

## AGENDA

Regular Virtual Meeting  
Canton Planning and Zoning Commission  
Wednesday, September 16, 2020 at 7:00 pm  
**Call-In Number:** +1 (571) 317-3122  
**Access Code:** 274-622-029

*Application materials and meeting information can be found at the following location:  
<http://www.townofcantonct.org/agendas-minutes-meetings>*

### CALL TO ORDER:

### ROLL CALL:

### READING OF THE LEGAL NOTICE:

### PUBLIC HEARINGS

*We encourage those looking to submit public hearing testimony, to do so in advance of the meeting to the following email: [npade@TownofCantonCT.org](mailto:npade@TownofCantonCT.org)*

1. **File 475; ApIn 2000;** 9 and 15 Albany Turnpike; Assessor Map 32 and 36; Parcel 1010009 and 1010015; Zone: B; Special Permits: Section 4.1.C.1.a., retail/service businesses and personal service businesses greater than 2,500 square feet; Section 4.1.C.2.b., outdoor dining when accessory to restaurant classes I, II, or III; Section 4.1.C.10.a., new car dealership, as defined by CGS Section 14-51(1); Section 4.1.C.10.e., gasoline filling stations; Section 7.3.F.8.a., sign approval by special permit; Section 7.5.D.3., earthwork and grading over 2,000 cubic yards; Section 7.7.C.3., retaining wall by special permit; and Site Plan Application, Section 9.1.A.; request to construct a 8,384 sq. ft. gas station/convenience store with drive-thru and 20,865 sq. ft. electronic vehicle showroom with 68 associated parking spaces; 9-15 Albany Turnpike, LLC, applicant/owner

## REGULAR MEETING

### PUBLIC HEARING ACTIONS:

1. **File 475; ApIn 2000;** 9 and 15 Albany Turnpike; Assessor Map 32 and 36; Parcel 1010009 and 1010015; Zone: B; Special Permits: Section 4.1.C.1.a., retail/service businesses and personal service businesses greater than 2,500 square feet; Section 4.1.C.2.b., outdoor dining when accessory to restaurant classes I, II, or III; Section 4.1.C.10.a., new car dealership, as defined by CGS Section 14-51(1); Section 4.1.C.10.e., gasoline filling stations; Section 7.3.F.8.a., sign approval by special permit; Section 7.5.D.3., earthwork and grading over 2,000 cubic yards; Section 7.7.C.3., retaining wall by special permit; and Site Plan Application, Section 9.1.A.; request to construct a 8,384 sq. ft. gas station/convenience store with drive-thru and 20,865 sq. ft. electronic vehicle showroom with 68 associated parking spaces; 9-15 Albany Turnpike, LLC, applicant/owner

**OLD BUSINESS:** None

**NEW BUSINESS:** None

### OTHER BUSINESS:

1. Update Regarding the Communications Facilities Sub-Committee
2. Discussion of Zoning Map Amendments Pertaining to Potential Opportunity Locations
3. Discussion on Potential Edits to the Form-Based Code
4. Update regarding violation at 31 Powder Mill Road
5. Discussion on POCD Implementation

### NOTE TO PERSONS WITH SPECIAL NEEDS:

The Town of Canton does not discriminate on the basis of disability. Individuals who need auxiliary aids or an interpreter at a Town meeting must notify the appropriate department in advance of the meeting as soon as they are able.

6. Discussion of Form Based Code Concept of Site/Pad/Maximum Density Partial Approvals
7. Discussion of Public Improvement Standards
8. Review of Minutes from August 19, 2020
9. Staff Reports:
  - a. Town Planner's Report
  - b. ZEO Report

**ADJOURNMENT:**





# TOWN OF CANTON

## LAND USE DEPARTMENT

FOUR MARKET STREET  
P.O. BOX 168  
COLLINSVILLE, CONNECTICUT 06022-0168  
860-693-7856

### OFFICE USE ONLY

APPLICATION # \_\_\_\_\_ FILE # \_\_\_\_\_ FEE AMOUNT: \_\_\_\_\_

DATE SUBMITTED: \_\_\_\_\_ PAID Y / N

APPROVED Y / N

Zoning Official \_\_\_\_\_ Date: \_\_\_\_\_

### ZONING DEVELOPMENT APPLICATION

Project Location: 9-15 Albany Turnpike, Canton & Simsbury

Assessor's Identification: Map#: 36 Lot #: 9 - 15 Zone: B Lot Size: 26acres (5.822 in Canton)

Land Record Reference to Deed Description: Volume: 445 Page: 586 & 588

PROPERTY OWNER: 9-15 Albany Turnpike, LLC PHONE: 860-491-1404 x102

APPLICANT/AGENT: 9-15 Albany Turnpike, LLC PHONE: 860-491-1404 x102

Mailing Address: 184 Fern Avenue, Litchfield, CT 06759

Email Address: Mark@markgreenbergrealestate.com

#### **Present Use**

Briefly describe the present use of the site. Lot 15 is improved with a single-family house all other lots are undeveloped.

#### **Proposal**

Briefly describe the proposal. See the included Project Narrative for a detailed description of the proposed development.

Is this property located within a Canton Village District? YES /  NO

If yes, please circle the appropriate district below:

- a) East Gateway Design Village District
- b) Canton Village Design Village District
- c) Hart's Corner Design Village District
- d) Collinsville Design Village District

Type of Application and Required Fee		Amount
<input type="checkbox"/> Type 1 FBC Application	\$50	___
<input type="checkbox"/> Type 2 FBC Application		
<input type="checkbox"/> <i>Detailed Site Plan – Non-Residential</i>	\$200 up to 2,000 sq. ft. and \$30 for each additional 1,000 sq. ft. of floor area	___
<input type="checkbox"/> <i>Detailed Site Plan – Residential</i>	\$200 up to four (4) dwellings; \$30 each additional dwelling over four units	___
<input type="checkbox"/> <i>Modification of previously approved plans and not considered new construction or expansion</i>	Fee equal to 50% of the original filing fee	___
<input checked="" type="checkbox"/> Detailed Site Plan – Non-Residential	\$200 up to 2,000 sq. ft. and \$30 for each additional 1,000 sq. ft. of floor area	<u>\$1017.47</u>
<input type="checkbox"/> Detailed Site Plan – Residential	\$200 up to four (4) dwellings; \$30 each additional dwelling over four units	___
<input type="checkbox"/> Modification of previously approved plans and not considered new construction or expansion	Fee equal to 50% of the original filing fee	___
<input checked="" type="checkbox"/> Special Permit	\$200 for first, and \$75 for each additional Special Permit	\$725.00
<input type="checkbox"/> Excavation and Grading Permit	\$200 plus \$75 per acre of disturbed area or portion thereof	___
<input type="checkbox"/> Soil and Erosion Control Plan Certification	All applications requiring a soil and erosion control plan certification may require an additional fee required by and paid to the North Central Soil Conservation District	___
<input checked="" type="checkbox"/> <b>All applications require an additional \$60 State Fee</b>		<u>\$60.00</u>
<input type="checkbox"/> Additional Fees	The Commission may require additional fees in accordance with Town Ordinance Chapter #248	___

**TOTAL FEE      \$1802.47**

Cite the Section(s) and written description of the Zoning Regulations under which you are applying (only those items specifically identified on this application will be included in the public notice and application proceedings):

- Section # 4.1.C.10.(b.) Regulatory Language : Gas Station Use in Business Zone  
Section # 4.1.C.(a.) Regulatory Language : Drive-Thru Uses in Business Zone  
Section # 4.1.C.10.(a.) Regulatory Language : Automobile Service Use in Business Zone  
Section # 4.1.C.1.(a.) Regulatory Language : Retail Use > 2,500 SF in Business Zone  
Section # 4.1.C.2.(b.) Regulatory Language : Outdoor Dining Area Use in Business Zone  
Section # 7.7.C.3. Regulatory Language : Retaining Wall/Fence Height & Proximity to Lot Line  
Section # 7.3.F.8.A. Regulatory Language : Signs: Number of, Tenant Count, Size and Illumination  
Section # 7.5.D.3 Regulatory Language : Earthwork and grading over 2,000 cubic yards

Design Village Districts Application Data			
Existing Square Footage		Proposed Square Footage	
Existing Parking Spaces		Proposed Parking Space	
Existing Stories		Proposed Stories	
Existing Height		Proposed Height	
Percentage of Building Area Expansion			
Percentage of Building Façade Expansion			
Percentage of Parking Area Expansion			
Percentage of Cumulative Building Area Expansion			
Percentage of Cumulative Building Façade Expansion			
Percentage of Cumulative Parking Area Expansion			

Are you requesting a Design Adjustment? YES  NO

If yes, please explain: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Building Materials**

Briefly describe the materials that will be utilized (i.e., primary, secondary, roof, street walls, etc.) \_\_\_\_\_  
Pump Canopy: Steel Columns /Aluminum Clad/Steel Frame/Steel Panels/Concrete Islands  
Gas/Convenience: Structural Steel/Wood Framing/Prefabricated Trusses, Brick vaneer, Aluminum Storefront  
EV Showroom & Service: Structural Steel/Metal & Aluminum Exterior Finish

Is any portion of the site within 500 feet of an adjoining town? *(Please reference the Town of Canton Zoning Map)*

- Avon
- Barkhamsted
- Burlington
- Granby
- New Hartford
- Simsbury

The required "CHECKLIST" has been completed by the applicant and attached? *(Zoning Regulations Appendix)*

- No *(Failure to submit the required checklist shall render the zoning application incomplete)*
- Yes

**This application will be considered incomplete if any required information is not submitted.**

If a development application involves a Zoning Regulation or Map Amendment the applicant shall submit a Town of Canton Zone Change Application. The applicant shall file a copy of any proposed **regulation amendment or zone change** with the Town Clerk ten (10) days prior to the hearing per Sections 8-3(a) of the Connecticut General Statutes. Certification by the Town Clerk of the filing under these sections must be presented by the Applicant at the public hearing.

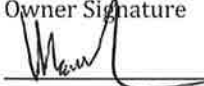
By submitting this application, I hereby verify that all materials contained herein are true and grant permission to Town employees and Commission members to enter and view the subject site.

As the applicant/owner, I hereby give Town employees and Commission members' permission to enter and walk the property, which is the subject of this application, during daylight hours during the pendency of this application.

**BEFORE SIGNING, OWNERS AND APPLICANTS PLEASE NOTE:**

By signing this application, the signer represents as to the owner or applicant, whichever applies, either:

- (i) If an individual, that the signer is that individual; or
- (ii) If an entity (e.g. corporation, LLC, partnership, trust, association) that he or she is legally authorized to sign on behalf of that entity.

Owner Name (please print)	Owner Signature	Date
<u>9-KS ALBANY TURNPIKE, LLC</u> <u>MARK GREENBERG</u>	 _____	<u>8/3/20</u>

Applicant Name (please print)	Applicant Signature	Date
<u>MARK GREENBERG</u>	 _____	<u>8/3/20</u>

# ENGINEERING REPORT

*For the Proposed:*

## 9-15 ALBANY TURNPIKE

*Located At:*

9 & 15 Albany Turnpike  
Canton & Simsbury, Connecticut

*Prepared On:*

August 11, 2020

*Revised On:*

September 4, 2020

*Prepared By:*



501 Main Street  
Monroe, Connecticut 06468  
T: (203) 880-5455 F: (203) 880-9695

*Prepared For:*

## 9-15 Albany Turnpike, LLC

184 Fern Avenue  
Litchfield, Connecticut 06759

---

Kevin M. Solli, P.E.  
Connecticut License No. 25759



*TABLE OF CONTENTS*

<u>INTRODUCTION</u> .....	1
<u>PROJECT DESCRIPTION</u> .....	1
EXISTING CONDITIONS.....	1
PROPOSED CONDITIONS.....	1
<u>STORMWATER MANAGEMENT</u> .....	2
METHODOLOGY .....	2
EXISTING HYDROLOGY .....	3
PROPOSED HYROLOGY & HYDRAULICS .....	4
STORMWATER CONCLUSION.....	6
<u>SOIL EROSION AND SEDIMENT CONTROL</u> .....	6
<u>EARTHWORK ANALYSIS</u> .....	6
<u>SITE UTILITIES</u> .....	7
WATER .....	7
TELEPHONE AND ELECTRIC.....	7
GAS .....	7
SANITARY SEWER.....	7
<u>TRAFFIC &amp; CIRCULATION</u> .....	8

## **LIST OF APPENDICES**

### **APPENDIX A:**

#### **FIGURES**

Site Location Map (Figure 1)  
FEMA Flood Map (Figure 2)  
Soil Survey Map (Figure 3)  
Natural Diversity Database Map (Figure 4)  
USGS Map (Figure 5)  
Aquifer Protection Area Map (Figure 6)  
Inland Wetland Map (Figure 7)  
Watershed Protection Map (Figure 8)  
Proposed Easements (Figure 9)  
Impaired Waterbodies Map (Figure 10)

### **APPENDIX B:**

#### **WETLANDS ASSESSMENT**

Wetland Delineation Report prepared by REMA Ecological Services, LLC

### **APPENDIX C:**

#### **EXISTING & PROPOSED HYDROLOGY**

NOAA Atlas Precipitation Data  
HydroCAD Routing Diagram for Existing Drainage Watershed Areas  
HydroCAD Report for Existing Drainage Watershed Areas  
Existing Time of Concentration Calculations  
HydroCAD Routing Diagram for Proposed Drainage Watershed Areas  
HydroCAD Report for Proposed Drainage Watershed Areas  
Proposed Time of Concentration Calculations

### **APPENDIX D:**

#### **PROPOSED HYDRAULICS**

Hydroflow Storm Sewer Schematic  
Hydroflow Storm Sewer Tabular Reports  
Hydroflow Storm Sewer Profiles  
Runoff Coefficient Calculations  
Time of Concentration Calculations  
Hydrodynamic Separator Calculations and Details  
Water Quality Volume Calculations

### **APPENDIX E:**

#### **DEEP TEST PIT / LEDGE DEPTH ASSESSMENT**

Test Pit Log Information

### **APPENDIX F:**

#### **PLANS**

Existing Drainage Area Map (EDA-1)  
Proposed Drainage Area Map (PDA-1)  
Subcatchment Drainage Area Map (CB-1)  
Grading & Drainage Plan (2.21)  
Soil Erosion & Sediment Control Plan (2.31)  
Soil Erosion & Sediment Control Notes & Details (2.41)  
Utility Plan (2.51)

## **INTRODUCTION**

Solli Engineering (Solli) has prepared this engineering report to provide an analysis of the stormwater drainage, trip generation, earthwork, utilities and soil erosion and sediment control measures associated with the development of an 8,384 square-foot gas station/convenience store and a 20,865 square-foot electric vehicle showroom/service shop at 9-15 Albany Turnpike in Canton & Simsbury, Connecticut. The design has been completed in compliance with all applicable Town of Canton & Simsbury codes and regulations as well as all other applicable state and federal requirements and regulations.

## **PROJECT DESCRIPTION**

### **EXISTING CONDITIONS**

The site is located at 9-15 Albany Turnpike in the Canton Business District (B) and the Simsbury Designed Business Development Zone (B-3). The overall site totals approximately 26.0 acres and is bounded by Brass Lantern Road, industrial and commercial properties to the west, residential properties to the north, commercial properties to the east, and Albany Turnpike to the south. The site is currently accessed from a residential driveway at the intersection of Brass Lantern Road and Albany Turnpike. The property is owned by 9-15 Albany Turnpike, LLC and is currently occupied by a single-family residential dwelling.

According to FEMA Flood Insurance Rate Map, Map Numbers 09003C0309F and 09003C0328. The project site is not within a special flood hazard area subject to inundation by the 1% annual chance flood (100-year flood), also known as the base flood. (See Appendix A, Figure 2, FEMA Flood Map)

### **PROPOSED CONDITIONS**

The proposed development consists of the construction of an 8,384± square-foot footprint of a gas station and convenience store on the western portion of the property along Albany Turnpike. The eastern portion of the property along Albany Turnpike is an Electric Vehicle Showroom with an 20,865± square-foot footprint. The development will have shared driveways, parking lots, drainage, and utilities. The proposed development will be accessed via a right-in only driveway on Albany Turnpike as well as a full-movement signalized intersection further north along Albany Turnpike. The site will include new concrete sidewalks and a total of 117 parking spaces.

For each building, an enclosed dumpster pad has been provided to the rear of each building. If trash compaction or similar operations is to be conducted on-site, the operations will be completed between 7:00am and 6:00pm.

The proposed development results in an increase in impervious area of approximately 2.6± acres when compared to existing conditions. To attenuate the peak flows produced by the increase in impervious area the project has been designed with one detention basin and one sub-surface detention basin. The underground detention systems consist of plastic chambers, with associated catch basin, drainage pipes, pretreatment facilities and outlet protection. Refer to the *Stormwater Management* section of this report for more details regarding the proposed drainage system.

## **STORMWATER MANAGEMENT**

The stormwater management plan and design for the proposed industrial facility is intended to be in compliance with the Town of Canton Zoning Regulations Article 7, Section 13, Town of Simsbury Stormwater Management and the 2004 Connecticut Stormwater Quality Manual, while taking prevailing site conditions and practical considerations into account.

## **METHODOLOGY**

Stormwater runoff analysis, for both existing and proposed conditions, was performed using the software package HydroCAD 10.00-22. This software uses the dimensionless unit hydrographs method developed by SCS – TR-55 to compute volumes and rates of runoff. The watershed area, rainfall depths and intensity, curve number and time of concentration are factors that influence the computed results.

Rainfall depths for this area were used for calculating the volumes and rates of runoff for this particular project. The depths were taken from the NOAA Atlas 14 documents (41.8206°, -72.8714°) and are listed in Table 1 below.

**Table 1: Rainfall Data**

<b>Return Period</b>	<b>24-hr Rainfall Depth (in)</b>
2-year	3.46
5-year	4.62
10-year	5.58
25-year	6.91
50-year	7.87
100-year	8.95

HydroCAD computes the rainfall intensity from IDF curves when the rainfall intensity data is provided. Table 2 shows the data that was used to generate the IDF curves. This information was taken from the NOAA Atlas 14 documents (Latitude: 41.8206°, Longitude: -72.8714°) and are listed in Table 2 below.

**Table 2: IDF Table**

<b>Intermediate Intensity Values (in/hr)</b>				
<b>Return Period</b>	<b>5-Minute</b>	<b>15-Minute</b>	<b>30-Minute</b>	<b>60-Minute</b>
2-yr	5.11	2.84	1.92	1.22
5-yr	6.48	3.60	2.44	1.54
10-yr	7.62	4.23	2.87	1.81
25-yr	9.18	5.10	3.46	2.19
50-yr	10.30	5.75	3.91	2.47
100-yr	11.60	6.43	4.37	2.76

SCS uses the runoff curve number (CN) method to estimate runoff from storm rainfall. The major factors that determine CN are the watershed's soil and cover conditions, cover type, treatment and hydrologic condition. The higher percentage of impervious cover within a watershed will result in a higher curve number. A composite curve number was calculated for each analyzed watershed. Refer to Appendix C for the calculations used in determining the existing and proposed curve numbers, for the individual drainage areas.

The time of concentration is the time it takes for runoff to travel from the hydraulically most distant point of the watershed to a point of interest within the watershed. The time of concentration is calculated by adding the travel times of sheet flow, shallow concentrated flow and open channel flow, or some combination of these depending of

the watershed and its features. Refer to Appendix C for the calculations used in determining the existing and proposed time of concentrations, for the individual drainage areas.

## **EXISTING HYDROLOGY**

Slopes on site range from approximately 1 to 50 percent, with a high elevation of approximately 436 feet and a low elevation of approximate 277 feet. According to the NRCS Soil Survey Geographic database for the State of Connecticut, the majority of the site in which the project is proposed is comprised of Cheshire-Holyoke complex and Holyoke-Rock outcrop complex. These soils have a hydrologic soil group rating of B and D. A breakdown of all the soils, located within the property limits, as well as the NRCS Soil Survey Map for the site can be found in Appendix A, Figure 3.

Approximately 16.2 acres of the 26.0-acre site was analyzed for stormwater management purposes. This portion of the site evaluated contains the contributing areas directly impacted by the development. The remaining area flows to the north of the proposed development and would be undisturbed. Based on existing drainage patterns, the 16.2-acres of disturbance was divided into five contributing drainage areas, labeled: Existing Drainage Area 1 (EDA-1), Existing Drainage Area 2 (EDA-2), Existing Drainage Area 3 (EDA-3), Existing Drainage Area 4 (EDA-4) and Existing Drainage Area 5 (EDA-5). The approximate location and delineation of these drainage areas can be seen on Sheet EDA-1, Existing Drainage Area Map, found in Appendix F.

EDA-1 has a contributing area of approximately 5.76 acres. The area is occupied by open space, woods, and impervious ground coverage. This area encompasses the southern portion of the site. The majority of runoff is collected in a swale adjacent to Albany Turnpike. The swale discharges into the headwall and storm culvert the runs onto the property of Best Buy and Hoffman Auto.

EDA-2 has a contributing area of approximately 6.39 acres. The area is occupied by woods. This area encompasses the eastern portion of the site. The majority of runoff from EDA-2 flows northeast before entering the rear of Hoffman Auto.

EDA-3 has a contributing area of approximately 0.29 acres. The area is occupied by impervious ground coverage. This area encompasses the southeastern portion of the site closest to Albany Turnpike. The majority of runoff from EDA-3 flows towards the southeast before draining into the wooded area to the west of Albany Turnpike.

EDA-4 has a contributing area of approximately 2.41 acres. The area is occupied by open space, woods, and impervious ground coverage. The area encompasses the southwestern portion of the site. The majority of runoff from EDA-4 flows towards the southwest into wetlands

EDA-5 has a contributing area of approximately 1.35 acres. The area is occupied by woods. The area encompasses the northwestern portion of the site. The majority of runoff from EDA-5 flows towards the west into wetlands.

Characteristics of these drainage areas are summarized in Table 3. A map depicting existing drainage areas and their characteristics, entitled "Existing Drainage Area Map (EDA-1)", can be found in Appendix F.

**Table 3: Existing Drainage Area Characteristics**

<b>Drainage Area</b>	<b>Area (Acres)</b>	<b>Curve Number (CN)</b>	<b>Time of Concentration (Minutes)</b>
EDA-1	5.76	68	14.9
EDA-2	6.39	52	18.1
EDA-3	0.29	98	6.0
EDA-4	2.41	81	16.6
EDA-5	1.35	74	17.1

Existing peak flows for all analyzed storm-events are summarized in Table 4. Calculations for the existing hydrology can be found in Appendix C.

**Table 4: Existing Peak Flows**

<b>Drainage Area</b>	<b>Peak Flow (cfs)</b>					
	<b>2-yr</b>	<b>5-yr</b>	<b>10-yr</b>	<b>25-yr</b>	<b>50-yr</b>	<b>100-yr</b>
EDA-1	3.77	7.66	11.27	16.65	20.72	25.42
EDA-2	0.49	2.17	4.42	8.30	11.52	15.40
EDA-1+2	3.89	9.34	15.18	24.36	31.52	39.97
EDA-3	0.95	1.28	1.55	1.92	2.19	2.49
EDA-4	3.36	5.36	7.08	9.52	11.28	13.26
EDA-5	1.37	2.42	3.35	4.71	5.70	6.84

## **PROPOSED HYROLOGY & HYDRAULICS**

The proposed development consists of drainage areas that are of similar patterns to existing contributing areas, within the 16.2± acres analyzed. Based on the proposed drainage patterns, the 16.2-acre area was divided into seven (7) contributing drainage areas, labeled Proposed Drainage Area 1a (PDA-1a), Proposed Drainage Area 1b (PDA-1b), Proposed Drainage Area 1c (PDA-1c), Proposed Drainage Area 2 (PDA-2), Proposed Drainage Area 3 (PDA-3), Proposed Drainage Area 4 (PDA-4),and Proposed Drainage Area 5 (PDA-5). The approximate location and delineation of these drainage areas can be seen on Sheet PDA-1, Drainage Area Map, found in Appendix F.

PDA-1a has a contributing area of approximately 2.25 acres. This area encompasses the southwestern portion of the proposed development and consists of open space and impervious ground coverage. The majority of runoff from PDA-1a flows south before entering a detention basin. The basin discharges southeast into a swale associated with drainage area PDA-1c.

PDA-1b has a contributing area of approximately 1.66 acres. This area is comprised of the southeastern portion of the proposed development and consists of open space and impervious ground coverage. Runoff from PDA-1b will travel east. The basin discharges into a swale associated with drainage area PDA-1c.

PDA-1c has a contributing area of approximately 2.66 acres. This area is comprised of the southeast portion of the site and consists of grass, impervious ground coverage and Albany Turnpike. Runoff from PDA-1c will travel along the swale adjacent to Albany Turnpike and discharges into a swale that is associated with headwall and storm culvert the runs onto the property of Best Buy and Hoffman Auto.

PDA-2 has a contributing area of approximately 5.63 acres. This area is comprised of the eastern portion of the site and consists of woods. Runoff from PDA-2 will travel northeast. The basin discharges into wooded area behind the site.

PDA-3 has a contributing area of approximately 0.29 acres. This area is comprised of the southeastern portion of the site closest to Albany Turnpike and consists of impervious ground coverage. Runoff from PDA-3 will travel southeast. The basin discharges into wooded area to the west of Albany Turnpike.

PDA-4 has a contributing area of approximately 2.32 acres. This area is comprised of the southwestern portion of the site and consists of woods and impervious ground coverage. Runoff from PDA-4 will travel southwest. The basin discharges into wetlands.

PDA-5 has a contributing area of approximately 1.35 acres. This area is comprised of the northwestern portion of the site and consists of woods. Runoff from PDA-5 will travel west. The basin discharges into wooded area to the northwest of the site.

Characteristics of these drainage areas are summarized in Table 5. A map depicting proposed drainage areas can be found in Appendix F.

**Table 5: Proposed Drainage Area Characteristics**

<b>Drainage Area</b>	<b>Area (Acres)</b>	<b>Curve Number (CN)</b>	<b>Time of Concentration (Minutes)</b>
PDA-1a	2.25	85	14.5
PDA-1b	1.66	91	8.2
PDA-1c	2.66	63	28.1
PDA-2	5.63	52	18.1
PDA-3	0.29	98	6.0
PDA-4	2.32	80	16.6
PDA-5	1.35	74	17.1

Proposed peak flows and volumes for all analyzed storms are summarized in Table 6. Calculations for the proposed hydrology can be found in Appendix C.

**Table 6: Proposed Peak Flows**

<b>Drainage Area</b>	<b>Peak Flow (cfs)</b>					
	<b>2-yr</b>	<b>5-yr</b>	<b>10-yr</b>	<b>25-yr</b>	<b>50-yr</b>	<b>100-yr</b>
PDA- 1* (1a+1b+1c)	3.26	6.25	9.96	15.67	19.27	22.83
PDA-2	0.47	2.02	4.06	7.52	10.40	13.85
PDA-1+2** (1a+1b+1c+2)	3.73	8.18	13.95	23.18	29.67	36.68
PDA-3	0.95	1.28	1.55	1.92	2.19	2.49
PDA-4	3.11	5.01	6.65	8.97	10.69	12.59
PDA-5	1.37	2.42	3.35	4.71	5.70	6.84

\*PDA-1 is comprised of contributing areas Basin-1a, Basin-1b, and Basin -1c.

\*\*PDA-1+2 is comprised of contributing areas PDA-1 and PDA-2.

In an effort to improve the quality of the stormwater discharged from the site, the project will include a hydrodynamic separator up-gradient of each basin and hooded catch basins with two-foot sumps. These stormwater quality measures are intended to provide removal of suspended solids before runoff reaches the on-site wetlands.

A proposed stormwater conveyance system, consisting of a series of pipes and catch basins, will collect the majority of the runoff from the proposed impervious areas. These areas include the proposed roof, driveways and parking

fields. The catch basins will include hooded outlets and two-foot sumps to provide additional stormwater treatment. The system also includes one open detention basin and one sub-surface detention basins detention basins, labeled Basin-1a and Basin-1b, with hydrodynamic separators up-gradient of each basin.

Basin-1a is a surface detention that provide approximately 9,950cubic feet of storage. Basin-1a is 6feet deep, with an emergency spillway and outlet control structure that empties to the western portion of the site. The discharge is collected in a swale that runs adjacent to Albany Turnpike. Refer to the Grading & Drainage Plan in Appendix F for details regarding the layout and additional drainage features of the detention system.

Basin-1b is an underground detention system that consist of a series of interconnected plastic chambers surrounded by clean, crushed, angular stone. The chambers and voids between the stone provide approximately 27,791 cubic feet. The chambers are arch shaped with a base of 78 inches and a height of 48 inches. The rows of chambers are spaced 9 inches apart and rest on a 9inch bed of crushed stone. The systems are wrapped in a geotextile fabric to further protect surrounding soils from potential sediment exposure. Basin-1b are designed to attenuate the proposed peak flows for the 2-, 5-, 10-, 25-, 50- and 100-year storm events to result in an overall peak discharge rate less than that of overall existing conditions. Refer to the Grading & Drainage Plan in Appendix F for details regarding the layout and additional drainage features of the underground detention systems.

## STORMWATER CONCLUSION

The proposed development results in an increase in impervious area of approximately 2.6 acres when compared to existing conditions. To manage the increase in runoff associated with the increase in impervious area, the project includes the construction of one detention basin and one sub-surface detention basins. These basins are designed to attenuate the proposed rate of runoff for the 2-, 5-, 10-, 25-, 50- and 100-year storm events to result in an overall peak runoff discharge rate to be less than that of overall existing conditions.

**Table 7: Peak Flow Comparison Table**

Drainage Area	Peak Flow (cfs)					
	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
EDA-1   PDA-1a+1b+1c	3.77   <b>3.26</b>	7.66   <b>6.25</b>	11.27   <b>9.96</b>	16.65   <b>15.67</b>	20.72   <b>19.27</b>	25.42   <b>22.83</b>
EDA-2   PDA-2	0.49   <b>0.47</b>	2.17   <b>2.02</b>	4.42   <b>4.06</b>	8.30   <b>7.52</b>	11.52   <b>10.40</b>	15.40   <b>13.85</b>
EDA-1+2   PDA-1a+1b+1c+2	3.89   <b>3.73</b>	9.34   <b>8.18</b>	15.18   <b>13.95</b>	24.36   <b>23.18</b>	31.52   <b>29.67</b>	39.97   <b>36.68</b>
EDA-3   PDA-3	0.95   <b>0.95</b>	1.28   <b>1.28</b>	1.55   <b>1.55</b>	1.92   <b>1.92</b>	2.19   <b>2.19</b>	2.49   <b>2.49</b>
EDA-4   PDA-4	3.36   <b>3.11</b>	5.36   <b>5.01</b>	7.08   <b>6.65</b>	9.52   <b>8.97</b>	11.28   <b>10.69</b>	13.26   <b>12.59</b>
EDA-5   PDA-5	1.37   <b>1.37</b>	2.42   <b>2.42</b>	3.35   <b>3.35</b>	4.71   <b>4.71</b>	5.70   <b>5.70</b>	6.84   <b>6.84</b>

In an effort to improve the quality of the stormwater discharged from the site, the project will include a hydrodynamic separator up-gradient of each basin and hooded catch basins with two-foot sumps. These stormwater quality measures are intended to provide removal of suspended solids before runoff reaches the off-site drainage features and wetlands.

The hydrodynamic separators will capture and retain 100% of floatables; effectively removing sediment. The unit has been designed to remove more than 80% of the average annual post-construction load of TSS from the stormwater runoff prior to entering the stormwater basin. This hydrodynamic separator has been sized based on the 1” water quality volume



## **SOIL EROSION AND SEDIMENT CONTROL**

The proposed plans for soil erosion and sediment control prepared for this project have been developed in accordance with the Town of Canton Zoning Regulations, Article 7.13, effective date May 12, 2014, the Town of Simsbury Zoning Regulations, Section 11.1.D, effective date June 15, 2020, as well as the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, prepared by the Connecticut Council on Soil and Water Conservation in cooperation with the Connecticut Department of Environmental Protection.

The soil erosion and sediment control measures that will be proposed as part of this project include geotextile silt fences, temporary sediment traps, temporary diversion swales, construction entrance, dust control measures, riprap stabilization, stone check dams, and inlet protection for existing and proposed drainage features.

The temporary sediment traps will be excavated to detain sediment-laden runoff from contributing drainage areas located within the project's limits of disturbance. The sediment traps are proposed in the low-lying areas of each contributing drainage area and have been sized to provide a minimum storage volume of 134 cubic yards per acre of drainage area, per 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

For more detail regarding layout and design of the soil erosion and sediment control measures implemented as part of this project see Soil Erosion & Sediment Control Plan (Sheet 2.31) and Sediment Control Notes & Details (Sheet 2.41), in Appendix F.

## **EARTHWORK ANALYSIS**

The proposed development will have slopes that range from approximately 1% along the property frontage to a slope of 33% (1:3) within the basins and along the rear retaining walls. Elevations will range from a high of approximately 534, at the retaining wall north of the proposed gas/convenience building, to a low of approximately 330, south of the showcase facility.

The project will require a retaining wall to accommodate the change the grade. The largest of the proposed retaining walls is approximately 780 linear feet and runs along the eastern border of the proposed site work. This wall is approximately 30 feet tall at its highest point. The retaining wall will be constructed in a cut condition and will be comprised of some form of gravity block units.

An existing ridge traverses the middle of the project, from north to south. This ridge extends to an elevation of approximately 400 and slopes down at an average slope of 2:1. The development will require a significant cut in this section of the property of approximately 122,215 cubic yards. The project will require areas of fill along the western and eastern sides of the existing ridge. To accommodate the grades at the northern and southern areas of the property the project will require approximately 11,565 cubic yards of fill. An export of approximately 110,650 cubic yards will be required to accommodate the proposed development.

## **SITE UTILITIES**

### **WATER**

An existing water main is located at the northern intersection of Albany Turnpike and Brass Lantern Road. The water main is proposed to be extended along Albany Turnpike and into the property. The 8" water main will be extended through the signalized intersection and provide service to both buildings. The main will also contain a stub for future expansion to the remaining undeveloped portion of the property.

### **TELEPHONE AND ELECTRIC**

Existing telephone and electrical services are located within Albany Turnpike and are provided by Eversource Energy and Frontier Communications, respectively. According to Eversource Energy and Frontier Communications, existing telecommunication and electrical service exists along Albany Turnpike via utility poles and overhead lines. A utility pole will be relocated along Albany Turnpike for the proposed signalized intersection and will provide the proposed services to the project site via underground conduits. Refer to the Utility Plan, in Appendix F, for more detail regarding the layout of the proposed site utilities.

### **GAS**

Gas service is provided by Connecticut Natural Gas Company. According to Connecticut Natural Gas Company an existing gas main is located in Albany Turnpike. A gas main will be extended onto the property and provide service to the project. For more information regarding the layout of proposed gas line see Appendix F for the Utility Plan, Sheet 2.51.

### **SANITARY SEWER**

Public sewage service will be provided by Canton WPCA. According to Canton WPCA, an existing main is located at the intersection of Albany Turnpike and Brass Lantern Road. The existing main is proposed to be extended along Albany Turnpike and onto the property through the signalized intersection. The Gas Station/Convenience store will have a grease trap for kitchen waste and connect to the proposed main extension. The Electric Vehicle Showroom will have a private main extended through the site, between the Gas Station and Gas Pumps to provide service. For more information regarding the layout of proposed gas line see Appendix F for the Utility Plan, Sheet 2.51.

## **TRAFFIC & CIRCULATION**

A review of traffic operations was conducted to determine any potential traffic impacts associated with the proposed development of the Gas Station/Convince Store and Electric Vehicle Showroom. For more detailed information regarding the traffic study, see Traffic Report.

## **List of Appendices**

Appendix A: Figures

Appendix B: Wetlands Assessment

Appendix C: Existing & Proposed Hydrology

Appendix D: Proposed Hydraulics

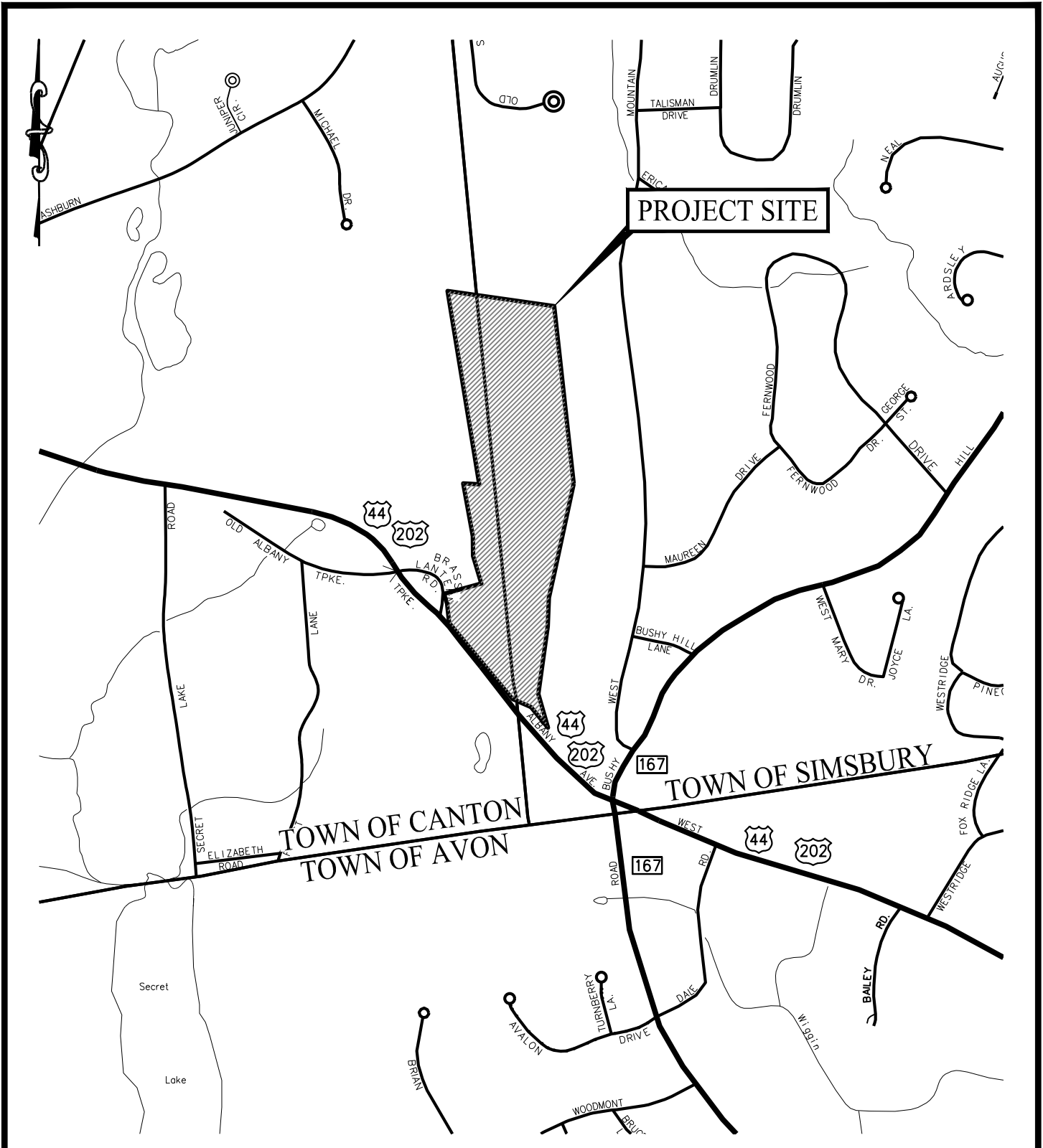
Appendix E: Deep Test Pit / Ledge Depth Assessment

Appendix F: Design Plans

## **APPENDIX A**

### **FIGURES**

- Site Location Map (Figure 1)
- FEMA Flood Map (Figure 2)
- Soil Survey Map (Figure 3)
- Natural Diversity Database Map (Figure 4)
- USGS Map (Figure 5)
- Aquifer Protection Area Map (Figure 6)
- Inland Wetland Map (Figure 7)
- Watershed Protection Map (Figure 8)
- Proposed Easements (Figure 9)
- Impaired Waterbodies Map (Figure 10)



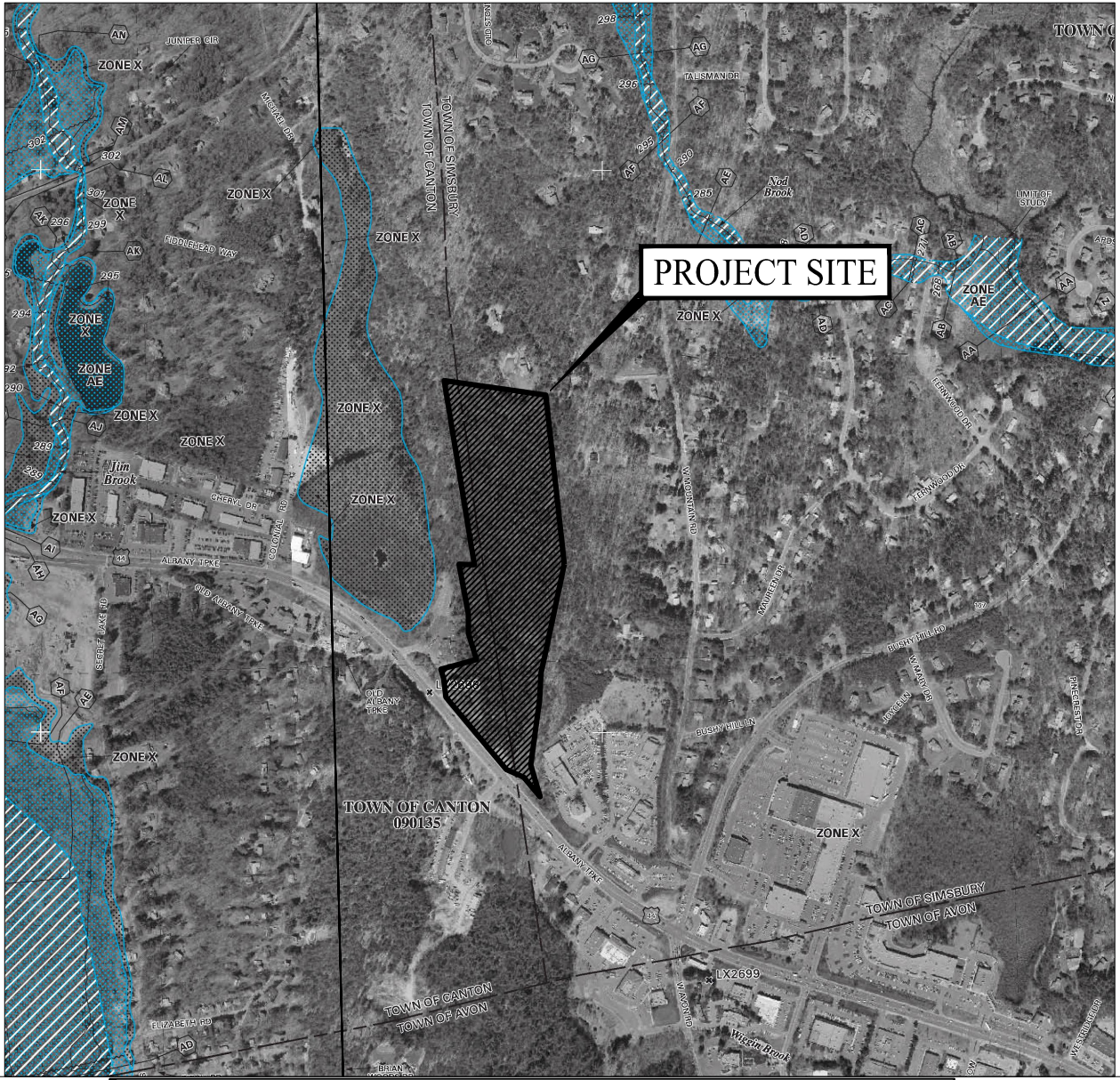
NOTE: BASE MAP INFORMATION TAKEN FROM THE CONNDOT TOWN ROAD MAPS (TRU), MAP NUMBER 004, 023, AND 128



**SOLLI**  
ENGINEERING  
501 Main Street, Monroe, CT 06468  
T: (203) 880-5455 F: (203) 880-9695

**SITE LOCATION MAP**  
9-15 ALBANY TURNPIKE  
CANTON AND SIMSBURY, CONNECTICUT

Project #:	1904501
Plan Date:	07/13/20
Scale:	1" = 1,000'
Figure:	1



**FLOODWAY AREAS IN ZONE AE**

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

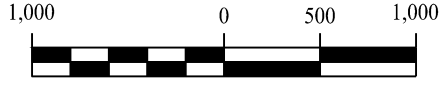


**OTHER FLOOD AREAS**

**ZONE X**

Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

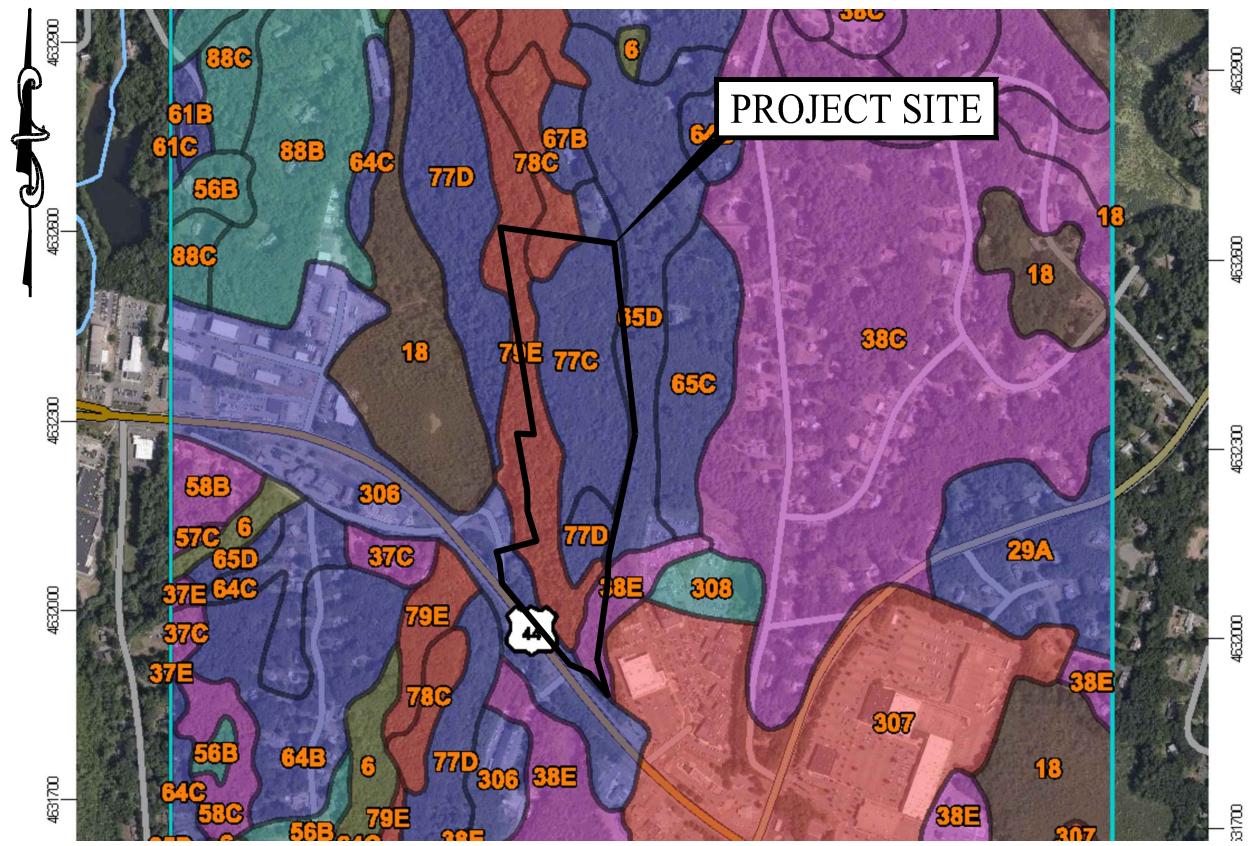
NOTE: BASE MAP INFORMATION TAKEN FROM FIRM FLOOD INSURANCE MAP, PANELS 309 AND 328 OF 626, MAP NUMBERS 09003C0309F AND 09003C0328, EFFECTIVE DATE SEPTEMBER 26, 2008



**SOLLI**  
ENGINEERING  
501 Main Street, Monroe, CT 06468  
T: (203) 880-5455 F: (203) 880-9695

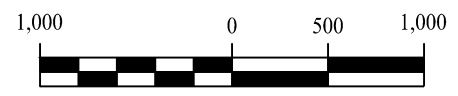
**FEMA FLOOD INSURANCE MAP**  
9-15 ALBANY TURNPIKE  
CANTON AND SIMSBURY, CONNECTICUT

Project #:	1904501
Plan Date:	07/13/20
Scale:	1" = 1,000'
Figure:	2



Map unit symbol	Map unit name	Rating
38E	Hinckley loamy sand, 15 to 45 percent slopes	A
65D	Cheshire fine sandy loam, 15 to 35 percent slopes, extremely stony	B
77C	Cheshire-Holyoke complex, 3 to 15 percent slopes, very rocky	B
77D	Cheshire-Holyoke complex, 15 to 35 percent slopes, very rocky	B
78C	Holyoke-Rock outcrop complex, 3 to 15 percent slopes	D
79E	Rock outcrop-Holyoke complex, 3 to 45 percent slopes	D
306	Udorthents-Urban land complex	B
307	Urban land	D

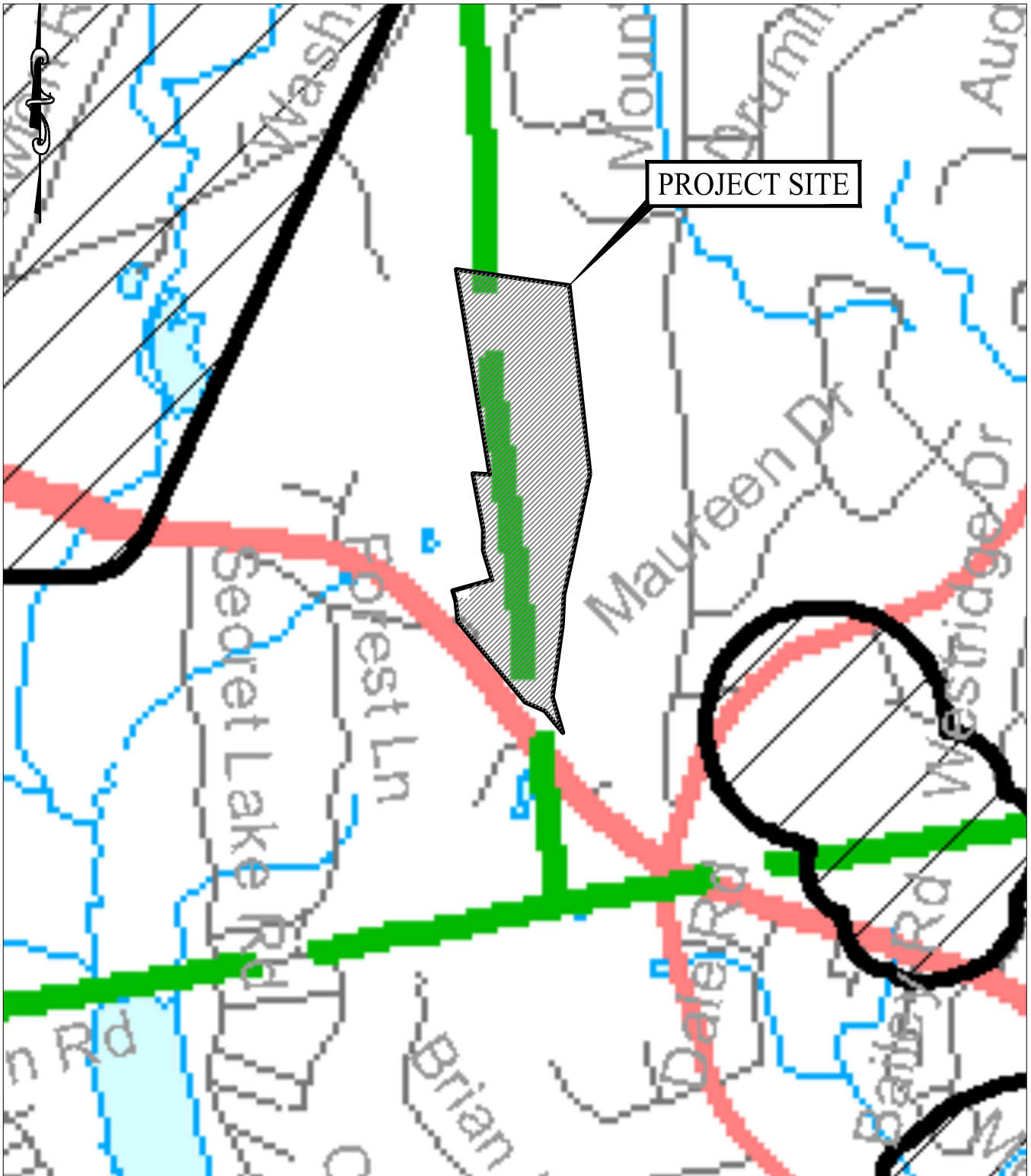
NOTE: BASE MAP INFORMATION TAKEN FROM THE NATURAL RESOURCES CONSERVATION SERVICE, URL: [HTTPS://WEBSOILSURVEY.SC.EGOV.USDA.GOV](https://websoilsurvey.sc.egov.usda.gov)  
 DATE OF SURVEY AREA DATA: JUNE 9, 2020



**SOLLI**  
 ENGINEERING  
 501 Main Street, Monroe, CT 06468  
 T: (203) 880-5455 F: (203) 880-9695

**SOIL SURVEY MAP**  
 9-15 ALBANY TURNPIKE  
 CANTON AND SIMSBURY, CONNECTICUT

Project #: 1904501  
 Plan Date: 07/13/20  
 Scale: 1" = 1,000'  
 Figure: 3



NOTE: BASE MAP INFORMATION TAKEN FROM  
 CT DEEP NATURAL DIVERSITY DATA BASE  
 AREAS, CANTON, CT, DATED: DECEMBER 2019

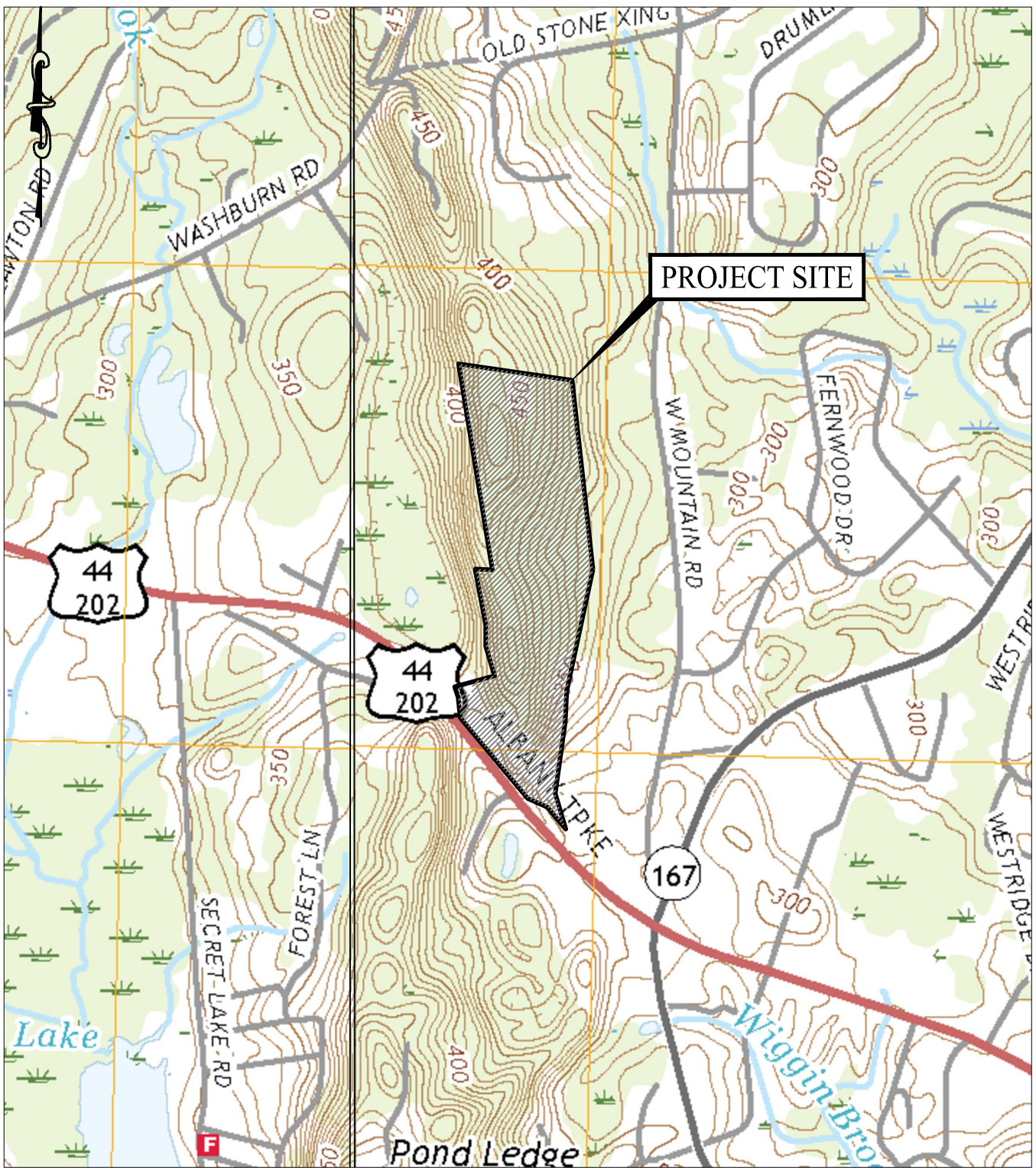


**SOLLI**  
 ENGINEERING  
 501 Main Street, Monroe, CT 06468  
 T: (203) 880-5455 F: (203) 880-9695

**NATURAL DIVERSITY MAP**  
 9-15 ALBANY TURNPIKE  
 CANTON AND SIMSBURY, CONNECTICUT

Project #:	1904501
Plan Date:	07/07/20
Scale:	1" = 1,000'
Figure:	4





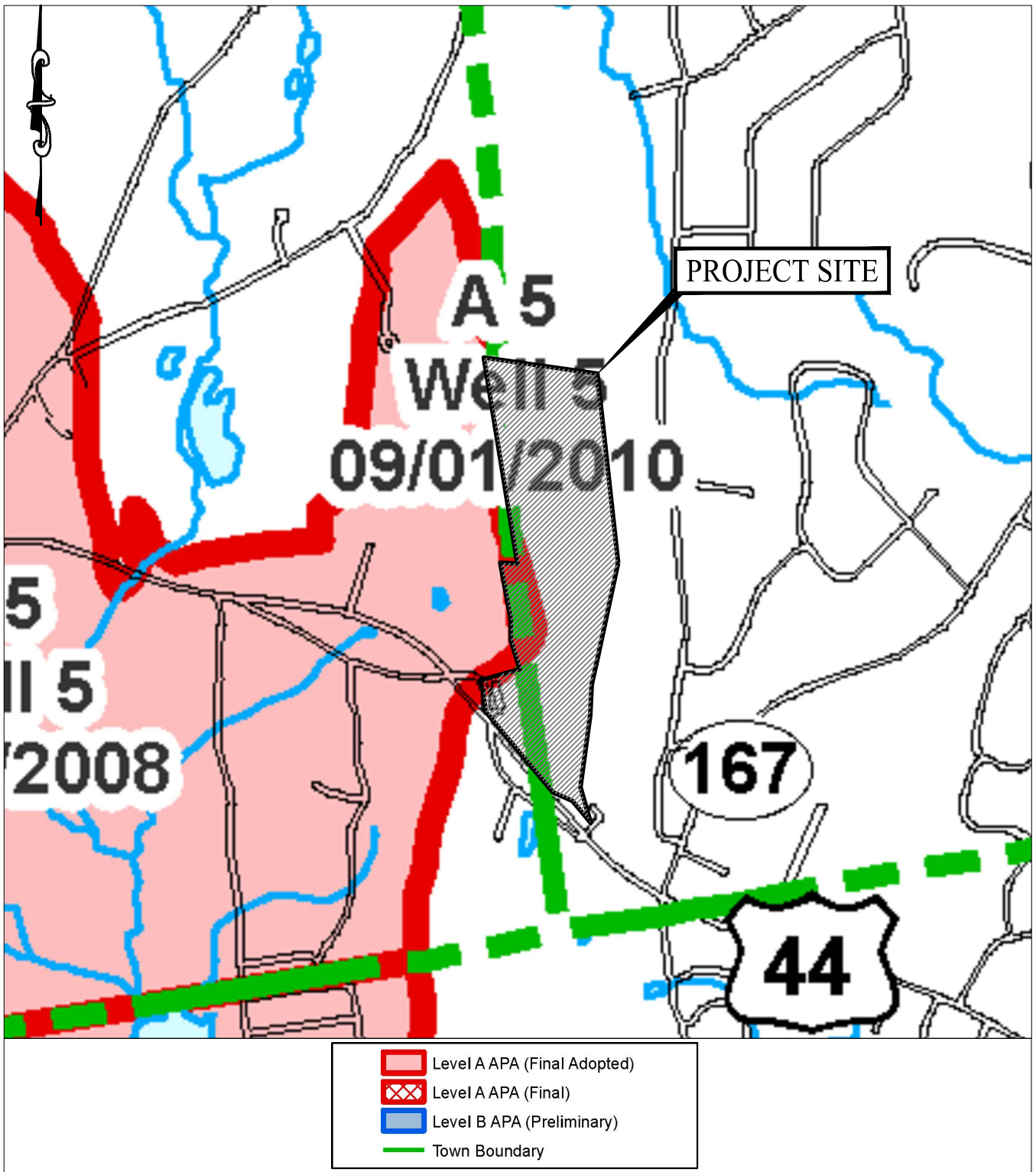
NOTE: BASE MAP INFORMATION TAKEN FROM USGS AVON AND COLLINSVILLE CONNECTICUT QUADRANGLES 7.5-MINUTE SERIES. NGA REF. NO. USGSX24K72664 AND USGSX24K9613



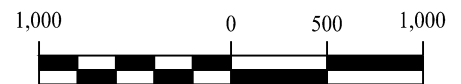
**SOLLI**  
ENGINEERING  
501 Main Street, Monroe, CT 06468  
T: (203) 880-5455 F: (203) 880-9695

**USGS MAP**  
9-15 ALBANY TURNPIKE  
CANTON AND SIMSBURY, CONNECTICUT

Project #:	1904501
Plan Date:	07/07/20
Scale:	1" = 1,000'
Figure:	5



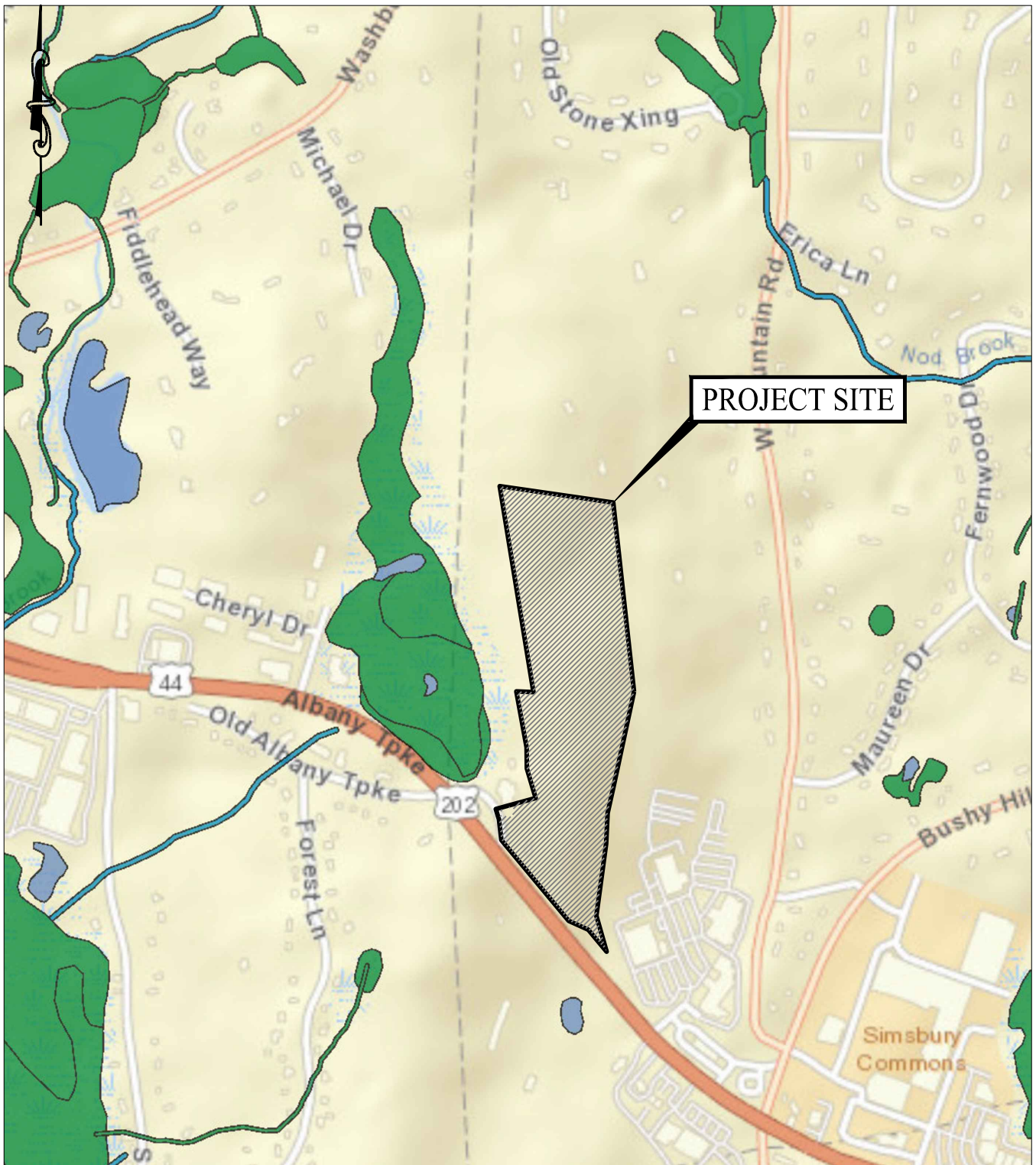
NOTE: BASE MAP INFORMATION TAKEN FROM CT DEEP AQUIFER PROTECTION AREA MAP AVON, CT, DATED: AUGUST 26, 2019



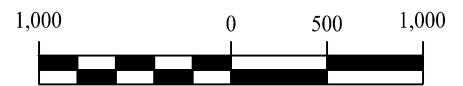
**SOLLI**  
ENGINEERING  
501 Main Street, Monroe, CT 06468  
T: (203) 880-5455 F: (203) 880-9695

**WATERSHED PROTECTION MAP**  
9-15 ALBANY TURNPIKE  
CANTON AND SIMSBURY, CONNECTICUT

Project #:	1904501
Plan Date:	07/07/20
Scale:	1" = 1,000'
Figure:	6



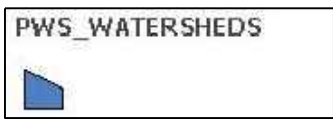
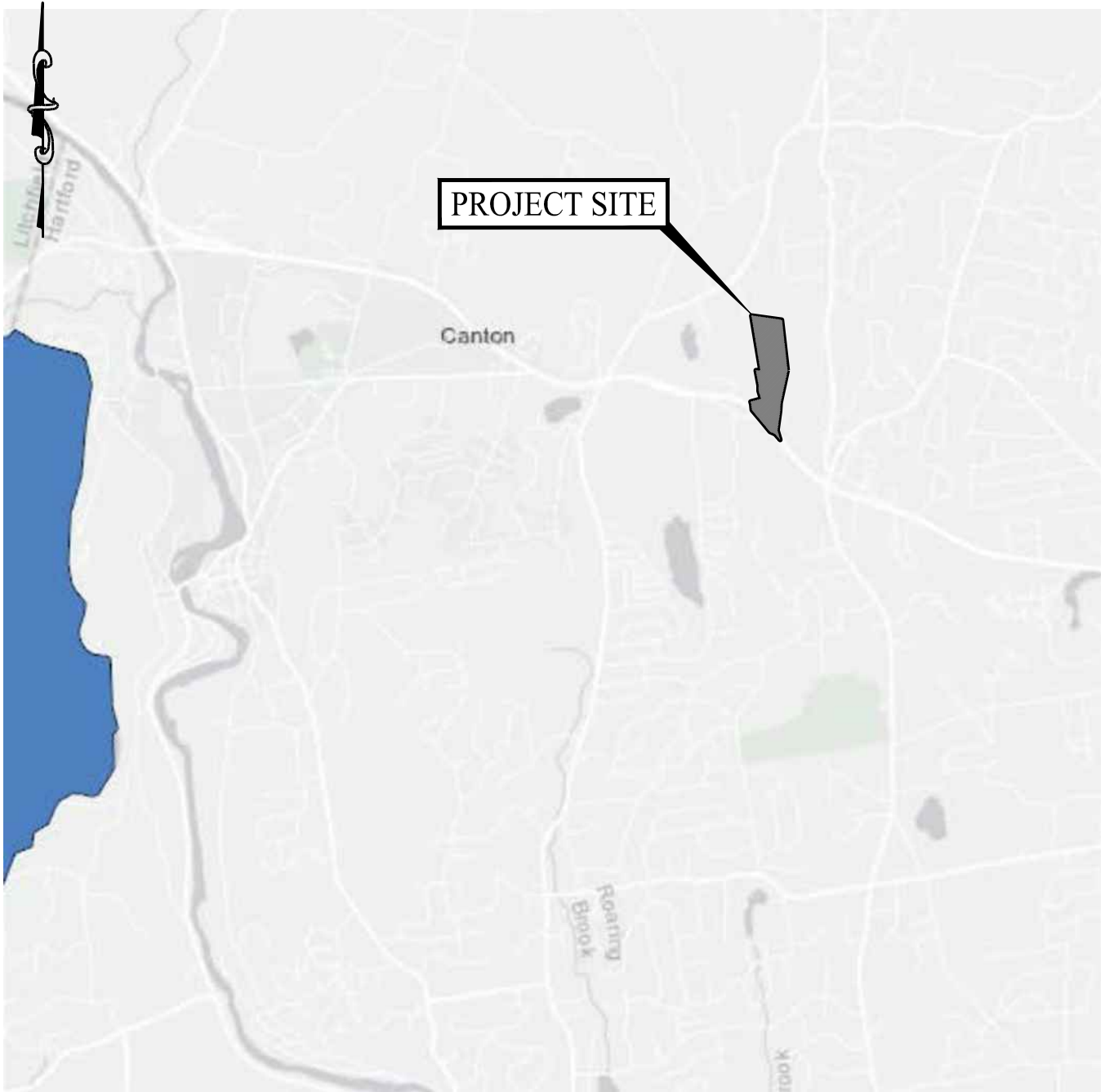
NOTE: BASE MAP INFORMATION TAKEN FROM U.S FISH AND WILDLIFE SERVICES NATIONAL WETLAND INVENTORY



**SOLLI**  
ENGINEERING  
501 Main Street, Monroe, CT 06468  
T: (203) 880-5455 F: (203) 880-9695

**INLAND WETLAND MAP**  
9-15 ALBANY TURNPIKE  
CANTON AND SIMSBURY, CONNECTICUT

Project #:	1904501
Plan Date:	07/07/20
Scale:	1" = 1,000'
Figure:	7



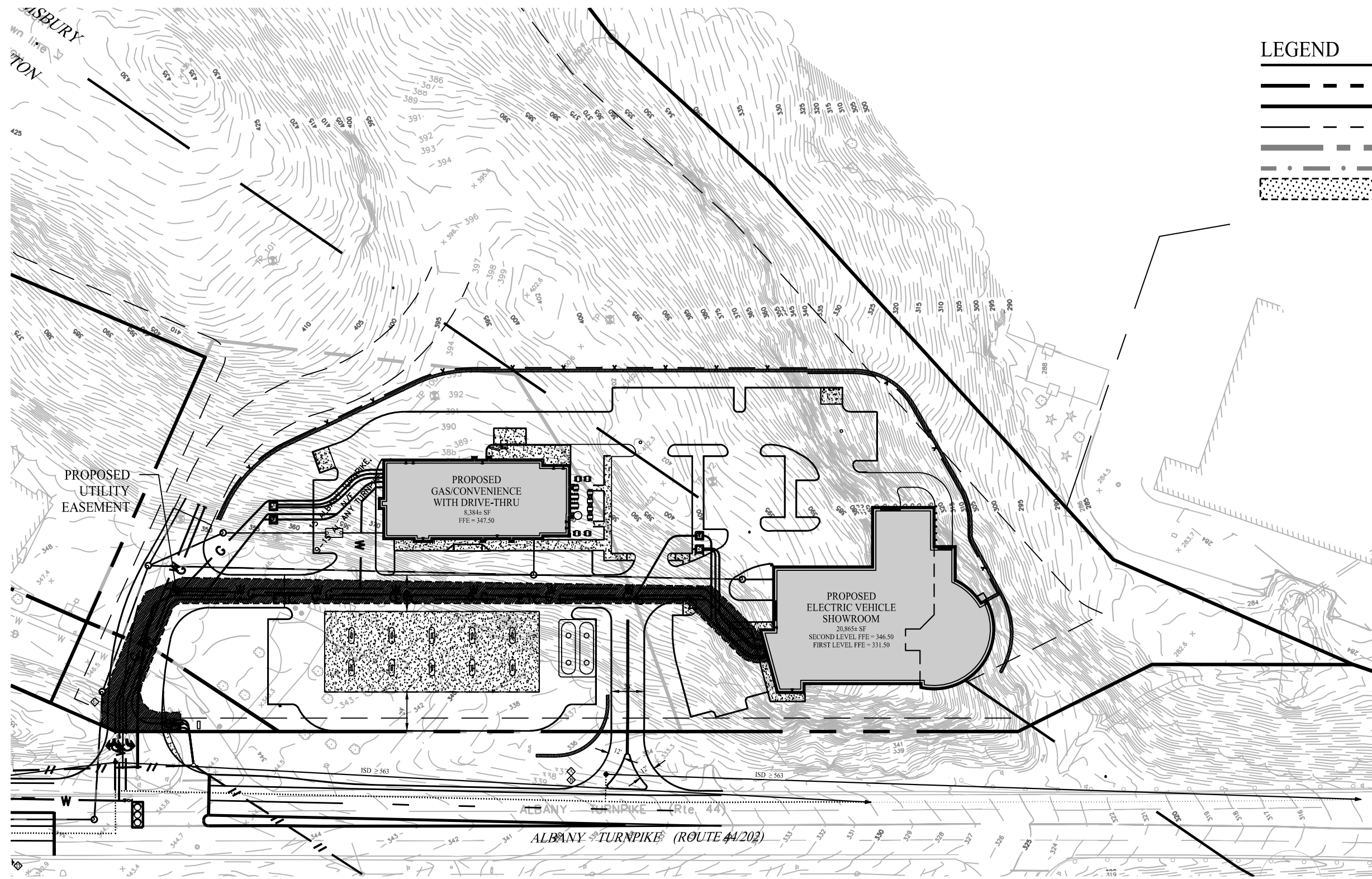
NOTE: MAP INFORMATION TAKEN FROM  
 ARCGIS.COM PUBLIC WATER SUPPLY  
 WATERSHEDS



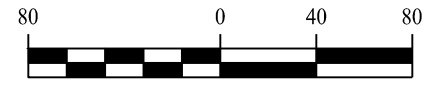
**SOLLI**  
 ENGINEERING  
 501 Main Street, Monroe, CT 06468  
 T: (203) 880-5455 F: (203) 880-9695

**WATERSHED PROTECTION MAP**  
 9-15 ALBANY TURNPIKE  
 CANTON AND SIMSBURY, CONNECTICUT

Project #:	1904501
Plan Date:	08/11/20
Scale:	1" = 4,000'
Figure:	8



LEGEND	
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJOINING LOT LINE
	ZONE LINE
	TOWN BOUNDARY
	LIMIT OF EASEMENT



Rev. #:	Date	Description

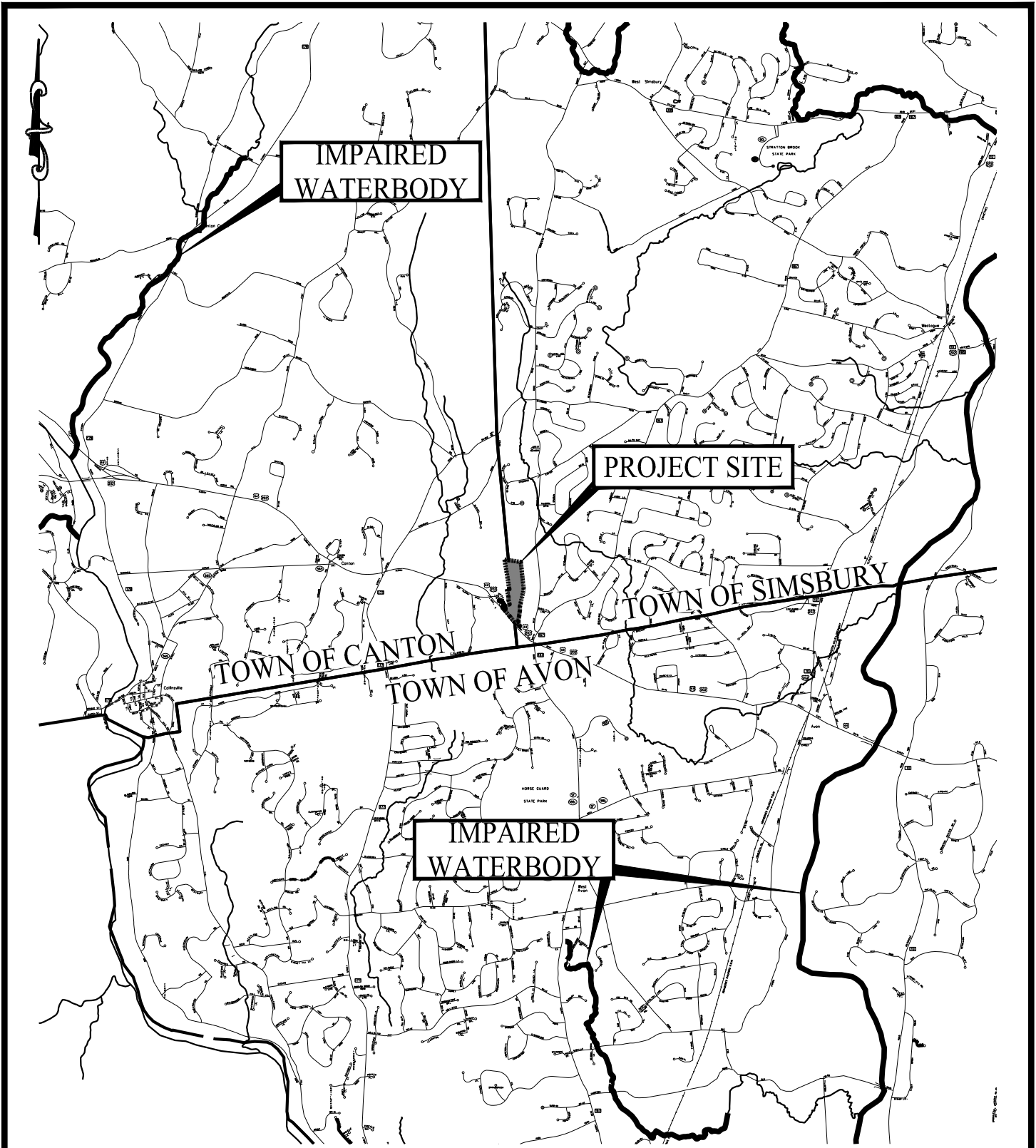
**SOLLI ENGINEERING**  
 501 Main Street, Monroe, CT 06468  
 T: (203) 880-5455 | F: (203) 880-9695

Drawn By:	CJP
Checked By:	KMS
Project #:	1904501
Plan Date:	08/11/20
Scale:	1" = 80'

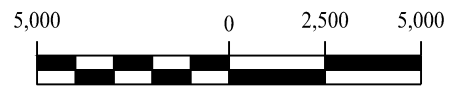
Project:  
**PROPOSED DEVELOPMENT**  
 9-15 ALBANY TURNPIKE  
 CANTON/SIMSBURY, CONNECTICUT

Sheet Title:  
**PROPOSED EASEMENTS**

SHEET #:  
**FIG-9**



NOTE: BASE MAP INFORMATION TAKEN FROM THE CT ECO ADVANCE VIEWER - WATER QUALITY / IMPAIRED WATERBODIES



**SOLLI**  
ENGINEERING  
501 Main Street, Monroe, CT 06468  
T: (203) 880-5455 F: (203) 880-9695

**IMPAIRED WATER BODIES MAP**  
9-15 ALBANY TURNPIKE  
CANTON AND SIMSBURY, CONNECTICUT

Project #:	1904501
Plan Date:	08/11/20
Scale:	1" = 5,000'
Figure:	10

**APPENDIX B**  
**WETLANDS ASSESSMENT**



REPORT DATE: July 30, 2020

PAGE 1 OF 3

**REMA ECOLOGICAL SERVICES, LLC**

164 East Center Street, Suite 8  
Manchester, CT 06040

860.649.REMA (7362)

ON-SITE SOIL INVESTIGATION & WETLAND DELINEATION REPORT

**PROJECT NAME & SITE LOCATION:**

9-15 Albany Turnpike (Route 44)  
§ 15 Colonial Road  
Canton § Simsbury, CT

REMA Job No.: 20-2305-CNT46

Field Investigation Date(s): 7/15/20

**Field Investigation Method(s):**

- Spade and Auger
- Backhoe Test Pits
- Other: \_\_\_\_\_

**REPORT PREPARED FOR:**

Solli Engineering, LLC  
501 Main Street  
Ste G  
Monroe, CT 06468

**Field Conditions:**

Weather: Partly cloudy, 80s  
Soil Moisture: moderate  
Snow Depth: N/A  
Frost Depth: 0"

**Purpose of Investigation:**

- Wetland Delineation/Flagging in Field
- Wetland Mapping on Sketch Plan or Topographic Plan
- High Intensity Soil Mapping by Soil Scientist
- Medium Intensity Soil Mapping from *The Soil Survey of Connecticut Maps* (USDA-NRCS)
- Other: \_\_\_\_\_

Base Map Source: CT Soil Survey web; USDA-NRCS (attached); Figure A (attached)

Wetland Boundary Marker Series: RES-A-1 to RES-A-37, RES-B-1 to RES-B-7

**General Site Description/Comments:** The "site" consists of adjacent parcels in both Canton and Simsbury, encompassing +/- 48.94 acres, accessible from Albany Turnpike (Route 44). Landuses surrounding the site include moderate to high-density residential and commercial development, with mostly undeveloped, forested land north and south of the site, along a ridgeline. The on-site soils are derived predominately from glacial till deposits in the uplands (i.e., unstratified sand, silt § rock), but also from glaciofluvial deposits (i.e. stratified sand § gravel), and in the wetlands mostly from organic deposits (i.e. peat § muck). The undisturbed upland soils include the excessively drained Hinckley (38) loamy sand, the well-drained Cheshire-Holyoke (77) and the well-drained Rock outcrop-Holyoke (79) soil series complexes. The undisturbed wetland soils are the very poorly-drained Catden § Freetown (18) soils. The disturbed uplands, where past grading and/or filling has occurred, were mapped as Udorthents (308). Disturbed wetland soils were mapped as Aquents (308w), considered a previously disturbed wetland soils mapping unit. The regulated on-site resources consist of a large organic swamp with forested and scrub-shrub cover types on the Canton parcel. The regulated resource on the Simsbury parcel includes a small elongated depression that receives stormwater from the Best Buy parking lot to the east, and Route 44 from the west. Dominant or common vegetation includes red maple, black locust, tulip, black cherry, gray birch, red oak, cottonwood, hemlock, spice bush, white pine, silky dogwood, Morrow's honeysuckle, multi-flora rose, witch hazel, Japanese knotweed, periwinkle, Jack-in-the-pulpit, Japanese stilt grass, skunk cabbage, goldenrods, asters, cinnamon fern, Christmas fern, Virginia creeper, poison ivy, fox grape, and others.



**ON-SITE SOIL INVESTIGATION & WETLAND DELINEATION REPORT (CONTINUED)**

**PROJECT NAME & SITE LOCATION:** 9-15 Albany Turnpike & 15 Colonial Road  
Canton & Simsbury, CT

**SOIL MAP UNITS****Upland Soils**

**Hinckley loamy sand (38).** This series consists of very deep, excessively drained soils formed in a shallow, loamy sand mantle underlain by gravelly sand, and water deposited glacial outwash materials. They are level to very steep soils on outwash plains, terraces, deltas, kames and eskers. The soils formed in loamy over stratified sandy and gravelly glacial outwash derived mainly from crystalline rocks. Typically, these soils have a very dark grayish brown loamy sand surface layer 7 inches thick. The subsoil layers from 7 to 15 inches are strong brown and yellowish brown gravelly loamy sand. From 15 to 18 inches the subsoil is yellowish brown gravelly sand. The substratum from 18 to 60 inches is light olive brown stratified sand, gravel and cobblestones.

**Cheshire fine sandy loam (77).** The Cheshire series consists of reddish, well-drained soils that have developed on glacial till. The till was derived mainly from reddish-brown Triassic sandstone and conglomerate that contained basalt and other rocks in various amounts. It ranges from gravelly sandy loam to gravelly loamy sand and is firm to very friable. Cheshire soils occur on gently sloping or undulating to hilly till plains.

**Holyoke rocky silt loam (77).** The Holyoke series consists of shallow, well and somewhat excessively drained, loamy soils formed in a thin mantle of friable glacial till from Triassic materials over bedrock. Depth to bedrock ranges from 10 to 20 inches. The soils developed in glacial till derived mainly from reddish Triassic sandstone, conglomerate and shale with some basalt. Typically, these soils have a very dark grayish brown silt loam surface layer 2 inches thick. The subsoil from 2 to 13 inches is dark reddish-brown, silt loam. Hard, unweathered bedrock lies under the subsoil.

**Udorthents (308).** This soil mapping unit consists of well drained to moderately well drained soils that have been altered by cutting, filling, or grading. The areas either have had two feet or more of the upper part of the original soil removed or have more than two feet of fill material on top of the original soil. Udorthents or Made Land soils can be found on any soil parent material but are typically fluvial on glacial till plains and outwash plains and stream terraces.

**Wetland Soils**

**Catden & Freetown mucks (18).** This series, formerly known as Carlisle, consists of very poorly drained soils formed in organic materials more than 51 inches thick. Carlisle soils are found within lake till plains, lake plains, outwash plains and glacial moraines. The size of these areas ranges from small, isolated depressions (e.g. kettle-holes) to wetlands several hundred acres in size. Slope gradients are less than 2 percent. One of the regions unique wetland communities, bogs, has formed on these materials. Typically, this soil has a black muck layer to a depth of 51 inches or more. The Freetown series is very similar to the Catden series, but these soils have a somewhat higher saturated hydraulic conductivity, and have a dysic reaction class, that is, they are more acidic. By definition to meet the dysic reaction class criterion, the pH must be less than 4.5 (in 0.01M CaCl<sub>2</sub>) in all parts of the control section of the Histosol.

**ON-SITE SOIL INVESTIGATION & WETLAND DELINEATION REPORT (CONTINUED)**

**PROJECT NAME & SITE LOCATION:** 9-15 Albany Turnpike & 15 Colonial Road  
Canton & Simsbury, CT

**SOIL MAP UNITS**

**Aquents (308w).** This soil map unit consists of poorly drained and very poorly drained, disturbed land areas. They are most often found on landscapes which have been subject to prior filling and/or excavation activities. In general, this soil map unit occurs where two or more feet of the original soil surface has been filled over, graded or excavated. The *Aquents* are characterized by a seasonal to prolonged high ground water table and either support or are capable of supporting wetland vegetation. *Aquents* are recently formed soils which have an aquic moisture regime. An aquic moisture regime is associated with a reducing soil environment that is virtually free of dissolved oxygen because the soil is saturated by groundwater or by water of the capillary fringe. The key feature is the presence of a ground water table at or very near to the soil surface for a period of fourteen days or longer during the growing season.

Any accompanying soil logs and soil maps, and the on-site soil investigation narrative are in accordance with the taxonomic classification of the National Cooperative Soil Survey of the USDA Natural Resource Conservation Service, and with the Connecticut Soil Legend (DEP Bulletin No.5, 1983), as amended by USDA-NRCS. Jurisdictional wetland boundaries were delineated pursuant to the Connecticut General Statutes (CGS Sections 22a-36 to 22a-45), as amended. The site investigation was conducted and/or reviewed by the undersigned Registered Soil Scientist(s) [registered with the Society of Soil Scientists of Southern New England (SSSSNE) in accordance with the standards of the Federal Office of Personnel Management].

Respectfully submitted,

**REMA ECOLOGICAL SERVICES, LLC**

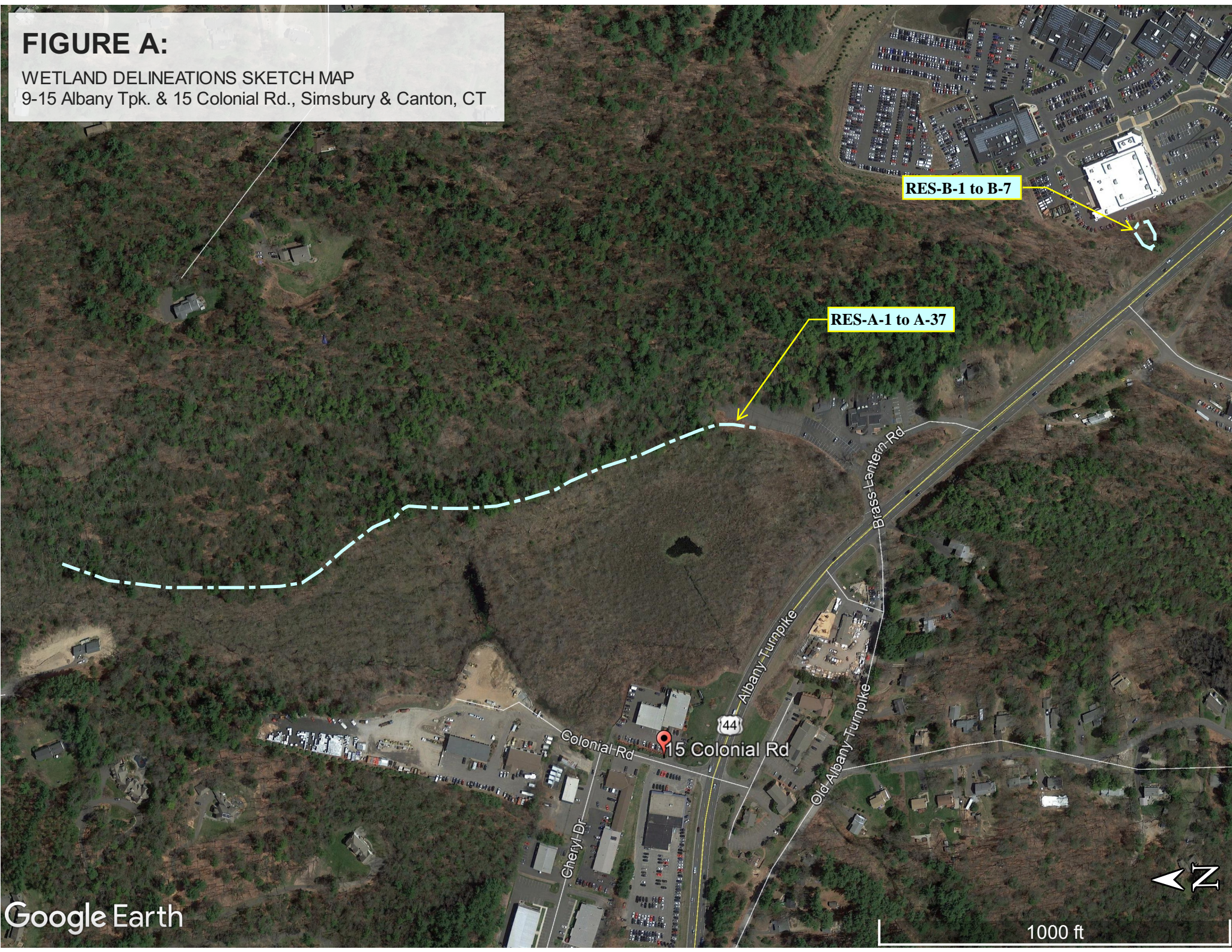


George T. Logan, MS, PWS, CSE  
Registered Soil Scientist  
Field Investigator/Senior Reviewer

# FIGURE A:

## WETLAND DELINEATIONS SKETCH MAP

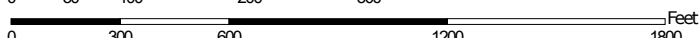
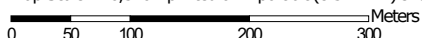
9-15 Albany Tpk. & 15 Colonial Rd., Simsbury & Canton, CT



Soil Map—State of Connecticut  
 (15 Colonial Road & 9-15 Albany Turnpike, Canton & Simsbury)



Map Scale: 1:6,340 if printed on A portrait (8.5" x 11") sheet.



