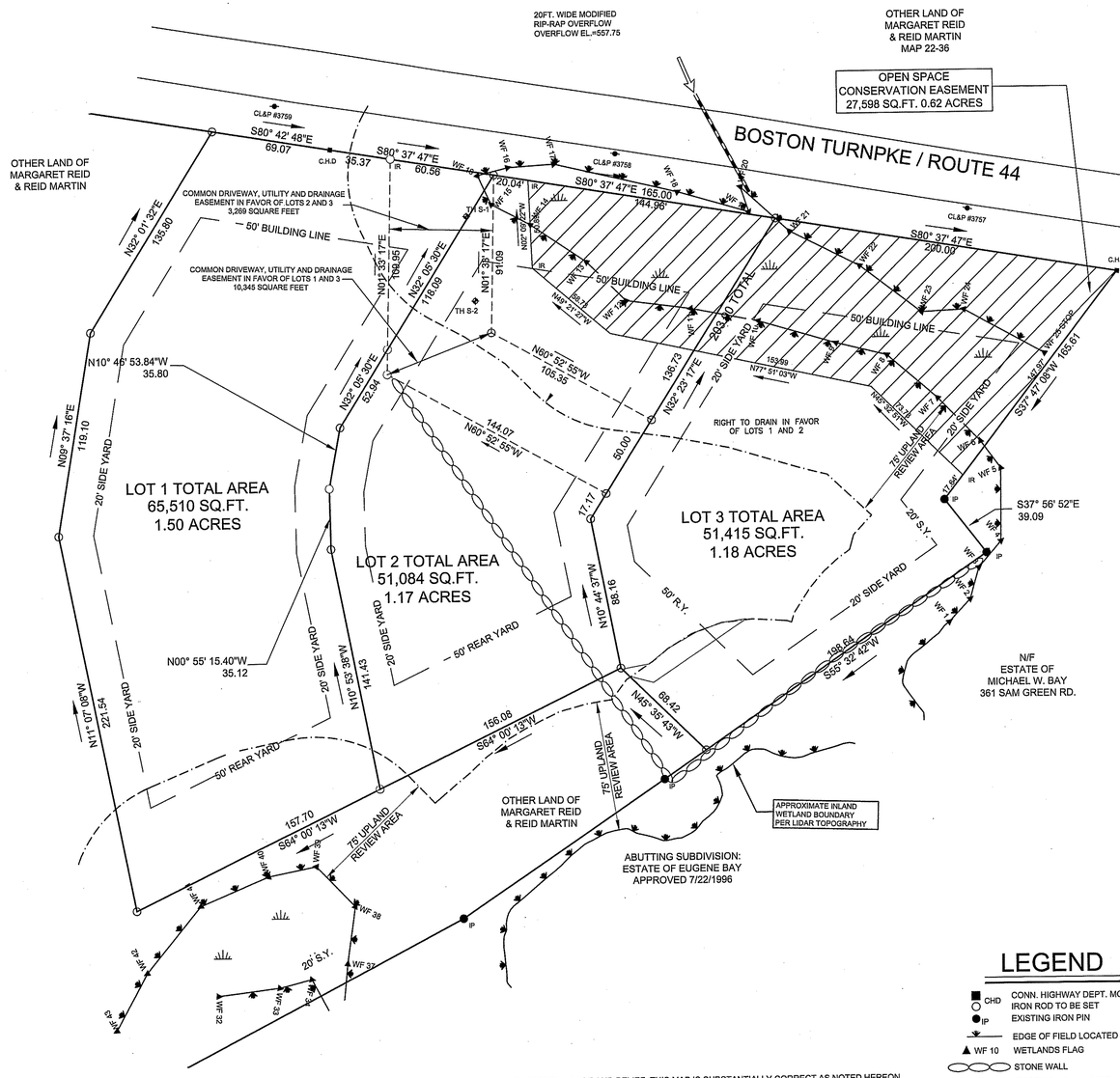
ZONING GR-40

TOTAL AREA OF SUBDIVISION = 3.86 ACRES 168,009 SQ. FT.

COVENTRY ZONING REGS - 4.04

DESCRIPTION	REQUIRED	PROVIDED LOT 1	LOT 2	LOT 3
MIN. LOT AREA	40,000 SQ. FT	65,465 SQ. FT	44,118 SQ. FT	42,697 SQ. FT
FRONTAGE	150 FT. MIN.	165.00	165.00	200.00
FRONT YARD	50 FT. MIN.	50	50	50
SIDE YARD	20 FT. MIN.	20	20	20
REAR YARD	50 FT. MIN.	50	50	50
BUILDABLE AREA	25,000 SQ. FT.	25,002 DEPICTED	25,040 DEPICTED	25,920 DEPICTED
LOT COVERAGE	20% MAX.	2,430 S.F. 3.7%	4,702 S.F. 9.2%	2,904 S.F. 5.6%
TOTAL SQ. FT.		65,510 SQ. FT.	51,084 SQ. FT.	51,415 SQ. FT.
TOTAL ACRES		1.50	1.17	1.18
TOTAL WETLAND SQ.FT.		45	6,966	8,718

OPEN SPACE PROVIDED - 27,075 SQ. FT. = 16% OF SUBDIVISION AREA



N

NAD 83

KEY MAP 1" = 1,000'

NRCS WEB SOIL SURVEY SOILS SITE SOIL TYPES	
3	RIDGEBURY, LEICESTER AND WHITMAN SOILS, 0 - 8% SLOPES, EXTREMELY STONY
60C	CANTON AND CHARLTON FINE SANDY LOAM, 8 - 15% SLOPES
51B	SUTTON FINE SANDY LOAM 0 - 8% SLOPES VERY STONEY

LEGEND

- CHD — CONN. HIGHWAY DEPT. MONUMENT
- IRON ROD TO BE SET
- IP — EXISTING IRON PIN
- EDGE OF FIELD LOCATED WETLANDS
- WF 10 — WETLANDS FLAG
- STONE WALL
- EXISTING UTILITY POLE

GRAPHIC SCALE

0 40 80 120

SCALE 1"=40'

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

ANDREW F. BUSHNELL P.E. L.S. 24591

THIS MAP IS NOT VALID UNLESS IT BEARS THE EMBOSSED SEAL OF THE LICENSED LAND SURVEYOR WHOSE REGISTRATION NUMBER AND SIGNATURE APPEAR ABOVE.

THE WETLAND SOILS ON THIS MAP WERE IDENTIFIED IN THE FIELD USING THE CRITERIA REQUIRED BY CT PA 72-155 AS AMENDED BY PA 73-571 AND ARE ACCURATELY REPRESENTED ON THIS PLAN.

JOHN P. IANNI
CERTIFIED SOIL SCIENTIST

5/22/2025
DATE

OWNERS:

MARGARET REID
663 OLD POST ROAD
TOLLAND, CT. 06074

REID MARTIN
83 CIDER MILL ROAD
BOLTON, CT. 06043

APPLICANT/AGENT:

CHARLES A. BROWN
P.O. BOX 473
COVENTRY, CT. 06238

UTILITIES SHOWN ON THIS MAP WERE DERIVED FROM FIELD LOCATIONS AND EXISTING MAPPING CONTRACTOR TO VERIFY LOCATIONS AND DEPTH IN THE FIELD PRIOR THE START OF ANY CONSTRUCTION. "CALL BEFORE YOU DIG (1-800-922-4455)."

