

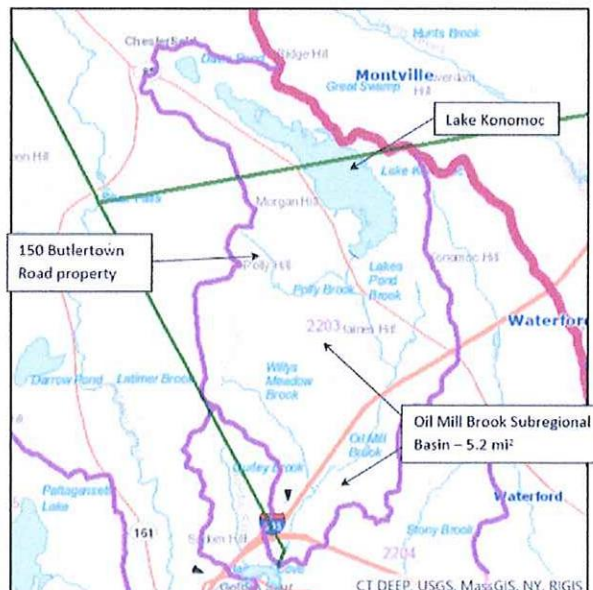
150 BUTLERTOWN ROAD SUBDIVISION APPLICATION STORM WATER MANAGEMENT REPORT

March 11, 2025

The 150 Butlertown Road Subdivision project involves an existing 33.52 acre parcel – Parcel Map/Lot 37-1278 – located on the southwestern side of Butlertown Road in the northwest section of Waterford, Connecticut. The parcel is proposed to be partially developed as a subdivision under the Town of Waterford Zoning and Subdivision Regulations taking the existing lot and creating a new building lot (Lot A) 5.67 acres in area. The remainder of the parcel will remain as it is presently with woodlands, wetlands and the existing single-family residential structure – 150 Butlertown Road. As part of the Final Subdivision Plan Application requirements listed in Section 25.6 of the Waterford Zoning Regulations and Section 5.5 of the Waterford Subdivision Regulations, this Storm Water Management Report establishes the means for mitigating the increase in storm water runoff and provides treatment capacity consistent with the Connecticut Storm Water Management Plan and other pertinent regulations and best management practices.

The 150 Butlertown Road Subdivision parcel is located within the Oil Mill Brook subregional drainage basin which drains directly to the Niantic River, Niantic Bay and Long Island Sound. The delineation of the subregional basin is shown in Figure 1. The total area of the subregional basin is 5.2 mi²; The 150 Butlertown Road Subdivision parcel accounts for 33.52 acres of the basin. Excluding the Open Space area of the 150 Butlertown Road Subdivision the development impacts 5.67 acres of the Oil Mill Brook basin; approximately 0.17% of the total basin. The basin consists primarily of residential lots of varying size, roadways (including Interstates 395 and 95), agricultural land, a racetrack, limited commercial and municipal uses, open space and woodlands.

Figure 1: 150 Butlertown Road Subdivision Drainage Basin



The 150 Butlertown Road Subdivision parcel and the development area consists of one primary drainage area. The wetlands (Poly Brook) at the eastern end of the parcel drain directly to Oil Mill Brook downstream of Lake Konomoc. Currently, the 150 Butlertown Road parcel is primarily woodlands and wetlands with only 1.40 acres in the central portion developed with a single-family home. The proposed subdivision would consist of the development of another single-family residential lot on the western side of the wetlands impacting a 5.52 acre drainage basin. These conditions, along with the land survey data from the subdivision site plan set were used to develop a HydroCAD model representing the existing conditions and project storm water runoff flows for various storm events using the USDA Natural Resources Conservation Service (NRCS) TR-20 method. The results of the model are summarized in Figure 2. The full HydroCAD report is attached for reference as Attachment A.

Figure 2: Storm Water Runoff Flow Rates – Existing Conditions

Summary of Storm Water Runoff Flow Rates (ft³/s)	
150 Butlertown Road Subdivision	
Existing Conditions	
Source: HydroCAD	
Storm Event	Total
1 year Storm	0.07
2 year Storm	0.21
10 year Storm	0.78
25 year Storm	1.11
100 year Storm	1.89

The 150 Butlertown Road parcel was then modeled under the land use conditions proposed within the developed area as depicted in the Final Subdivision Application package and site plan set, again, using HydroCAD and the TR-20 methodology.