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.

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  
 Survey Area Data: Version 19, Sep 13, 2019

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

Date(s) aerial images were photographed: Jul 15, 2019—Aug 29, 2019

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

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
6	Wilbraham and Menlo soils, 0 to 8 percent slopes, extremely stony	2.6	1.3%
18	Catden and Freetown soils, 0 to 2 percent slopes	18.7	9.6%
37C	Manchester gravelly sandy loam, 3 to 15 percent slopes	2.4	1.2%
38C	Hinckley loamy sand, 3 to 15 percent slopes	1.9	1.0%
38E	Hinckley loamy sand, 15 to 45 percent slopes	6.2	3.2%
58B	Gloucester gravelly sandy loam, 3 to 8 percent slopes, very stony	0.0	0.0%
64B	Cheshire fine sandy loam, 3 to 8 percent slopes, very stony	12.4	6.3%
64C	Cheshire fine sandy loam, 8 to 15 percent slopes, very stony	7.8	4.0%
65C	Cheshire fine sandy loam, 3 to 15 percent slopes, extremely stony	9.8	5.0%
65D	Cheshire fine sandy loam, 15 to 35 percent slopes, extremely stony	19.5	10.0%
67B	Narragansett silt loam, 3 to 8 percent slopes, very stony	2.6	1.3%
77C	Cheshire-Holyoke complex, 3 to 15 percent slopes, very rocky	13.5	6.9%
77D	Cheshire-Holyoke complex, 15 to 35 percent slopes, very rocky	19.7	10.1%
78C	Holyoke-Rock outcrop complex, 3 to 15 percent slopes	7.2	3.7%
78E	Holyoke-Rock outcrop complex, 15 to 45 percent slopes	0.7	0.4%
79E	Rock outcrop-Holyoke complex, 3 to 45 percent slopes	19.0	9.7%
88B	Wethersfield loam, 3 to 8 percent slopes, very stony	14.2	7.3%
306	Udorthents-Urban land complex	26.5	13.5%

---

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
307	Urban land	8.4	4.3%
308	Udorthents, smoothed	2.2	1.1%
<b>Totals for Area of Interest</b>		<b>195.3</b>	<b>100.0%</b>

**APPENDIX C**  
**EXISTING & PROPOSED HYDROLOGY CALCULATIONS**

NOAA Atlas Precipitation Data  
Watershed Model Schematic  
Hydrograph Return Period Recap  
Hydrograph Summary Report  
Existing Curve Number Calculations  
Existing Time of Concentration Calculations  
Proposed Curve Number Calculations  
Proposed Time of Concentration Calculations  
Water Quality Volume Calculations





POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypatuk, Dale Unruh, Orfan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

[PF\\_tabular](#) | [PF\\_graphical](#) | [Maps\\_&\\_aerials](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour) <sup>1</sup>										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	4.27 (3.29-5.48)	5.11 (3.92-6.56)	6.48 (4.96-8.34)	7.62 (5.81-9.88)	9.18 (6.77-12.5)	10.4 (7.50-14.4)	11.6 (8.16-16.7)	12.9 (8.68-19.2)	14.8 (9.61-22.9)	16.4 (10.4-25.9)
10-min	3.03 (2.33-3.88)	3.62 (2.78-4.64)	4.59 (3.51-5.91)	5.39 (4.10-6.99)	6.50 (4.80-8.83)	7.33 (5.31-10.2)	8.20 (5.78-11.9)	9.16 (6.14-13.6)	10.5 (6.81-16.2)	11.6 (7.35-18.3)
15-min	2.38 (1.82-3.04)	2.84 (2.18-3.64)	3.60 (2.76-4.64)	4.23 (3.22-5.48)	5.10 (3.76-6.92)	5.75 (4.17-7.99)	6.43 (4.53-9.30)	7.18 (4.82-10.7)	8.25 (5.34-12.7)	9.11 (5.76-14.4)
30-min	1.61 (1.24-2.06)	1.92 (1.48-2.47)	2.44 (1.87-3.14)	2.87 (2.18-3.72)	3.46 (2.56-4.70)	3.91 (2.83-5.43)	4.37 (3.08-6.32)	4.88 (3.28-7.26)	5.61 (3.63-8.67)	6.20 (3.92-9.79)
60-min	1.01 (0.779-1.30)	1.22 (0.932-1.56)	1.54 (1.18-1.99)	1.81 (1.38-2.35)	2.19 (1.62-2.97)	2.47 (1.79-3.43)	2.76 (1.95-4.00)	3.09 (2.07-4.59)	3.55 (2.30-5.48)	3.92 (2.48-6.19)
2-hr	0.658 (0.508-0.837)	0.784 (0.606-1.00)	0.992 (0.764-1.27)	1.16 (0.892-1.50)	1.40 (1.04-1.90)	1.58 (1.15-2.19)	1.77 (1.26-2.56)	1.99 (1.34-2.95)	2.32 (1.51-3.58)	2.60 (1.65-4.10)
3-hr	0.506 (0.393-0.641)	0.604 (0.469-0.768)	0.766 (0.592-0.976)	0.900 (0.692-1.15)	1.08 (0.812-1.47)	1.22 (0.898-1.70)	1.37 (0.984-1.99)	1.55 (1.05-2.29)	1.82 (1.19-2.80)	2.06 (1.31-3.24)
6-hr	0.320 (0.250-0.403)	0.387 (0.302-0.488)	0.495 (0.386-0.628)	0.586 (0.454-0.747)	0.710 (0.536-0.958)	0.802 (0.595-1.11)	0.902 (0.655-1.31)	1.03 (0.696-1.52)	1.23 (0.799-1.88)	1.40 (0.891-2.19)
12-hr	0.195 (0.154-0.245)	0.241 (0.189-0.302)	0.314 (0.247-0.396)	0.376 (0.293-0.476)	0.460 (0.350-0.618)	0.522 (0.390-0.722)	0.590 (0.431-0.858)	0.677 (0.460-0.993)	0.813 (0.532-1.24)	0.933 (0.597-1.46)
24-hr	0.115 (0.091-0.143)	0.144 (0.114-0.179)	0.193 (0.152-0.241)	0.233 (0.183-0.293)	0.288 (0.220-0.386)	0.328 (0.247-0.453)	0.373 (0.275-0.543)	0.431 (0.294-0.630)	0.526 (0.345-0.799)	0.609 (0.391-0.947)
2-day	0.064 (0.051-0.079)	0.082 (0.066-0.102)	0.112 (0.089-0.139)	0.136 (0.108-0.170)	0.170 (0.131-0.228)	0.195 (0.148-0.269)	0.222 (0.166-0.325)	0.260 (0.178-0.379)	0.322 (0.212-0.489)	0.379 (0.244-0.587)
3-day	0.047 (0.037-0.057)	0.060 (0.048-0.074)	0.082 (0.065-0.101)	0.100 (0.079-0.124)	0.124 (0.097-0.166)	0.142 (0.109-0.196)	0.163 (0.122-0.238)	0.191 (0.131-0.277)	0.238 (0.157-0.360)	0.280 (0.181-0.433)
4-day	0.038 (0.030-0.046)	0.048 (0.039-0.059)	0.066 (0.053-0.081)	0.080 (0.064-0.099)	0.100 (0.078-0.133)	0.114 (0.087-0.157)	0.131 (0.098-0.191)	0.153 (0.105-0.222)	0.191 (0.126-0.288)	0.225 (0.145-0.347)
7-day	0.026 (0.021-0.031)	0.033 (0.026-0.040)	0.044 (0.035-0.054)	0.053 (0.042-0.065)	0.066 (0.051-0.087)	0.075 (0.058-0.102)	0.085 (0.064-0.124)	0.100 (0.069-0.144)	0.123 (0.082-0.185)	0.145 (0.094-0.222)
10-day	0.021 (0.017-0.025)	0.026 (0.021-0.032)	0.034 (0.028-0.042)	0.041 (0.033-0.051)	0.050 (0.040-0.066)	0.057 (0.044-0.078)	0.065 (0.049-0.094)	0.075 (0.052-0.108)	0.092 (0.061-0.139)	0.107 (0.070-0.165)
20-day	0.015 (0.012-0.018)	0.018 (0.014-0.021)	0.022 (0.018-0.027)	0.026 (0.021-0.031)	0.030 (0.024-0.040)	0.034 (0.026-0.046)	0.038 (0.029-0.054)	0.043 (0.030-0.062)	0.051 (0.034-0.076)	0.058 (0.038-0.089)
30-day	0.013 (0.010-0.015)	0.014 (0.012-0.017)	0.017 (0.014-0.021)	0.020 (0.016-0.024)	0.023 (0.018-0.030)	0.025 (0.020-0.034)	0.028 (0.021-0.039)	0.031 (0.022-0.045)	0.036 (0.024-0.054)	0.040 (0.026-0.062)
45-day	0.011 (0.009-0.013)	0.012 (0.010-0.014)	0.014 (0.011-0.017)	0.015 (0.013-0.019)	0.018 (0.014-0.022)	0.019 (0.015-0.025)	0.021 (0.016-0.029)	0.023 (0.016-0.033)	0.026 (0.017-0.038)	0.028 (0.018-0.043)
60-day	0.009 (0.008-0.011)	0.010 (0.008-0.012)	0.012 (0.010-0.014)	0.013 (0.011-0.016)	0.015 (0.012-0.019)	0.016 (0.012-0.021)	0.017 (0.013-0.024)	0.019 (0.013-0.027)	0.021 (0.014-0.030)	0.022 (0.014-0.033)

<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).  
 Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.  
 Please refer to NOAA Atlas 14 document for more information.

[Back to Top](#)

PF graphical



**POINT PRECIPITATION FREQUENCY ESTIMATES**

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypatuk, Dale Unruh, Orfan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

[PF\\_tabular](#) | [PF\\_graphical](#) | [Maps\\_&\\_aerials](#)

**PF tabular**

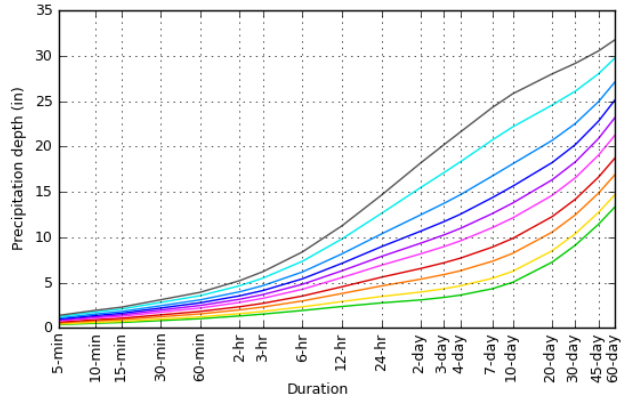
<b>PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)<sup>1</sup></b>										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
<b>5-min</b>	0.356 (0.274-0.457)	0.426 (0.327-0.547)	0.540 (0.413-0.695)	0.635 (0.484-0.823)	0.765 (0.564-1.04)	0.863 (0.625-1.20)	0.965 (0.680-1.40)	1.08 (0.723-1.60)	1.24 (0.801-1.91)	1.37 (0.865-2.16)
<b>10-min</b>	0.505 (0.388-0.647)	0.604 (0.463-0.774)	0.765 (0.585-0.985)	0.899 (0.684-1.17)	1.08 (0.800-1.47)	1.22 (0.885-1.70)	1.37 (0.963-1.98)	1.53 (1.02-2.27)	1.75 (1.14-2.71)	1.94 (1.23-3.06)
<b>15-min</b>	0.594 (0.456-0.761)	0.710 (0.545-0.911)	0.900 (0.689-1.16)	1.06 (0.805-1.37)	1.27 (0.941-1.73)	1.44 (1.04-2.00)	1.61 (1.13-2.33)	1.80 (1.21-2.67)	2.06 (1.33-3.19)	2.28 (1.44-3.60)
<b>30-min</b>	0.804 (0.618-1.03)	0.962 (0.739-1.24)	1.22 (0.934-1.57)	1.44 (1.09-1.86)	1.73 (1.28-2.35)	1.95 (1.41-2.72)	2.19 (1.54-3.16)	2.44 (1.64-3.63)	2.81 (1.82-4.33)	3.10 (1.96-4.90)
<b>60-min</b>	1.01 (0.779-1.30)	1.22 (0.932-1.56)	1.54 (1.18-1.99)	1.81 (1.38-2.35)	2.19 (1.62-2.97)	2.47 (1.79-3.43)	2.76 (1.95-4.00)	3.09 (2.07-4.59)	3.55 (2.30-5.48)	3.92 (2.48-6.19)
<b>2-hr</b>	1.32 (1.02-1.67)	1.57 (1.21-2.00)	1.98 (1.53-2.54)	2.33 (1.78-3.00)	2.80 (2.09-3.80)	3.15 (2.31-4.39)	3.53 (2.52-5.13)	3.98 (2.68-5.89)	4.64 (3.01-7.15)	5.21 (3.31-8.20)
<b>3-hr</b>	1.52 (1.18-1.93)	1.82 (1.41-2.31)	2.30 (1.78-2.93)	2.70 (2.08-3.47)	3.26 (2.44-4.41)	3.67 (2.70-5.10)	4.11 (2.95-5.98)	4.65 (3.14-6.88)	5.48 (3.56-8.42)	6.19 (3.94-9.72)
<b>6-hr</b>	1.92 (1.50-2.41)	2.32 (1.81-2.92)	2.97 (2.31-3.76)	3.51 (2.72-4.47)	4.25 (3.21-5.74)	4.80 (3.56-6.66)	5.40 (3.92-7.87)	6.16 (4.17-9.07)	7.34 (4.79-11.2)	8.37 (5.34-13.1)
<b>12-hr</b>	2.36 (1.86-2.95)	2.90 (2.28-3.63)	3.79 (2.97-4.77)	4.53 (3.53-5.73)	5.54 (4.21-7.45)	6.29 (4.70-8.69)	7.11 (5.20-10.3)	8.15 (5.54-12.0)	9.80 (6.41-15.0)	11.2 (7.19-17.5)
<b>24-hr</b>	2.75 (2.19-3.42)	3.46 (2.74-4.31)	4.62 (3.65-5.77)	5.58 (4.39-7.02)	6.91 (5.29-9.26)	7.87 (5.93-10.9)	8.95 (6.61-13.0)	10.3 (7.06-15.1)	12.6 (8.28-19.2)	14.6 (9.39-22.7)
<b>2-day</b>	3.08 (2.47-3.81)	3.95 (3.16-4.89)	5.37 (4.28-6.67)	6.55 (5.18-8.18)	8.17 (6.31-10.9)	9.34 (7.11-12.9)	10.7 (7.98-15.6)	12.5 (8.53-18.2)	15.5 (10.2-23.5)	18.2 (11.7-28.2)
<b>3-day</b>	3.36 (2.70-4.13)	4.32 (3.46-5.31)	5.88 (4.70-7.27)	7.17 (5.70-8.93)	8.96 (6.95-12.0)	10.2 (7.83-14.1)	11.7 (8.81-17.1)	13.7 (9.41-20.0)	17.1 (11.3-25.9)	20.2 (13.0-31.2)
<b>4-day</b>	3.61 (2.91-4.43)	4.63 (3.73-5.69)	6.30 (5.05-7.77)	7.69 (6.12-9.54)	9.59 (7.46-12.8)	11.0 (8.40-15.1)	12.5 (9.44-18.3)	14.7 (10.1-21.3)	18.3 (12.1-27.6)	21.6 (13.9-33.3)
<b>7-day</b>	4.31 (3.50-5.26)	5.46 (4.42-6.67)	7.34 (5.92-9.00)	8.90 (7.13-11.0)	11.0 (8.63-14.6)	12.6 (9.68-17.2)	14.4 (10.8-20.8)	16.7 (11.5-24.2)	20.7 (13.7-31.2)	24.3 (15.7-37.3)
<b>10-day</b>	5.02 (4.08-6.10)	6.23 (5.06-7.58)	8.21 (6.65-10.0)	9.85 (7.93-12.1)	12.1 (9.49-15.9)	13.8 (10.6-18.7)	15.6 (11.8-22.4)	18.1 (12.5-26.0)	22.1 (14.7-33.2)	25.8 (16.7-39.6)
<b>20-day</b>	7.24 (5.94-8.74)	8.50 (6.96-10.3)	10.6 (8.61-12.8)	12.3 (9.94-15.0)	14.6 (11.5-19.0)	16.3 (12.6-21.9)	18.2 (13.7-25.7)	20.7 (14.4-29.6)	24.6 (16.4-36.7)	28.0 (18.2-42.8)
<b>30-day</b>	9.11 (7.50-10.9)	10.4 (8.53-12.5)	12.5 (10.2-15.1)	14.2 (11.5-17.3)	16.5 (13.0-21.3)	18.3 (14.1-24.2)	20.2 (15.1-28.1)	22.5 (15.7-32.1)	26.1 (17.5-38.8)	29.2 (19.0-44.5)
<b>45-day</b>	11.4 (9.44-13.7)	12.7 (10.5-15.2)	14.8 (12.2-17.9)	16.6 (13.6-20.1)	19.0 (15.0-24.3)	20.9 (16.1-27.3)	22.8 (16.9-31.2)	24.9 (17.5-35.3)	28.0 (18.8-41.5)	30.5 (19.9-46.4)
<b>60-day</b>	13.3 (11.0-15.9)	14.7 (12.1-17.5)	16.9 (13.9-20.2)	18.7 (15.3-22.6)	21.2 (16.7-26.9)	23.1 (17.8-30.1)	25.1 (18.6-33.9)	27.1 (19.1-38.3)	29.7 (20.0-43.9)	31.7 (20.7-48.2)

<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).  
 Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.  
 Please refer to NOAA Atlas 14 document for more information.

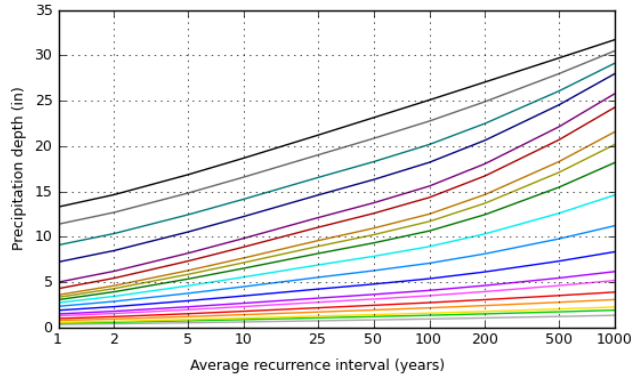
[Back to Top](#)

**PF graphical**

PDS-based depth-duration-frequency (DDF) curves  
 Latitude: 41.8206°, Longitude: -72.8714°



Average recurrence interval (years)
1
2
5
10
25
50
100
200
500
1000



Duration
5-min
10-min
15-min
30-min
60-min
2-hr
3-hr
6-hr
12-hr
24-hr
2-day
3-day
4-day
7-day
10-day
20-day
30-day
45-day
60-day

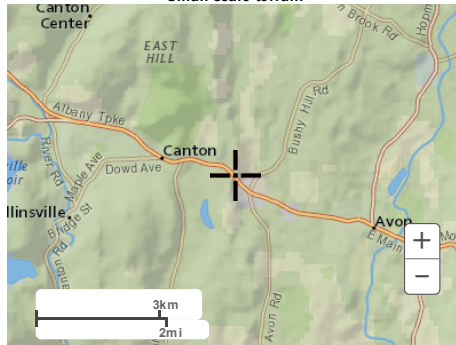
NOAA Atlas 14, Volume 10, Version 3

Created (GMT): Wed Aug 12 14:35:22 2020

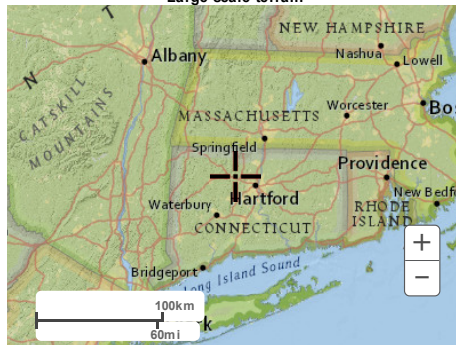
[Back to Top](#)

**Maps & aerials**

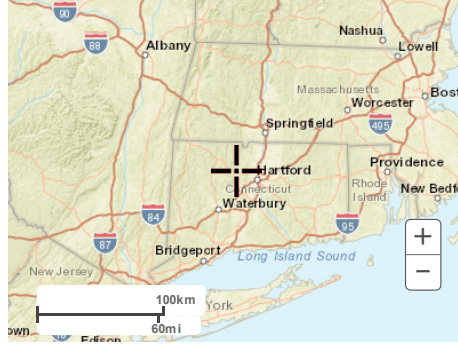
**Small scale terrain**



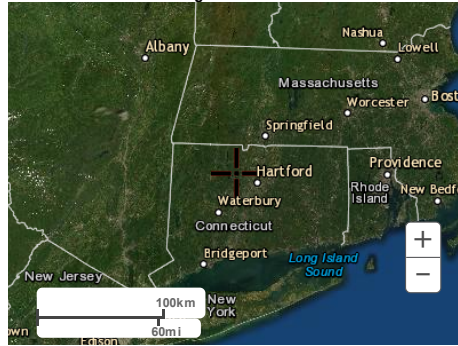
**Large scale terrain**



**Large scale map**



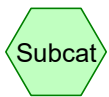
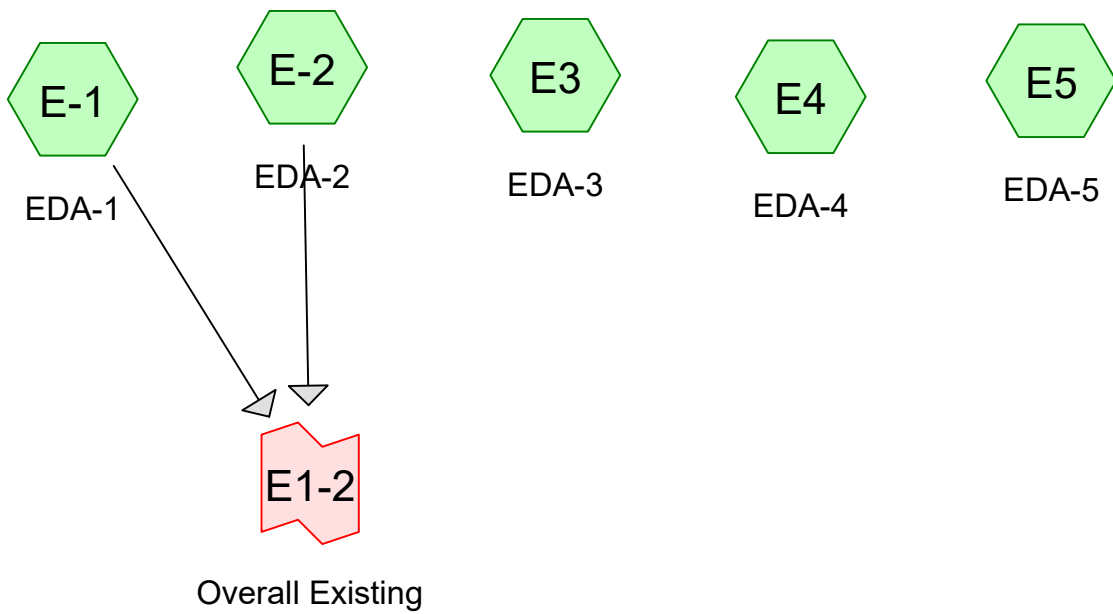
Large scale aerial



[Back to Top](#)

[US Department of Commerce](#)  
[National Oceanic and Atmospheric Administration](#)  
[National Weather Service](#)  
[National Water Center](#)  
1325 East West Highway  
Silver Spring, MD 20910  
Questions?: [HDSC.Questions@noaa.gov](mailto:HDSC.Questions@noaa.gov)

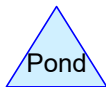
[Disclaimer](#)



Subcat



Reach



Pond



Link

**Routing Diagram for 1904501 - Existing**  
 Prepared by Solli Engineering, LLC, Printed 9/4/2020  
 HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 2-yr Rainfall=3.46"

Printed 9/4/2020

Page 2

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment E-1: EDA-1</b>	Runoff Area=5.758 ac 8.20% Impervious Runoff Depth>0.85" Tc=14.9 min CN=68 Runoff=3.77 cfs 0.408 af
<b>Subcatchment E-2: EDA-2</b>	Runoff Area=6.388 ac 0.00% Impervious Runoff Depth>0.24" Tc=18.1 min CN=52 Runoff=0.49 cfs 0.126 af
<b>Subcatchment E3: EDA-3</b>	Runoff Area=0.290 ac 100.00% Impervious Runoff Depth>3.22" Tc=6.0 min CN=98 Runoff=0.95 cfs 0.078 af
<b>Subcatchment E4: EDA-4</b>	Runoff Area=2.408 ac 40.49% Impervious Runoff Depth>1.65" Tc=16.6 min CN=81 Runoff=3.36 cfs 0.331 af
<b>Subcatchment E5: EDA-5</b>	Runoff Area=1.350 ac 0.00% Impervious Runoff Depth>1.20" Tc=15.1 min CN=74 Runoff=1.37 cfs 0.135 af
<b>Link E1-2: Overall Existing</b>	Inflow=3.89 cfs 0.533 af Primary=3.89 cfs 0.533 af

**1904501 - Existing**

Type III 24-hr 2-yr Rainfall=3.46"

Prepared by Solli Engineering, LLC

Printed 9/4/2020

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Page 3

**Summary for Subcatchment E-1: EDA-1**

Runoff = 3.77 cfs @ 12.24 hrs, Volume= 0.408 af, Depth> 0.85"

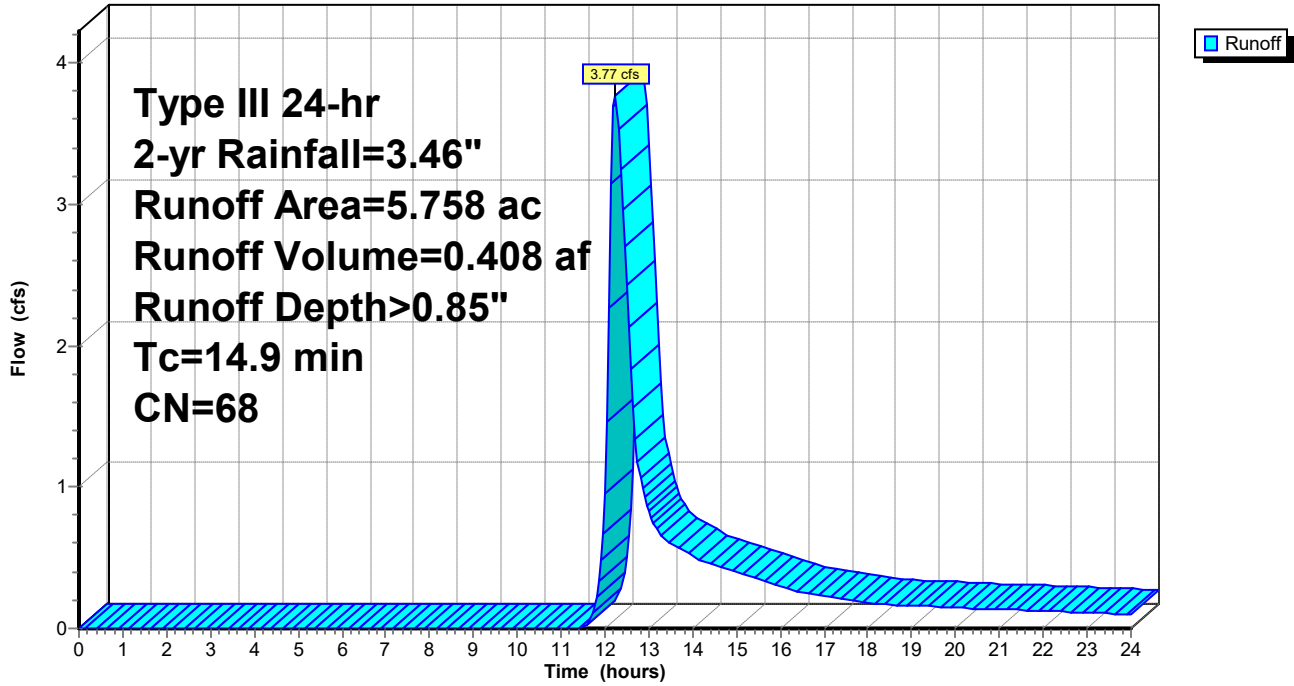
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 2-yr Rainfall=3.46"

Area (ac)	CN	Description
* 0.743	30	Woods - A
* 0.029	45	Woods - A poor
* 0.511	55	Woods - B
* 0.432	55	Woods - B
* 0.018	66	Woods - B poor
* 2.005	77	Woods - D
* 0.040	83	Woods - D poor
* 0.054	49	Grass - A
* 1.082	69	Grass - B
* 0.120	79	Grass - B poor
* 0.096	84	Grass - D
* 0.024	89	Grass - D poor
* 0.132	84	Grass -D
* 0.472	98	Impervious
5.758	68	Weighted Average
5.286		91.80% Pervious Area
0.472		8.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.9					<b>Direct Entry,</b>

Subcatchment E-1: EDA-1

Hydrograph





**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 2-yr Rainfall=3.46"

Printed 9/4/2020

Page 5

**Summary for Subcatchment E-2: EDA-2**

Runoff = 0.49 cfs @ 12.54 hrs, Volume= 0.126 af, Depth> 0.24"

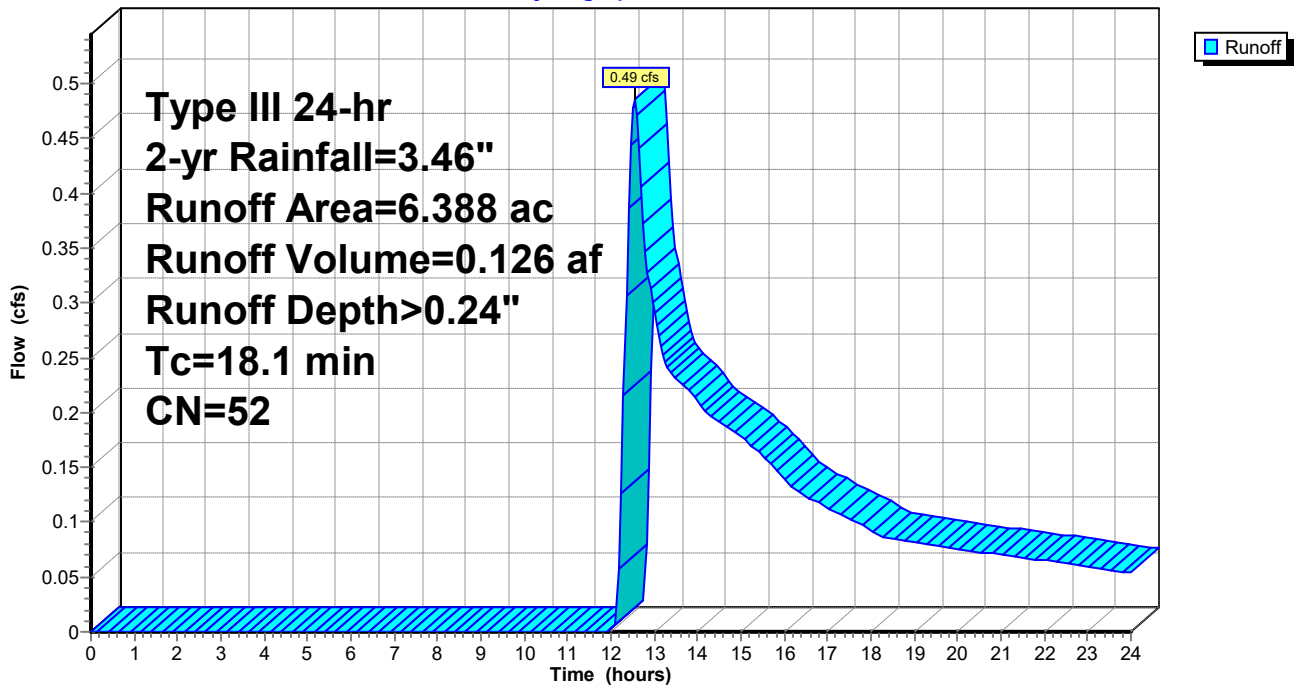
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-yr Rainfall=3.46"

Area (ac)	CN	Description
* 1.360	30	Woods - A
* 0.148	45	Woods - A poor
* 4.180	55	Woods - B
* 0.620	77	Woods - D
* 0.080	84	Grass - D
6.388	52	Weighted Average
6.388		100.00% Pervious Area

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

**Subcatchment E-2: EDA-2**

Hydrograph



**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 2-yr Rainfall=3.46"

Printed 9/4/2020

Page 6

**Summary for Subcatchment E3: EDA-3**

Runoff = 0.95 cfs @ 12.09 hrs, Volume= 0.078 af, Depth> 3.22"

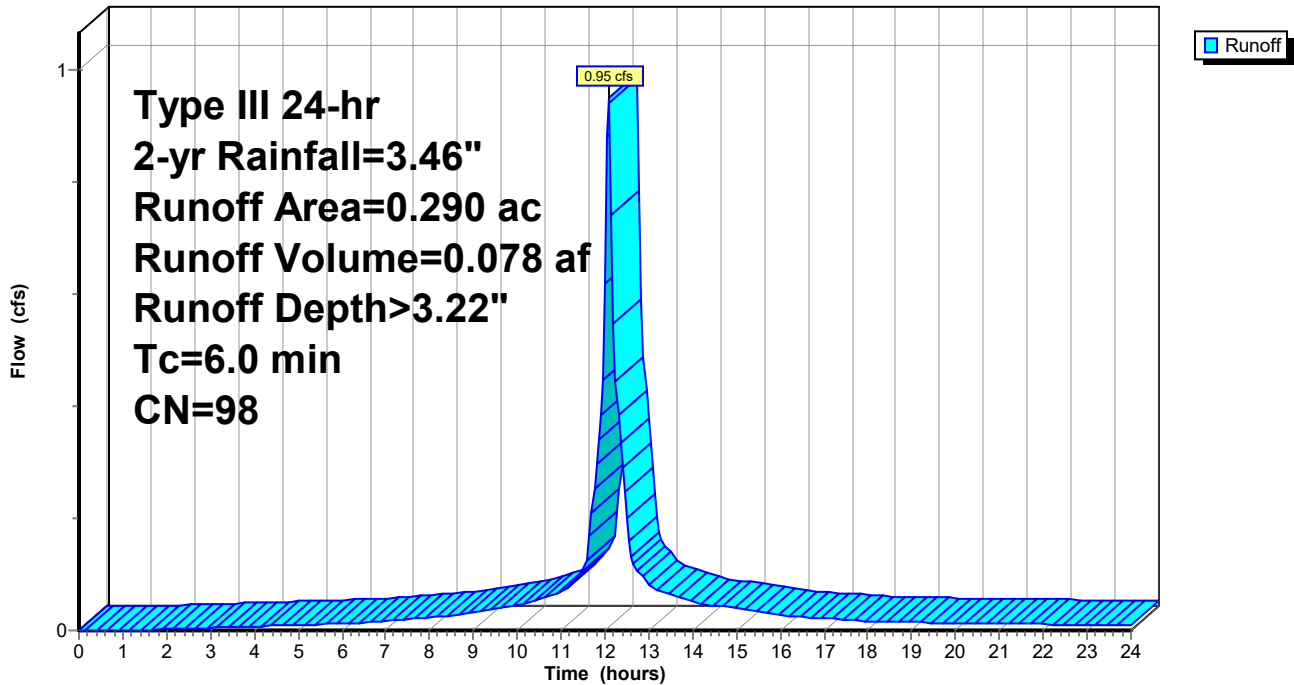
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-yr Rainfall=3.46"

Area (ac)	CN	Description
* 0.290	98	Impervious
0.290		100.00% Impervious Area

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

**Subcatchment E3: EDA-3**

Hydrograph



**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 2-yr Rainfall=3.46"

Printed 9/4/2020

Page 7

**Summary for Subcatchment E4: EDA-4**

Runoff = 3.36 cfs @ 12.24 hrs, Volume= 0.331 af, Depth> 1.65"

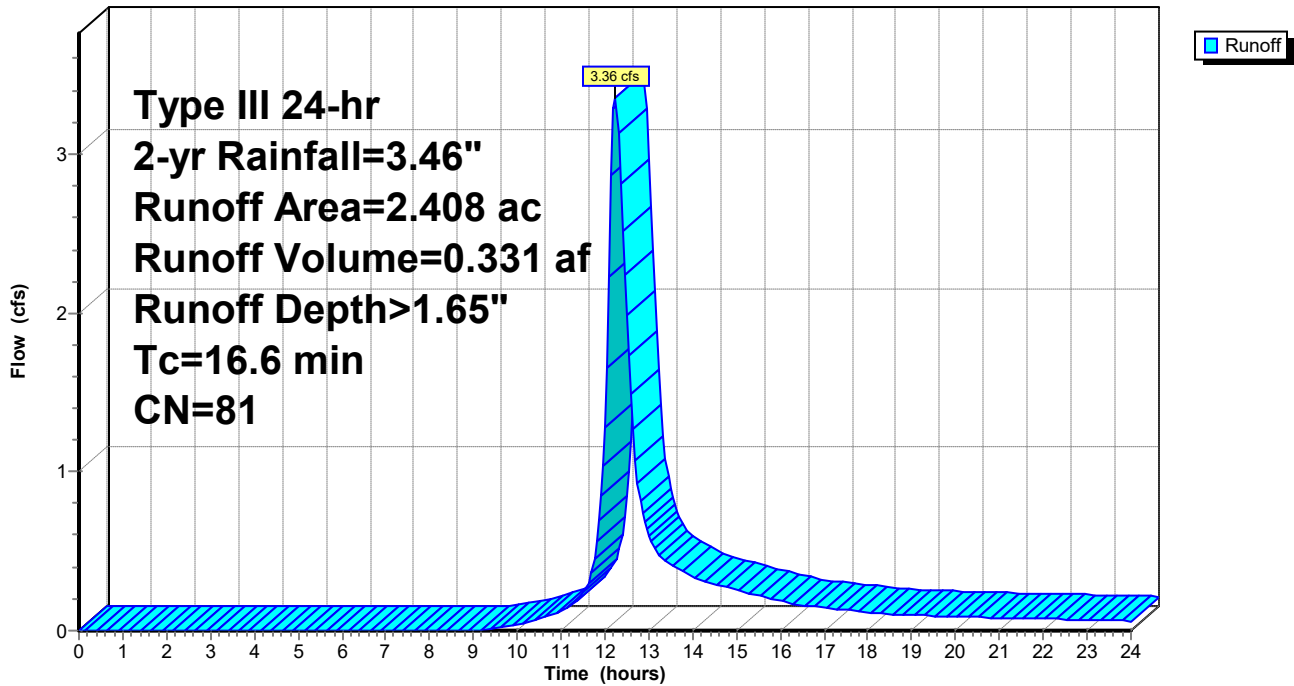
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-yr Rainfall=3.46"

Area (ac)	CN	Description
* 0.060	55	Woods - B
* 0.330	55	Woods - B
* 0.630	77	Woods - D
* 0.390	69	Grass - B
* 0.023	84	Grass - D
* 0.975	98	Impervious
2.408	81	Weighted Average
1.433		59.51% Pervious Area
0.975		40.49% Impervious Area

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

**Subcatchment E4: EDA-4**

Hydrograph



**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 2-yr Rainfall=3.46"

Printed 9/4/2020

Page 8

**Summary for Subcatchment E5: EDA-5**

Runoff = 1.37 cfs @ 12.22 hrs, Volume= 0.135 af, Depth> 1.20"

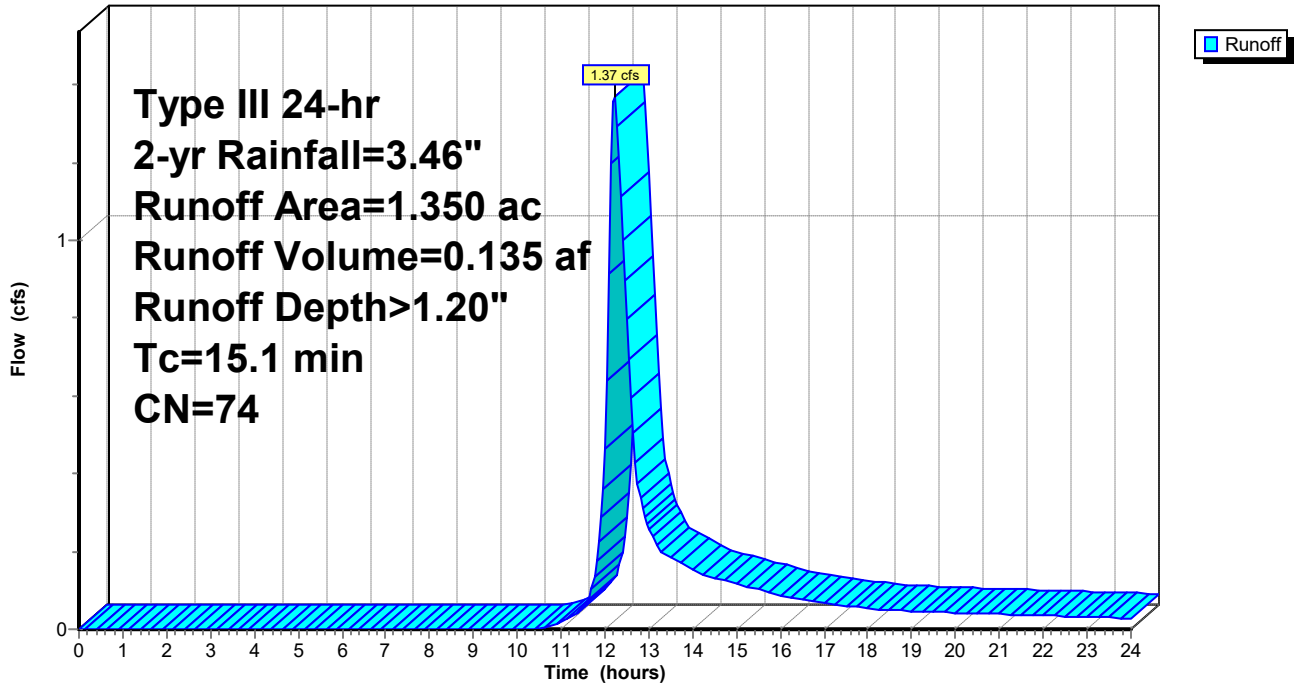
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-yr Rainfall=3.46"

Area (ac)	CN	Description
* 0.190	55	Woods - B
* 1.160	77	Woods - D
1.350	74	Weighted Average
1.350		100.00% Pervious Area

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

**Subcatchment E5: EDA-5**

Hydrograph



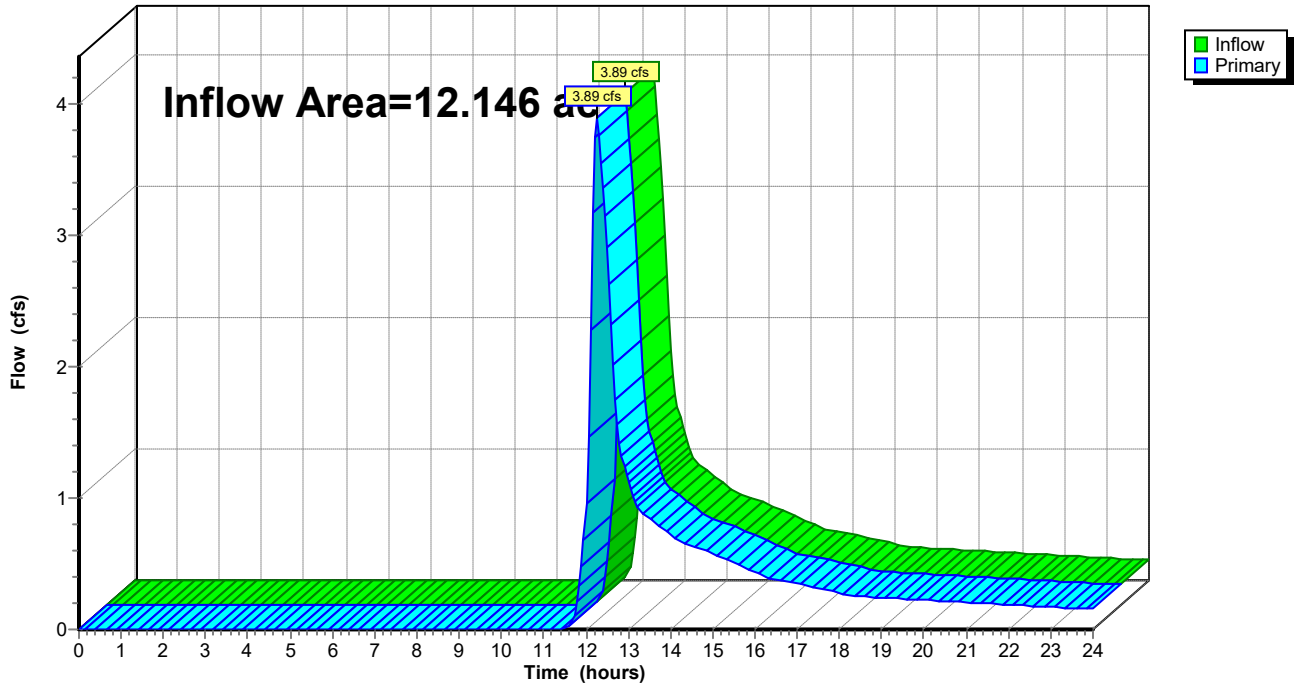
### Summary for Link E1-2: Overall Existing

Inflow Area = 12.146 ac, 3.89% Impervious, Inflow Depth > 0.53" for 2-yr event  
Inflow = 3.89 cfs @ 12.25 hrs, Volume= 0.533 af  
Primary = 3.89 cfs @ 12.25 hrs, Volume= 0.533 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link E1-2: Overall Existing

Hydrograph



**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 5-yr Rainfall=4.62"

Printed 9/4/2020

Page 10

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment E-1: EDA-1</b>	Runoff Area=5.758 ac 8.20% Impervious Runoff Depth>1.57" Tc=14.9 min CN=68 Runoff=7.66 cfs 0.755 af
<b>Subcatchment E-2: EDA-2</b>	Runoff Area=6.388 ac 0.00% Impervious Runoff Depth>0.63" Tc=18.1 min CN=52 Runoff=2.17 cfs 0.337 af
<b>Subcatchment E3: EDA-3</b>	Runoff Area=0.290 ac 100.00% Impervious Runoff Depth>4.38" Tc=6.0 min CN=98 Runoff=1.28 cfs 0.106 af
<b>Subcatchment E4: EDA-4</b>	Runoff Area=2.408 ac 40.49% Impervious Runoff Depth>2.62" Tc=16.6 min CN=81 Runoff=5.36 cfs 0.525 af
<b>Subcatchment E5: EDA-5</b>	Runoff Area=1.350 ac 0.00% Impervious Runoff Depth>2.05" Tc=15.1 min CN=74 Runoff=2.42 cfs 0.231 af
<b>Link E1-2: Overall Existing</b>	Inflow=9.34 cfs 1.092 af Primary=9.34 cfs 1.092 af

**1904501 - Existing**

Type III 24-hr 5-yr Rainfall=4.62"

Prepared by Solli Engineering, LLC

Printed 9/4/2020

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Page 11

**Summary for Subcatchment E-1: EDA-1**

Runoff = 7.66 cfs @ 12.22 hrs, Volume= 0.755 af, Depth> 1.57"

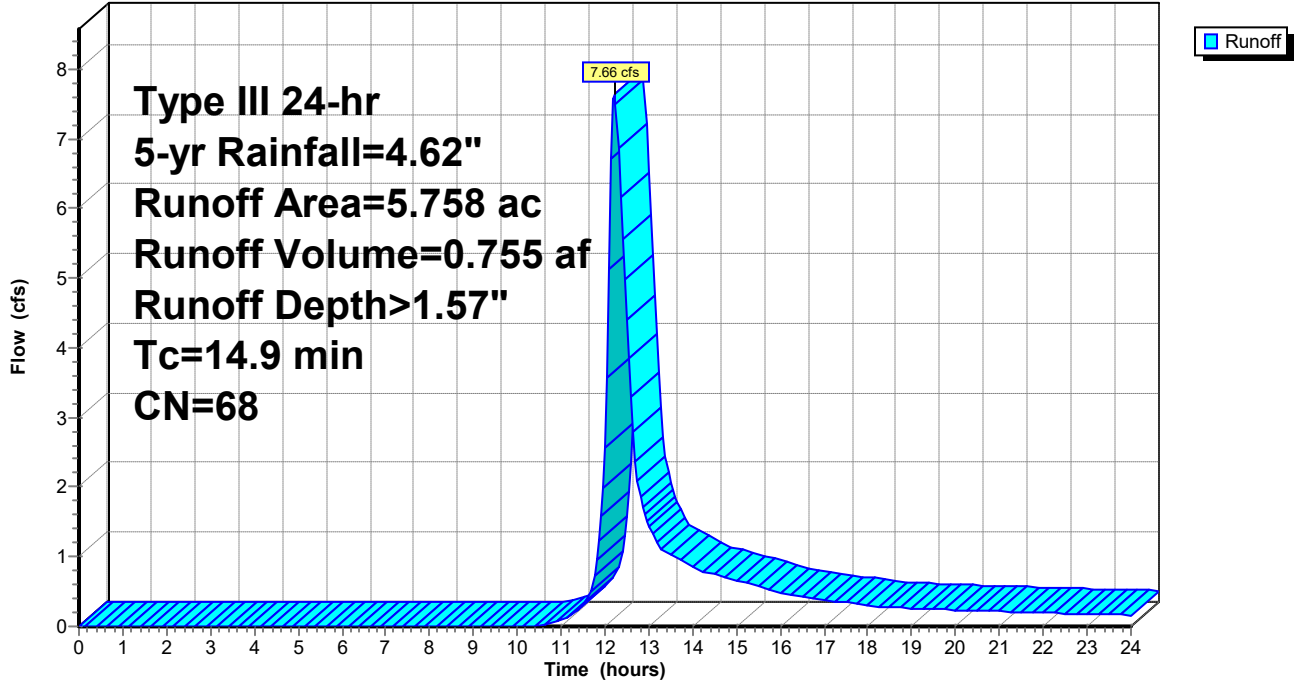
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 5-yr Rainfall=4.62"

Area (ac)	CN	Description
* 0.743	30	Woods - A
* 0.029	45	Woods - A poor
* 0.511	55	Woods - B
* 0.432	55	Woods - B
* 0.018	66	Woods - B poor
* 2.005	77	Woods - D
* 0.040	83	Woods - D poor
* 0.054	49	Grass - A
* 1.082	69	Grass - B
* 0.120	79	Grass - B poor
* 0.096	84	Grass - D
* 0.024	89	Grass - D poor
* 0.132	84	Grass -D
* 0.472	98	Impervious
5.758	68	Weighted Average
5.286		91.80% Pervious Area
0.472		8.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.9					<b>Direct Entry,</b>

Subcatchment E-1: EDA-1

Hydrograph





**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 5-yr Rainfall=4.62"

Printed 9/4/2020

Page 13

**Summary for Subcatchment E-2: EDA-2**

Runoff = 2.17 cfs @ 12.37 hrs, Volume= 0.337 af, Depth> 0.63"

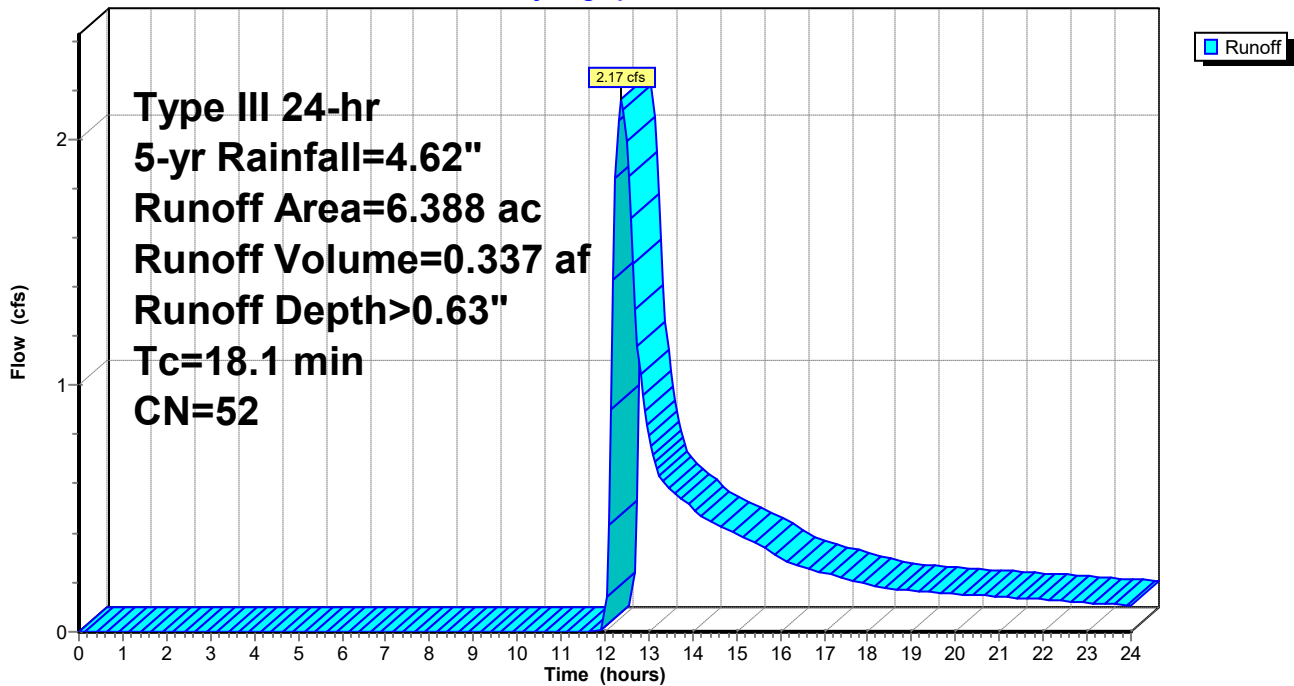
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 5-yr Rainfall=4.62"

Area (ac)	CN	Description
* 1.360	30	Woods - A
* 0.148	45	Woods - A poor
* 4.180	55	Woods - B
* 0.620	77	Woods - D
* 0.080	84	Grass - D
6.388	52	Weighted Average
6.388		100.00% Pervious Area

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

**Subcatchment E-2: EDA-2**

Hydrograph



**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 5-yr Rainfall=4.62"

Printed 9/4/2020

Page 14

**Summary for Subcatchment E3: EDA-3**

Runoff = 1.28 cfs @ 12.09 hrs, Volume= 0.106 af, Depth> 4.38"

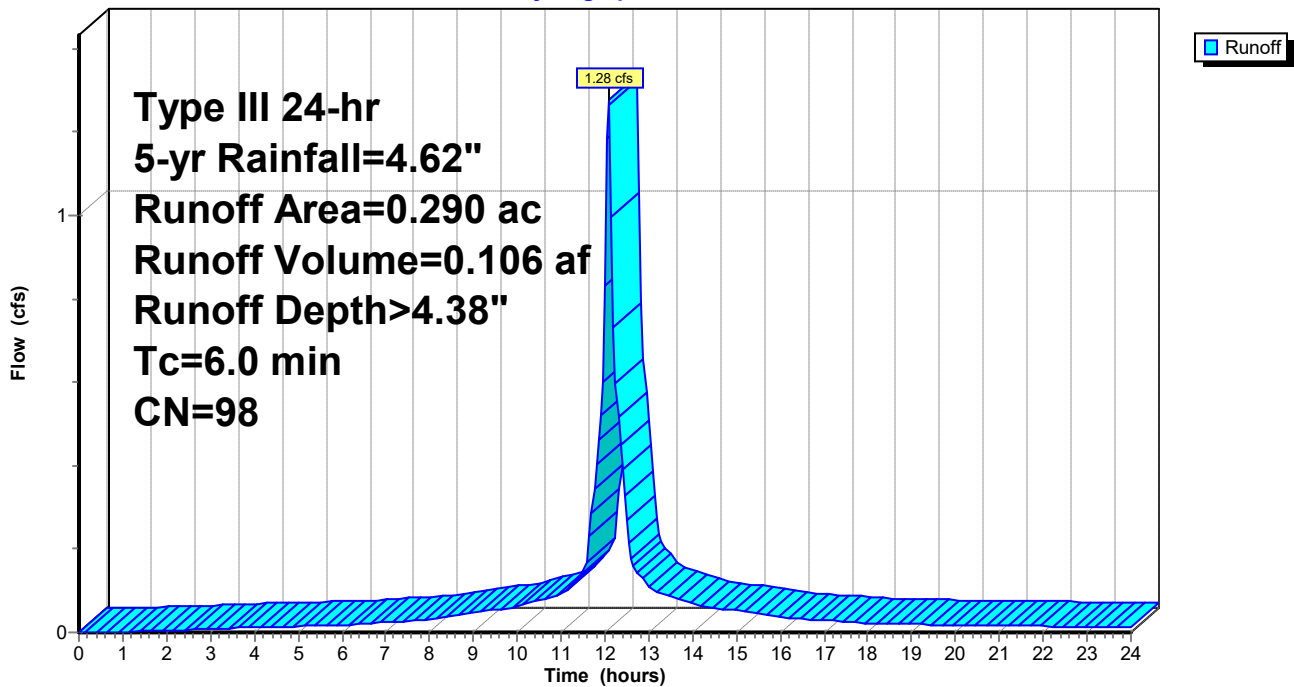
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 5-yr Rainfall=4.62"

Area (ac)	CN	Description
* 0.290	98	Impervious
0.290		100.00% Impervious Area

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

**Subcatchment E3: EDA-3**

Hydrograph



**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 5-yr Rainfall=4.62"

Printed 9/4/2020

Page 15

**Summary for Subcatchment E4: EDA-4**

Runoff = 5.36 cfs @ 12.23 hrs, Volume= 0.525 af, Depth> 2.62"

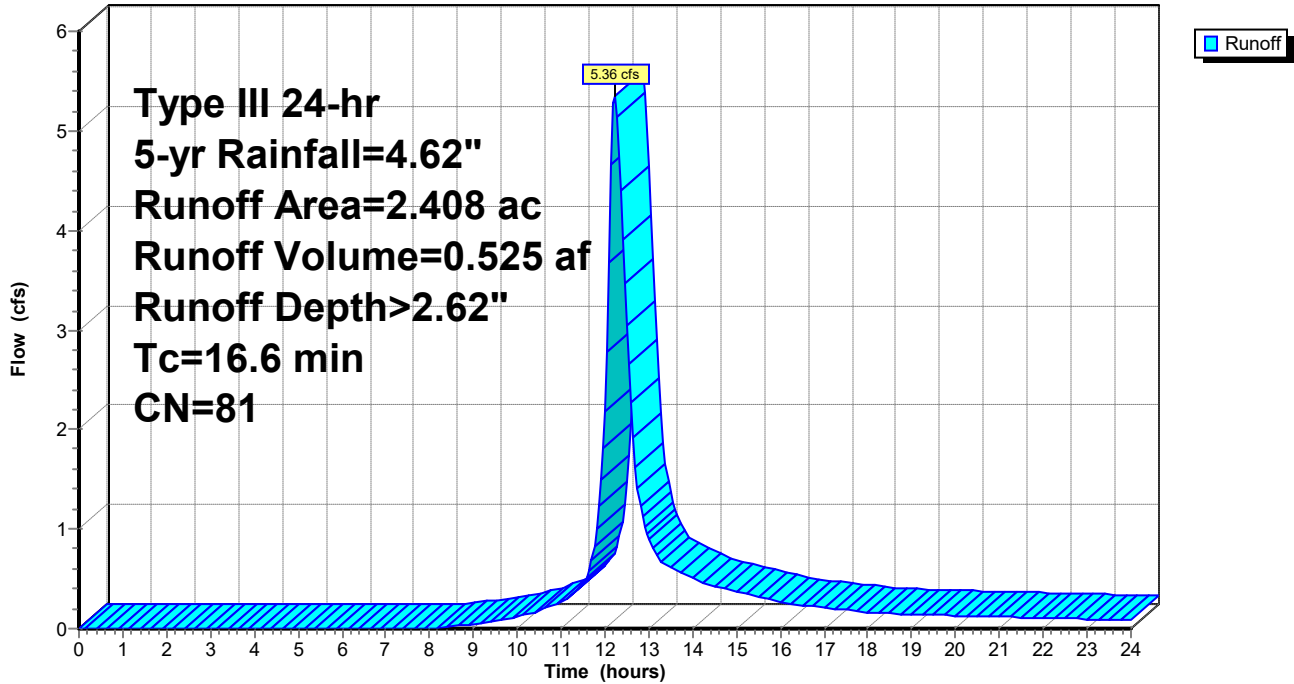
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 5-yr Rainfall=4.62"

Area (ac)	CN	Description
* 0.060	55	Woods - B
* 0.330	55	Woods - B
* 0.630	77	Woods - D
* 0.390	69	Grass - B
* 0.023	84	Grass - D
* 0.975	98	Impervious
2.408	81	Weighted Average
1.433		59.51% Pervious Area
0.975		40.49% Impervious Area

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

**Subcatchment E4: EDA-4**

Hydrograph



**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 5-yr Rainfall=4.62"

Printed 9/4/2020

Page 16

**Summary for Subcatchment E5: EDA-5**

Runoff = 2.42 cfs @ 12.22 hrs, Volume= 0.231 af, Depth> 2.05"

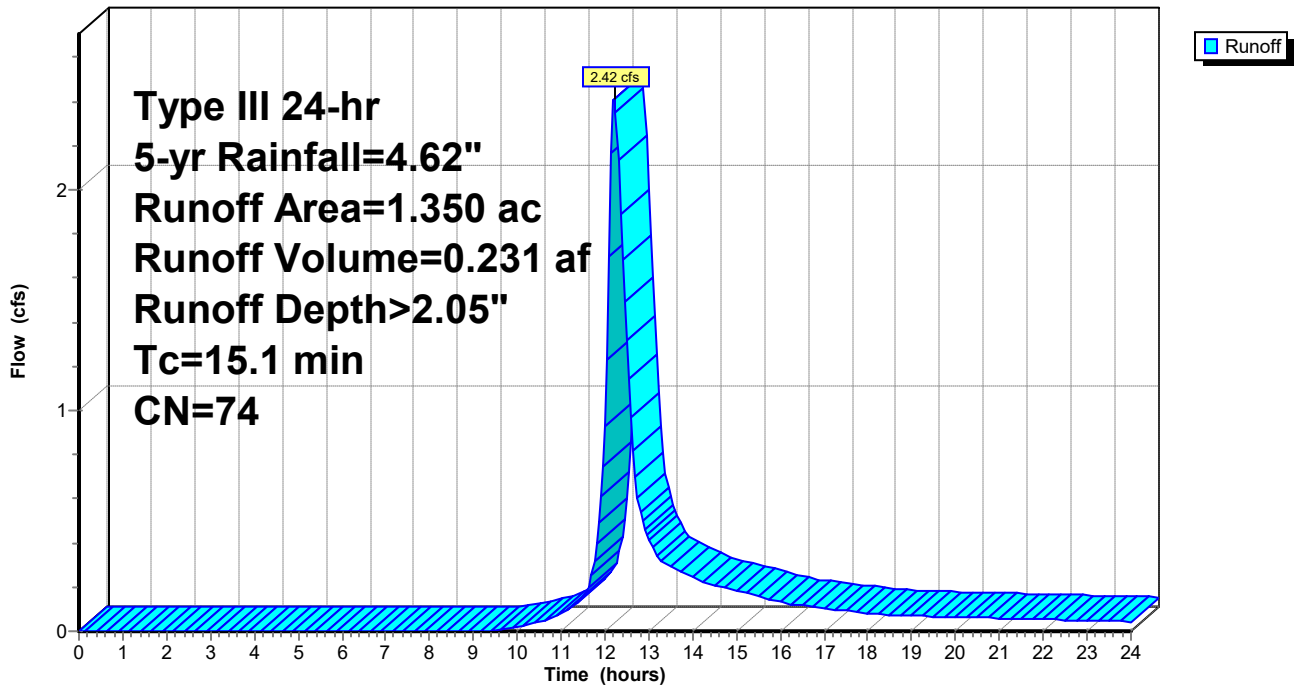
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 5-yr Rainfall=4.62"

Area (ac)	CN	Description
* 0.190	55	Woods - B
* 1.160	77	Woods - D
1.350	74	Weighted Average
1.350		100.00% Pervious Area

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

**Subcatchment E5: EDA-5**

Hydrograph



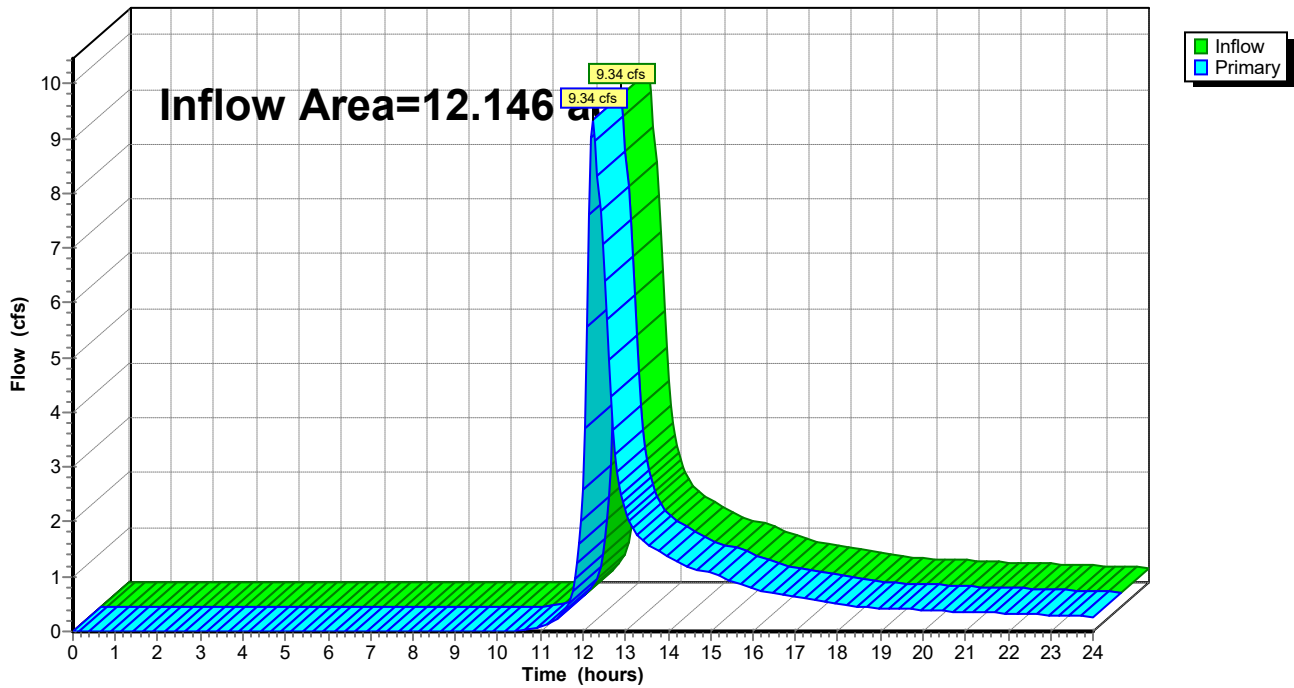
### Summary for Link E1-2: Overall Existing

Inflow Area = 12.146 ac, 3.89% Impervious, Inflow Depth > 1.08" for 5-yr event  
Inflow = 9.34 cfs @ 12.25 hrs, Volume= 1.092 af  
Primary = 9.34 cfs @ 12.25 hrs, Volume= 1.092 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link E1-2: Overall Existing

Hydrograph



**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 10-yr Rainfall=5.58"

Printed 9/4/2020

Page 18

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment E-1: EDA-1</b>	Runoff Area=5.758 ac 8.20% Impervious Runoff Depth>2.25" Tc=14.9 min CN=68 Runoff=11.27 cfs 1.081 af
<b>Subcatchment E-2: EDA-2</b>	Runoff Area=6.388 ac 0.00% Impervious Runoff Depth>1.07" Tc=18.1 min CN=52 Runoff=4.42 cfs 0.567 af
<b>Subcatchment E3: EDA-3</b>	Runoff Area=0.290 ac 100.00% Impervious Runoff Depth>5.34" Tc=6.0 min CN=98 Runoff=1.55 cfs 0.129 af
<b>Subcatchment E4: EDA-4</b>	Runoff Area=2.408 ac 40.49% Impervious Runoff Depth>3.46" Tc=16.6 min CN=81 Runoff=7.08 cfs 0.695 af
<b>Subcatchment E5: EDA-5</b>	Runoff Area=1.350 ac 0.00% Impervious Runoff Depth>2.82" Tc=15.1 min CN=74 Runoff=3.35 cfs 0.317 af
<b>Link E1-2: Overall Existing</b>	Inflow=15.18 cfs 1.648 af Primary=15.18 cfs 1.648 af

**1904501 - Existing**

Type III 24-hr 10-yr Rainfall=5.58"

Prepared by Solli Engineering, LLC

Printed 9/4/2020

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Page 19

**Summary for Subcatchment E-1: EDA-1**

Runoff = 11.27 cfs @ 12.22 hrs, Volume= 1.081 af, Depth> 2.25"

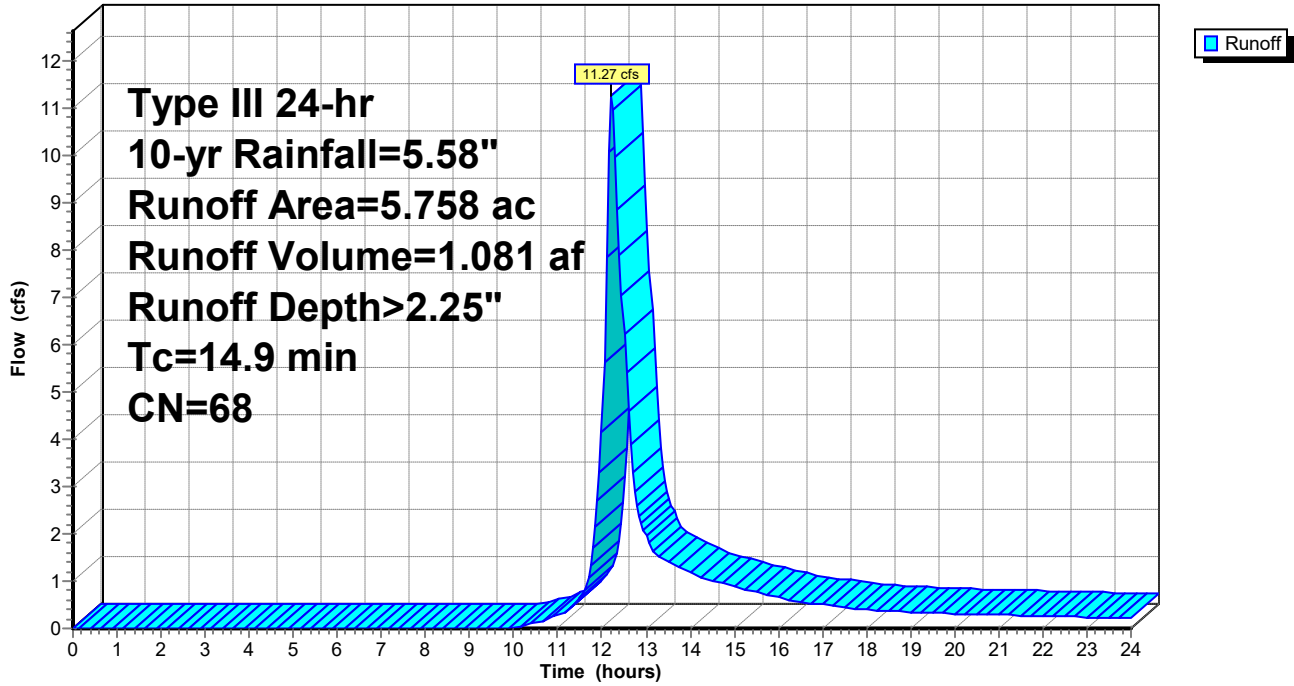
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=5.58"

Area (ac)	CN	Description
* 0.743	30	Woods - A
* 0.029	45	Woods - A poor
* 0.511	55	Woods - B
* 0.432	55	Woods - B
* 0.018	66	Woods - B poor
* 2.005	77	Woods - D
* 0.040	83	Woods - D poor
* 0.054	49	Grass - A
* 1.082	69	Grass - B
* 0.120	79	Grass - B poor
* 0.096	84	Grass - D
* 0.024	89	Grass - D poor
* 0.132	84	Grass -D
* 0.472	98	Impervious
5.758	68	Weighted Average
5.286		91.80% Pervious Area
0.472		8.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.9					<b>Direct Entry,</b>

### Subcatchment E-1: EDA-1

Hydrograph





**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 10-yr Rainfall=5.58"

Printed 9/4/2020

Page 21

**Summary for Subcatchment E-2: EDA-2**

Runoff = 4.42 cfs @ 12.31 hrs, Volume= 0.567 af, Depth> 1.07"

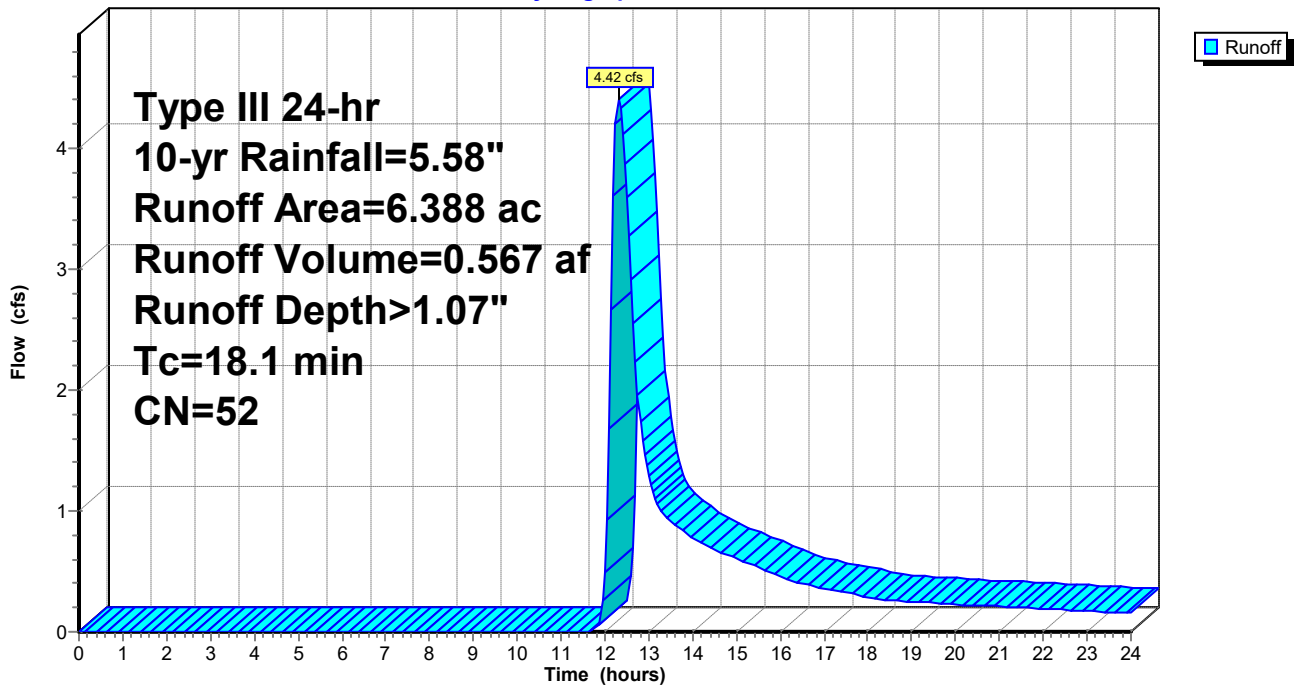
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=5.58"

Area (ac)	CN	Description
* 1.360	30	Woods - A
* 0.148	45	Woods - A poor
* 4.180	55	Woods - B
* 0.620	77	Woods - D
* 0.080	84	Grass - D
6.388	52	Weighted Average
6.388		100.00% Pervious Area

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

**Subcatchment E-2: EDA-2**

Hydrograph



**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 10-yr Rainfall=5.58"

Printed 9/4/2020

Page 22

**Summary for Subcatchment E3: EDA-3**

Runoff = 1.55 cfs @ 12.09 hrs, Volume= 0.129 af, Depth> 5.34"

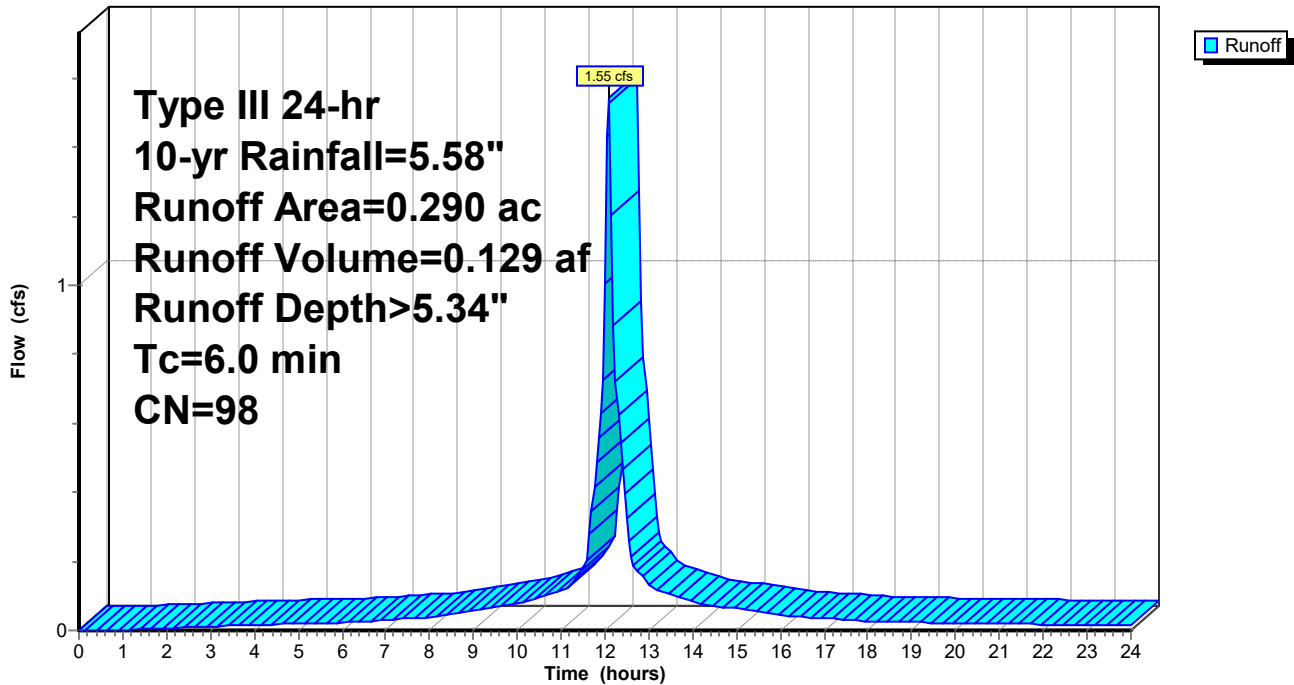
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=5.58"

Area (ac)	CN	Description
* 0.290	98	Impervious
0.290		100.00% Impervious Area

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

**Subcatchment E3: EDA-3**

Hydrograph



**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 10-yr Rainfall=5.58"

Printed 9/4/2020

Page 23

**Summary for Subcatchment E4: EDA-4**

Runoff = 7.08 cfs @ 12.23 hrs, Volume= 0.695 af, Depth> 3.46"

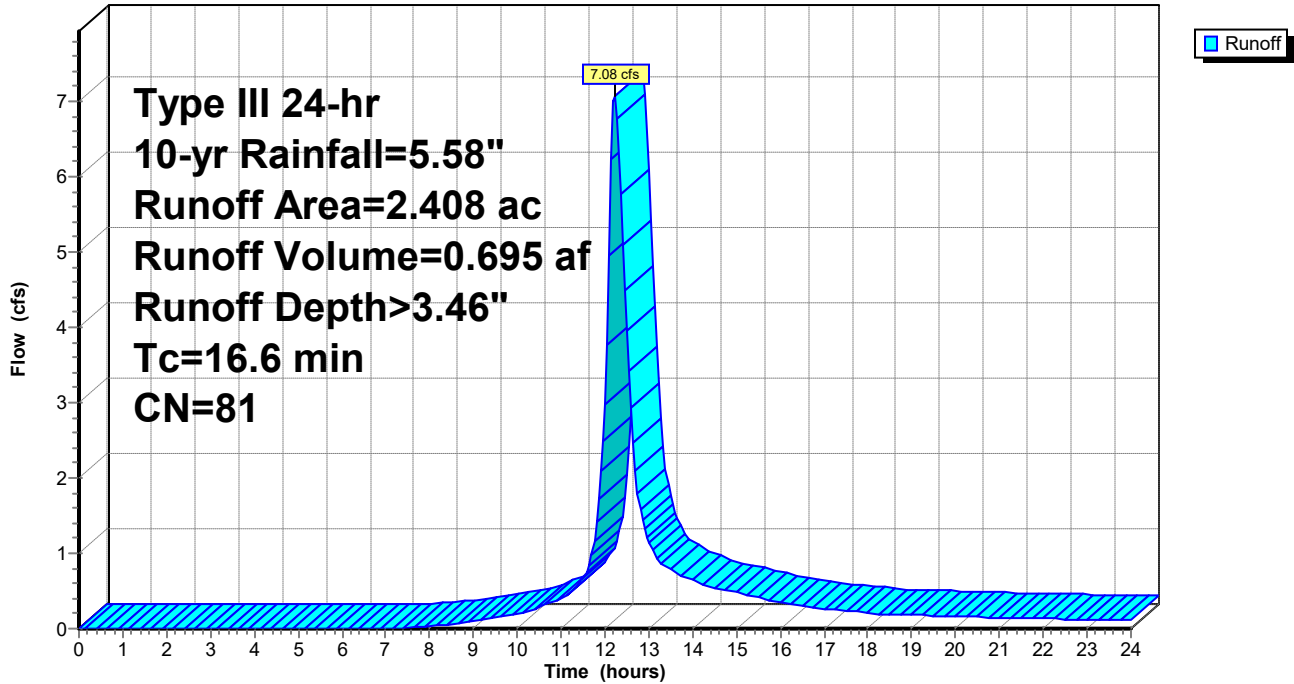
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=5.58"

Area (ac)	CN	Description
* 0.060	55	Woods - B
* 0.330	55	Woods - B
* 0.630	77	Woods - D
* 0.390	69	Grass - B
* 0.023	84	Grass - D
* 0.975	98	Impervious
2.408	81	Weighted Average
1.433		59.51% Pervious Area
0.975		40.49% Impervious Area

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

**Subcatchment E4: EDA-4**

Hydrograph



**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 10-yr Rainfall=5.58"

Printed 9/4/2020

Page 24

**Summary for Subcatchment E5: EDA-5**

Runoff = 3.35 cfs @ 12.21 hrs, Volume= 0.317 af, Depth> 2.82"

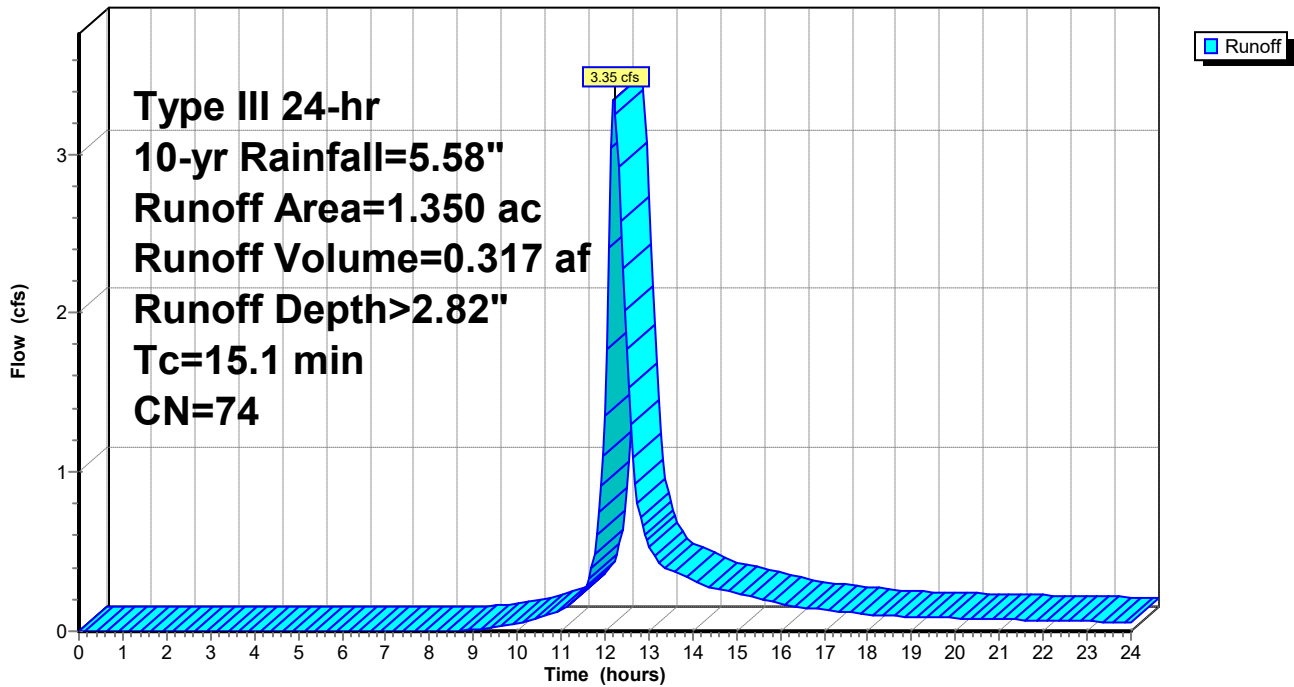
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=5.58"

Area (ac)	CN	Description
* 0.190	55	Woods - B
* 1.160	77	Woods - D
1.350	74	Weighted Average
1.350		100.00% Pervious Area

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

**Subcatchment E5: EDA-5**

Hydrograph



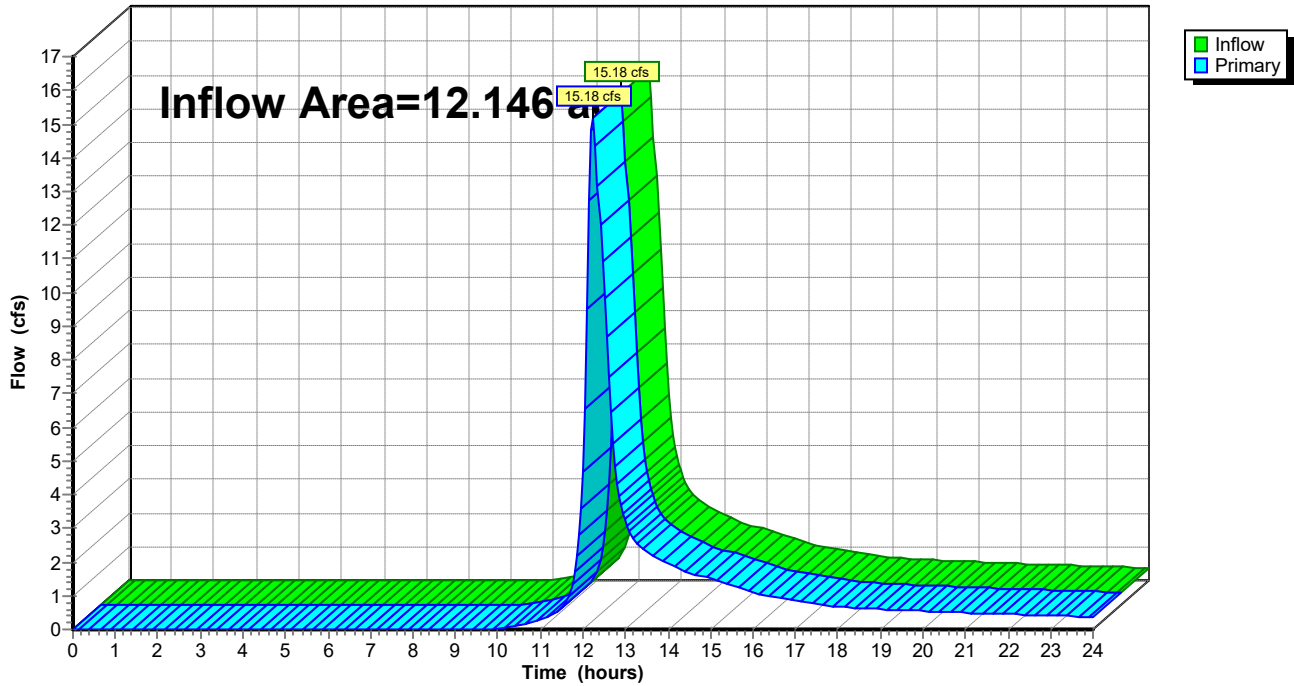
### Summary for Link E1-2: Overall Existing

Inflow Area = 12.146 ac, 3.89% Impervious, Inflow Depth > 1.63" for 10-yr event  
Inflow = 15.18 cfs @ 12.24 hrs, Volume= 1.648 af  
Primary = 15.18 cfs @ 12.24 hrs, Volume= 1.648 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link E1-2: Overall Existing

Hydrograph



**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 25-yr Rainfall=6.91"

Printed 9/4/2020

Page 26

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment E-1: EDA-1</b>	Runoff Area=5.758 ac 8.20% Impervious Runoff Depth>3.28" Tc=14.9 min CN=68 Runoff=16.65 cfs 1.572 af
<b>Subcatchment E-2: EDA-2</b>	Runoff Area=6.388 ac 0.00% Impervious Runoff Depth>1.78" Tc=18.1 min CN=52 Runoff=8.30 cfs 0.948 af
<b>Subcatchment E3: EDA-3</b>	Runoff Area=0.290 ac 100.00% Impervious Runoff Depth>6.67" Tc=6.0 min CN=98 Runoff=1.92 cfs 0.161 af
<b>Subcatchment E4: EDA-4</b>	Runoff Area=2.408 ac 40.49% Impervious Runoff Depth>4.68" Tc=16.6 min CN=81 Runoff=9.52 cfs 0.938 af
<b>Subcatchment E5: EDA-5</b>	Runoff Area=1.350 ac 0.00% Impervious Runoff Depth>3.94" Tc=15.1 min CN=74 Runoff=4.71 cfs 0.444 af
<b>Link E1-2: Overall Existing</b>	Inflow=24.36 cfs 2.520 af Primary=24.36 cfs 2.520 af

**1904501 - Existing**

Type III 24-hr 25-yr Rainfall=6.91"