APPROVED
COVENTRY PLANNING & ZONING COMMISSION

CHAIRPERSON-SECRETARY DATE

THIS 5 YEAR APPROVAL PERIOD EXPIRES ON
SEE P&Z MINUTES OF FOR SPECIFIC CONDITIONS OF APPROVAL

PLAN PREPARED FOR CHARLES A. BROWN

LAND OF MARGARET REID AND REID MARTIN

ROUTE 44 / BOSTON TURNPIKE MAP 22-108 COVENTRY CT.

SUBDIVISION PLAN

SCALE: 1"=40'	DATE: 05/20/2025	FILE NO. 2024-93	SHEET: 1 OF 4

BUSHNELL ASSOCIATES LLC.
CIVIL ENGINEERING AND LAND SURVEYING
563 WOODBRIDGE STREET MANCHESTER, CT. 06042
860-643-7875

REVISIONS: 7/21/2025

SURVEY NOTES:

1. THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300b-1 THRU 20-300b-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES "MINIMUM STANDARDS FOR ACCURACY, CONTENT AND CERTIFICATIONS FOR SURVEYS AND MAPS". AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON AUGUST 29, 2019. IT IS A LIMITED PROPERTY/BOUNDARY IMPROVEMENT LOCATION SURVEY MAP. THE PORTION OF THE EXTERIOR BOUNDARY SHOWN IS BASED ON A RESURVEY CONFORMING TO HORIZONTAL ACCURACY CLASS A-2 AND THE BOUNDARY LINE OF THE PROPOSED LOTS IS AN ORIGINAL SURVEY CONFORMING TO HORIZONTAL ACCURACY CLASS A-2. TOPOGRAPHY SHOWN CONFORMS TO TOPOGRAPHIC SURVEY ACCURACY CLASS T-3.

2. THE PROPERTY IS LOCATED IN A GENERAL RESIDENTIAL ZONE-40

3. THE INLAND WETLAND BOUNDARIES SHOWN WERE FIELD DELINEATED BY HIGHLAND SOILS LLC. AND WERE FIELD LOCATED BY BUSHNELL ASSOCIATES LLC.

4. THE PROPERTY IS NOT LOCATED IN A FLOOD HAZARD ZONE A PER NATIONAL FLOOD INSURANCE RATE MAP COMMUNITY-PANEL NUMBER 090110 0010D JUNE 11, 1982

5. THE PROPERTY IS NOT SHOWN AS AN AREA OF STATE AND FEDERAL LISTED SPECIES OR CRITICAL HABITAT ON THE CONNECTICUT DEPARTMENT OF ENERGY ENVIRONMENTAL PROTECTION DATA BASE AREAS MAP FOR COVENTRY, CT. DATED DECEMBER 2024.

6. MINOR IRREGULARITIES MAY EXIST IN STONEWALLS BETWEEN PRINCIPAL COURSES SHOWN.

7. TOPOGRAPHY SHOWN WAS PROVIDED BY GOLDEN AERIAL SURVEYS BASED ON GROUND CONTROL PROVIDED BY BUSHNELL ASSOCIATES LLC.

MAP REFERENCES:

1.) PLAN PREPARED FOR CHARLES A. BROWN LAND OF MARGARET REID AND REID MARTIN CT. ROUTE 44 / BOSTON TURNPIKE COVENTRY, CT. FIRST CUT PLAN SCALE: 1"=40' DATE: 5/19/2025 FILE NO. 2024-93 SHEET 1 OF 1 BUSHNELL ASSOCIATES LLC. CIVIL ENGINEERING AND LAND SURVEYING 563 WOODBRIDGE STREET MANCHESTER, CT. 06042 860-643-7875

2.) PLAN PREPARED FOR VIOLA REID CONN. RTE. 44 COVENTRY, CONN. BOUNDARY SURVEY SCALE 1"=50' DATE 1/23/86 DRN. R.E.D. TRD. E.S.E. FILE NO. 85855 SHEET NO.1 OF 2 MEEHAN, ASSOCIATES CONSULTING ENGINEERS-SURVEYORS, P.C. 387 NORTH MAIN STREET MANCHESTER, CT. 06040

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4.) SUBDIVISION PLAN PREPARED FOR ESTATE OF EUGENE BAY 431 SAM GREENE ROAD COVENTRY, CT. SCALE 1"=100' DATE 5/15/95 FILE NO. 94126 SHEET 1 OF 4 REVISED TO 7/1/86 HOLMES & HENRY ASSOCIATES CONSULTING ENGINEERS LAND SURVEYORS LAND PLANNERS 2179 BOSTON TPKE. COVENTRY, CT 06238

5.) CONNECTICUT STATE HIGHWAY DEPARTMENT RIGHT OF WAY MAP TOWN OF COVENTRY COVENTRY-MANSFIELD DEPOT ROAD FROM THE MANSFIELD TOWN LINE WESTERLY ABOUT 7,300 FEET ROUTE NO. 109 SCALE 1"-40' SURVEY BY H.T.F.D. OFFICE PLOTTED BY " " TRACED BY H.C.S. APPROVED H.R.M. NUMBER 189 SHEET NO. 1 OF 3

6.) CONNECTICUT STATE HIGHWAY DEPARTMENT RIGHT OF WAY MAP TOWN OF COVENTRY COVENTRY-MANSFIELD DEPOT ROAD FROM SOUTH COVENTRY ROAD EASTERLY ABOUT 9,000 FEET ROUTE NO. 109 SCALE 1"-40' SURVEY BY H.T.F.D. OFFICE PLOTTED BY " " TRACED BY H.C.S. APPROVED H.R.M. NUMBER 188 SHEET NO. 3 OF 3

CONSTRUCTION NOTES:

1.) OWNER OR CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS.

2.) OWNER OR CONTRACTOR TO VERIFY ALL DIMENSIONS AND INFORMATION CONTAINED ON THIS PLAN PRIOR TO THE START OF CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES PRIOR TO THE START OF CONSTRUCTION.

3.) PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY ALL BOUNDARY MARKERS SHALL BE SET BY A LICENSED LAND SURVEYOR.

4.) PRESERVE ANY EXISTING STONE WALLS WHEREVER POSSIBLE. SHOULD WALLS BE REMOVED STONES TO BE ADDED TO EXISTING WALLS OR OTHERWISE RE-PURPOSED ON SITE.

5.) ALL PROPOSED UTILITIES LOCATIONS SHALL BE APPROVED BY THE LOCAL UTILITY COMPANIES PRIOR TO THE START OF CONSTRUCTION.