The proposed development consists of adding one single-unit residential building lot (Lot A), 5.67 acres in size, with an extended gravel driveway that connects with the existing driveway for 150 Butlertown Road and utilizes the existing wetland crossing/bridge. Three small detention basins (#1A, #1B and #1C) are proposed flanking the proposed Lot A driveway to intercept runoff from the up-gradient woodland area and the proposed development for treatment and peak runoff flow mitigation. Each basin is sized and configured per the site plan set and includes a catch basin overflow and discharge pipe to the down-gradient woodland area. Discharges are further protected with riprap aprons for energy dissipation. Two cross-culverts are proposed to convey runoff through the driveway discharging to detention basins #1B and #1C. Total stormwater detention or storage volume is 26,748 ft³ – Detention Basin #1A – 13,488 ft³; Detention Basin #1B – 7,140 ft³; and Detention Basin #1C – 6,120 ft³. Each of the drainage basin areas for each detention basin under proposed conditions is delineated on the Erosion & Sediment Control and Storm Water Management Plan sheet within the Final Subdivision Application site plan set. A

summary of the storm water runoff flow rates under the proposed developed condition is presented in Figure 3.

Figure 3: Storm Water Runoff Flow Rates – Proposed Conditions

Summary of Storm Water Runoff Flow Rates (ft ³ /s)								
150 Butlertown Road Subdivision								
Proposed Conditions								
Source: HydroCAD								
	Drainage Basin #1A		Drainage Basin #1B		Drainage Basin #1C		Totals	
Storm Event	Runoff	Detention Basin Discharge	Runoff	Detention Basin Discharge	Runoff	Detention Basin Discharge	Runoff	Detention Basin Discharges
1 year Storm	0.08	0.00	0.05	0.00	0.04	0.00	0.17	0.00
2 year Storm	0.18	0.00	0.11	0.00	0.10	0.00	0.39	0.00
10 year Storm	0.52	0.00	0.31	0.00	0.32	0.11	1.15	0.11
25 year Storm	0.70	0.12	0.42	0.09	0.45	0.29	1.57	0.50
100 year Storm	1.11	0.68	0.66	0.44	0.74	0.71	2.51	1.83

The storm water runoff flow rates under the proposed conditions represent a zero net increase compared to existing conditions. A comparison of the existing and proposed storm water runoff flow rates for all storms is presented in Figure 4. Attachment B provides all the HydroCAD data reports for the proposed conditions model. The increase in storm water runoff flow rates due to the introduction of impervious surfaces and lawn/landscaped areas within the developed portion of the parcel are mitigated by the detention basin storage and treatment capacity.

Figure 4: Storm Water Runoff Flow Rates Comparison

Storm Water Runoff Flow Rates Comparison			
150 Butlertown Road Subdivision			
Existing vs. Proposed Conditions			
Source: HydroCAD			
Storm Event	Existing Conditions	Proposed Conditions	Percent Change
1 year Storm	0.07	0.00	-100.00
2 year Storm	0.21	0.00	-100.00
10 year Storm	0.78	0.11	-85.90
25 year Storm	1.11	0.50	-54.95
100 year Storm	1.89	1.83	-3.17

From a storm water treatment perspective, the Water Quality Volume was calculated for the 150 Butlertown Road Subdivision under proposed conditions and included as part of the Erosion & Sediment Control and Storm Water Management Plan sheet and the Final Subdivision Application package. The Water Quality Volume was calculated per the 2024 Connecticut Stormwater Quality Manual for the development area and determined to be a total of 3,118 ft³. The proposed stormwater detention basin

provides 26,748 ft³ of treatment capacity exceeding and effectively treating the calculated Water Quality Volume. The three stormwater detention basins are designed to accept and direct the stormwater flows from the developed area and Lot A and under extreme storm events discharge their overflow to the down-gradient woodlands at flow rates less than existing conditions. Peak flows will be treated, mitigated and delayed eliminating any adverse impact to the greater watershed, wetland area and watercourses downstream.

In conclusion, the impact of the 150 Butlertown Road Subdivision demonstrates a zero net increase in storm water flow rates while introducing storm water treatment with the implementation of strategically placed stormwater detention basins. Further, the detention basins are designed to target the impervious surfaces introduced with the proposed subdivision and provide direct flow mitigation and water treatment. These actions will mitigate the potential adverse impacts of the proposed subdivision on the remainder of the parcel dedicated to open space, the wetland and watercourses downstream of the development and all neighboring properties.

Respectfully submitted,



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Attachments

Attachment A = HydroCAD Report = Existing Conditions

Attachment B – HydroCAD Report – Proposed Conditions