Prepared by Solli Engineering, LLC

Printed 9/4/2020

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Page 27

**Summary for Subcatchment E-1: EDA-1**

Runoff = 16.65 cfs @ 12.21 hrs, Volume= 1.572 af, Depth> 3.28"

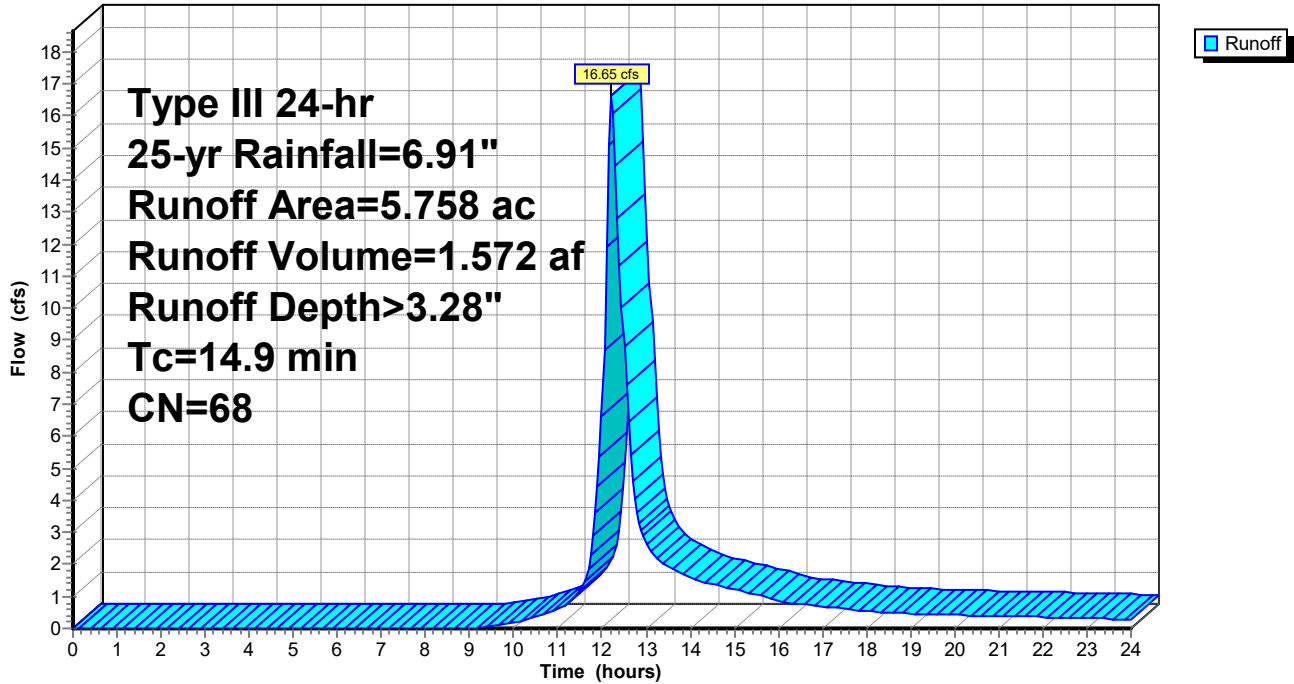
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 25-yr Rainfall=6.91"

Area (ac)	CN	Description
* 0.743	30	Woods - A
* 0.029	45	Woods - A poor
* 0.511	55	Woods - B
* 0.432	55	Woods - B
* 0.018	66	Woods - B poor
* 2.005	77	Woods - D
* 0.040	83	Woods - D poor
* 0.054	49	Grass - A
* 1.082	69	Grass - B
* 0.120	79	Grass - B poor
* 0.096	84	Grass - D
* 0.024	89	Grass - D poor
* 0.132	84	Grass -D
* 0.472	98	Impervious
5.758	68	Weighted Average
5.286		91.80% Pervious Area
0.472		8.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.9					<b>Direct Entry,</b>

Subcatchment E-1: EDA-1

Hydrograph





**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 25-yr Rainfall=6.91"

Printed 9/4/2020

Page 29

**Summary for Subcatchment E-2: EDA-2**

Runoff = 8.30 cfs @ 12.28 hrs, Volume= 0.948 af, Depth> 1.78"

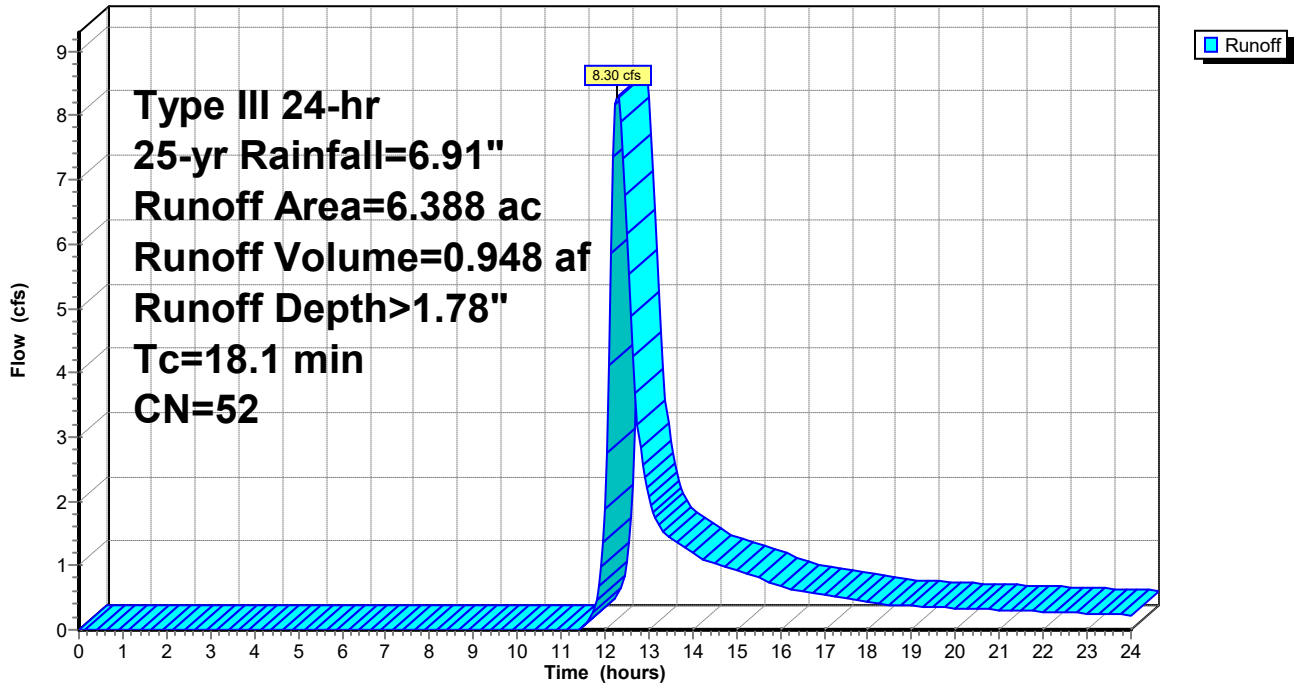
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-yr Rainfall=6.91"

Area (ac)	CN	Description
* 1.360	30	Woods - A
* 0.148	45	Woods - A poor
* 4.180	55	Woods - B
* 0.620	77	Woods - D
* 0.080	84	Grass - D
6.388	52	Weighted Average
6.388		100.00% Pervious Area

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

**Subcatchment E-2: EDA-2**

Hydrograph



**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 25-yr Rainfall=6.91"

Printed 9/4/2020

Page 30

**Summary for Subcatchment E3: EDA-3**

Runoff = 1.92 cfs @ 12.09 hrs, Volume= 0.161 af, Depth> 6.67"

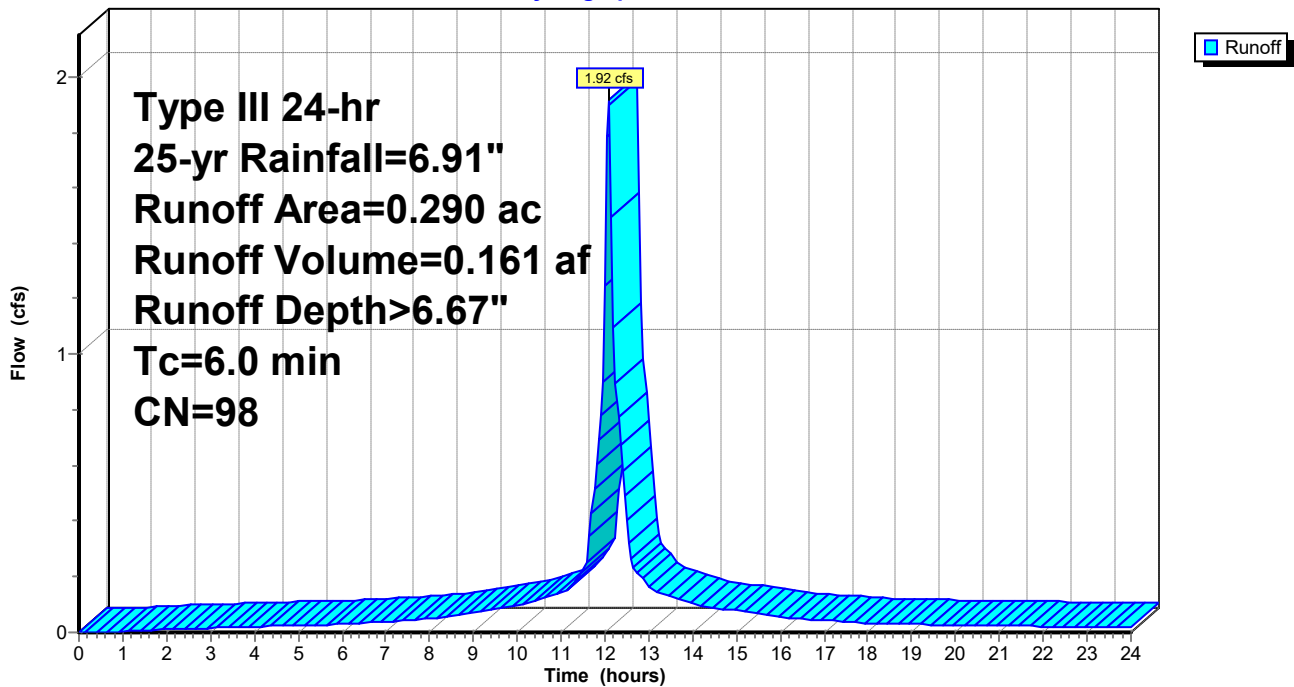
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-yr Rainfall=6.91"

Area (ac)	CN	Description
* 0.290	98	Impervious
0.290		100.00% Impervious Area

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

**Subcatchment E3: EDA-3**

Hydrograph



**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 25-yr Rainfall=6.91"

Printed 9/4/2020

Page 31

**Summary for Subcatchment E4: EDA-4**

Runoff = 9.52 cfs @ 12.22 hrs, Volume= 0.938 af, Depth> 4.68"

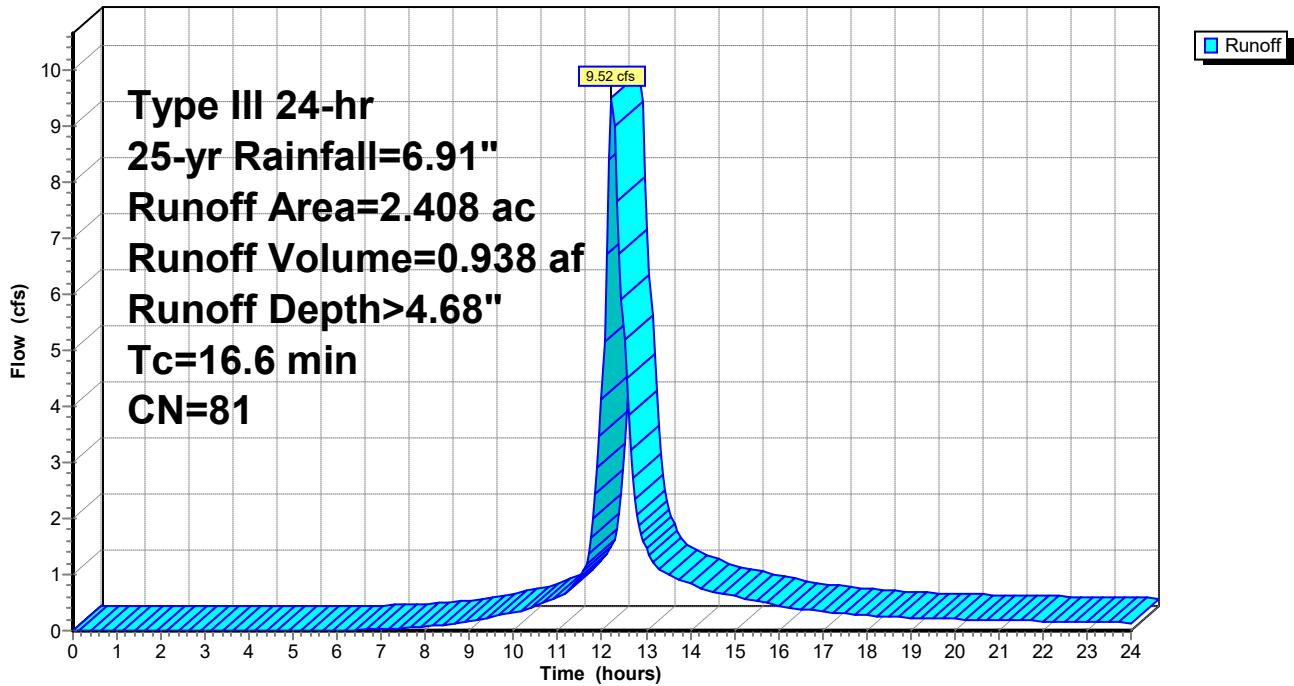
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-yr Rainfall=6.91"

Area (ac)	CN	Description
* 0.060	55	Woods - B
* 0.330	55	Woods - B
* 0.630	77	Woods - D
* 0.390	69	Grass - B
* 0.023	84	Grass - D
* 0.975	98	Impervious
2.408	81	Weighted Average
1.433		59.51% Pervious Area
0.975		40.49% Impervious Area

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

**Subcatchment E4: EDA-4**

Hydrograph



**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 25-yr Rainfall=6.91"

Printed 9/4/2020

Page 32

**Summary for Subcatchment E5: EDA-5**

Runoff = 4.71 cfs @ 12.21 hrs, Volume= 0.444 af, Depth> 3.94"

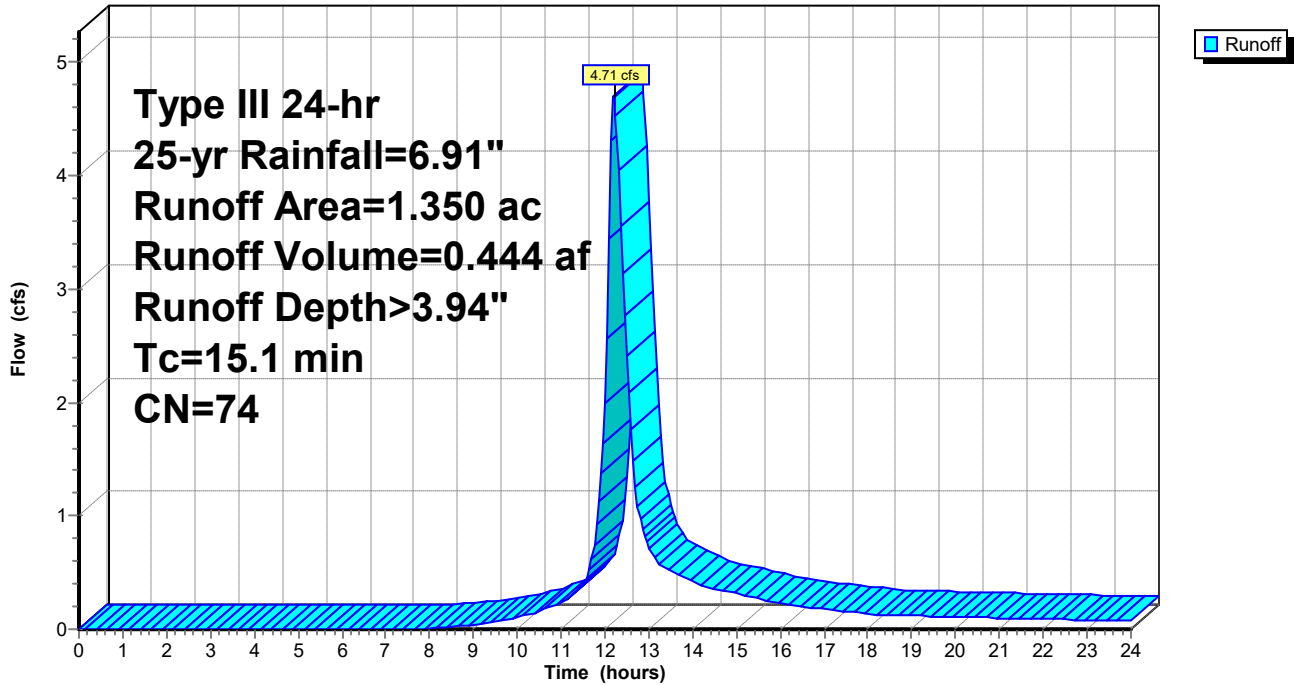
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-yr Rainfall=6.91"

Area (ac)	CN	Description
* 0.190	55	Woods - B
* 1.160	77	Woods - D
1.350	74	Weighted Average
1.350		100.00% Pervious Area

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

**Subcatchment E5: EDA-5**

Hydrograph



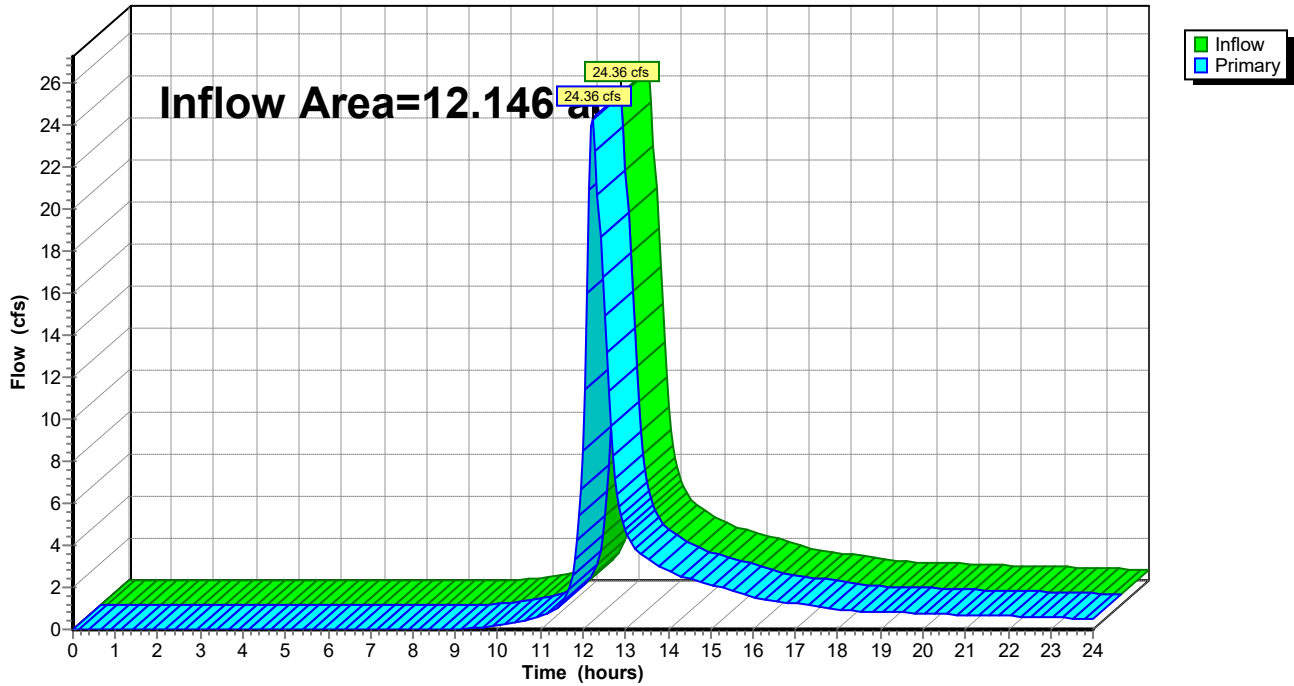
### Summary for Link E1-2: Overall Existing

Inflow Area = 12.146 ac, 3.89% Impervious, Inflow Depth > 2.49" for 25-yr event  
Inflow = 24.36 cfs @ 12.23 hrs, Volume= 2.520 af  
Primary = 24.36 cfs @ 12.23 hrs, Volume= 2.520 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link E1-2: Overall Existing

Hydrograph



**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 50-yr Rainfall=7.87"

Printed 9/4/2020

Page 34

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment E-1: EDA-1</b>	Runoff Area=5.758 ac 8.20% Impervious Runoff Depth>4.06" Tc=14.9 min CN=68 Runoff=20.72 cfs 1.947 af
<b>Subcatchment E-2: EDA-2</b>	Runoff Area=6.388 ac 0.00% Impervious Runoff Depth>2.36" Tc=18.1 min CN=52 Runoff=11.52 cfs 1.257 af
<b>Subcatchment E3: EDA-3</b>	Runoff Area=0.290 ac 100.00% Impervious Runoff Depth>7.63" Tc=6.0 min CN=98 Runoff=2.19 cfs 0.184 af
<b>Subcatchment E4: EDA-4</b>	Runoff Area=2.408 ac 40.49% Impervious Runoff Depth>5.57" Tc=16.6 min CN=81 Runoff=11.28 cfs 1.118 af
<b>Subcatchment E5: EDA-5</b>	Runoff Area=1.350 ac 0.00% Impervious Runoff Depth>4.79" Tc=15.1 min CN=74 Runoff=5.70 cfs 0.538 af
<b>Link E1-2: Overall Existing</b>	Inflow=31.52 cfs 3.205 af Primary=31.52 cfs 3.205 af

**1904501 - Existing**

Type III 24-hr 50-yr Rainfall=7.87"

Prepared by Solli Engineering, LLC

Printed 9/4/2020

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Page 35

**Summary for Subcatchment E-1: EDA-1**

Runoff = 20.72 cfs @ 12.21 hrs, Volume= 1.947 af, Depth> 4.06"

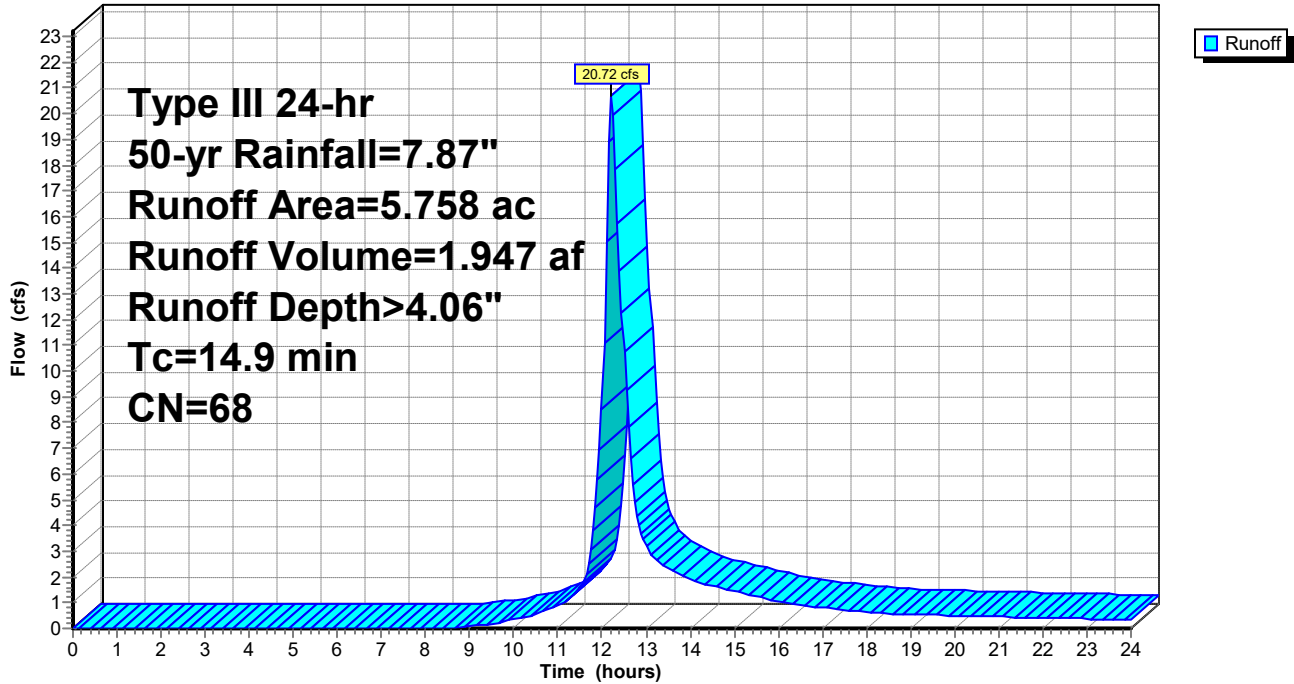
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50-yr Rainfall=7.87"

Area (ac)	CN	Description
* 0.743	30	Woods - A
* 0.029	45	Woods - A poor
* 0.511	55	Woods - B
* 0.432	55	Woods - B
* 0.018	66	Woods - B poor
* 2.005	77	Woods - D
* 0.040	83	Woods - D poor
* 0.054	49	Grass - A
* 1.082	69	Grass - B
* 0.120	79	Grass - B poor
* 0.096	84	Grass - D
* 0.024	89	Grass - D poor
* 0.132	84	Grass -D
* 0.472	98	Impervious
5.758	68	Weighted Average
5.286		91.80% Pervious Area
0.472		8.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.9					<b>Direct Entry,</b>

### Subcatchment E-1: EDA-1

Hydrograph





**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 50-yr Rainfall=7.87"

Printed 9/4/2020

Page 37

**Summary for Subcatchment E-2: EDA-2**

Runoff = 11.52 cfs @ 12.27 hrs, Volume= 1.257 af, Depth> 2.36"

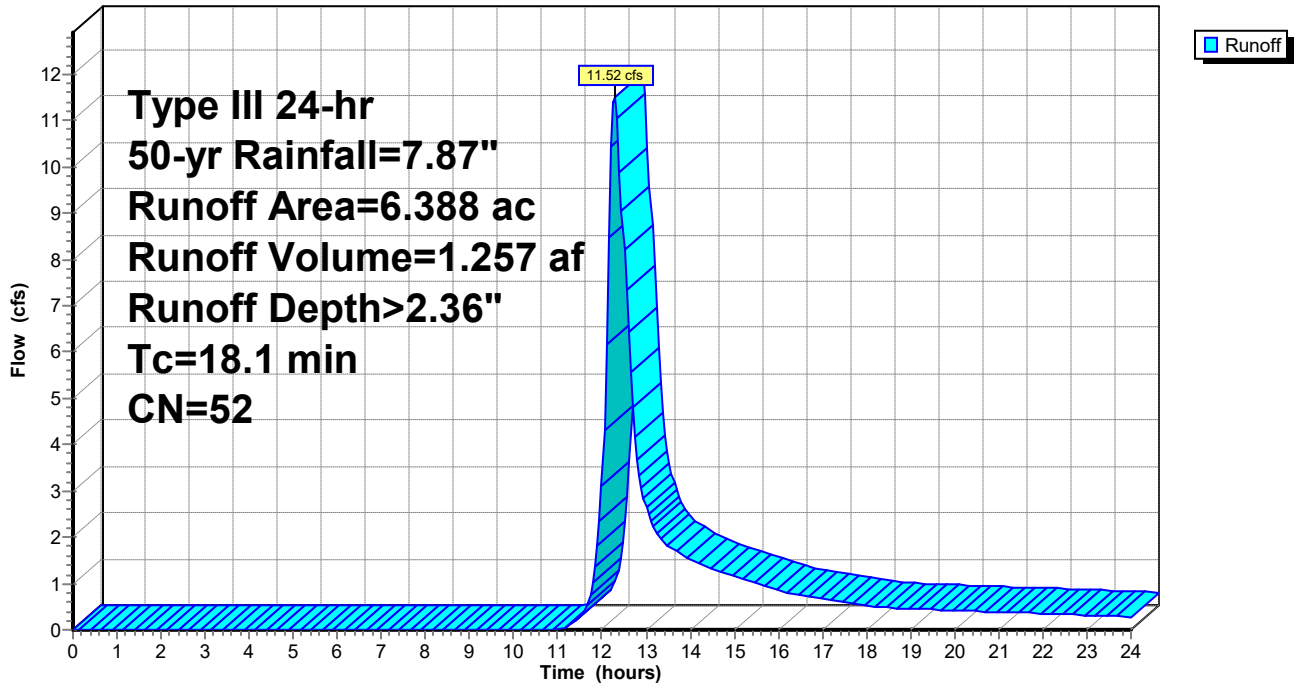
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50-yr Rainfall=7.87"

Area (ac)	CN	Description
* 1.360	30	Woods - A
* 0.148	45	Woods - A poor
* 4.180	55	Woods - B
* 0.620	77	Woods - D
* 0.080	84	Grass - D
6.388	52	Weighted Average
6.388		100.00% Pervious Area

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

**Subcatchment E-2: EDA-2**

Hydrograph



**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 50-yr Rainfall=7.87"

Printed 9/4/2020

Page 38

**Summary for Subcatchment E3: EDA-3**

Runoff = 2.19 cfs @ 12.09 hrs, Volume= 0.184 af, Depth> 7.63"

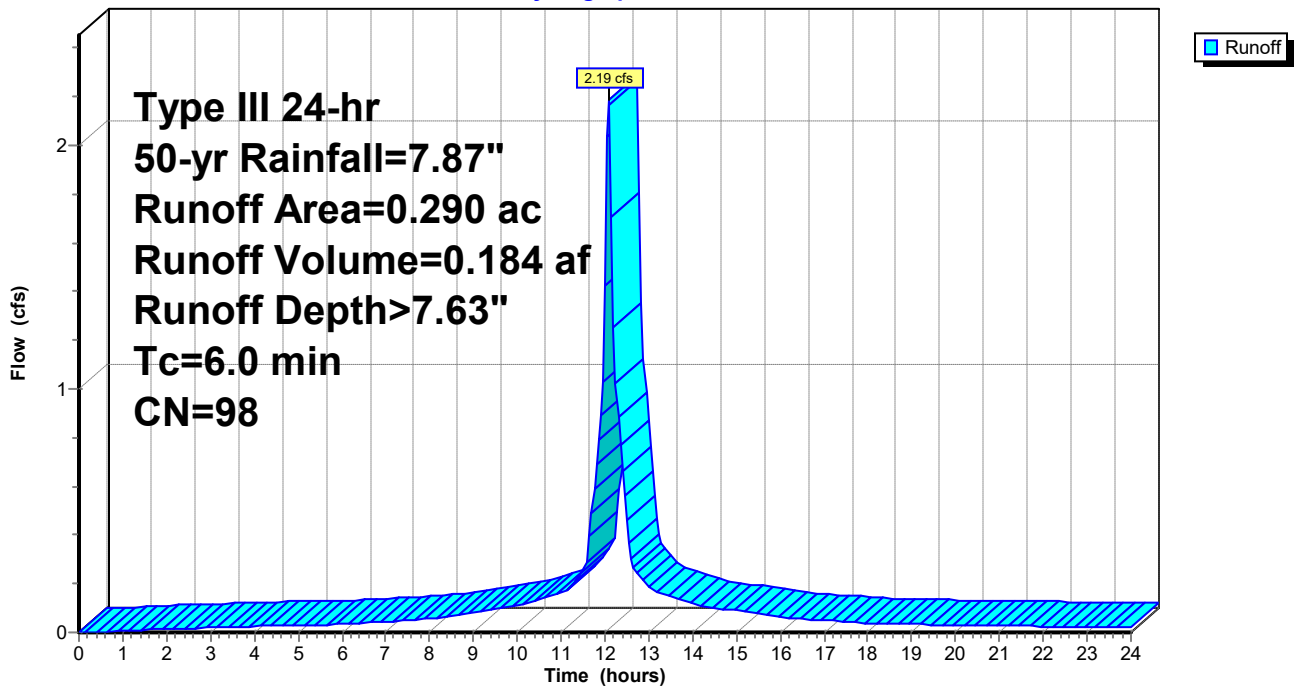
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50-yr Rainfall=7.87"

Area (ac)	CN	Description
* 0.290	98	Impervious
0.290		100.00% Impervious Area

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

**Subcatchment E3: EDA-3**

Hydrograph



**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 50-yr Rainfall=7.87"

Printed 9/4/2020

Page 39

**Summary for Subcatchment E4: EDA-4**

Runoff = 11.28 cfs @ 12.22 hrs, Volume= 1.118 af, Depth> 5.57"

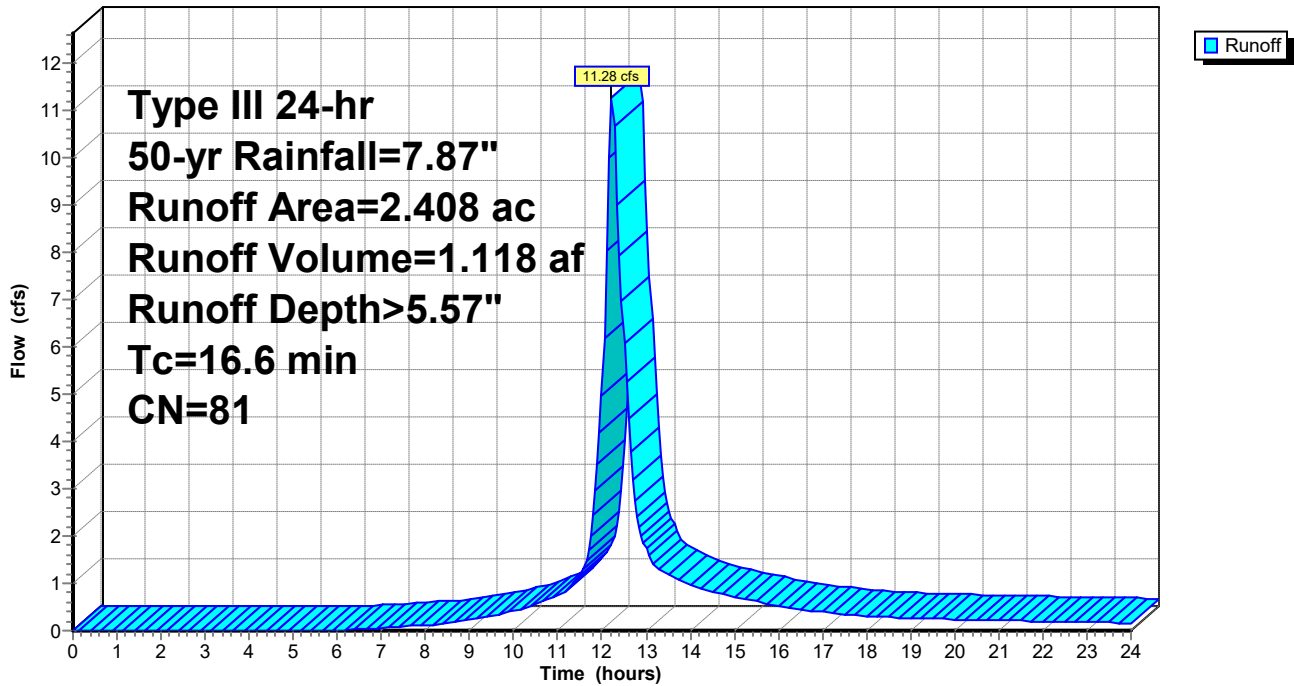
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50-yr Rainfall=7.87"

Area (ac)	CN	Description
* 0.060	55	Woods - B
* 0.330	55	Woods - B
* 0.630	77	Woods - D
* 0.390	69	Grass - B
* 0.023	84	Grass - D
* 0.975	98	Impervious
2.408	81	Weighted Average
1.433		59.51% Pervious Area
0.975		40.49% Impervious Area

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

**Subcatchment E4: EDA-4**

Hydrograph



**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 50-yr Rainfall=7.87"

Printed 9/4/2020

Page 40

**Summary for Subcatchment E5: EDA-5**

Runoff = 5.70 cfs @ 12.21 hrs, Volume= 0.538 af, Depth> 4.79"

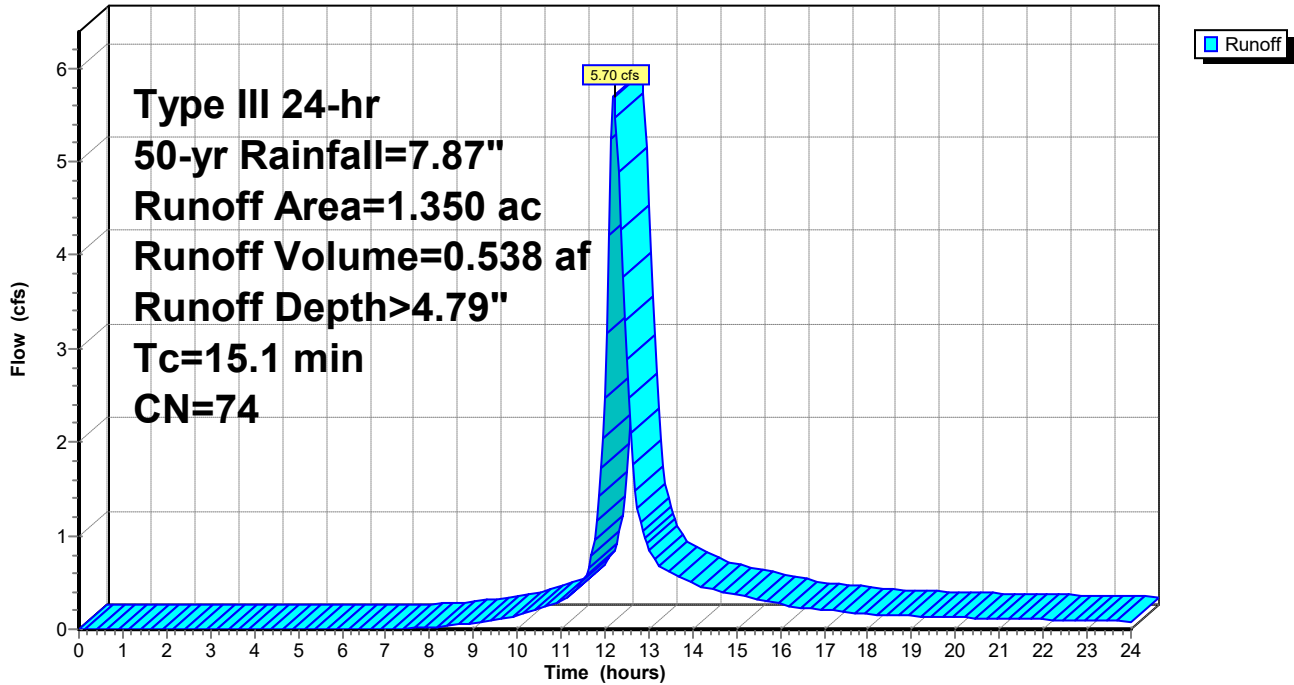
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50-yr Rainfall=7.87"

Area (ac)	CN	Description
* 0.190	55	Woods - B
* 1.160	77	Woods - D
1.350	74	Weighted Average
1.350		100.00% Pervious Area

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

**Subcatchment E5: EDA-5**

Hydrograph



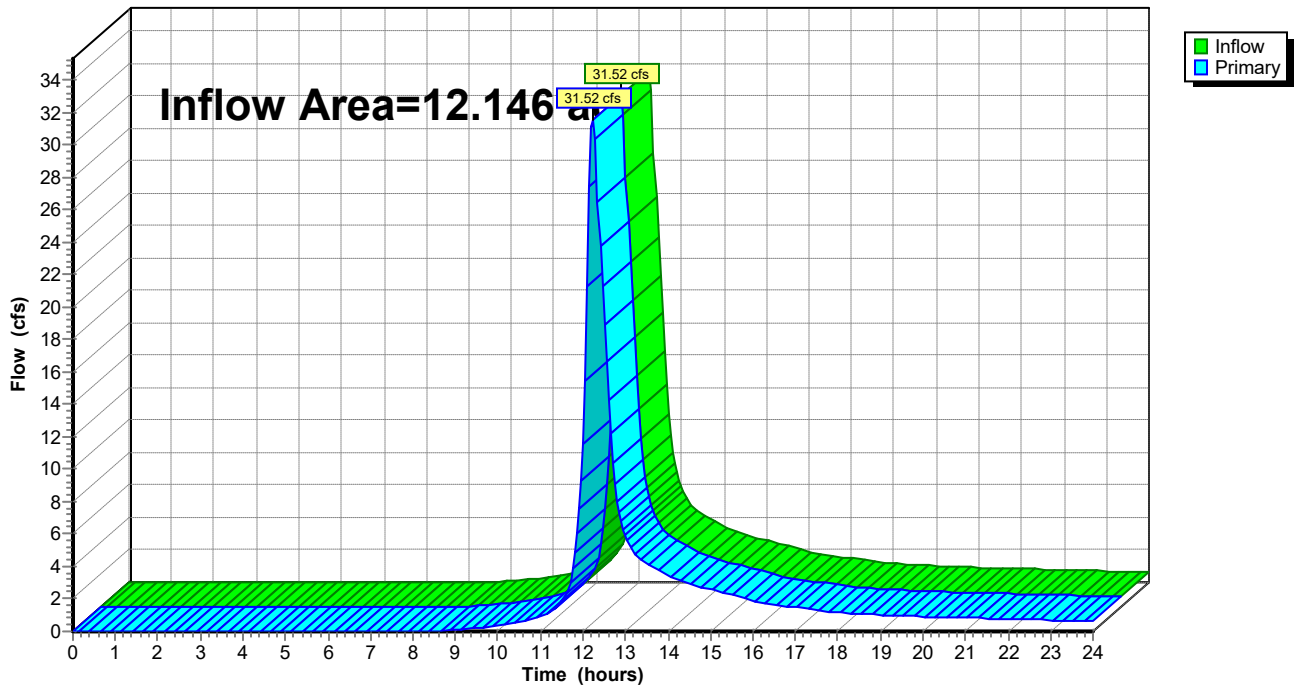
### Summary for Link E1-2: Overall Existing

Inflow Area = 12.146 ac, 3.89% Impervious, Inflow Depth > 3.17" for 50-yr event  
Inflow = 31.52 cfs @ 12.23 hrs, Volume= 3.205 af  
Primary = 31.52 cfs @ 12.23 hrs, Volume= 3.205 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link E1-2: Overall Existing

Hydrograph



**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 100-yr Rainfall=8.95"

Printed 9/4/2020

Page 42

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment E-1: EDA-1</b>	Runoff Area=5.758 ac 8.20% Impervious Runoff Depth>4.97" Tc=14.9 min CN=68 Runoff=25.42 cfs 2.385 af
<b>Subcatchment E-2: EDA-2</b>	Runoff Area=6.388 ac 0.00% Impervious Runoff Depth>3.07" Tc=18.1 min CN=52 Runoff=15.40 cfs 1.634 af
<b>Subcatchment E3: EDA-3</b>	Runoff Area=0.290 ac 100.00% Impervious Runoff Depth>8.70" Tc=6.0 min CN=98 Runoff=2.49 cfs 0.210 af
<b>Subcatchment E4: EDA-4</b>	Runoff Area=2.408 ac 40.49% Impervious Runoff Depth>6.59" Tc=16.6 min CN=81 Runoff=13.26 cfs 1.323 af
<b>Subcatchment E5: EDA-5</b>	Runoff Area=1.350 ac 0.00% Impervious Runoff Depth>5.76" Tc=15.1 min CN=74 Runoff=6.84 cfs 0.648 af
<b>Link E1-2: Overall Existing</b>	Inflow=39.97 cfs 4.019 af Primary=39.97 cfs 4.019 af

**1904501 - Existing**

Type III 24-hr 100-yr Rainfall=8.95"

Prepared by Solli Engineering, LLC

Printed 9/4/2020

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Page 43

**Summary for Subcatchment E-1: EDA-1**

Runoff = 25.42 cfs @ 12.21 hrs, Volume= 2.385 af, Depth> 4.97"

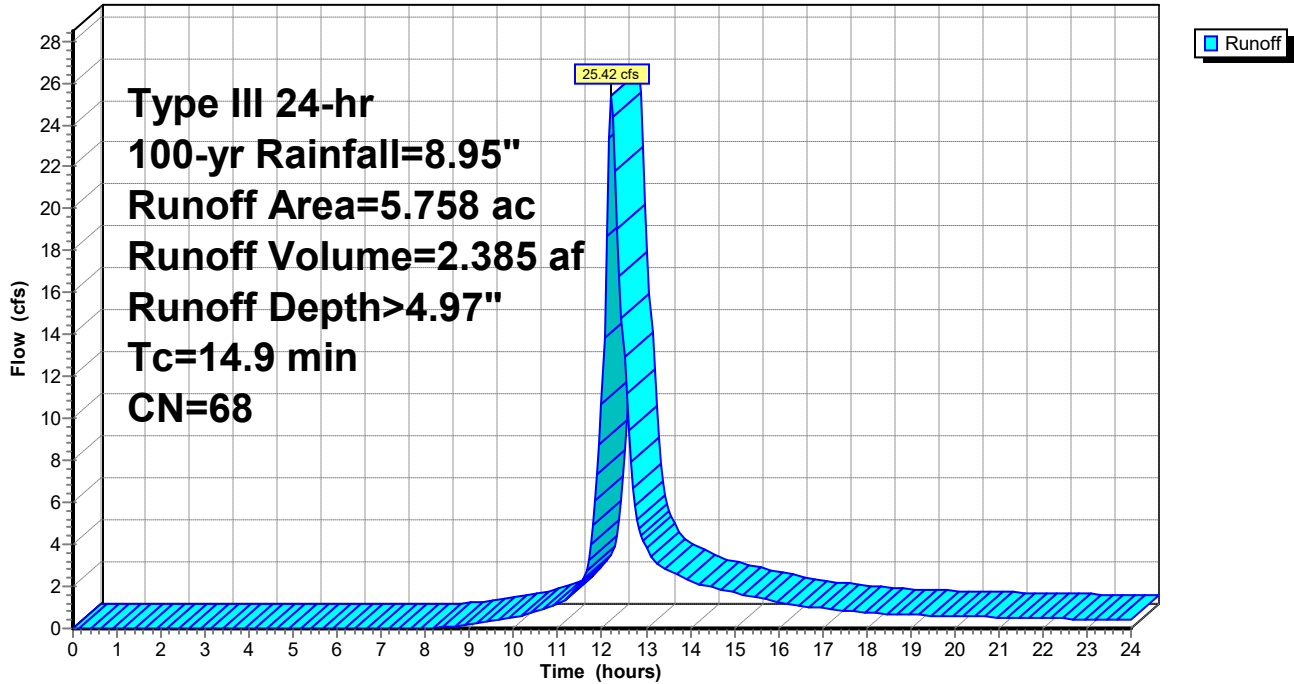
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-yr Rainfall=8.95"

Area (ac)	CN	Description
* 0.743	30	Woods - A
* 0.029	45	Woods - A poor
* 0.511	55	Woods - B
* 0.432	55	Woods - B
* 0.018	66	Woods - B poor
* 2.005	77	Woods - D
* 0.040	83	Woods - D poor
* 0.054	49	Grass - A
* 1.082	69	Grass - B
* 0.120	79	Grass - B poor
* 0.096	84	Grass - D
* 0.024	89	Grass - D poor
* 0.132	84	Grass -D
* 0.472	98	Impervious
5.758	68	Weighted Average
5.286		91.80% Pervious Area
0.472		8.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.9					<b>Direct Entry,</b>

### Subcatchment E-1: EDA-1

Hydrograph





**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 100-yr Rainfall=8.95"

Printed 9/4/2020

Page 45

**Summary for Subcatchment E-2: EDA-2**

Runoff = 15.40 cfs @ 12.27 hrs, Volume= 1.634 af, Depth> 3.07"

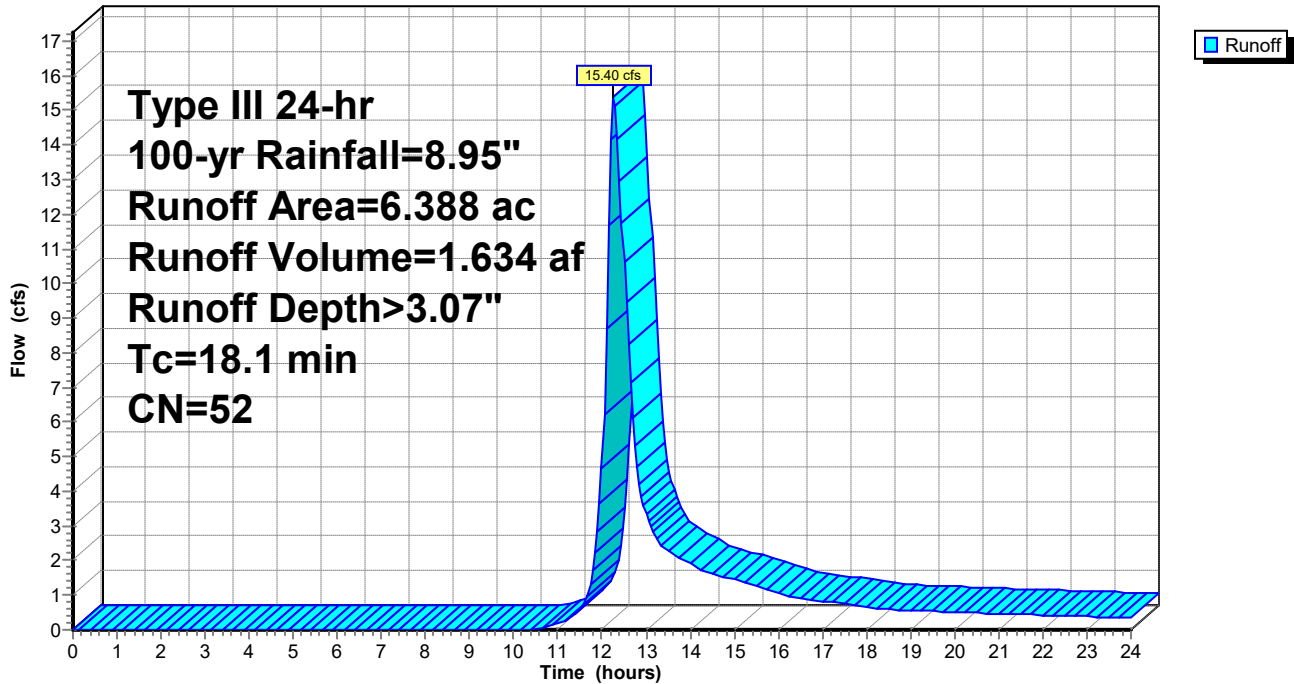
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-yr Rainfall=8.95"

Area (ac)	CN	Description
* 1.360	30	Woods - A
* 0.148	45	Woods - A poor
* 4.180	55	Woods - B
* 0.620	77	Woods - D
* 0.080	84	Grass - D
6.388	52	Weighted Average
6.388		100.00% Pervious Area

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

**Subcatchment E-2: EDA-2**

Hydrograph



**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 100-yr Rainfall=8.95"

Printed 9/4/2020

Page 46

**Summary for Subcatchment E3: EDA-3**

Runoff = 2.49 cfs @ 12.09 hrs, Volume= 0.210 af, Depth> 8.70"

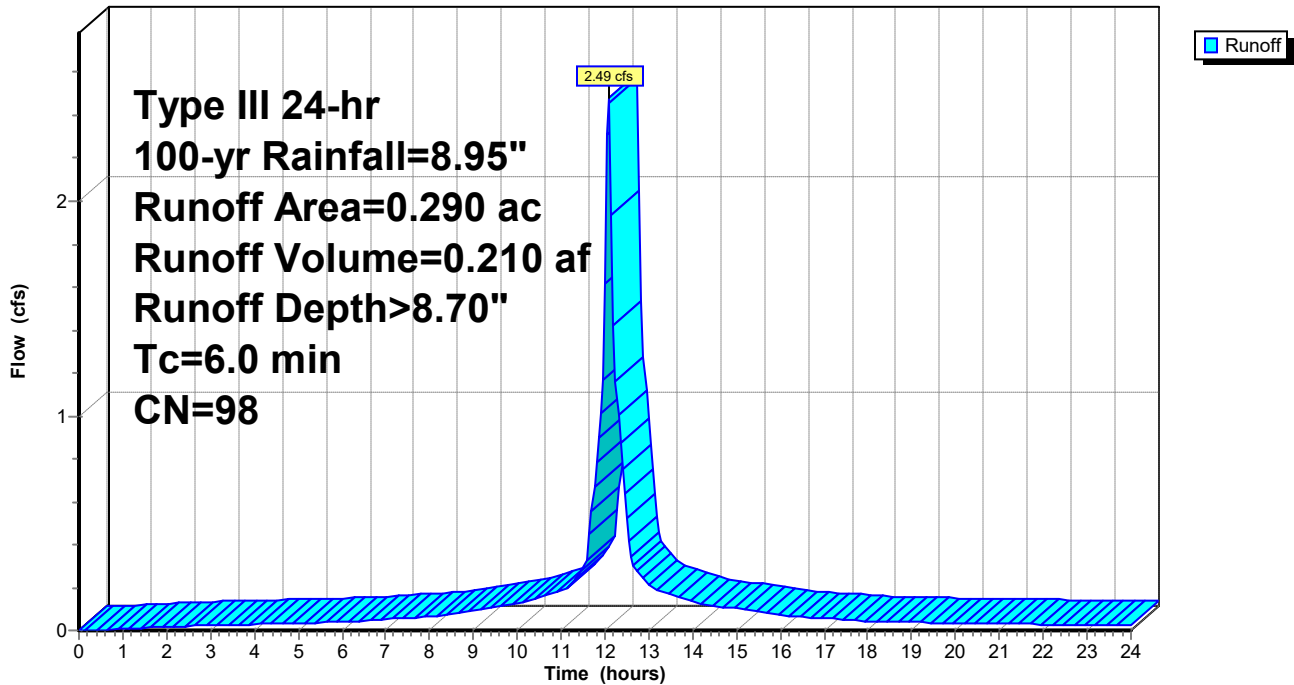
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-yr Rainfall=8.95"

Area (ac)	CN	Description
* 0.290	98	Impervious
0.290		100.00% Impervious Area

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

**Subcatchment E3: EDA-3**

Hydrograph



**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 100-yr Rainfall=8.95"

Printed 9/4/2020

Page 47

**Summary for Subcatchment E4: EDA-4**

Runoff = 13.26 cfs @ 12.22 hrs, Volume= 1.323 af, Depth> 6.59"

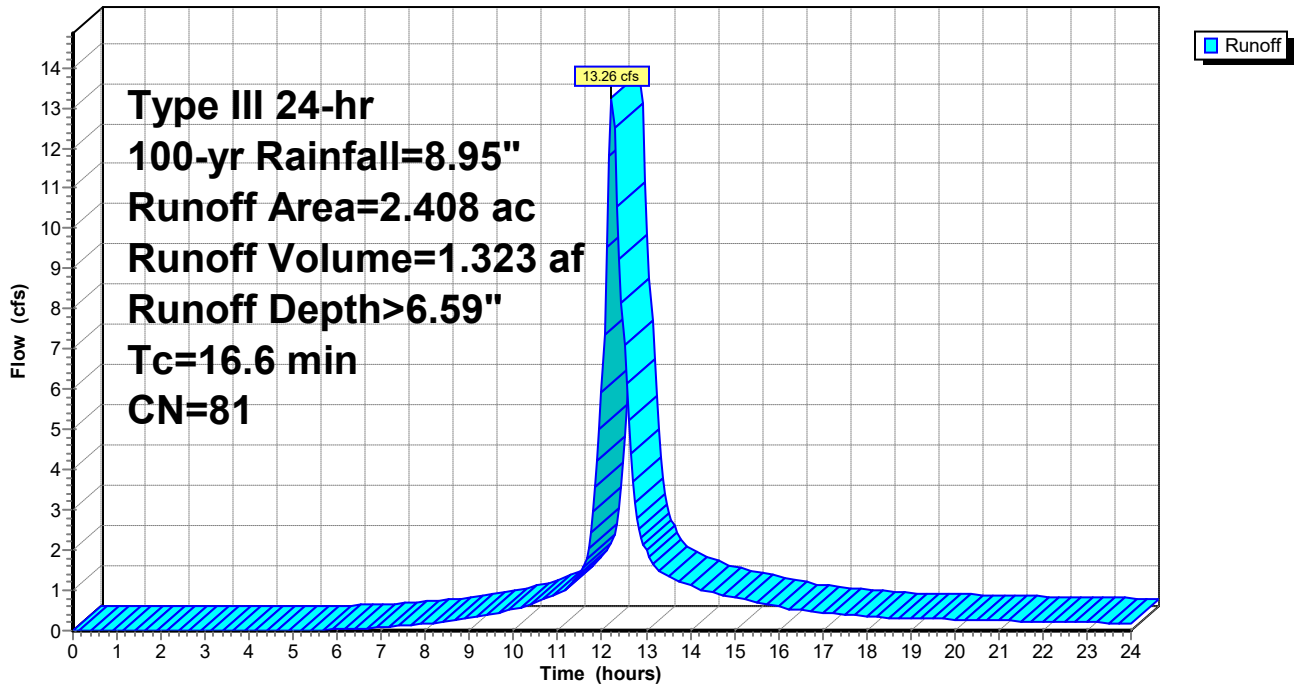
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-yr Rainfall=8.95"

Area (ac)	CN	Description
* 0.060	55	Woods - B
* 0.330	55	Woods - B
* 0.630	77	Woods - D
* 0.390	69	Grass - B
* 0.023	84	Grass - D
* 0.975	98	Impervious
2.408	81	Weighted Average
1.433		59.51% Pervious Area
0.975		40.49% Impervious Area

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

**Subcatchment E4: EDA-4**

Hydrograph



**1904501 - Existing**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 100-yr Rainfall=8.95"

Printed 9/4/2020

Page 48

**Summary for Subcatchment E5: EDA-5**

Runoff = 6.84 cfs @ 12.21 hrs, Volume= 0.648 af, Depth> 5.76"

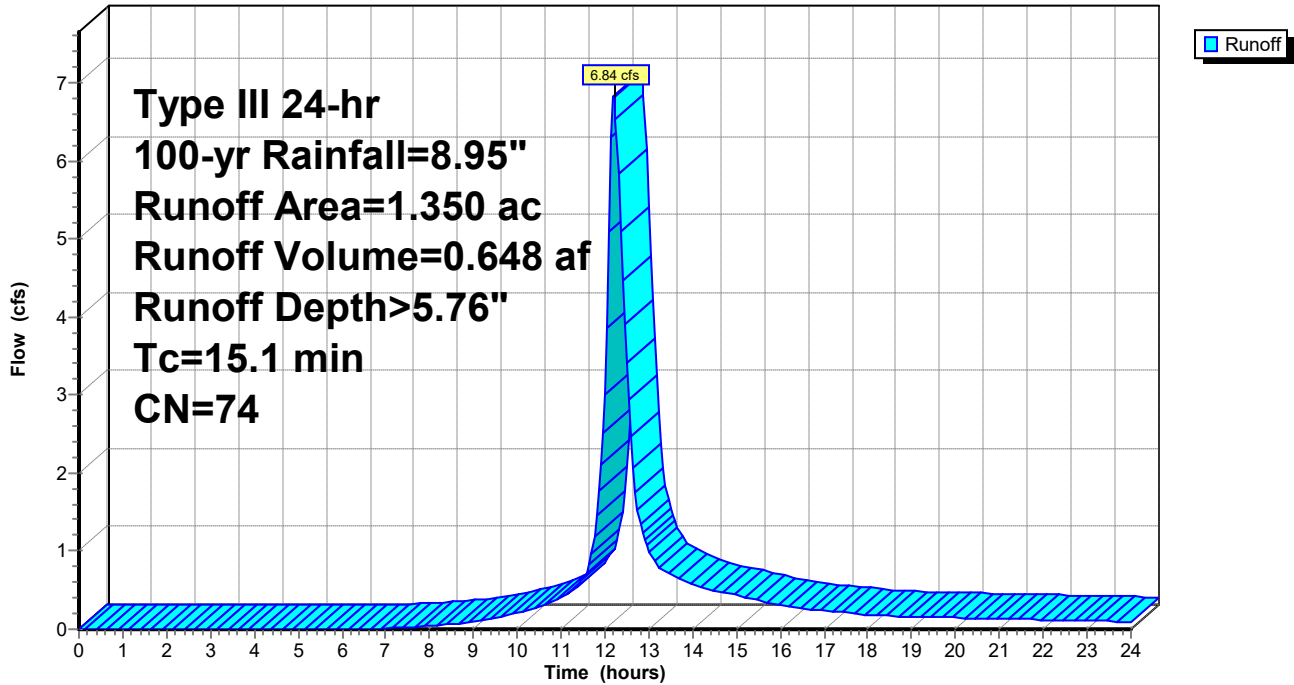
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-yr Rainfall=8.95"

Area (ac)	CN	Description
* 0.190	55	Woods - B
* 1.160	77	Woods - D
1.350	74	Weighted Average
1.350		100.00% Pervious Area

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

**Subcatchment E5: EDA-5**

Hydrograph



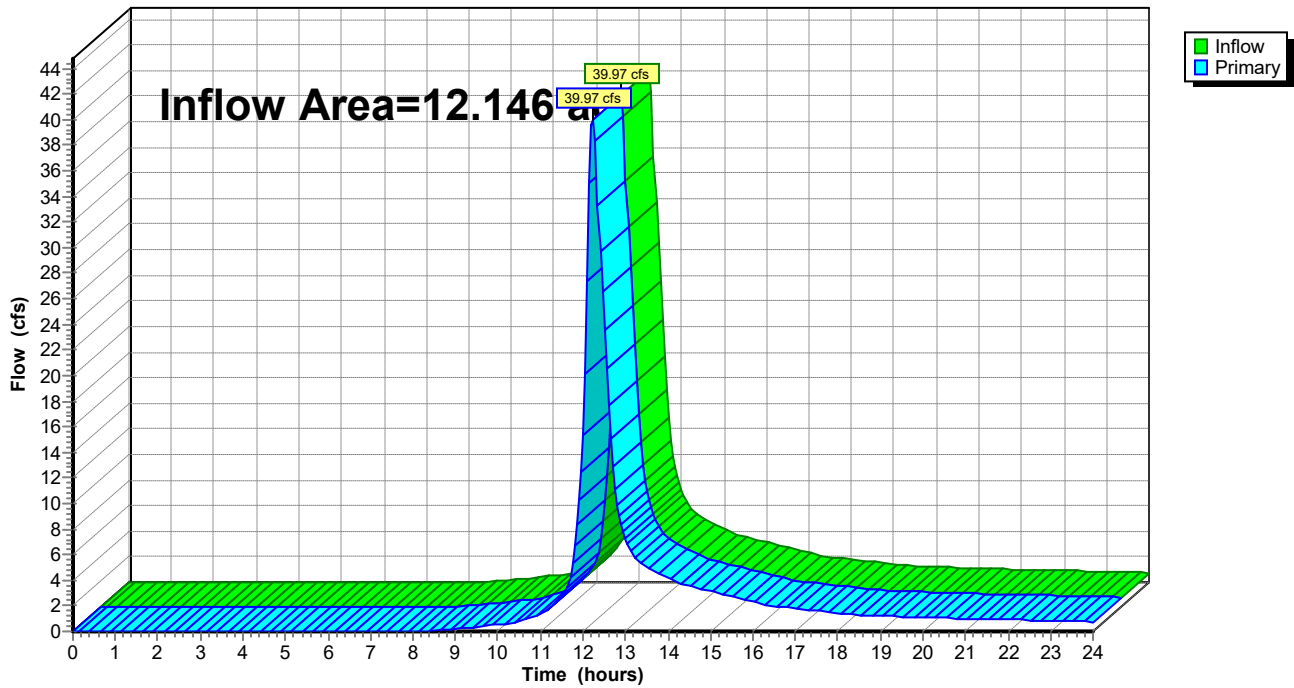
### Summary for Link E1-2: Overall Existing

Inflow Area = 12.146 ac, 3.89% Impervious, Inflow Depth > 3.97" for 100-yr event  
Inflow = 39.97 cfs @ 12.23 hrs, Volume= 4.019 af  
Primary = 39.97 cfs @ 12.23 hrs, Volume= 4.019 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link E1-2: Overall Existing

Hydrograph



Project Proposed Development By MSL Date 08/06/20  
 Location 9-15 Albany Turnpike, Canton & Simsbury, CT Checked CJB Date 09/03/20

Bold One: **Present** Developed

Bold One: **T<sub>c</sub>** T<sub>t</sub> through subarea Existing Drainage Area 1 (EDA-1)

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

**Sheet flow** (Applicable to T<sub>c</sub> Only)

1. Surface description (table 3-1)
2. Manning's roughness coeff., n (table 3-1)
3. Flow Length, L (total L ≤ 150 ft)
4. Two-yr 24-hr rainfall, P<sub>2</sub>
5. Land slope, s

$$6. T_t = \frac{0.007(nL)^{0.8}}{P_2^{0.5} s^{0.4}}$$

Compute T<sub>t</sub>

Segment ID	<b>AB</b>	
	<b>Woods (Light Underbrush)</b>	
	<b>0.40</b>	
ft	<b>150</b>	
in	<b>3.46</b>	
ft/ft	<b>0.12</b>	
hr	<b>0.230</b>	+ <b>0.000</b> = <b>0.230</b>

**Shallow concentrated flow**

7. Surface description (paved or unpaved)
8. Flow length, L
9. Watercourse slope, s
10. Average velocity, V (Conn DOT Equations 6.C.4 & C.C.5)

$$11. T_t = \frac{L}{3600 V}$$

Compute T<sub>t</sub>

Segment ID	<b>BC</b>	<b>CD</b>	<b>DE</b>
	<b>Unpaved</b>	<b>Unpaved</b>	<b>Unpaved</b>
ft	<b>105</b>	<b>146</b>	<b>367</b>
ft/ft	<b>0.15</b>	<b>0.37</b>	<b>0.04</b>
ft/s	<b>6.26</b>	<b>9.81</b>	<b>3.37</b>
hr	<b>0.005</b>	+ <b>0.004</b>	+ <b>0.030</b> = <b>0.009</b>

**Channel flow**

12. Cross sectional flow area, a
13. Wetted perimeter, p<sub>w</sub>
14. Hydraulic radius, r
15. Channel slope, s
16. Manning's roughness coeff., n

$$r = \frac{a}{p_w}$$

Compute r

$$17. V = \frac{1.49 r^{2/3} s^{1/2}}{n}$$

Compute V

18. Flow length, L

$$19. T_t = \frac{L}{3600 V}$$

Compute T<sub>t</sub>

Segment ID	<b>EF</b>	<b>FG</b>
ft <sup>2</sup>	<b>5.00</b>	<b>5.00</b>
ft	<b>7.47</b>	<b>7.47</b>
ft	<b>0.67</b>	<b>0.67</b>
ft/ft	<b>0.04</b>	<b>0.18</b>
	<b>0.025</b>	<b>0.03</b>
ft/s	<b>9.44</b>	<b>16.30</b>
ft	<b>210</b>	<b>250</b>
hr	<b>0.006</b>	+ <b>0.004</b> = <b>0.010</b>
	<b>Hours</b>	= <b>0.249</b>
	<b>Minutes</b>	= <b>14.93</b>

20. Watershed or subarea T<sub>c</sub> or T<sub>t</sub> (add T<sub>t</sub> in steps 6, 11, 19)

Project Proposed Development By MSL Date 08/06/20  
 Location 9-15 Albany Turnpike, Canton & Simsbury, CT Checked CJB Date 09/03/20  
 Bold One: **Present** Developed  
 Bold One: **T<sub>c</sub>** **T<sub>t</sub>** through subarea **Existing Drainage Area 2 (EDA-2)**

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

**Sheet flow** (Applicable to T<sub>c</sub> Only)

1. Surface description (table 3-1)
2. Manning's roughness coeff., n (table 3-1)
3. Flow Length, L (total L ≤ 150 ft)
4. Two-yr 24-hr rainfall, P<sub>2</sub>
5. Land slope, s
6.  $T_t = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$

Segment ID	<b>AB</b>	
	<b>Woods (Light Underbrush)</b>	
	<b>0.40</b>	
ft	<b>150</b>	
in	<b>3.46</b>	
ft/ft	<b>0.07</b>	
hr	<b>0.294</b>	+ <b>0.000</b> = <b>0.294</b>

Compute T<sub>t</sub>

**Shallow concentrated flow**

7. Surface description (paved or unpaved)
8. Flow length, L
9. Watercourse slope, s
10. Average velocity, V (Conn DOT Equations 6.C.4 & C.C.5)
11.  $T_t = \frac{L}{3600 V}$

Segment ID	<b>BC</b>	
	<b>Unpaved</b>	
ft	<b>215</b>	
ft/ft	<b>0.25</b>	
ft/s	<b>8.09</b>	
hr	<b>0.007</b>	+ <b>0.000</b> = <b>0.007</b>

Compute T<sub>t</sub>

**Channel flow**

12. Cross sectional flow area, a
13. Wetted perimeter, p<sub>w</sub>
14. Hydraulic radius, r  $r = \frac{a}{p_w}$
15. Channel slope, s
16. Manning's roughness coeff., n
17.  $V = \frac{1.49 r^{2/3} s^{1/2}}{n}$
18. Flow length, L
19.  $T_t = \frac{L}{3600 V}$

$r = \frac{a}{p_w}$  Compute r

Compute V

Compute T<sub>t</sub>

Segment ID		
ft <sup>2</sup>		
ft		
ft		
ft/ft		
ft/ft		
ft/s		
ft		
hr		+ <b>0.000</b> = <b>0.000</b>
	<b>Hours</b>	= <b>0.302</b>
	<b>Minutes</b>	= <b>18.09</b>

20. Watershed or subarea T<sub>c</sub> or T<sub>t</sub> (add T<sub>t</sub> in steps 6, 11, 19)

Project Proposed Development By MSL Date 08/06/20  
 Location 9-15 Albany Turnpike, Canton & Simsbury, CT Checked CJB Date 09/03/20  
 Bold One: **Present** Developed  
 Bold One: **T<sub>c</sub>** **T<sub>t</sub>** through subarea **Existing Drainage Area 3 (EDA-3)**

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

**Sheet flow** (Applicable to T<sub>c</sub> Only)

1. Surface description (table 3-1)
2. Manning's roughness coeff., n (table 3-1)
3. Flow Length, L (total L ≤ 150 ft)
4. Two-yr 24-hr rainfall, P<sub>2</sub>
5. Land slope, s
6.  $T_t = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$

Segment ID	<b>AB</b>	
	<b>Pavement</b>	
	<b>0.011</b>	
ft	<b>50</b>	
in	<b>3.46</b>	
ft/ft	<b>0.03</b>	
hr	<b>0.009</b>	+ <b>0.000</b> = <b>0.009</b>

Compute T<sub>t</sub>

**Shallow concentrated flow**

7. Surface description (paved or unpaved)
8. Flow length, L
9. Watercourse slope, s
10. Average velocity, V (Conn DOT Equations 6.C.4 & C.C.5)
11.  $T_t = \frac{L}{3600 V}$

Segment ID	<b>BC</b>	
	<b>Paved</b>	
ft	<b>400</b>	
ft/ft	<b>0.05</b>	
ft/s	<b>4.31</b>	
hr	<b>0.026</b>	+ <b>0.000</b> = <b>0.026</b>

Compute T<sub>t</sub>

**Channel flow**

12. Cross sectional flow area, a
13. Wetted perimeter, p<sub>w</sub>
14. Hydraulic radius, r  $r = \frac{a}{p_w}$
15. Channel slope, s
16. Manning's roughness coeff., n
17.  $V = \frac{1.49 r^{2/3} s^{1/2}}{n}$
18. Flow length, L
19.  $T_t = \frac{L}{3600 V}$

Compute r

Compute V

Compute T<sub>t</sub>

Segment ID		
ft <sup>2</sup>		
ft		
ft		
ft/ft		
ft/ft		
ft/s		
ft		
hr		+ <b>0.000</b> = <b>0.000</b>
	<b>Hours</b>	= <b>0.035</b>
	<b>Minutes</b>	= <b>2.115</b>

Use 6 Minutes (0.1 hrs)



Project Proposed Development By MSL Date 08/06/20  
 Location 9-15 Albany Turnpike, Canton & Simsbury, CT Checked CJB Date 09/03/20

Bold One: **Present** Developed

Bold One: **T<sub>c</sub>** **T<sub>t</sub>** through subarea Existing Drainage Area 4 (EDA-4)

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

**Sheet flow** (Applicable to T<sub>c</sub> Only)

1. Surface description (table 3-1)
2. Manning's roughness coeff., n (table 3-1)
3. Flow Length, L (total L ≤ 150 ft)
4. Two-yr 24-hr rainfall, P<sub>2</sub>
5. Land slope, s

$$6. T_t = \frac{0.007(nL)^{0.8}}{P_2^{0.5} s^{0.4}}$$

Compute T<sub>t</sub>

Segment ID	AB	BC	CD
	Woods (Light Underbrush)	Woods (Light Underbrush)	Woods (Light Underbrush)
	0.40	0.40	0.40
	28	90	32
	3.46	3.46	3.46
	0.29	0.10	0.45
	0.043	0.166	0.040

= 0.249

**Shallow concentrated flow**

7. Surface description (paved or unpaved)
8. Flow length, L
9. Watercourse slope, s
10. Average velocity, V (Conn DOT Equations 6.C.4 & C.C.5)

$$11. T_t = \frac{L}{3600 V}$$

Compute T<sub>t</sub>

Segment ID	DE	EF	FG
	Unpaved	Unpaved	Paved
	142	40	176
	0.45	0.04	0.06
	10.82	3.23	5.08
	0.004	0.003	0.010

= 0.017

**Channel flow**

12. Cross sectional flow area, a
13. Wetted perimeter, p<sub>w</sub>
14. Hydraulic radius, r
15. Channel slope, s
16. Manning's roughness coeff., n

$$r = \frac{a}{p_w}$$

Compute r

$$17. V = \frac{1.49 r^{2/3} s^{1/2}}{n}$$

Compute V

$$18. T_t = \frac{L}{3600 V}$$

Compute T<sub>t</sub>

Segment ID	Along Curb
	5.00
	200
	0.011

= 0.011

Hours = 0.276

Minutes = 16.59

20. Watershed or subarea T<sub>c</sub> or T<sub>t</sub> (add T<sub>t</sub> in steps 6, 11, 19)

Project Proposed Development By MSL Date 08/06/20  
 Location 9-15 Albany Turnpike, Canton & Simsbury, CT Checked CJB Date 09/03/20  
 Bold One: **Present** Developed  
 Bold One: **T<sub>c</sub>** **T<sub>t</sub>** through subarea **Existing Drainage Area 5 (EDA-5)**

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

**Sheet flow** (Applicable to T<sub>c</sub> Only)

1. Surface description (table 3-1)
2. Manning's roughness coeff., n (table 3-1)
3. Flow Length, L (total L ≤ 150 ft)
4. Two-yr 24-hr rainfall, P<sub>2</sub>
5. Land slope, s
6.  $T_t = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$

Segment ID	<b>AB</b>	
	<b>Woods (Light Underbrush)</b>	
	<b>0.40</b>	
ft	<b>150</b>	
in	<b>3.46</b>	
ft/ft	<b>0.10</b>	
hr	<b>0.250</b>	+ <b>0.000</b> = <b>0.250</b>

Compute T<sub>t</sub>

**Shallow concentrated flow**

7. Surface description (paved or unpaved)
8. Flow length, L
9. Watercourse slope, s
10. Average velocity, V (Conn DOT Equations 6.C.4 & C.C.5)
11.  $T_t = \frac{L}{3600 V}$

Segment ID	<b>BC</b>	
	<b>Unpaved</b>	
ft	<b>100</b>	
ft/ft	<b>0.52</b>	
ft/s	<b>11.63</b>	
hr	<b>0.002</b>	+ <b>0.000</b> = <b>0.002</b>

Compute T<sub>t</sub>

**Channel flow**

12. Cross sectional flow area, a
13. Wetted perimeter, p<sub>w</sub>
14. Hydraulic radius, r  $r = \frac{a}{p_w}$
15. Channel slope, s
16. Manning's roughness coeff., n
17.  $V = \frac{1.49 r^{2/3} s^{1/2}}{n}$
18. Flow length, L
19.  $T_t = \frac{L}{3600 V}$

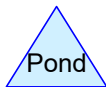
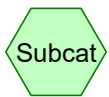
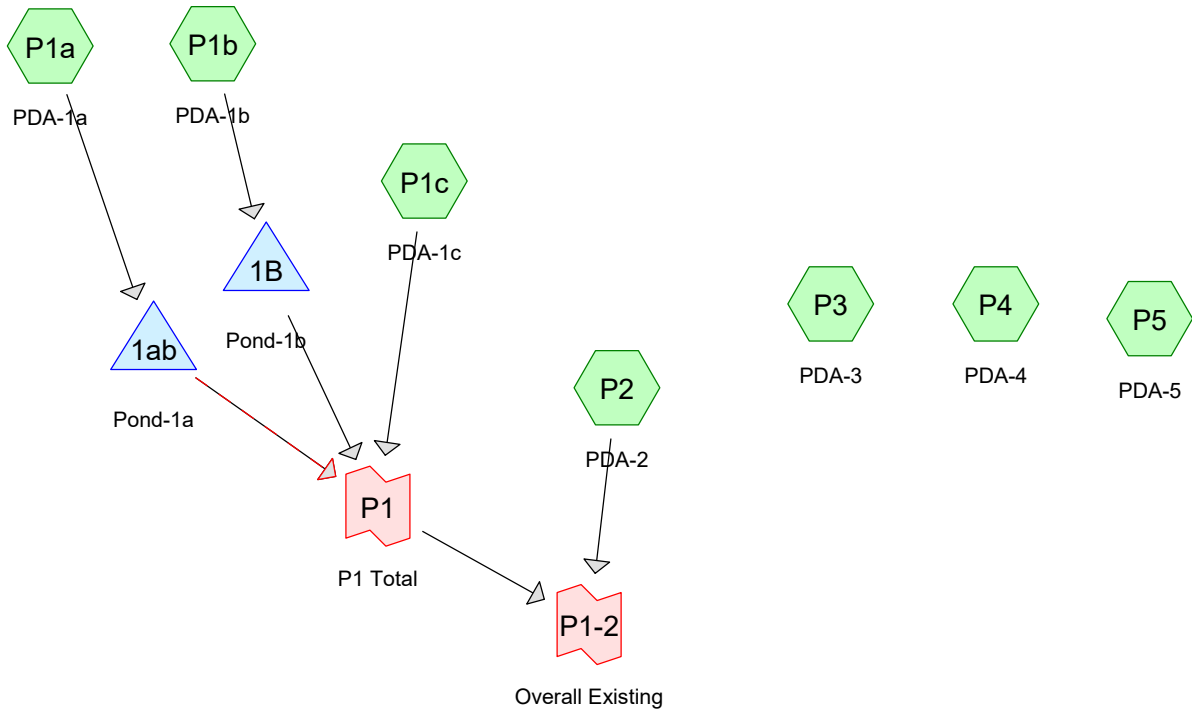
$r = \frac{a}{p_w}$  Compute r

Compute V

Compute T<sub>t</sub>

Segment ID		
ft <sup>2</sup>		
ft		
ft		
ft/ft		
ft/ft		
ft/s		
ft		
hr		+ <b>0.000</b> = <b>0.000</b>
	<b>Hours</b>	= <b>0.252</b>
	<b>Minutes</b>	= <b>15.15</b>

20. Watershed or subarea T<sub>c</sub> or T<sub>t</sub> (add T<sub>t</sub> in steps 6, 11, 19)



**Routing Diagram for 1904501 - Proposed**  
 Prepared by Solli Engineering, LLC, Printed 9/4/2020  
 HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

*Type III 24-hr 2-yr Rainfall=3.46"*

Printed 9/4/2020

Page 2

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment P1a: PDA-1a</b>	Runoff Area=2.250 ac 59.56% Impervious Runoff Depth>1.99" Tc=14.5 min CN=85 Runoff=4.01 cfs 0.372 af
<b>Subcatchment P1b: PDA-1b</b>	Runoff Area=1.660 ac 79.52% Impervious Runoff Depth>2.54" Tc=8.2 min CN=91 Runoff=4.43 cfs 0.351 af
<b>Subcatchment P1c: PDA-1c</b>	Runoff Area=2.660 ac 22.56% Impervious Runoff Depth>0.65" Tc=28.1 min CN=63 Runoff=0.96 cfs 0.145 af
<b>Subcatchment P2: PDA-2</b>	Runoff Area=5.630 ac 0.00% Impervious Runoff Depth>0.25" Tc=18.1 min CN=52 Runoff=0.47 cfs 0.117 af
<b>Subcatchment P3: PDA-3</b>	Runoff Area=0.290 ac 100.00% Impervious Runoff Depth>3.22" Tc=6.0 min CN=98 Runoff=0.95 cfs 0.078 af
<b>Subcatchment P4: PDA-4</b>	Runoff Area=2.315 ac 40.39% Impervious Runoff Depth>1.59" Tc=16.6 min CN=80 Runoff=3.11 cfs 0.307 af
<b>Subcatchment P5: PDA-5</b>	Runoff Area=1.350 ac 0.00% Impervious Runoff Depth>1.20" Tc=15.1 min CN=74 Runoff=1.37 cfs 0.135 af
<b>Pond 1ab: Pond-1a</b>	Peak Elev=343.88' Storage=4,563 cf Inflow=4.01 cfs 0.372 af Primary=1.26 cfs 0.370 af Secondary=0.00 cfs 0.000 af Outflow=1.26 cfs 0.370 af
<b>Pond 1B: Pond-1b</b>	Peak Elev=336.51' Storage=0.116 af Inflow=4.43 cfs 0.351 af Outflow=1.06 cfs 0.346 af
<b>Link P1: P1 Total</b>	Inflow=3.26 cfs 0.861 af Primary=3.26 cfs 0.861 af
<b>Link P1-2: Overall Existing</b>	Inflow=3.73 cfs 0.978 af Primary=3.73 cfs 0.978 af

**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 2-yr Rainfall=3.46"

Printed 9/4/2020

Page 3

**Summary for Subcatchment P1a: PDA-1a**

Runoff = 4.01 cfs @ 12.20 hrs, Volume= 0.372 af, Depth> 1.99"

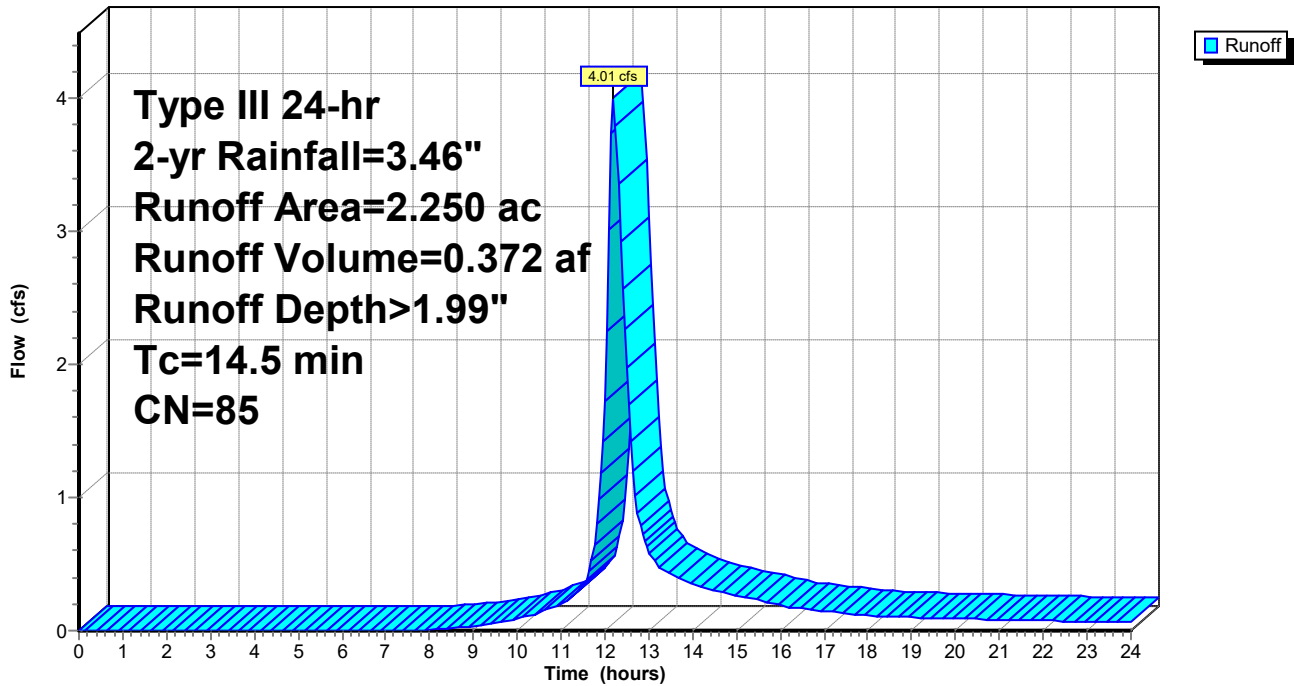
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-yr Rainfall=3.46"

Area (ac)	CN	Description
* 0.280	55	Woods - B
* 0.160	77	Woods - D
* 0.100	61	Grass - B
* 0.170	61	Grass - B
* 0.200	80	Grass -D
* 1.340	98	Impervious
2.250	85	Weighted Average
0.910		40.44% Pervious Area
1.340		59.56% Impervious Area

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

**Subcatchment P1a: PDA-1a**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 2-yr Rainfall=3.46"

Printed 9/4/2020

Page 4

**Summary for Subcatchment P1b: PDA-1b**

Runoff = 4.43 cfs @ 12.11 hrs, Volume= 0.351 af, Depth> 2.54"

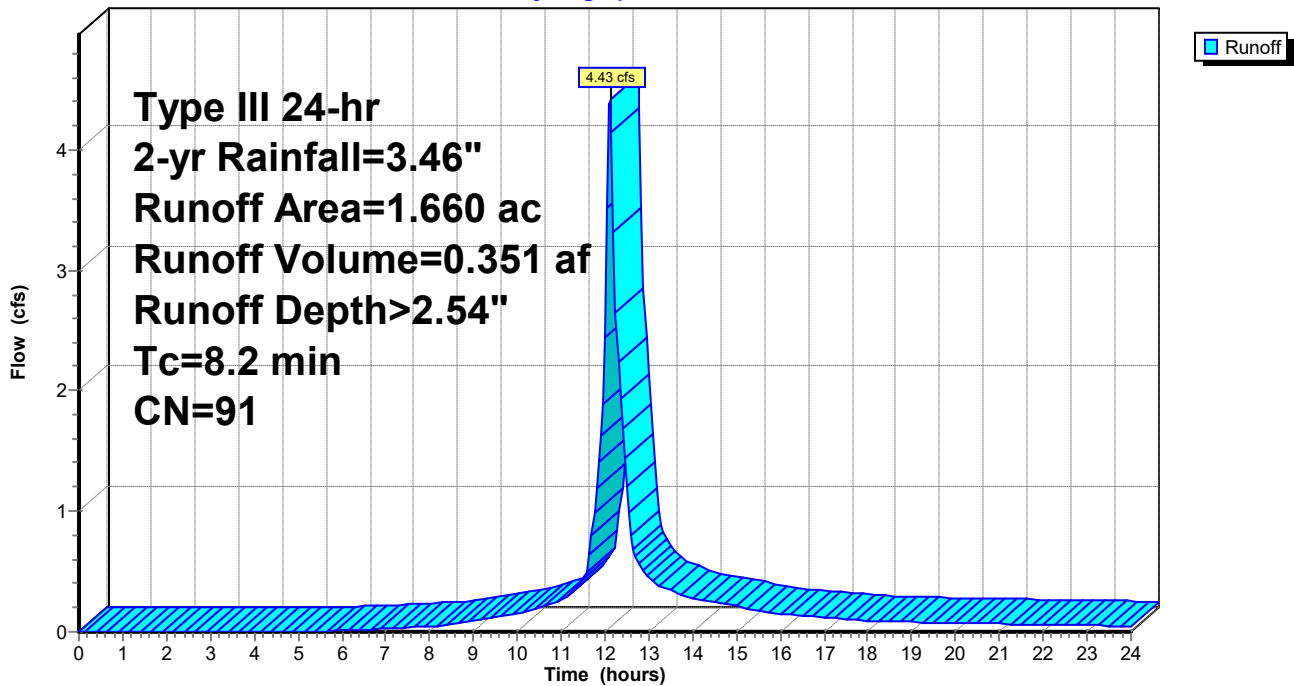
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-yr Rainfall=3.46"

Area (ac)	CN	Description
* 0.080	39	Grass - A
* 0.080	61	Grass - B
* 0.180	80	Grass - D
* 1.320	98	Impervious
1.660	91	Weighted Average
0.340		20.48% Pervious Area
1.320		79.52% Impervious Area

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

**Subcatchment P1b: PDA-1b**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 2-yr Rainfall=3.46"

Printed 9/4/2020

Page 5

**Summary for Subcatchment P1c: PDA-1c**

Runoff = 0.96 cfs @ 12.48 hrs, Volume= 0.145 af, Depth> 0.65"

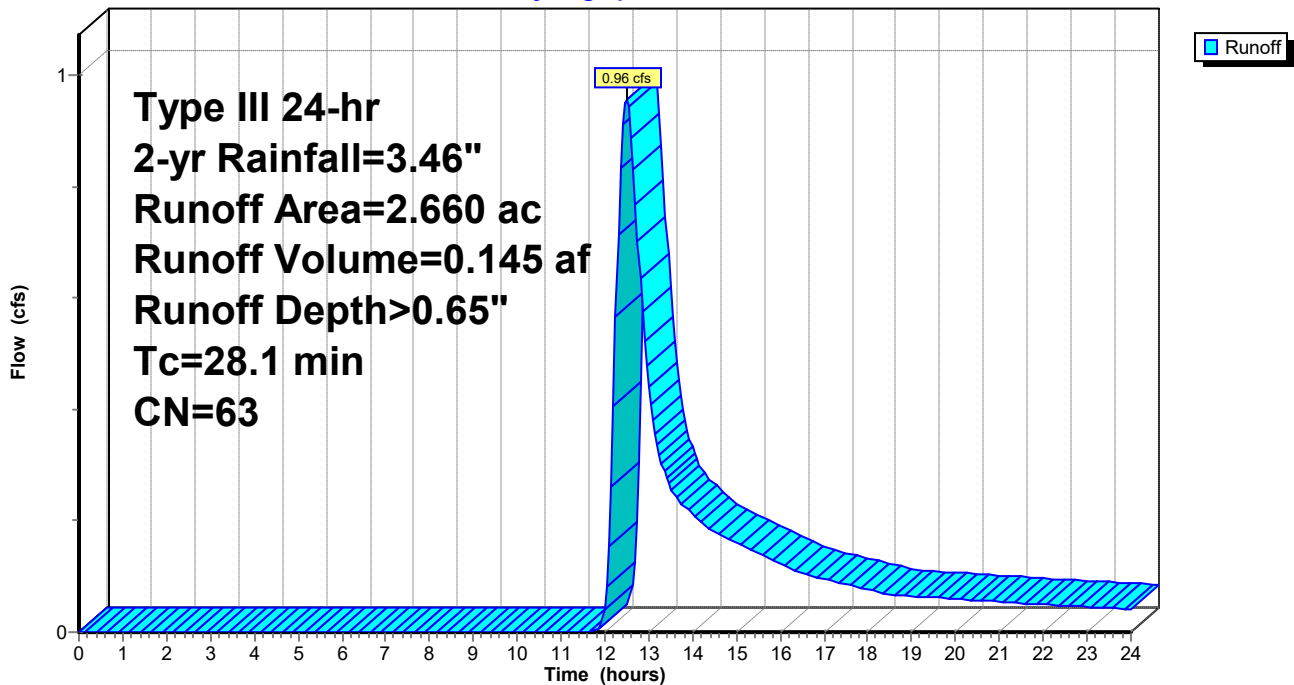
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-yr Rainfall=3.46"