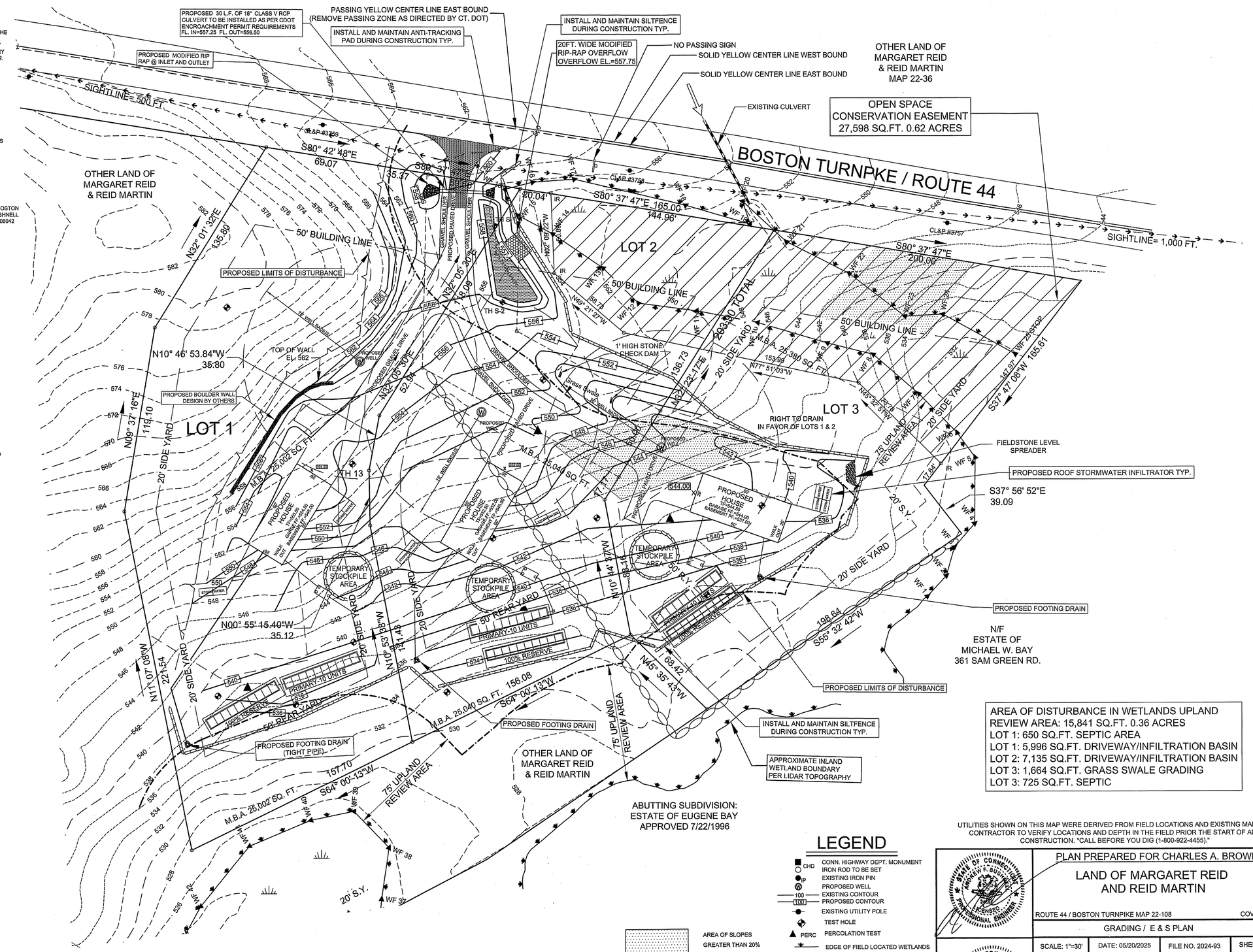
TEST PITS OBSERVED BY:
ANDREW BUSHNELL PELS.
BUSHNELL ASSOCIATES LLC
AUGUST 6, 2025

TEST PIT S-1
0-12" TOPSOIL
12-18" BROWN FINE SANDY LOAM
18-64" GRAVELLY TILL

MOTTLING: 30"
SEEPAGE NONE

TEST PIT S-2
0-12" TOPSOIL
12-32" BROWN FINE SANDY LOAM
32-64" SOMEWHAT COMPACT GRAVELLY TILL

MOTTLING: NON EVIDENT
SEEPAGE NONE



AREA OF DISTURBANCE IN WETLANDS UPLAND REVIEW AREA: 15,841 SQ.FT. 0.36 ACRES
LOT 1: 650 SQ.FT. SEPTIC AREA
LOT 1: 5,996 SQ.FT. DRIVEWAY/INFILTRATION BASIN
LOT 2: 7,135 SQ.FT. DRIVEWAY/INFILTRATION BASIN
LOT 3: 1,664 SQ.FT. GRASS SWALE GRADING
LOT 3: 725 SQ.FT. SEPTIC

UTILITIES SHOWN ON THIS MAP WERE DERIVED FROM FIELD LOCATIONS AND EXISTING MAPPING CONTRACTOR TO VERIFY LOCATIONS AND DEPTH IN THE FIELD PRIOR THE START OF ANY CONSTRUCTION. "CALL BEFORE YOU DIG (1-800-922-4455)."

LEGEND

- CHD — CONN. HIGHWAY DEPT. MONUMENT
- IRON ROD TO BE SET
- IP — EXISTING IRON PIN
- W — PROPOSED WELL
- 100 — EXISTING CONTOUR
- 100 — PROPOSED CONTOUR
- EXISTING UTILITY POLE
- TEST HOLE
- PERC — PERCOLATION TEST
- EDGE OF FIELD LOCATED WETLANDS
- WF 10 — WETLANDS FLAG
- STONE WALL

AREA OF SLOPES GREATER THAN 20% AREA = 37,502 SQ. FT.

GRAPHIC SCALE
0 30 60 90
SCALE 1"=30'

THE WETLAND SOILS ON THIS MAP WERE IDENTIFIED IN THE FIELD USING THE CRITERIA REQUIRED BY CT PA 72-155 AS AMENDED BY PA 73-571 AND ARE ACCURATELY REPRESENTED ON THIS PLAN.

JOHN P. IANNI
CERTIFIED SOIL SCIENTIST — 5/22/2025 DATE

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

ANDREW F. BUSHNELL P.E. L.S. 24591

THIS MAP IS NOT VALID UNLESS IT BEARS THE EMBOSSED SEAL OF THE LICENSED LAND SURVEYOR WHOSE REGISTRATION NUMBER AND SIGNATURE APPEAR ABOVE.

COVENTRY PLANNING & ZONING COMMISSION

CHAIRPERSON-SECRETARY DATE

THIS 5 YEAR APPROVAL PERIOD EXPIRES ON SEE P&Z MINUTES OF FOR SPECIFIC CONDITIONS OF APPROVAL

STATE OF CONNECTICUT ANDREW F. BUSHNELL 24591 LICENSED PROFESSIONAL ENGINEER

STATE OF CONNECTICUT ANDREW F. BUSHNELL 24591 LICENSED LAND SURVEYOR

PLAN PREPARED FOR CHARLES A. BROWN

LAND OF MARGARET REID AND REID MARTIN

ROUTE 44 / BOSTON TURNPIKE MAP 22-108 COVENTRY CT.