Area (ac)	CN	Description
* 0.440	30	Woods - A
* 0.160	55	Woods - B
* 0.250	39	Grass - A
* 0.980	61	Grass - B
* 0.100	80	Grass - D
* 0.130	80	Grass - D
* 0.600	98	Impervious
2.660	63	Weighted Average
2.060		77.44% Pervious Area
0.600		22.56% Impervious Area

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

**Subcatchment P1c: PDA-1c**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 2-yr Rainfall=3.46"

Printed 9/4/2020

Page 6

**Summary for Subcatchment P2: PDA-2**

Runoff = 0.47 cfs @ 12.53 hrs, Volume= 0.117 af, Depth> 0.25"

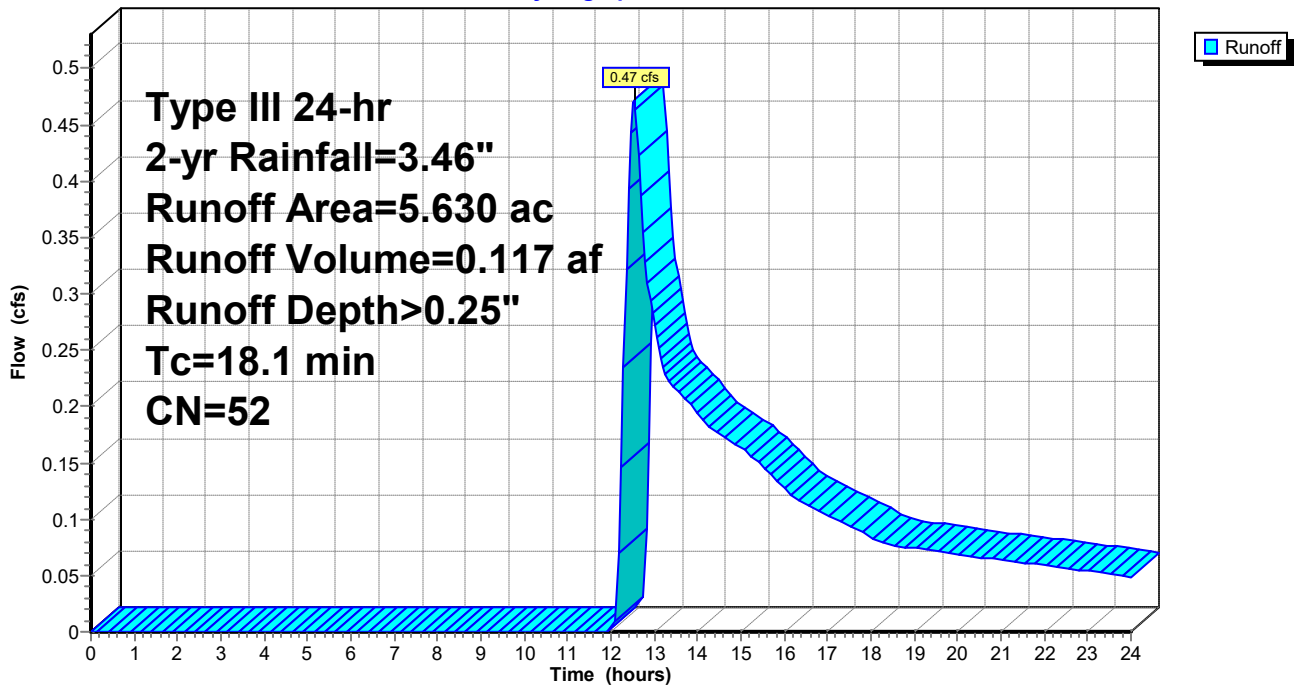
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-yr Rainfall=3.46"

Area (ac)	CN	Description
* 0.950	30	Woods - A
* 4.180	55	Woods - B
* 0.340	77	Woods - D
* 0.060	39	Grass - A
* 0.100	80	Grass - D
5.630	52	Weighted Average
5.630		100.00% Pervious Area

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

**Subcatchment P2: PDA-2**

Hydrograph





**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 2-yr Rainfall=3.46"

Printed 9/4/2020

Page 7

**Summary for Subcatchment P3: PDA-3**

Runoff = 0.95 cfs @ 12.09 hrs, Volume= 0.078 af, Depth> 3.22"

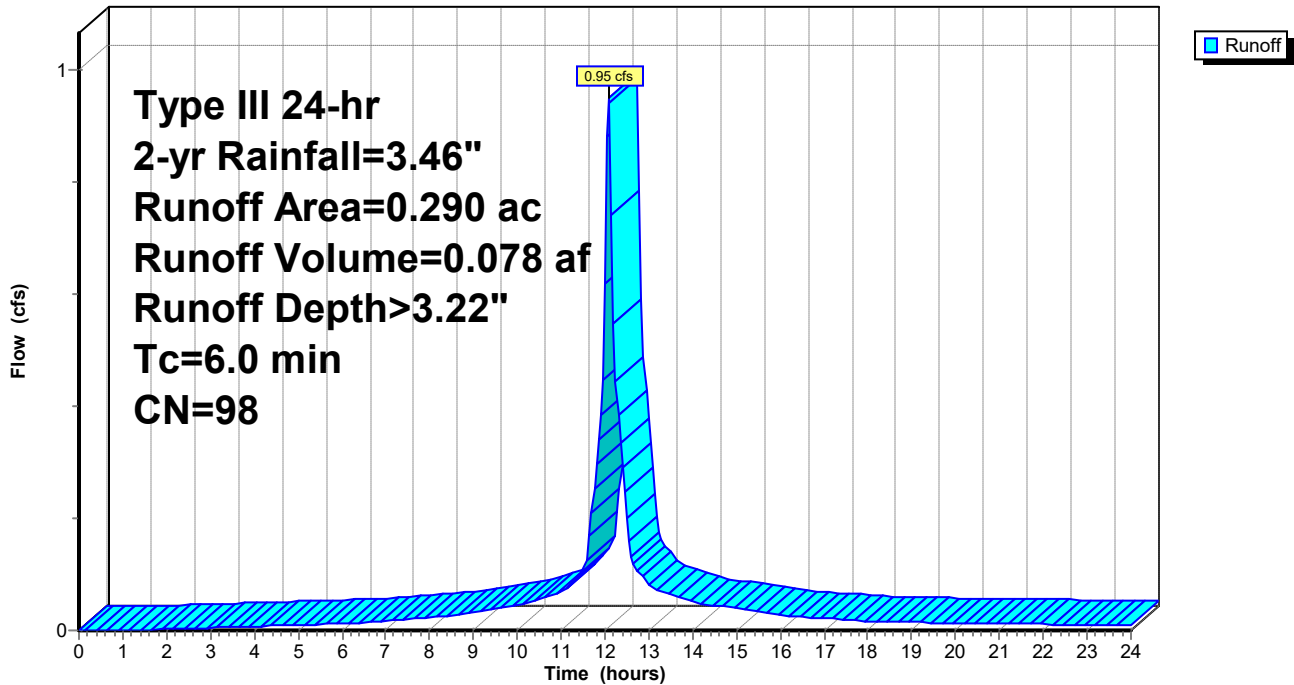
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-yr Rainfall=3.46"

Area (ac)	CN	Description
* 0.290	98	Impervious
0.290		100.00% Impervious Area

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

**Subcatchment P3: PDA-3**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 2-yr Rainfall=3.46"

Printed 9/4/2020

Page 8

**Summary for Subcatchment P4: PDA-4**

Runoff = 3.11 cfs @ 12.24 hrs, Volume= 0.307 af, Depth> 1.59"

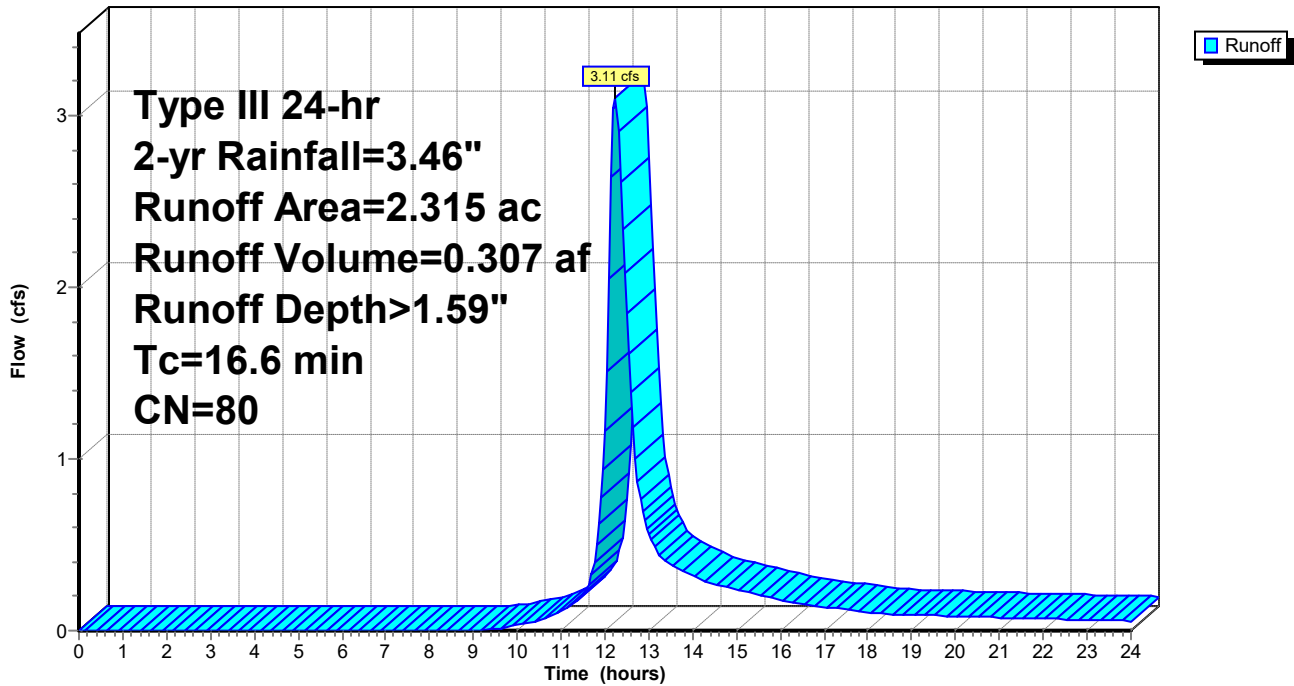
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-yr Rainfall=3.46"

Area (ac)	CN	Description
* 0.060	55	Woods - B
* 0.280	55	Woods - B
* 0.640	77	Woods - D
* 0.350	61	Grass - B
* 0.050	80	Grass - D
* 0.935	98	Impervious
2.315	80	Weighted Average
1.380		59.61% Pervious Area
0.935		40.39% Impervious Area

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

**Subcatchment P4: PDA-4**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 2-yr Rainfall=3.46"

Printed 9/4/2020

Page 9

**Summary for Subcatchment P5: PDA-5**

Runoff = 1.37 cfs @ 12.22 hrs, Volume= 0.135 af, Depth> 1.20"

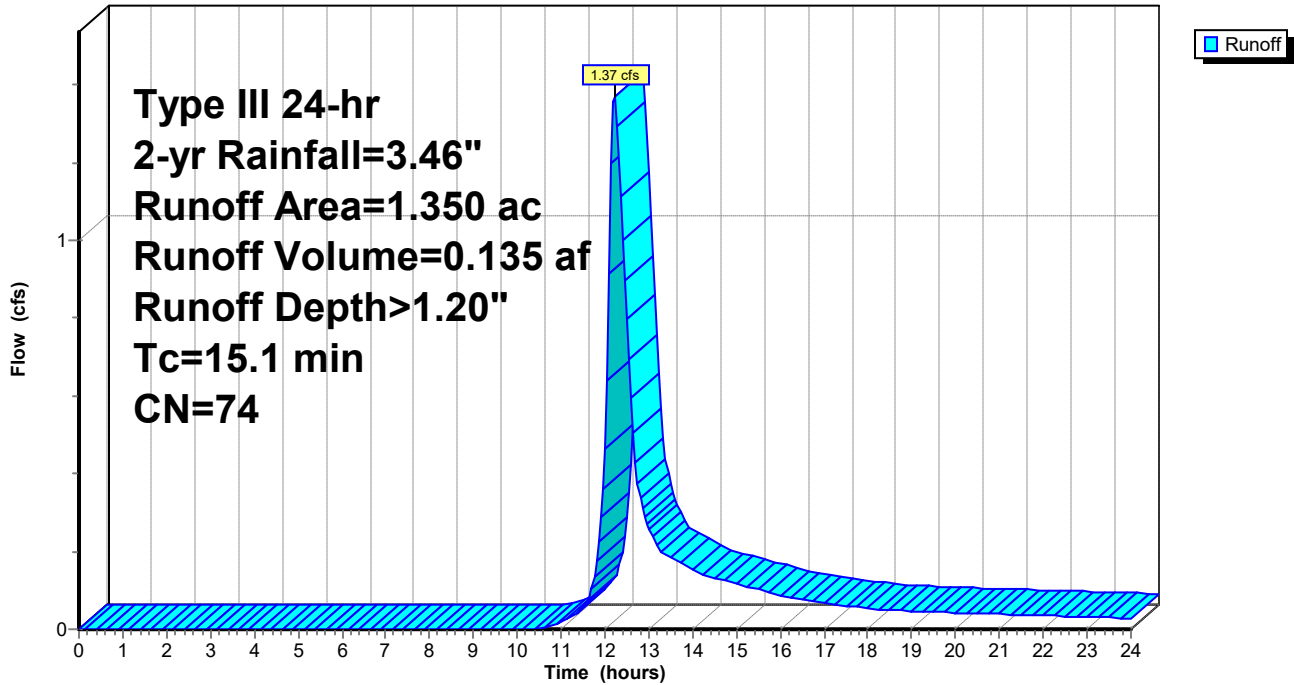
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-yr Rainfall=3.46"

Area (ac)	CN	Description
* 0.190	55	Woods - B
* 1.160	77	Woods - D
1.350	74	Weighted Average
1.350		100.00% Pervious Area

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

**Subcatchment P5: PDA-5**

Hydrograph



**1904501 - Proposed**

Type III 24-hr 2-yr Rainfall=3.46"

Prepared by Solli Engineering, LLC

Printed 9/4/2020

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Page 10

**Summary for Pond 1ab: Pond-1a**

Inflow Area = 2.250 ac, 59.56% Impervious, Inflow Depth > 1.99" for 2-yr event  
 Inflow = 4.01 cfs @ 12.20 hrs, Volume= 0.372 af  
 Outflow = 1.26 cfs @ 12.64 hrs, Volume= 0.370 af, Atten= 69%, Lag= 26.1 min  
 Primary = 1.26 cfs @ 12.64 hrs, Volume= 0.370 af  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
 Peak Elev= 343.88' @ 12.64 hrs Surf.Area= 1,982 sf Storage= 4,563 cf

Plug-Flow detention time= 34.4 min calculated for 0.369 af (99% of inflow)  
 Center-of-Mass det. time= 30.8 min ( 859.3 - 828.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	340.00'	13,424 cf	<b>Detention Basin (Prismatic)</b> Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
340.00	497	0	0
341.00	795	646	646
342.00	1,152	974	1,620
343.00	1,568	1,360	2,980
344.00	2,040	1,804	4,784
345.00	2,569	2,305	7,088
346.00	3,154	2,862	9,950
347.00	3,795	3,475	13,424

Device	Routing	Invert	Outlet Devices
#1	Primary	339.00'	<b>24.0" Round RCP_Round 24"</b> L= 169.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 339.00' / 337.31' S= 0.0100 '/ Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Device 1	340.00'	<b>5.0" Vert. Orifice/Grate</b> C= 0.600
#3	Device 1	344.00'	<b>8.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	345.00'	<b>20.4" x 37.2" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Secondary	345.50'	<b>20.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=1.26 cfs @ 12.64 hrs HW=343.88' (Free Discharge)

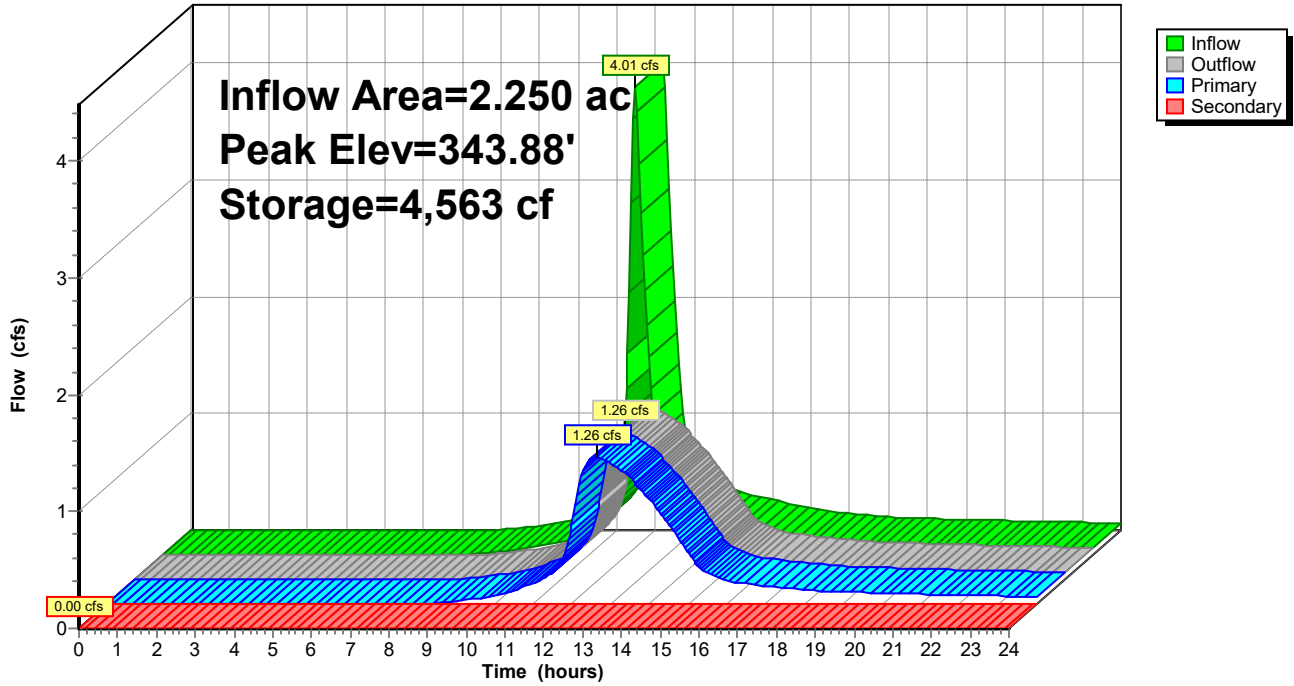
- ↑ 1=RCP\_Round 24" (Passes 1.26 cfs of 32.74 cfs potential flow)
- ↑ 2=Orifice/Grate (Orifice Controls 1.26 cfs @ 9.22 fps)
- ↑ 3=Orifice/Grate ( Controls 0.00 cfs)
- ↑ 4=Orifice/Grate ( Controls 0.00 cfs)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=340.00' (Free Discharge)

- ↑ 5=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

### Pond 1ab: Pond-1a

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 2-yr Rainfall=3.46"

Printed 9/4/2020

Page 12

**Stage-Discharge for Pond 1ab: Pond-1a**

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
340.00	0.00	0.00	0.00	345.20	6.12	6.12	0.00
340.10	0.03	0.03	0.00	345.30	8.56	8.56	0.00
340.20	0.10	0.10	0.00	345.40	11.43	11.43	0.00
340.30	0.20	0.20	0.00	345.50	14.67	14.67	0.00
340.40	0.29	0.29	0.00	345.60	19.85	18.24	1.61
340.50	0.35	0.35	0.00	345.70	26.66	22.12	4.54
340.60	0.41	0.41	0.00	345.80	34.73	26.27	8.46
340.70	0.46	0.46	0.00	345.90	41.16	27.96	13.21
340.80	0.51	0.51	0.00	346.00	47.79	29.33	18.46
340.90	0.55	0.55	0.00	346.10	54.90	30.64	24.26
341.00	0.58	0.58	0.00	346.20	62.41	31.90	30.51
341.10	0.62	0.62	0.00	346.30	70.31	33.10	37.21
341.20	0.65	0.65	0.00	346.40	79.17	34.26	44.91
341.30	0.69	0.69	0.00	346.50	88.58	35.38	53.20
341.40	0.72	0.72	0.00	346.60	98.30	36.47	61.84
341.50	0.75	0.75	0.00	346.70	108.50	37.52	70.98
341.60	0.77	0.77	0.00	346.80	119.62	38.54	81.08
341.70	0.80	0.80	0.00	346.90	131.31	39.54	91.77
341.80	0.83	0.83	0.00	347.00	<b>144.49</b>	<b>40.51</b>	<b>103.98</b>
341.90	0.85	0.85	0.00				
342.00	0.88	0.88	0.00				
342.10	0.90	0.90	0.00				
342.20	0.93	0.93	0.00				
342.30	0.95	0.95	0.00				
342.40	0.97	0.97	0.00				
342.50	0.99	0.99	0.00				
342.60	1.02	1.02	0.00				
342.70	1.04	1.04	0.00				
342.80	1.06	1.06	0.00				
342.90	1.08	1.08	0.00				
343.00	1.10	1.10	0.00				
343.10	1.12	1.12	0.00				
343.20	1.14	1.14	0.00				
343.30	1.15	1.15	0.00				
343.40	1.17	1.17	0.00				
343.50	1.19	1.19	0.00				
343.60	1.21	1.21	0.00				
343.70	1.23	1.23	0.00				
343.80	1.24	1.24	0.00				
343.90	1.26	1.26	0.00				
344.00	1.28	1.28	0.00				
344.10	1.51	1.51	0.00				
344.20	1.92	1.92	0.00				
344.30	2.25	2.25	0.00				
344.40	2.41	2.41	0.00				
344.50	2.55	2.55	0.00				
344.60	2.68	2.68	0.00				
344.70	2.80	2.80	0.00				
344.80	2.91	2.91	0.00				
344.90	3.02	3.02	0.00				
345.00	3.12	3.12	0.00				
345.10	4.21	4.21	0.00				

**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 2-yr Rainfall=3.46"

Printed 9/4/2020

Page 13

**Stage-Area-Storage for Pond 1ab: Pond-1a**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
340.00	497	0	345.20	2,686	7,660
340.10	527	65	345.30	2,745	7,946
340.20	557	129	345.40	2,803	8,233
340.30	586	194	345.50	2,862	8,519
340.40	616	258	345.60	2,920	8,805
340.50	646	323	345.70	2,978	9,091
340.60	676	388	345.80	3,037	9,377
340.70	706	452	345.90	3,095	9,663
340.80	735	517	346.00	3,154	9,950
340.90	765	581	346.10	3,218	10,297
341.00	795	646	346.20	3,282	10,644
341.10	831	743	346.30	3,346	10,992
341.20	866	841	346.40	3,410	11,339
341.30	902	938	346.50	3,475	11,687
341.40	938	1,035	346.60	3,539	12,034
341.50	974	1,133	346.70	3,603	12,382
341.60	1,009	1,230	346.80	3,667	12,729
341.70	1,045	1,327	346.90	3,731	13,077
341.80	1,081	1,425	347.00	<b>3,795</b>	<b>13,424</b>
341.90	1,116	1,522			
342.00	1,152	1,620			
342.10	1,194	1,756			
342.20	1,235	1,891			
342.30	1,277	2,028			
342.40	1,318	2,163			
342.50	1,360	2,300			
342.60	1,402	2,436			
342.70	1,443	2,571			
342.80	1,485	2,708			
342.90	1,526	2,843			
343.00	1,568	2,980			
343.10	1,615	3,160			
343.20	1,662	3,340			
343.30	1,710	3,521			
343.40	1,757	3,701			
343.50	1,804	3,882			
343.60	1,851	4,062			
343.70	1,898	4,242			
343.80	1,946	4,423			
343.90	1,993	4,603			
344.00	2,040	4,784			
344.10	2,093	5,014			
344.20	2,146	5,244			
344.30	2,199	5,475			
344.40	2,252	5,705			
344.50	2,305	5,936			
344.60	2,357	6,166			
344.70	2,410	6,397			
344.80	2,463	6,627			
344.90	2,516	6,858			
345.00	2,569	7,088			
345.10	2,628	7,374			

**1904501 - Proposed**

Type III 24-hr 2-yr Rainfall=3.46"

Prepared by Solli Engineering, LLC

Printed 9/4/2020

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Page 14

**Summary for Pond 1B: Pond-1b**

Inflow Area = 1.660 ac, 79.52% Impervious, Inflow Depth > 2.54" for 2-yr event  
 Inflow = 4.43 cfs @ 12.11 hrs, Volume= 0.351 af  
 Outflow = 1.06 cfs @ 12.53 hrs, Volume= 0.346 af, Atten= 76%, Lag= 25.2 min  
 Primary = 1.06 cfs @ 12.53 hrs, Volume= 0.346 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
 Peak Elev= 336.51' @ 12.53 hrs Surf.Area= 0.106 ac Storage= 0.116 af

Plug-Flow detention time= 57.7 min calculated for 0.345 af (98% of inflow)  
 Center-of-Mass det. time= 48.1 min ( 847.1 - 799.0 )

Volume	Invert	Avail.Storage	Storage Description
#1A	335.00'	0.021 af	<b>48.00'W x 96.00'L x 5.17'H Field A</b> 0.547 af Overall - 0.494 af Embedded = 0.053 af x 40.0% Voids
#2A	335.50'	0.375 af	<b>retain_it retain_it 4.0' x 72</b> Inside #1 Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf 6 Rows adjusted for 271.8 cf perimeter wall
		0.397 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	335.00'	<b>15.0" Round Culvert</b> L= 43.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 335.00' / 331.00' S= 0.0930 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 1.23 sf
#2	Device 1	335.00'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#3	Device 1	337.50'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#4	Device 1	339.50'	<b>5.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Primary OutFlow** Max=1.06 cfs @ 12.53 hrs HW=336.51' (Free Discharge)

- ↑ **1=Culvert** (Passes 1.06 cfs of 5.55 cfs potential flow)
- ↑ **2=Orifice/Grate** (Orifice Controls 1.06 cfs @ 5.40 fps)
- ↑ **3=Orifice/Grate** ( Controls 0.00 cfs)
- ↑ **4=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 2-yr Rainfall=3.46"

Printed 9/4/2020

Page 15

**Pond 1B: Pond-1b - Chamber Wizard Field A**

**Chamber Model = retain\_it retain\_it 4.0' (retain-it®)**

Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf

Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf

6 Rows adjusted for 271.8 cf perimeter wall

12 Chambers/Row x 8.00' Long = 96.00' Row Length

6 Rows x 96.0" Wide = 48.00' Base Width

6.0" Base + 56.0" Chamber Height = 5.17' Field Height

7.5 cf Sidewall x 12 x 2 + 7.5 cf Endwall x 6 x 2 = 271.8 cf Perimeter Wall

72 Chambers x 230.9 cf - 271.8 cf Perimeter wall = 16,355.9 cf Chamber Storage

72 Chambers x 298.7 cf = 21,504.0 cf Displacement

23,808.0 cf Field - 21,504.0 cf Chambers = 2,304.0 cf Stone x 40.0% Voids = 921.6 cf Stone Storage

Chamber Storage + Stone Storage = 17,277.5 cf = 0.397 af

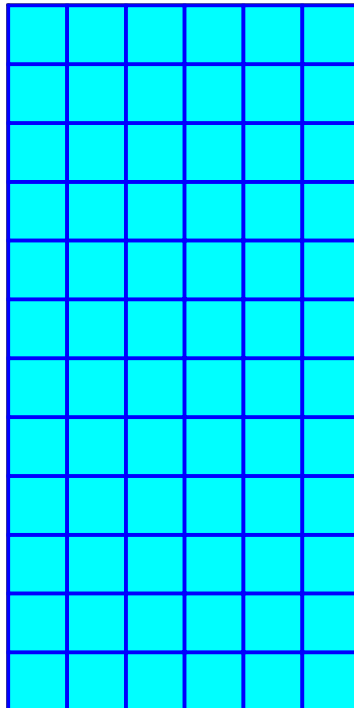
Overall Storage Efficiency = 72.6%

Overall System Size = 96.00' x 48.00' x 5.17'

72 Chambers

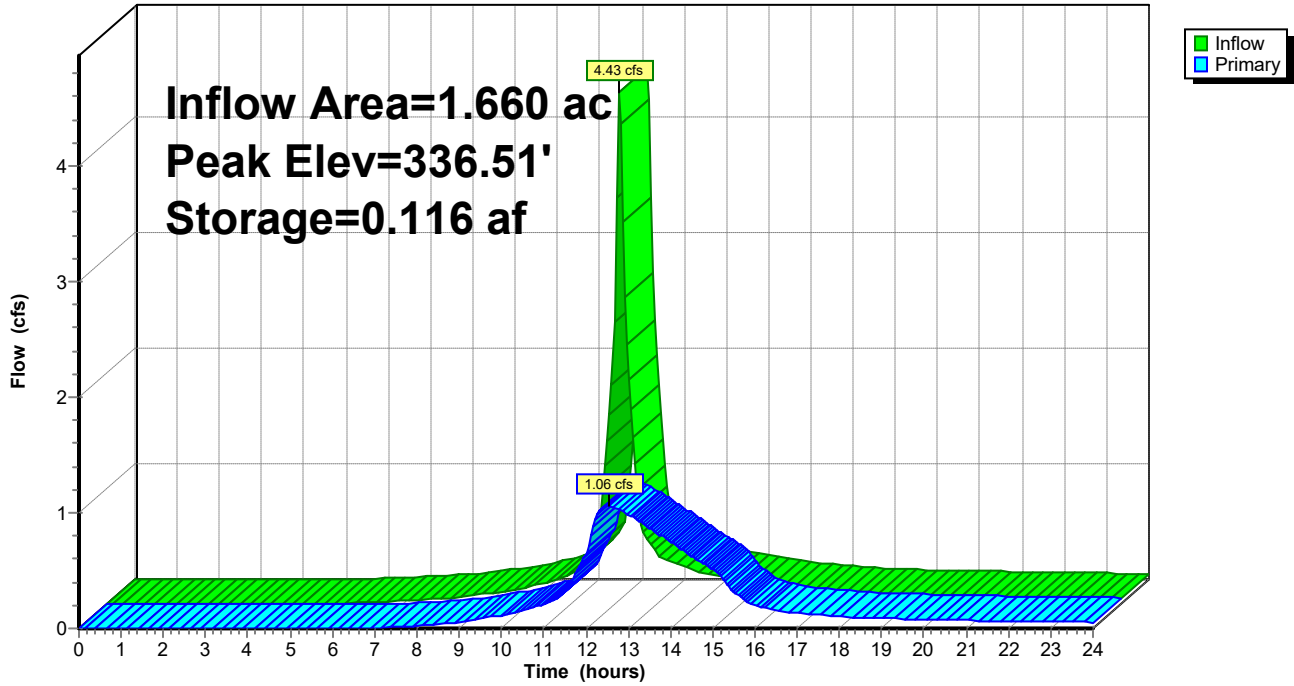
881.8 cy Field

85.3 cy Stone



Pond 1B: Pond-1b

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 2-yr Rainfall=3.46"

Printed 9/4/2020

Page 17

**Stage-Discharge for Pond 1B: Pond-1b**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
335.00	0.00	337.08	1.28	339.16	2.99
335.04	0.01	337.12	1.29	339.20	3.02
335.08	0.02	337.16	1.31	339.24	3.04
335.12	0.04	337.20	1.32	339.28	3.07
335.16	0.07	337.24	1.33	339.32	3.09
335.20	0.11	337.28	1.35	339.36	3.12
335.24	0.16	337.32	1.36	339.40	3.14
335.28	0.20	337.36	1.37	339.44	3.16
335.32	0.26	337.40	1.39	339.48	3.19
335.36	0.31	337.44	1.40	339.52	3.26
335.40	0.36	337.48	1.41	339.56	3.47
335.44	0.41	337.52	1.43	339.60	3.77
335.48	0.46	337.56	1.45	339.64	4.13
335.52	0.49	337.60	1.48	339.68	4.54
335.56	0.53	337.64	1.52	339.72	5.00
335.60	0.56	337.68	1.57	339.76	5.49
335.64	0.59	337.72	1.62	339.80	6.02
335.68	0.62	337.76	1.68	339.84	6.59
335.72	0.65	337.80	1.74	339.88	7.19
335.76	0.68	337.84	1.80	339.92	7.81
335.80	0.70	337.88	1.87	339.96	8.46
335.84	0.73	337.92	1.93	340.00	9.14
335.88	0.75	337.96	1.99	340.04	9.85
335.92	0.77	338.00	2.04	340.08	10.58
335.96	0.80	338.04	2.09	340.12	11.33
336.00	0.82	338.08	2.13	340.16	<b>12.10</b>
336.04	0.84	338.12	2.18		
336.08	0.86	338.16	2.22		
336.12	0.88	338.20	2.26		
336.16	0.90	338.24	2.30		
336.20	0.92	338.28	2.33		
336.24	0.94	338.32	2.37		
336.28	0.96	338.36	2.41		
336.32	0.98	338.40	2.44		
336.36	1.00	338.44	2.47		
336.40	1.01	338.48	2.51		
336.44	1.03	338.52	2.54		
336.48	1.05	338.56	2.57		
336.52	1.07	338.60	2.60		
336.56	1.08	338.64	2.63		
336.60	1.10	338.68	2.66		
336.64	1.11	338.72	2.69		
336.68	1.13	338.76	2.72		
336.72	1.15	338.80	2.75		
336.76	1.16	338.84	2.78		
336.80	1.18	338.88	2.81		
336.84	1.19	338.92	2.83		
336.88	1.21	338.96	2.86		
336.92	1.22	339.00	2.89		
336.96	1.24	339.04	2.91		
337.00	1.25	339.08	2.94		
337.04	1.26	339.12	2.97		

**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 2-yr Rainfall=3.46"

Printed 9/4/2020

Page 18

**Stage-Area-Storage for Pond 1B: Pond-1b**

Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)
335.00	0.000	337.08	0.169	339.16	0.365
335.04	0.002	337.12	0.173	339.20	0.368
335.08	0.003	337.16	0.177	339.24	0.372
335.12	0.005	337.20	0.181	339.28	0.376
335.16	0.007	337.24	0.184	339.32	0.380
335.20	0.008	337.28	0.188	339.36	0.383
335.24	0.010	337.32	0.192	339.40	0.387
335.28	0.012	337.36	0.196	339.44	0.391
335.32	0.014	337.40	0.200	339.48	<b>0.395</b>
335.36	0.015	337.44	0.203	339.52	<b>0.397</b>
335.40	0.017	337.48	0.207	339.56	0.397
335.44	0.019	337.52	0.211	339.60	0.397
335.48	0.020	337.56	0.215	339.64	0.397
335.52	0.023	337.60	0.218	339.68	0.397
335.56	0.027	337.64	0.222	339.72	0.397
335.60	0.031	337.68	0.226	339.76	0.397
335.64	0.034	337.72	0.230	339.80	0.397
335.68	0.038	337.76	0.233	339.84	0.397
335.72	0.042	337.80	0.237	339.88	0.397
335.76	0.046	337.84	0.241	339.92	0.397
335.80	0.049	337.88	0.245	339.96	0.397
335.84	0.053	337.92	0.248	340.00	0.397
335.88	0.057	337.96	0.252	340.04	0.397
335.92	0.061	338.00	0.256	340.08	0.397
335.96	0.064	338.04	0.260	340.12	0.397
336.00	0.068	338.08	0.263	340.16	0.397
336.04	0.072	338.12	0.267		
336.08	0.076	338.16	0.271		
336.12	0.079	338.20	0.275		
336.16	0.083	338.24	0.278		
336.20	0.087	338.28	0.282		
336.24	0.091	338.32	0.286		
336.28	0.094	338.36	0.290		
336.32	0.098	338.40	0.293		
336.36	0.102	338.44	0.297		
336.40	0.106	338.48	0.301		
336.44	0.109	338.52	0.305		
336.48	0.113	338.56	0.308		
336.52	0.117	338.60	0.312		
336.56	0.121	338.64	0.316		
336.60	0.124	338.68	0.320		
336.64	0.128	338.72	0.323		
336.68	0.132	338.76	0.327		
336.72	0.136	338.80	0.331		
336.76	0.139	338.84	0.335		
336.80	0.143	338.88	0.338		
336.84	0.147	338.92	0.342		
336.88	0.151	338.96	0.346		
336.92	0.154	339.00	0.350		
336.96	0.158	339.04	0.353		
337.00	0.162	339.08	0.357		
337.04	0.166	339.12	0.361		

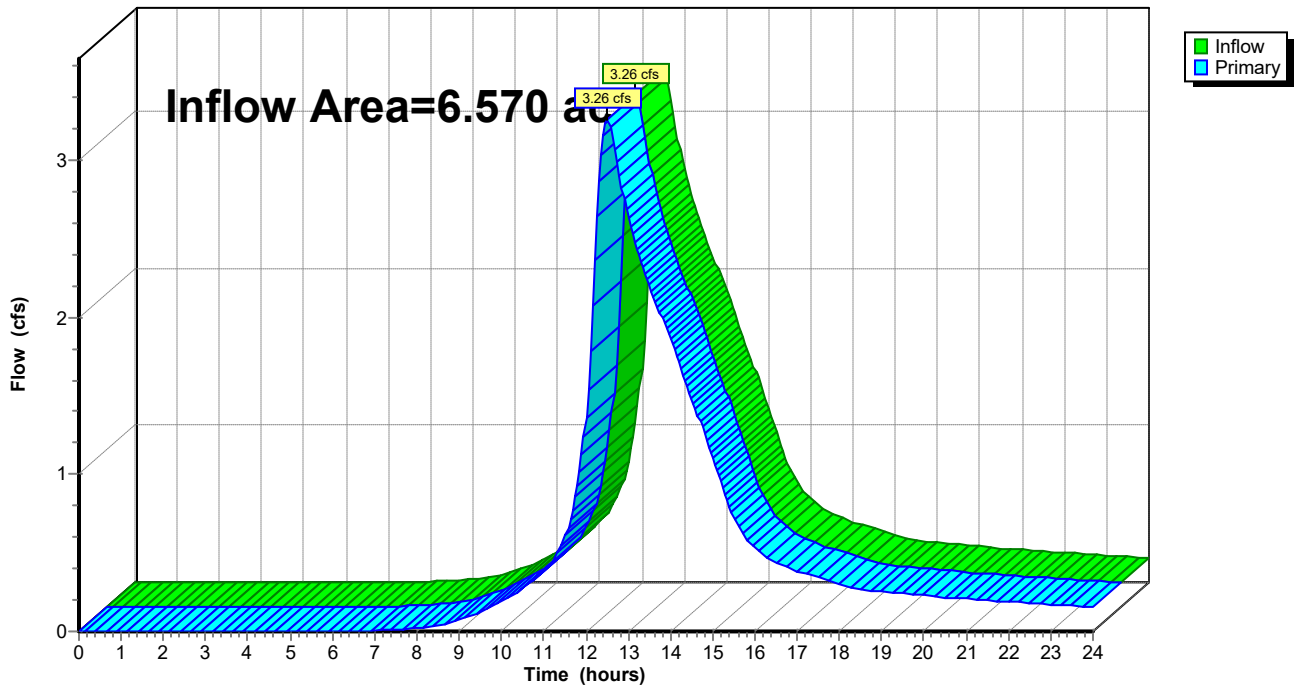
### Summary for Link P1: P1 Total

Inflow Area = 6.570 ac, 49.62% Impervious, Inflow Depth > 1.57" for 2-yr event  
Inflow = 3.26 cfs @ 12.51 hrs, Volume= 0.861 af  
Primary = 3.26 cfs @ 12.51 hrs, Volume= 0.861 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link P1: P1 Total

Hydrograph



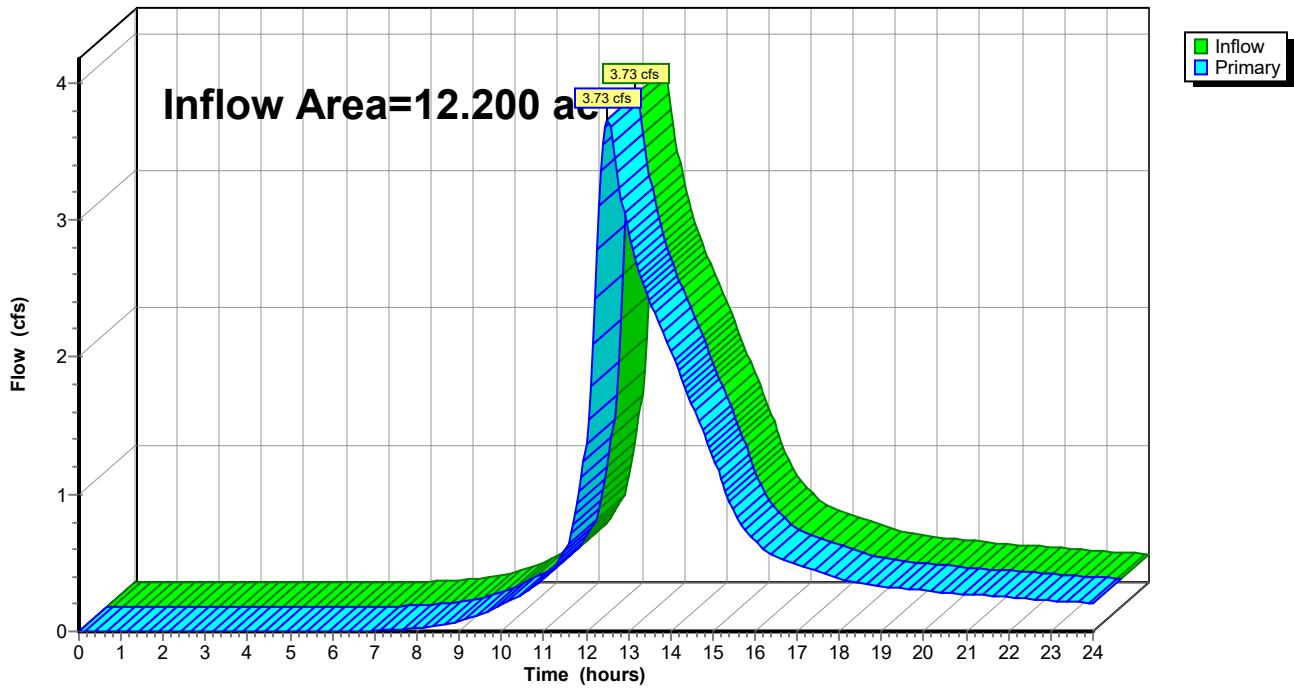
### Summary for Link P1-2: Overall Existing

Inflow Area = 12.200 ac, 26.72% Impervious, Inflow Depth > 0.96" for 2-yr event  
Inflow = 3.73 cfs @ 12.52 hrs, Volume= 0.978 af  
Primary = 3.73 cfs @ 12.52 hrs, Volume= 0.978 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link P1-2: Overall Existing

Hydrograph



**1904501 - Proposed**

Type III 24-hr 5-yr Rainfall=4.62"

Prepared by Solli Engineering, LLC

Printed 9/4/2020

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Page 21

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment P1a: PDA-1a</b>	Runoff Area=2.250 ac 59.56% Impervious Runoff Depth>3.02" Tc=14.5 min CN=85 Runoff=6.06 cfs 0.567 af
<b>Subcatchment P1b: PDA-1b</b>	Runoff Area=1.660 ac 79.52% Impervious Runoff Depth>3.65" Tc=8.2 min CN=91 Runoff=6.26 cfs 0.505 af
<b>Subcatchment P1c: PDA-1c</b>	Runoff Area=2.660 ac 22.56% Impervious Runoff Depth>1.29" Tc=28.1 min CN=63 Runoff=2.16 cfs 0.286 af
<b>Subcatchment P2: PDA-2</b>	Runoff Area=5.630 ac 0.00% Impervious Runoff Depth>0.66" Tc=18.1 min CN=52 Runoff=2.02 cfs 0.308 af
<b>Subcatchment P3: PDA-3</b>	Runoff Area=0.290 ac 100.00% Impervious Runoff Depth>4.38" Tc=6.0 min CN=98 Runoff=1.28 cfs 0.106 af
<b>Subcatchment P4: PDA-4</b>	Runoff Area=2.315 ac 40.39% Impervious Runoff Depth>2.55" Tc=16.6 min CN=80 Runoff=5.01 cfs 0.491 af
<b>Subcatchment P5: PDA-5</b>	Runoff Area=1.350 ac 0.00% Impervious Runoff Depth>2.05" Tc=15.1 min CN=74 Runoff=2.42 cfs 0.231 af
<b>Pond 1ab: Pond-1a</b>	Peak Elev=344.73' Storage=6,455 cf Inflow=6.06 cfs 0.567 af Primary=2.83 cfs 0.564 af Secondary=0.00 cfs 0.000 af Outflow=2.83 cfs 0.564 af
<b>Pond 1B: Pond-1b</b>	Peak Elev=337.14' Storage=0.175 af Inflow=6.26 cfs 0.505 af Outflow=1.30 cfs 0.499 af
<b>Link P1: P1 Total</b>	Inflow=6.25 cfs 1.349 af Primary=6.25 cfs 1.349 af
<b>Link P1-2: Overall Existing</b>	Inflow=8.18 cfs 1.657 af Primary=8.18 cfs 1.657 af

**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 5-yr Rainfall=4.62"

Printed 9/4/2020

Page 22

**Summary for Subcatchment P1a: PDA-1a**

Runoff = 6.06 cfs @ 12.20 hrs, Volume= 0.567 af, Depth> 3.02"

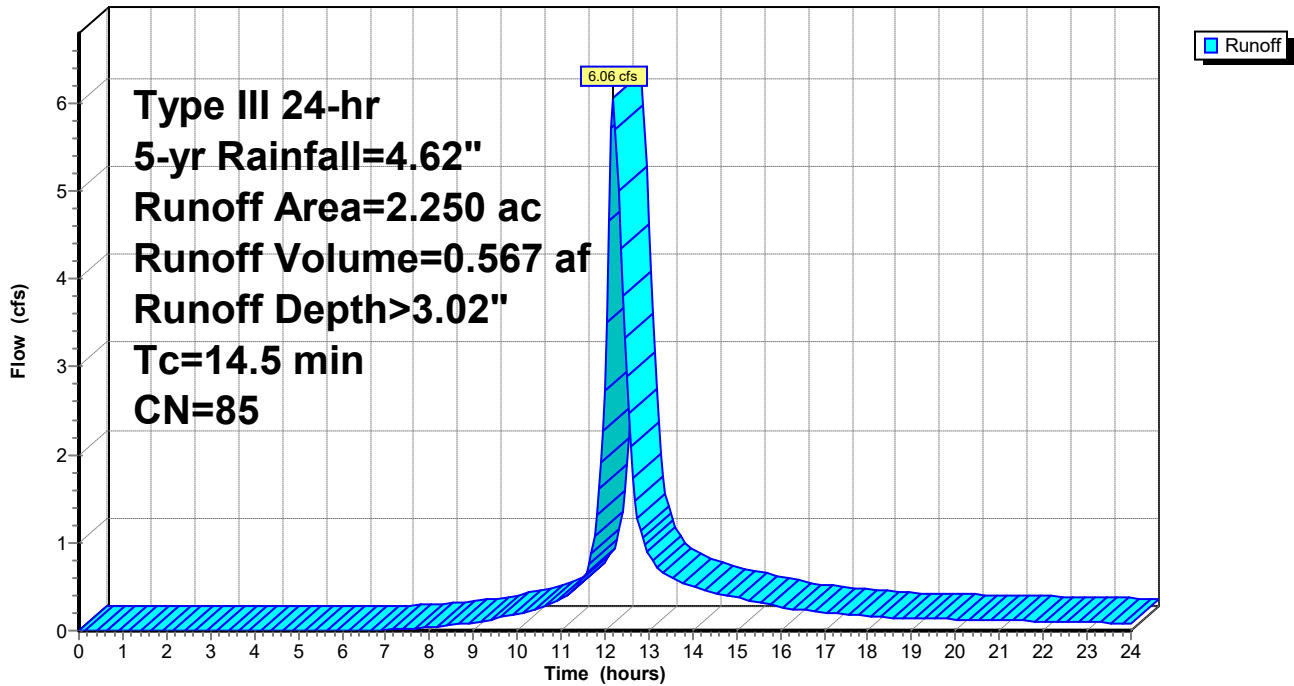
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 5-yr Rainfall=4.62"

Area (ac)	CN	Description
* 0.280	55	Woods - B
* 0.160	77	Woods - D
* 0.100	61	Grass - B
* 0.170	61	Grass - B
* 0.200	80	Grass -D
* 1.340	98	Impervious
2.250	85	Weighted Average
0.910		40.44% Pervious Area
1.340		59.56% Impervious Area

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

**Subcatchment P1a: PDA-1a**

Hydrograph





**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 5-yr Rainfall=4.62"

Printed 9/4/2020

Page 23

**Summary for Subcatchment P1b: PDA-1b**

Runoff = 6.26 cfs @ 12.11 hrs, Volume= 0.505 af, Depth> 3.65"

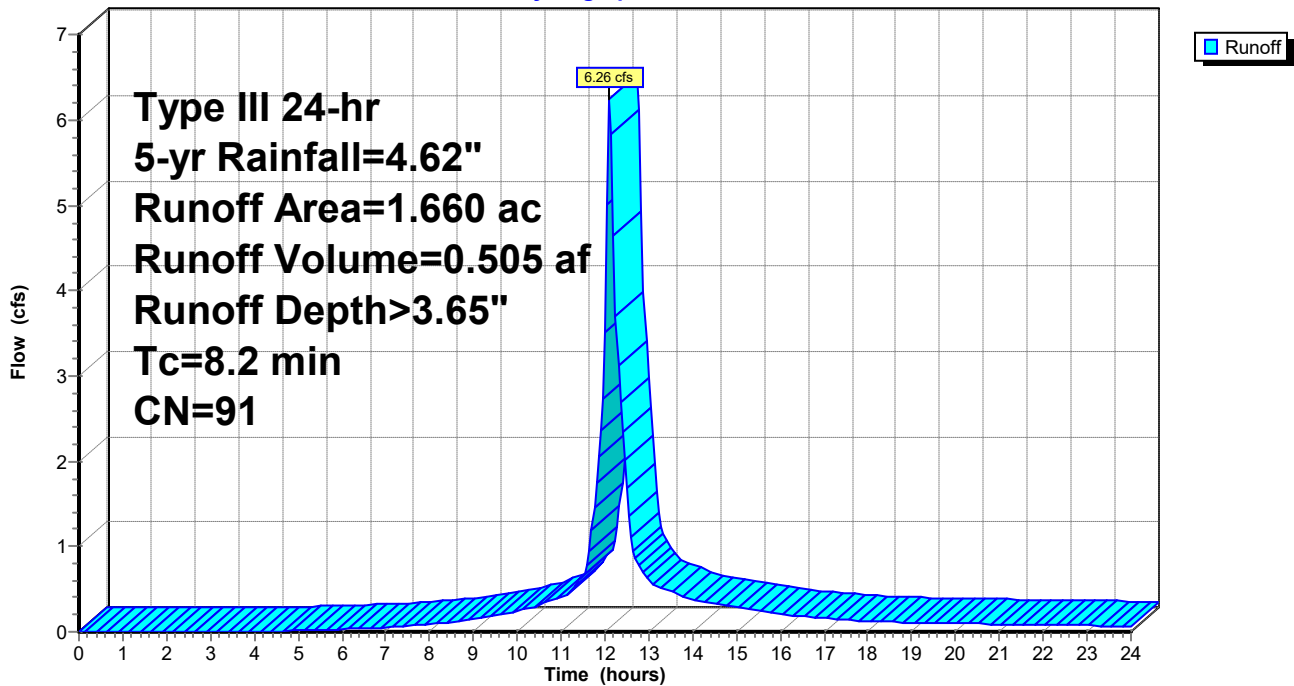
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 5-yr Rainfall=4.62"

Area (ac)	CN	Description
* 0.080	39	Grass - A
* 0.080	61	Grass - B
* 0.180	80	Grass - D
* 1.320	98	Impervious
1.660	91	Weighted Average
0.340		20.48% Pervious Area
1.320		79.52% Impervious Area

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

**Subcatchment P1b: PDA-1b**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 5-yr Rainfall=4.62"

Printed 9/4/2020

Page 24

**Summary for Subcatchment P1c: PDA-1c**

Runoff = 2.16 cfs @ 12.44 hrs, Volume= 0.286 af, Depth> 1.29"

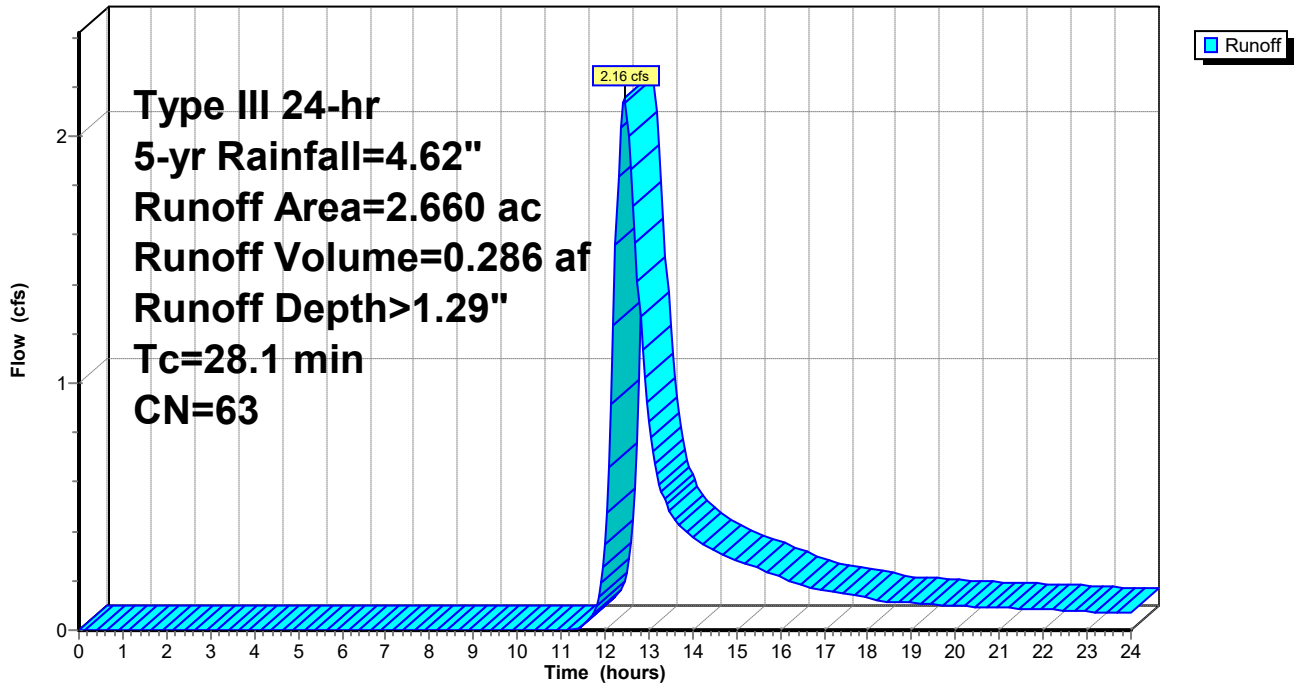
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 5-yr Rainfall=4.62"

Area (ac)	CN	Description
* 0.440	30	Woods - A
* 0.160	55	Woods - B
* 0.250	39	Grass - A
* 0.980	61	Grass - B
* 0.100	80	Grass - D
* 0.130	80	Grass - D
* 0.600	98	Impervious
2.660	63	Weighted Average
2.060		77.44% Pervious Area
0.600		22.56% Impervious Area

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

**Subcatchment P1c: PDA-1c**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 5-yr Rainfall=4.62"

Printed 9/4/2020

Page 25

**Summary for Subcatchment P2: PDA-2**

Runoff = 2.02 cfs @ 12.36 hrs, Volume= 0.308 af, Depth> 0.66"

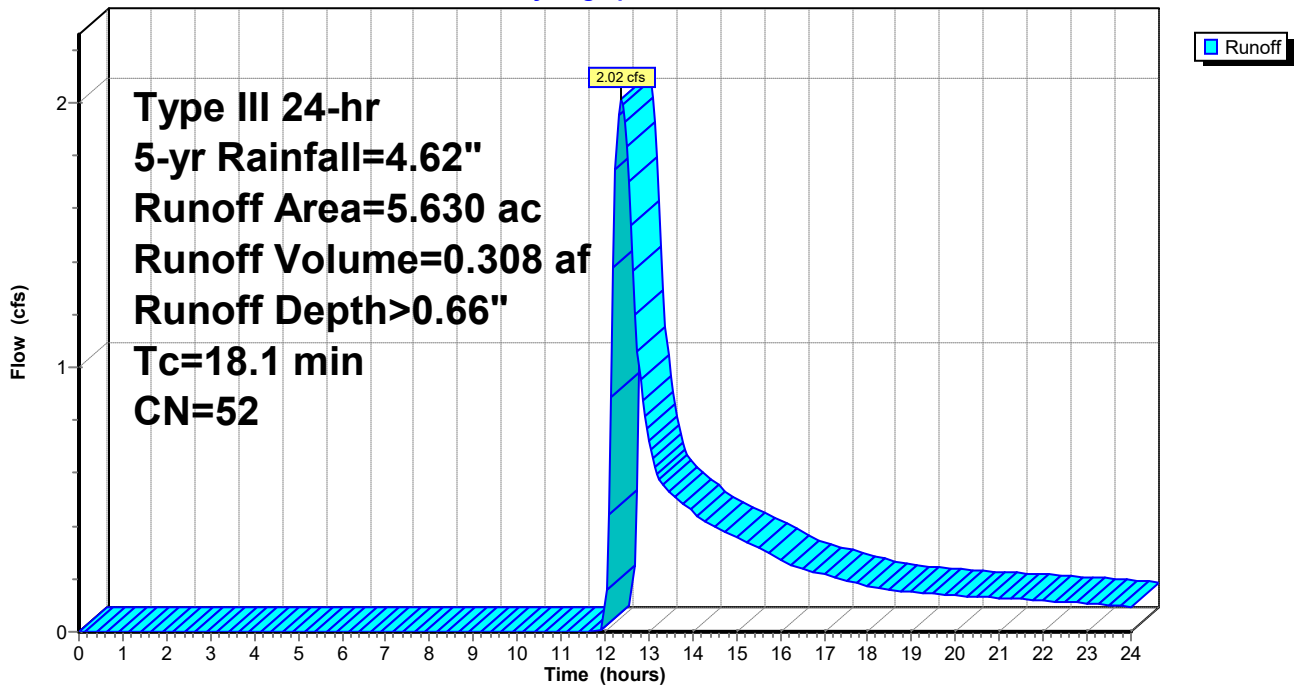
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 5-yr Rainfall=4.62"

Area (ac)	CN	Description
* 0.950	30	Woods - A
* 4.180	55	Woods - B
* 0.340	77	Woods - D
* 0.060	39	Grass - A
* 0.100	80	Grass - D
5.630	52	Weighted Average
5.630		100.00% Pervious Area

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

**Subcatchment P2: PDA-2**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 5-yr Rainfall=4.62"

Printed 9/4/2020

Page 26

**Summary for Subcatchment P3: PDA-3**

Runoff = 1.28 cfs @ 12.09 hrs, Volume= 0.106 af, Depth> 4.38"

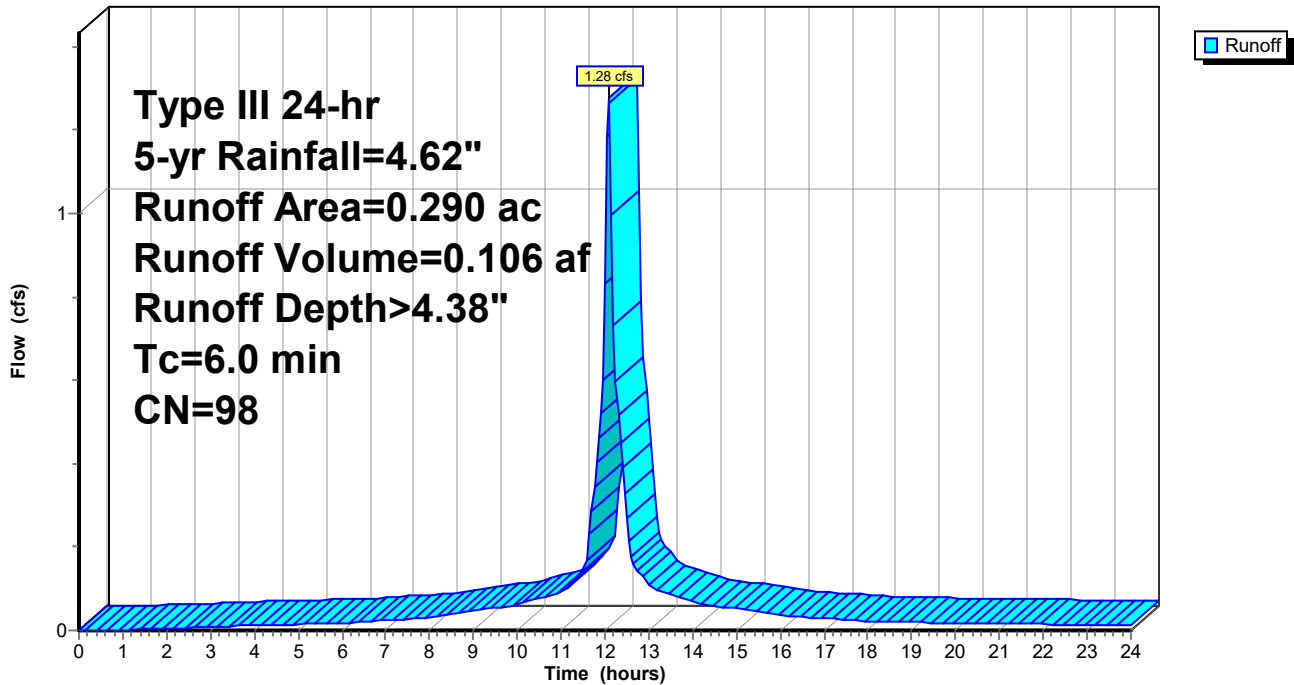
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 5-yr Rainfall=4.62"

Area (ac)	CN	Description
* 0.290	98	Impervious
0.290		100.00% Impervious Area

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

**Subcatchment P3: PDA-3**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 5-yr Rainfall=4.62"

Printed 9/4/2020

Page 27

**Summary for Subcatchment P4: PDA-4**

Runoff = 5.01 cfs @ 12.23 hrs, Volume= 0.491 af, Depth> 2.55"

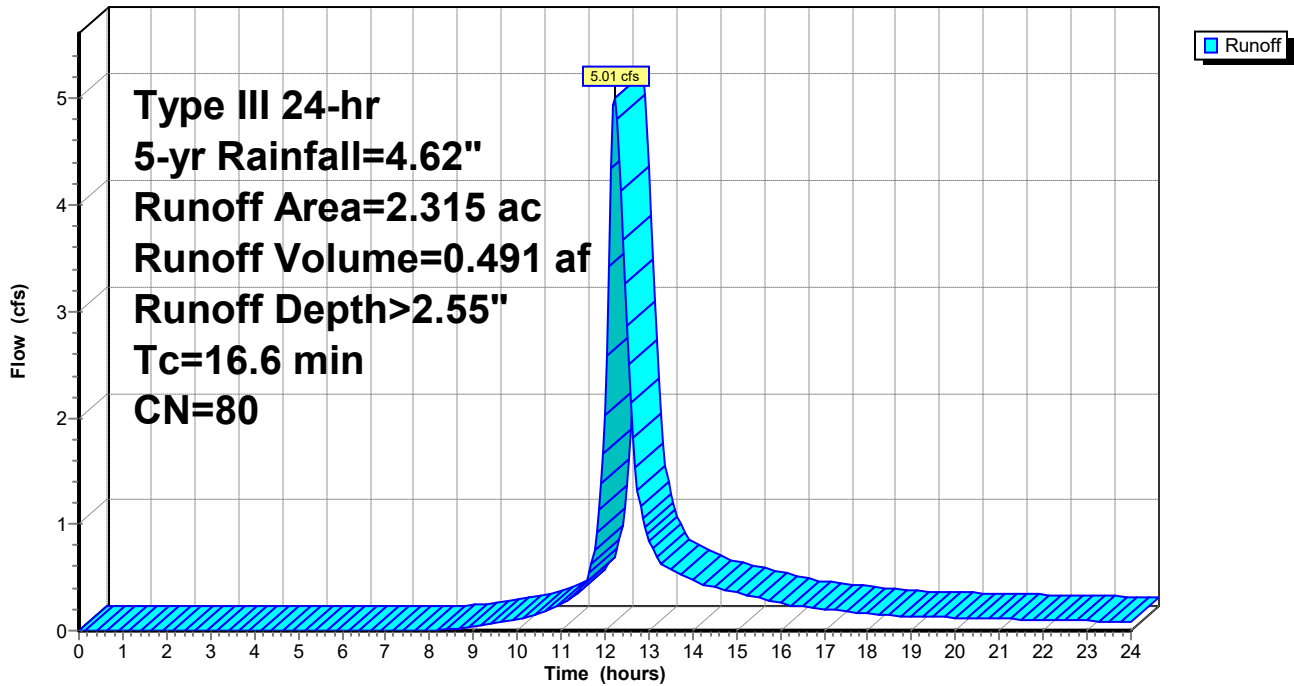
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 5-yr Rainfall=4.62"

Area (ac)	CN	Description
* 0.060	55	Woods - B
* 0.280	55	Woods - B
* 0.640	77	Woods - D
* 0.350	61	Grass - B
* 0.050	80	Grass - D
* 0.935	98	Impervious
2.315	80	Weighted Average
1.380		59.61% Pervious Area
0.935		40.39% Impervious Area

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

**Subcatchment P4: PDA-4**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 5-yr Rainfall=4.62"

Printed 9/4/2020

Page 28

**Summary for Subcatchment P5: PDA-5**

Runoff = 2.42 cfs @ 12.22 hrs, Volume= 0.231 af, Depth> 2.05"

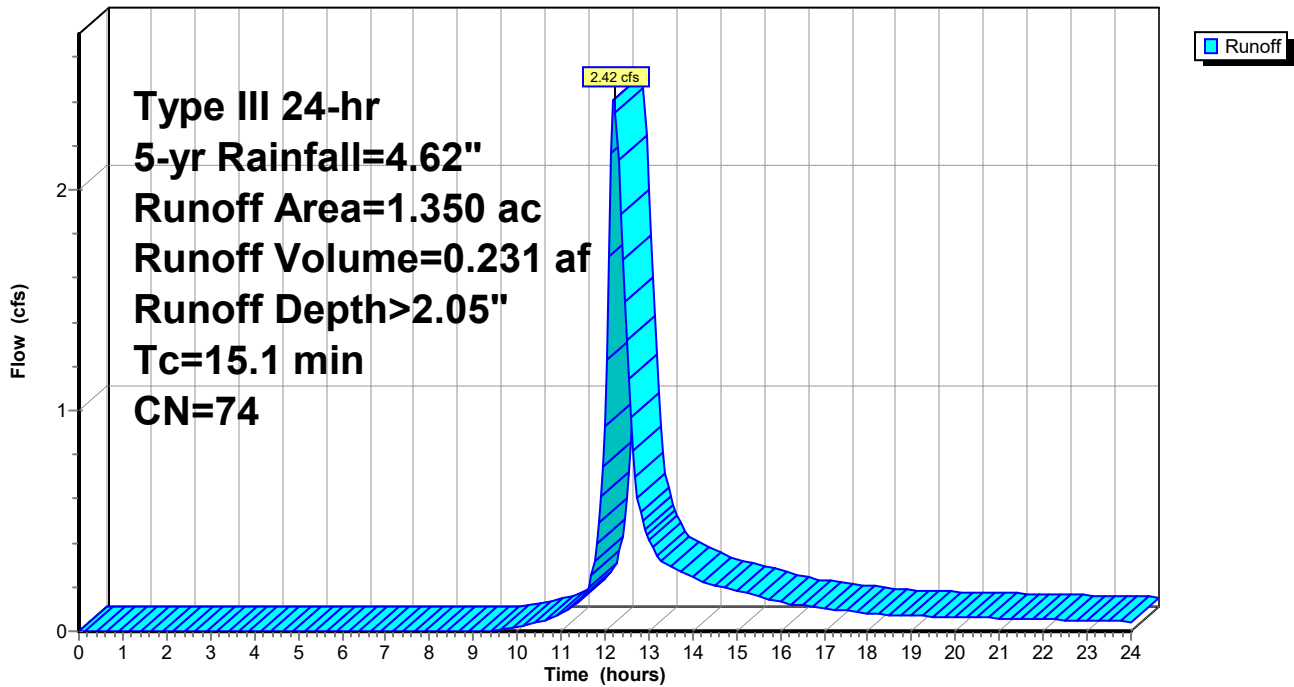
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 5-yr Rainfall=4.62"

Area (ac)	CN	Description
* 0.190	55	Woods - B
* 1.160	77	Woods - D
1.350	74	Weighted Average
1.350		100.00% Pervious Area

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

**Subcatchment P5: PDA-5**

Hydrograph



**1904501 - Proposed**

Type III 24-hr 5-yr Rainfall=4.62"

Prepared by Solli Engineering, LLC

Printed 9/4/2020

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Page 29

**Summary for Pond 1ab: Pond-1a**

Inflow Area = 2.250 ac, 59.56% Impervious, Inflow Depth > 3.02" for 5-yr event  
 Inflow = 6.06 cfs @ 12.20 hrs, Volume= 0.567 af  
 Outflow = 2.83 cfs @ 12.51 hrs, Volume= 0.564 af, Atten= 53%, Lag= 18.6 min  
 Primary = 2.83 cfs @ 12.51 hrs, Volume= 0.564 af  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
 Peak Elev= 344.73' @ 12.51 hrs Surf.Area= 2,424 sf Storage= 6,455 cf

Plug-Flow detention time= 34.1 min calculated for 0.564 af (100% of inflow)  
 Center-of-Mass det. time= 31.2 min ( 847.8 - 816.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	340.00'	13,424 cf	<b>Detention Basin (Prismatic)</b> Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
340.00	497	0	0
341.00	795	646	646
342.00	1,152	974	1,620
343.00	1,568	1,360	2,980
344.00	2,040	1,804	4,784
345.00	2,569	2,305	7,088
346.00	3,154	2,862	9,950
347.00	3,795	3,475	13,424

Device	Routing	Invert	Outlet Devices
#1	Primary	339.00'	<b>24.0" Round RCP_Round 24"</b> L= 169.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 339.00' / 337.31' S= 0.0100 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Device 1	340.00'	<b>5.0" Vert. Orifice/Grate</b> C= 0.600
#3	Device 1	344.00'	<b>8.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	345.00'	<b>20.4" x 37.2" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Secondary	345.50'	<b>20.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=2.82 cfs @ 12.51 hrs HW=344.72' (Free Discharge)

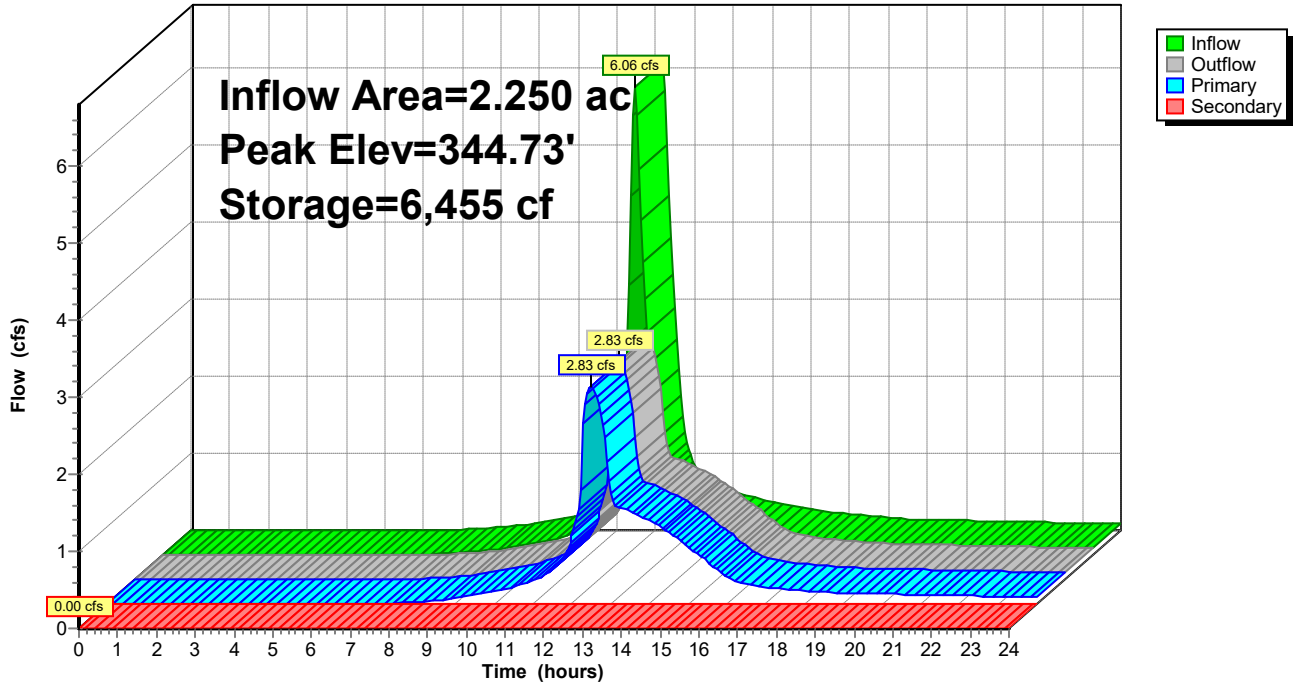
- ↑ 1=RCP\_Round 24" (Passes 2.82 cfs of 35.64 cfs potential flow)
- ↑ 2=Orifice/Grate (Orifice Controls 1.39 cfs @ 10.23 fps)
- ↑ 3=Orifice/Grate (Orifice Controls 1.43 cfs @ 4.09 fps)
- ↑ 4=Orifice/Grate ( Controls 0.00 cfs)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=340.00' (Free Discharge)

- ↑ 5=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

### Pond 1ab: Pond-1a

Hydrograph





**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 5-yr Rainfall=4.62"

Printed 9/4/2020

Page 31

**Stage-Discharge for Pond 1ab: Pond-1a**

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
340.00	0.00	0.00	0.00	345.20	6.12	6.12	0.00
340.10	0.03	0.03	0.00	345.30	8.56	8.56	0.00
340.20	0.10	0.10	0.00	345.40	11.43	11.43	0.00
340.30	0.20	0.20	0.00	345.50	14.67	14.67	0.00
340.40	0.29	0.29	0.00	345.60	19.85	18.24	1.61
340.50	0.35	0.35	0.00	345.70	26.66	22.12	4.54
340.60	0.41	0.41	0.00	345.80	34.73	26.27	8.46
340.70	0.46	0.46	0.00	345.90	41.16	27.96	13.21
340.80	0.51	0.51	0.00	346.00	47.79	29.33	18.46
340.90	0.55	0.55	0.00	346.10	54.90	30.64	24.26
341.00	0.58	0.58	0.00	346.20	62.41	31.90	30.51
341.10	0.62	0.62	0.00	346.30	70.31	33.10	37.21
341.20	0.65	0.65	0.00	346.40	79.17	34.26	44.91
341.30	0.69	0.69	0.00	346.50	88.58	35.38	53.20
341.40	0.72	0.72	0.00	346.60	98.30	36.47	61.84
341.50	0.75	0.75	0.00	346.70	108.50	37.52	70.98
341.60	0.77	0.77	0.00	346.80	119.62	38.54	81.08
341.70	0.80	0.80	0.00	346.90	131.31	39.54	91.77
341.80	0.83	0.83	0.00	347.00	<b>144.49</b>	<b>40.51</b>	<b>103.98</b>
341.90	0.85	0.85	0.00				
342.00	0.88	0.88	0.00				
342.10	0.90	0.90	0.00				
342.20	0.93	0.93	0.00				
342.30	0.95	0.95	0.00				
342.40	0.97	0.97	0.00				
342.50	0.99	0.99	0.00				
342.60	1.02	1.02	0.00				
342.70	1.04	1.04	0.00				
342.80	1.06	1.06	0.00				
342.90	1.08	1.08	0.00				
343.00	1.10	1.10	0.00				
343.10	1.12	1.12	0.00				
343.20	1.14	1.14	0.00				
343.30	1.15	1.15	0.00				
343.40	1.17	1.17	0.00				
343.50	1.19	1.19	0.00				
343.60	1.21	1.21	0.00				
343.70	1.23	1.23	0.00				
343.80	1.24	1.24	0.00				
343.90	1.26	1.26	0.00				
344.00	1.28	1.28	0.00				
344.10	1.51	1.51	0.00				
344.20	1.92	1.92	0.00				
344.30	2.25	2.25	0.00				
344.40	2.41	2.41	0.00				
344.50	2.55	2.55	0.00				
344.60	2.68	2.68	0.00				
344.70	2.80	2.80	0.00				
344.80	2.91	2.91	0.00				
344.90	3.02	3.02	0.00				
345.00	3.12	3.12	0.00				
345.10	4.21	4.21	0.00				

**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 5-yr Rainfall=4.62"

Printed 9/4/2020

Page 32

**Stage-Area-Storage for Pond 1ab: Pond-1a**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
340.00	497	0	345.20	2,686	7,660
340.10	527	65	345.30	2,745	7,946
340.20	557	129	345.40	2,803	8,233
340.30	586	194	345.50	2,862	8,519
340.40	616	258	345.60	2,920	8,805
340.50	646	323	345.70	2,978	9,091
340.60	676	388	345.80	3,037	9,377
340.70	706	452	345.90	3,095	9,663
340.80	735	517	346.00	3,154	9,950
340.90	765	581	346.10	3,218	10,297
341.00	795	646	346.20	3,282	10,644
341.10	831	743	346.30	3,346	10,992
341.20	866	841	346.40	3,410	11,339
341.30	902	938	346.50	3,475	11,687
341.40	938	1,035	346.60	3,539	12,034
341.50	974	1,133	346.70	3,603	12,382
341.60	1,009	1,230	346.80	3,667	12,729
341.70	1,045	1,327	346.90	3,731	13,077
341.80	1,081	1,425	347.00	<b>3,795</b>	<b>13,424</b>
341.90	1,116	1,522			
342.00	1,152	1,620			
342.10	1,194	1,756			
342.20	1,235	1,891			
342.30	1,277	2,028			
342.40	1,318	2,163			
342.50	1,360	2,300			
342.60	1,402	2,436			
342.70	1,443	2,571			
342.80	1,485	2,708			
342.90	1,526	2,843			
343.00	1,568	2,980			
343.10	1,615	3,160			
343.20	1,662	3,340			
343.30	1,710	3,521			
343.40	1,757	3,701			
343.50	1,804	3,882			
343.60	1,851	4,062			
343.70	1,898	4,242			
343.80	1,946	4,423			
343.90	1,993	4,603			
344.00	2,040	4,784			
344.10	2,093	5,014			
344.20	2,146	5,244			
344.30	2,199	5,475			
344.40	2,252	5,705			
344.50	2,305	5,936			
344.60	2,357	6,166			
344.70	2,410	6,397			
344.80	2,463	6,627			
344.90	2,516	6,858			
345.00	2,569	7,088			
345.10	2,628	7,374			

**1904501 - Proposed**

Type III 24-hr 5-yr Rainfall=4.62"

Prepared by Solli Engineering, LLC

Printed 9/4/2020

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Page 33

**Summary for Pond 1B: Pond-1b**

Inflow Area = 1.660 ac, 79.52% Impervious, Inflow Depth > 3.65" for 5-yr event  
 Inflow = 6.26 cfs @ 12.11 hrs, Volume= 0.505 af  
 Outflow = 1.30 cfs @ 12.56 hrs, Volume= 0.499 af, Atten= 79%, Lag= 27.0 min  
 Primary = 1.30 cfs @ 12.56 hrs, Volume= 0.499 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
 Peak Elev= 337.14' @ 12.56 hrs Surf.Area= 0.106 ac Storage= 0.175 af

Plug-Flow detention time= 65.4 min calculated for 0.498 af (99% of inflow)  
 Center-of-Mass det. time= 57.4 min ( 846.4 - 789.0 )

Volume	Invert	Avail.Storage	Storage Description
#1A	335.00'	0.021 af	<b>48.00'W x 96.00'L x 5.17'H Field A</b> 0.547 af Overall - 0.494 af Embedded = 0.053 af x 40.0% Voids
#2A	335.50'	0.375 af	<b>retain_it retain_it 4.0' x 72</b> Inside #1 Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf 6 Rows adjusted for 271.8 cf perimeter wall
		0.397 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	335.00'	<b>15.0" Round Culvert</b> L= 43.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 335.00' / 331.00' S= 0.0930 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 1.23 sf
#2	Device 1	335.00'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#3	Device 1	337.50'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#4	Device 1	339.50'	<b>5.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Primary OutFlow** Max=1.30 cfs @ 12.56 hrs HW=337.14' (Free Discharge)

- ↑ **1=Culvert** (Passes 1.30 cfs of 7.27 cfs potential flow)
- ↑ **2=Orifice/Grate** (Orifice Controls 1.30 cfs @ 6.62 fps)
- ↑ **3=Orifice/Grate** ( Controls 0.00 cfs)
- ↑ **4=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)

**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 5-yr Rainfall=4.62"

Printed 9/4/2020

Page 34

**Pond 1B: Pond-1b - Chamber Wizard Field A**

**Chamber Model = retain\_it retain\_it 4.0' (retain-it®)**

Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf

Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf

6 Rows adjusted for 271.8 cf perimeter wall

12 Chambers/Row x 8.00' Long = 96.00' Row Length

6 Rows x 96.0" Wide = 48.00' Base Width

6.0" Base + 56.0" Chamber Height = 5.17' Field Height

7.5 cf Sidewall x 12 x 2 + 7.5 cf Endwall x 6 x 2 = 271.8 cf Perimeter Wall

72 Chambers x 230.9 cf - 271.8 cf Perimeter wall = 16,355.9 cf Chamber Storage

72 Chambers x 298.7 cf = 21,504.0 cf Displacement

23,808.0 cf Field - 21,504.0 cf Chambers = 2,304.0 cf Stone x 40.0% Voids = 921.6 cf Stone Storage

Chamber Storage + Stone Storage = 17,277.5 cf = 0.397 af

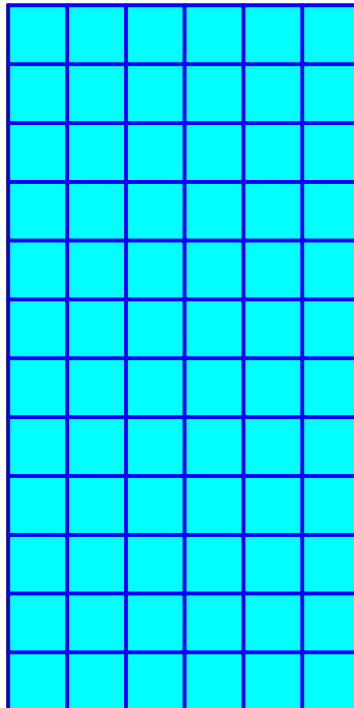
Overall Storage Efficiency = 72.6%

Overall System Size = 96.00' x 48.00' x 5.17'

72 Chambers

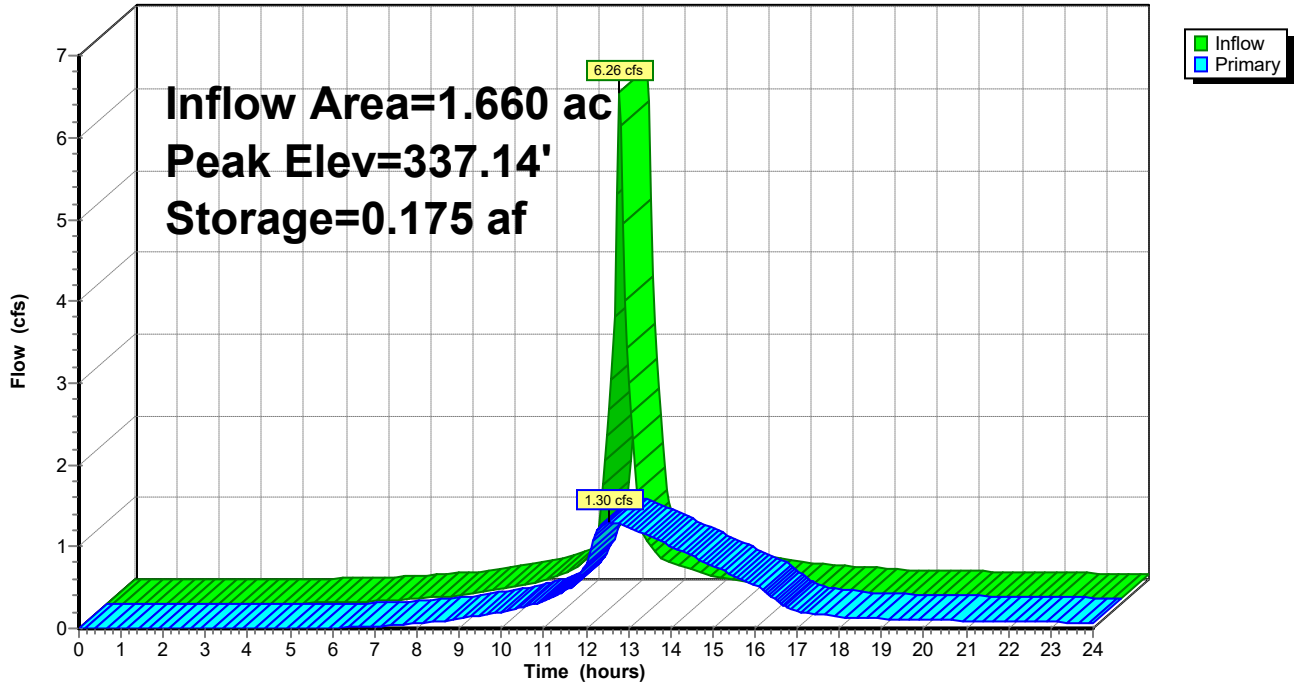
881.8 cy Field

85.3 cy Stone



Pond 1B: Pond-1b

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 5-yr Rainfall=4.62"

Printed 9/4/2020

Page 36

**Stage-Discharge for Pond 1B: Pond-1b**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
335.00	0.00	337.08	1.28	339.16	2.99
335.04	0.01	337.12	1.29	339.20	3.02
335.08	0.02	337.16	1.31	339.24	3.04
335.12	0.04	337.20	1.32	339.28	3.07
335.16	0.07	337.24	1.33	339.32	3.09
335.20	0.11	337.28	1.35	339.36	3.12
335.24	0.16	337.32	1.36	339.40	3.14
335.28	0.20	337.36	1.37	339.44	3.16
335.32	0.26	337.40	1.39	339.48	3.19
335.36	0.31	337.44	1.40	339.52	3.26
335.40	0.36	337.48	1.41	339.56	3.47
335.44	0.41	337.52	1.43	339.60	3.77
335.48	0.46	337.56	1.45	339.64	4.13
335.52	0.49	337.60	1.48	339.68	4.54
335.56	0.53	337.64	1.52	339.72	5.00
335.60	0.56	337.68	1.57	339.76	5.49
335.64	0.59	337.72	1.62	339.80	6.02
335.68	0.62	337.76	1.68	339.84	6.59
335.72	0.65	337.80	1.74	339.88	7.19
335.76	0.68	337.84	1.80	339.92	7.81
335.80	0.70	337.88	1.87	339.96	8.46
335.84	0.73	337.92	1.93	340.00	9.14
335.88	0.75	337.96	1.99	340.04	9.85
335.92	0.77	338.00	2.04	340.08	10.58
335.96	0.80	338.04	2.09	340.12	11.33
336.00	0.82	338.08	2.13	340.16	<b>12.10</b>
336.04	0.84	338.12	2.18		
336.08	0.86	338.16	2.22		
336.12	0.88	338.20	2.26		
336.16	0.90	338.24	2.30		
336.20	0.92	338.28	2.33		
336.24	0.94	338.32	2.37		
336.28	0.96	338.36	2.41		
336.32	0.98	338.40	2.44		
336.36	1.00	338.44	2.47		
336.40	1.01	338.48	2.51		
336.44	1.03	338.52	2.54		
336.48	1.05	338.56	2.57		
336.52	1.07	338.60	2.60		
336.56	1.08	338.64	2.63		
336.60	1.10	338.68	2.66		
336.64	1.11	338.72	2.69		
336.68	1.13	338.76	2.72		
336.72	1.15	338.80	2.75		
336.76	1.16	338.84	2.78		
336.80	1.18	338.88	2.81		
336.84	1.19	338.92	2.83		
336.88	1.21	338.96	2.86		
336.92	1.22	339.00	2.89		
336.96	1.24	339.04	2.91		
337.00	1.25	339.08	2.94		
337.04	1.26	339.12	2.97		

**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 5-yr Rainfall=4.62"

Printed 9/4/2020

Page 37

**Stage-Area-Storage for Pond 1B: Pond-1b**

Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)
335.00	0.000	337.08	0.169	339.16	0.365
335.04	0.002	337.12	0.173	339.20	0.368
335.08	0.003	337.16	0.177	339.24	0.372
335.12	0.005	337.20	0.181	339.28	0.376
335.16	0.007	337.24	0.184	339.32	0.380
335.20	0.008	337.28	0.188	339.36	0.383
335.24	0.010	337.32	0.192	339.40	0.387
335.28	0.012	337.36	0.196	339.44	0.391
335.32	0.014	337.40	0.200	339.48	<b>0.395</b>
335.36	0.015	337.44	0.203	339.52	<b>0.397</b>
335.40	0.017	337.48	0.207	339.56	0.397
335.44	0.019	337.52	0.211	339.60	0.397
335.48	0.020	337.56	0.215	339.64	0.397
335.52	0.023	337.60	0.218	339.68	0.397
335.56	0.027	337.64	0.222	339.72	0.397
335.60	0.031	337.68	0.226	339.76	0.397
335.64	0.034	337.72	0.230	339.80	0.397
335.68	0.038	337.76	0.233	339.84	0.397
335.72	0.042	337.80	0.237	339.88	0.397
335.76	0.046	337.84	0.241	339.92	0.397
335.80	0.049	337.88	0.245	339.96	0.397
335.84	0.053	337.92	0.248	340.00	0.397
335.88	0.057	337.96	0.252	340.04	0.397
335.92	0.061	338.00	0.256	340.08	0.397
335.96	0.064	338.04	0.260	340.12	0.397
336.00	0.068	338.08	0.263	340.16	0.397
336.04	0.072	338.12	0.267		
336.08	0.076	338.16	0.271		
336.12	0.079	338.20	0.275		
336.16	0.083	338.24	0.278		
336.20	0.087	338.28	0.282		
336.24	0.091	338.32	0.286		
336.28	0.094	338.36	0.290		
336.32	0.098	338.40	0.293		
336.36	0.102	338.44	0.297		
336.40	0.106	338.48	0.301		
336.44	0.109	338.52	0.305		
336.48	0.113	338.56	0.308		
336.52	0.117	338.60	0.312		
336.56	0.121	338.64	0.316		
336.60	0.124	338.68	0.320		
336.64	0.128	338.72	0.323		
336.68	0.132	338.76	0.327		
336.72	0.136	338.80	0.331		
336.76	0.139	338.84	0.335		
336.80	0.143	338.88	0.338		
336.84	0.147	338.92	0.342		
336.88	0.151	338.96	0.346		
336.92	0.154	339.00	0.350		
336.96	0.158	339.04	0.353		
337.00	0.162	339.08	0.357		
337.04	0.166	339.12	0.361		