GRADING / E & S PLAN

SCALE: 1"=30'	DATE: 05/20/2025	FILE NO. 2024-93	SHEET: 2 OF 4

BUSHNELL ASSOCIATES LLC.
CIVIL ENGINEERING AND LAND SURVEYING
563 WOODBRIDGE STREET MANCHESTER, CT. 06042
860-643-7875

REVISIONS: 7/21/2025, 8/7/2025, 8/21/2025

EDGE OF PAVEMENT

2 FOOT(MIN) VEGETATED STRIP

4 FOOT GRAVEL SHOULDER

EDGE OF PAVEMENT

2% SLOPE MIN.

EXISTING GRADE

3" LAYER PEASTONE

15" DEEP 1¼" WASHED STONE

MAX. PONDING EL. 557.75

TOP OF STONE EL. 557

PROPOSED 3:1 GRADE

WIDTH VARIES

24" MIN.

MOTTLING 30" TEST PIT S-1

EXISTING GRADE

FILTER FABRIC BOTTOM & SIDES

BOTTOM OF STONE EL. 555.5

REMOVE ALL TOPSOIL SCARIFY REMAINING GROUND SURFACE PRIOR TO STONE PLACEMENT

SECTION A-A
INFILTRATION TRENCH DETAIL 1"=5'

N

NAD 83

AREA OF IMPERVIOUS PAVEMENT DIRECTED TO INFILTRATION TRENCH = 1,030 SQ. FT.

AREA OF IMPERVIOUS PAVEMENT DIRECTED TO PERVIOUS RECEIVING AREA = 4,128 SQ. FT.

UTILITIES SHOWN ON THIS MAP WERE DERIVED FROM FIELD LOCATIONS AND EXISTING MAPPING CONTRACTOR TO VERIFY LOCATIONS AND DEPTH IN THE FIELD PRIOR THE START OF ANY CONSTRUCTION. "CALL BEFORE YOU DIG (1-800-922-4455)."

LEGEND

- CHD — CONN. HIGHWAY DEPT. MONUMENT
- IR — IRON ROD TO BE SET
- IP — EXISTING IRON PIN
- W — PROPOSED WELL
- 100 — EXISTING CONTOUR
- 100 — PROPOSED CONTOUR
- EXISTING UTILITY POLE
- TEST HOLE
- PERC — PERCOLATION TEST
- EDGE OF FIELD LOCATED WETLANDS
- WF 10 — WETLANDS FLAG
- STONE WALL

GRAPHIC SCALE
0 20 40 60
SCALE 1"=20'

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

ANDREW F. BUSHNELL P.E. L.S. 24591

THIS MAP IS NOT VALID UNLESS IT BEARS THE EMBOSSED SEAL OF THE LICENSED LAND SURVEYOR WHOSE REGISTRATION NUMBER AND SIGNATURE APPEAR ABOVE.

STATE OF CONNECTICUT ANDREW F. BUSHNELL 24591 LICENSED PROFESSIONAL ENGINEER

STATE OF CONNECTICUT ANDREW F. BUSHNELL 24591 LICENSED LAND SURVEYOR

PLAN PREPARED FOR CHARLES A. BROWN

LAND OF MARGARET REID AND REID MARTIN

ROUTE 44 / BOSTON TURNPIKE MAP 22-108 — COVENTRY CT.

STORMWATER MANAGEMENT PLAN

SCALE: 1"=20'	DATE: 05/20/2025	FILE NO. 2024-93	SHEET: 3 OF 4

BUSHNELL ASSOCIATES LLC.
CIVIL ENGINEERING AND LAND SURVEYING
563 WOODBRIDGE STREET MANCHESTER, CT. 06042
860-643-7875

REVISIONS: 7/21/2025, 8/7/2025, 8/21/2025

GENERAL NOTES:
1.) ALL WORK SHALL CONFORM TO THE TOWN OF COVENTRY REGULATIONS AND STANDARDS AND SPECIFICATIONS.

2.) UNDERGROUND UTILITIES MAY EXIST IN THE AREA OF THIS SURVEY. CONTRACTOR TO VERIFY THE PRESENCE AND EXACT LOCATION OF ANY UNDERGROUND UTILITIES PRIOR TO THE START OF CONSTRUCTION.

3.) ANY TREES TO BE REMOVED WITHIN THE STATE ROAD RIGHT OF WAY MUST BE POSTED BY THE STATE TREE WARDEN PRIOR TO REMOVAL.

4.) SOLAR ORIENTATION OF THE PROPOSED HOUSE LOCATION WAS TAKEN INTO CONSIDERATION THE HOUSE SHOWN ON THIS PLAN IS FOR FEASIBILITY. THE HOMEOWNER WILL HAVE SOME FLEXIBILITY CONCERNING THE FINAL HOUSE LOCATION.

5.) PROPOSED DRIVEWAY SHALL NOT EXCEED 15% SLOPES.

4.) NO UNDERGROUND STORAGE TANKS ARE TO BE INSTALLED EXCEPT PROPANE.

6.) PRIOR TO THE ISSUANCE OF A CERTIFICATE OF USE AND COMPLIANCE FOR THE PROPOSED HOUSE:
- A. ALL REQUIRED BOUNDARY MONUMENTS SHALL BE SET BY A LICENSED LAND SURVEYOR. THE LAND SURVEYOR SHALL SUPPLY THE PLANNING AND ZONING DEPARTMENT WITH A LETTER VERIFYING THE SETTING OF THE REQUIRED MONUMENTATION.
- B. ALL GRADING AND CLEARING, ESPECIALLY FOR PROPER SIGHT LINE AND INSTALLATION OF DRIVEWAY APRON SHALL BE COMPLETED AND INSPECTED BY THE TOWN OF COVENTRY.
- C. STREET NUMBERS FOR THE PROPOSED HOUSE SHALL BE PLACED ON THE FRONT OF THE HOUSE OR IN AN AREA MORE VISIBLE FROM THE STREET AND APPROVED BY THE TOWN OF COVENTRY.
- D. THE PROPOSED DRIVEWAYS SHALL BE BUILT IN THE DEPICTED LOCATION OR IN A LOCATION WITH EQUIVALENT OR BETTER SIGHT LINE AND DRAINAGE CONDITIONS AS DETERMINED BY THE ZONING AGENT AND/OR SUPERINTENDENT OF STREETS. THE DRIVEWAY SHALL HAVE A PAVED APRON
- E. ALL DISTURBED AREAS SHALL BE TOPSOILED SEEDED AND MULCHED OR STABILIZED ACCORDING TO THE SEASON OF THE YEAR.
- F. ALL OTHER REQUIREMENTS AS STATED ON THIS PLAN SHALL HAVE BEEN MET AS PER TOWN OF COVENTRY REGULATIONS.
- G.) A SEPTIC SYSTEM AS-BUILT PLAN SHALL BE PROVIDED TO THE EASTERN HIGHLANDS HEALTH DISTRICT BY THE LICENSED SEPTIC SYSTEM INSTALLER.

7.) NO LIQUID OR SOLID CHEMICAL FERTILIZERS, PESTICIDES, HERBICIDES OR PETROLEUM DUST CONTROL AGENTS SHALL BE APPLIED ON THIS SITE.

8.) OWNER AND/OR CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING NECESSARY PERMITS.

9.) LIMIT OF INDIVIDUAL LOT DISTURBANCE IS TYPICALLY DELINEATED BY THE SILT FENCE SYMBOLS SHOWN ON THE PLANS.

10.) PROPOSED HOUSE, SEPTIC, DRIVEWAY, FOOTING DRAIN AND LIMIT OF DISTURBANCE LOCATIONS SHOWN ARE PRELIMINARY, LOCATIONS MAY CHANGE WITH FINAL LOT DESIGN.

11.) ALL UTILITIES SHALL BE APPROVED BY THE LOCAL UTILITY COMPANIES PRIOR TO CONSTRUCTION. ALL UTILITIES SHALL BE CONSTRUCTED TO LOCAL UTILITY COMPANY SPECIFICATIONS AND INSTALLED UNDERGROUND.

12.) ANY DRAINAGE, COMMON DRIVEWAY, CONSERVATION, UTILITY AND ANY OTHER APPLICABLE EASEMENTS SHALL BE PLACED ON THE DEEDS FOR EACH LOT AFFECTED.

13.) INDIVIDUAL SITE PLAN IS REQUIRED FOR LOT 1,2 &3 PRIOR TO HOUSE CONSTRUCTION. THE PLAN SHALL SHOW THE FOLLOWING: PROPOSED EROSION AND SEDIMENT CONTROLS, HOUSE LOCATION, SEPTIC SYSTEM, WELL, DRIVEWAY, CURTAIN DRAINS (IF REQUIRED), FOOTING DRAIN AND GRADING.

14.)) PRESERVE ANY EXISTING STONE WALLS WHEREVER POSSIBLE. SHOULD WALLS BE REMOVED STONES TO BE ADDED TO EXISTING WALLS OR OTHERWISE RE-PURPOSED ON SITE.

15.) INDIVIDUAL CLEARING LIMITS SHALL BE FLAGGED BY A LICENSED LAND SURVEYOR AND CERTIFIED, TO THE TOWN OF COVENTRY, TO BE CONSISTENT WITH THE INDIVIDUAL LOT DEVELOPMENT PLAN PRIOR TO THE START OF ANY SITE DISTURBANCE.

EROSION CONTROL CONSTRUCTION SEQUENCE PLAN HOUSE LOT DEVELOPMENT
NOTE: ALL EROSION AND SEDIMENT CONTROL ACTIVITIES SHALL CONFORM TO THE METHODS OUTLINED IN THE 2024 CONNECTICUT GUIDELINES FOR EROSION AND SEDIMENT CONTROL MANUAL.

1.) MARK THE LIMITS OF DISTURBANCE IN ACCORDANCE WITH THE APPROVED PLAN.

2.) CLEAR TREES AS REQUIRED.

3.) PRIOR TO SOIL DISTURBANCE INSTALL EROSION CONTROL MEASURES, SILT FENCE AND ANTI-TRACKING PAD (SEE PLAN DETAILS AND LOCATIONS). ADDITIONAL MEASURES MAY BE REQUIRED AS SITE CONDITIONS REQUIRE. COORDINATE AN INSPECTION OF INSTALLED MEASURES WITH THE EROSION CONTROL OFFICER. SUPPLY THE TOWN EROSION CONTROL OFFICER WITH THE NAME AND PHONE NUMBER OF A CONTACT PERSON RESPONSIBLE FOR THE EROSION CONTROL MEASURES.

3.) PERIODICALLY AND AFTER LARGE RAIN EVENTS INSPECT EROSION CONTROL MEASURES AND REPAIR AS NECESSARY.

4.) GRUB AND STRIP TOPSOIL. STOCKPILE TOPSOIL IN AREAS INDICATED ON THE APPROVED PLAN.

5.) CONSTRUCT AND STABILIZE COMMON PORTION OF DRIVEWAY TO PROCESS AGGREGATE LAYER PAVE DRIVEWAY AT TIME THAT IS DETERMINED THAT PAVED PORTION WILL NOT BE DAMAGED BY HEAVY TRUCK TRAFFIC .

6.) CONSTRUCT HOUSES, WELLS, INDIVIDUAL DRIVEWAYS , SEPTIC SYSTEMS AND OTHER IMPROVEMENTS AS SHOWN.

7.) SPREAD STOCKPILED TOPSOIL. MACHINE RAKE, FERTILIZE, SEED AND MULCH DISTURBED AREAS. USE GRASS SEED THAT IS ACCEPTABLE FOR THE SITE CONDITIONS (I.E.. SUN OR SHADE) AND THE SEASON OF THE YEAR IN WHICH THIS ACTIVITY IS COMPLETED. PROVIDE TEMPORARY STABILIZATION OF THE SITE (i.e. STRAW OR HAY ETC.,) IF THE TOPSOIL IS SPREAD DURING A TIME OF YEAR WHEN GRASS SEED WILL NOT GERMINATE. PROVIDE PERMANENT STABILIZATION WHEN WEATHER CONDITIONS ALLOW.

8.) REMOVE EROSION CONTROL MEASURES AFTER THE SITE HAS BECOME FULLY ESTABLISHED.

9.) ANY EXISTING DISTURBED AREAS MUST BE SEEDED WITH PERMANENT OR TEMPORARY GROUND COVER AND MULCHED BY OCTOBER 15.

10.) DEWATERING OPERATIONS, IF REQUIRED, SHALL UTILIZE A CRUSHED STONE INTAKE SUMP AND A TEMPORARY OUTLET SILT POOL LOCATED WITHIN THE LIMITS OF DISTURBANCE.

SITE SEEDING NOTES:
PREPARATION: FINE GRADE AND RAKE SOIL SURFACE TO REMOVE STONES LARGER THAN 2" IN DIAMETER. INSTALL SEEDED EROSION CONTROL DEVICES SUCH AS SURFACE WATER DIVERSIONS AS REQUIRED. APPLY LIMESTONE AT A RATE OF 2 TONS/AC. OR 90 LBS./1000 SQ.FT. FERTILIZE WITH 10-10-10 AT A RATE OF 300 LBS./AC. OR 7.5 LBS. PER 1000 SQ.FT. WORK LIME AND FERTILIZER INTO SOIL UNIFORMLY TO A DEPTH OF 4".

SEED APPLICATION: APPLY SEED MIXTURE FROM THE CHART BELOW BY HAND, CYCLONE SEEDER OR HYDRO SEEDER. INCREASE SEED MIXTURE BY 10% IF HYDRO SEEDER IS USED. LIGHTLY DRAG OR ROLL THE SEEDED SURFACE TO COVER SEED. SEEDING SHOULD BE DONE BETWEEN THE TIMES SHOWN ON THE CHART BELOW. IF SEEDING CANNOT BE DONE DURING THESE TIMES, REPEAT MULCHING PROCEDURE BELOW UNTIL SEEDING CAN TAKE PLACE.