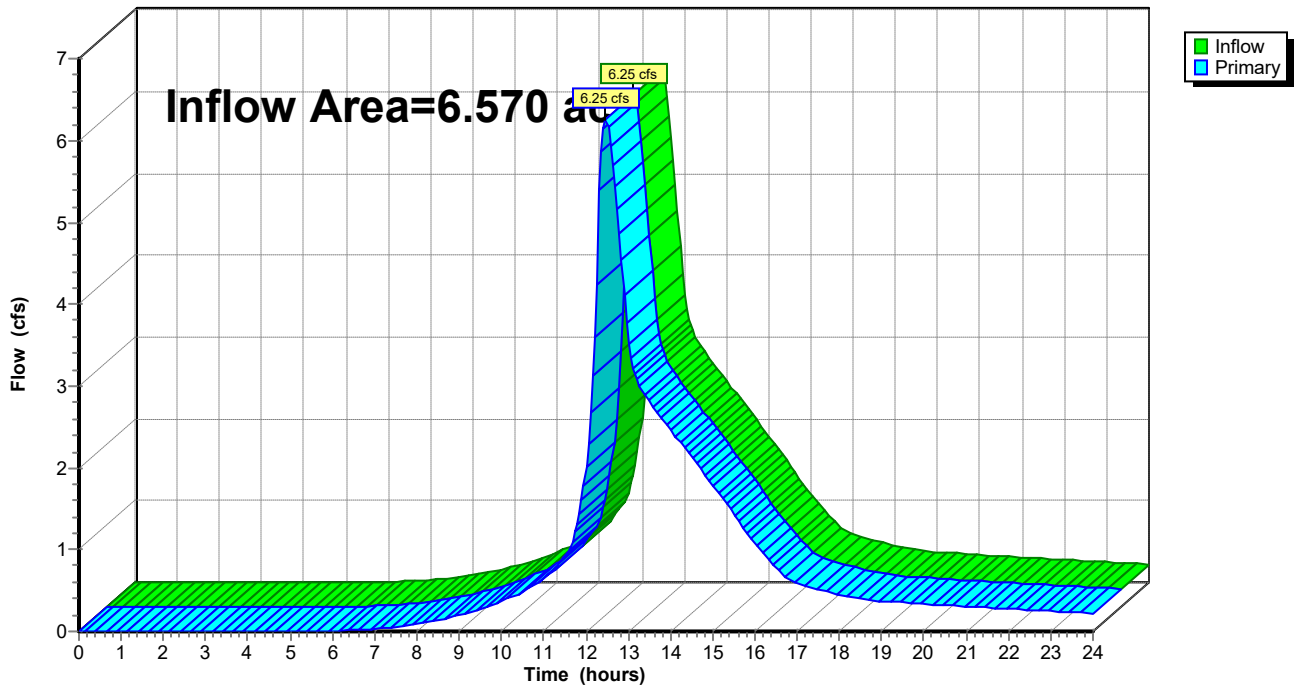
### Summary for Link P1: P1 Total

Inflow Area = 6.570 ac, 49.62% Impervious, Inflow Depth > 2.46" for 5-yr event  
Inflow = 6.25 cfs @ 12.47 hrs, Volume= 1.349 af  
Primary = 6.25 cfs @ 12.47 hrs, Volume= 1.349 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link P1: P1 Total

Hydrograph





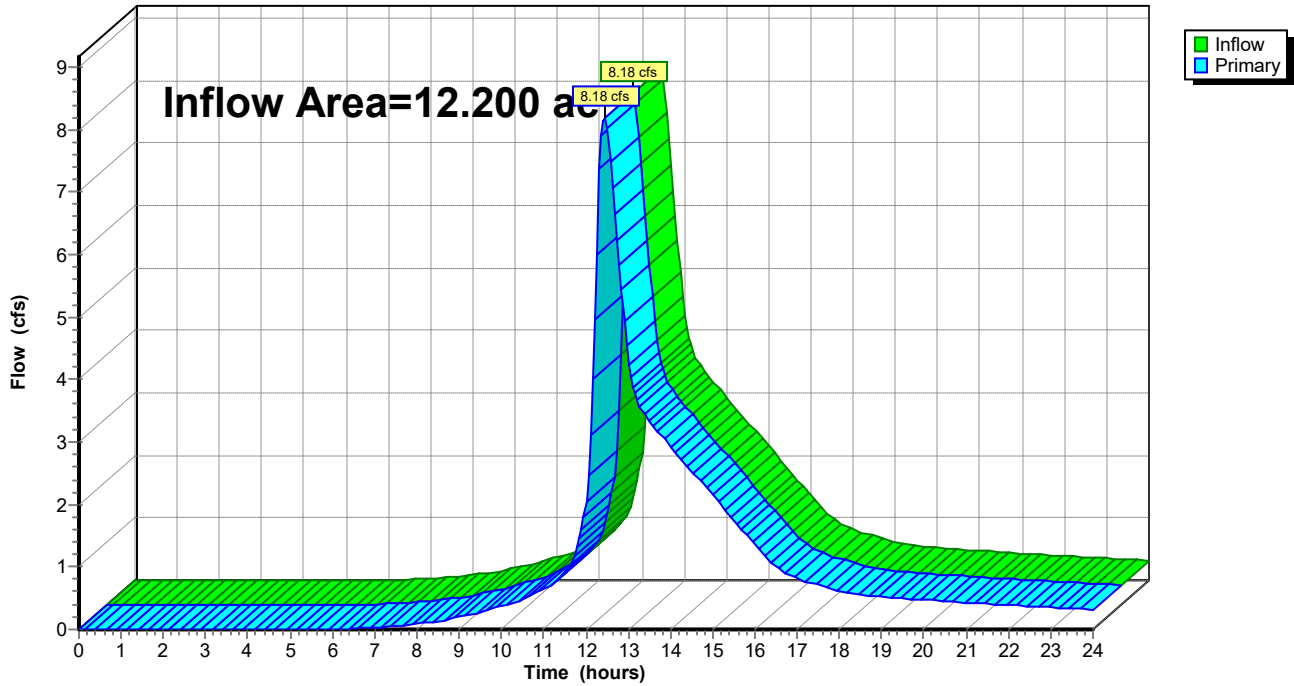
### Summary for Link P1-2: Overall Existing

Inflow Area = 12.200 ac, 26.72% Impervious, Inflow Depth > 1.63" for 5-yr event  
Inflow = 8.18 cfs @ 12.44 hrs, Volume= 1.657 af  
Primary = 8.18 cfs @ 12.44 hrs, Volume= 1.657 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link P1-2: Overall Existing

Hydrograph



**1904501 - Proposed**

Type III 24-hr 10-yr Rainfall=5.58"

Prepared by Solli Engineering, LLC

Printed 9/4/2020

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Page 40

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment P1a: PDA-1a</b>	Runoff Area=2.250 ac 59.56% Impervious Runoff Depth>3.91" Tc=14.5 min CN=85 Runoff=7.78 cfs 0.733 af
<b>Subcatchment P1b: PDA-1b</b>	Runoff Area=1.660 ac 79.52% Impervious Runoff Depth>4.59" Tc=8.2 min CN=91 Runoff=7.76 cfs 0.635 af
<b>Subcatchment P1c: PDA-1c</b>	Runoff Area=2.660 ac 22.56% Impervious Runoff Depth>1.91" Tc=28.1 min CN=63 Runoff=3.33 cfs 0.423 af
<b>Subcatchment P2: PDA-2</b>	Runoff Area=5.630 ac 0.00% Impervious Runoff Depth>1.10" Tc=18.1 min CN=52 Runoff=4.06 cfs 0.514 af
<b>Subcatchment P3: PDA-3</b>	Runoff Area=0.290 ac 100.00% Impervious Runoff Depth>5.34" Tc=6.0 min CN=98 Runoff=1.55 cfs 0.129 af
<b>Subcatchment P4: PDA-4</b>	Runoff Area=2.315 ac 40.39% Impervious Runoff Depth>3.38" Tc=16.6 min CN=80 Runoff=6.65 cfs 0.653 af
<b>Subcatchment P5: PDA-5</b>	Runoff Area=1.350 ac 0.00% Impervious Runoff Depth>2.82" Tc=15.1 min CN=74 Runoff=3.35 cfs 0.317 af
<b>Pond 1ab: Pond-1a</b>	Peak Elev=345.15' Storage=7,531 cf Inflow=7.78 cfs 0.733 af Primary=5.22 cfs 0.730 af Secondary=0.00 cfs 0.000 af Outflow=5.22 cfs 0.730 af
<b>Pond 1B: Pond-1b</b>	Peak Elev=337.68' Storage=0.226 af Inflow=7.76 cfs 0.635 af Outflow=1.57 cfs 0.628 af
<b>Link P1: P1 Total</b>	Inflow=9.96 cfs 1.781 af Primary=9.96 cfs 1.781 af
<b>Link P1-2: Overall Existing</b>	Inflow=13.95 cfs 2.295 af Primary=13.95 cfs 2.295 af

**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 10-yr Rainfall=5.58"

Printed 9/4/2020

Page 41

**Summary for Subcatchment P1a: PDA-1a**

Runoff = 7.78 cfs @ 12.20 hrs, Volume= 0.733 af, Depth> 3.91"

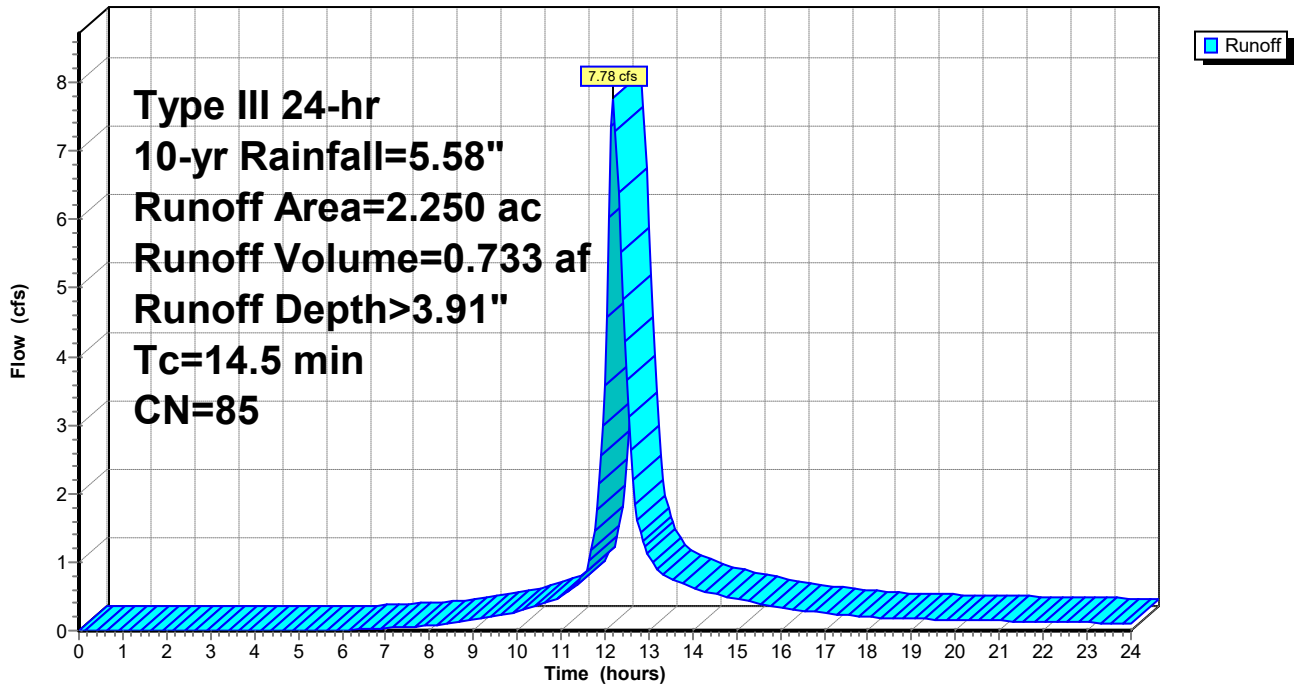
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=5.58"

Area (ac)	CN	Description
* 0.280	55	Woods - B
* 0.160	77	Woods - D
* 0.100	61	Grass - B
* 0.170	61	Grass - B
* 0.200	80	Grass -D
* 1.340	98	Impervious
2.250	85	Weighted Average
0.910		40.44% Pervious Area
1.340		59.56% Impervious Area

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

**Subcatchment P1a: PDA-1a**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 10-yr Rainfall=5.58"

Printed 9/4/2020

Page 42

**Summary for Subcatchment P1b: PDA-1b**

Runoff = 7.76 cfs @ 12.11 hrs, Volume= 0.635 af, Depth> 4.59"

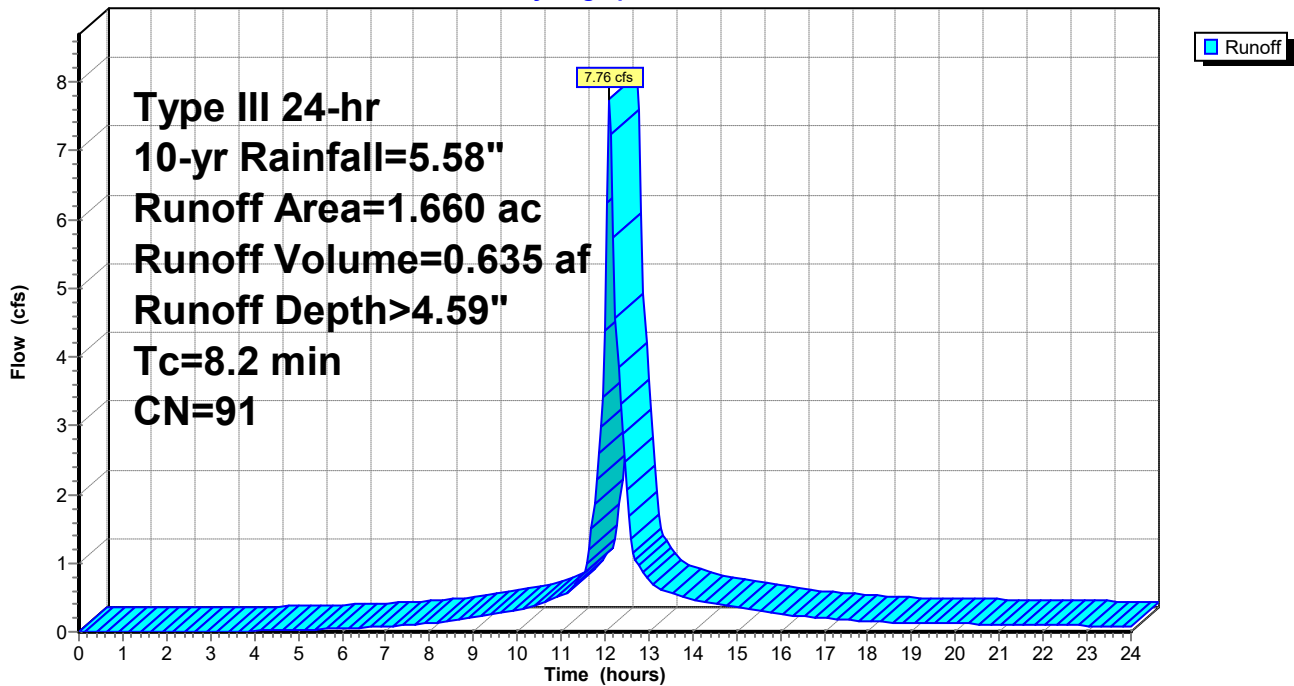
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=5.58"

Area (ac)	CN	Description
* 0.080	39	Grass - A
* 0.080	61	Grass - B
* 0.180	80	Grass - D
* 1.320	98	Impervious
1.660	91	Weighted Average
0.340		20.48% Pervious Area
1.320		79.52% Impervious Area

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

**Subcatchment P1b: PDA-1b**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 10-yr Rainfall=5.58"

Printed 9/4/2020

Page 43

**Summary for Subcatchment P1c: PDA-1c**

Runoff = 3.33 cfs @ 12.42 hrs, Volume= 0.423 af, Depth> 1.91"

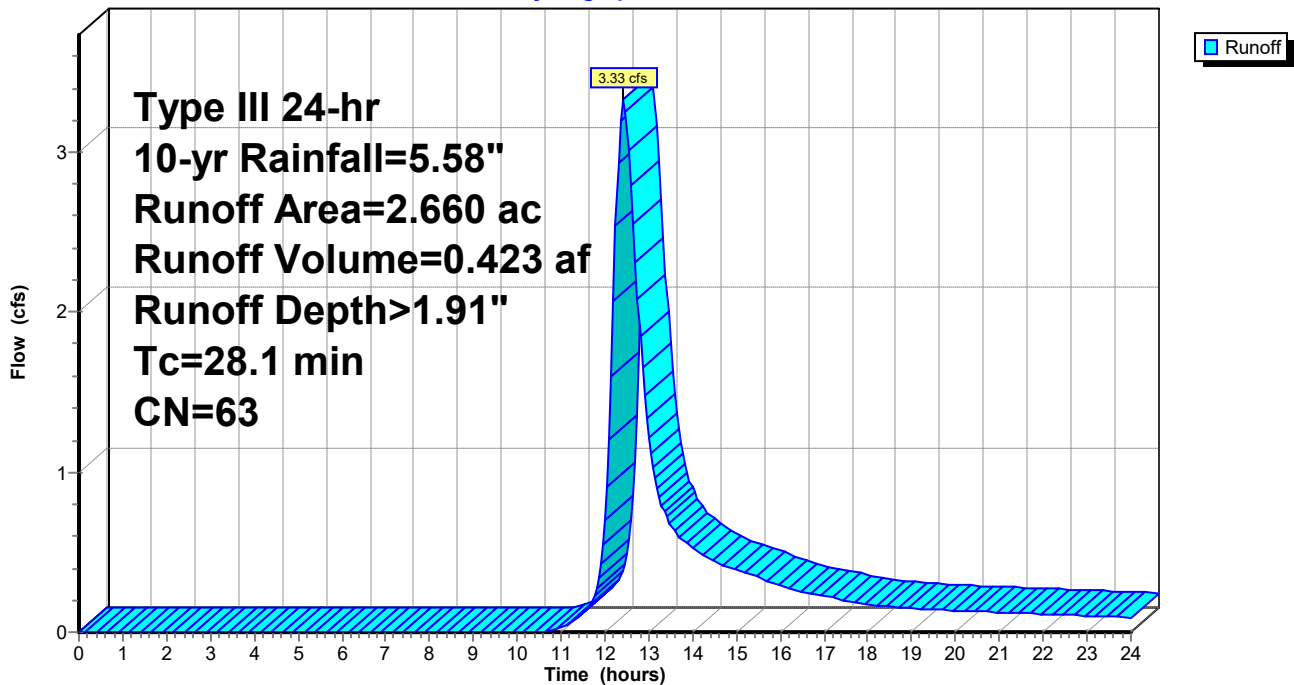
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=5.58"

Area (ac)	CN	Description
* 0.440	30	Woods - A
* 0.160	55	Woods - B
* 0.250	39	Grass - A
* 0.980	61	Grass - B
* 0.100	80	Grass - D
* 0.130	80	Grass - D
* 0.600	98	Impervious
2.660	63	Weighted Average
2.060		77.44% Pervious Area
0.600		22.56% Impervious Area

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

**Subcatchment P1c: PDA-1c**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 10-yr Rainfall=5.58"

Printed 9/4/2020

Page 44

**Summary for Subcatchment P2: PDA-2**

Runoff = 4.06 cfs @ 12.31 hrs, Volume= 0.514 af, Depth> 1.10"

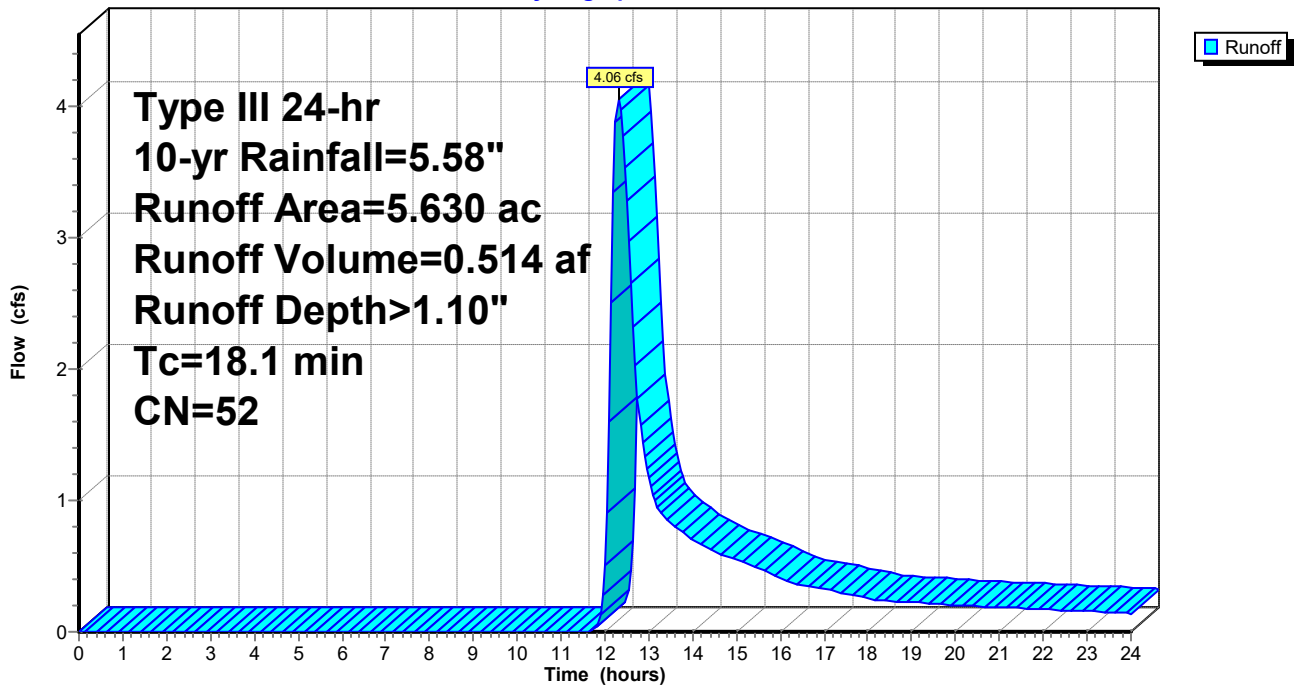
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=5.58"

Area (ac)	CN	Description
* 0.950	30	Woods - A
* 4.180	55	Woods - B
* 0.340	77	Woods - D
* 0.060	39	Grass - A
* 0.100	80	Grass - D
5.630	52	Weighted Average
5.630		100.00% Pervious Area

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

**Subcatchment P2: PDA-2**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 10-yr Rainfall=5.58"

Printed 9/4/2020

Page 45

**Summary for Subcatchment P3: PDA-3**

Runoff = 1.55 cfs @ 12.09 hrs, Volume= 0.129 af, Depth> 5.34"

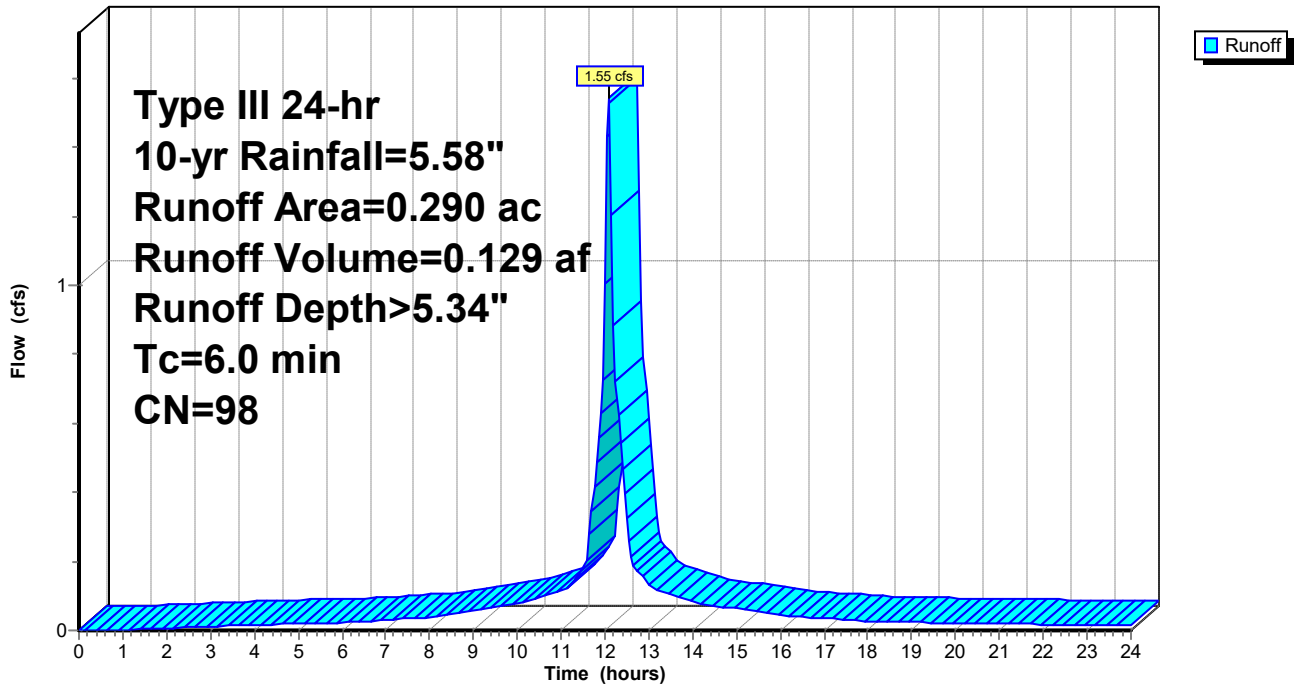
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=5.58"

Area (ac)	CN	Description
* 0.290	98	Impervious
0.290		100.00% Impervious Area

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

**Subcatchment P3: PDA-3**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 10-yr Rainfall=5.58"

Printed 9/4/2020

Page 46

**Summary for Subcatchment P4: PDA-4**

Runoff = 6.65 cfs @ 12.23 hrs, Volume= 0.653 af, Depth> 3.38"

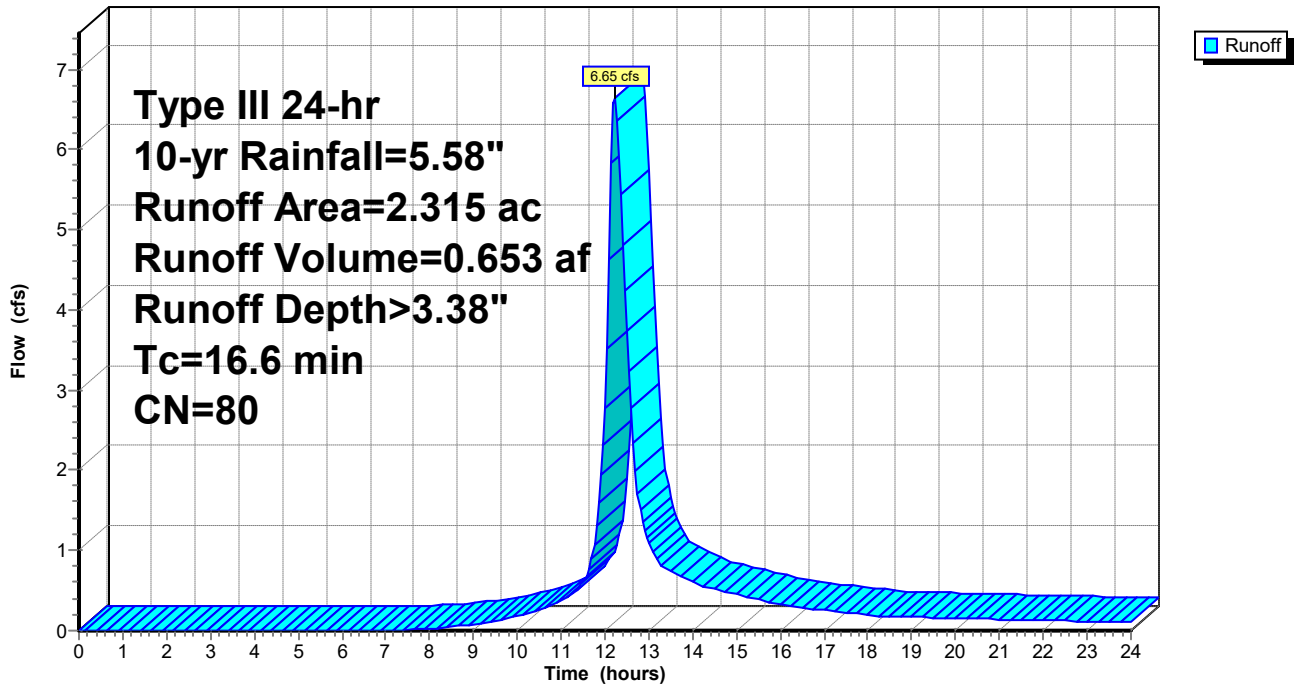
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=5.58"

Area (ac)	CN	Description
* 0.060	55	Woods - B
* 0.280	55	Woods - B
* 0.640	77	Woods - D
* 0.350	61	Grass - B
* 0.050	80	Grass - D
* 0.935	98	Impervious
2.315	80	Weighted Average
1.380		59.61% Pervious Area
0.935		40.39% Impervious Area

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

**Subcatchment P4: PDA-4**

Hydrograph





**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 10-yr Rainfall=5.58"

Printed 9/4/2020

Page 47

**Summary for Subcatchment P5: PDA-5**

Runoff = 3.35 cfs @ 12.21 hrs, Volume= 0.317 af, Depth> 2.82"

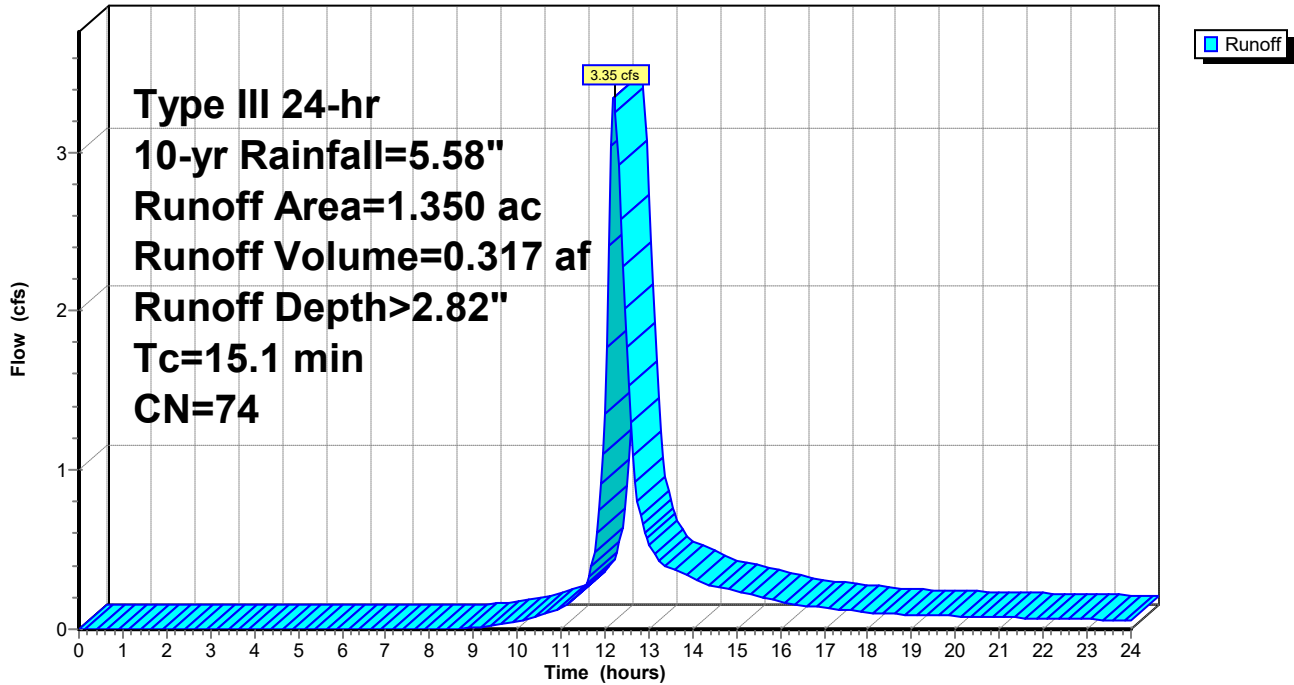
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=5.58"

Area (ac)	CN	Description
* 0.190	55	Woods - B
* 1.160	77	Woods - D
1.350	74	Weighted Average
1.350		100.00% Pervious Area

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

**Subcatchment P5: PDA-5**

Hydrograph



**1904501 - Proposed**

Type III 24-hr 10-yr Rainfall=5.58"

Prepared by Solli Engineering, LLC

Printed 9/4/2020

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Page 48

**Summary for Pond 1ab: Pond-1a**

Inflow Area = 2.250 ac, 59.56% Impervious, Inflow Depth > 3.91" for 10-yr event  
 Inflow = 7.78 cfs @ 12.20 hrs, Volume= 0.733 af  
 Outflow = 5.22 cfs @ 12.38 hrs, Volume= 0.730 af, Atten= 33%, Lag= 10.8 min  
 Primary = 5.22 cfs @ 12.38 hrs, Volume= 0.730 af  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
 Peak Elev= 345.15' @ 12.38 hrs Surf.Area= 2,660 sf Storage= 7,531 cf

Plug-Flow detention time= 32.6 min calculated for 0.730 af (100% of inflow)  
 Center-of-Mass det. time= 30.0 min ( 839.4 - 809.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	340.00'	13,424 cf	<b>Detention Basin (Prismatic)</b> Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
340.00	497	0	0
341.00	795	646	646
342.00	1,152	974	1,620
343.00	1,568	1,360	2,980
344.00	2,040	1,804	4,784
345.00	2,569	2,305	7,088
346.00	3,154	2,862	9,950
347.00	3,795	3,475	13,424

Device	Routing	Invert	Outlet Devices
#1	Primary	339.00'	<b>24.0" Round RCP_Round 24"</b> L= 169.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 339.00' / 337.31' S= 0.0100 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Device 1	340.00'	<b>5.0" Vert. Orifice/Grate</b> C= 0.600
#3	Device 1	344.00'	<b>8.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	345.00'	<b>20.4" x 37.2" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Secondary	345.50'	<b>20.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=5.12 cfs @ 12.38 hrs HW=345.15' (Free Discharge)

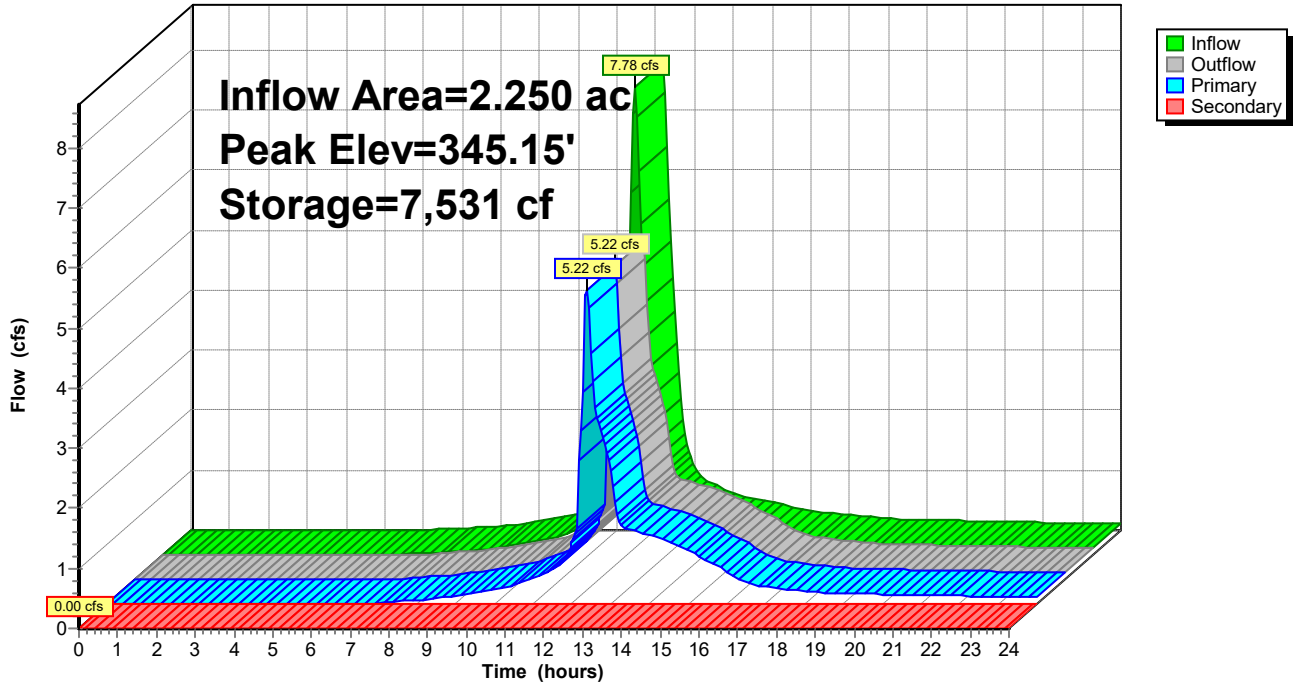
- ↑ 1=RCP\_Round 24" (Passes 5.12 cfs of 37.03 cfs potential flow)
- ↑ 2=Orifice/Grate (Orifice Controls 1.46 cfs @ 10.71 fps)
- ↑ 3=Orifice/Grate (Orifice Controls 1.80 cfs @ 5.17 fps)
- ↑ 4=Orifice/Grate (Weir Controls 1.85 cfs @ 1.27 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=340.00' (Free Discharge)

- ↑ 5=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

### Pond 1ab: Pond-1a

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 10-yr Rainfall=5.58"

Printed 9/4/2020

Page 50

**Stage-Discharge for Pond 1ab: Pond-1a**

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
340.00	0.00	0.00	0.00	345.20	6.12	6.12	0.00
340.10	0.03	0.03	0.00	345.30	8.56	8.56	0.00
340.20	0.10	0.10	0.00	345.40	11.43	11.43	0.00
340.30	0.20	0.20	0.00	345.50	14.67	14.67	0.00
340.40	0.29	0.29	0.00	345.60	19.85	18.24	1.61
340.50	0.35	0.35	0.00	345.70	26.66	22.12	4.54
340.60	0.41	0.41	0.00	345.80	34.73	26.27	8.46
340.70	0.46	0.46	0.00	345.90	41.16	27.96	13.21
340.80	0.51	0.51	0.00	346.00	47.79	29.33	18.46
340.90	0.55	0.55	0.00	346.10	54.90	30.64	24.26
341.00	0.58	0.58	0.00	346.20	62.41	31.90	30.51
341.10	0.62	0.62	0.00	346.30	70.31	33.10	37.21
341.20	0.65	0.65	0.00	346.40	79.17	34.26	44.91
341.30	0.69	0.69	0.00	346.50	88.58	35.38	53.20
341.40	0.72	0.72	0.00	346.60	98.30	36.47	61.84
341.50	0.75	0.75	0.00	346.70	108.50	37.52	70.98
341.60	0.77	0.77	0.00	346.80	119.62	38.54	81.08
341.70	0.80	0.80	0.00	346.90	131.31	39.54	91.77
341.80	0.83	0.83	0.00	347.00	<b>144.49</b>	<b>40.51</b>	<b>103.98</b>
341.90	0.85	0.85	0.00				
342.00	0.88	0.88	0.00				
342.10	0.90	0.90	0.00				
342.20	0.93	0.93	0.00				
342.30	0.95	0.95	0.00				
342.40	0.97	0.97	0.00				
342.50	0.99	0.99	0.00				
342.60	1.02	1.02	0.00				
342.70	1.04	1.04	0.00				
342.80	1.06	1.06	0.00				
342.90	1.08	1.08	0.00				
343.00	1.10	1.10	0.00				
343.10	1.12	1.12	0.00				
343.20	1.14	1.14	0.00				
343.30	1.15	1.15	0.00				
343.40	1.17	1.17	0.00				
343.50	1.19	1.19	0.00				
343.60	1.21	1.21	0.00				
343.70	1.23	1.23	0.00				
343.80	1.24	1.24	0.00				
343.90	1.26	1.26	0.00				
344.00	1.28	1.28	0.00				
344.10	1.51	1.51	0.00				
344.20	1.92	1.92	0.00				
344.30	2.25	2.25	0.00				
344.40	2.41	2.41	0.00				
344.50	2.55	2.55	0.00				
344.60	2.68	2.68	0.00				
344.70	2.80	2.80	0.00				
344.80	2.91	2.91	0.00				
344.90	3.02	3.02	0.00				
345.00	3.12	3.12	0.00				
345.10	4.21	4.21	0.00				

**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 10-yr Rainfall=5.58"

Printed 9/4/2020

Page 51

**Stage-Area-Storage for Pond 1ab: Pond-1a**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
340.00	497	0	345.20	2,686	7,660
340.10	527	65	345.30	2,745	7,946
340.20	557	129	345.40	2,803	8,233
340.30	586	194	345.50	2,862	8,519
340.40	616	258	345.60	2,920	8,805
340.50	646	323	345.70	2,978	9,091
340.60	676	388	345.80	3,037	9,377
340.70	706	452	345.90	3,095	9,663
340.80	735	517	346.00	3,154	9,950
340.90	765	581	346.10	3,218	10,297
341.00	795	646	346.20	3,282	10,644
341.10	831	743	346.30	3,346	10,992
341.20	866	841	346.40	3,410	11,339
341.30	902	938	346.50	3,475	11,687
341.40	938	1,035	346.60	3,539	12,034
341.50	974	1,133	346.70	3,603	12,382
341.60	1,009	1,230	346.80	3,667	12,729
341.70	1,045	1,327	346.90	3,731	13,077
341.80	1,081	1,425	347.00	<b>3,795</b>	<b>13,424</b>
341.90	1,116	1,522			
342.00	1,152	1,620			
342.10	1,194	1,756			
342.20	1,235	1,891			
342.30	1,277	2,028			
342.40	1,318	2,163			
342.50	1,360	2,300			
342.60	1,402	2,436			
342.70	1,443	2,571			
342.80	1,485	2,708			
342.90	1,526	2,843			
343.00	1,568	2,980			
343.10	1,615	3,160			
343.20	1,662	3,340			
343.30	1,710	3,521			
343.40	1,757	3,701			
343.50	1,804	3,882			
343.60	1,851	4,062			
343.70	1,898	4,242			
343.80	1,946	4,423			
343.90	1,993	4,603			
344.00	2,040	4,784			
344.10	2,093	5,014			
344.20	2,146	5,244			
344.30	2,199	5,475			
344.40	2,252	5,705			
344.50	2,305	5,936			
344.60	2,357	6,166			
344.70	2,410	6,397			
344.80	2,463	6,627			
344.90	2,516	6,858			
345.00	2,569	7,088			
345.10	2,628	7,374			

**1904501 - Proposed**

Type III 24-hr 10-yr Rainfall=5.58"

Prepared by Solli Engineering, LLC

Printed 9/4/2020

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Page 52

**Summary for Pond 1B: Pond-1b**

Inflow Area = 1.660 ac, 79.52% Impervious, Inflow Depth > 4.59" for 10-yr event  
 Inflow = 7.76 cfs @ 12.11 hrs, Volume= 0.635 af  
 Outflow = 1.57 cfs @ 12.57 hrs, Volume= 0.628 af, Atten= 80%, Lag= 27.3 min  
 Primary = 1.57 cfs @ 12.57 hrs, Volume= 0.628 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
 Peak Elev= 337.68' @ 12.57 hrs Surf.Area= 0.106 ac Storage= 0.226 af

Plug-Flow detention time= 71.5 min calculated for 0.626 af (99% of inflow)  
 Center-of-Mass det. time= 64.4 min ( 847.4 - 783.0 )

Volume	Invert	Avail.Storage	Storage Description
#1A	335.00'	0.021 af	<b>48.00'W x 96.00'L x 5.17'H Field A</b> 0.547 af Overall - 0.494 af Embedded = 0.053 af x 40.0% Voids
#2A	335.50'	0.375 af	<b>retain_it retain_it 4.0' x 72</b> Inside #1 Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf 6 Rows adjusted for 271.8 cf perimeter wall
		0.397 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	335.00'	<b>15.0" Round Culvert</b> L= 43.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 335.00' / 331.00' S= 0.0930 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 1.23 sf
#2	Device 1	335.00'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#3	Device 1	337.50'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#4	Device 1	339.50'	<b>5.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Primary OutFlow** Max=1.57 cfs @ 12.57 hrs HW=337.68' (Free Discharge)

- ↑ **1=Culvert** (Passes 1.57 cfs of 8.47 cfs potential flow)
- ↑ **2=Orifice/Grate** (Orifice Controls 1.47 cfs @ 7.51 fps)
- ↑ **3=Orifice/Grate** (Orifice Controls 0.09 cfs @ 1.45 fps)
- ↑ **4=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)

**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 10-yr Rainfall=5.58"

Printed 9/4/2020

Page 53

**Pond 1B: Pond-1b - Chamber Wizard Field A**

**Chamber Model = retain\_it retain\_it 4.0' (retain-it®)**

Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf

Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf

6 Rows adjusted for 271.8 cf perimeter wall

12 Chambers/Row x 8.00' Long = 96.00' Row Length

6 Rows x 96.0" Wide = 48.00' Base Width

6.0" Base + 56.0" Chamber Height = 5.17' Field Height

7.5 cf Sidewall x 12 x 2 + 7.5 cf Endwall x 6 x 2 = 271.8 cf Perimeter Wall

72 Chambers x 230.9 cf - 271.8 cf Perimeter wall = 16,355.9 cf Chamber Storage

72 Chambers x 298.7 cf = 21,504.0 cf Displacement

23,808.0 cf Field - 21,504.0 cf Chambers = 2,304.0 cf Stone x 40.0% Voids = 921.6 cf Stone Storage

Chamber Storage + Stone Storage = 17,277.5 cf = 0.397 af

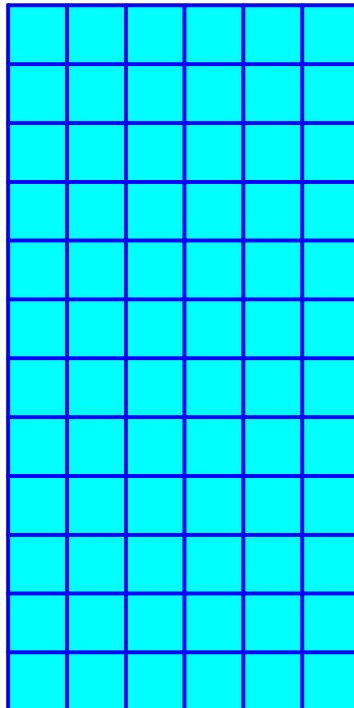
Overall Storage Efficiency = 72.6%

Overall System Size = 96.00' x 48.00' x 5.17'

72 Chambers

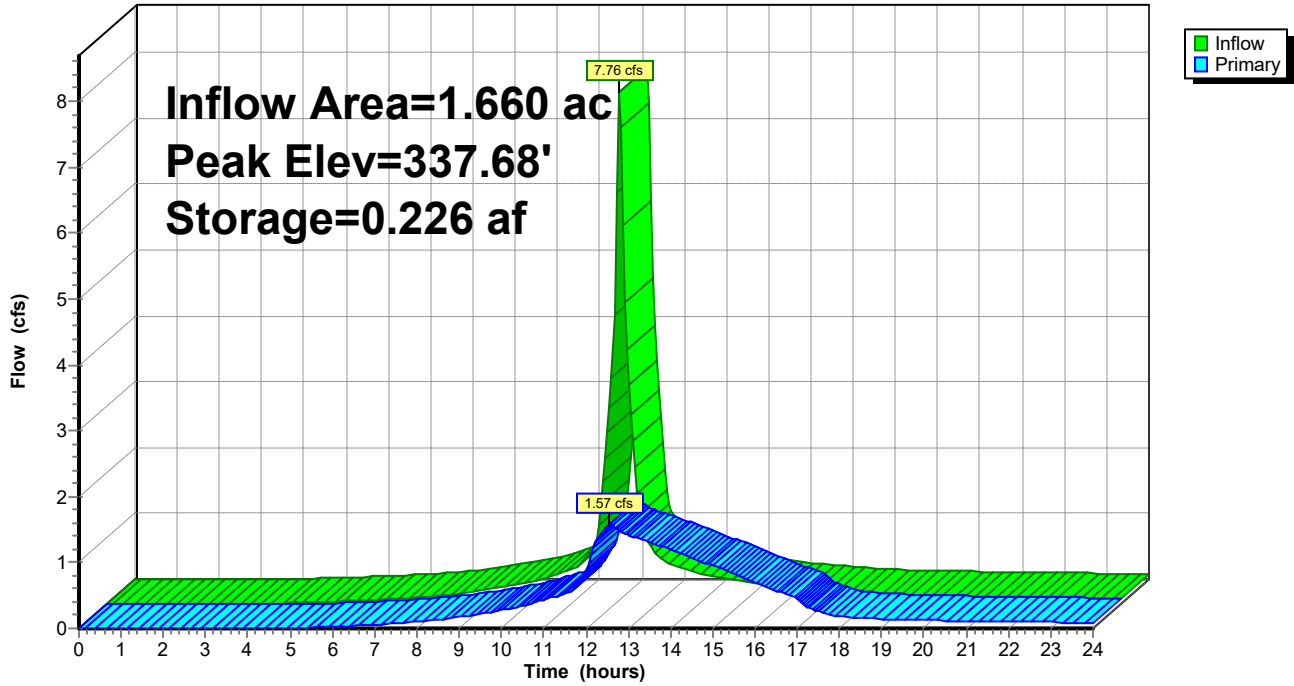
881.8 cy Field

85.3 cy Stone



### Pond 1B: Pond-1b

Hydrograph





**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 10-yr Rainfall=5.58"

Printed 9/4/2020

Page 55

**Stage-Discharge for Pond 1B: Pond-1b**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
335.00	0.00	337.08	1.28	339.16	2.99
335.04	0.01	337.12	1.29	339.20	3.02
335.08	0.02	337.16	1.31	339.24	3.04
335.12	0.04	337.20	1.32	339.28	3.07
335.16	0.07	337.24	1.33	339.32	3.09
335.20	0.11	337.28	1.35	339.36	3.12
335.24	0.16	337.32	1.36	339.40	3.14
335.28	0.20	337.36	1.37	339.44	3.16
335.32	0.26	337.40	1.39	339.48	3.19
335.36	0.31	337.44	1.40	339.52	3.26
335.40	0.36	337.48	1.41	339.56	3.47
335.44	0.41	337.52	1.43	339.60	3.77
335.48	0.46	337.56	1.45	339.64	4.13
335.52	0.49	337.60	1.48	339.68	4.54
335.56	0.53	337.64	1.52	339.72	5.00
335.60	0.56	337.68	1.57	339.76	5.49
335.64	0.59	337.72	1.62	339.80	6.02
335.68	0.62	337.76	1.68	339.84	6.59
335.72	0.65	337.80	1.74	339.88	7.19
335.76	0.68	337.84	1.80	339.92	7.81
335.80	0.70	337.88	1.87	339.96	8.46
335.84	0.73	337.92	1.93	340.00	9.14
335.88	0.75	337.96	1.99	340.04	9.85
335.92	0.77	338.00	2.04	340.08	10.58
335.96	0.80	338.04	2.09	340.12	11.33
336.00	0.82	338.08	2.13	340.16	<b>12.10</b>
336.04	0.84	338.12	2.18		
336.08	0.86	338.16	2.22		
336.12	0.88	338.20	2.26		
336.16	0.90	338.24	2.30		
336.20	0.92	338.28	2.33		
336.24	0.94	338.32	2.37		
336.28	0.96	338.36	2.41		
336.32	0.98	338.40	2.44		
336.36	1.00	338.44	2.47		
336.40	1.01	338.48	2.51		
336.44	1.03	338.52	2.54		
336.48	1.05	338.56	2.57		
336.52	1.07	338.60	2.60		
336.56	1.08	338.64	2.63		
336.60	1.10	338.68	2.66		
336.64	1.11	338.72	2.69		
336.68	1.13	338.76	2.72		
336.72	1.15	338.80	2.75		
336.76	1.16	338.84	2.78		
336.80	1.18	338.88	2.81		
336.84	1.19	338.92	2.83		
336.88	1.21	338.96	2.86		
336.92	1.22	339.00	2.89		
336.96	1.24	339.04	2.91		
337.00	1.25	339.08	2.94		
337.04	1.26	339.12	2.97		

**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 10-yr Rainfall=5.58"

Printed 9/4/2020

Page 56

**Stage-Area-Storage for Pond 1B: Pond-1b**

Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)
335.00	0.000	337.08	0.169	339.16	0.365
335.04	0.002	337.12	0.173	339.20	0.368
335.08	0.003	337.16	0.177	339.24	0.372
335.12	0.005	337.20	0.181	339.28	0.376
335.16	0.007	337.24	0.184	339.32	0.380
335.20	0.008	337.28	0.188	339.36	0.383
335.24	0.010	337.32	0.192	339.40	0.387
335.28	0.012	337.36	0.196	339.44	0.391
335.32	0.014	337.40	0.200	339.48	<b>0.395</b>
335.36	0.015	337.44	0.203	339.52	<b>0.397</b>
335.40	0.017	337.48	0.207	339.56	0.397
335.44	0.019	337.52	0.211	339.60	0.397
335.48	0.020	337.56	0.215	339.64	0.397
335.52	0.023	337.60	0.218	339.68	0.397
335.56	0.027	337.64	0.222	339.72	0.397
335.60	0.031	337.68	0.226	339.76	0.397
335.64	0.034	337.72	0.230	339.80	0.397
335.68	0.038	337.76	0.233	339.84	0.397
335.72	0.042	337.80	0.237	339.88	0.397
335.76	0.046	337.84	0.241	339.92	0.397
335.80	0.049	337.88	0.245	339.96	0.397
335.84	0.053	337.92	0.248	340.00	0.397
335.88	0.057	337.96	0.252	340.04	0.397
335.92	0.061	338.00	0.256	340.08	0.397
335.96	0.064	338.04	0.260	340.12	0.397
336.00	0.068	338.08	0.263	340.16	0.397
336.04	0.072	338.12	0.267		
336.08	0.076	338.16	0.271		
336.12	0.079	338.20	0.275		
336.16	0.083	338.24	0.278		
336.20	0.087	338.28	0.282		
336.24	0.091	338.32	0.286		
336.28	0.094	338.36	0.290		
336.32	0.098	338.40	0.293		
336.36	0.102	338.44	0.297		
336.40	0.106	338.48	0.301		
336.44	0.109	338.52	0.305		
336.48	0.113	338.56	0.308		
336.52	0.117	338.60	0.312		
336.56	0.121	338.64	0.316		
336.60	0.124	338.68	0.320		
336.64	0.128	338.72	0.323		
336.68	0.132	338.76	0.327		
336.72	0.136	338.80	0.331		
336.76	0.139	338.84	0.335		
336.80	0.143	338.88	0.338		
336.84	0.147	338.92	0.342		
336.88	0.151	338.96	0.346		
336.92	0.154	339.00	0.350		
336.96	0.158	339.04	0.353		
337.00	0.162	339.08	0.357		
337.04	0.166	339.12	0.361		

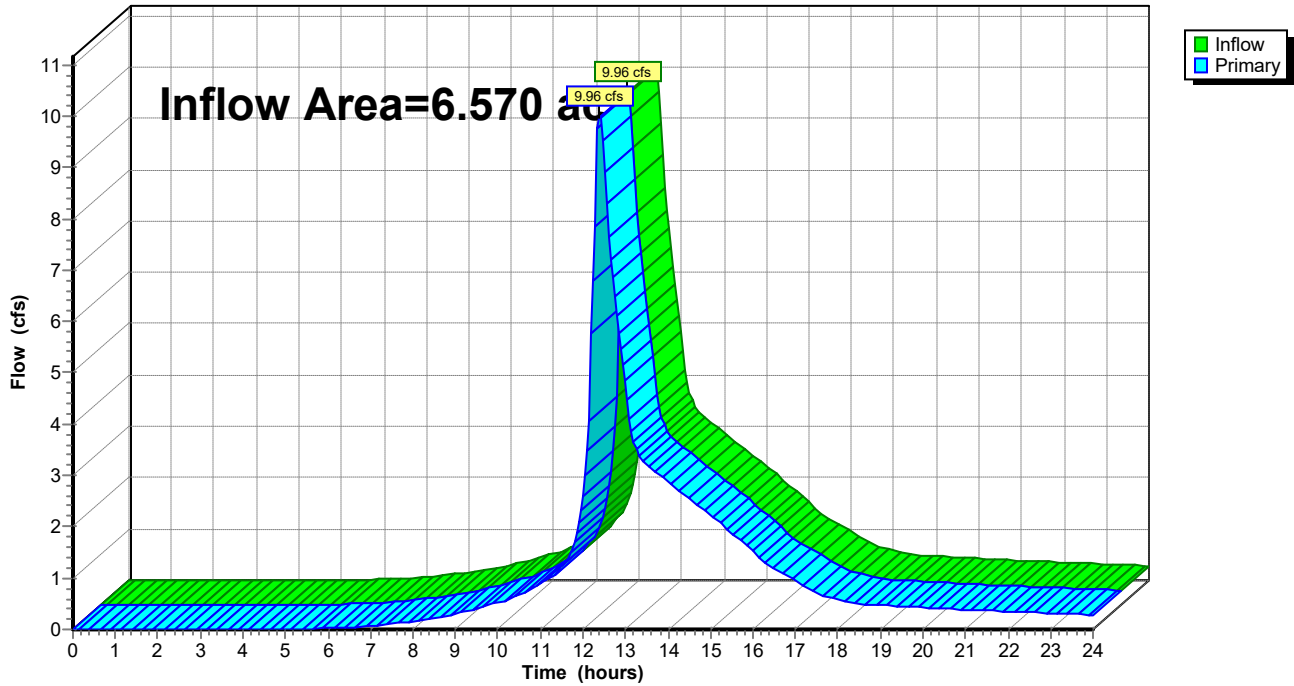
### Summary for Link P1: P1 Total

Inflow Area = 6.570 ac, 49.62% Impervious, Inflow Depth > 3.25" for 10-yr event  
Inflow = 9.96 cfs @ 12.39 hrs, Volume= 1.781 af  
Primary = 9.96 cfs @ 12.39 hrs, Volume= 1.781 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link P1: P1 Total

Hydrograph



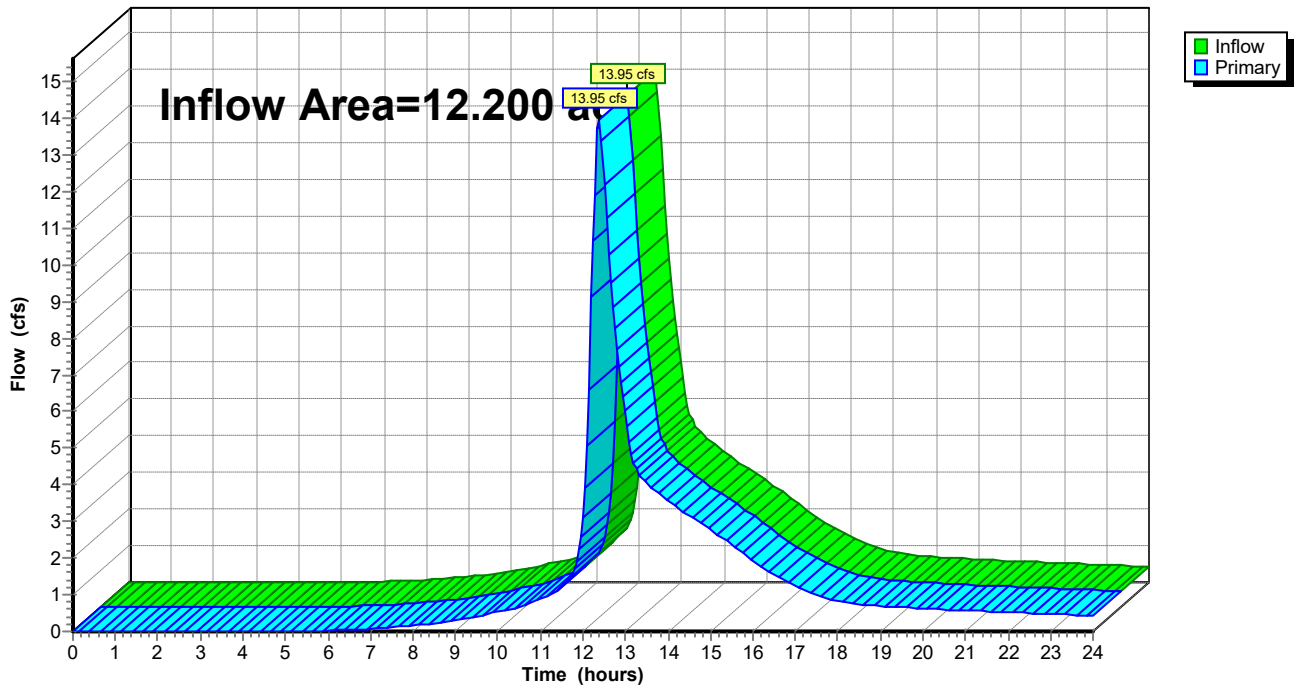
### Summary for Link P1-2: Overall Existing

Inflow Area = 12.200 ac, 26.72% Impervious, Inflow Depth > 2.26" for 10-yr event  
Inflow = 13.95 cfs @ 12.37 hrs, Volume= 2.295 af  
Primary = 13.95 cfs @ 12.37 hrs, Volume= 2.295 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link P1-2: Overall Existing

Hydrograph



**1904501 - Proposed**

Type III 24-hr 25-yr Rainfall=6.91"

Prepared by Solli Engineering, LLC

Printed 9/4/2020

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Page 59

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment P1a: PDA-1a</b>	Runoff Area=2.250 ac 59.56% Impervious Runoff Depth>5.17" Tc=14.5 min CN=85 Runoff=10.17 cfs 0.969 af
<b>Subcatchment P1b: PDA-1b</b>	Runoff Area=1.660 ac 79.52% Impervious Runoff Depth>5.89" Tc=8.2 min CN=91 Runoff=9.83 cfs 0.815 af
<b>Subcatchment P1c: PDA-1c</b>	Runoff Area=2.660 ac 22.56% Impervious Runoff Depth>2.86" Tc=28.1 min CN=63 Runoff=5.12 cfs 0.634 af
<b>Subcatchment P2: PDA-2</b>	Runoff Area=5.630 ac 0.00% Impervious Runoff Depth>1.82" Tc=18.1 min CN=52 Runoff=7.52 cfs 0.854 af
<b>Subcatchment P3: PDA-3</b>	Runoff Area=0.290 ac 100.00% Impervious Runoff Depth>6.67" Tc=6.0 min CN=98 Runoff=1.92 cfs 0.161 af
<b>Subcatchment P4: PDA-4</b>	Runoff Area=2.315 ac 40.39% Impervious Runoff Depth>4.59" Tc=16.6 min CN=80 Runoff=8.97 cfs 0.885 af
<b>Subcatchment P5: PDA-5</b>	Runoff Area=1.350 ac 0.00% Impervious Runoff Depth>3.94" Tc=15.1 min CN=74 Runoff=4.71 cfs 0.444 af
<b>Pond 1ab: Pond-1a</b>	Peak Elev=345.34' Storage=8,059 cf Inflow=10.17 cfs 0.969 af Primary=9.55 cfs 0.966 af Secondary=0.00 cfs 0.000 af Outflow=9.55 cfs 0.966 af
<b>Pond 1B: Pond-1b</b>	Peak Elev=338.32' Storage=0.286 af Inflow=9.83 cfs 0.815 af Outflow=2.37 cfs 0.807 af
<b>Link P1: P1 Total</b>	Inflow=15.67 cfs 2.406 af Primary=15.67 cfs 2.406 af
<b>Link P1-2: Overall Existing</b>	Inflow=23.18 cfs 3.260 af Primary=23.18 cfs 3.260 af

**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 25-yr Rainfall=6.91"

Printed 9/4/2020

Page 60

**Summary for Subcatchment P1a: PDA-1a**

Runoff = 10.17 cfs @ 12.20 hrs, Volume= 0.969 af, Depth> 5.17"

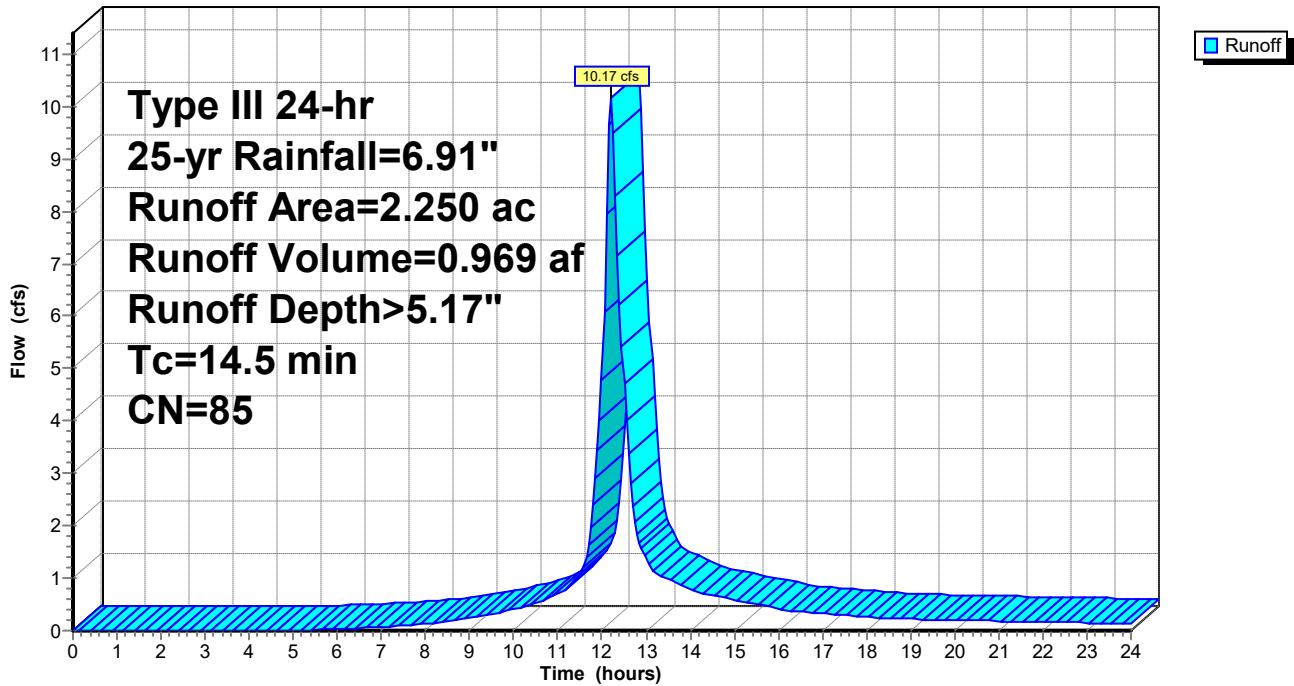
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-yr Rainfall=6.91"

Area (ac)	CN	Description
* 0.280	55	Woods - B
* 0.160	77	Woods - D
* 0.100	61	Grass - B
* 0.170	61	Grass - B
* 0.200	80	Grass -D
* 1.340	98	Impervious
2.250	85	Weighted Average
0.910		40.44% Pervious Area
1.340		59.56% Impervious Area

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

**Subcatchment P1a: PDA-1a**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 25-yr Rainfall=6.91"

Printed 9/4/2020

Page 61

**Summary for Subcatchment P1b: PDA-1b**

Runoff = 9.83 cfs @ 12.11 hrs, Volume= 0.815 af, Depth> 5.89"

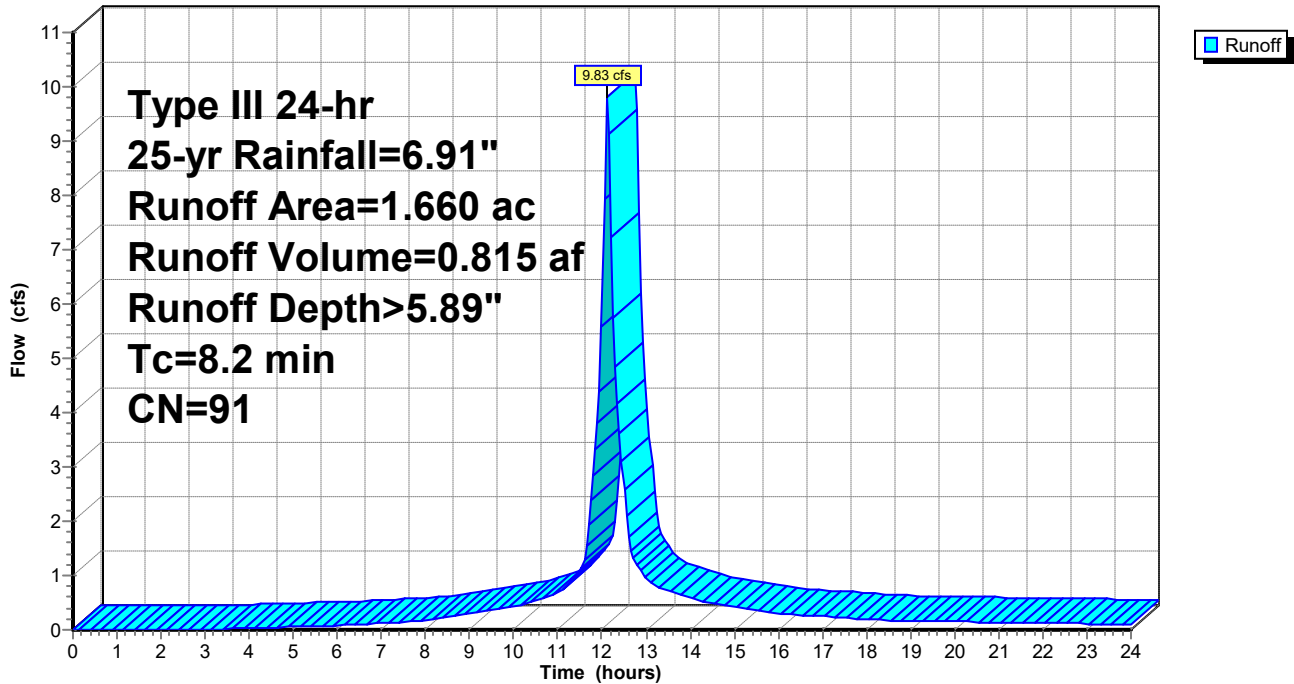
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-yr Rainfall=6.91"

Area (ac)	CN	Description
* 0.080	39	Grass - A
* 0.080	61	Grass - B
* 0.180	80	Grass - D
* 1.320	98	Impervious
1.660	91	Weighted Average
0.340		20.48% Pervious Area
1.320		79.52% Impervious Area

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

**Subcatchment P1b: PDA-1b**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 25-yr Rainfall=6.91"

Printed 9/4/2020

Page 62

**Summary for Subcatchment P1c: PDA-1c**

Runoff = 5.12 cfs @ 12.41 hrs, Volume= 0.634 af, Depth> 2.86"

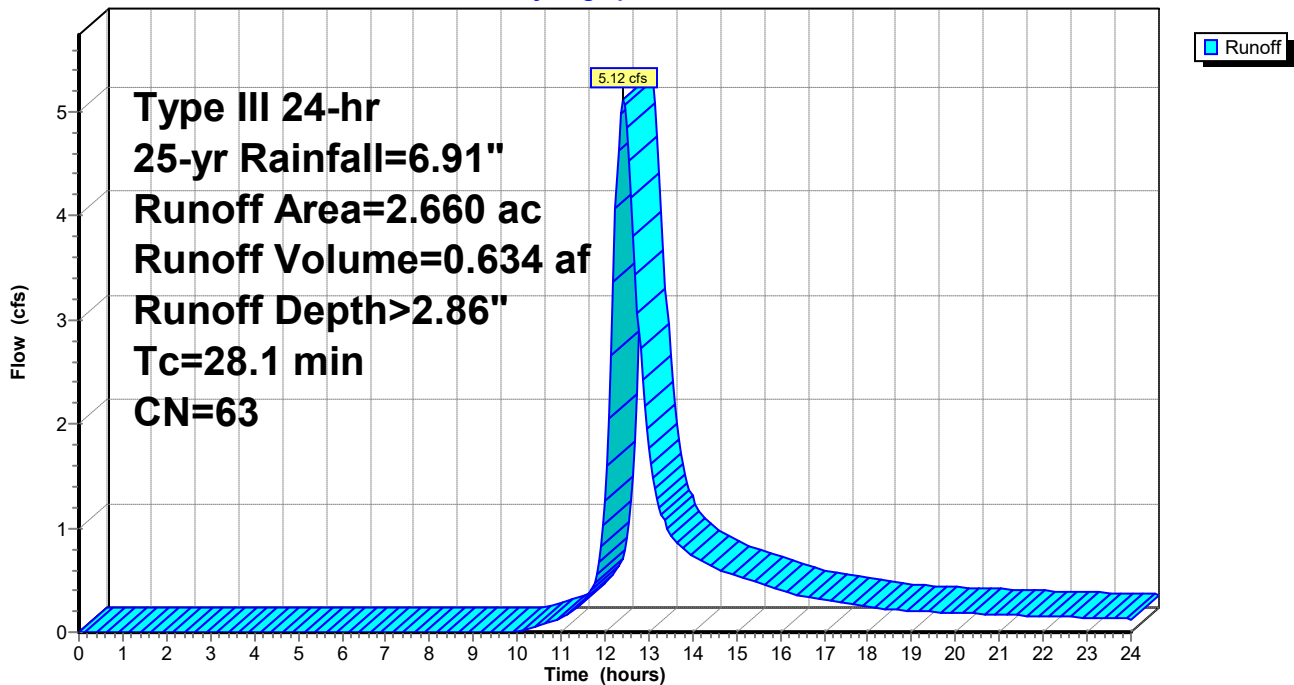
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-yr Rainfall=6.91"

Area (ac)	CN	Description
* 0.440	30	Woods - A
* 0.160	55	Woods - B
* 0.250	39	Grass - A
* 0.980	61	Grass - B
* 0.100	80	Grass - D
* 0.130	80	Grass - D
* 0.600	98	Impervious
2.660	63	Weighted Average
2.060		77.44% Pervious Area
0.600		22.56% Impervious Area

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

**Subcatchment P1c: PDA-1c**

Hydrograph





**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 25-yr Rainfall=6.91"

Printed 9/4/2020

Page 63

**Summary for Subcatchment P2: PDA-2**

Runoff = 7.52 cfs @ 12.28 hrs, Volume= 0.854 af, Depth> 1.82"

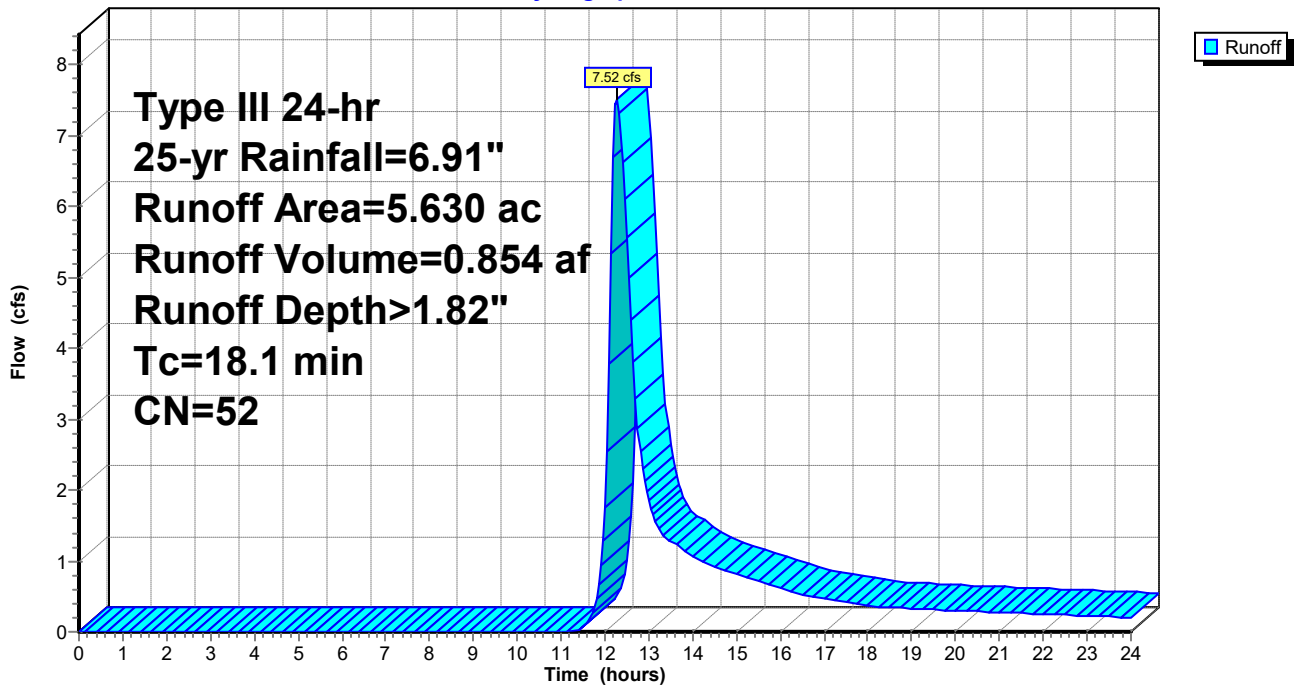
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-yr Rainfall=6.91"

Area (ac)	CN	Description
* 0.950	30	Woods - A
* 4.180	55	Woods - B
* 0.340	77	Woods - D
* 0.060	39	Grass - A
* 0.100	80	Grass - D
5.630	52	Weighted Average
5.630		100.00% Pervious Area

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

**Subcatchment P2: PDA-2**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 25-yr Rainfall=6.91"

Printed 9/4/2020

Page 64

**Summary for Subcatchment P3: PDA-3**

Runoff = 1.92 cfs @ 12.09 hrs, Volume= 0.161 af, Depth> 6.67"

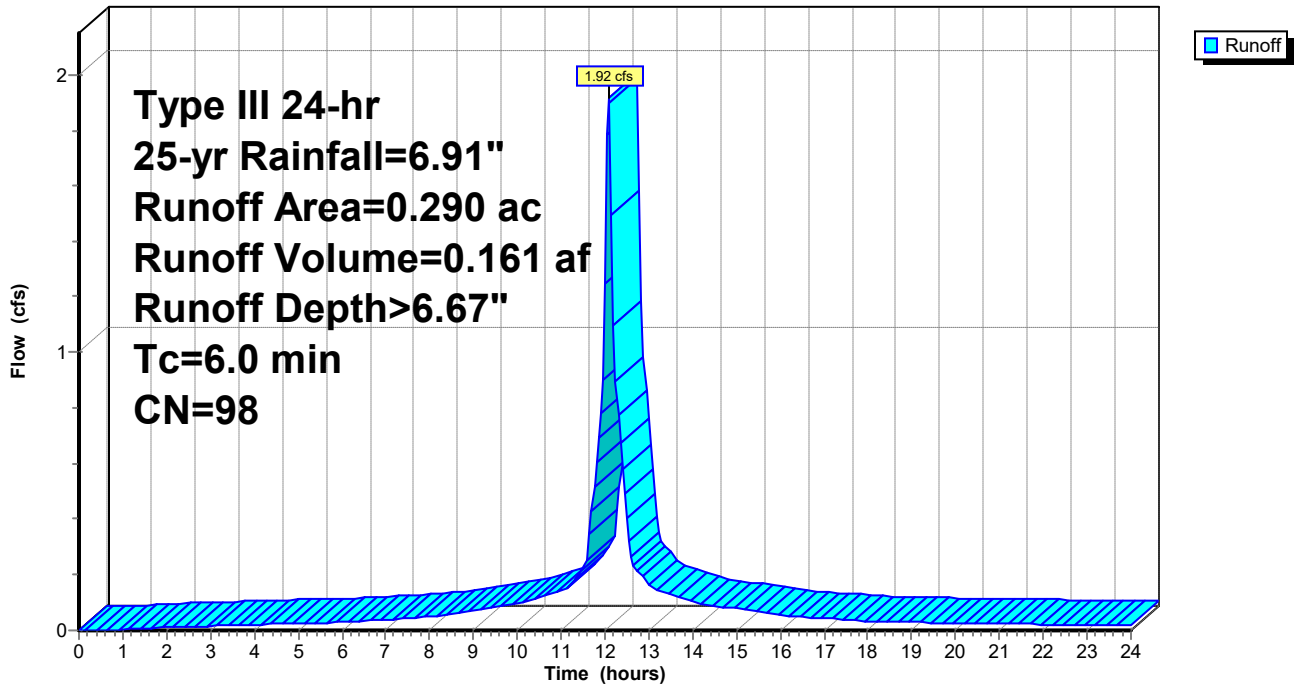
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-yr Rainfall=6.91"

Area (ac)	CN	Description
* 0.290	98	Impervious
0.290		100.00% Impervious Area

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

**Subcatchment P3: PDA-3**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 25-yr Rainfall=6.91"

Printed 9/4/2020

Page 65

**Summary for Subcatchment P4: PDA-4**

Runoff = 8.97 cfs @ 12.23 hrs, Volume= 0.885 af, Depth> 4.59"

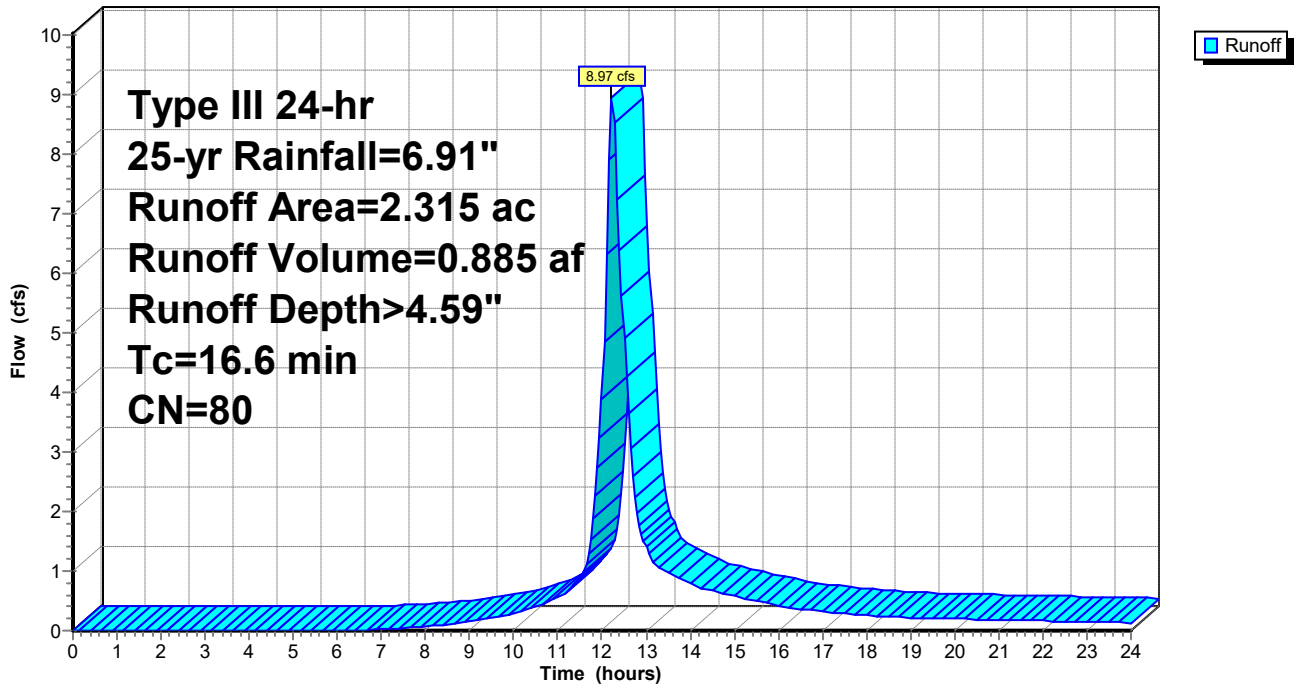
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-yr Rainfall=6.91"

Area (ac)	CN	Description
* 0.060	55	Woods - B
* 0.280	55	Woods - B
* 0.640	77	Woods - D
* 0.350	61	Grass - B
* 0.050	80	Grass - D
* 0.935	98	Impervious
2.315	80	Weighted Average
1.380		59.61% Pervious Area
0.935		40.39% Impervious Area

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

**Subcatchment P4: PDA-4**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 25-yr Rainfall=6.91"

Printed 9/4/2020

Page 66

**Summary for Subcatchment P5: PDA-5**

Runoff = 4.71 cfs @ 12.21 hrs, Volume= 0.444 af, Depth> 3.94"

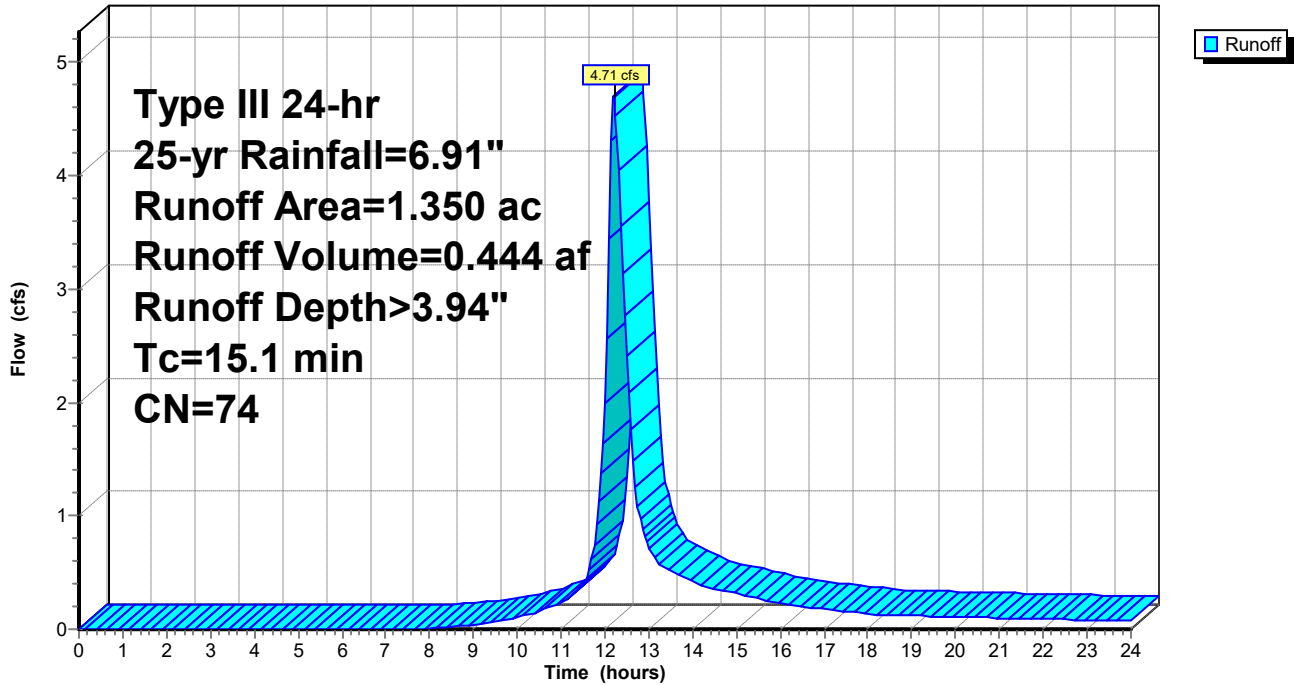
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-yr Rainfall=6.91"

Area (ac)	CN	Description
* 0.190	55	Woods - B
* 1.160	77	Woods - D
1.350	74	Weighted Average
1.350		100.00% Pervious Area

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

**Subcatchment P5: PDA-5**

Hydrograph



**1904501 - Proposed**

Type III 24-hr 25-yr Rainfall=6.91"

Prepared by Solli Engineering, LLC

Printed 9/4/2020

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Page 67

**Summary for Pond 1ab: Pond-1a**

Inflow Area = 2.250 ac, 59.56% Impervious, Inflow Depth > 5.17" for 25-yr event  
 Inflow = 10.17 cfs @ 12.20 hrs, Volume= 0.969 af  
 Outflow = 9.55 cfs @ 12.27 hrs, Volume= 0.966 af, Atten= 6%, Lag= 4.5 min  
 Primary = 9.55 cfs @ 12.27 hrs, Volume= 0.966 af  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
 Peak Elev= 345.34' @ 12.27 hrs Surf.Area= 2,768 sf Storage= 8,059 cf

Plug-Flow detention time= 30.2 min calculated for 0.964 af (99% of inflow)  
 Center-of-Mass det. time= 28.0 min ( 829.6 - 801.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	340.00'	13,424 cf	<b>Detention Basin (Prismatic)</b> Listed below
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
340.00	497	0	0
341.00	795	646	646
342.00	1,152	974	1,620
343.00	1,568	1,360	2,980
344.00	2,040	1,804	4,784
345.00	2,569	2,305	7,088
346.00	3,154	2,862	9,950
347.00	3,795	3,475	13,424

Device	Routing	Invert	Outlet Devices
#1	Primary	339.00'	<b>24.0" Round RCP_Round 24"</b> L= 169.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 339.00' / 337.31' S= 0.0100 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Device 1	340.00'	<b>5.0" Vert. Orifice/Grate</b> C= 0.600
#3	Device 1	344.00'	<b>8.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	345.00'	<b>20.4" x 37.2" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Secondary	345.50'	<b>20.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=9.03 cfs @ 12.27 hrs HW=345.32' (Free Discharge)

↑ **1=RCP\_Round 24"** (Passes 9.03 cfs of 37.55 cfs potential flow)

↑ **2=Orifice/Grate** (Orifice Controls 1.48 cfs @ 10.88 fps)

↑ **3=Orifice/Grate** (Orifice Controls 1.93 cfs @ 5.53 fps)

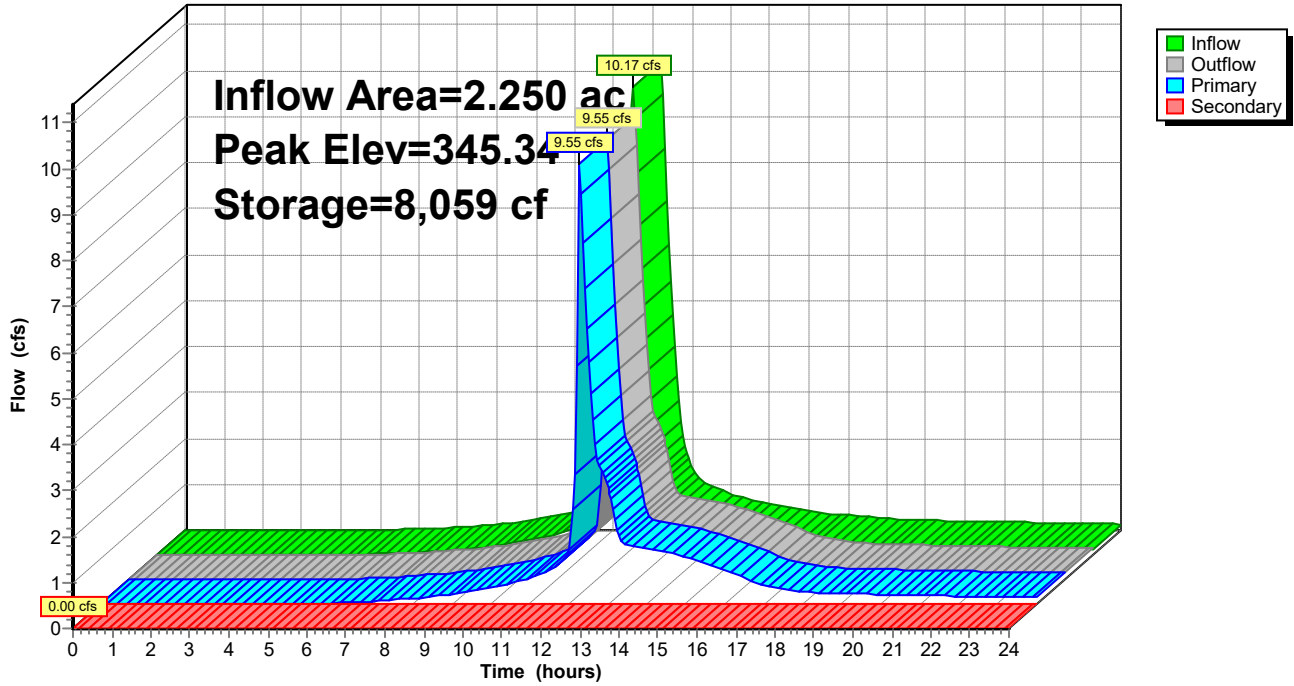
↑ **4=Orifice/Grate** (Weir Controls 5.62 cfs @ 1.84 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=340.00' (Free Discharge)