MULCHING: IMMEDIATELY FOLLOWING SEEDING, MULCH THE SEED SURFACE WITH STRAW OR HAY AT A RATE OF 2 TO 3 TONS/AC. SPREAD MULCH BY HAND OR MULCH BLOWER. PUNCH MULCH INTO SOIL SURFACE WITH A TRACK MACHINE OR DISK HARROW SET STRAIGHT UP. IF USING HYDRO SEED MIX USE TACTIFIER ADDITIVES TO ADHERE MULCH MATERIAL TO THE SURFACE.

SEED SELECTION: USE	LB/1000 SQ. FT.	SEED MIXTURE	RECOMMENDED SEEDING DATES
PERMANENT LAWN	0.45	KENTUCKY BLUEGRASS	4/1-6/15
	0.45	CREEPING RED FESCUE	8/15-10/1
	0.10	PERENNIAL RYEGRASS	
SLOPES & COARSE LAWN	0.45	CREEPING RED FESCUE	4/1-6/15
	0.05	RED TOP	8/15-10/1
	0.45	TALL FESCUE	
SLOPES (NO MOWING)	1.8	CREEPING RED FESCUE	4/1-6/15
	0.2	RED TOP	8/15-10/1
TEMPORARY COVER	3.0	WINTER RYE OR	4/15-6/15,8/15-10/15
	1.0	ANNUAL RYEGRASS	3/1-6/15,8/1-10/15

IF SEED IS PLANTED OUTSIDE THE RECOMMENDED SEEDING DATES IRRIGATION MAYBE REQUIRED AT A UNIFORM APPLICATION RATE OF 1 TO 2 INCHES OF WATER APPLIED PER APPLICATION, SOAKING THE GROUND TO A DEPTH OF 4 INCHES.

CONSTRUCTION NOTES:
1.) OWNER OR CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS.

2.) OWNER OR CONTRACTOR TO VERIFY ALL DIMENSIONS AND INFORMATION CONTAINED ON THIS PLAN PRIOR TO THE START OF CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES PRIOR TO THE START OF CONSTRUCTION.

3.) PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY ALL BOUNDARY MARKERS SHALL BE SET BY A LICENSED LAND SURVEYOR.

4.) PRESERVE ANY EXISTING STONE WALLS WHEREVER POSSIBLE. SHOULD WALLS BE REMOVED STONES TO BE ADDED TO EXISTING WALLS OR OTHERWISE RE-PURPOSED ON SITE.

5.) ALL PROPOSED UTILITIES LOCATIONS SHALL BE APPROVED BY THE LOCAL UTILITY COMPANIES PRIOR TO THE START OF CONSTRUCTION.

INSTALLATION OF WATER QUALITY CONTROLS ARE SHOWN TO ILLUSTRATE TECHNIQUES AND SHALL BE SUBJECT TO CHANGE UPON THE PREPARATION OF A SITE PLAN AT THE TIME OF HOUSE CONSTRUCTION. A SITE PLAN WILL BE REQUIRED PRIOR TO THE ISSUANCE OF A ZONING PERMIT. THE SITE PLAN SHALL BE LOT SPECIFIC AND SHOW THE HOUSE SIZE, DRIVEWAY ALIGNMENT, WETLANDS AND /OR BUFFER, COMPLETE SEPTIC SYSTEM DESIGN WITH DETAILS, AND ALL DRAINAGE INCLUDING FOUNDATION DRAINS. WATER QUALITY CONTROLS WILL BE INCORPORATED INTO THE PLANS TO PROVIDE TREATMENT OF THE FIRST FLUSH. THE FIRST FLUSH BEING THE RUNOFF GENERATED BY THE IMPERVIOUS SURFACE ON THE LOT DURING THE FIRST ONE AND 3 TENTHS INCH (1.3") OF RAINFALL WHICH IS TO BE COLLECTED AND RETURNED TO THE GROUND BY AN APPROPRIATE DEVICE OR TECHNIQUE. AS ILLUSTRATED ON THESE PLANS, SUCH TECHNIQUES AND DEVICES INCLUDE, BUT ARE NOT LIMITED TO, INFILTRATION BASINS, TRENCHES OR SWALES, RAIN GARDENS, OR IN-GROUND PERFORATED CHAMBERS.

THE APPROVAL OF ANY INDIVIDUAL SITE PLAN SHALL BE CONDITIONED ON THE CONTINUED MAINTENANCE OF THE DRAINAGE/INFILTRATION STRUCTURES BY THE LANDOWNER. THE FAILURE TO MAINTAIN SUCH STRUCTURES MAY RESULT IN THE ISSUANCE OF ZONING ENFORCEMENT ORDERS AND/OR OTHER ZONING ENFORCEMENT PROCEEDINGS, INCLUDING AN ACTION FOR CIVIL PENALTIES AND/OR INJUNCTIVE RELIEF IN THE SUPERIOR COURT.

A NOTICE OF THE ABOVE REQUIREMENTS AND OBLIGATIONS SHALL BE INCLUDED IN THE DEED OF THE LOT AT THE TIME OF CONVEYANCE.

IN ADDITION, ALL SITE PLANS SHALL INCLUDE A COMPLETE DETAILED EROSION AND SEDIMENTATION CONTROL PLAN WITH SCHEDULE OF OPERATIONS, INCLUDING SEEDING AND CLEARING LIMITS. THE CLEARING LIMITS OF EACH LOT SHALL BE ESTABLISHED IN THE FIELD AND CONFIRMED IN WRITING BY THE APPLICANT/DEVELOPER INDICATING THAT IT IS CONSISTENT WITH THE APPROVED SITE PLAN.

CONSTRUCTION NOTES:

THE ENTIRE CONTRIBUTING DRAINAGE AREA SHOULD BE COMPLETELY STABILIZED PRIOR TO DIRECTING ANY FLOW TO THE SYSTEM. ADEQUATE VEGETATIVE COVER MUST BE ESTABLISHED OVER ANY PERVIOUS AREA ADJACENT OR CONTRIBUTING TO THE SYSTEM BEFORE RUNOFF CAN BE ACCEPTED.

EROSION AND SEDIMENT CONTROLS SHOULD BE IN PLACE DURING CONSTRUCTION IN ACCORDANCE WITH THE CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL AND THE SOIL EROSION AND SEDIMENT CONTROL PLAN DEVELOPED FOR THE PROJECT.

INFILTRATION TRENCHES SHOULD NOT BE USED AS TEMPORARY SEDIMENT TRAPS FOR CONSTRUCTION EROSION AND SEDIMENT CONTROL.

DURING CLEARING AND GRADING OF THE SITE, MEASURES SHOULD BE TAKEN TO AVOID SOIL COMPACTION AT THE LOCATION OF THE PROPOSED SYSTEM.

THE SYSTEM SHOULD BE FENCED OFF DURING THE CONSTRUCTION PERIOD TO PREVENT DISTURBANCE OF THE SOILS.

THE INFILTRATION TRENCH SHOULD BE EXCAVATED TO THE DIMENSIONS, SIDE SLOPES, AND ELEVATIONS SHOWN ON THE PLANS. THE METHOD OF EXCAVATION SHOULD AVOID COMPACTION OF THE BOTTOM OF THE SYSTEM. A HYDRAULIC EXCAVATOR OR BACKHOE LOADER, OPERATING OUTSIDE THE LIMITS OF THE INFILTRATION TRENCH, SHOULD BE USED TO EXCAVATE THE SYSTEM. EXCAVATION EQUIPMENT SHOULD NOT BE ALLOWED WITHIN THE LIMITS OF THE SYSTEM.

THE STONE STORAGE MEDIA AND PEA GRAVEL LAYER SHOULD BE PLACED IN THE EXCAVATION BY A HYDRAULIC EXCAVATOR OR BACKHOE LOADER LOCATED OUTSIDE THE LIMITS OF THE INFILTRATION TRENCH AND THEN HAND-RAKED TO THE DESIRED ELEVATION.

INSTALL VEGETATION (E.G., DROUGHT TOLERANT GRASS) ON THE SIDE SLOPES AND SURFACE OF THE INFILTRATION TRENCH (IF GRASS IS USED INSTEAD OF PEA GRAVEL) IN ACCORDANCE WITH THE PLANTING PLAN AND PLANT SCHEDULE ON THE PLANS. WATER VEGETATION THOROUGHLY IMMEDIATELY AFTER PLANTING AND AS NECESSARY UNTIL FULLY ESTABLISHED.

STORM WATER MAINTENANCE PLAN

PROPER MAINTENANCE OF THE STORM WATER STRUCTURES ARE IMPORTANT TO THE PROPER FUNCTION OF THE DRAINAGE AND WATER QUALITY TREATMENT SYSTEM PROPOSED FOR THIS PROJECT. THE SYSTEMS SHALL BE MAINTAINED AS DESCRIBED BELOW:

INSPECT AFTER MAJOR STORMS (1 INCH OR MORE OF PRECIPITATION) IN THE FIRST FEW MONTHS FOLLOWING CONSTRUCTION.

INSPECT THE OUTLET AND LEVEL SPREADER AREA TWICE A YEAR.

INSPECT THE REMAINDER OF THE INFILTRATION TRENCH ANNUALLY.

REMOVE TRASH AND ORGANIC DEBRIS (LEAVES) IN THE SPRING AND FALL.

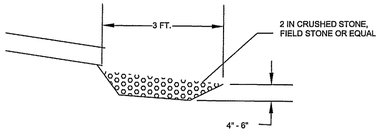
REMOVE SEDIMENT FROM THE INFILTRATION TRENCH SURFACE WHEN THE SEDIMENT ACCUMULATION EXCEEDS 2 INCHES OR WHEN DRAWDOWN TIME EXCEEDS 48 HOURS AFTER THE END OF A STORM EVENT, INDICATING THAT THE SYSTEM IS CLOGGED.

WEED AS NECESSARY. MOW GRASS WITHIN INFILTRATION TRENCH TO A HEIGHT OF 4 TO 6 INCHES.

MAINTAIN VEGETATED FILTER STRIPS OR GRASSED SIDE SLOPES OF INFILTRATION TRENCH. RE-SEED AS NECESSARY.

PERIODICALLY REMOVE GRASS CLIPPINGS TO PREVENT CLOGGING OF THE SURFACE OF THE INFILTRATION TRENCH.

MOWING SHOULD NOT BE PERFORMED WHEN THE GROUND IS SOFT TO AVOID THE CREATION OF RUTS AND COMPACTION, WHICH CAN REDUCE INFILTRATION.



FOOTING DRAIN OUTLET DETAIL
NOT TO SCALE

TEST PITS OBSERVED BY:
GLENN BAGDOIAN
EASTERN HIGHLANDS HEALTH DISTRICT
NOVEMBER 12, 2024

TEST PIT 68
0-4" TOPSOIL - ORGANICS
4-22" BROWN SANDY LOAM
22-42" COARSE BROWN TAN MEDIUM SAND
42"-80" GREY LAYER FINE SANDY MOTTLED LINE. GRAVELY SANDY LOAM

DEPTH: 80"
MOTTLING: 42"
ROOTS: 28"

TEST PIT 69
0-4" TOPSOIL
4-30" BROWN SANDY LOAM
30-42" GRAVELY MEDIUM SAND
42"-70" GREY FINE SAND BAND MOTTLED

DEPTH: 70"
MOTTLING: 46"
ROOTS: 46"

TEST PIT 70
0-5" TOP SOIL - ORGANICS
5-30" BROWN SANDY LOAM BONEY
30-40" COARSE GRAVEL SAND
40-72 BONEY GRAVEL SANDY LOAM

DEPTH: 72"
MOTTLING: 40"
SEEPAGE: NONE"

TEST PIT 71
0-5" TOPSOIL - ORGANICS
5-30" BROWN SANDY LOAM SOME LARGE ROCKS
30-45" TAN SANDY LOAM COARSE GRAVEL SAND
45-74" GRAVELY SANDY LOAM LARGE BOULDERS

DEPTH: 74"
MOTTLING: 45"

TEST PIT 72
0-5" TOPSOIL
5-36" BROWN SANDY LOAM
36-50" GREY MOTTLED COMPACT SAND
50-84" BONEY GRAVEL SANDY LOAM

DEPTH: 84"
MOTTLING: 36"
ROOTS 38"

TEST PITS OBSERVED BY:
GLENN BAGDOIAN
EASTERN HIGHLANDS HEALTH DISTRICT
DECEMBER 4, 2024

TEST PIT 73
0-4" ORGANICS
4-24" BROWN SANDY LOAM
24-60" BONEY GRAVEL COBBLES
60"-86" SANDY TILL-LOAM BONEY LARGE ROCKS

DEPTH: 86"
MOTTLING: 44"
ROOTS: 42"

TEST PIT 74
0-4" ORGANICS - TOP SOIL
4-30" BROWN SANDY LOAM
30-44" TAN SANDY LOAM
44"-72" GREY COMPACT SANDY TILL

DEPTH: 72"
MOTTLING: 44"
ROOTS: 42"

TEST PITS OBSERVED BY:
GLENN BAGDOIAN
EASTERN HIGHLANDS HEALTH DISTRICT
MAY 6, 2020

TEST PIT 13
0-5" TOPSOIL
5-42" BROWN FINE SANDY LOAM
45-50" GREY SILTY TILL

DEPTH: 50"
MOTTLING: 36"
SEEPAGE: 49"

TEST PITS OBSERVED BY:
GLENN BAGDOIAN
EASTERN HIGHLANDS HEALTH DISTRICT
MAY 12, 2025

TEST PIT 75
0-8" TOPSOIL
8-24" BROWN SANDY LOAM
24-42" COARSE MEDIUM GRAVEL SAND SANDY LOAM
42"-78" MOTTLED SANDY TILL

DEPTH: 78"
MOTTLING: 42"
SEEPAGE 60"

TEST PIT 76
0-5" TOPSOIL
5-32" BROWN SANDY LOAM
32-60" BROWN GRAVELY MEDIUM SAND
60"-78" MOTTLED SANDY TILL

DEPTH 78"
MOTTLING: 42"
SEEPAGE 60"

TEST PIT 77
0-5" TOP SOIL
5-37" BROWN SANDY LOAM
37-42" MOTTLED GREY SANDY LOAM
42-68 DARK BROWN SANDY TILL GRAVELY

DEPTH: 68"
MOTTLING: 37"
SEEPAGE: 42"

PERCOLATION TEST RESULTS
PERFORMED BY - BUSHNELL ASSOCIATES LLC

PERC B
11/27/24
PRE-SOAK 9:00 AM
DRY START @ 10.02 AM
20" DEEP HOLE

TIME	READING (IN.)	DIFFERENCE (IN.)
0	7	-
5	14 1/2	7 1/2
10	19	4 1/2
15	DRY	1

PERCOLATION RATE: 1-5 MIN./IN.