↑ **5=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

### Pond 1ab: Pond-1a

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 25-yr Rainfall=6.91"

Printed 9/4/2020

Page 69

**Stage-Discharge for Pond 1ab: Pond-1a**

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
340.00	0.00	0.00	0.00	345.20	6.12	6.12	0.00
340.10	0.03	0.03	0.00	345.30	8.56	8.56	0.00
340.20	0.10	0.10	0.00	345.40	11.43	11.43	0.00
340.30	0.20	0.20	0.00	345.50	14.67	14.67	0.00
340.40	0.29	0.29	0.00	345.60	19.85	18.24	1.61
340.50	0.35	0.35	0.00	345.70	26.66	22.12	4.54
340.60	0.41	0.41	0.00	345.80	34.73	26.27	8.46
340.70	0.46	0.46	0.00	345.90	41.16	27.96	13.21
340.80	0.51	0.51	0.00	346.00	47.79	29.33	18.46
340.90	0.55	0.55	0.00	346.10	54.90	30.64	24.26
341.00	0.58	0.58	0.00	346.20	62.41	31.90	30.51
341.10	0.62	0.62	0.00	346.30	70.31	33.10	37.21
341.20	0.65	0.65	0.00	346.40	79.17	34.26	44.91
341.30	0.69	0.69	0.00	346.50	88.58	35.38	53.20
341.40	0.72	0.72	0.00	346.60	98.30	36.47	61.84
341.50	0.75	0.75	0.00	346.70	108.50	37.52	70.98
341.60	0.77	0.77	0.00	346.80	119.62	38.54	81.08
341.70	0.80	0.80	0.00	346.90	131.31	39.54	91.77
341.80	0.83	0.83	0.00	347.00	<b>144.49</b>	<b>40.51</b>	<b>103.98</b>
341.90	0.85	0.85	0.00				
342.00	0.88	0.88	0.00				
342.10	0.90	0.90	0.00				
342.20	0.93	0.93	0.00				
342.30	0.95	0.95	0.00				
342.40	0.97	0.97	0.00				
342.50	0.99	0.99	0.00				
342.60	1.02	1.02	0.00				
342.70	1.04	1.04	0.00				
342.80	1.06	1.06	0.00				
342.90	1.08	1.08	0.00				
343.00	1.10	1.10	0.00				
343.10	1.12	1.12	0.00				
343.20	1.14	1.14	0.00				
343.30	1.15	1.15	0.00				
343.40	1.17	1.17	0.00				
343.50	1.19	1.19	0.00				
343.60	1.21	1.21	0.00				
343.70	1.23	1.23	0.00				
343.80	1.24	1.24	0.00				
343.90	1.26	1.26	0.00				
344.00	1.28	1.28	0.00				
344.10	1.51	1.51	0.00				
344.20	1.92	1.92	0.00				
344.30	2.25	2.25	0.00				
344.40	2.41	2.41	0.00				
344.50	2.55	2.55	0.00				
344.60	2.68	2.68	0.00				
344.70	2.80	2.80	0.00				
344.80	2.91	2.91	0.00				
344.90	3.02	3.02	0.00				
345.00	3.12	3.12	0.00				
345.10	4.21	4.21	0.00				

**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 25-yr Rainfall=6.91"

Printed 9/4/2020

Page 70

**Stage-Area-Storage for Pond 1ab: Pond-1a**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
340.00	497	0	345.20	2,686	7,660
340.10	527	65	345.30	2,745	7,946
340.20	557	129	345.40	2,803	8,233
340.30	586	194	345.50	2,862	8,519
340.40	616	258	345.60	2,920	8,805
340.50	646	323	345.70	2,978	9,091
340.60	676	388	345.80	3,037	9,377
340.70	706	452	345.90	3,095	9,663
340.80	735	517	346.00	3,154	9,950
340.90	765	581	346.10	3,218	10,297
341.00	795	646	346.20	3,282	10,644
341.10	831	743	346.30	3,346	10,992
341.20	866	841	346.40	3,410	11,339
341.30	902	938	346.50	3,475	11,687
341.40	938	1,035	346.60	3,539	12,034
341.50	974	1,133	346.70	3,603	12,382
341.60	1,009	1,230	346.80	3,667	12,729
341.70	1,045	1,327	346.90	3,731	13,077
341.80	1,081	1,425	347.00	<b>3,795</b>	<b>13,424</b>
341.90	1,116	1,522			
342.00	1,152	1,620			
342.10	1,194	1,756			
342.20	1,235	1,891			
342.30	1,277	2,028			
342.40	1,318	2,163			
342.50	1,360	2,300			
342.60	1,402	2,436			
342.70	1,443	2,571			
342.80	1,485	2,708			
342.90	1,526	2,843			
343.00	1,568	2,980			
343.10	1,615	3,160			
343.20	1,662	3,340			
343.30	1,710	3,521			
343.40	1,757	3,701			
343.50	1,804	3,882			
343.60	1,851	4,062			
343.70	1,898	4,242			
343.80	1,946	4,423			
343.90	1,993	4,603			
344.00	2,040	4,784			
344.10	2,093	5,014			
344.20	2,146	5,244			
344.30	2,199	5,475			
344.40	2,252	5,705			
344.50	2,305	5,936			
344.60	2,357	6,166			
344.70	2,410	6,397			
344.80	2,463	6,627			
344.90	2,516	6,858			
345.00	2,569	7,088			
345.10	2,628	7,374			



**1904501 - Proposed**

Type III 24-hr 25-yr Rainfall=6.91"

Prepared by Solli Engineering, LLC

Printed 9/4/2020

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Page 71

**Summary for Pond 1B: Pond-1b**

Inflow Area = 1.660 ac, 79.52% Impervious, Inflow Depth > 5.89" for 25-yr event  
 Inflow = 9.83 cfs @ 12.11 hrs, Volume= 0.815 af  
 Outflow = 2.37 cfs @ 12.52 hrs, Volume= 0.807 af, Atten= 76%, Lag= 24.6 min  
 Primary = 2.37 cfs @ 12.52 hrs, Volume= 0.807 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
 Peak Elev= 338.32' @ 12.52 hrs Surf.Area= 0.106 ac Storage= 0.286 af

Plug-Flow detention time= 72.4 min calculated for 0.805 af (99% of inflow)  
 Center-of-Mass det. time= 66.0 min ( 842.7 - 776.6 )

Volume	Invert	Avail.Storage	Storage Description
#1A	335.00'	0.021 af	<b>48.00'W x 96.00'L x 5.17'H Field A</b> 0.547 af Overall - 0.494 af Embedded = 0.053 af x 40.0% Voids
#2A	335.50'	0.375 af	<b>retain_it retain_it 4.0' x 72</b> Inside #1 Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf 6 Rows adjusted for 271.8 cf perimeter wall
		0.397 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	335.00'	<b>15.0" Round Culvert</b> L= 43.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 335.00' / 331.00' S= 0.0930 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 1.23 sf
#2	Device 1	335.00'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#3	Device 1	337.50'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#4	Device 1	339.50'	<b>5.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Primary OutFlow** Max=2.36 cfs @ 12.52 hrs HW=338.31' (Free Discharge)

- ↑ **1=Culvert** (Passes 2.36 cfs of 9.69 cfs potential flow)
- ↑ **2=Orifice/Grate** (Orifice Controls 1.65 cfs @ 8.43 fps)
- ↑ **3=Orifice/Grate** (Orifice Controls 0.71 cfs @ 3.61 fps)
- ↑ **4=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)

**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 25-yr Rainfall=6.91"

Printed 9/4/2020

Page 72

**Pond 1B: Pond-1b - Chamber Wizard Field A**

**Chamber Model = retain\_it retain\_it 4.0' (retain-it®)**

Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf

Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf

6 Rows adjusted for 271.8 cf perimeter wall

12 Chambers/Row x 8.00' Long = 96.00' Row Length

6 Rows x 96.0" Wide = 48.00' Base Width

6.0" Base + 56.0" Chamber Height = 5.17' Field Height

7.5 cf Sidewall x 12 x 2 + 7.5 cf Endwall x 6 x 2 = 271.8 cf Perimeter Wall

72 Chambers x 230.9 cf - 271.8 cf Perimeter wall = 16,355.9 cf Chamber Storage

72 Chambers x 298.7 cf = 21,504.0 cf Displacement

23,808.0 cf Field - 21,504.0 cf Chambers = 2,304.0 cf Stone x 40.0% Voids = 921.6 cf Stone Storage

Chamber Storage + Stone Storage = 17,277.5 cf = 0.397 af

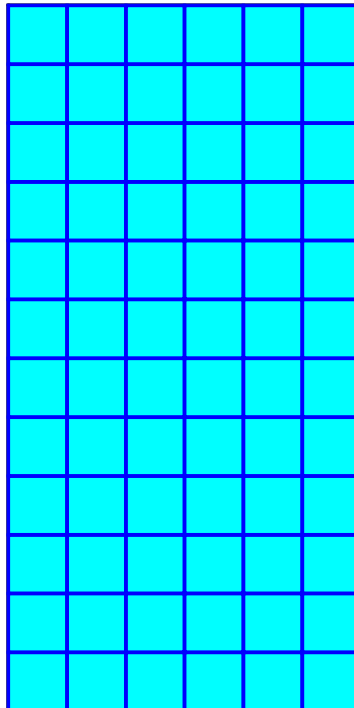
Overall Storage Efficiency = 72.6%

Overall System Size = 96.00' x 48.00' x 5.17'

72 Chambers

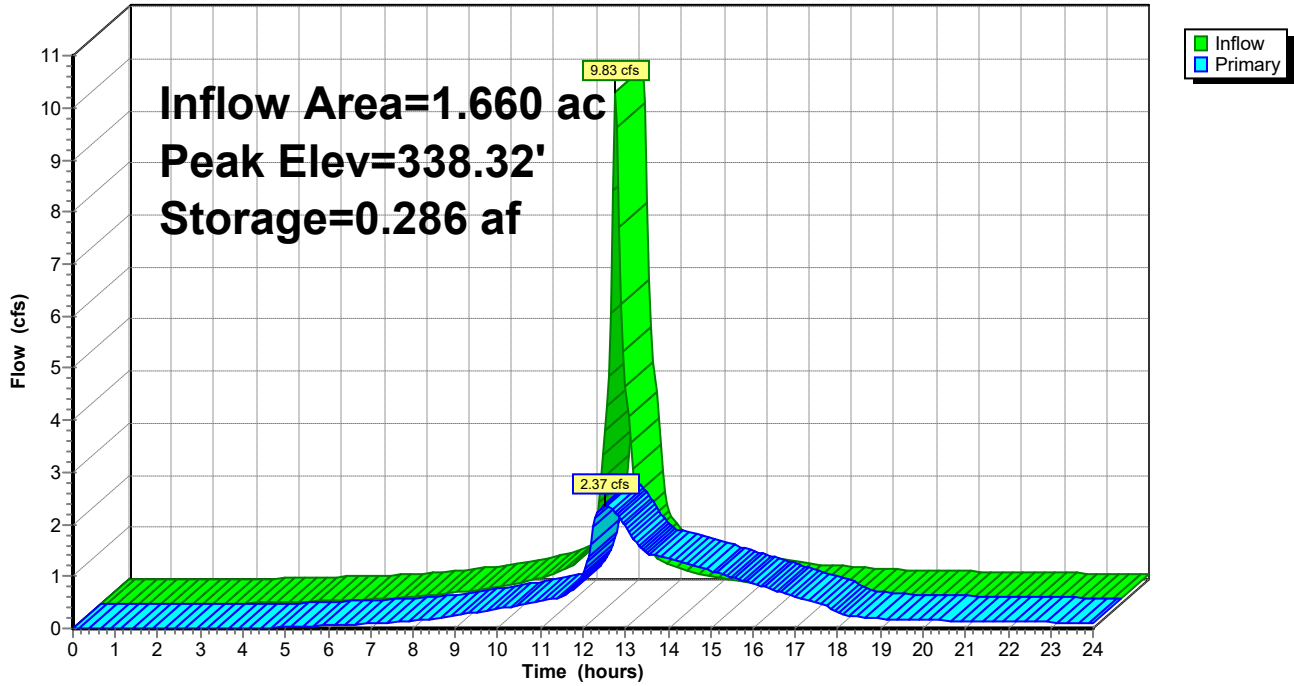
881.8 cy Field

85.3 cy Stone



Pond 1B: Pond-1b

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 25-yr Rainfall=6.91"

Printed 9/4/2020

Page 74

**Stage-Discharge for Pond 1B: Pond-1b**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
335.00	0.00	337.08	1.28	339.16	2.99
335.04	0.01	337.12	1.29	339.20	3.02
335.08	0.02	337.16	1.31	339.24	3.04
335.12	0.04	337.20	1.32	339.28	3.07
335.16	0.07	337.24	1.33	339.32	3.09
335.20	0.11	337.28	1.35	339.36	3.12
335.24	0.16	337.32	1.36	339.40	3.14
335.28	0.20	337.36	1.37	339.44	3.16
335.32	0.26	337.40	1.39	339.48	3.19
335.36	0.31	337.44	1.40	339.52	3.26
335.40	0.36	337.48	1.41	339.56	3.47
335.44	0.41	337.52	1.43	339.60	3.77
335.48	0.46	337.56	1.45	339.64	4.13
335.52	0.49	337.60	1.48	339.68	4.54
335.56	0.53	337.64	1.52	339.72	5.00
335.60	0.56	337.68	1.57	339.76	5.49
335.64	0.59	337.72	1.62	339.80	6.02
335.68	0.62	337.76	1.68	339.84	6.59
335.72	0.65	337.80	1.74	339.88	7.19
335.76	0.68	337.84	1.80	339.92	7.81
335.80	0.70	337.88	1.87	339.96	8.46
335.84	0.73	337.92	1.93	340.00	9.14
335.88	0.75	337.96	1.99	340.04	9.85
335.92	0.77	338.00	2.04	340.08	10.58
335.96	0.80	338.04	2.09	340.12	11.33
336.00	0.82	338.08	2.13	340.16	<b>12.10</b>
336.04	0.84	338.12	2.18		
336.08	0.86	338.16	2.22		
336.12	0.88	338.20	2.26		
336.16	0.90	338.24	2.30		
336.20	0.92	338.28	2.33		
336.24	0.94	338.32	2.37		
336.28	0.96	338.36	2.41		
336.32	0.98	338.40	2.44		
336.36	1.00	338.44	2.47		
336.40	1.01	338.48	2.51		
336.44	1.03	338.52	2.54		
336.48	1.05	338.56	2.57		
336.52	1.07	338.60	2.60		
336.56	1.08	338.64	2.63		
336.60	1.10	338.68	2.66		
336.64	1.11	338.72	2.69		
336.68	1.13	338.76	2.72		
336.72	1.15	338.80	2.75		
336.76	1.16	338.84	2.78		
336.80	1.18	338.88	2.81		
336.84	1.19	338.92	2.83		
336.88	1.21	338.96	2.86		
336.92	1.22	339.00	2.89		
336.96	1.24	339.04	2.91		
337.00	1.25	339.08	2.94		
337.04	1.26	339.12	2.97		

**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 25-yr Rainfall=6.91"

Printed 9/4/2020

Page 75

**Stage-Area-Storage for Pond 1B: Pond-1b**

Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)
335.00	0.000	337.08	0.169	339.16	0.365
335.04	0.002	337.12	0.173	339.20	0.368
335.08	0.003	337.16	0.177	339.24	0.372
335.12	0.005	337.20	0.181	339.28	0.376
335.16	0.007	337.24	0.184	339.32	0.380
335.20	0.008	337.28	0.188	339.36	0.383
335.24	0.010	337.32	0.192	339.40	0.387
335.28	0.012	337.36	0.196	339.44	0.391
335.32	0.014	337.40	0.200	339.48	<b>0.395</b>
335.36	0.015	337.44	0.203	339.52	<b>0.397</b>
335.40	0.017	337.48	0.207	339.56	0.397
335.44	0.019	337.52	0.211	339.60	0.397
335.48	0.020	337.56	0.215	339.64	0.397
335.52	0.023	337.60	0.218	339.68	0.397
335.56	0.027	337.64	0.222	339.72	0.397
335.60	0.031	337.68	0.226	339.76	0.397
335.64	0.034	337.72	0.230	339.80	0.397
335.68	0.038	337.76	0.233	339.84	0.397
335.72	0.042	337.80	0.237	339.88	0.397
335.76	0.046	337.84	0.241	339.92	0.397
335.80	0.049	337.88	0.245	339.96	0.397
335.84	0.053	337.92	0.248	340.00	0.397
335.88	0.057	337.96	0.252	340.04	0.397
335.92	0.061	338.00	0.256	340.08	0.397
335.96	0.064	338.04	0.260	340.12	0.397
336.00	0.068	338.08	0.263	340.16	0.397
336.04	0.072	338.12	0.267		
336.08	0.076	338.16	0.271		
336.12	0.079	338.20	0.275		
336.16	0.083	338.24	0.278		
336.20	0.087	338.28	0.282		
336.24	0.091	338.32	0.286		
336.28	0.094	338.36	0.290		
336.32	0.098	338.40	0.293		
336.36	0.102	338.44	0.297		
336.40	0.106	338.48	0.301		
336.44	0.109	338.52	0.305		
336.48	0.113	338.56	0.308		
336.52	0.117	338.60	0.312		
336.56	0.121	338.64	0.316		
336.60	0.124	338.68	0.320		
336.64	0.128	338.72	0.323		
336.68	0.132	338.76	0.327		
336.72	0.136	338.80	0.331		
336.76	0.139	338.84	0.335		
336.80	0.143	338.88	0.338		
336.84	0.147	338.92	0.342		
336.88	0.151	338.96	0.346		
336.92	0.154	339.00	0.350		
336.96	0.158	339.04	0.353		
337.00	0.162	339.08	0.357		
337.04	0.166	339.12	0.361		

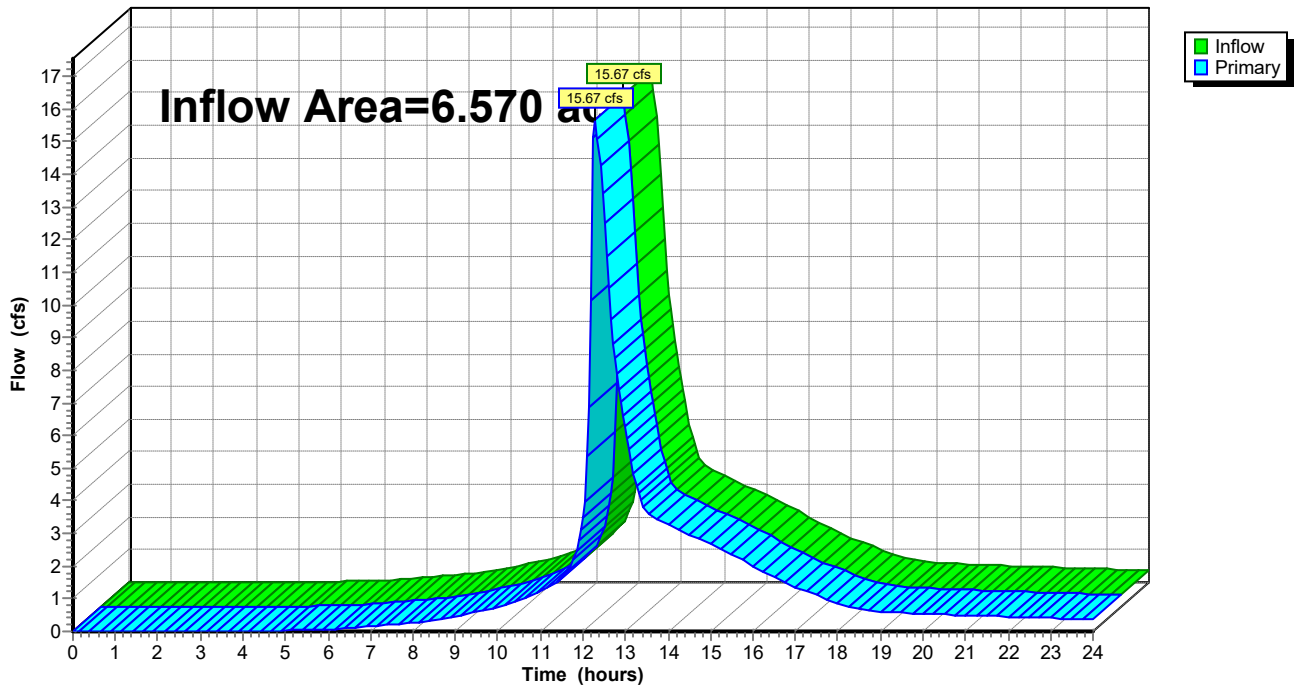
### Summary for Link P1: P1 Total

Inflow Area = 6.570 ac, 49.62% Impervious, Inflow Depth > 4.39" for 25-yr event  
Inflow = 15.67 cfs @ 12.30 hrs, Volume= 2.406 af  
Primary = 15.67 cfs @ 12.30 hrs, Volume= 2.406 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link P1: P1 Total

Hydrograph



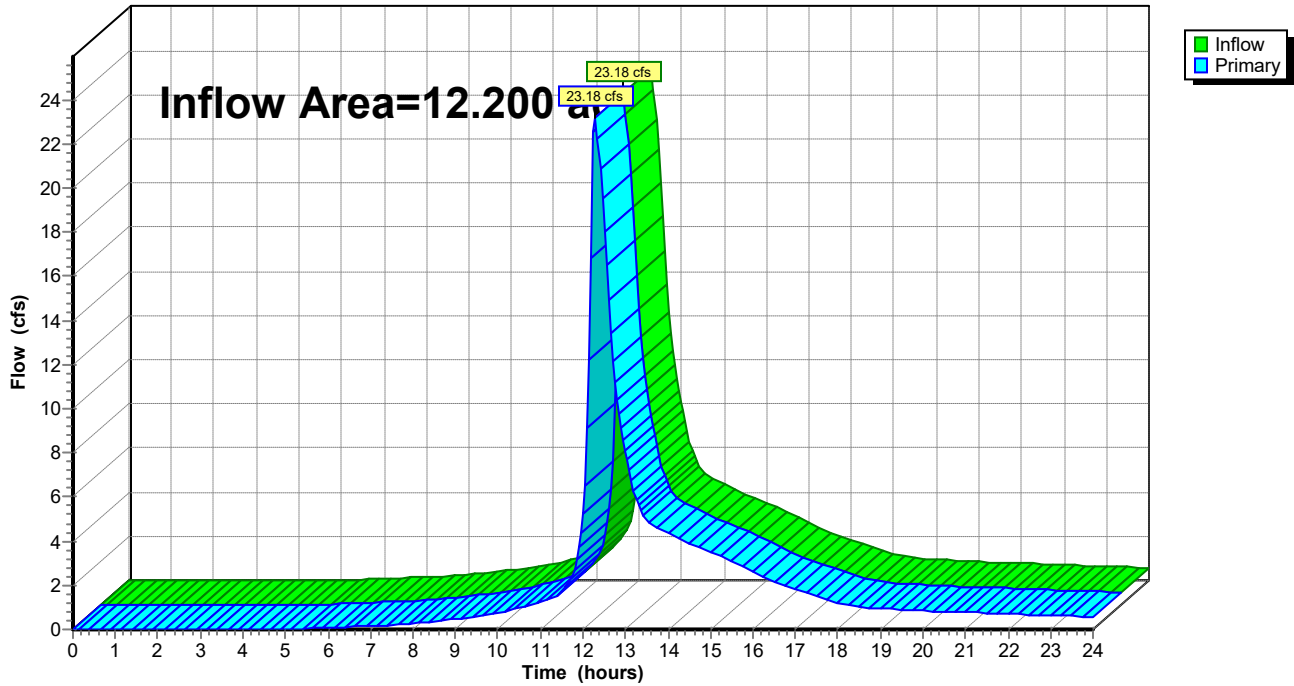
### Summary for Link P1-2: Overall Existing

Inflow Area = 12.200 ac, 26.72% Impervious, Inflow Depth > 3.21" for 25-yr event  
Inflow = 23.18 cfs @ 12.29 hrs, Volume= 3.260 af  
Primary = 23.18 cfs @ 12.29 hrs, Volume= 3.260 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link P1-2: Overall Existing

Hydrograph



**1904501 - Proposed**

Type III 24-hr 50-yr Rainfall=7.87"

Prepared by Solli Engineering, LLC

Printed 9/4/2020

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Page 78

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment P1a: PDA-1a</b>	Runoff Area=2.250 ac 59.56% Impervious Runoff Depth>6.09" Tc=14.5 min CN=85 Runoff=11.89 cfs 1.142 af
<b>Subcatchment P1b: PDA-1b</b>	Runoff Area=1.660 ac 79.52% Impervious Runoff Depth>6.84" Tc=8.2 min CN=91 Runoff=11.31 cfs 0.946 af
<b>Subcatchment P1c: PDA-1c</b>	Runoff Area=2.660 ac 22.56% Impervious Runoff Depth>3.59" Tc=28.1 min CN=63 Runoff=6.50 cfs 0.796 af
<b>Subcatchment P2: PDA-2</b>	Runoff Area=5.630 ac 0.00% Impervious Runoff Depth>2.41" Tc=18.1 min CN=52 Runoff=10.40 cfs 1.130 af
<b>Subcatchment P3: PDA-3</b>	Runoff Area=0.290 ac 100.00% Impervious Runoff Depth>7.63" Tc=6.0 min CN=98 Runoff=2.19 cfs 0.184 af
<b>Subcatchment P4: PDA-4</b>	Runoff Area=2.315 ac 40.39% Impervious Runoff Depth>5.48" Tc=16.6 min CN=80 Runoff=10.69 cfs 1.056 af
<b>Subcatchment P5: PDA-5</b>	Runoff Area=1.350 ac 0.00% Impervious Runoff Depth>4.79" Tc=15.1 min CN=74 Runoff=5.70 cfs 0.538 af
<b>Pond 1ab: Pond-1a</b>	Peak Elev=345.40' Storage=8,238 cf Inflow=11.89 cfs 1.142 af Primary=11.49 cfs 1.138 af Secondary=0.00 cfs 0.000 af Outflow=11.49 cfs 1.138 af
<b>Pond 1B: Pond-1b</b>	Peak Elev=338.80' Storage=0.331 af Inflow=11.31 cfs 0.946 af Outflow=2.75 cfs 0.937 af
<b>Link P1: P1 Total</b>	Inflow=19.27 cfs 2.871 af Primary=19.27 cfs 2.871 af
<b>Link P1-2: Overall Existing</b>	Inflow=29.67 cfs 4.001 af Primary=29.67 cfs 4.001 af



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 50-yr Rainfall=7.87"

Printed 9/4/2020

Page 79

**Summary for Subcatchment P1a: PDA-1a**

Runoff = 11.89 cfs @ 12.20 hrs, Volume= 1.142 af, Depth> 6.09"

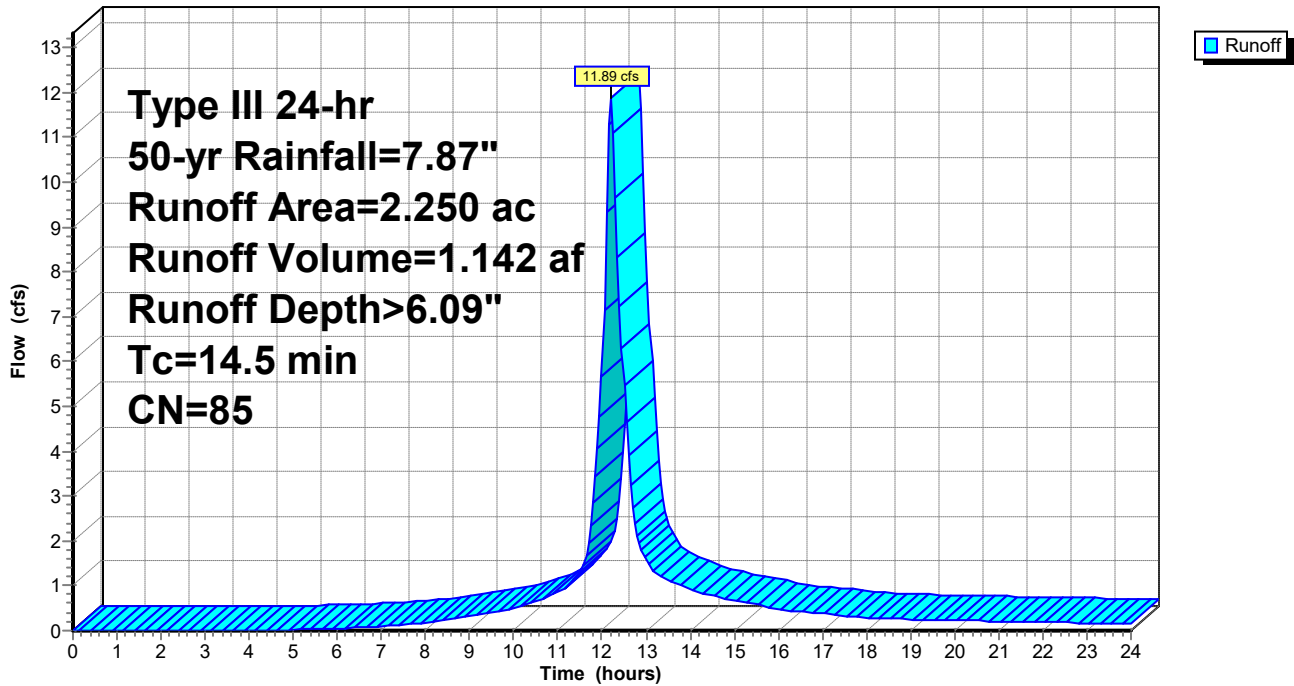
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50-yr Rainfall=7.87"

Area (ac)	CN	Description
* 0.280	55	Woods - B
* 0.160	77	Woods - D
* 0.100	61	Grass - B
* 0.170	61	Grass - B
* 0.200	80	Grass -D
* 1.340	98	Impervious
2.250	85	Weighted Average
0.910		40.44% Pervious Area
1.340		59.56% Impervious Area

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

**Subcatchment P1a: PDA-1a**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 50-yr Rainfall=7.87"

Printed 9/4/2020

Page 80

**Summary for Subcatchment P1b: PDA-1b**

Runoff = 11.31 cfs @ 12.11 hrs, Volume= 0.946 af, Depth> 6.84"

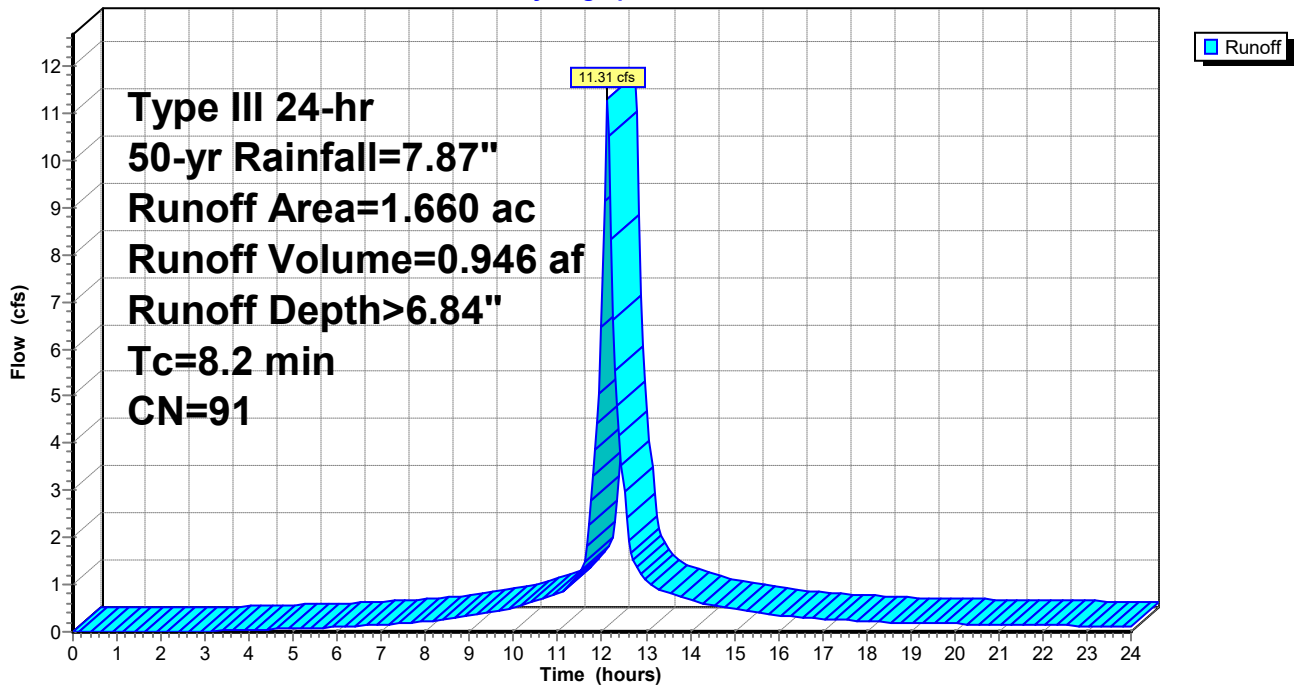
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50-yr Rainfall=7.87"

Area (ac)	CN	Description
* 0.080	39	Grass - A
* 0.080	61	Grass - B
* 0.180	80	Grass - D
* 1.320	98	Impervious
1.660	91	Weighted Average
0.340		20.48% Pervious Area
1.320		79.52% Impervious Area

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

**Subcatchment P1b: PDA-1b**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 50-yr Rainfall=7.87"

Printed 9/4/2020

Page 81

**Summary for Subcatchment P1c: PDA-1c**

Runoff = 6.50 cfs @ 12.40 hrs, Volume= 0.796 af, Depth> 3.59"

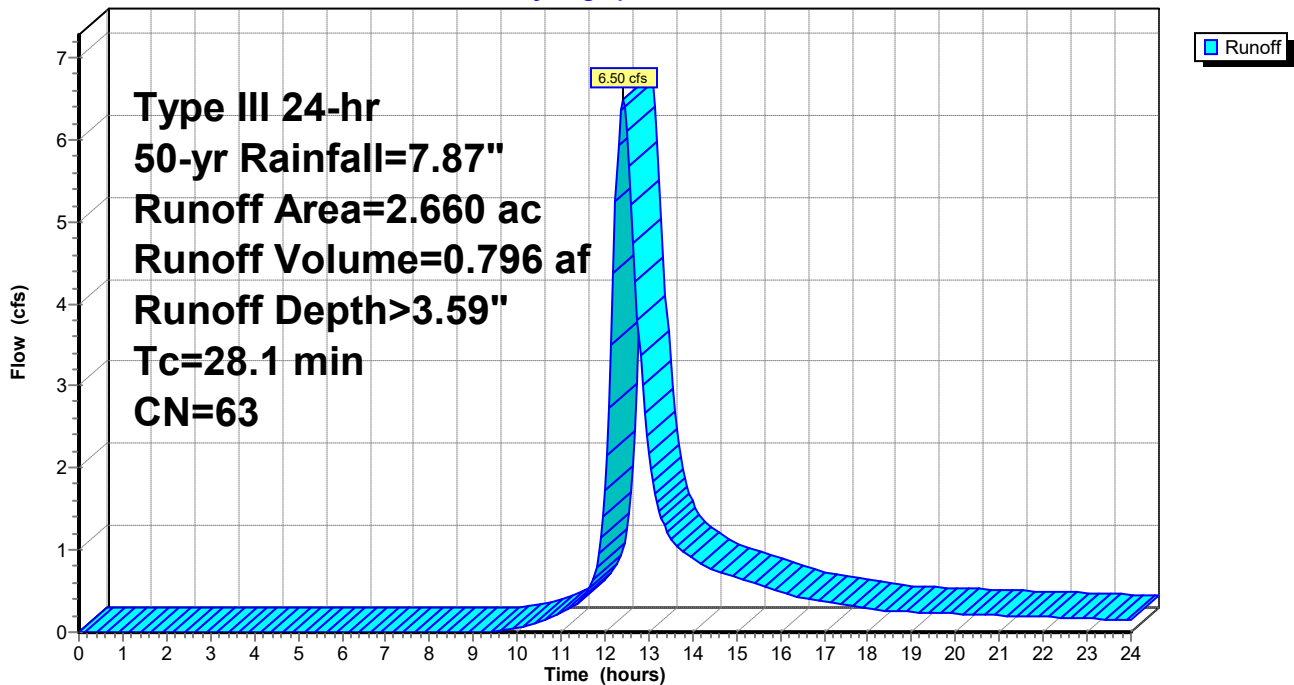
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50-yr Rainfall=7.87"

Area (ac)	CN	Description
* 0.440	30	Woods - A
* 0.160	55	Woods - B
* 0.250	39	Grass - A
* 0.980	61	Grass - B
* 0.100	80	Grass - D
* 0.130	80	Grass - D
* 0.600	98	Impervious
2.660	63	Weighted Average
2.060		77.44% Pervious Area
0.600		22.56% Impervious Area

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

**Subcatchment P1c: PDA-1c**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 50-yr Rainfall=7.87"

Printed 9/4/2020

Page 82

**Summary for Subcatchment P2: PDA-2**

Runoff = 10.40 cfs @ 12.27 hrs, Volume= 1.130 af, Depth> 2.41"

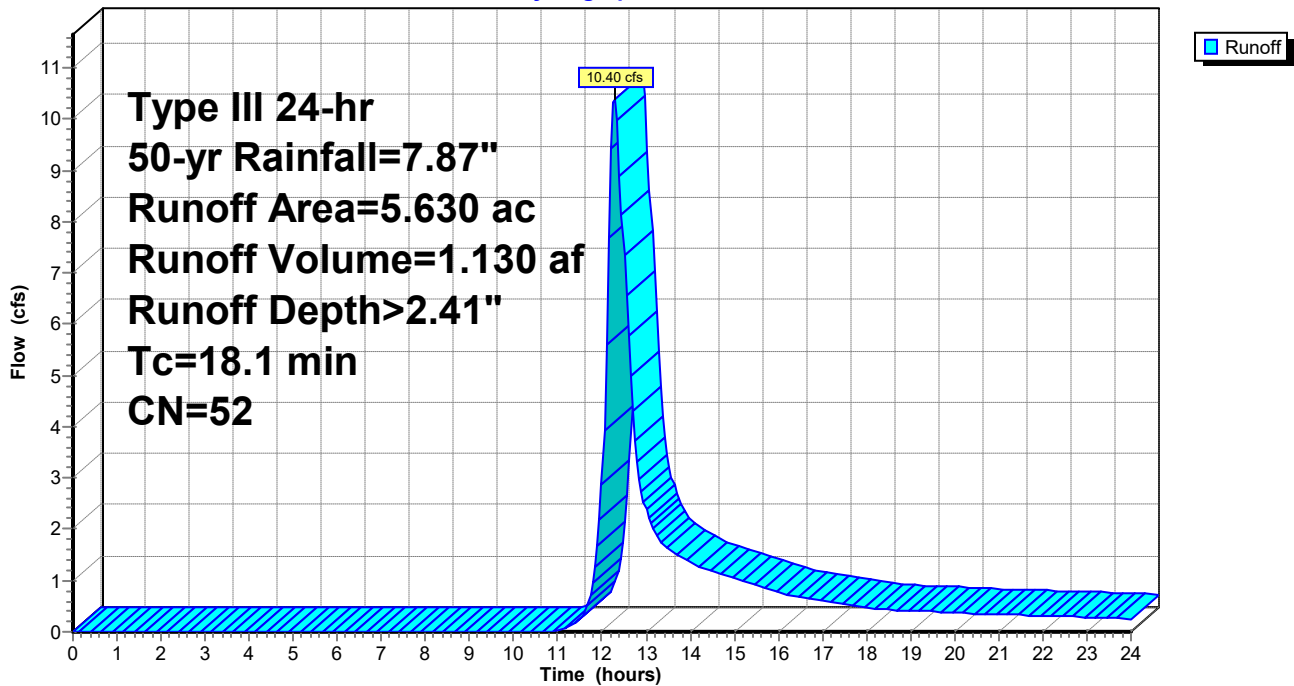
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50-yr Rainfall=7.87"

Area (ac)	CN	Description
* 0.950	30	Woods - A
* 4.180	55	Woods - B
* 0.340	77	Woods - D
* 0.060	39	Grass - A
* 0.100	80	Grass - D
5.630	52	Weighted Average
5.630		100.00% Pervious Area

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

**Subcatchment P2: PDA-2**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 50-yr Rainfall=7.87"

Printed 9/4/2020

Page 83

**Summary for Subcatchment P3: PDA-3**

Runoff = 2.19 cfs @ 12.09 hrs, Volume= 0.184 af, Depth> 7.63"

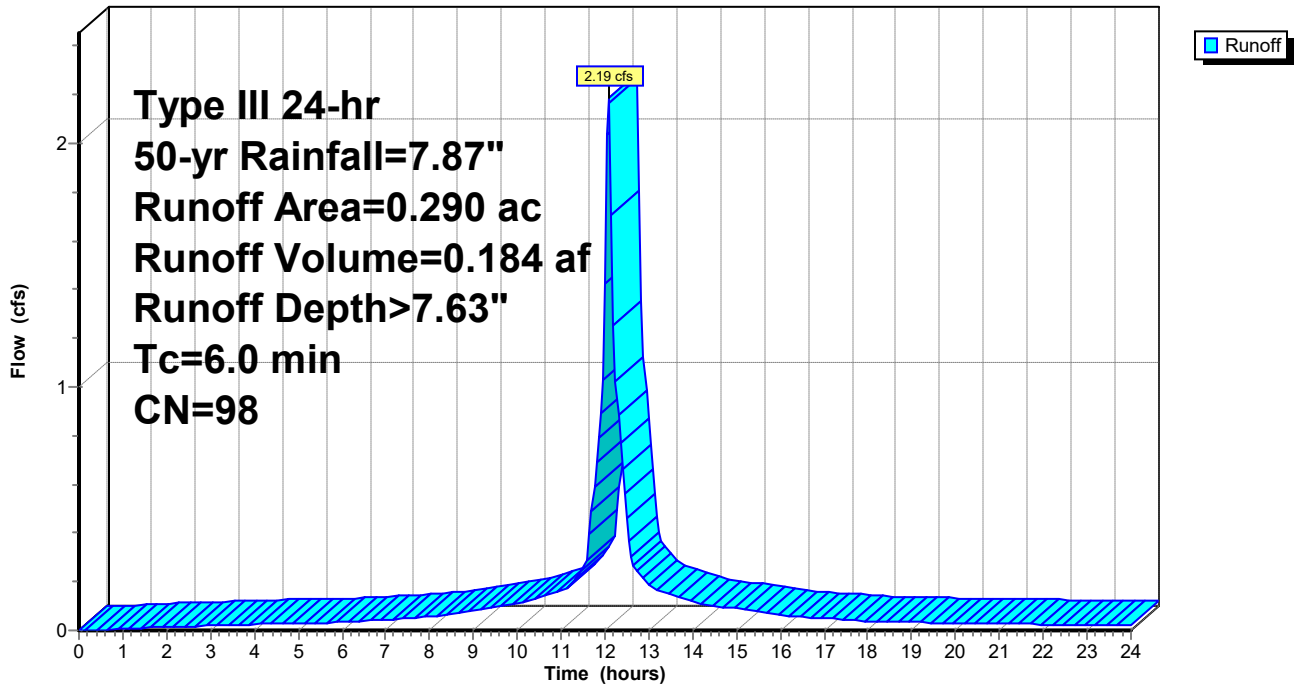
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50-yr Rainfall=7.87"

Area (ac)	CN	Description
* 0.290	98	Impervious
0.290		100.00% Impervious Area

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

**Subcatchment P3: PDA-3**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 50-yr Rainfall=7.87"

Printed 9/4/2020

Page 84

**Summary for Subcatchment P4: PDA-4**

Runoff = 10.69 cfs @ 12.22 hrs, Volume= 1.056 af, Depth> 5.48"

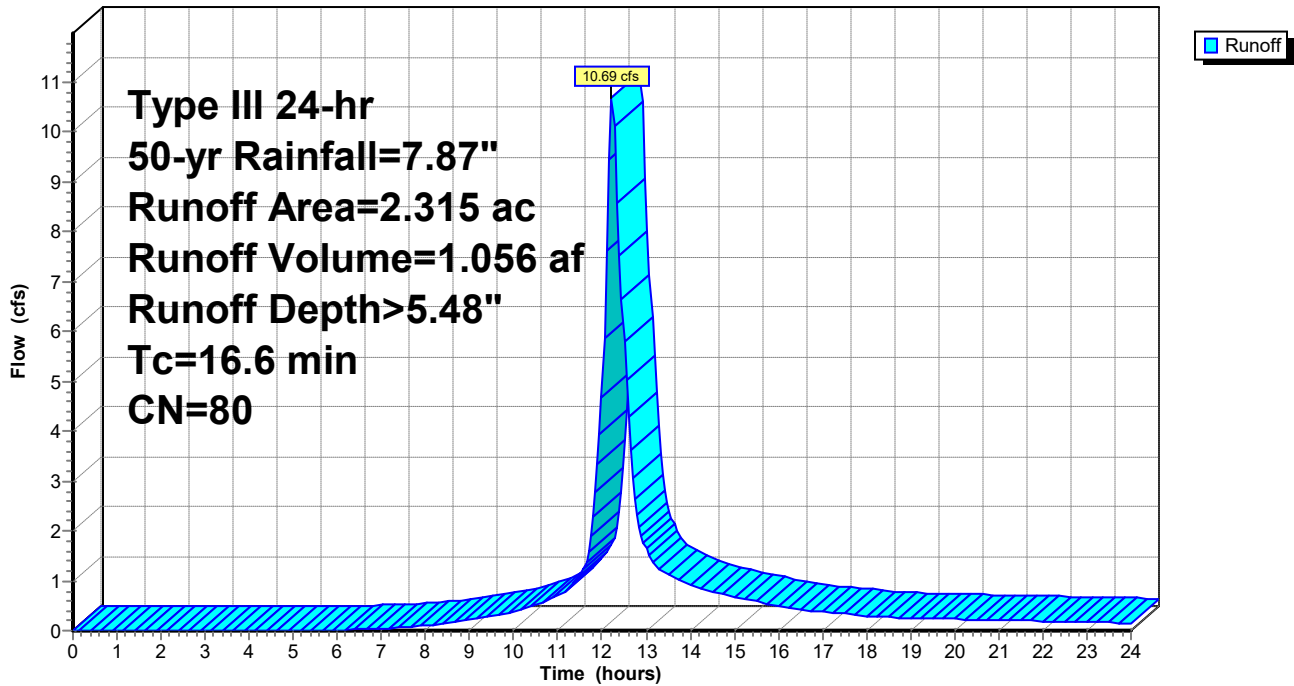
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50-yr Rainfall=7.87"

Area (ac)	CN	Description
* 0.060	55	Woods - B
* 0.280	55	Woods - B
* 0.640	77	Woods - D
* 0.350	61	Grass - B
* 0.050	80	Grass - D
* 0.935	98	Impervious
2.315	80	Weighted Average
1.380		59.61% Pervious Area
0.935		40.39% Impervious Area

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

**Subcatchment P4: PDA-4**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 50-yr Rainfall=7.87"

Printed 9/4/2020

Page 85

**Summary for Subcatchment P5: PDA-5**

Runoff = 5.70 cfs @ 12.21 hrs, Volume= 0.538 af, Depth> 4.79"

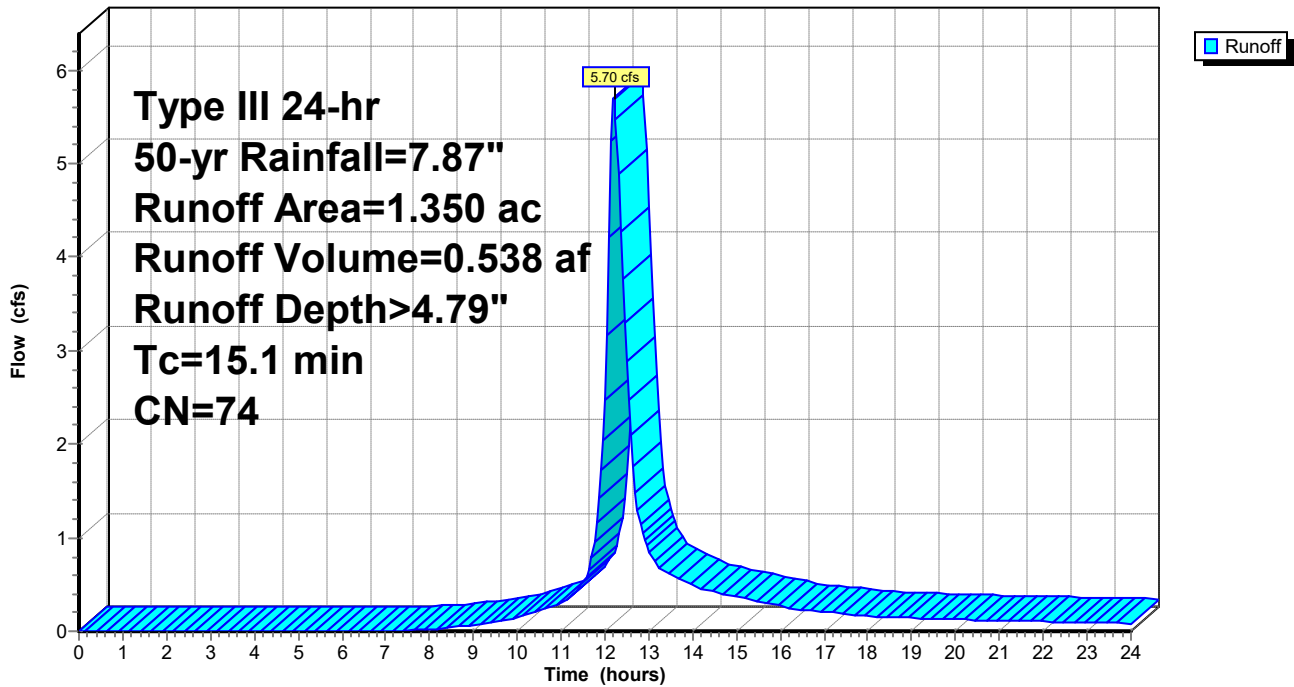
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50-yr Rainfall=7.87"

Area (ac)	CN	Description
* 0.190	55	Woods - B
* 1.160	77	Woods - D
1.350	74	Weighted Average
1.350		100.00% Pervious Area

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

**Subcatchment P5: PDA-5**

Hydrograph



**1904501 - Proposed**

Type III 24-hr 50-yr Rainfall=7.87"

Prepared by Solli Engineering, LLC

Printed 9/4/2020

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Page 86

**Summary for Pond 1ab: Pond-1a**

Inflow Area = 2.250 ac, 59.56% Impervious, Inflow Depth > 6.09" for 50-yr event  
 Inflow = 11.89 cfs @ 12.20 hrs, Volume= 1.142 af  
 Outflow = 11.49 cfs @ 12.24 hrs, Volume= 1.138 af, Atten= 3%, Lag= 2.8 min  
 Primary = 11.49 cfs @ 12.24 hrs, Volume= 1.138 af  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
 Peak Elev= 345.40' @ 12.24 hrs Surf.Area= 2,804 sf Storage= 8,238 cf

Plug-Flow detention time= 29.1 min calculated for 1.138 af (100% of inflow)  
 Center-of-Mass det. time= 27.0 min ( 824.2 - 797.2 )

Volume	Invert	Avail.Storage	Storage Description
#1	340.00'	13,424 cf	<b>Detention Basin (Prismatic)</b> Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
340.00	497	0	0
341.00	795	646	646
342.00	1,152	974	1,620
343.00	1,568	1,360	2,980
344.00	2,040	1,804	4,784
345.00	2,569	2,305	7,088
346.00	3,154	2,862	9,950
347.00	3,795	3,475	13,424

Device	Routing	Invert	Outlet Devices
#1	Primary	339.00'	<b>24.0" Round RCP_Round 24"</b> L= 169.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 339.00' / 337.31' S= 0.0100 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Device 1	340.00'	<b>5.0" Vert. Orifice/Grate</b> C= 0.600
#3	Device 1	344.00'	<b>8.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	345.00'	<b>20.4" x 37.2" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Secondary	345.50'	<b>20.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=11.37 cfs @ 12.24 hrs HW=345.40' (Free Discharge)

- ↑ 1=RCP\_Round 24" (Passes 11.37 cfs of 37.80 cfs potential flow)
- ↑ 2=Orifice/Grate (Orifice Controls 1.50 cfs @ 10.97 fps)
- ↑ 3=Orifice/Grate (Orifice Controls 1.99 cfs @ 5.69 fps)
- ↑ 4=Orifice/Grate (Weir Controls 7.89 cfs @ 2.06 fps)

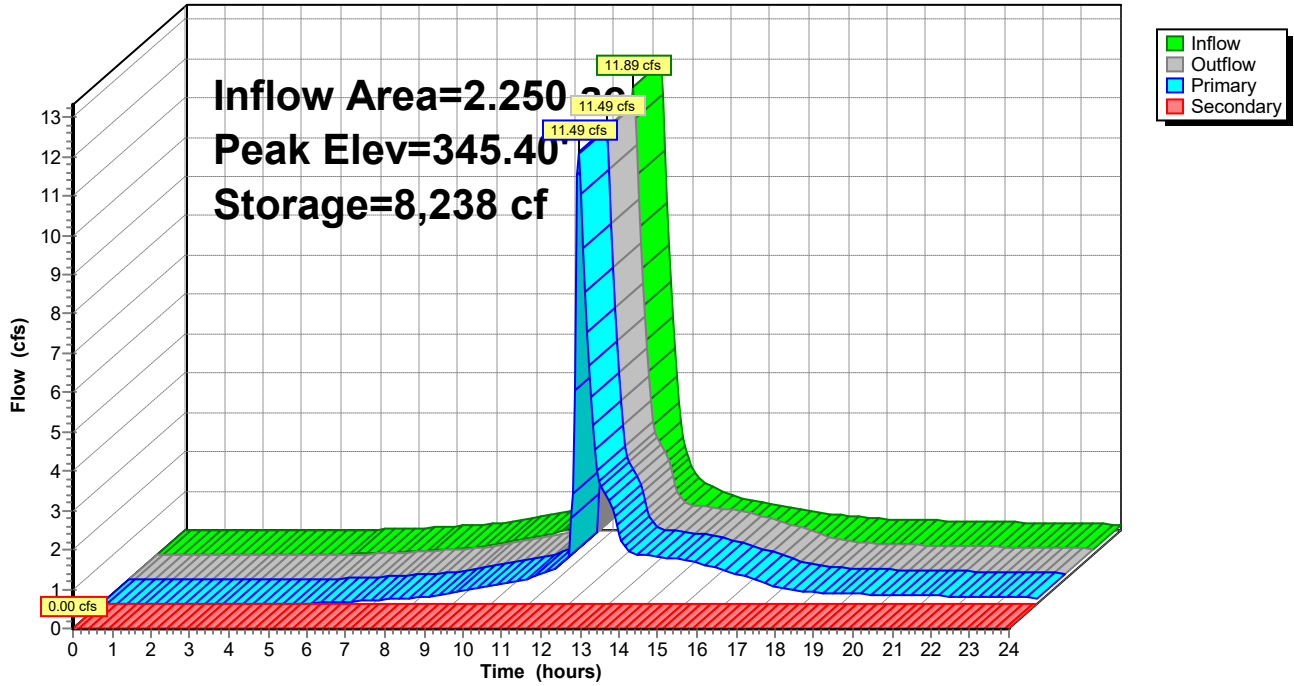
**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=340.00' (Free Discharge)

- ↑ 5=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)



### Pond 1ab: Pond-1a

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 50-yr Rainfall=7.87"

Printed 9/4/2020

Page 88

**Stage-Discharge for Pond 1ab: Pond-1a**

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
340.00	0.00	0.00	0.00	345.20	6.12	6.12	0.00
340.10	0.03	0.03	0.00	345.30	8.56	8.56	0.00
340.20	0.10	0.10	0.00	345.40	11.43	11.43	0.00
340.30	0.20	0.20	0.00	345.50	14.67	14.67	0.00
340.40	0.29	0.29	0.00	345.60	19.85	18.24	1.61
340.50	0.35	0.35	0.00	345.70	26.66	22.12	4.54
340.60	0.41	0.41	0.00	345.80	34.73	26.27	8.46
340.70	0.46	0.46	0.00	345.90	41.16	27.96	13.21
340.80	0.51	0.51	0.00	346.00	47.79	29.33	18.46
340.90	0.55	0.55	0.00	346.10	54.90	30.64	24.26
341.00	0.58	0.58	0.00	346.20	62.41	31.90	30.51
341.10	0.62	0.62	0.00	346.30	70.31	33.10	37.21
341.20	0.65	0.65	0.00	346.40	79.17	34.26	44.91
341.30	0.69	0.69	0.00	346.50	88.58	35.38	53.20
341.40	0.72	0.72	0.00	346.60	98.30	36.47	61.84
341.50	0.75	0.75	0.00	346.70	108.50	37.52	70.98
341.60	0.77	0.77	0.00	346.80	119.62	38.54	81.08
341.70	0.80	0.80	0.00	346.90	131.31	39.54	91.77
341.80	0.83	0.83	0.00	347.00	<b>144.49</b>	<b>40.51</b>	<b>103.98</b>
341.90	0.85	0.85	0.00				
342.00	0.88	0.88	0.00				
342.10	0.90	0.90	0.00				
342.20	0.93	0.93	0.00				
342.30	0.95	0.95	0.00				
342.40	0.97	0.97	0.00				
342.50	0.99	0.99	0.00				
342.60	1.02	1.02	0.00				
342.70	1.04	1.04	0.00				
342.80	1.06	1.06	0.00				
342.90	1.08	1.08	0.00				
343.00	1.10	1.10	0.00				
343.10	1.12	1.12	0.00				
343.20	1.14	1.14	0.00				
343.30	1.15	1.15	0.00				
343.40	1.17	1.17	0.00				
343.50	1.19	1.19	0.00				
343.60	1.21	1.21	0.00				
343.70	1.23	1.23	0.00				
343.80	1.24	1.24	0.00				
343.90	1.26	1.26	0.00				
344.00	1.28	1.28	0.00				
344.10	1.51	1.51	0.00				
344.20	1.92	1.92	0.00				
344.30	2.25	2.25	0.00				
344.40	2.41	2.41	0.00				
344.50	2.55	2.55	0.00				
344.60	2.68	2.68	0.00				
344.70	2.80	2.80	0.00				
344.80	2.91	2.91	0.00				
344.90	3.02	3.02	0.00				
345.00	3.12	3.12	0.00				
345.10	4.21	4.21	0.00				

**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 50-yr Rainfall=7.87"

Printed 9/4/2020

Page 89

**Stage-Area-Storage for Pond 1ab: Pond-1a**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
340.00	497	0	345.20	2,686	7,660
340.10	527	65	345.30	2,745	7,946
340.20	557	129	345.40	2,803	8,233
340.30	586	194	345.50	2,862	8,519
340.40	616	258	345.60	2,920	8,805
340.50	646	323	345.70	2,978	9,091
340.60	676	388	345.80	3,037	9,377
340.70	706	452	345.90	3,095	9,663
340.80	735	517	346.00	3,154	9,950
340.90	765	581	346.10	3,218	10,297
341.00	795	646	346.20	3,282	10,644
341.10	831	743	346.30	3,346	10,992
341.20	866	841	346.40	3,410	11,339
341.30	902	938	346.50	3,475	11,687
341.40	938	1,035	346.60	3,539	12,034
341.50	974	1,133	346.70	3,603	12,382
341.60	1,009	1,230	346.80	3,667	12,729
341.70	1,045	1,327	346.90	3,731	13,077
341.80	1,081	1,425	347.00	<b>3,795</b>	<b>13,424</b>
341.90	1,116	1,522			
342.00	1,152	1,620			
342.10	1,194	1,756			
342.20	1,235	1,891			
342.30	1,277	2,028			
342.40	1,318	2,163			
342.50	1,360	2,300			
342.60	1,402	2,436			
342.70	1,443	2,571			
342.80	1,485	2,708			
342.90	1,526	2,843			
343.00	1,568	2,980			
343.10	1,615	3,160			
343.20	1,662	3,340			
343.30	1,710	3,521			
343.40	1,757	3,701			
343.50	1,804	3,882			
343.60	1,851	4,062			
343.70	1,898	4,242			
343.80	1,946	4,423			
343.90	1,993	4,603			
344.00	2,040	4,784			
344.10	2,093	5,014			
344.20	2,146	5,244			
344.30	2,199	5,475			
344.40	2,252	5,705			
344.50	2,305	5,936			
344.60	2,357	6,166			
344.70	2,410	6,397			
344.80	2,463	6,627			
344.90	2,516	6,858			
345.00	2,569	7,088			
345.10	2,628	7,374			

**1904501 - Proposed**

Type III 24-hr 50-yr Rainfall=7.87"

Prepared by Solli Engineering, LLC

Printed 9/4/2020

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Page 90

**Summary for Pond 1B: Pond-1b**

Inflow Area = 1.660 ac, 79.52% Impervious, Inflow Depth > 6.84" for 50-yr event  
 Inflow = 11.31 cfs @ 12.11 hrs, Volume= 0.946 af  
 Outflow = 2.75 cfs @ 12.52 hrs, Volume= 0.937 af, Atten= 76%, Lag= 24.4 min  
 Primary = 2.75 cfs @ 12.52 hrs, Volume= 0.937 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
 Peak Elev= 338.80' @ 12.52 hrs Surf.Area= 0.106 ac Storage= 0.331 af

Plug-Flow detention time= 73.0 min calculated for 0.935 af (99% of inflow)  
 Center-of-Mass det. time= 67.0 min ( 840.0 - 773.0 )

Volume	Invert	Avail.Storage	Storage Description
#1A	335.00'	0.021 af	<b>48.00'W x 96.00'L x 5.17'H Field A</b> 0.547 af Overall - 0.494 af Embedded = 0.053 af x 40.0% Voids
#2A	335.50'	0.375 af	<b>retain_it retain_it 4.0' x 72</b> Inside #1 Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf 6 Rows adjusted for 271.8 cf perimeter wall
		0.397 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	335.00'	<b>15.0" Round Culvert</b> L= 43.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 335.00' / 331.00' S= 0.0930 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 1.23 sf
#2	Device 1	335.00'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#3	Device 1	337.50'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#4	Device 1	339.50'	<b>5.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Primary OutFlow** Max=2.75 cfs @ 12.52 hrs HW=338.80' (Free Discharge)

- ↑ **1=Culvert** (Passes 2.75 cfs of 10.53 cfs potential flow)
- ↑ **2=Orifice/Grate** (Orifice Controls 1.78 cfs @ 9.07 fps)
- ↑ **3=Orifice/Grate** (Orifice Controls 0.97 cfs @ 4.93 fps)
- ↑ **4=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)

**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 50-yr Rainfall=7.87"

Printed 9/4/2020

Page 91

**Pond 1B: Pond-1b - Chamber Wizard Field A**

**Chamber Model = retain\_it retain\_it 4.0' (retain-it®)**

Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf

Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf

6 Rows adjusted for 271.8 cf perimeter wall

12 Chambers/Row x 8.00' Long = 96.00' Row Length

6 Rows x 96.0" Wide = 48.00' Base Width

6.0" Base + 56.0" Chamber Height = 5.17' Field Height

7.5 cf Sidewall x 12 x 2 + 7.5 cf Endwall x 6 x 2 = 271.8 cf Perimeter Wall

72 Chambers x 230.9 cf - 271.8 cf Perimeter wall = 16,355.9 cf Chamber Storage

72 Chambers x 298.7 cf = 21,504.0 cf Displacement

23,808.0 cf Field - 21,504.0 cf Chambers = 2,304.0 cf Stone x 40.0% Voids = 921.6 cf Stone Storage

Chamber Storage + Stone Storage = 17,277.5 cf = 0.397 af

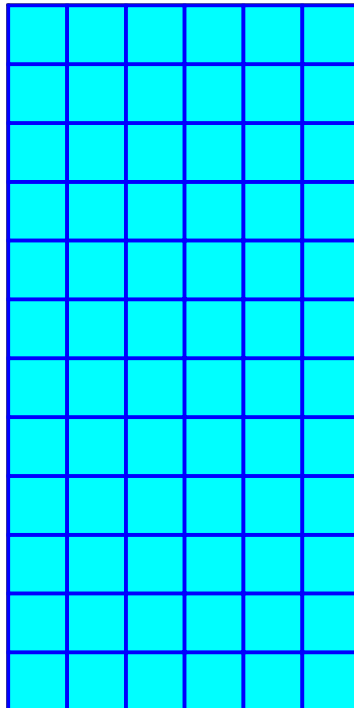
Overall Storage Efficiency = 72.6%

Overall System Size = 96.00' x 48.00' x 5.17'

72 Chambers

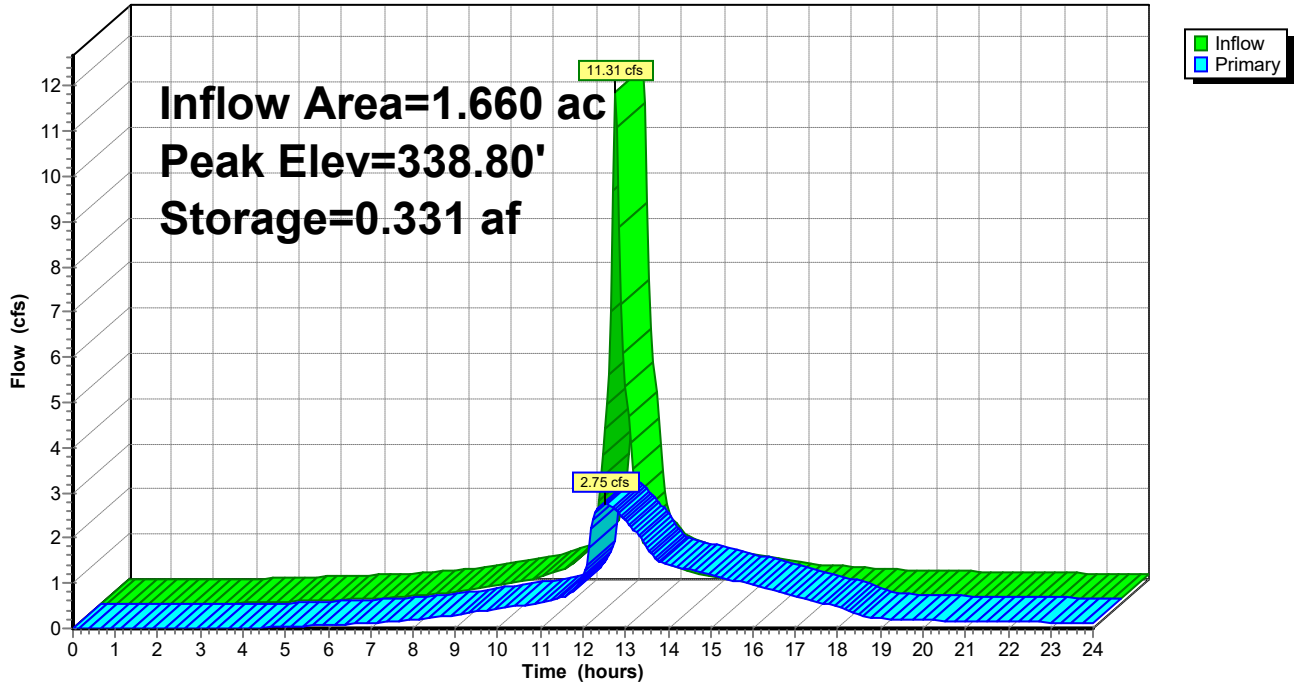
881.8 cy Field

85.3 cy Stone



Pond 1B: Pond-1b

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 50-yr Rainfall=7.87"

Printed 9/4/2020

Page 93

**Stage-Discharge for Pond 1B: Pond-1b**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
335.00	0.00	337.08	1.28	339.16	2.99
335.04	0.01	337.12	1.29	339.20	3.02
335.08	0.02	337.16	1.31	339.24	3.04
335.12	0.04	337.20	1.32	339.28	3.07
335.16	0.07	337.24	1.33	339.32	3.09
335.20	0.11	337.28	1.35	339.36	3.12
335.24	0.16	337.32	1.36	339.40	3.14
335.28	0.20	337.36	1.37	339.44	3.16
335.32	0.26	337.40	1.39	339.48	3.19
335.36	0.31	337.44	1.40	339.52	3.26
335.40	0.36	337.48	1.41	339.56	3.47
335.44	0.41	337.52	1.43	339.60	3.77
335.48	0.46	337.56	1.45	339.64	4.13
335.52	0.49	337.60	1.48	339.68	4.54
335.56	0.53	337.64	1.52	339.72	5.00
335.60	0.56	337.68	1.57	339.76	5.49
335.64	0.59	337.72	1.62	339.80	6.02
335.68	0.62	337.76	1.68	339.84	6.59
335.72	0.65	337.80	1.74	339.88	7.19
335.76	0.68	337.84	1.80	339.92	7.81
335.80	0.70	337.88	1.87	339.96	8.46
335.84	0.73	337.92	1.93	340.00	9.14
335.88	0.75	337.96	1.99	340.04	9.85
335.92	0.77	338.00	2.04	340.08	10.58
335.96	0.80	338.04	2.09	340.12	11.33
336.00	0.82	338.08	2.13	340.16	<b>12.10</b>
336.04	0.84	338.12	2.18		
336.08	0.86	338.16	2.22		
336.12	0.88	338.20	2.26		
336.16	0.90	338.24	2.30		
336.20	0.92	338.28	2.33		
336.24	0.94	338.32	2.37		
336.28	0.96	338.36	2.41		
336.32	0.98	338.40	2.44		
336.36	1.00	338.44	2.47		
336.40	1.01	338.48	2.51		
336.44	1.03	338.52	2.54		
336.48	1.05	338.56	2.57		
336.52	1.07	338.60	2.60		
336.56	1.08	338.64	2.63		
336.60	1.10	338.68	2.66		
336.64	1.11	338.72	2.69		
336.68	1.13	338.76	2.72		
336.72	1.15	338.80	2.75		
336.76	1.16	338.84	2.78		
336.80	1.18	338.88	2.81		
336.84	1.19	338.92	2.83		
336.88	1.21	338.96	2.86		
336.92	1.22	339.00	2.89		
336.96	1.24	339.04	2.91		
337.00	1.25	339.08	2.94		
337.04	1.26	339.12	2.97		

**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 50-yr Rainfall=7.87"

Printed 9/4/2020

Page 94

**Stage-Area-Storage for Pond 1B: Pond-1b**

Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)
335.00	0.000	337.08	0.169	339.16	0.365
335.04	0.002	337.12	0.173	339.20	0.368
335.08	0.003	337.16	0.177	339.24	0.372
335.12	0.005	337.20	0.181	339.28	0.376
335.16	0.007	337.24	0.184	339.32	0.380
335.20	0.008	337.28	0.188	339.36	0.383
335.24	0.010	337.32	0.192	339.40	0.387
335.28	0.012	337.36	0.196	339.44	0.391
335.32	0.014	337.40	0.200	339.48	<b>0.395</b>
335.36	0.015	337.44	0.203	339.52	<b>0.397</b>
335.40	0.017	337.48	0.207	339.56	0.397
335.44	0.019	337.52	0.211	339.60	0.397
335.48	0.020	337.56	0.215	339.64	0.397
335.52	0.023	337.60	0.218	339.68	0.397
335.56	0.027	337.64	0.222	339.72	0.397
335.60	0.031	337.68	0.226	339.76	0.397
335.64	0.034	337.72	0.230	339.80	0.397
335.68	0.038	337.76	0.233	339.84	0.397
335.72	0.042	337.80	0.237	339.88	0.397
335.76	0.046	337.84	0.241	339.92	0.397
335.80	0.049	337.88	0.245	339.96	0.397
335.84	0.053	337.92	0.248	340.00	0.397
335.88	0.057	337.96	0.252	340.04	0.397
335.92	0.061	338.00	0.256	340.08	0.397
335.96	0.064	338.04	0.260	340.12	0.397
336.00	0.068	338.08	0.263	340.16	0.397
336.04	0.072	338.12	0.267		
336.08	0.076	338.16	0.271		
336.12	0.079	338.20	0.275		
336.16	0.083	338.24	0.278		
336.20	0.087	338.28	0.282		
336.24	0.091	338.32	0.286		
336.28	0.094	338.36	0.290		
336.32	0.098	338.40	0.293		
336.36	0.102	338.44	0.297		
336.40	0.106	338.48	0.301		
336.44	0.109	338.52	0.305		
336.48	0.113	338.56	0.308		
336.52	0.117	338.60	0.312		
336.56	0.121	338.64	0.316		
336.60	0.124	338.68	0.320		
336.64	0.128	338.72	0.323		
336.68	0.132	338.76	0.327		
336.72	0.136	338.80	0.331		
336.76	0.139	338.84	0.335		
336.80	0.143	338.88	0.338		
336.84	0.147	338.92	0.342		
336.88	0.151	338.96	0.346		
336.92	0.154	339.00	0.350		
336.96	0.158	339.04	0.353		
337.00	0.162	339.08	0.357		
337.04	0.166	339.12	0.361		



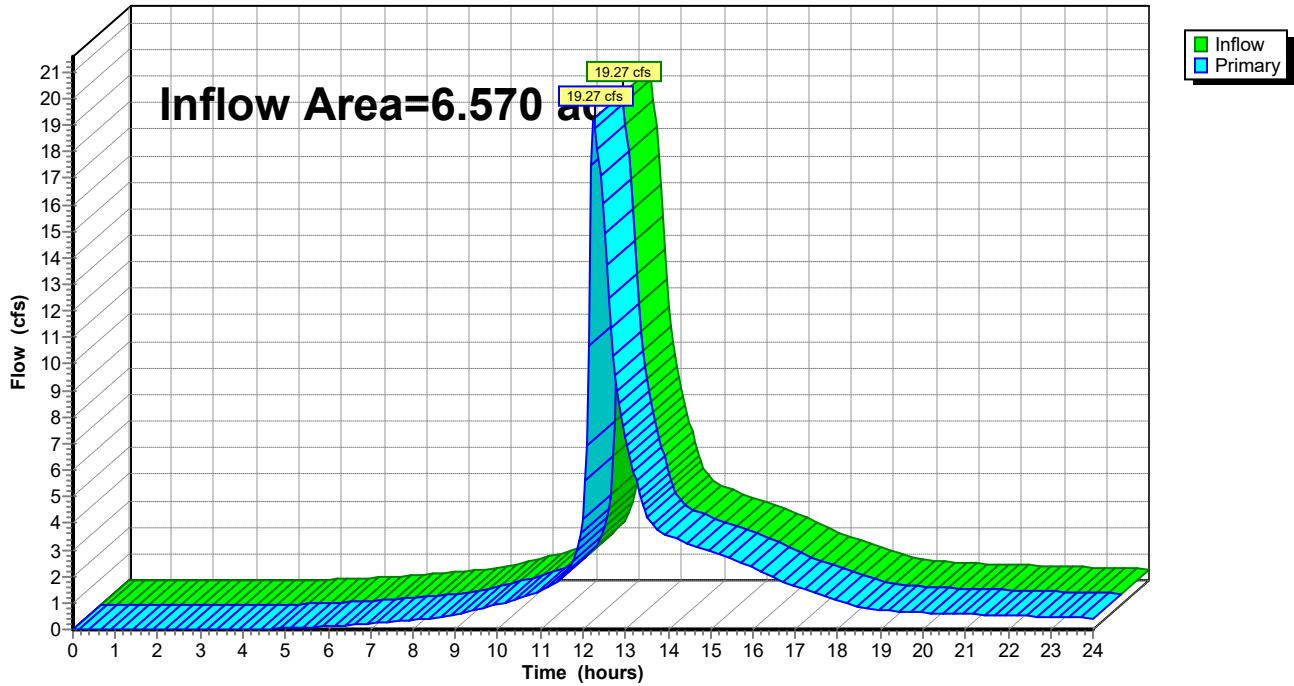
### Summary for Link P1: P1 Total

Inflow Area = 6.570 ac, 49.62% Impervious, Inflow Depth > 5.24" for 50-yr event  
Inflow = 19.27 cfs @ 12.27 hrs, Volume= 2.871 af  
Primary = 19.27 cfs @ 12.27 hrs, Volume= 2.871 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link P1: P1 Total

Hydrograph



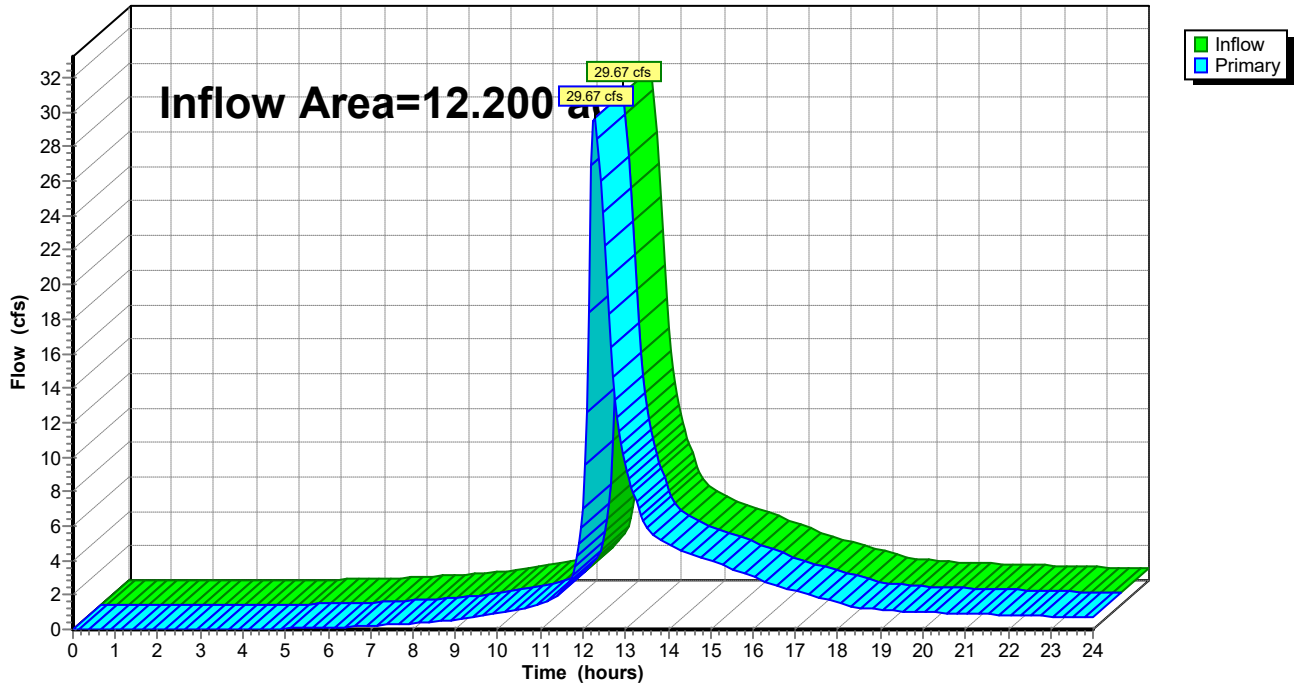
### Summary for Link P1-2: Overall Existing

Inflow Area = 12.200 ac, 26.72% Impervious, Inflow Depth > 3.94" for 50-yr event  
Inflow = 29.67 cfs @ 12.27 hrs, Volume= 4.001 af  
Primary = 29.67 cfs @ 12.27 hrs, Volume= 4.001 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link P1-2: Overall Existing

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

*Type III 24-hr 100-yr Rainfall=8.95"*

Printed 9/4/2020

Page 97

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment P1a: PDA-1a</b>	Runoff Area=2.250 ac 59.56% Impervious Runoff Depth>7.13" Tc=14.5 min CN=85 Runoff=13.82 cfs 1.337 af
<b>Subcatchment P1b: PDA-1b</b>	Runoff Area=1.660 ac 79.52% Impervious Runoff Depth>7.91" Tc=8.2 min CN=91 Runoff=12.97 cfs 1.094 af
<b>Subcatchment P1c: PDA-1c</b>	Runoff Area=2.660 ac 22.56% Impervious Runoff Depth>4.46" Tc=28.1 min CN=63 Runoff=8.10 cfs 0.988 af
<b>Subcatchment P2: PDA-2</b>	Runoff Area=5.630 ac 0.00% Impervious Runoff Depth>3.12" Tc=18.1 min CN=52 Runoff=13.85 cfs 1.465 af
<b>Subcatchment P3: PDA-3</b>	Runoff Area=0.290 ac 100.00% Impervious Runoff Depth>8.70" Tc=6.0 min CN=98 Runoff=2.49 cfs 0.210 af
<b>Subcatchment P4: PDA-4</b>	Runoff Area=2.315 ac 40.39% Impervious Runoff Depth>6.49" Tc=16.6 min CN=80 Runoff=12.59 cfs 1.252 af
<b>Subcatchment P5: PDA-5</b>	Runoff Area=1.350 ac 0.00% Impervious Runoff Depth>5.76" Tc=15.1 min CN=74 Runoff=6.84 cfs 0.648 af
<b>Pond 1ab: Pond-1a</b>	Peak Elev=345.47' Storage=8,438 cf Inflow=13.82 cfs 1.337 af Primary=13.71 cfs 1.333 af Secondary=0.00 cfs 0.000 af Outflow=13.71 cfs 1.333 af
<b>Pond 1B: Pond-1b</b>	Peak Elev=339.38' Storage=0.385 af Inflow=12.97 cfs 1.094 af Outflow=3.13 cfs 1.084 af
<b>Link P1: P1 Total</b>	Inflow=22.83 cfs 3.405 af Primary=22.83 cfs 3.405 af
<b>Link P1-2: Overall Existing</b>	Inflow=36.68 cfs 4.870 af Primary=36.68 cfs 4.870 af

**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 100-yr Rainfall=8.95"

Printed 9/4/2020

Page 98

**Summary for Subcatchment P1a: PDA-1a**

Runoff = 13.82 cfs @ 12.20 hrs, Volume= 1.337 af, Depth> 7.13"

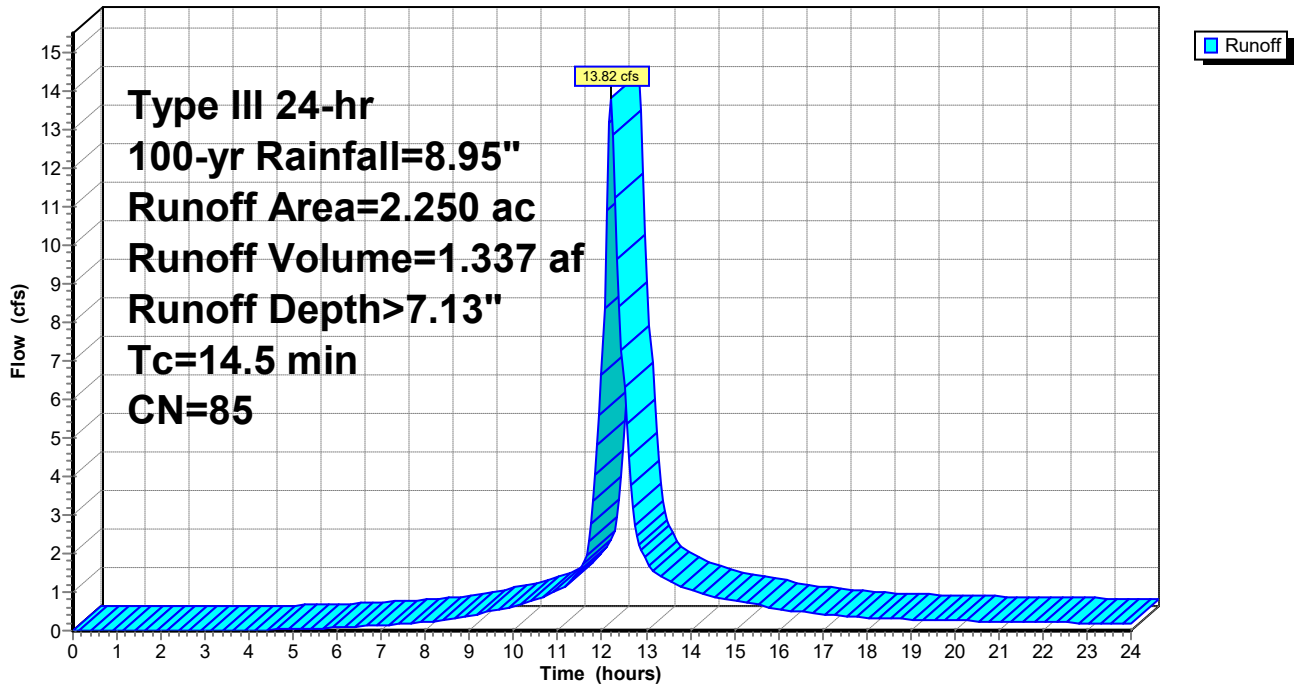
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-yr Rainfall=8.95"

Area (ac)	CN	Description
* 0.280	55	Woods - B
* 0.160	77	Woods - D
* 0.100	61	Grass - B
* 0.170	61	Grass - B
* 0.200	80	Grass -D
* 1.340	98	Impervious
2.250	85	Weighted Average
0.910		40.44% Pervious Area
1.340		59.56% Impervious Area

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

**Subcatchment P1a: PDA-1a**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 100-yr Rainfall=8.95"

Printed 9/4/2020

Page 99

**Summary for Subcatchment P1b: PDA-1b**

Runoff = 12.97 cfs @ 12.11 hrs, Volume= 1.094 af, Depth> 7.91"

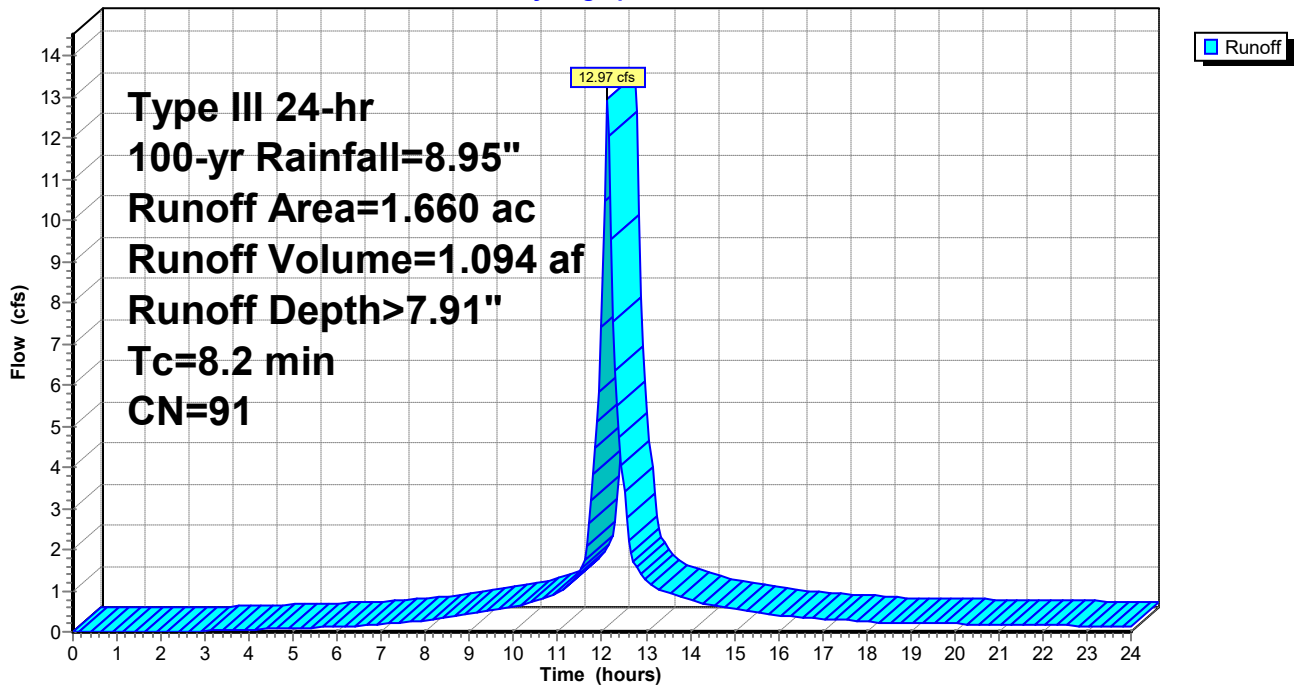
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-yr Rainfall=8.95"

Area (ac)	CN	Description
* 0.080	39	Grass - A
* 0.080	61	Grass - B
* 0.180	80	Grass - D
* 1.320	98	Impervious
1.660	91	Weighted Average
0.340		20.48% Pervious Area
1.320		79.52% Impervious Area

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

**Subcatchment P1b: PDA-1b**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 100-yr Rainfall=8.95"

Printed 9/4/2020

Page 100

**Summary for Subcatchment P1c: PDA-1c**

Runoff = 8.10 cfs @ 12.40 hrs, Volume= 0.988 af, Depth> 4.46"

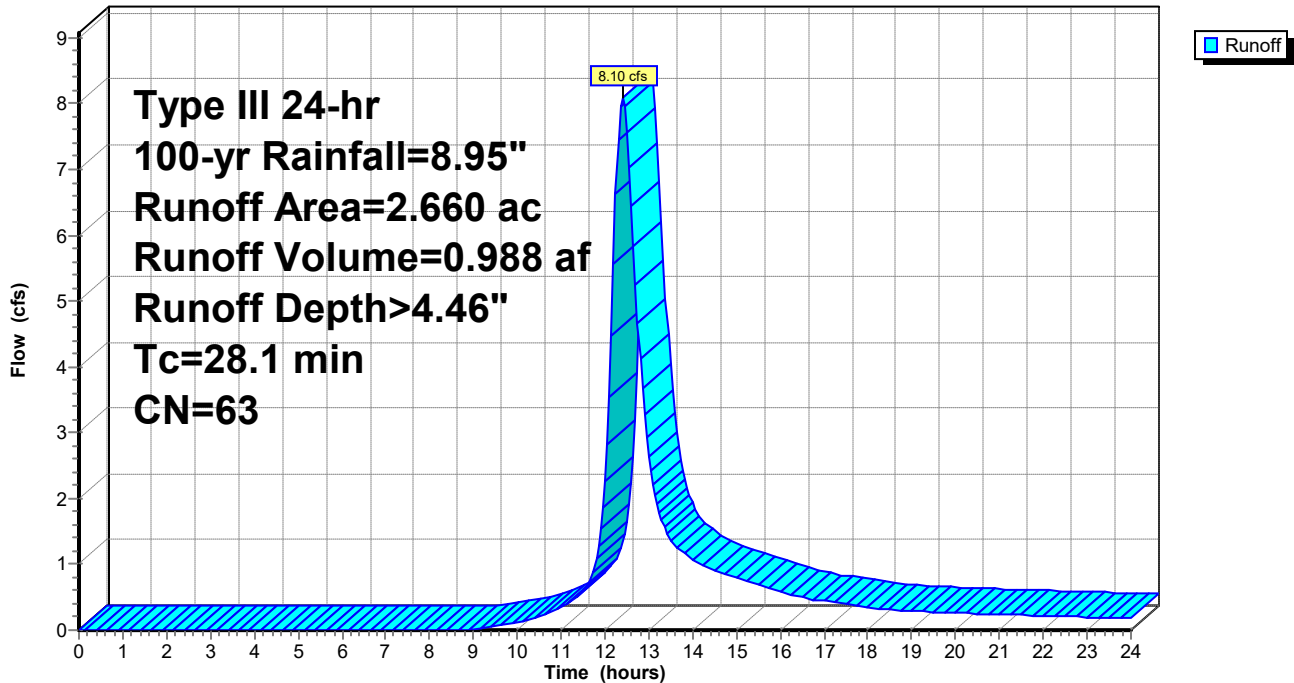
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-yr Rainfall=8.95"