PERC C
11/27/24
PRE-SOAK 9:00 AM
DRY START @ 10:18 AM
19" DEEP HOLE

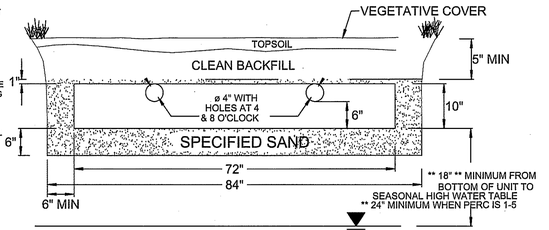
TIME	READING (IN.)	DIFFERENCE (IN.)
0	5 1/2	-
5	9	3 1/2
10	11	2
15	12 3/4	1 3/4
20	14 1/4	1 1/2
25	15 1/4	1
30	16 1/2	1 1/4
35	17 1/4	3/4
40	18 1/4	1
45	DRY	3/4

PERCOLATION RATE: 1-5 MIN./IN.

PERC 2
5/16/24
PRE-SOAK 8:25 AM
DRY START @ 10:00 AM
22" DEEP HOLE

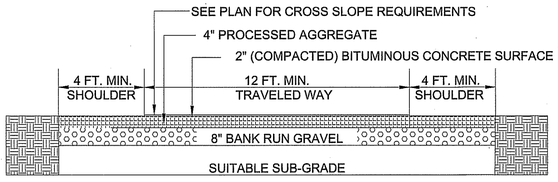
TIME	READING (IN.)	DIFFERENCE (IN.)
0	5 1/2	-
5	9 3/4	4 1/4
10	11 3/4	2
15	13	1 1/4
20	14	1
25	15	1
30	15 1/2	1/2
35	16	1/2
40	16 1/2	1/2
45	17	1/2
50	17 1/2	1/2
55	18	1/2
60	18 1/2	1/2

PERCOLATION RATE: 1-10 MIN./IN.

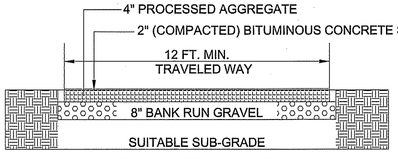


NOTE: VENTING REQUIRED WHEN MORE THAN 18" OF COVER AS MEASURESED FROM THE TOP OF THE UNIT TO FINISHED GRADE

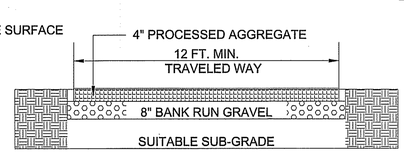
ELJEN YARDFILTER 53
NOT TO SCALE



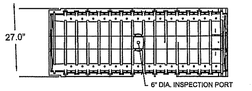
COMMON DRIVEWAY DETAIL
NOT TO SCALE

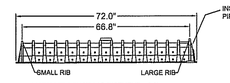


PAVED DRIVEWAY DETAIL
NOT TO SCALE

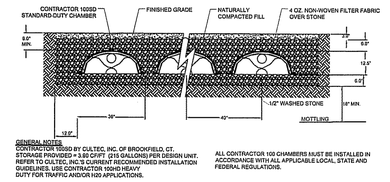


GRAVEL DRIVEWAY DETAIL
NOT TO SCALE





INSTALLED LENGTH ADJUSTMENT = 0.6'



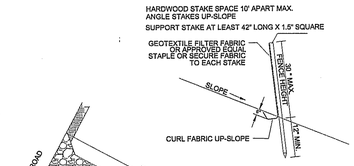
GENERAL NOTES:
CONTRACTOR 100SD BY CULTEC, INC. OF BROOKFIELD, CT.
STORAGE PROVIDED = 3.80 CF/FT (215 GALLONS) PER DESIGN UNIT.
REFER TO CULTEC, INC'S CURRENT RECOMMENDED INSTALLATION GUIDELINES. USE CONTRACTOR 100HD HEAVY DUTY FOR TRAFFIC AREAS OR H20 APPLICATIONS.

ALL CONTRACTOR 100 CHAMBERS MUST BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

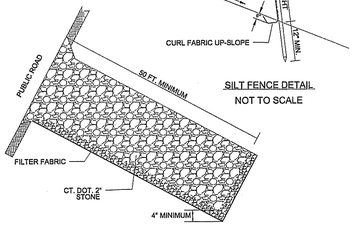
INFILTRATION UNITS ARE TO BE INSTALLED WITH A MINIMUM SEPARATION DISTANCE OF 25FT. FROM ANY WELL, 15FT. FROM THE HOUSE FOUNDATION AND 25 FT. UPSLOPE FROM THE SEPTIC SYSTEM AND TANK. THE UNITS ARE TO BE CONNECTED TO HOUSE GUTTER DOWN SPOUTS WITH 4" MINIMUM DIAMETER PVC PIPE

TYPICAL ROOF STORMWATER INFILTRATION UNIT DETAILS
CULTEC CONTRACTOR 100 OR EQUAL
NOT TO SCALE

INFILTRATION STRUCTURES TO BE SIZED TO TREAT THE 1ST INCH OF STORMWATER FROM IMPERVIOUS SURFACES



SILT FENCE DETAIL
NOT TO SCALE



ANTI - TRACKING CONSTRUCTION ENTRANCE
NOT TO SCALE

UTILITIES SHOWN ON THIS MAP WERE DERIVED FROM FIELD LOCATIONS AND EXISTING MAPPING CONTRACTOR TO VERIFY LOCATIONS AND DEPTH IN THE FIELD PRIOR THE START OF ANY CONSTRUCTION. "CALL BEFORE YOU DIG (1-800-922-4455)."

STATE OF CONNECTICUT ANDREW F. BUSHNELL 24591 LICENSED PROFESSIONAL ENGINEER

PLAN PREPARED FOR CHARLES A. BROWN

LAND OF MARGARET REID AND REID MARTIN

ROUTE 44 / BOSTON TURNPIKE MAP 22-108 COVENTRY CT.

DETAILS / APPROVAL LETTERS

SCALE: NONE	DATE: 05/20/2025	FILE NO. 2024-93	SHEET: 4 OF 4

BUSHNELL ASSOCIATES LLC.
CIVIL ENGINEERING AND LAND SURVEYING
563 WOODBRIDGE STREET MANCHESTER, CT. 06042
860-643-7875

REVISIONS: 8/7/2025