Area (ac)	CN	Description
* 0.440	30	Woods - A
* 0.160	55	Woods - B
* 0.250	39	Grass - A
* 0.980	61	Grass - B
* 0.100	80	Grass - D
* 0.130	80	Grass - D
* 0.600	98	Impervious
2.660	63	Weighted Average
2.060		77.44% Pervious Area
0.600		22.56% Impervious Area

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

**Subcatchment P1c: PDA-1c**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 100-yr Rainfall=8.95"

Printed 9/4/2020

Page 101

**Summary for Subcatchment P2: PDA-2**

Runoff = 13.85 cfs @ 12.27 hrs, Volume= 1.465 af, Depth> 3.12"

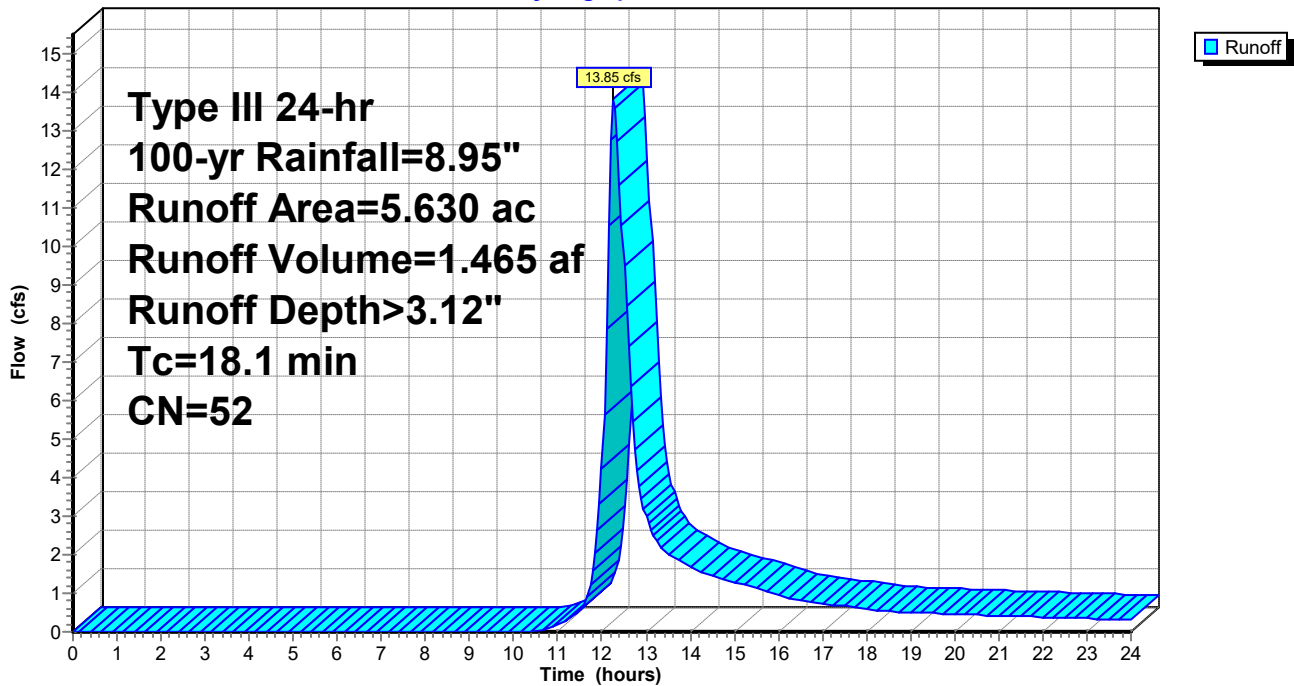
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-yr Rainfall=8.95"

Area (ac)	CN	Description
* 0.950	30	Woods - A
* 4.180	55	Woods - B
* 0.340	77	Woods - D
* 0.060	39	Grass - A
* 0.100	80	Grass - D
5.630	52	Weighted Average
5.630		100.00% Pervious Area

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

**Subcatchment P2: PDA-2**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 100-yr Rainfall=8.95"

Printed 9/4/2020

Page 102

**Summary for Subcatchment P3: PDA-3**

Runoff = 2.49 cfs @ 12.09 hrs, Volume= 0.210 af, Depth> 8.70"

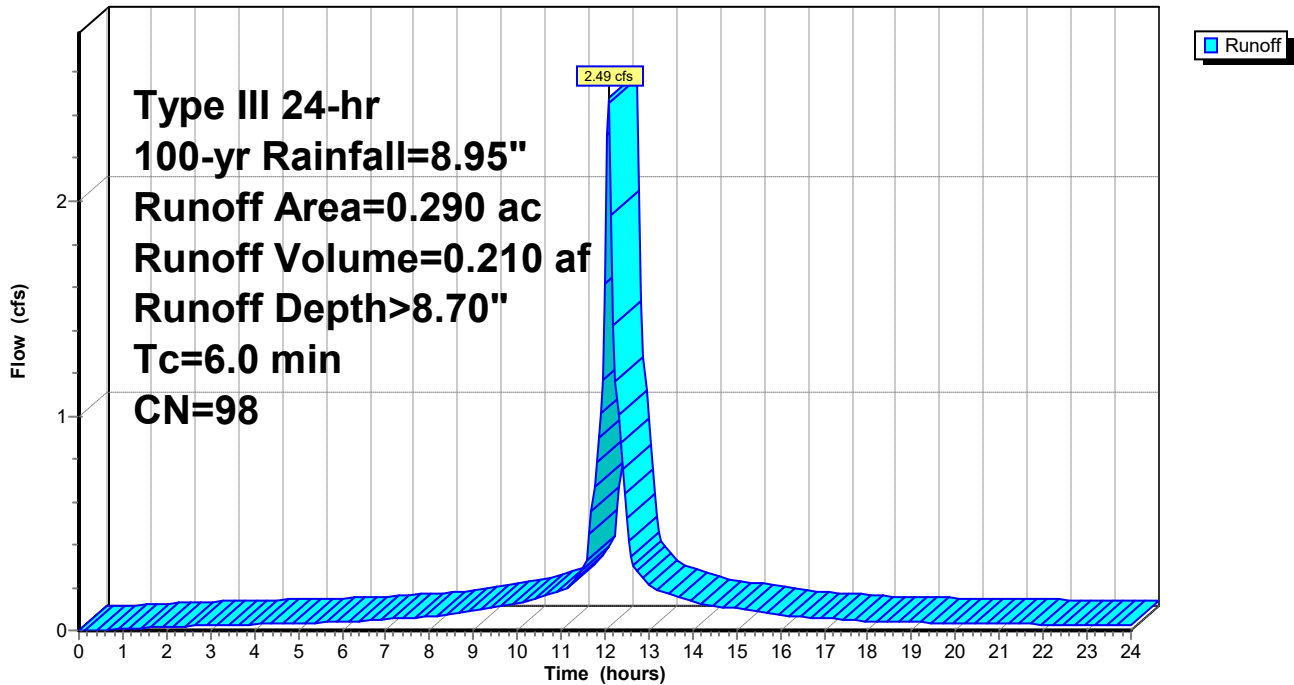
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-yr Rainfall=8.95"

Area (ac)	CN	Description
* 0.290	98	Impervious
0.290		100.00% Impervious Area

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

**Subcatchment P3: PDA-3**

Hydrograph





**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 100-yr Rainfall=8.95"

Printed 9/4/2020

Page 103

**Summary for Subcatchment P4: PDA-4**

Runoff = 12.59 cfs @ 12.22 hrs, Volume= 1.252 af, Depth> 6.49"

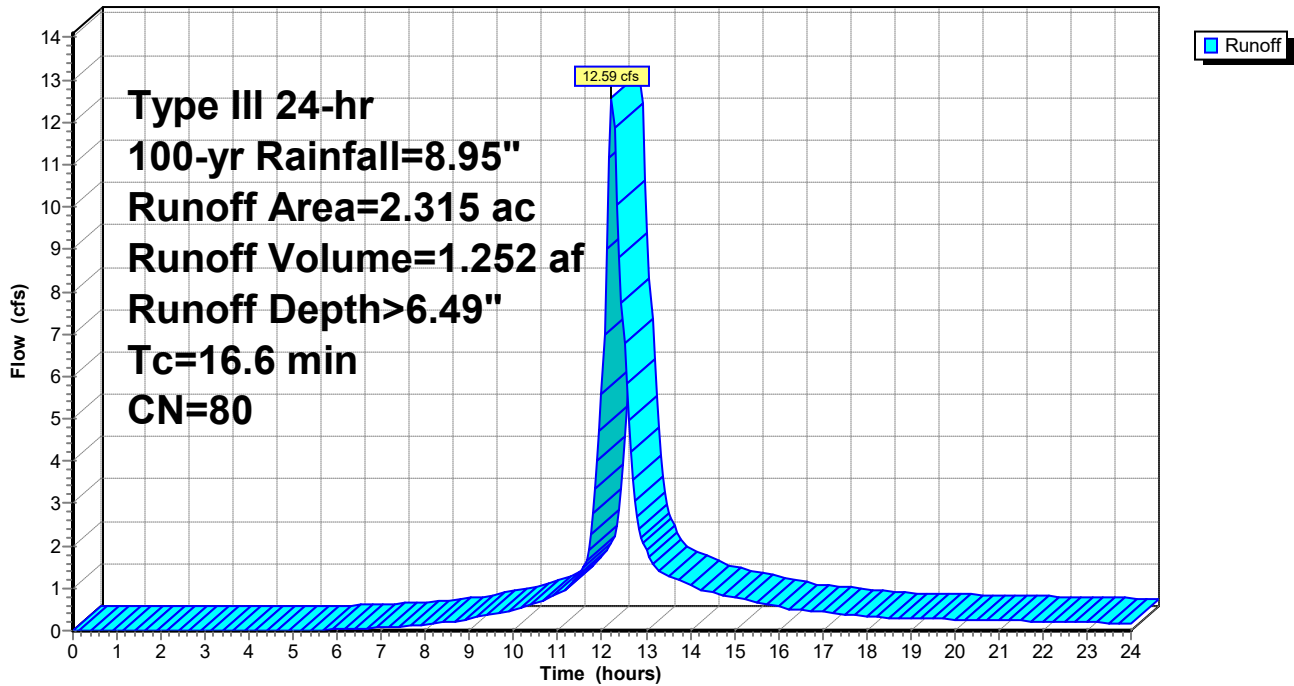
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-yr Rainfall=8.95"

Area (ac)	CN	Description
* 0.060	55	Woods - B
* 0.280	55	Woods - B
* 0.640	77	Woods - D
* 0.350	61	Grass - B
* 0.050	80	Grass - D
* 0.935	98	Impervious
2.315	80	Weighted Average
1.380		59.61% Pervious Area
0.935		40.39% Impervious Area

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

**Subcatchment P4: PDA-4**

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 100-yr Rainfall=8.95"

Printed 9/4/2020

Page 104

**Summary for Subcatchment P5: PDA-5**

Runoff = 6.84 cfs @ 12.21 hrs, Volume= 0.648 af, Depth> 5.76"

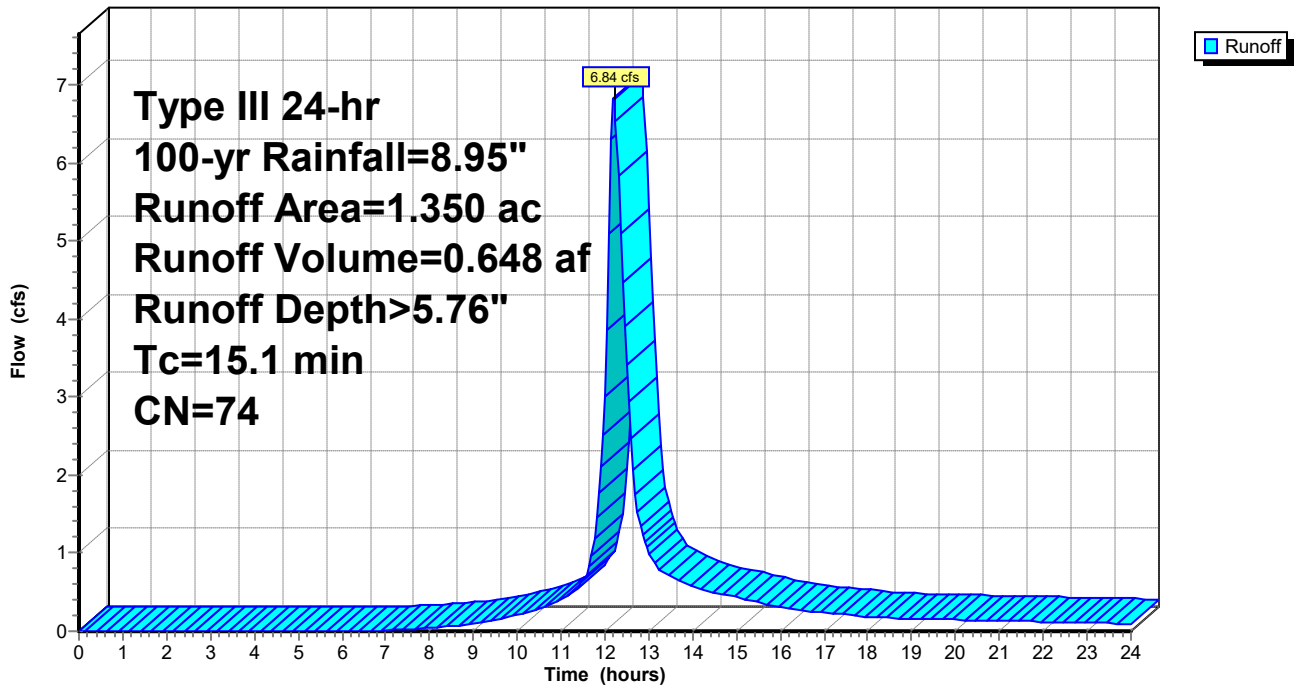
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-yr Rainfall=8.95"

Area (ac)	CN	Description
* 0.190	55	Woods - B
* 1.160	77	Woods - D
1.350	74	Weighted Average
1.350		100.00% Pervious Area

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

**Subcatchment P5: PDA-5**

Hydrograph



**1904501 - Proposed**

Type III 24-hr 100-yr Rainfall=8.95"

Prepared by Solli Engineering, LLC

Printed 9/4/2020

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Page 105

**Summary for Pond 1ab: Pond-1a**

Inflow Area = 2.250 ac, 59.56% Impervious, Inflow Depth > 7.13" for 100-yr event  
 Inflow = 13.82 cfs @ 12.20 hrs, Volume= 1.337 af  
 Outflow = 13.71 cfs @ 12.22 hrs, Volume= 1.333 af, Atten= 1%, Lag= 1.6 min  
 Primary = 13.71 cfs @ 12.22 hrs, Volume= 1.333 af  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
 Peak Elev= 345.47' @ 12.22 hrs Surf.Area= 2,845 sf Storage= 8,438 cf

Plug-Flow detention time= 28.3 min calculated for 1.333 af (100% of inflow)  
 Center-of-Mass det. time= 26.3 min ( 819.2 - 792.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	340.00'	13,424 cf	<b>Detention Basin (Prismatic)</b> Listed below
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
340.00	497	0	0
341.00	795	646	646
342.00	1,152	974	1,620
343.00	1,568	1,360	2,980
344.00	2,040	1,804	4,784
345.00	2,569	2,305	7,088
346.00	3,154	2,862	9,950
347.00	3,795	3,475	13,424

Device	Routing	Invert	Outlet Devices
#1	Primary	339.00'	<b>24.0" Round RCP_Round 24"</b> L= 169.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 339.00' / 337.31' S= 0.0100 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 3.14 sf
#2	Device 1	340.00'	<b>5.0" Vert. Orifice/Grate</b> C= 0.600
#3	Device 1	344.00'	<b>8.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#4	Device 1	345.00'	<b>20.4" x 37.2" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#5	Secondary	345.50'	<b>20.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

**Primary OutFlow** Max=13.42 cfs @ 12.22 hrs HW=345.46' (Free Discharge)

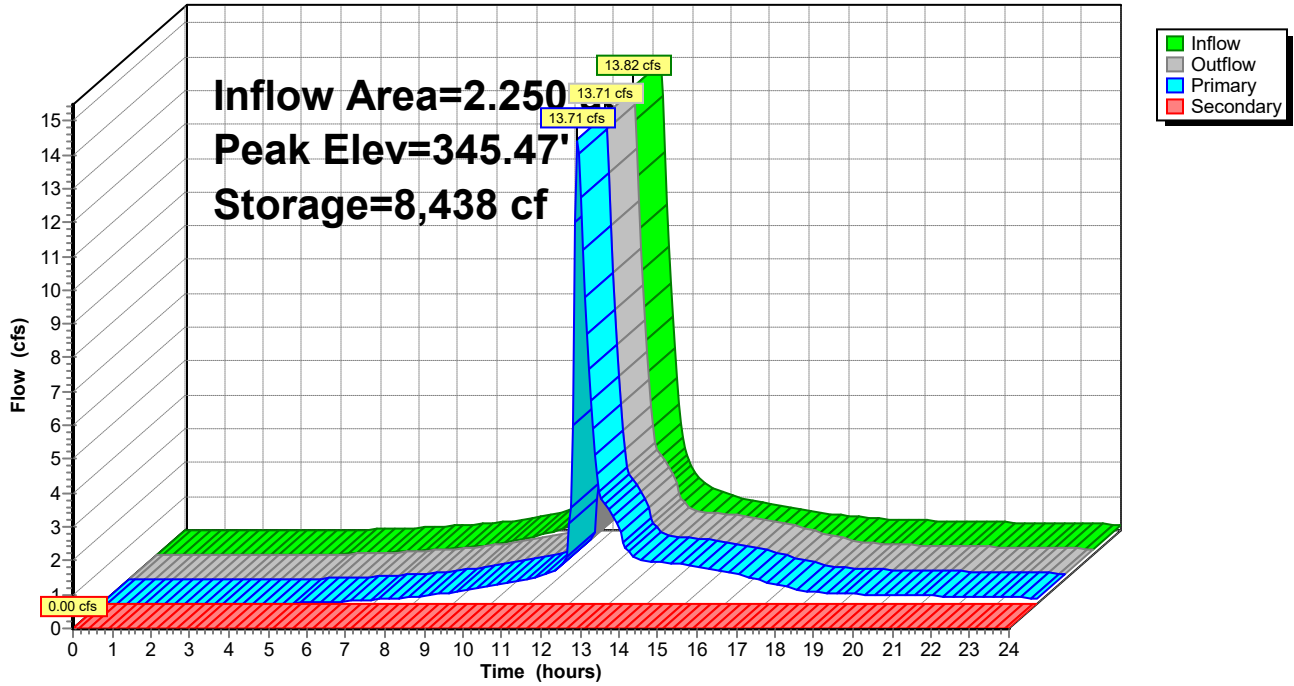
↑ **1=RCP\_Round 24"** (Passes 13.42 cfs of 38.00 cfs potential flow)  
 ↑ **2=Orifice/Grate** (Orifice Controls 1.50 cfs @ 11.04 fps)  
 ↑ **3=Orifice/Grate** (Orifice Controls 2.03 cfs @ 5.82 fps)  
 ↑ **4=Orifice/Grate** (Weir Controls 9.88 cfs @ 2.22 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=340.00' (Free Discharge)

↑ **5=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

### Pond 1ab: Pond-1a

Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 100-yr Rainfall=8.95"

Printed 9/4/2020

Page 107

**Stage-Discharge for Pond 1ab: Pond-1a**

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
340.00	0.00	0.00	0.00	345.20	6.12	6.12	0.00
340.10	0.03	0.03	0.00	345.30	8.56	8.56	0.00
340.20	0.10	0.10	0.00	345.40	11.43	11.43	0.00
340.30	0.20	0.20	0.00	345.50	14.67	14.67	0.00
340.40	0.29	0.29	0.00	345.60	19.85	18.24	1.61
340.50	0.35	0.35	0.00	345.70	26.66	22.12	4.54
340.60	0.41	0.41	0.00	345.80	34.73	26.27	8.46
340.70	0.46	0.46	0.00	345.90	41.16	27.96	13.21
340.80	0.51	0.51	0.00	346.00	47.79	29.33	18.46
340.90	0.55	0.55	0.00	346.10	54.90	30.64	24.26
341.00	0.58	0.58	0.00	346.20	62.41	31.90	30.51
341.10	0.62	0.62	0.00	346.30	70.31	33.10	37.21
341.20	0.65	0.65	0.00	346.40	79.17	34.26	44.91
341.30	0.69	0.69	0.00	346.50	88.58	35.38	53.20
341.40	0.72	0.72	0.00	346.60	98.30	36.47	61.84
341.50	0.75	0.75	0.00	346.70	108.50	37.52	70.98
341.60	0.77	0.77	0.00	346.80	119.62	38.54	81.08
341.70	0.80	0.80	0.00	346.90	131.31	39.54	91.77
341.80	0.83	0.83	0.00	347.00	<b>144.49</b>	<b>40.51</b>	<b>103.98</b>
341.90	0.85	0.85	0.00				
342.00	0.88	0.88	0.00				
342.10	0.90	0.90	0.00				
342.20	0.93	0.93	0.00				
342.30	0.95	0.95	0.00				
342.40	0.97	0.97	0.00				
342.50	0.99	0.99	0.00				
342.60	1.02	1.02	0.00				
342.70	1.04	1.04	0.00				
342.80	1.06	1.06	0.00				
342.90	1.08	1.08	0.00				
343.00	1.10	1.10	0.00				
343.10	1.12	1.12	0.00				
343.20	1.14	1.14	0.00				
343.30	1.15	1.15	0.00				
343.40	1.17	1.17	0.00				
343.50	1.19	1.19	0.00				
343.60	1.21	1.21	0.00				
343.70	1.23	1.23	0.00				
343.80	1.24	1.24	0.00				
343.90	1.26	1.26	0.00				
344.00	1.28	1.28	0.00				
344.10	1.51	1.51	0.00				
344.20	1.92	1.92	0.00				
344.30	2.25	2.25	0.00				
344.40	2.41	2.41	0.00				
344.50	2.55	2.55	0.00				
344.60	2.68	2.68	0.00				
344.70	2.80	2.80	0.00				
344.80	2.91	2.91	0.00				
344.90	3.02	3.02	0.00				
345.00	3.12	3.12	0.00				
345.10	4.21	4.21	0.00				

**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 100-yr Rainfall=8.95"

Printed 9/4/2020

Page 108

**Stage-Area-Storage for Pond 1ab: Pond-1a**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
340.00	497	0	345.20	2,686	7,660
340.10	527	65	345.30	2,745	7,946
340.20	557	129	345.40	2,803	8,233
340.30	586	194	345.50	2,862	8,519
340.40	616	258	345.60	2,920	8,805
340.50	646	323	345.70	2,978	9,091
340.60	676	388	345.80	3,037	9,377
340.70	706	452	345.90	3,095	9,663
340.80	735	517	346.00	3,154	9,950
340.90	765	581	346.10	3,218	10,297
341.00	795	646	346.20	3,282	10,644
341.10	831	743	346.30	3,346	10,992
341.20	866	841	346.40	3,410	11,339
341.30	902	938	346.50	3,475	11,687
341.40	938	1,035	346.60	3,539	12,034
341.50	974	1,133	346.70	3,603	12,382
341.60	1,009	1,230	346.80	3,667	12,729
341.70	1,045	1,327	346.90	3,731	13,077
341.80	1,081	1,425	347.00	<b>3,795</b>	<b>13,424</b>
341.90	1,116	1,522			
342.00	1,152	1,620			
342.10	1,194	1,756			
342.20	1,235	1,891			
342.30	1,277	2,028			
342.40	1,318	2,163			
342.50	1,360	2,300			
342.60	1,402	2,436			
342.70	1,443	2,571			
342.80	1,485	2,708			
342.90	1,526	2,843			
343.00	1,568	2,980			
343.10	1,615	3,160			
343.20	1,662	3,340			
343.30	1,710	3,521			
343.40	1,757	3,701			
343.50	1,804	3,882			
343.60	1,851	4,062			
343.70	1,898	4,242			
343.80	1,946	4,423			
343.90	1,993	4,603			
344.00	2,040	4,784			
344.10	2,093	5,014			
344.20	2,146	5,244			
344.30	2,199	5,475			
344.40	2,252	5,705			
344.50	2,305	5,936			
344.60	2,357	6,166			
344.70	2,410	6,397			
344.80	2,463	6,627			
344.90	2,516	6,858			
345.00	2,569	7,088			
345.10	2,628	7,374			

**1904501 - Proposed**

Type III 24-hr 100-yr Rainfall=8.95"

Prepared by Solli Engineering, LLC

Printed 9/4/2020

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Page 109

**Summary for Pond 1B: Pond-1b**

Inflow Area = 1.660 ac, 79.52% Impervious, Inflow Depth > 7.91" for 100-yr event  
 Inflow = 12.97 cfs @ 12.11 hrs, Volume= 1.094 af  
 Outflow = 3.13 cfs @ 12.52 hrs, Volume= 1.084 af, Atten= 76%, Lag= 24.5 min  
 Primary = 3.13 cfs @ 12.52 hrs, Volume= 1.084 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
 Peak Elev= 339.38' @ 12.52 hrs Surf.Area= 0.106 ac Storage= 0.385 af

Plug-Flow detention time= 74.0 min calculated for 1.084 af (99% of inflow)  
 Center-of-Mass det. time= 68.5 min ( 838.0 - 769.5 )

Volume	Invert	Avail.Storage	Storage Description
#1A	335.00'	0.021 af	<b>48.00'W x 96.00'L x 5.17'H Field A</b> 0.547 af Overall - 0.494 af Embedded = 0.053 af x 40.0% Voids
#2A	335.50'	0.375 af	<b>retain_it retain_it 4.0'</b> x 72 Inside #1 Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf 6 Rows adjusted for 271.8 cf perimeter wall
		0.397 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	335.00'	<b>15.0" Round Culvert</b> L= 43.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 335.00' / 331.00' S= 0.0930 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 1.23 sf
#2	Device 1	335.00'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#3	Device 1	337.50'	<b>6.0" Vert. Orifice/Grate</b> C= 0.600
#4	Device 1	339.50'	<b>5.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Primary OutFlow** Max=3.13 cfs @ 12.52 hrs HW=339.37' (Free Discharge)

- ↑ **1=Culvert** (Passes 3.13 cfs of 11.44 cfs potential flow)
- ↑ **2=Orifice/Grate** (Orifice Controls 1.92 cfs @ 9.78 fps)
- ↑ **3=Orifice/Grate** (Orifice Controls 1.21 cfs @ 6.14 fps)
- ↑ **4=Sharp-Crested Rectangular Weir** ( Controls 0.00 cfs)

**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 100-yr Rainfall=8.95"

Printed 9/4/2020

Page 110

**Pond 1B: Pond-1b - Chamber Wizard Field A**

**Chamber Model = retain\_it retain\_it 4.0' (retain-it®)**

Inside= 84.0"W x 48.0"H => 28.87 sf x 8.00'L = 230.9 cf

Outside= 96.0"W x 56.0"H => 37.33 sf x 8.00'L = 298.7 cf

6 Rows adjusted for 271.8 cf perimeter wall

12 Chambers/Row x 8.00' Long = 96.00' Row Length

6 Rows x 96.0" Wide = 48.00' Base Width

6.0" Base + 56.0" Chamber Height = 5.17' Field Height

7.5 cf Sidewall x 12 x 2 + 7.5 cf Endwall x 6 x 2 = 271.8 cf Perimeter Wall

72 Chambers x 230.9 cf - 271.8 cf Perimeter wall = 16,355.9 cf Chamber Storage

72 Chambers x 298.7 cf = 21,504.0 cf Displacement

23,808.0 cf Field - 21,504.0 cf Chambers = 2,304.0 cf Stone x 40.0% Voids = 921.6 cf Stone Storage

Chamber Storage + Stone Storage = 17,277.5 cf = 0.397 af

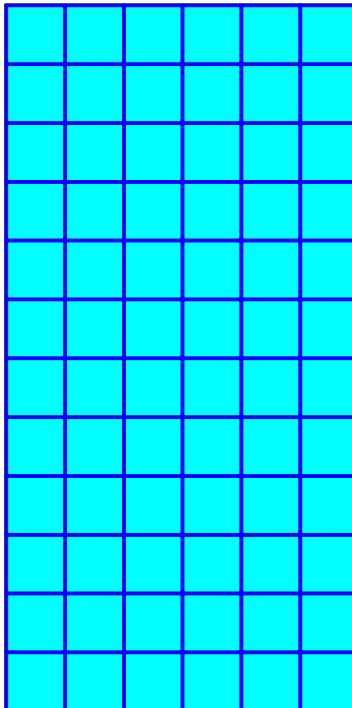
Overall Storage Efficiency = 72.6%

Overall System Size = 96.00' x 48.00' x 5.17'

72 Chambers

881.8 cy Field

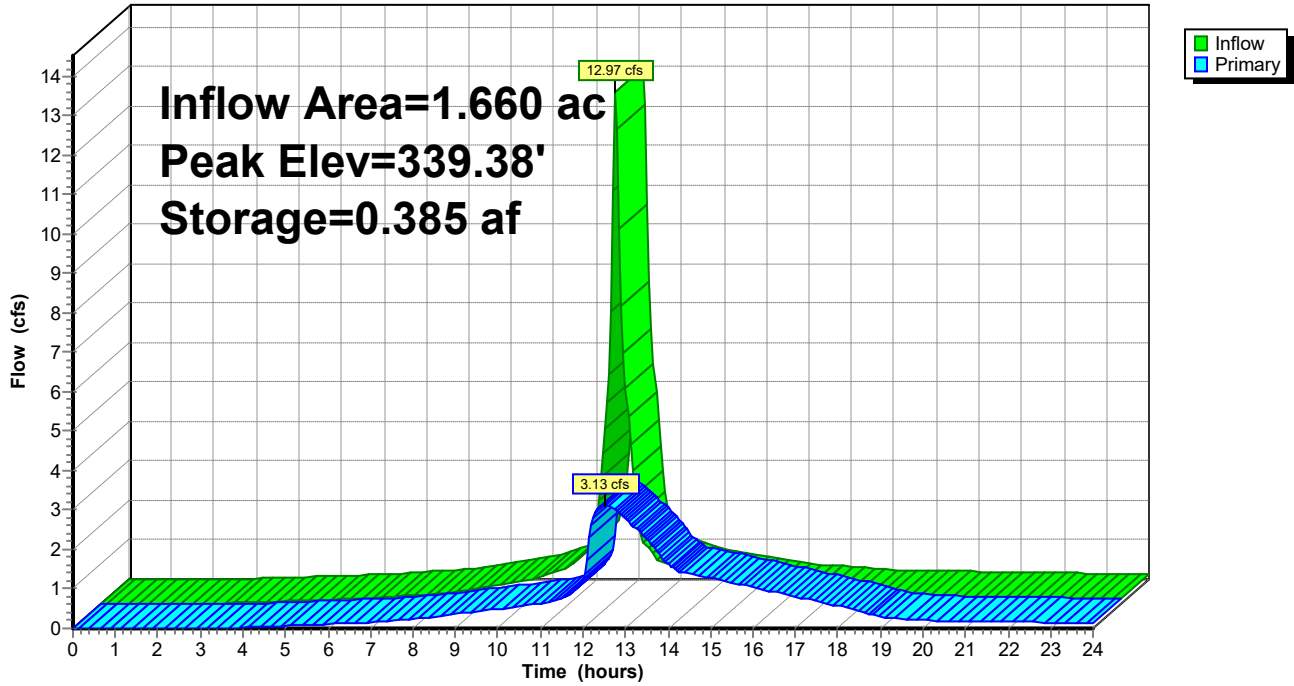
85.3 cy Stone





### Pond 1B: Pond-1b

#### Hydrograph



**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 100-yr Rainfall=8.95"

Printed 9/4/2020

Page 112

**Stage-Discharge for Pond 1B: Pond-1b**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
335.00	0.00	337.08	1.28	339.16	2.99
335.04	0.01	337.12	1.29	339.20	3.02
335.08	0.02	337.16	1.31	339.24	3.04
335.12	0.04	337.20	1.32	339.28	3.07
335.16	0.07	337.24	1.33	339.32	3.09
335.20	0.11	337.28	1.35	339.36	3.12
335.24	0.16	337.32	1.36	339.40	3.14
335.28	0.20	337.36	1.37	339.44	3.16
335.32	0.26	337.40	1.39	339.48	3.19
335.36	0.31	337.44	1.40	339.52	3.26
335.40	0.36	337.48	1.41	339.56	3.47
335.44	0.41	337.52	1.43	339.60	3.77
335.48	0.46	337.56	1.45	339.64	4.13
335.52	0.49	337.60	1.48	339.68	4.54
335.56	0.53	337.64	1.52	339.72	5.00
335.60	0.56	337.68	1.57	339.76	5.49
335.64	0.59	337.72	1.62	339.80	6.02
335.68	0.62	337.76	1.68	339.84	6.59
335.72	0.65	337.80	1.74	339.88	7.19
335.76	0.68	337.84	1.80	339.92	7.81
335.80	0.70	337.88	1.87	339.96	8.46
335.84	0.73	337.92	1.93	340.00	9.14
335.88	0.75	337.96	1.99	340.04	9.85
335.92	0.77	338.00	2.04	340.08	10.58
335.96	0.80	338.04	2.09	340.12	11.33
336.00	0.82	338.08	2.13	340.16	<b>12.10</b>
336.04	0.84	338.12	2.18		
336.08	0.86	338.16	2.22		
336.12	0.88	338.20	2.26		
336.16	0.90	338.24	2.30		
336.20	0.92	338.28	2.33		
336.24	0.94	338.32	2.37		
336.28	0.96	338.36	2.41		
336.32	0.98	338.40	2.44		
336.36	1.00	338.44	2.47		
336.40	1.01	338.48	2.51		
336.44	1.03	338.52	2.54		
336.48	1.05	338.56	2.57		
336.52	1.07	338.60	2.60		
336.56	1.08	338.64	2.63		
336.60	1.10	338.68	2.66		
336.64	1.11	338.72	2.69		
336.68	1.13	338.76	2.72		
336.72	1.15	338.80	2.75		
336.76	1.16	338.84	2.78		
336.80	1.18	338.88	2.81		
336.84	1.19	338.92	2.83		
336.88	1.21	338.96	2.86		
336.92	1.22	339.00	2.89		
336.96	1.24	339.04	2.91		
337.00	1.25	339.08	2.94		
337.04	1.26	339.12	2.97		

**1904501 - Proposed**

Prepared by Solli Engineering, LLC

HydroCAD® 10.00-22 s/n 10621 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 100-yr Rainfall=8.95"

Printed 9/4/2020

Page 113

**Stage-Area-Storage for Pond 1B: Pond-1b**

Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)
335.00	0.000	337.08	0.169	339.16	0.365
335.04	0.002	337.12	0.173	339.20	0.368
335.08	0.003	337.16	0.177	339.24	0.372
335.12	0.005	337.20	0.181	339.28	0.376
335.16	0.007	337.24	0.184	339.32	0.380
335.20	0.008	337.28	0.188	339.36	0.383
335.24	0.010	337.32	0.192	339.40	0.387
335.28	0.012	337.36	0.196	339.44	0.391
335.32	0.014	337.40	0.200	339.48	<b>0.395</b>
335.36	0.015	337.44	0.203	339.52	<b>0.397</b>
335.40	0.017	337.48	0.207	339.56	0.397
335.44	0.019	337.52	0.211	339.60	0.397
335.48	0.020	337.56	0.215	339.64	0.397
335.52	0.023	337.60	0.218	339.68	0.397
335.56	0.027	337.64	0.222	339.72	0.397
335.60	0.031	337.68	0.226	339.76	0.397
335.64	0.034	337.72	0.230	339.80	0.397
335.68	0.038	337.76	0.233	339.84	0.397
335.72	0.042	337.80	0.237	339.88	0.397
335.76	0.046	337.84	0.241	339.92	0.397
335.80	0.049	337.88	0.245	339.96	0.397
335.84	0.053	337.92	0.248	340.00	0.397
335.88	0.057	337.96	0.252	340.04	0.397
335.92	0.061	338.00	0.256	340.08	0.397
335.96	0.064	338.04	0.260	340.12	0.397
336.00	0.068	338.08	0.263	340.16	0.397
336.04	0.072	338.12	0.267		
336.08	0.076	338.16	0.271		
336.12	0.079	338.20	0.275		
336.16	0.083	338.24	0.278		
336.20	0.087	338.28	0.282		
336.24	0.091	338.32	0.286		
336.28	0.094	338.36	0.290		
336.32	0.098	338.40	0.293		
336.36	0.102	338.44	0.297		
336.40	0.106	338.48	0.301		
336.44	0.109	338.52	0.305		
336.48	0.113	338.56	0.308		
336.52	0.117	338.60	0.312		
336.56	0.121	338.64	0.316		
336.60	0.124	338.68	0.320		
336.64	0.128	338.72	0.323		
336.68	0.132	338.76	0.327		
336.72	0.136	338.80	0.331		
336.76	0.139	338.84	0.335		
336.80	0.143	338.88	0.338		
336.84	0.147	338.92	0.342		
336.88	0.151	338.96	0.346		
336.92	0.154	339.00	0.350		
336.96	0.158	339.04	0.353		
337.00	0.162	339.08	0.357		
337.04	0.166	339.12	0.361		

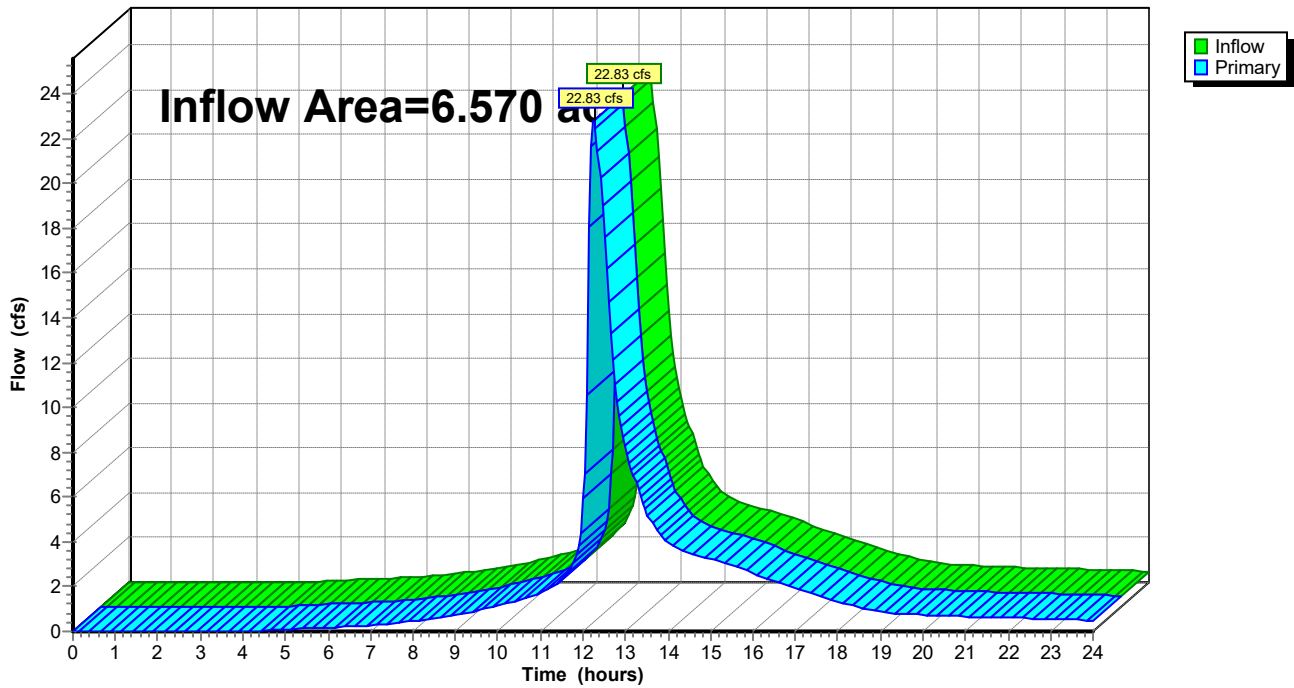
### Summary for Link P1: P1 Total

Inflow Area = 6.570 ac, 49.62% Impervious, Inflow Depth > 6.22" for 100-yr event  
Inflow = 22.83 cfs @ 12.26 hrs, Volume= 3.405 af  
Primary = 22.83 cfs @ 12.26 hrs, Volume= 3.405 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link P1: P1 Total

Hydrograph



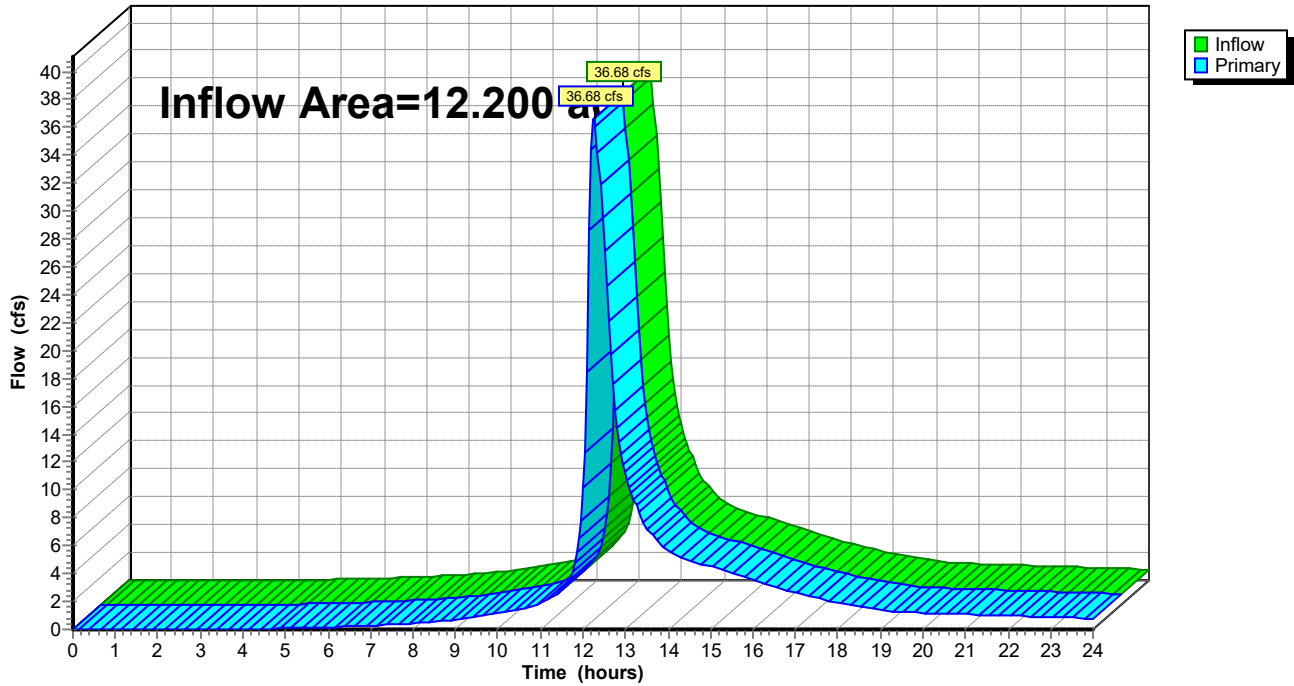
### Summary for Link P1-2: Overall Existing

Inflow Area = 12.200 ac, 26.72% Impervious, Inflow Depth > 4.79" for 100-yr event  
Inflow = 36.68 cfs @ 12.27 hrs, Volume= 4.870 af  
Primary = 36.68 cfs @ 12.27 hrs, Volume= 4.870 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link P1-2: Overall Existing

Hydrograph



Project Proposed Development By MSL Date 08/06/20  
 Location 9-15 Albany Turnpike, Canton & Simsbury, CT Checked CJB Date 09/03/20

Bold One: Present **Developed**

Bold One: **T<sub>c</sub>** **T<sub>t</sub>** through subarea Proposed Drainage Area 1a (PDA-1a)

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

**Sheet flow** (Applicable to T<sub>c</sub> Only)

1. Surface description (table 3-1)
2. Manning's roughness coeff., n (table 3-1)
3. Flow Length, L (total L ≤ 150 ft)
4. Two-yr 24-hr rainfall, P<sub>2</sub>
5. Land slope, s

$$6. T_t = \frac{0.007(nL)^{0.8}}{P_2^{0.5} s^{0.4}}$$

Compute T<sub>t</sub>

Segment ID	<b>AB</b>		
	<b>Grass (Dense grasses)</b>		
	<b>0.40</b>		
ft	<b>150</b>		
in	<b>3.46</b>		
ft/ft	<b>0.12</b>		
hr	<b>0.230</b>	+	<b>0.000</b> = <b>0.230</b>

**Shallow concentrated flow**

7. Surface description (paved or unpaved)
8. Flow length, L
9. Watercourse slope, s
10. Average velocity, V (Conn DOT Equations 6.C.4 & C.C.5)

$$11. T_t = \frac{L}{3600 V}$$

Compute T<sub>t</sub>

Segment ID	<b>BC</b>	<b>CD</b>	<b>DE</b>	
	<b>Unpaved</b>	<b>Unpaved</b>	<b>Paved</b>	
ft	<b>105</b>	<b>200</b>	<b>62</b>	
ft/ft	<b>0.15</b>	<b>0.25</b>	<b>0.08</b>	
ft/s	<b>6.26</b>	<b>8.07</b>	<b>5.77</b>	
hr	<b>0.005</b>	+	<b>0.007</b>	+
				<b>0.003</b> = <b>0.012</b>

**Channel flow**

12. Cross sectional flow area, a
13. Wetted perimeter, p<sub>w</sub>
14. Hydraulic radius, r
15. Channel slope, s
16. Manning's roughness coeff., n

$$r = \frac{a}{p_w}$$

Compute r

$$17. V = \frac{1.49 r^{2/3} s^{1/2}}{n}$$

Compute V

$$18. T_t = \frac{L}{3600 V}$$

Compute T<sub>t</sub>

Segment ID			
ft <sup>2</sup>			
ft			
ft			
ft/ft			
ft/s			
ft			
hr		+	
			<b>0.000</b>
			<b>0.241</b>
			<b>14.47</b>

20. Watershed or subarea T<sub>c</sub> or T<sub>t</sub> (add T<sub>t</sub> in steps 6, 11, 19)

**Hours** =

**Minutes** =

Project Proposed Development By MSL Date 08/06/20  
 Location 9-15 Albany Turnpike, Canton & Simsbury, CT Checked CJB Date 09/03/20  
 Bold One: Present **Developed**  
 Bold One: **T<sub>c</sub>** **T<sub>t</sub>** through subarea **Proposed Drainage Area 1b (PDA-1b)**

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

**Sheet flow** (Applicable to T<sub>c</sub> Only)

1. Surface description (table 3-1)
2. Manning's roughness coeff., n (table 3-1)
3. Flow Length, L (total L ≤ 150 ft)
4. Two-yr 24-hr rainfall, P<sub>2</sub>
5. Land slope, s

$$6. T_t = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$$

Compute T<sub>t</sub>

Segment ID	AB	BC
	Grass (Dense)	Smooth Surface
	0.240	0.011
ft	20	130
in	3.46	3.46
ft/ft	0.01	0.010
hr	0.083	0.032
	+ = 0.115	

**Shallow concentrated flow**

7. Surface description (paved or unpaved)
8. Flow length, L
9. Watercourse slope, s
10. Average velocity, V (Conn DOT Equations 6.C.4 & C.C.5)

$$11. T_t = \frac{L}{3600 V}$$

Compute T<sub>t</sub>

Segment ID	cd
	Paved
ft	100
ft/ft	0.01
ft/s	2.03
hr	0.014
	+ = 0.014

**Channel flow**

12. Cross sectional flow area, a
13. Wetted perimeter, p<sub>w</sub>
14. Hydraulic radius, r
15. Channel slope, s
16. Manning's roughness coeff., n

$$r = \frac{a}{p_w}$$

Compute r

$$17. V = \frac{1.49 r^{2/3} s^{1/2}}{n}$$

Compute V

$$18. \text{Flow length, L}$$

$$19. T_t = \frac{L}{3600 V}$$

Compute T<sub>t</sub>

Segment ID	
ft <sup>2</sup>	
ft	
ft	
ft	
ft/ft	
ft/ft	
ft/s	5.00
ft	143
hr	0.008
	+ = 0.008
	Hours = 0.137
	Minutes = 8.190

20. Watershed or subarea T<sub>c</sub> or T<sub>t</sub> (add T<sub>t</sub> in steps 6, 11, 19)

Use 6 Minutes (0.1 hrs)

Project Proposed Development By MSL Date 08/06/20  
 Location 9-15 Albany Turnpike, Canton & Simsbury, CT Checked CJB Date 09/03/20

Bold One: Present **Developed**

Bold One: **T<sub>c</sub>** **T<sub>t</sub>** through subarea Proposed Drainage Area 1c (PDA-1c)

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

**Sheet flow** (Applicable to T<sub>c</sub> Only)

1. Surface description (table 3-1)
2. Manning's roughness coeff., n (table 3-1)
3. Flow Length, L (total L ≤ 150 ft)
4. Two-yr 24-hr rainfall, P<sub>2</sub>
5. Land slope, s

$$6. T_t = \frac{0.007(nL)^{0.8}}{P_2^{0.5} s^{0.4}}$$

Compute T<sub>t</sub>

Segment ID	<b>AB</b>	
	<b>Grass (Dense grasses)</b>	
	<b>0.24</b>	
ft	<b>150</b>	
in	<b>3.46</b>	
ft/ft	<b>0.01</b>	
hr	<b>0.417</b>	+ <b>0.000</b> = <b>0.417</b>

**Shallow concentrated flow**

7. Surface description (paved or unpaved)
8. Flow length, L
9. Watercourse slope, s
10. Average velocity, V (Conn DOT Equations 6.C.4 & C.C.5)

$$11. T_t = \frac{L}{3600 V}$$

Compute T<sub>t</sub>

Segment ID	<b>BC</b>	
	<b>Unpaved</b>	
ft	<b>135</b>	
ft/ft	<b>0.02</b>	
ft/s	<b>2.20</b>	
hr	<b>0.017</b>	+ <b>0.000</b> = <b>0.017</b>

**Channel flow**

12. Cross sectional flow area, a
13. Wetted perimeter, p<sub>w</sub>
14. Hydraulic radius, r
15. Channel slope, s
16. Manning's roughness coeff., n

$$r = \frac{a}{p_w}$$

Compute r

$$17. V = \frac{1.49 r^{2/3} s^{1/2}}{n}$$

Compute V

18. Flow length, L

$$19. T_t = \frac{L}{3600 V}$$

Compute T<sub>t</sub>

Segment ID	<b>BC</b>	<b>CD</b>	<b>DE</b>
ft <sup>2</sup>	<b>3.14</b>	<b>5.00</b>	<b>5.00</b>
ft	<b>6.28</b>	<b>7.47</b>	<b>7.47</b>
ft	<b>0.50</b>	<b>0.67</b>	<b>0.67</b>
ft/ft	<b>0.01</b>	<b>0.04</b>	<b>0.18</b>
	<b>0.025</b>	<b>0.025</b>	<b>0.03</b>
ft/s	<b>2.66</b>	<b>9.59</b>	<b>16.30</b>
ft	<b>210</b>	<b>260</b>	<b>250</b>
hr	<b>0.022</b>	+ <b>0.008</b>	+ <b>0.004</b> = <b>0.034</b>
		<b>Hours</b>	= <b>0.468</b>
		<b>Minutes</b>	= <b>28.10</b>

20. Watershed or subarea T<sub>c</sub> or T<sub>t</sub> (add T<sub>t</sub> in steps 6, 11, 19)



Project Proposed Development By MSL Date 08/06/20  
 Location 9-15 Albany Turnpike, Canton & Simsbury, CT Checked CJB Date 09/03/20  
 Bold One: Present **Developed**  
 Bold One: **T<sub>c</sub>** **T<sub>t</sub>** through subarea **Proposed Drainage Area 2 (PDA-2)**

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

**Sheet flow** (Applicable to T<sub>c</sub> Only)

1. Surface description (table 3-1)
2. Manning's roughness coeff., n (table 3-1)
3. Flow Length, L (total L ≤ 150 ft)
4. Two-yr 24-hr rainfall, P<sub>2</sub>
5. Land slope, s
6.  $T_t = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$  Compute T<sub>t</sub>

Segment ID	<b>AB</b>	
	<b>Woods (Light Underbrush)</b>	
	<b>0.40</b>	
ft	<b>150</b>	
in	<b>3.46</b>	
ft/ft	<b>0.07</b>	
hr	<b>0.294</b>	+ <b>0.000</b> = <b>0.294</b>

**Shallow concentrated flow**

7. Surface description (paved or unpaved)
8. Flow length, L
9. Watercourse slope, s
10. Average velocity, V (Conn DOT Equations 6.C.4 & C.C.5)
11.  $T_t = \frac{L}{3600 V}$  Compute T<sub>t</sub>

Segment ID	<b>BC</b>	
	<b>Unpaved</b>	
ft	<b>215</b>	
ft/ft	<b>0.25</b>	
ft/s	<b>8.09</b>	
hr	<b>0.007</b>	+ <b>0.000</b> = <b>0.007</b>

**Channel flow**

12. Cross sectional flow area, a
13. Wetted perimeter, p<sub>w</sub>
14. Hydraulic radius, r  $r = \frac{a}{p_w}$  Compute r
15. Channel slope, s
16. Manning's roughness coeff., n
17.  $V = \frac{1.49 r^{2/3} s^{1/2}}{n}$  Compute V
18. Flow length, L
19.  $T_t = \frac{L}{3600 V}$  Compute T<sub>t</sub>
20. Watershed or subarea T<sub>c</sub> or T<sub>t</sub> (add T<sub>t</sub> in steps 6, 11, 19)

Segment ID		
ft <sup>2</sup>		
ft		
ft		
ft		
ft/ft		
ft/ft		
ft/s		
ft		
hr		+ <b>0.000</b> = <b>0.000</b>
	<b>Hours</b>	= <b>0.302</b>
	<b>Minutes</b>	= <b>18.09</b>

Project Proposed Development By MSL Date 08/06/20  
 Location 9-15 Albany Turnpike, Canton & Simsbury, CT Checked CJB Date 09/03/20  
 Bold One: Present **Developed**  
 Bold One: **T<sub>c</sub>** **T<sub>t</sub>** through subarea **Proposed Drainage Area 3 (PDA-3)**

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

**Sheet flow** (Applicable to T<sub>c</sub> Only)

1. Surface description (table 3-1)
2. Manning's roughness coeff., n (table 3-1)
3. Flow Length, L (total L ≤ 150 ft)
4. Two-yr 24-hr rainfall, P<sub>2</sub>
5. Land slope, s
6.  $T_t = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$

Segment ID	<b>AB</b>	
	<b>Pavement</b>	
	<b>0.011</b>	
ft	<b>50</b>	
in	<b>3.46</b>	
ft/ft	<b>0.03</b>	
hr	<b>0.009</b>	+ <b>0.000</b> = <b>0.009</b>

Compute T<sub>t</sub>

**Shallow concentrated flow**

7. Surface description (paved or unpaved)
8. Flow length, L
9. Watercourse slope, s
10. Average velocity, V (Conn DOT Equations 6.C.4 & C.C.5)
11.  $T_t = \frac{L}{3600 V}$

Segment ID	<b>BC</b>	
	<b>Paved</b>	
ft	<b>400</b>	
ft/ft	<b>0.05</b>	
ft/s	<b>4.31</b>	
hr	<b>0.026</b>	+ <b>0.000</b> = <b>0.026</b>

Compute T<sub>t</sub>

**Channel flow**

12. Cross sectional flow area, a
13. Wetted perimeter, p<sub>w</sub>
14. Hydraulic radius, r  $r = \frac{a}{p_w}$
15. Channel slope, s
16. Manning's roughness coeff., n
17.  $V = \frac{1.49 r^{2/3} s^{1/2}}{n}$
18. Flow length, L
19.  $T_t = \frac{L}{3600 V}$

$r = \frac{a}{p_w}$  Compute r

Compute V

Compute T<sub>t</sub>

Segment ID		
ft <sup>2</sup>		
ft		
ft		
ft/ft		
ft/ft		
ft/s		
ft		
hr		+ <b>0.000</b> = <b>0.000</b>
	<b>Hours</b>	= <b>0.035</b>
	<b>Minutes</b>	= <b>2.115</b>

Use 6 Minutes (0.1 hrs)



Project Proposed Development By MSL Date 08/06/20  
 Location 9-15 Albany Turnpike, Canton & Simsbury, CT Checked CJB Date 09/03/20  
 Bold One: Present **Developed**  
 Bold One: **T<sub>c</sub>** **T<sub>t</sub>** through subarea **Proposed Drainage Area 5 (PDA-5)**

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

**Sheet flow** (Applicable to T<sub>c</sub> Only)

1. Surface description (table 3-1)
2. Manning's roughness coeff., n (table 3-1)
3. Flow Length, L (total L ≤ 150 ft)
4. Two-yr 24-hr rainfall, P<sub>2</sub>
5. Land slope, s
6.  $T_t = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$  Compute T<sub>t</sub>

Segment ID	<b>AB</b>	
	<b>Woods (Light Underbrush)</b>	
	<b>0.40</b>	
ft	<b>150</b>	
in	<b>3.46</b>	
ft/ft	<b>0.10</b>	
hr	<b>0.250</b>	+ <b>0.000</b> = <b>0.250</b>

**Shallow concentrated flow**

7. Surface description (paved or unpaved)
8. Flow length, L
9. Watercourse slope, s
10. Average velocity, V (Conn DOT Equations 6.C.4 & C.C.5)
11.  $T_t = \frac{L}{3600 V}$  Compute T<sub>t</sub>

Segment ID	<b>BC</b>	
	<b>Unpaved</b>	
ft	<b>100</b>	
ft/ft	<b>0.52</b>	
ft/s	<b>11.63</b>	
hr	<b>0.002</b>	+ <b>0.000</b> = <b>0.002</b>

**Channel flow**

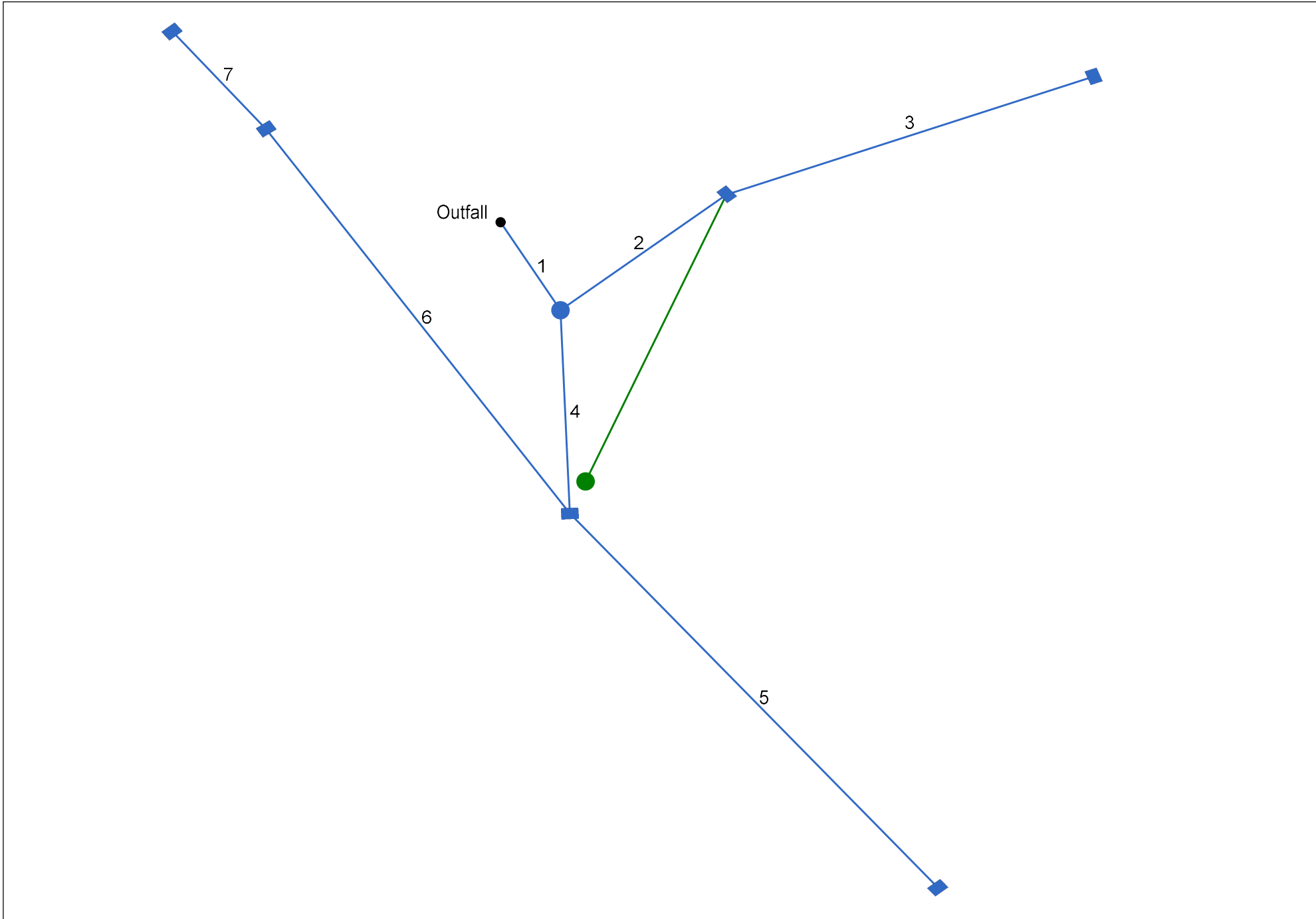
12. Cross sectional flow area, a
13. Wetted perimeter, p<sub>w</sub>
14. Hydraulic radius, r  $r = \frac{a}{p_w}$  Compute r
15. Channel slope, s
16. Manning's roughness coeff., n
17.  $V = \frac{1.49 r^{2/3} s^{1/2}}{n}$  Compute V
18. Flow length, L
19.  $T_t = \frac{L}{3600 V}$  Compute T<sub>t</sub>
20. Watershed or subarea T<sub>c</sub> or T<sub>t</sub> (add T<sub>t</sub> in steps 6, 11, 19)

Segment ID		
ft <sup>2</sup>		
ft		
ft		
ft/ft		
ft/ft		
ft/s		
ft		
hr		+ <b>0.000</b> = <b>0.000</b>
<b>Hours</b>		= <b>0.252</b>
<b>Minutes</b>		= <b>15.15</b>

**APPENDIX D**  
**PROPOSED HYDRAULICS**

Hydroflow Storm Sewer Schematic  
Hydrflow Storm Sewer Tabular Reports  
Hydroflow Storm Sewer Profile  
Runoff Coefficient Calculations for Collection System  
Time of Concentration Calculations  
Hydrodynamic Separator Calculations and Details  
Water Quality Volume Calculations

# Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



# Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	Pipe - (2)	8.74	18	Cir	29.000	340.65	340.95	1.035	341.79	342.09	0.57	342.09	End	Manhole
2	Pipe - (7)	4.23	18	Cir	52.000	340.95	341.70	1.442	342.09	342.49	n/a	342.49 j	1	Combination
3	Pipe - (8)	2.41	18	Cir	95.000	341.70	342.20	0.526	342.49	342.79	n/a	342.79 j	2	Combination
4	Pipe - (3)	4.93	18	Cir	58.000	340.95	341.30	0.603	342.09	342.15	n/a	342.15 j	1	Combination
5	Pipe - (4)	2.52	12	Cir	139.000	341.30	342.00	0.504	342.15	342.82	0.21	343.03	4	Combination
6	Pipe - (5)	0.83	18	Cir	132.000	341.30	341.97	0.508	342.15	342.31	n/a	342.31	4	Combination
7	Pipe - (6)	0.52	18	Cir	36.000	341.97	342.22	0.694	342.31	342.49	n/a	342.49 j	6	Combination

Project File: 1904501 - Detention Basin.stm

Number of lines: 7

Run Date: 8/31/2020

NOTES: Return period = 25 Yrs. ; j - Line contains hyd. jump.

# Storm Sewer Tabulation

Station		Len (ft)	Drng Area		Rnoff coeff (C)	Area x C		Tc		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr (ac)	Total (ac)		Incr	Total	Inlet (min)	Syst (min)					Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	29.000	0.00	2.11	0.00	0.00	1.43	0.0	14.4	6.1	8.74	10.68	6.05	18	1.03	340.65	340.95	341.79	342.09	342.54	345.30	Pipe - (2)
2	1	52.000	0.85	1.24	0.46	0.39	0.68	14.0	14.0	6.2	4.23	12.61	3.71	18	1.44	340.95	341.70	342.09	342.49	345.30	347.00	Pipe - (7)
3	2	95.000	0.39	0.39	0.75	0.29	0.29	5.0	5.0	8.2	2.41	7.62	3.16	18	0.53	341.70	342.20	342.49	342.79	347.00	345.70	Pipe - (8)
4	1	58.000	0.41	0.87	0.80	0.33	0.74	5.0	11.4	6.7	4.93	8.16	4.08	18	0.60	340.95	341.30	342.09	342.15	345.30	344.51	Pipe - (3)
5	4	139.000	0.34	0.34	0.90	0.31	0.31	5.0	5.0	8.2	2.52	2.53	3.61	12	0.50	341.30	342.00	342.15	342.82	344.51	344.00	Pipe - (4)
6	4	132.000	0.05	0.12	0.90	0.05	0.11	5.0	7.0	7.7	0.83	7.48	1.78	18	0.51	341.30	341.97	342.15	342.31	344.51	345.48	Pipe - (5)
7	6	36.000	0.07	0.07	0.90	0.06	0.06	5.0	5.0	8.2	0.52	8.75	2.09	18	0.69	341.97	342.22	342.31	342.49	345.48	345.73	Pipe - (6)

Project File: 1904501 - Detention Basin.stm

Number of lines: 7

Run Date: 8/31/2020

NOTES: Intensity = 102.61 / (Inlet time + 16.50) ^ 0.82; Return period = Yrs. 25 ; c = cir e = ellip b = box



# Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter						Inlet			Byp Line No		
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)		Depr (in)	
1	2	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.00	0.0	Off
2	3	2.42	0.00	1.49	0.93	Comb	3.5	2.31	0.00	2.31	1.35	0.010	2.00	0.050	0.050	0.013	0.26	5.24	0.27	3.66	1.0	4	
3	4	2.41	0.00	2.41	0.00	Comb	3.5	2.31	3.12	2.31	1.35	Sag	2.00	0.030	0.030	0.000	0.28	9.46	0.37	9.46	1.0	Off	
4	5	2.71	0.93	3.63	0.00	Comb	3.5	2.31	3.12	2.31	1.35	Sag	2.00	0.020	0.020	0.000	0.37	18.32	0.45	18.32	1.0	Off	
5	6	2.52	0.00	2.52	0.00	Comb	3.5	2.31	3.12	2.31	1.35	Sag	2.00	0.020	0.020	0.000	0.28	14.14	0.37	14.14	1.0	Off	
6	7	0.37	0.00	0.29	0.08	Comb	3.5	2.31	0.00	2.31	1.35	0.010	2.00	0.020	0.050	0.013	0.10	3.15	0.13	2.23	1.0	Off	
7	8	0.52	0.00	0.43	0.09	Comb	3.5	2.31	0.00	2.31	1.35	0.010	2.00	0.050	0.050	0.013	0.15	2.94	0.16	1.51	1.0	Off	

Project File: 1904501 - Detention Basin.stm

Number of lines: 7

Run Date: 8/31/2020

NOTES: Inlet N-Values = 0.016; Intensity = 102.61 / (Inlet time + 16.50) ^ 0.82; Return period = 25 Yrs. ; \* Indicates Known Q added. All curb inlets are throat.

# Hydraulic Grade Line Computations

Line (1)	Size (in) (2)	Q (cfs) (3)	Downstream								Len (ft) (12)	Upstream								Check		JL coeff (K) (23)	Minor loss (ft) (24)
			Invert elev (ft) (4)	HGL elev (ft) (5)	Depth (ft) (6)	Area (sqft) (7)	Vel (ft/s) (8)	Vel head (ft) (9)	EGL elev (ft) (10)	Sf (%) (11)		Invert elev (ft) (13)	HGL elev (ft) (14)	Depth (ft) (15)	Area (sqft) (16)	Vel (ft/s) (17)	Vel head (ft) (18)	EGL elev (ft) (19)	Sf (%) (20)	Ave Sf (%) (21)	Enrgy loss (ft) (22)		
1	18	8.74	340.65	341.79	1.14	1.44	6.05	0.57	342.36	0.000	29.000	340.95	342.09	1.14**	1.44	6.05	0.57	342.66	0.000	0.000	n/a	1.00	0.57
2	18	4.23	340.95	342.09	1.14	0.94	2.93	0.31	342.41	0.000	52.000	341.70	342.49 j	0.79**	0.94	4.50	0.31	342.80	0.000	0.000	n/a	0.56	0.18
3	18	2.41	341.70	342.49	0.79	0.64	2.57	0.22	342.71	0.000	95.000	342.20	342.79 j	0.59**	0.64	3.76	0.22	343.01	0.000	0.000	n/a	1.00	n/a
4	18	4.93	340.95	342.09	1.14	1.04	3.41	0.35	342.44	0.000	58.000	341.30	342.15 j	0.85**	1.04	4.75	0.35	342.50	0.000	0.000	n/a	1.50	n/a
5	12	2.52	341.30	342.15	0.85	0.71	3.53	0.19	342.35	0.470	139.000	342.00	342.82	0.82	0.69	3.68	0.21	343.03	0.507	0.488	0.679	1.00	0.21
6	18	0.83	341.30	342.15	0.85	0.30	0.80	0.12	342.27	0.000	132.000	341.97	342.31	0.34**	0.30	2.77	0.12	342.43	0.000	0.000	n/a	0.50	n/a
7	18	0.52	341.97	342.31	0.34	0.21	1.74	0.09	342.40	0.000	36.000	342.22	342.49 j	0.27**	0.21	2.45	0.09	342.58	0.000	0.000	n/a	1.00	n/a

Project File: 1904501 - Detention Basin.stm

Number of lines: 7

Run Date: 8/31/2020

Notes: ; \*\* Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

## General Procedure:

Hydraflow computes the HGL using the Bernoulli energy equation. Manning's equation is used to determine energy losses due to pipe friction. In a standard step, iterative procedure, Hydraflow assumes upstream HGLs until the energy equation balances. If the energy equation cannot balance, supercritical flow exists and critical depth is temporarily assumed at the upstream end. A supercritical flow Profile is then computed using the same procedure in a downstream direction using momentum principles.

Col. 1 The line number being computed. Calculations begin at Line 1 and proceed upstream.

Col. 2 The line size. In the case of non-circular pipes, the line rise is printed above the span.

Col. 3 Total flow rate in the line.

Col. 4 The elevation of the downstream invert.

Col. 5 Elevation of the hydraulic grade line at the downstream end. This is computed as the upstream HGL + Minor loss of this line's downstream line.

Col. 6 The downstream depth of flow inside the pipe (HGL - Invert elevation) but not greater than the line size.

Col. 7 Cross-sectional area of the flow at the downstream end.

Col. 8 The velocity of the flow at the downstream end, (Col. 3 / Col. 7).

Col. 9 Velocity head (Velocity squared / 2g).

Col. 10 The elevation of the energy grade line at the downstream end, HGL + Velocity head, (Col. 5 + Col. 9).

Col. 11 The friction slope at the downstream end (the S or Slope term in Manning's equation).

Col. 12 The line length.

Col. 13 The elevation of the upstream invert.

Col. 14 Elevation of the hydraulic grade line at the upstream end.

Col. 15 The upstream depth of flow inside the pipe (HGL - Invert elevation) but not greater than the line size.

Col. 16 Cross-sectional area of the flow at the upstream end.

Col. 17 The velocity of the flow at the upstream end, (Col. 3 / Col. 16).

Col. 18 Velocity head (Velocity squared / 2g).

Col. 19 The elevation of the energy grade line at the upstream end, HGL + Velocity head, (Col. 14 + Col. 18) .

Col. 20 The friction slope at the upstream end (the S or Slope term in Manning's equation).

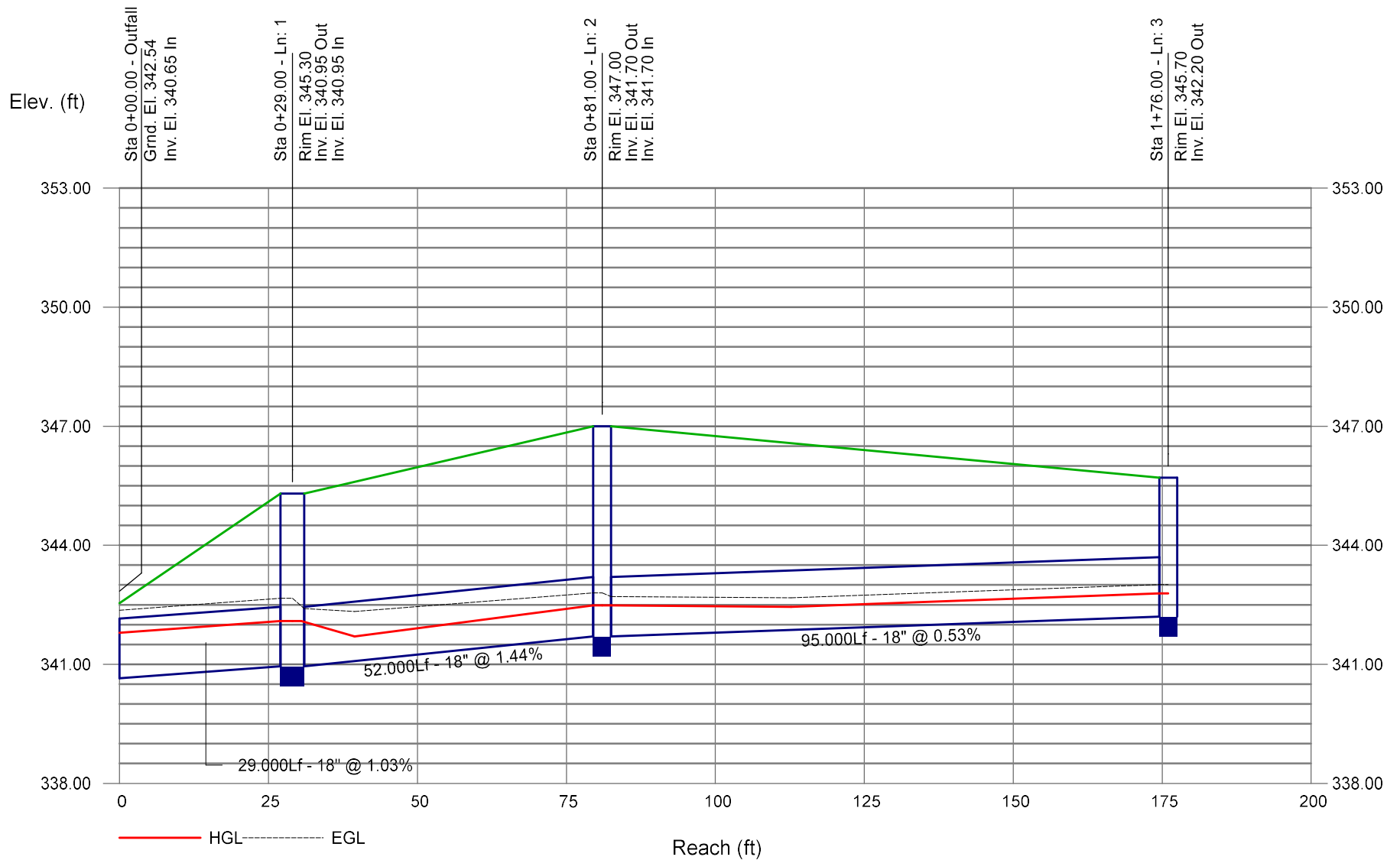
Col. 21 The average of the downstream and upstream friction slopes.

Col. 22 Energy loss. Average Sf/100 x Line Length (Col. 21/100 x Col. 12). Equals (EGL upstream - EGL downstream) +/- tolerance.

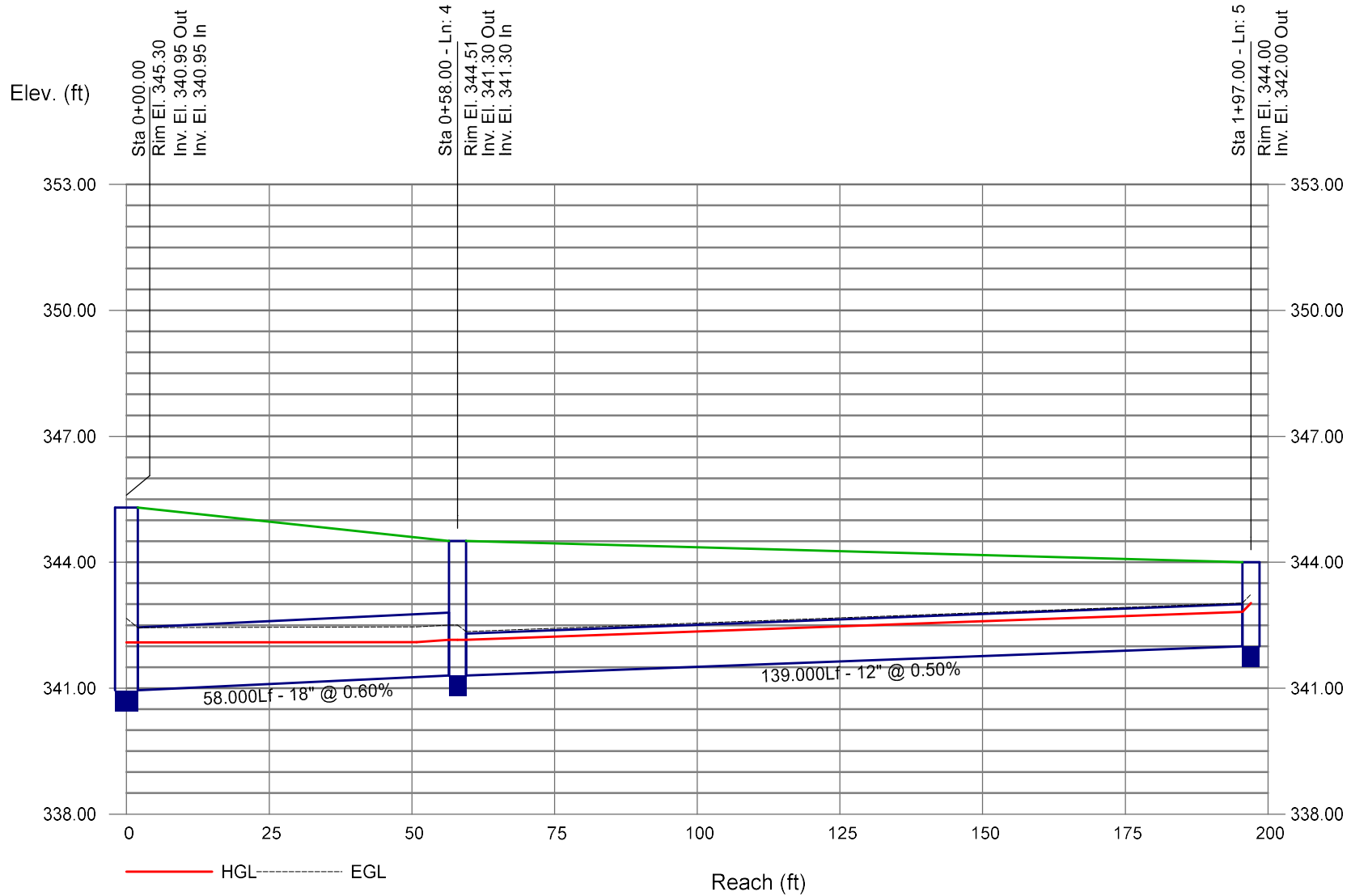
Col. 23 The junction loss coefficient (K).

Col. 24 Minor loss. (Col. 23 x Col. 18). Is added to upstream HGL and used as the starting HGL for the next upstream line(s).

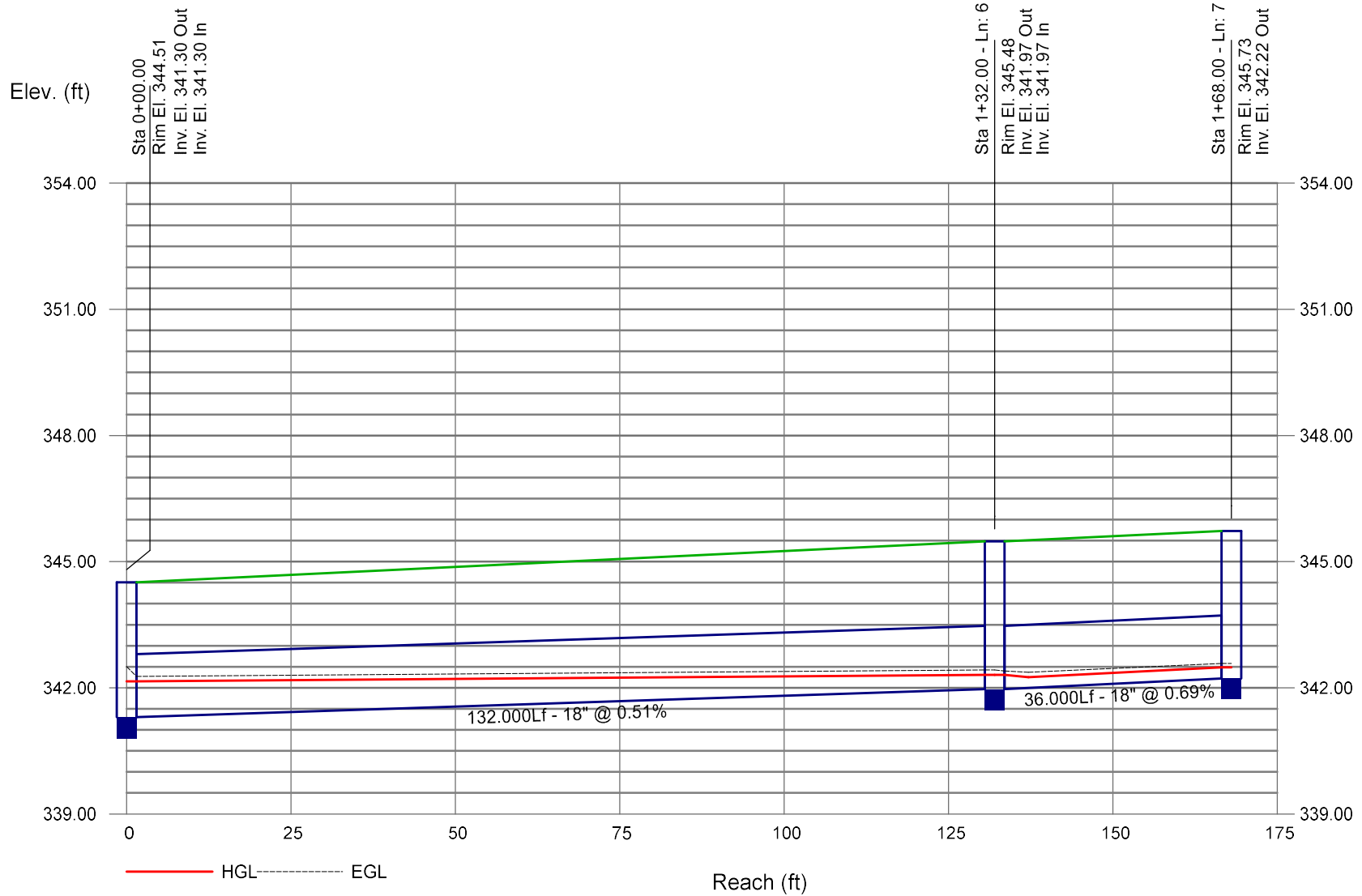
# Storm Sewer Profile



# Storm Sewer Profile



# Storm Sewer Profile



Project Proposed Development

By MSL

Date 08/10/20

Location 9-15 Albany Turnpike, Canton & Simsbury, CT

Checked CJB

Date \_\_\_\_\_

Bold one: Present Developed

**CB-2**

1. Runoff Coefficient @

Soil Name and hydrologic group  (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C <sup>1</sup>		Area  <input checked="" type="checkbox"/> acres <input type="checkbox"/> mi <sup>2</sup> <input type="checkbox"/> %	Product of C x area
	<b>Impervious</b>	<b>0.90</b>		<b>0.29</b>	<b>0.26</b>
	<b>Lawns, Flat Slope (0 to 2%)</b>	<b>0.10</b>		<b>0.00</b>	<b>0.00</b>
	<b>Lawns, Average Slope (2 to 7%)</b>	<b>0.22</b>		<b>0.00</b>	<b>0.00</b>
	<b>Lawns, Steep Slope (7% or greater)</b>	<b>0.35</b>		<b>0.13</b>	<b>0.05</b>
	<b>Forested Areas</b>	<b>0.2</b>		<b>0.43</b>	<b>0.09</b>
					<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
Totals =				<b>0.85</b>	<b>0.40</b>

<sup>1</sup> Use only one C source per line

$$C \text{ (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{0.40}{0.85} = 0.46 \text{ Use C = } \boxed{0.46}$$

Note - Runoff Coefficients taken from Town of Canton Public Improvements Regulations - Rational Method Computations, Runoff Coefficients

Project Proposed Development

By MSL

Date 08/10/20

Location 9-15 Albany Turnpike, Canton & Simsbury, CT

Checked CJB

Date \_\_\_\_\_

Bold one: Present Developed

**CB-3**

1. Runoff Coefficient @

Soil Name and hydrologic group  (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C <sup>1</sup>		Area  <input checked="" type="checkbox"/> acres <input type="checkbox"/> mi <sup>2</sup> <input type="checkbox"/> %	Product of C x area
	<b>Impervious</b>	<b>0.90</b>		<b>0.29</b>	<b>0.26</b>
	<b>Lawns, Flat Slope (0 to 2%)</b>	<b>0.10</b>		<b>0.00</b>	<b>0.00</b>
	<b>Lawns, Average Slope (2 to 7%)</b>	<b>0.22</b>		<b>0.00</b>	<b>0.00</b>
	<b>Lawns, Steep Slope (7% or greater)</b>	<b>0.35</b>		<b>0.10</b>	<b>0.04</b>
	<b>Forested Areas</b>	<b>0.2</b>		<b>0.00</b>	<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
Totals =				<b>0.39</b>	<b>0.30</b>

<sup>1</sup> Use only one C source per line

$$C \text{ (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{0.30}{0.39} = 0.75 \text{ Use C = } \boxed{0.75}$$

Note - Runoff Coefficients taken from Town of Canton Public Improvements Regulations - Rational Method Computations, Runoff Coefficients



Project Proposed Development

By MSL

Date 08/10/20

Location 9-15 Albany Turnpike, Canton & Simsbury, CT

Checked CJB

Date \_\_\_\_\_

Bold one: Present Developed

**CB-4**

1. Runoff Coefficient @

Soil Name and hydrologic group  (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C <sup>1</sup>		Area  <input checked="" type="checkbox"/> acres <input type="checkbox"/> mi <sup>2</sup> <input type="checkbox"/> %	Product of C x area
	<b>Impervious</b>	<b>0.90</b>		<b>0.34</b>	<b>0.30</b>
	<b>Lawns, Flat Slope (0 to 2%)</b>	<b>0.10</b>		<b>0.003</b>	<b>0.00</b>
	<b>Lawns, Average Slope (2 to 7%)</b>	<b>0.22</b>		<b>0.00</b>	<b>0.00</b>
	<b>Lawns, Steep Slope (7% or greater)</b>	<b>0.35</b>		<b>0.07</b>	<b>0.02</b>
	<b>Forested Areas</b>	<b>0.2</b>		<b>0.00</b>	<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
Totals =				<b>0.41</b>	<b>0.33</b>

<sup>1</sup> Use only one C source per line

$$C \text{ (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{0.33}{0.41} = 0.80 \text{ Use C = } \boxed{0.80}$$

Note - Runoff Coefficients taken from Town of Canton Public Improvements Regulations - Rational Method Computations, Runoff Coefficients

Project Proposed Development

By MSL

Date 08/10/20

Location 9-15 Albany Turnpike, Canton & Simsbury, CT

Checked CJB

Date \_\_\_\_\_

Bold one: Present Developed

**CB-5**

1. Runoff Coefficient @

Soil Name and hydrologic group  (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C <sup>1</sup>		Area  <input checked="" type="checkbox"/> acres <input type="checkbox"/> mi <sup>2</sup> <input type="checkbox"/> %	Product of C x area
	<b>Impervious</b>	<b>0.90</b>		<b>0.34</b>	<b>0.31</b>
	<b>Lawns, Flat Slope (0 to 2%)</b>	<b>0.10</b>		<b>0.00</b>	<b>0.00</b>
	<b>Lawns, Average Slope (2 to 7%)</b>	<b>0.22</b>		<b>0.00</b>	<b>0.00</b>
	<b>Lawns, Steep Slope (7% or greater)</b>	<b>0.35</b>		<b>0.00</b>	<b>0.00</b>
	<b>Forested Areas</b>	<b>0.2</b>		<b>0.00</b>	<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
Totals =				<b>0.34</b>	<b>0.31</b>

<sup>1</sup> Use only one C source per line

$$C \text{ (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{0.31}{0.34} = 0.90 \text{ Use C = } \boxed{0.90}$$

Note - Runoff Coefficients taken from Town of Canton Public Improvements Regulations - Rational Method Computations, Runoff Coefficients

Project Proposed Development

By MSL

Date 08/10/20

Location 9-15 Albany Turnpike, Canton & Simsbury, CT

Checked CJB

Date \_\_\_\_\_

Bold one: Present Developed

**CB-6**

1. Runoff Coefficient @

Soil Name and hydrologic group  (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C <sup>1</sup>		Area  <input checked="" type="checkbox"/> acres <input type="checkbox"/> mi <sup>2</sup> <input type="checkbox"/> %	Product of C x area
	<b>Impervious</b>	<b>0.90</b>		<b>0.05</b>	<b>0.04</b>
	<b>Lawns, Flat Slope (0 to 2%)</b>	<b>0.10</b>		<b>0.00</b>	<b>0.00</b>
	<b>Lawns, Average Slope (2 to 7%)</b>	<b>0.22</b>		<b>0.00</b>	<b>0.00</b>
	<b>Lawns, Steep Slope (7% or greater)</b>	<b>0.35</b>		<b>0.00</b>	<b>0.00</b>
	<b>Forested Areas</b>	<b>0.2</b>		<b>0.00</b>	<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
Totals =				<b>0.05</b>	<b>0.04</b>

<sup>1</sup> Use only one C source per line

$$C \text{ (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{0.04}{0.05} = 0.90 \text{ Use C = } \boxed{0.90}$$

Note - Runoff Coefficients taken from Town of Canton Public Improvements Regulations - Rational Method Computations, Runoff Coefficients

Project Proposed Development

By MSL

Date 08/10/20

Location 9-15 Albany Turnpike, Canton & Simsbury, CT

Checked CJB

Date \_\_\_\_\_

Bold one: Present Developed

**CB-7**

1. Runoff Coefficient @

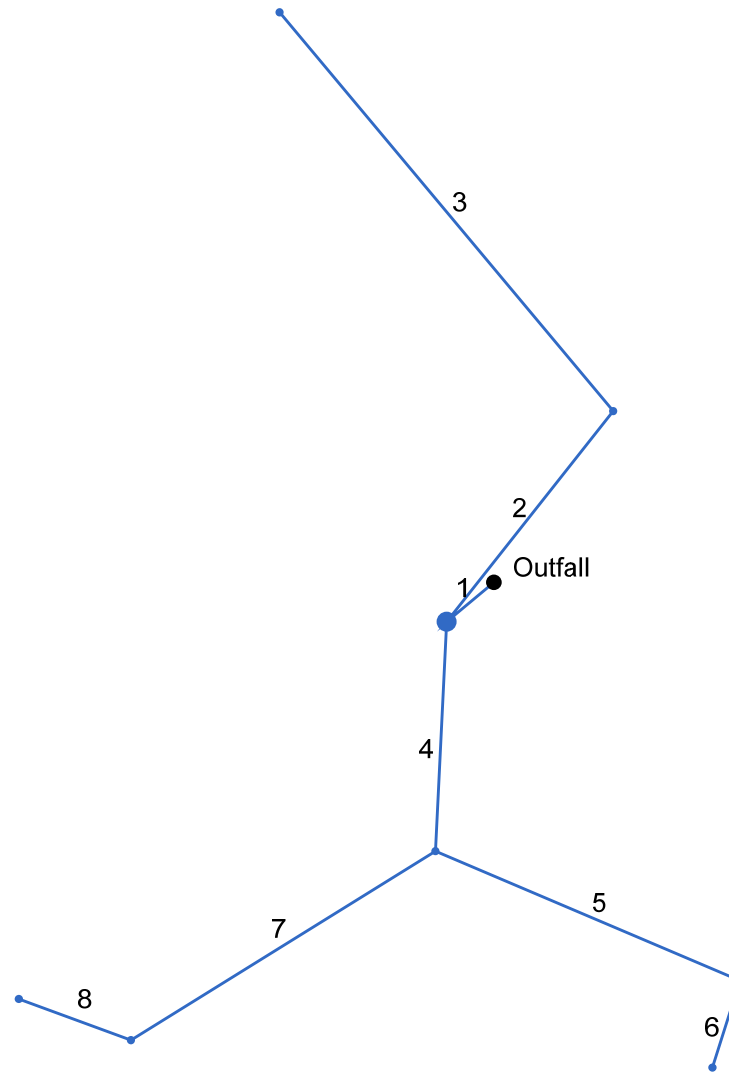
Soil Name and hydrologic group  (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C <sup>1</sup>		Area  <input checked="" type="checkbox"/> acres <input type="checkbox"/> mi <sup>2</sup> <input type="checkbox"/> %	Product of C x area
	<b>Impervious</b>	<b>0.90</b>		<b>0.07</b>	<b>0.06</b>
	<b>Lawns, Flat Slope (0 to 2%)</b>	<b>0.10</b>		<b>0.00</b>	<b>0.00</b>
	<b>Lawns, Average Slope (2 to 7%)</b>	<b>0.22</b>		<b>0.00</b>	<b>0.00</b>
	<b>Lawns, Steep Slope (7% or greater)</b>	<b>0.35</b>		<b>0.00</b>	<b>0.00</b>
	<b>Forested Areas</b>	<b>0.2</b>		<b>0.00</b>	<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
Totals =				<b>0.07</b>	<b>0.06</b>

<sup>1</sup> Use only one C source per line

$$C \text{ (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{0.06}{0.07} = 0.90 \text{ Use C = } \boxed{0.90}$$

Note - Runoff Coefficients taken from Town of Canton Public Improvements Regulations - Rational Method Computations, Runoff Coefficients

# Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



# Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	Pipe - (12)	9.14	18	Cir	14.413	335.50	337.18	11.656	336.67	338.35	n/a	338.35 j	End	Manhole
2	Pipe - (10)	1.71	18	Cir	63.000	337.25	341.79	7.206	338.35	342.28	n/a	342.28 j	1	Combination
3	Pipe - (9)	0.87	15	Cir	122.040	341.79	342.70	0.746	342.28	343.07	n/a	343.07 j	2	Combination
4	Pipe - (15)	8.26	18	Cir	54.000	337.25	337.66	0.759	338.37	338.78	n/a	339.79 j	1	Combination
5	Pipe - (14)	2.48	15	Cir	77.567	339.20	340.00	1.031	339.79	340.63	n/a	340.63	4	Combination
6	Pipe - (13)	1.20	15	Cir	21.423	340.00	340.50	2.334	340.63	340.93	n/a	340.93 j	5	Combination
7	Pipe - (17)	4.63	15	Cir	84.025	337.66	338.29	0.750	339.79*	340.23*	0.27	340.50	4	Combination
8	Pipe - (16)	0.87	15	Cir	27.948	338.29	338.50	0.751	340.50*	340.51*	0.01	340.51	7	Combination

Project File: 1904501 - Underground.stm

Number of lines: 8

Run Date: 9/4/2020

NOTES: Return period = 25 Yrs. ; \*Surcharged (HGL above crown). ; j - Line contains hyd. jump.

# Storm Sewer Tabulation

Station		Len (ft)	Drng Area		Rnoff coeff (C)	Area x C		Tc		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr (ac)	Total (ac)		Incr	Total	Inlet (min)	Syst (min)					Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	14.413	0.00	1.65	0.00	0.00	1.27	0.0	8.9	7.2	9.14	35.85	6.18	18	11.66	335.50	337.18	336.67	338.35	337.55	346.05	Pipe - (12)
2	1	63.000	0.20	0.36	0.62	0.12	0.23	5.0	7.9	7.4	1.71	28.19	2.31	18	7.21	337.25	341.79	338.35	342.28	346.05	346.08	Pipe - (10)
3	2	122.040	0.16	0.16	0.66	0.11	0.11	5.0	5.0	8.2	0.87	5.58	2.43	15	0.75	341.79	342.70	342.28	343.07	346.08	346.21	Pipe - (9)
4	1	54.000	0.19	1.29	0.84	0.16	1.04	5.0	6.0	7.9	8.26	9.15	5.86	18	0.76	337.25	337.66	338.37	338.78	346.05	344.84	Pipe - (15)
5	4	77.567	0.22	0.43	0.73	0.16	0.31	5.0	5.4	8.1	2.48	6.56	4.16	15	1.03	339.20	340.00	339.79	340.63	344.84	344.00	Pipe - (14)
6	5	21.423	0.21	0.21	0.69	0.14	0.14	5.0	5.0	8.2	1.20	9.87	2.56	15	2.33	340.00	340.50	340.63	340.93	344.00	344.00	Pipe - (13)
7	4	84.025	0.54	0.67	0.87	0.47	0.58	5.0	5.7	8.0	4.63	5.59	3.77	15	0.75	337.66	338.29	339.79	340.23	344.84	344.75	Pipe - (17)
8	7	27.948	0.13	0.13	0.81	0.11	0.11	5.0	5.0	8.2	0.87	5.60	0.71	15	0.75	338.29	338.50	340.50	340.51	344.75	342.00	Pipe - (16)

Project File: 1904501 - Underground.stm

Number of lines: 8

Run Date: 9/4/2020

NOTES: Intensity = 102.61 / (Inlet time + 16.50) ^ 0.82; Return period = Yrs. 25 ; c = cir e = ellip b = box

# Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter						Inlet			Byp Line No		
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)		Depr (in)	
1	p1b	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.00	0.0	Off
2	3A	1.02	0.00	1.02	0.00	Comb	3.5	2.31	3.12	2.31	1.35	Sag	2.00	0.030	0.030	0.013	0.16	5.17	0.24	5.17	1.0	Off	
3	4A	0.87	0.00	0.87	0.00	Comb	3.5	2.31	3.12	2.31	1.35	Sag	2.00	0.030	0.030	0.000	0.14	4.60	0.22	4.60	1.0	Off	
4	5A	1.32	0.00	1.32	0.00	Comb	3.5	2.31	3.12	2.31	1.35	Sag	2.00	0.030	0.030	0.013	0.19	6.19	0.27	6.19	1.0	Off	
5	6A	1.32	0.00	1.32	0.00	Comb	3.5	2.31	3.12	2.31	1.35	Sag	2.00	0.030	0.030	0.000	0.19	6.21	0.27	6.21	1.0	Off	
6	7A	1.20	0.00	1.20	0.00	Comb	3.5	2.31	3.12	2.31	1.35	Sag	2.00	0.030	0.030	0.013	0.17	5.78	0.26	5.78	1.0	Off	
7	8A	3.87	0.00	3.87	0.00	Comb	3.5	2.31	3.12	2.31	1.35	Sag	2.00	0.030	0.030	0.013	0.39	13.11	0.48	13.11	1.0	Off	
8	9A	0.87	0.00	0.70	0.16	Comb	3.5	2.31	0.00	2.31	1.35	0.010	2.00	0.040	0.100	0.013	0.17	2.92	0.17	2.08	1.0	Off	

Project File: 1904501 - Underground.stm

Number of lines: 8

Run Date: 9/4/2020

NOTES: Inlet N-Values = 0.016; Intensity = 102.61 / (Inlet time + 16.50) ^ 0.82; Return period = 25 Yrs. ; \* Indicates Known Q added. All curb inlets are throat.



# Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)		Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)		
(1)	(in) (2)	(cfs) (3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(ft) (12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(K) (23)	(ft) (24)
1	18	9.14	335.50	336.67	1.17	1.48	6.18	0.60	337.27	0.000	14.413	337.18	338.35 j	1.17**	1.48	6.19	0.60	338.94	0.000	0.000	n/a	1.00	0.60
2	18	1.71	337.25	338.35	1.10	0.50	1.23	0.18	338.53	0.000	63.000	341.79	342.28 j	0.49**	0.50	3.40	0.18	342.46	0.000	0.000	n/a	1.47	n/a
3	15	0.87	341.79	342.28	0.49	0.30	1.95	0.13	342.41	0.000	122.040	342.70	343.07 j	0.37**	0.30	2.91	0.13	343.20	0.000	0.000	n/a	1.00	0.13
4	18	8.26	337.25	338.37	1.12*	1.41	5.86	0.53	338.90	0.759	54.000	337.66	338.78 j	1.12**	1.41	5.86	0.53	339.31	0.758	0.759	0.410	1.91	1.02
5	15	2.48	339.20	339.79	0.59	0.58	4.31	0.25	340.04	0.000	77.567	340.00	340.63	0.63**	0.62	4.00	0.25	340.88	0.000	0.000	n/a	1.49	n/a
6	15	1.20	340.00	340.63	0.63	0.37	1.93	0.16	340.79	0.000	21.423	340.50	340.93 j	0.43**	0.37	3.19	0.16	341.09	0.000	0.000	n/a	1.00	0.16
7	15	4.63	337.66	339.79	1.25	1.23	3.77	0.22	340.02	0.514	84.025	338.29	340.23	1.25	1.23	3.77	0.22	340.45	0.513	0.514	0.431	1.24	0.27
8	15	0.87	338.29	340.50	1.25	1.23	0.71	0.01	340.51	0.018	27.948	338.50	340.51	1.25	1.23	0.71	0.01	340.51	0.018	0.018	0.005	1.00	0.01

Project File: 1904501 - Underground.stm

Number of lines: 8

Run Date: 9/4/2020

Notes: \* depth assumed; \*\* Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

## General Procedure:

Hydraflow computes the HGL using the Bernoulli energy equation. Manning's equation is used to determine energy losses due to pipe friction. In a standard step, iterative procedure, Hydraflow assumes upstream HGLs until the energy equation balances. If the energy equation cannot balance, supercritical flow exists and critical depth is temporarily assumed at the upstream end. A supercritical flow Profile is then computed using the same procedure in a downstream direction using momentum principles.

Col. 1 The line number being computed. Calculations begin at Line 1 and proceed upstream.

Col. 2 The line size. In the case of non-circular pipes, the line rise is printed above the span.

Col. 3 Total flow rate in the line.

Col. 4 The elevation of the downstream invert.

Col. 5 Elevation of the hydraulic grade line at the downstream end. This is computed as the upstream HGL + Minor loss of this line's downstream line.

Col. 6 The downstream depth of flow inside the pipe (HGL - Invert elevation) but not greater than the line size.

Col. 7 Cross-sectional area of the flow at the downstream end.

Col. 8 The velocity of the flow at the downstream end, (Col. 3 / Col. 7).

Col. 9 Velocity head (Velocity squared / 2g).

Col. 10 The elevation of the energy grade line at the downstream end, HGL + Velocity head, (Col. 5 + Col. 9).

Col. 11 The friction slope at the downstream end (the S or Slope term in Manning's equation).

Col. 12 The line length.

Col. 13 The elevation of the upstream invert.

Col. 14 Elevation of the hydraulic grade line at the upstream end.

Col. 15 The upstream depth of flow inside the pipe (HGL - Invert elevation) but not greater than the line size.

Col. 16 Cross-sectional area of the flow at the upstream end.

Col. 17 The velocity of the flow at the upstream end, (Col. 3 / Col. 16).

Col. 18 Velocity head (Velocity squared / 2g).

Col. 19 The elevation of the energy grade line at the upstream end, HGL + Velocity head, (Col. 14 + Col. 18) .

Col. 20 The friction slope at the upstream end (the S or Slope term in Manning's equation).

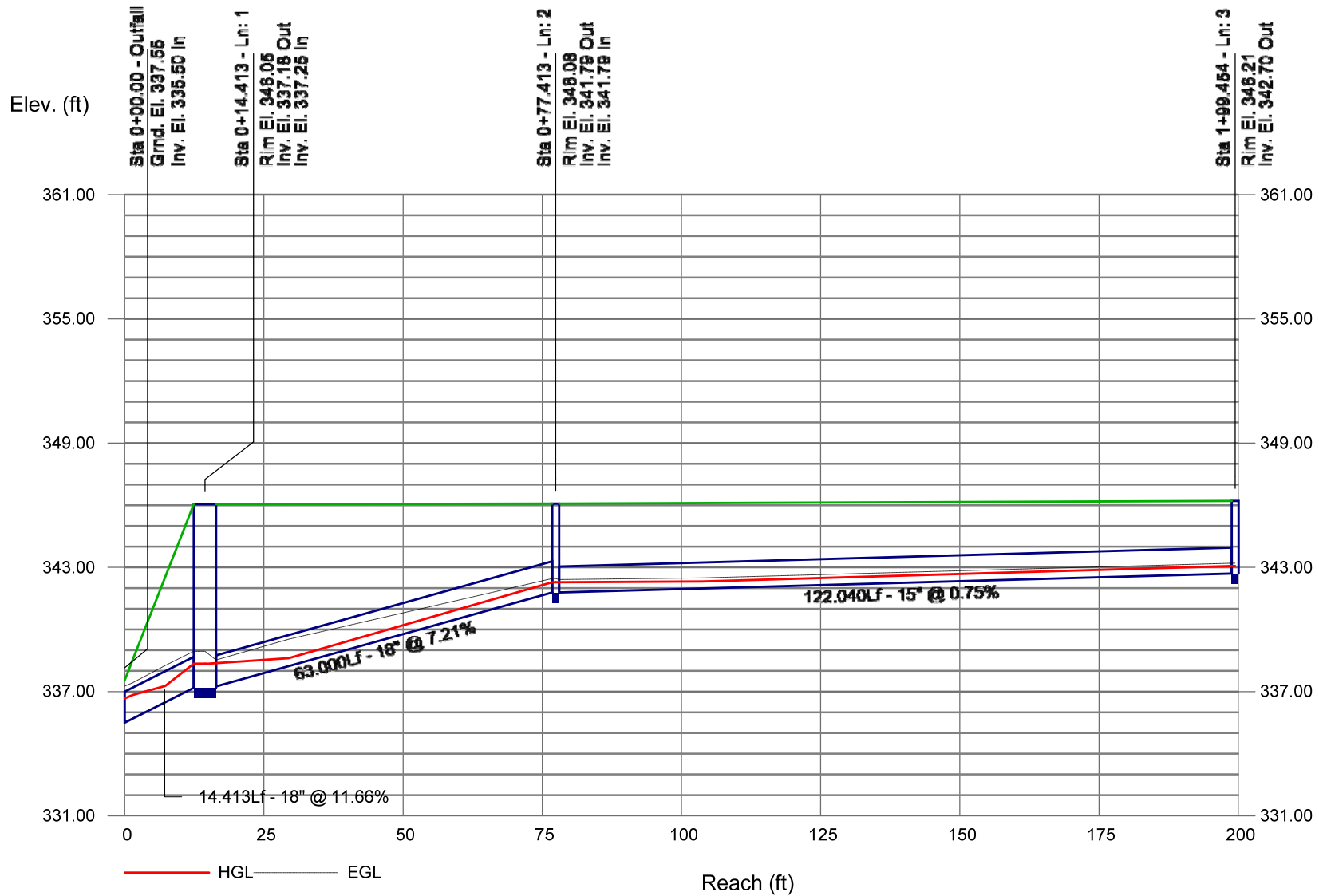
Col. 21 The average of the downstream and upstream friction slopes.

Col. 22 Energy loss. Average  $Sf/100 \times \text{Line Length}$  (Col. 21/100 x Col. 12). Equals (EGL upstream - EGL downstream) +/- tolerance.

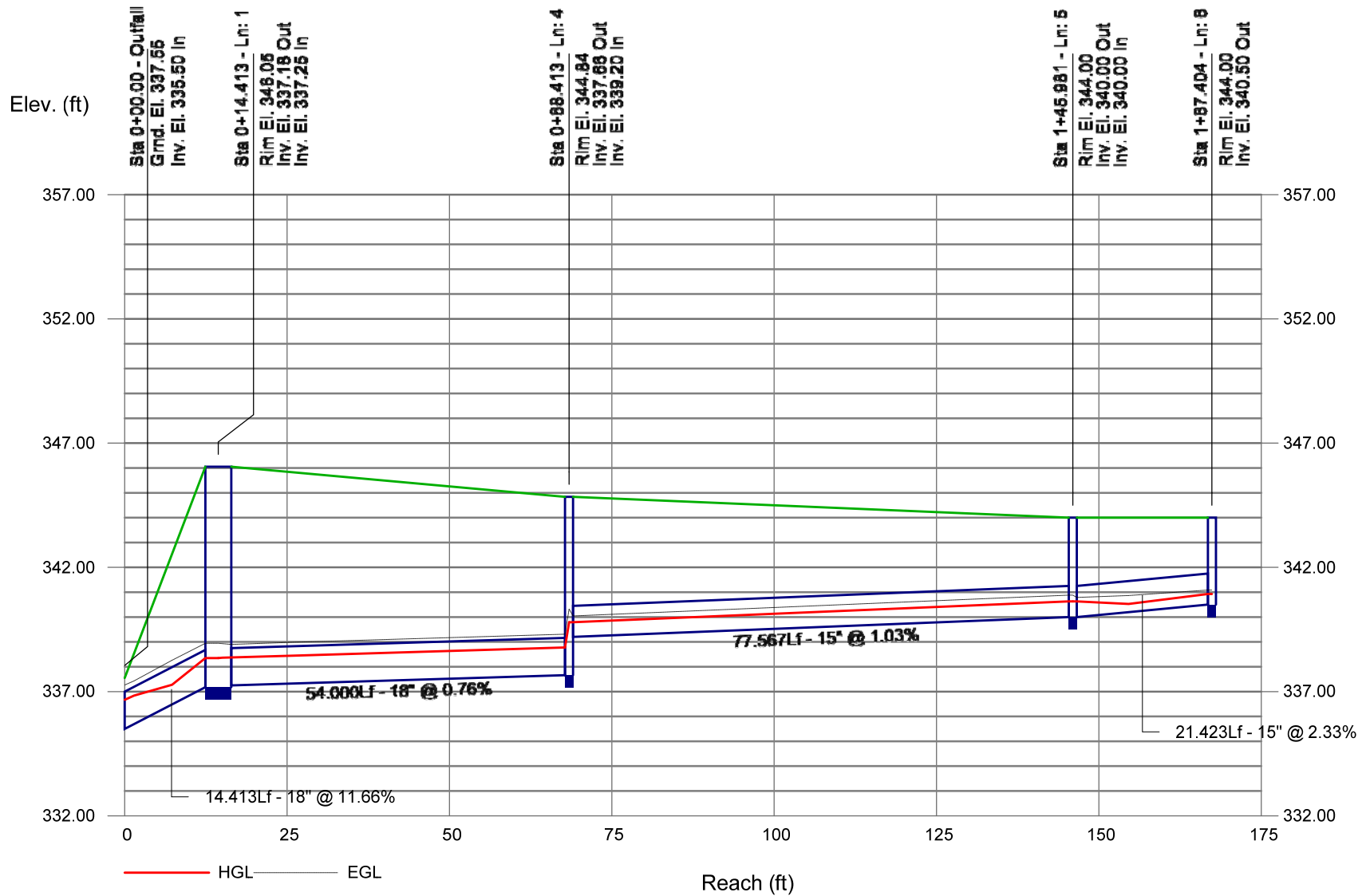
Col. 23 The junction loss coefficient (K).

Col. 24 Minor loss. (Col. 23 x Col. 18). Is added to upstream HGL and used as the starting HGL for the next upstream line(s).

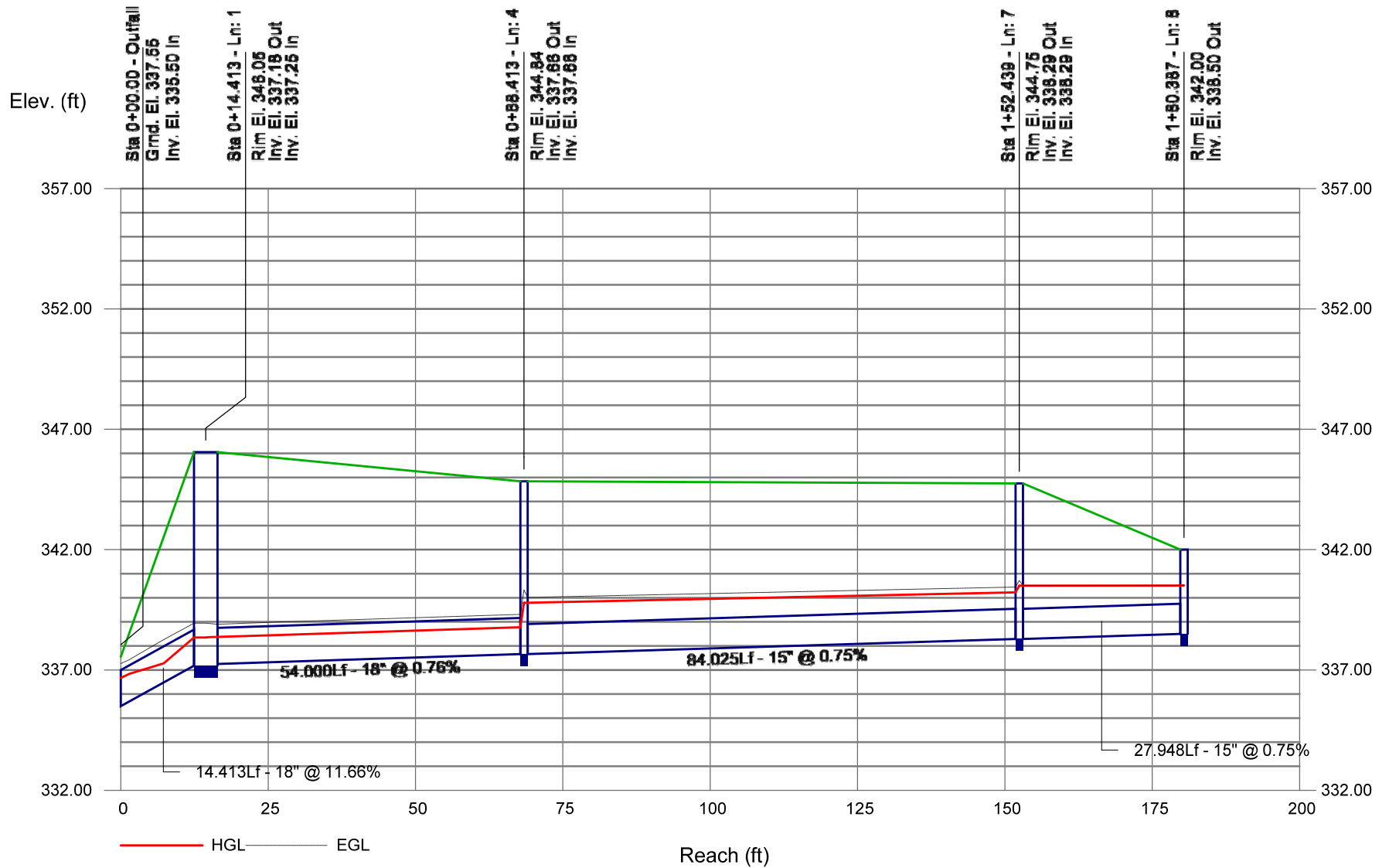
# Storm Sewer Profile



# Storm Sewer Profile



# Storm Sewer Profile



Project Proposed Development

By MSL

Date 08/10/20

Location 9-15 Albany Turnpike, Canton & Simsbury, CT

Checked CJB

Date \_\_\_\_\_

Bold one: Present Developed

**CB-3a**

1. Runoff Coefficient @

Soil Name and hydrologic group  (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C <sup>1</sup>		Area  <input checked="" type="checkbox"/> acres <input type="checkbox"/> mi <sup>2</sup> <input type="checkbox"/> %	Product of C x area
	<b>Impervious</b>	<b>0.90</b>		<b>0.10</b>	<b>0.09</b>
	<b>Lawns, Flat Slope (0 to 2%)</b>	<b>0.10</b>		<b>0.00</b>	<b>0.00</b>
	<b>Lawns, Average Slope (2 to 7%)</b>	<b>0.22</b>		<b>0.00</b>	<b>0.00</b>
	<b>Lawns, Steep Slope (7% or greater)</b>	<b>0.35</b>		<b>0.10</b>	<b>0.04</b>
	<b>Forested Areas</b>	<b>0.2</b>		<b>0.00</b>	<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
Totals =				<b>0.20</b>	<b>0.12</b>

<sup>1</sup> Use only one C source per line

$$C \text{ (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{0.12}{0.20} = 0.62 \text{ Use C = } \boxed{0.62}$$

Note - Runoff Coefficients taken from Town of Canton Public Improvements Regulations - Rational Method Computations, Runoff Coefficients

Project Proposed Development

By MSL

Date 08/10/20

Location 9-15 Albany Turnpike, Canton & Simsbury, CT

Checked CJB

Date \_\_\_\_\_

Bold one: Present Developed

CB-4a

1. Runoff Coefficient @

Soil Name and hydrologic group  (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C <sup>1</sup>		Area  <input checked="" type="checkbox"/> acres <input type="checkbox"/> mi <sup>2</sup> <input type="checkbox"/> %	Product of C x area
	<b>Impervious</b>	<b>0.90</b>		<b>0.09</b>	<b>0.08</b>
	<b>Lawns, Flat Slope (0 to 2%)</b>	<b>0.10</b>		<b>0.00</b>	<b>0.00</b>
	<b>Lawns, Average Slope (2 to 7%)</b>	<b>0.22</b>		<b>0.00</b>	<b>0.00</b>
	<b>Lawns, Steep Slope (7% or greater)</b>	<b>0.35</b>		<b>0.07</b>	<b>0.02</b>
	<b>Forested Areas</b>	<b>0.2</b>		<b>0.00</b>	<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
Totals =				<b>0.16</b>	<b>0.10</b>

1 Use only one C source per line

$$C \text{ (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{0.10}{0.16} = 0.66 \text{ Use C = } \boxed{0.66}$$

Note - Runoff Coefficients taken from Town of Canton Public Improvements Regulations - Rational Method Computations, Runoff Coefficients

Project Proposed Development

By MSL

Date 08/10/20

Location 9-15 Albany Turnpike, Canton & Simsbury, CT

Checked CJB

Date \_\_\_\_\_

Bold one: Present Developed

**CB-5a**

1. Runoff Coefficient @

Soil Name and hydrologic group  (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C <sup>1</sup>		Area  <input checked="" type="checkbox"/> acres <input type="checkbox"/> mi <sup>2</sup> <input type="checkbox"/> %	Product of C x area
	<b>Impervious</b>	<b>0.90</b>		<b>0.18</b>	<b>0.16</b>
	<b>Lawns, Flat Slope (0 to 2%)</b>	<b>0.10</b>		<b>0.01</b>	<b>0.00</b>
	<b>Lawns, Average Slope (2 to 7%)</b>	<b>0.22</b>		<b>0.00</b>	<b>0.00</b>
	<b>Lawns, Steep Slope (7% or greater)</b>	<b>0.35</b>		<b>0.00</b>	<b>0.00</b>
	<b>Forested Areas</b>	<b>0.2</b>		<b>0.00</b>	<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
Totals =				<b>0.19</b>	<b>0.16</b>

<sup>1</sup> Use only one C source per line

$$C \text{ (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{0.16}{0.19} = 0.84 \text{ Use C = } \boxed{0.84}$$

Note - Runoff Coefficients taken from Town of Canton Public Improvements Regulations - Rational Method Computations, Runoff Coefficients



Project Proposed Development

By MSL

Date 08/10/20

Location 9-15 Albany Turnpike, Canton & Simsbury, CT

Checked CJB

Date \_\_\_\_\_

Bold one: Present Developed

**CB-6a**

1. Runoff Coefficient @

Soil Name and hydrologic group  (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C <sup>1</sup>		Area  <input checked="" type="checkbox"/> acres <input type="checkbox"/> mi <sup>2</sup> <input type="checkbox"/> %	Product of C x area
	<b>Impervious</b>	<b>0.90</b>		<b>0.17</b>	<b>0.15</b>
	<b>Lawns, Flat Slope (0 to 2%)</b>	<b>0.10</b>		<b>0.03</b>	<b>0.00</b>
	<b>Lawns, Average Slope (2 to 7%)</b>	<b>0.22</b>		<b>0.00</b>	<b>0.00</b>
	<b>Lawns, Steep Slope (7% or greater)</b>	<b>0.35</b>		<b>0.02</b>	<b>0.01</b>
	<b>Forested Areas</b>	<b>0.2</b>		<b>0.00</b>	<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
Totals =				<b>0.22</b>	<b>0.16</b>

<sup>1</sup> Use only one C source per line

$$C \text{ (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{0.16}{0.22} = 0.73 \text{ Use } C = \boxed{0.73}$$

Note - Runoff Coefficients taken from Town of Canton Public Improvements Regulations - Rational Method Computations, Runoff Coefficients

Project Proposed Development

By MSL

Date 08/10/20

Location 9-15 Albany Turnpike, Canton & Simsbury, CT

Checked CJB

Date \_\_\_\_\_

Bold one: Present Developed

**CB 7a**

1. Runoff Coefficient @

Soil Name and hydrologic group  (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C <sup>1</sup>		Area  <input checked="" type="checkbox"/> acres <input type="checkbox"/> mi <sup>2</sup> <input type="checkbox"/> %	Product of C x area
	<b>Impervious</b>	<b>0.90</b>		<b>0.16</b>	<b>0.14</b>
	<b>Lawns, Flat Slope (0 to 2%)</b>	<b>0.10</b>		<b>0.06</b>	<b>0.01</b>
	<b>Lawns, Average Slope (2 to 7%)</b>	<b>0.22</b>		<b>0.00</b>	<b>0.00</b>
	<b>Lawns, Steep Slope (7% or greater)</b>	<b>0.35</b>		<b>0.00</b>	<b>0.00</b>
	<b>Forested Areas</b>	<b>0.2</b>		<b>0.00</b>	<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
Totals =				<b>0.21</b>	<b>0.15</b>

<sup>1</sup> Use only one C source per line

$$C \text{ (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{0.15}{0.21} = 0.69 \text{ Use C = } \boxed{0.69}$$

Note - Runoff Coefficients taken from Town of Canton Public Improvements Regulations - Rational Method Computations, Runoff Coefficients

Project Proposed Development

By MSL

Date 08/10/20

Location 9-15 Albany Turnpike, Canton & Simsbury, CT

Checked CJB

Date \_\_\_\_\_

Bold one: Present Developed

**CB 8a**

1. Runoff Coefficient @

Soil Name and hydrologic group  (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C <sup>1</sup>		Area  <input checked="" type="checkbox"/> acres <input type="checkbox"/> mi <sup>2</sup> <input type="checkbox"/> %	Product of C x area
	<b>Impervious</b>	<b>0.90</b>		<b>0.52</b>	<b>0.47</b>
	<b>Lawns, Flat Slope (0 to 2%)</b>	<b>0.10</b>		<b>0.02</b>	<b>0.00</b>
	<b>Lawns, Average Slope (2 to 7%)</b>	<b>0.22</b>		<b>0.00</b>	<b>0.00</b>
	<b>Lawns, Steep Slope (7% or greater)</b>	<b>0.35</b>		<b>0.00</b>	<b>0.00</b>
	<b>Forested Areas</b>	<b>0.2</b>		<b>0.00</b>	<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
Totals =				<b>0.54</b>	<b>0.47</b>

<sup>1</sup> Use only one C source per line

$$C \text{ (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{0.47}{0.54} = 0.87 \text{ Use C = } \boxed{0.87}$$

Note - Runoff Coefficients taken from Town of Canton Public Improvements Regulations - Rational Method Computations, Runoff Coefficients

Project Proposed Development

By MSL

Date 08/10/20

Location 9-15 Albany Turnpike, Canton & Simsbury, CT

Checked CJB

Date \_\_\_\_\_

Bold one: Present Developed

CB-9a

1. Runoff Coefficient @

Soil Name and hydrologic group  (Appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C <sup>1</sup>		Area  <input checked="" type="checkbox"/> acres <input type="checkbox"/> mi <sup>2</sup> <input type="checkbox"/> %	Product of C x area
	<b>Impervious</b>	<b>0.90</b>		<b>0.11</b>	<b>0.10</b>
	<b>Lawns, Flat Slope (0 to 2%)</b>	<b>0.10</b>		<b>0.01</b>	<b>0.00</b>
	<b>Lawns, Average Slope (2 to 7%)</b>	<b>0.22</b>		<b>0.00</b>	<b>0.00</b>
	<b>Lawns, Steep Slope (7% or greater)</b>	<b>0.35</b>		<b>0.00</b>	<b>0.00</b>
	<b>Forested Areas</b>	<b>0.2</b>		<b>0.00</b>	<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
					<b>0.00</b>
Totals =				<b>0.13</b>	<b>0.10</b>

1 Use only one C source per line

$$C \text{ (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{0.10}{0.13} = 0.81 \text{ Use C = } \boxed{0.81}$$

Note - Runoff Coefficients taken from Town of Canton Public Improvements Regulations - Rational Method Computations, Runoff Coefficients

# Hydrodynamic Separation Product Calculator

Canton/Simsbury

PDA-1a

CDS CDS2020-5-C

Project Information					
Project Name	Canton/Simsbury			Option #	A
Country	UNITED_STATES	State	Connecticut	City	West Simsbury

Contact Information			
First Name	Michael	Last Name	Lambert
Company	Solli Engineering LLC	Phone #	203-880-5455
Email	Mike@sollllc.com		

Design Criteria					
Site Designation	PDA-1a			Sizing Method	Treatment Flow Rate
Screening Required?	Yes	Treatment Flow Rate	0.39	Peak Flow (cfs)	8.74
Groundwater Depth (ft)	0 - 5	Pipe Invert Depth (ft)	0 - 5	Bedrock Depth (ft)	0 - 5
Multiple Inlets?	Yes	Grate Inlet Required?	No	Pipe Size (in)	18.00
Required Particle Size Distribution?	Yes	90° between two inlets?	No		

Treatment Selection			
Treatment Unit	CDS	System Model	CDS2020-5-C
Target Removal	80%	Particle Size Distribution (PSD)	50

# Hydrodynamic Separation Product Calculator

Canton/Simsbury

PDA-1a

CDS CDS2020-5-C

CDS ESTIMATED NET ANNUAL SOLIDS LOAD REDUCTION BASED ON THE RATIONAL RAINFALL METHOD								
Rainfall Intensity <sup>1</sup> (in/hr)	% Rainfall Volume <sup>1</sup>	Cumulative Rainfall Volume	Rainfall Volume Treated	Total Flowrate (cfs)	Treated Flowrate (cfs)	Operating Rate (%)	Removal Efficiency (%)	Incremental Removal (%)
							Removal Efficiency Adjustment <sup>2</sup> =	
							Predicted % Annual Rainfall Treated =	
							Predicted Net Annual Load Removal Efficiency =	
1 -								
2 - Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.								

SECTION (\_\_\_\_)  
STORM WATER TREATMENT DEVICE

1.0 GENERAL

- 1.1 This item shall govern the furnishing and installation of the CDS® by Contech Engineered Solutions LLC, complete and operable as shown and as specified herein, in accordance with the requirements of the plans and contract documents.
- 1.2 The Contractor shall furnish all labor, equipment and materials necessary to install the storm water treatment device(s) (SWTD) and appurtenances specified in the Drawings and these specifications.
- 1.3 The manufacturer of the SWTD shall be one that is regularly engaged in the engineering design and production of systems deployed for the treatment of storm water runoff for at least five (5) years and which have a history of successful production, acceptable to the Engineer. In accordance with the Drawings, the SWTD(s) shall be a CDS® device manufactured by:

Contech Engineered Solutions LLC  
9025 Centre Pointe Drive  
West Chester, OH, 45069  
Tel: 1 800 338 1122

1.4 Related Sections

- 1.4.1 Section 02240: Dewatering
- 1.4.2 Section 02260: Excavation Support and Protection
- 1.4.3 Section 02315: Excavation and Fill
- 1.4.4 Section 02340: Soil Stabilization

- 1.5 All components shall be subject to inspection by the engineer at the place of manufacture and/or installation. All components are subject to being rejected or identified for repair if the quality of materials and manufacturing do not comply with the requirements of this specification. Components which have been identified as defective may be subject for repair where final acceptance of the component is contingent on the discretion of the Engineer.
- 1.6 The manufacturer shall guarantee the SWTD components against all manufacturer originated defects in materials or workmanship for a period of twelve (12) months from the date the components are delivered to the owner for installation. The manufacturer shall upon its determination repair, correct or replace any manufacturer originated defects advised in writing to the manufacturer within the referenced warranty period. The use of SWTD components shall be limited to the application for which it was specifically designed.
- 1.7 The SWTD manufacturer shall submit to the Engineer of Record a “Manufacturer’s Performance Certification” certifying that each SWTD is capable of achieving the specified removal efficiencies listed in these specifications. The certification shall be supported by independent third-party research

1.8 No product substitutions shall be accepted unless submitted 10 days prior to project bid date, or as directed by the Engineer of Record. Submissions for substitutions require review and approval by the Engineer of Record, for hydraulic performance, impact to project designs, equivalent treatment performance, and any required project plan and report (hydrology/hydraulic, water quality, stormwater pollution) modifications that would be required by the approving jurisdictions/agencies. Contractor to coordinate with the Engineer of Record any applicable modifications to the project estimates of cost, bonding amount determinations, plan check fees for changes to approved documents, and/or any other regulatory requirements resulting from the product substitution.

## 2.0 MATERIALS

2.1 Housing unit of stormwater treatment device shall be constructed of pre-cast or cast-in-place concrete, no exceptions. Precast concrete components shall conform to applicable sections of ASTM C 478, ASTM C 857 and ASTM C 858 and the following:

- 2.1.1 Concrete shall achieve a minimum 28-day compressive strength of 4,000 pounds per square-inch (psi);
- 2.1.2 Unless otherwise noted, the precast concrete sections shall be designed to withstand lateral earth and AASHTO H-20 traffic loads;
- 2.1.3 Cement shall be Type III Portland Cement conforming to ASTM C 150;
- 2.1.4 Aggregates shall conform to ASTM C 33;
- 2.1.5 Reinforcing steel shall be deformed billet-steel bars, welded steel wire or deformed welded steel wire conforming to ASTM A 615, A 185, or A 497.
- 2.1.6 Joints shall be sealed with preformed joint sealing compound conforming to ASTM C 990.
- 2.1.7 Shipping of components shall not be initiated until a minimum compressive strength of 4,000 psi is attained or five (5) calendar days after fabrication has expired, whichever occurs first.

2.2 Internal Components and appurtenances shall conform to the following:

- 2.2.1 Screen and support structure shall be manufactured of Type 316 and 316L stainless steel conforming to ASTM F 1267-01;
- 2.2.2 Hardware shall be manufactured of Type 316 stainless steel conforming to ASTM A 320;
- 2.2.3 Fiberglass components shall conform to applicable sections of ASTM D-4097
- 2.2.4 Access system(s) conform to the following:
- 2.2.5 Manhole castings shall be designed to withstand AASHTO H-20 loadings and manufactured of cast-iron conforming to ASTM A 48 Class 30.

## 3.0 PERFORMANCE

3.1 The SWTD shall be sized to either achieve an 80 percent average annual reduction in the total suspended solid load with a particle size distribution having a mean particle size ( $d_{50}$ ) of 125 microns unless otherwise stated.

3.2 The SWTD shall be capable of capturing and retaining 100 percent of pollutants greater than or equal to 2.4 millimeters (mm) regardless of the pollutant's specific gravity (i.e.: floatable and neutrally buoyant materials) for flows up to the device's rated-treatment capacity. The SWTD shall be designed to retain all previously captured pollutants addressed by this



subsection under all flow conditions. The SWTD shall be capable of capturing and retaining total petroleum hydrocarbons. The SWTD shall be capable of achieving a removal efficiency of 92 and 78 percent when the device is operating at 25 and 50 percent of its rated-treatment capacity. These removal efficiencies shall be based on independent third-party research for influent oil concentrations representative of storm water runoff ( $20 \pm 5$  mg/L). The SWTD shall be greater than 99 percent effective in controlling dry-weather accidental oil spills.

- 3.3 The SWTD shall be designed with a sump chamber for the storage of captured sediments and other negatively buoyant pollutants in between maintenance cycles. The minimum storage capacity provided by the sump chamber shall be in accordance with the volume listed in Table 1. The boundaries of the sump chamber shall be limited to that which do not degrade the SWTD's treatment efficiency as captured pollutants accumulate. The sump chamber shall be separate from the treatment processing portion(s) of the SWTD to minimize the probability of fine particle re-suspension. In order to not restrict the Owner's ability to maintain the SWTD, the minimum dimension providing access from the ground surface to the sump chamber shall be 16 inches in diameter.
- 3.4 The SWTD shall be designed to capture and retain Total Petroleum Hydrocarbons generated by wet-weather flow and dry-weather gross spills and have a capacity listed in Table 1 of the required unit.
- 3.5 The SWTD shall convey the flow from the peak storm event of the drainage network, in accordance with required hydraulic upstream conditions as defined by the Engineer. If a substitute SWTD is proposed, supporting documentation shall be submitted that demonstrates equal or better upstream hydraulic conditions compared to that specified herein. This documentation shall be signed and sealed by a Professional Engineer registered in the State of the work. All costs associated with preparing and certifying this documentation shall be born solely by the Contractor.
- 3.6 The SWTD shall have completed field tested following TARP Tier II protocol requirements

#### 4.0 EXECUTION

- 4.1 The contractor shall exercise care in the storage and handling of the SWTD components prior to and during installation. Any repair or replacement costs associated with events occurring after delivery is accepted and unloading has commenced shall be borne by the contractor.
- 4.2 The SWTD shall be installed in accordance with the manufacturer's recommendations and related sections of the contract documents. The manufacturer shall provide the contractor installation instructions and offer on-site guidance during the important stages of the installation as identified by the manufacturer at no additional expense. A minimum of 72 hours notice shall be provided to the manufacturer prior to their performance of the services included under this subsection.
- 4.3 The contractor shall fill all voids associated with lifting provisions provided by the manufacturer. These voids shall be filled with non-shrinking grout providing a finished surface consistent with adjacent surfaces. The contractor shall trim all protruding lifting provisions flush with the adjacent concrete surface in a manner, which leaves no sharp points or edges.

4.4 The contractor shall removal all loose material and pooling water from the SWTD prior to the transfer of operational responsibility to the Owner.

**TABLE 1**  
**Storm Water Treatment Device**  
**Storage Capacities**

CDS Model	Minimum Sump Storage Capacity (yd <sup>3</sup> )/(m <sup>3</sup> )	Minimum Oil Storage Capacity (gal)/(L)
CDS2015-4	0.9(0.7)	61(232)
CDS2015-5	1.5(1.1)	83(313)
CDS2020-5	1.5(1.1)	99(376)
CDS2025-5	1.5(1.1)	116(439)
CDS3020-6	2.1 (1.6)	184(696)
CDS3025-6	2.1(1.6)	210(795)
CDS3030-6	2.1 (1.6)	236(895)
CDS3035-6	2.1 (1.6)	263(994)
CDS3535-7	2.9(2.2)	377(1426)
CDS4030-8	5.6(4.3)	426(1612)
CDS4040-8	5.6 (4.3)	520(1970)
CDS4045-8	5.6 (4.3)	568(2149)
CDS5640-10	8.7(6.7)	758(2869)
CDS5653-10	8.7(6.7)	965(3652)
CDS5668-10	8.7(6.7)	1172(4435)
CDS5678-10	8.7(6.7)	1309(4956)
CDS7070-DV	3.6(2.8)	914 (3459)
CDS10060-DV	5.0 (3.8)	792 (2997)
CDS10080-DV	5.0 (3.8)	1057 (4000)
CDS100100-DV	5.0 (3.8)	1320 (4996)

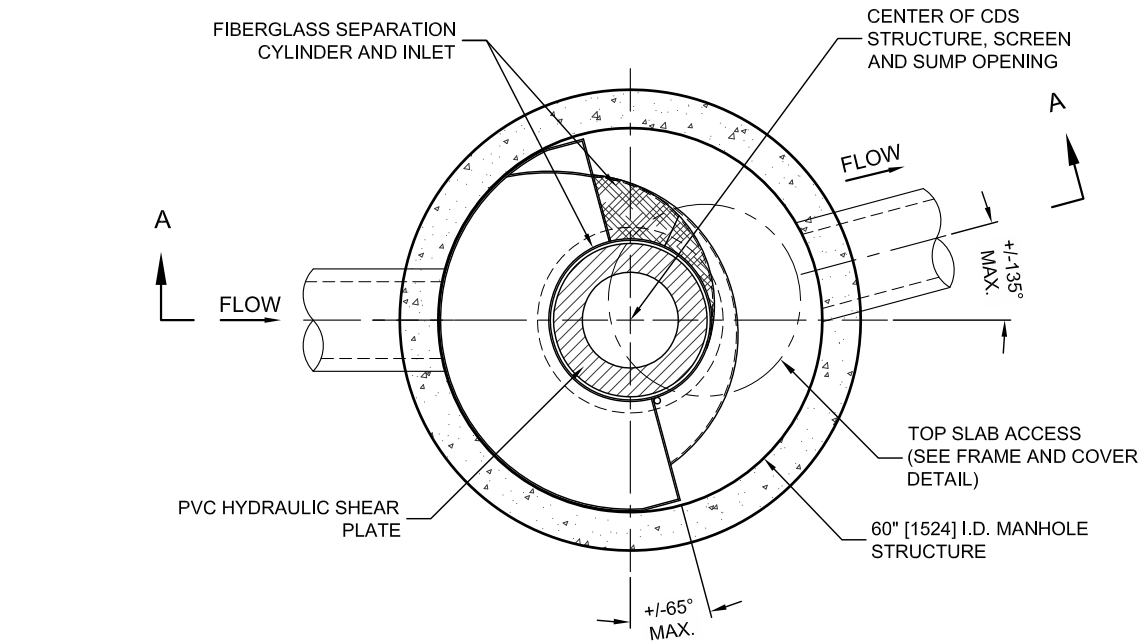
**END OF SECTION**

## CDS2020-5-C DESIGN NOTES

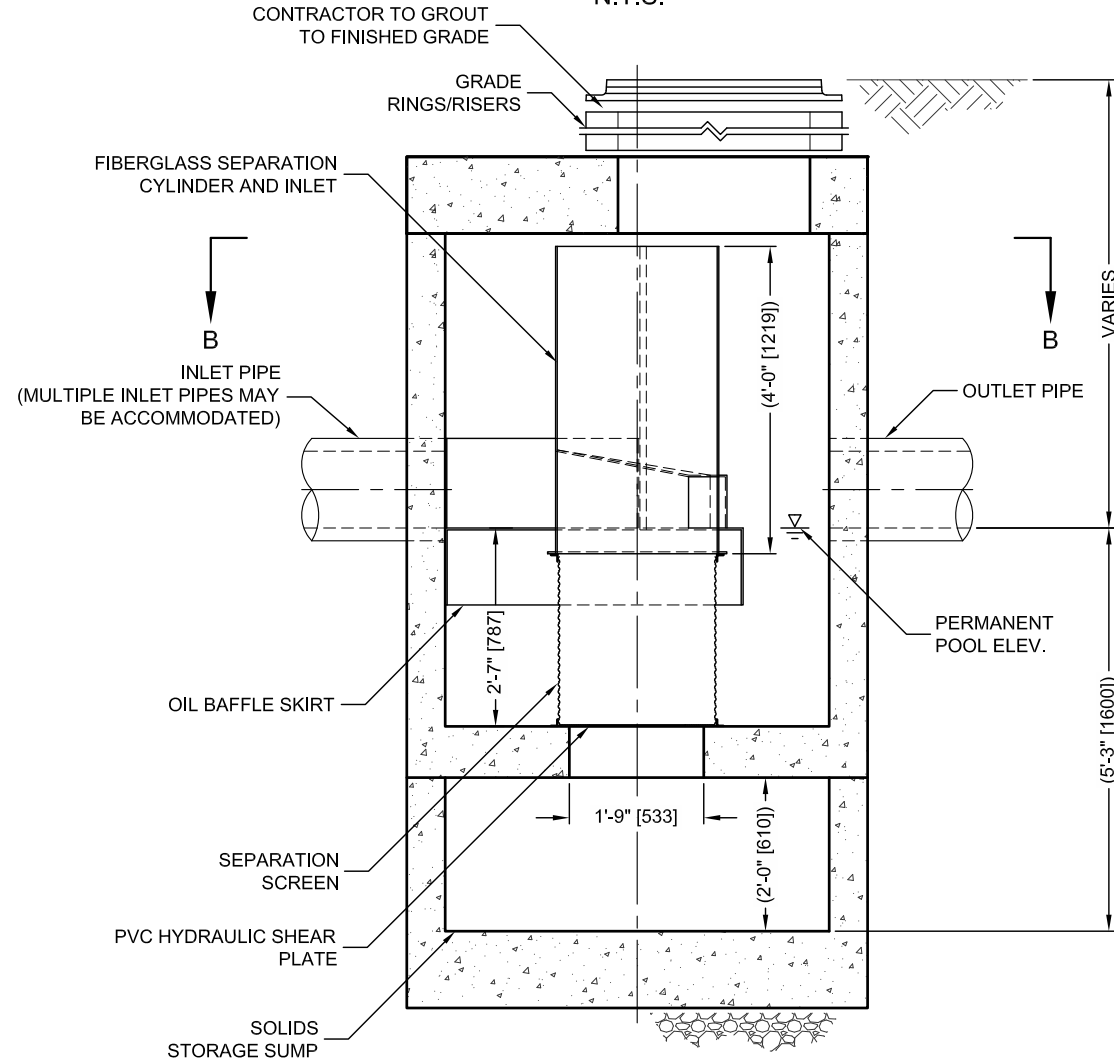
THE STANDARD CDS2020-5-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

### CONFIGURATION DESCRIPTION

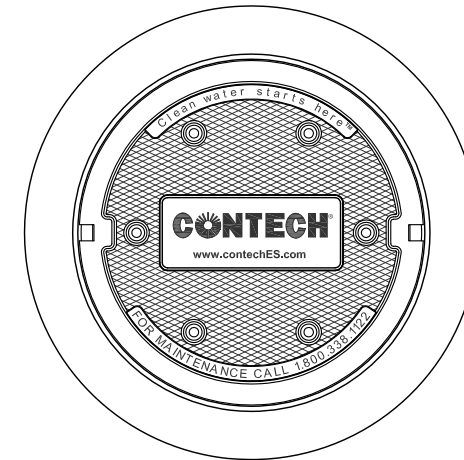
- GRATED INLET ONLY (NO INLET PIPE)
- GRATED INLET WITH INLET PIPE OR PIPES
- CURB INLET ONLY (NO INLET PIPE)
- CURB INLET WITH INLET PIPE OR PIPES
- SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)
- SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS



**PLAN VIEW B-B**  
N.T.S.



**ELEVATION A-A**  
N.T.S.



**FRAME AND COVER**  
(DIAMETER VARIES)  
N.T.S.

### SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID				
WATER QUALITY FLOW RATE (CFS OR L/s)				*
PEAK FLOW RATE (CFS OR L/s)				*
RETURN PERIOD OF PEAK FLOW (YRS)				*
SCREEN APERTURE (2400 OR 4700)				*
PIPE DATA:	I.E.	MATERIAL	DIAMETER	
INLET PIPE 1	*	*	*	
INLET PIPE 2	*	*	*	
OUTLET PIPE	*	*	*	
RIM ELEVATION				*
ANTI-FLOTATION BALLAST	WIDTH	HEIGHT		
	*	*		
NOTES/SPECIAL REQUIREMENTS:				
* PER ENGINEER OF RECORD				

#### GENERAL NOTES

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. [www.contechES.com](http://www.contechES.com)
4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
6. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

#### INSTALLATION NOTES

- A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
- C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
- D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
- E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

**CONTECH**<sup>®</sup>  
ENGINEERED SOLUTIONS LLC  
[www.contechES.com](http://www.contechES.com)

9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069  
800-338-1122    513-645-7000    513-645-7993 FAX

CDS2020-5-C  
INLINE CDS  
STANDARD DETAIL

# Hydrodynamic Separation Product Calculator

Canton/Simsbury

PDA-1b

CDS CDS2025-5-C

## Project Information

Project Name	Canton/Simsbury			Option #	B
Country	UNITED_STATES	State	Connecticut	City	West Simsbury

## Contact Information

First Name	Michael	Last Name	Lambert
Company	Solli Engineering LLC	Phone #	203-880-5455
Email	Mike@sollllc.com		

## Design Criteria

Site Designation	PDA-1b		Sizing Method	Treatment Flow Rate	
Screening Required?	Yes	Treatment Flow Rate	0.77	Peak Flow (cfs)	9.23
Groundwater Depth (ft)	0 - 5	Pipe Invert Depth (ft)	0 - 5	Bedrock Depth (ft)	0 - 5
Multiple Inlets?	Yes	Grate Inlet Required?	No	Pipe Size (in)	18.00
Required Particle Size Distribution?	Yes	90° between two inlets?	No		

## Treatment Selection

Treatment Unit	CDS	System Model	CDS2025-5-C		
Target Removal	80%	Particle Size Distribution (PSD)	50		

# Hydrodynamic Separation Product Calculator

Canton/Simsbury

PDA-1b

CDS CDS2025-5-C

CDS ESTIMATED NET ANNUAL SOLIDS LOAD REDUCTION BASED ON THE RATIONAL RAINFALL METHOD								
Rainfall Intensity <sup>1</sup> (in/hr)	% Rainfall Volume <sup>1</sup>	Cumulative Rainfall Volume	Rainfall Volume Treated	Total Flowrate (cfs)	Treated Flowrate (cfs)	Operating Rate (%)	Removal Efficiency (%)	Incremental Removal (%)
							Removal Efficiency Adjustment <sup>2</sup> =	
							Predicted % Annual Rainfall Treated =	
							Predicted Net Annual Load Removal Efficiency =	
1 -								
2 - Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.								

SECTION (\_\_\_\_)  
STORM WATER TREATMENT DEVICE

1.0 GENERAL

- 1.1 This item shall govern the furnishing and installation of the CDS® by Contech Engineered Solutions LLC, complete and operable as shown and as specified herein, in accordance with the requirements of the plans and contract documents.
- 1.2 The Contractor shall furnish all labor, equipment and materials necessary to install the storm water treatment device(s) (SWTD) and appurtenances specified in the Drawings and these specifications.
- 1.3 The manufacturer of the SWTD shall be one that is regularly engaged in the engineering design and production of systems deployed for the treatment of storm water runoff for at least five (5) years and which have a history of successful production, acceptable to the Engineer. In accordance with the Drawings, the SWTD(s) shall be a CDS® device manufactured by:

Contech Engineered Solutions LLC  
9025 Centre Pointe Drive  
West Chester, OH, 45069  
Tel: 1 800 338 1122

1.4 Related Sections

- 1.4.1 Section 02240: Dewatering
- 1.4.2 Section 02260: Excavation Support and Protection
- 1.4.3 Section 02315: Excavation and Fill
- 1.4.4 Section 02340: Soil Stabilization

- 1.5 All components shall be subject to inspection by the engineer at the place of manufacture and/or installation. All components are subject to being rejected or identified for repair if the quality of materials and manufacturing do not comply with the requirements of this specification. Components which have been identified as defective may be subject for repair where final acceptance of the component is contingent on the discretion of the Engineer.
- 1.6 The manufacturer shall guarantee the SWTD components against all manufacturer originated defects in materials or workmanship for a period of twelve (12) months from the date the components are delivered to the owner for installation. The manufacturer shall upon its determination repair, correct or replace any manufacturer originated defects advised in writing to the manufacturer within the referenced warranty period. The use of SWTD components shall be limited to the application for which it was specifically designed.
- 1.7 The SWTD manufacturer shall submit to the Engineer of Record a “Manufacturer’s Performance Certification” certifying that each SWTD is capable of achieving the specified removal efficiencies listed in these specifications. The certification shall be supported by independent third-party research

1.8 No product substitutions shall be accepted unless submitted 10 days prior to project bid date, or as directed by the Engineer of Record. Submissions for substitutions require review and approval by the Engineer of Record, for hydraulic performance, impact to project designs, equivalent treatment performance, and any required project plan and report (hydrology/hydraulic, water quality, stormwater pollution) modifications that would be required by the approving jurisdictions/agencies. Contractor to coordinate with the Engineer of Record any applicable modifications to the project estimates of cost, bonding amount determinations, plan check fees for changes to approved documents, and/or any other regulatory requirements resulting from the product substitution.

## 2.0 MATERIALS

2.1 Housing unit of stormwater treatment device shall be constructed of pre-cast or cast-in-place concrete, no exceptions. Precast concrete components shall conform to applicable sections of ASTM C 478, ASTM C 857 and ASTM C 858 and the following:

- 2.1.1 Concrete shall achieve a minimum 28-day compressive strength of 4,000 pounds per square-inch (psi);
- 2.1.2 Unless otherwise noted, the precast concrete sections shall be designed to withstand lateral earth and AASHTO H-20 traffic loads;
- 2.1.3 Cement shall be Type III Portland Cement conforming to ASTM C 150;
- 2.1.4 Aggregates shall conform to ASTM C 33;
- 2.1.5 Reinforcing steel shall be deformed billet-steel bars, welded steel wire or deformed welded steel wire conforming to ASTM A 615, A 185, or A 497.
- 2.1.6 Joints shall be sealed with preformed joint sealing compound conforming to ASTM C 990.
- 2.1.7 Shipping of components shall not be initiated until a minimum compressive strength of 4,000 psi is attained or five (5) calendar days after fabrication has expired, whichever occurs first.

2.2 Internal Components and appurtenances shall conform to the following:

- 2.2.1 Screen and support structure shall be manufactured of Type 316 and 316L stainless steel conforming to ASTM F 1267-01;
- 2.2.2 Hardware shall be manufactured of Type 316 stainless steel conforming to ASTM A 320;
- 2.2.3 Fiberglass components shall conform to applicable sections of ASTM D-4097
- 2.2.4 Access system(s) conform to the following:
- 2.2.5 Manhole castings shall be designed to withstand AASHTO H-20 loadings and manufactured of cast-iron conforming to ASTM A 48 Class 30.

## 3.0 PERFORMANCE

3.1 The SWTD shall be sized to either achieve an 80 percent average annual reduction in the total suspended solid load with a particle size distribution having a mean particle size ( $d_{50}$ ) of 125 microns unless otherwise stated.

3.2 The SWTD shall be capable of capturing and retaining 100 percent of pollutants greater than or equal to 2.4 millimeters (mm) regardless of the pollutant's specific gravity (i.e.: floatable and neutrally buoyant materials) for flows up to the device's rated-treatment capacity. The SWTD shall be designed to retain all previously captured pollutants addressed by this

subsection under all flow conditions. The SWTD shall be capable of capturing and retaining total petroleum hydrocarbons. The SWTD shall be capable of achieving a removal efficiency of 92 and 78 percent when the device is operating at 25 and 50 percent of its rated-treatment capacity. These removal efficiencies shall be based on independent third-party research for influent oil concentrations representative of storm water runoff ( $20 \pm 5$  mg/L). The SWTD shall be greater than 99 percent effective in controlling dry-weather accidental oil spills.

- 3.3 The SWTD shall be designed with a sump chamber for the storage of captured sediments and other negatively buoyant pollutants in between maintenance cycles. The minimum storage capacity provided by the sump chamber shall be in accordance with the volume listed in Table 1. The boundaries of the sump chamber shall be limited to that which do not degrade the SWTD's treatment efficiency as captured pollutants accumulate. The sump chamber shall be separate from the treatment processing portion(s) of the SWTD to minimize the probability of fine particle re-suspension. In order to not restrict the Owner's ability to maintain the SWTD, the minimum dimension providing access from the ground surface to the sump chamber shall be 16 inches in diameter.
- 3.4 The SWTD shall be designed to capture and retain Total Petroleum Hydrocarbons generated by wet-weather flow and dry-weather gross spills and have a capacity listed in Table 1 of the required unit.
- 3.5 The SWTD shall convey the flow from the peak storm event of the drainage network, in accordance with required hydraulic upstream conditions as defined by the Engineer. If a substitute SWTD is proposed, supporting documentation shall be submitted that demonstrates equal or better upstream hydraulic conditions compared to that specified herein. This documentation shall be signed and sealed by a Professional Engineer registered in the State of the work. All costs associated with preparing and certifying this documentation shall be born solely by the Contractor.
- 3.6 The SWTD shall have completed field tested following TARP Tier II protocol requirements

#### 4.0 EXECUTION

- 4.1 The contractor shall exercise care in the storage and handling of the SWTD components prior to and during installation. Any repair or replacement costs associated with events occurring after delivery is accepted and unloading has commenced shall be borne by the contractor.
- 4.2 The SWTD shall be installed in accordance with the manufacturer's recommendations and related sections of the contract documents. The manufacturer shall provide the contractor installation instructions and offer on-site guidance during the important stages of the installation as identified by the manufacturer at no additional expense. A minimum of 72 hours notice shall be provided to the manufacturer prior to their performance of the services included under this subsection.
- 4.3 The contractor shall fill all voids associated with lifting provisions provided by the manufacturer. These voids shall be filled with non-shrinking grout providing a finished surface consistent with adjacent surfaces. The contractor shall trim all protruding lifting provisions flush with the adjacent concrete surface in a manner, which leaves no sharp points or edges.



4.4 The contractor shall removal all loose material and pooling water from the SWTD prior to the transfer of operational responsibility to the Owner.

**TABLE 1**  
**Storm Water Treatment Device**  
**Storage Capacities**

CDS Model	Minimum Sump Storage Capacity (yd <sup>3</sup> )/(m <sup>3</sup> )	Minimum Oil Storage Capacity (gal)/(L)
CDS2015-4	0.9(0.7)	61(232)
CDS2015-5	1.5(1.1)	83(313)
CDS2020-5	1.5(1.1)	99(376)
CDS2025-5	1.5(1.1)	116(439)
CDS3020-6	2.1 (1.6)	184(696)
CDS3025-6	2.1(1.6)	210(795)
CDS3030-6	2.1 (1.6)	236(895)
CDS3035-6	2.1 (1.6)	263(994)
CDS3535-7	2.9(2.2)	377(1426)
CDS4030-8	5.6(4.3)	426(1612)
CDS4040-8	5.6 (4.3)	520(1970)
CDS4045-8	5.6 (4.3)	568(2149)
CDS5640-10	8.7(6.7)	758(2869)
CDS5653-10	8.7(6.7)	965(3652)
CDS5668-10	8.7(6.7)	1172(4435)
CDS5678-10	8.7(6.7)	1309(4956)
CDS7070-DV	3.6(2.8)	914 (3459)
CDS10060-DV	5.0 (3.8)	792 (2997)
CDS10080-DV	5.0 (3.8)	1057 (4000)
CDS100100-DV	5.0 (3.8)	1320 (4996)

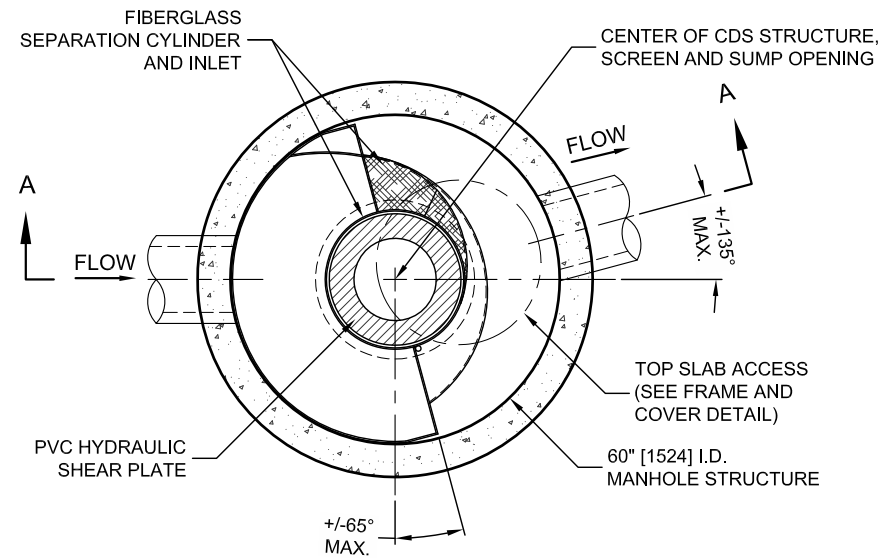
**END OF SECTION**

## CDS2025-5-C DESIGN NOTES

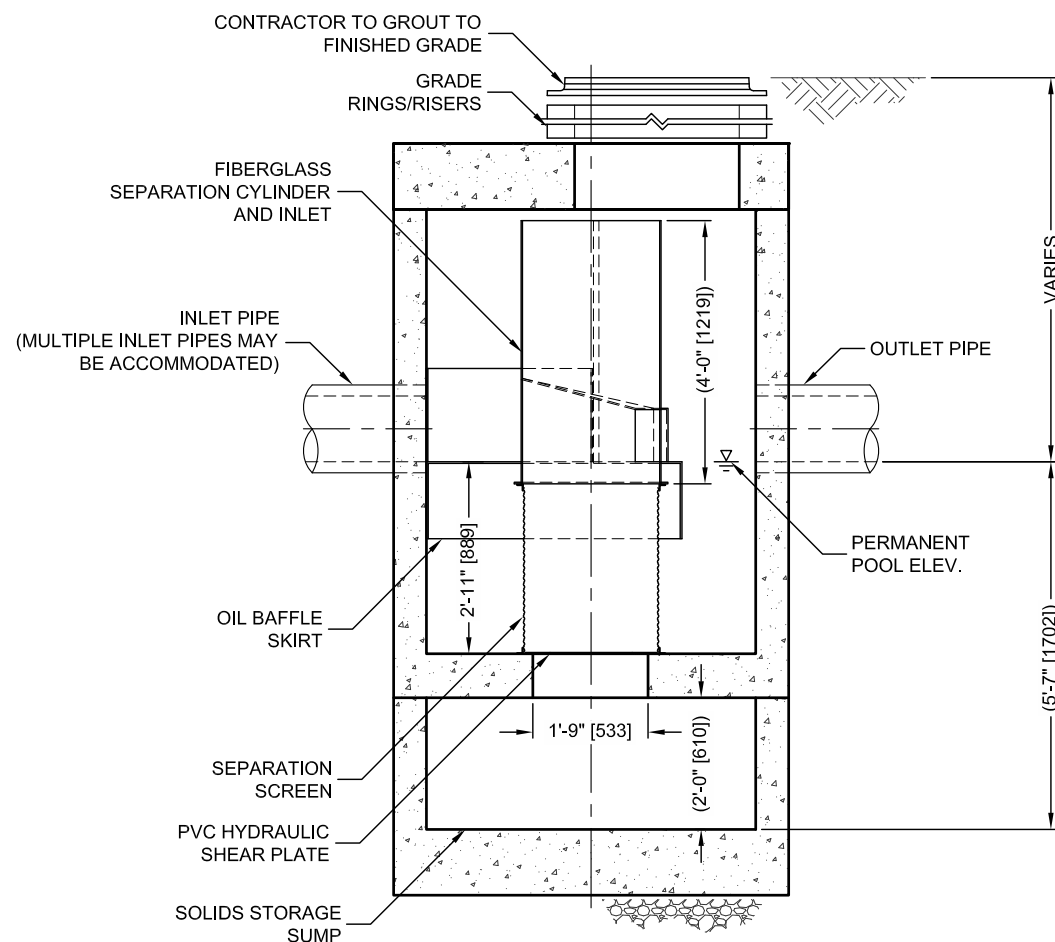
THE STANDARD CDS2025-5-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

### CONFIGURATION DESCRIPTION

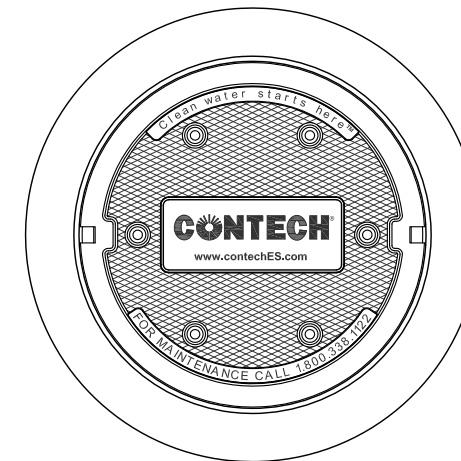
- GRATED INLET ONLY (NO INLET PIPE)
- GRATED INLET WITH INLET PIPE OR PIPES
- CURB INLET ONLY (NO INLET PIPE)
- CURB INLET WITH INLET PIPE OR PIPES
- SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)
- SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS



**PLAN VIEW B-B**  
N.T.S.



**ELEVATION A-A**  
N.T.S.



**FRAME AND COVER**  
(DIAMETER VARIES)  
N.T.S.

### SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID				
WATER QUALITY FLOW RATE (CFS OR L/s)				*
PEAK FLOW RATE (CFS OR L/s)				*
RETURN PERIOD OF PEAK FLOW (YRS)				*
SCREEN APERTURE (2400 OR 4700)				*
PIPE DATA:	I.E.	MATERIAL	DIAMETER	
INLET PIPE 1	*	*	*	
INLET PIPE 2	*	*	*	
OUTLET PIPE	*	*	*	
RIM ELEVATION				*
ANTI-FLOTATION BALLAST	*	*	*	
NOTES/SPECIAL REQUIREMENTS:				
* PER ENGINEER OF RECORD				

#### GENERAL NOTES

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. [www.contechES.com](http://www.contechES.com)
4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
6. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

#### INSTALLATION NOTES

- A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
- C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
- D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
- E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

**CONTECH**  
ENGINEERED SOLUTIONS LLC

[www.contechES.com](http://www.contechES.com)  
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069  
800-338-1122    513-645-7000    513-645-7993 FAX

CDS2025-5-C  
INLINE CDS  
STANDARD DETAIL



**WATER QUALITY VOLUME (WQV) COMPUTATIONS FOR DRAINAGE BASIN PDA-1A**

**Project:** 1904501  
**Location:** Albany Turnpike, Simsbury/Canton  
**Date:** 08/11/20

**Water Quality Volume Calculations:**

$$WQV = \frac{(1")(R)(A)}{12}$$

Where:  
 WQV = water quality volume (ac-ft)  
 R = volumetric runoff coefficient = 0.05+0.009(I)  
 I = percent impervious cover (see below)  
 A = site area in acres

$$I = \frac{A_{IMP}}{A_{TOT}} \times 100$$

Where:  
 I = percent impervious cover  
 A<sub>IMP</sub> = area of impervious cover  
 A<sub>TOT</sub> = total area of watershed

Watershed Description:	PDA-1A	
Area of impervious coverage, A <sub>IMP</sub>	1.34	Acres
Total area of watershed, A <sub>TOT</sub>	2.25	Acres
Percent impervious cover, I	59.49	%
Volumetric runoff coefficient, R	0.59	
Water Quality Volume, WQV	0.110	ac-ft
Town of Simsbury Adjustment (110%)		4,784 cf
		5,262 cf

**Groundwater Recharge Volume Calculations:**

**GRv = (P) (D) (I) / 12** Section 7, Table 7-1, Summary of Stormwater Treatment Practice Sizing Criteria per 2004 Connecticut Stormwater Quality Manual

**GRv = Groundwater Recharge Volume (acre-feet)**  
**P = 1" (90% rainfall event)**  
**D = Recharge Factor, see Table**  
**I = Impervious Area (acres)**

Hydrologic Soil Group	Recharge Factor
A	0.60
B	0.40
C	0.25
D	0.10

Total Proposed Impervious Area  
 58,339 sq.ft.  
 1.34 acres

**HSG - B**  
**Recharge Factor**  
 0.40

GRv =	0.045 acre-feet
	1,945 ft <sup>3</sup>
Town of Simsbury Adjustment (110%)	2,139 ft <sup>3</sup>

**Water Quality Flow Calculations:**

WQf = (qu)(A)(Q)  
 WQf = Peak Discharge for water quality event (cfs)  
 qu = unit peak discharge (cfs/mi<sup>2</sup>/in)  
 A = drainage area (square miles)  
 Q = runoff volume (WQv/A) (watershed inches)

$$CN = 1000 / [10 + 5 * P + 10 * Q - 10 * (Q^2 + 1.25 * Q * P)^{1/2}]$$

Chapter 7 of 2004 Connecticut Stormwater Quality Manual

P= 1.2 inches  
 Q= 0.238 inches  
 WQv = 0.045 acre-ft  
 Total Drainage Area = 2.25 acre  
 CN = 83.69

$$Ia = 200 / CN - 2$$

Ia = 0.390

Compute Ia/P

P= 1.2 inches  
 Ia / P = 0.32

Tc= 14 min  
 0.233 hr

Exhibit 4-III  
 Tc= 0.233  
 Ia / P = 0.32  
 qu = 460

$$WQf = (qu)(A)(Q)$$

qu = 460 csm/in  
 A = 0.004 mi<sup>2</sup> (acre/640)  
 Q = 0.238 inches  
**WQf = 0.39 cfs**

**WATER QUALITY VOLUME (WQV) COMPUTATIONS FOR DRAINAGE BASIN PDA-1B**

**Project:** 1904501  
**Location:** Albany Turnpike, Simsbury/Canton  
**Date:** 08/11/20

**Water Quality Volume Calculations:**

$$WQV = \frac{(1)(R)(A)}{12}$$

Where:  
 WQV = water quality volume (ac-ft)  
 R = volumetric runoff coefficient = 0.05+0.009(I)  
 I = percent impervious cover (see below)  
 A = site area in acres

$$I = \frac{A_{IMP}}{A_{TOT}} \times 100$$

Where:  
 I = percent impervious cover  
 A<sub>IMP</sub> = area of impervious cover  
 A<sub>TOT</sub> = total area of watershed

Watershed Description:	PDA-1B	
Area of impervious coverage, A <sub>IMP</sub>	1.32	Acres
Total area of watershed, A <sub>TOT</sub>	1.65	Acres
Percent impervious cover, I	79.70	%
Volumetric runoff coefficient, R	0.77	
Water Quality Volume, WQV	0.106	ac-ft
Town of Simsbury Adjustment (110%)		4,607 cf
		5,067 cf

**Groundwater Recharge Volume Calculations:**

**GRv = (P) (D) (I) / 12** Section 7, Table 7-1, Summary of Stormwater Treatment Practice Sizing Criteria per 2004 Connecticut Stormwater Quality Manual

**GRv = Groundwater Recharge Volume (acre-feet)**  
**P = 1" (90% rainfall event)**  
**D = Recharge Factor, see Table**  
**I = Impervious Area (acres)**

Hydrologic Soil Group	Recharge Factor
A	0.60
B	0.40
C	0.25
D	0.10

Total Proposed Impervious Area  
 57,419 sq.ft.  
 1.32 acres

**HSG - A**  
**Recharge Factor**  
 0.60

GRv =	0.066 acre-feet
	2,871 ft <sup>3</sup>
Town of Simsbury Adjustment (110%)	3,158 ft <sup>3</sup>

**Water Quality Flow Calculations:**

WQf = (qu)(A)(Q)  
 WQf = Peak Discharge for water quality event (cfs)  
 qu = unit peak discharge (cfs/mi<sup>2</sup>/in)  
 A = drainage area (square miles)  
 Q = runoff volume (WQv/A) (watershed inches)

$$CN = 1000 / [10 + 5 \cdot P + 10 \cdot Q - 10 \cdot (Q^2 + 1.25 \cdot Q \cdot P)^{1/2}]$$

Chapter 7 of 2004 Connecticut Stormwater Quality Manual

P= 1.2 inches  
 Q= 0.478 inches  
 WQv = 0.066 acre-ft  
 Total Drainage Area = 1.65 acre  
 CN = 90.45

$$Ia = 200 / CN - 2$$

Ia = 0.211

Compute Ia/P

P= 1.2 inches  
 Ia / P = 0.18

Tc= 5 min  
 0.083 hr

Exhibit 4-III  
 Tc= 0.083  
 Ia / P = 0.18  
 qu = 625

$$WQf = (qu)(A)(Q)$$

qu = 625 csm/in  
 A = 0.003 mi<sup>2</sup> (acre/640)  
 Q = 0.478 inches  
**WQf = 0.77 cfs**

**APPENDIX E**  
**DEEP TEST PIT / LEDGE DEPTH ASSESSMENT**

Test Pit Log Information



Location: 9-15 Albany Turnpike, Canton/Simsbury Connecticut  
Project Number: 1904501  
Exploration Date: 2019-10-08  
Contractor: Talcott View Development (TVD)  
Personnel Present: Chris Pawlowski/ TVD Operator

Test Pit Number	Depth To Ledge (FT)
100	4.5
101	7
102	2.5
103	4.5
104	6
105	2.5
106	6.5
107	10.5
108	7
109	0(Exposed)
110	5.67
111	11.5
112	3.33
113	3.33
114	5.5
115	7
116	10

Soil Comments: Soil consisted of a nice light brown/tan sand on the upper layer (1-2') with a glacial till below. As we moved towards the road the light brown/tan sand stratum started to contain loam.




**APPENDIX F**  
**DESIGN PLANS**

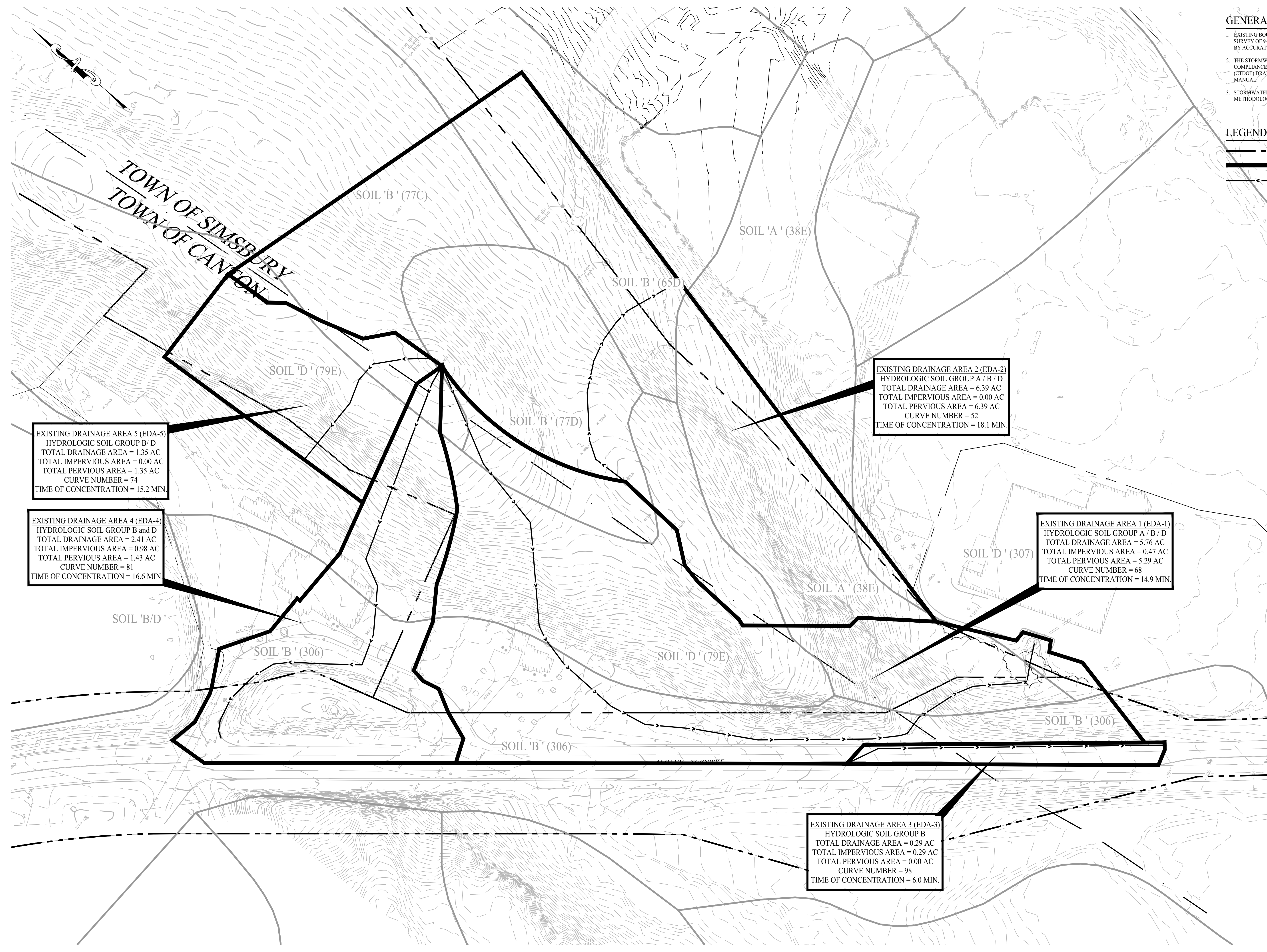
Existing Drainage Area Map (EDA-1)  
Proposed Drainage Area Map (PDA-1)  
Subcatchment Drainage Area Map (CB-1)  
Grading & Drainage Plan (2.21)  
Soil Erosion & Sediment Control Plan (2.31)  
Soil Erosion & Sediment Control Notes & Details (2.41)  
Utility Plan (2.51)

**GENERAL NOTES**

- EXISTING BOUNDARY INFORMATION TAKEN FROM A PLAN ENTITLED "PROPERTY SURVEY OF 9-15 ALBANY TURNPIKE, CANTON, CT" DATED 12/10/19, SCALE: 1" = 60', BY ACCURATE LAND SURVEYING, LLC.
- THE STORMWATER MANAGEMENT PLAN AND DESIGN IS INTENDED TO BE IN COMPLIANCE WITH THE 2000 CONNECTICUT DEPARTMENT OF TRANSPORTATION (CTDOT) DRAINAGE MANUAL AND THE 2004 CONNECTICUT STORMWATER QUALITY MANUAL.
- STORMWATER RUNOFF ANALYSIS WAS CALCULATED USING THE SCS TR-55 METHODOLOGY.

**LEGEND**

-  PROPERTY LINE
-  LIMITS OF EXISTING DRAINAGE AREA
-  FLOW PATH



**EXISTING DRAINAGE AREA 5 (EDA-5)**  
 HYDROLOGIC SOIL GROUP B/D  
 TOTAL DRAINAGE AREA = 1.35 AC  
 TOTAL IMPERVIOUS AREA = 0.00 AC  
 TOTAL PERVIOUS AREA = 1.35 AC  
 CURVE NUMBER = 74  
 TIME OF CONCENTRATION = 15.2 MIN.

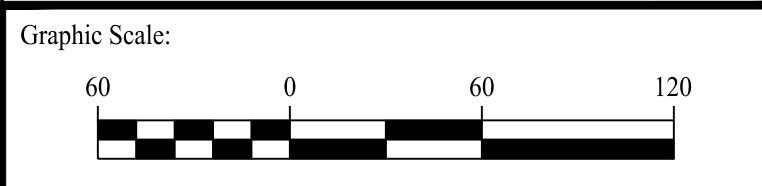
**EXISTING DRAINAGE AREA 4 (EDA-4)**  
 HYDROLOGIC SOIL GROUP B and D  
 TOTAL DRAINAGE AREA = 2.41 AC  
 TOTAL IMPERVIOUS AREA = 0.98 AC  
 TOTAL PERVIOUS AREA = 1.43 AC  
 CURVE NUMBER = 81  
 TIME OF CONCENTRATION = 16.6 MIN.

**EXISTING DRAINAGE AREA 2 (EDA-2)**  
 HYDROLOGIC SOIL GROUP A / B / D  
 TOTAL DRAINAGE AREA = 6.39 AC  
 TOTAL IMPERVIOUS AREA = 0.00 AC  
 TOTAL PERVIOUS AREA = 6.39 AC  
 CURVE NUMBER = 52  
 TIME OF CONCENTRATION = 18.1 MIN.

**EXISTING DRAINAGE AREA 1 (EDA-1)**  
 HYDROLOGIC SOIL GROUP A / B / D  
 TOTAL DRAINAGE AREA = 5.76 AC  
 TOTAL IMPERVIOUS AREA = 0.47 AC  
 TOTAL PERVIOUS AREA = 5.29 AC  
 CURVE NUMBER = 68  
 TIME OF CONCENTRATION = 14.9 MIN.

**EXISTING DRAINAGE AREA 3 (EDA-3)**  
 HYDROLOGIC SOIL GROUP B  
 TOTAL DRAINAGE AREA = 0.29 AC  
 TOTAL IMPERVIOUS AREA = 0.29 AC  
 TOTAL PERVIOUS AREA = 0.00 AC  
 CURVE NUMBER = 98  
 TIME OF CONCENTRATION = 6.0 MIN.

1	09/04/20	Revised Engineering Report
Rev. #:	Date	Description



Drawn By:	AWC	Kevin Solli, P.E. CT 25759
Checked By:	KMS	
Approved By:	KMS	
Project #:	1904501	
Plan Date:	08/11/20	
Scale:	1" = 60'	

**9-15 ALBANY  
 TURNPIKE**  
 SIMSBURY & CANTON, CONNECTICUT

Sheet Title:	Sheet #:
EXISTING DRAINAGE AREA MAP	EDA-1




Sep 04, 2020 - 9:40am mika  
 X:\SE Files\Project Data\2019\1904501 - Albany Turnpike, Simsbury\Cadd Data\1904501-EDA.dwg

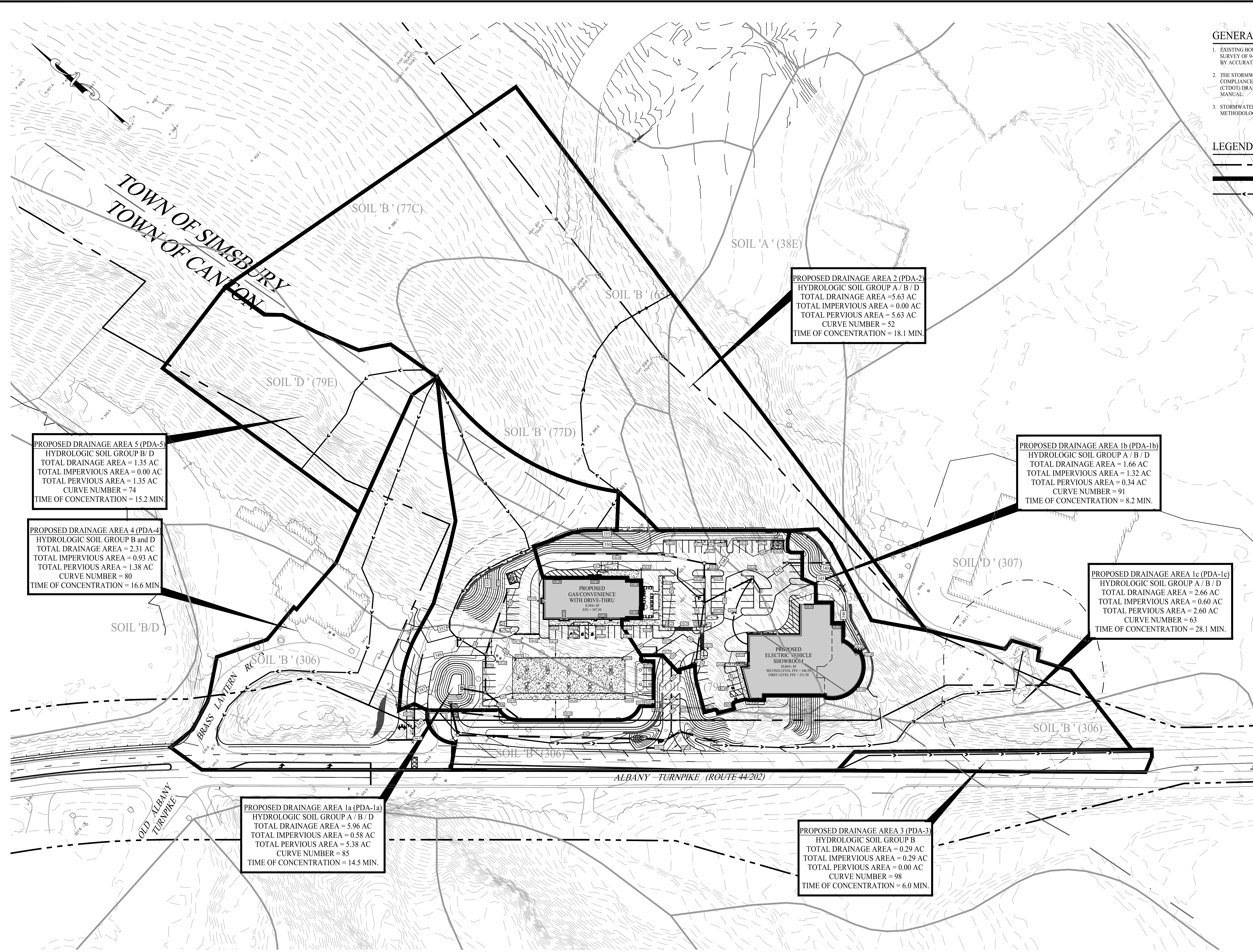


**GENERAL NOTES**

- EXISTING BOUNDARY INFORMATION TAKEN FROM A PLAN ENTITLED "PROPERTY SURVEY OF 9-15 ALBANY TURNPIKE, CANTON, CT" DATED 12/10/19, SCALE: 1" = 60', BY ACCURATE LAND SURVEYING, LLC.
- THE STORMWATER MANAGEMENT PLAN AND DESIGN IS INTENDED TO BE IN COMPLIANCE WITH THE 2000 CONNECTICUT DEPARTMENT OF TRANSPORTATION (CTDOT) DRAINAGE MANUAL AND THE 2004 CONNECTICUT STORMWATER QUALITY MANUAL.
- STORMWATER RUNOFF ANALYSIS WAS CALCULATED USING THE SCS TR-55 METHODOLOGY.

**LEGEND**

-  PROPERTY LINE
-  LIMITS OF EXISTING DRAINAGE AREA
-  FLOW PATH



**PROPOSED DRAINAGE AREA 5 (PDA-5)**  
 HYDROLOGIC SOIL GROUP B/D  
 TOTAL DRAINAGE AREA = 1.35 AC  
 TOTAL IMPERVIOUS AREA = 0.00 AC  
 TOTAL PERVIOUS AREA = 1.35 AC  
 CURVE NUMBER = 74  
 TIME OF CONCENTRATION = 15.2 MIN.

**PROPOSED DRAINAGE AREA 4 (PDA-4)**  
 HYDROLOGIC SOIL GROUP B and D  
 TOTAL DRAINAGE AREA = 2.31 AC  
 TOTAL IMPERVIOUS AREA = 0.93 AC  
 TOTAL PERVIOUS AREA = 1.38 AC  
 CURVE NUMBER = 80  
 TIME OF CONCENTRATION = 16.6 MIN.

**PROPOSED DRAINAGE AREA 1a (PDA-1a)**  
 HYDROLOGIC SOIL GROUP A / B / D  
 TOTAL DRAINAGE AREA = 5.96 AC  
 TOTAL IMPERVIOUS AREA = 0.58 AC  
 TOTAL PERVIOUS AREA = 5.38 AC  
 CURVE NUMBER = 85  
 TIME OF CONCENTRATION = 14.5 MIN.

**PROPOSED DRAINAGE AREA 2 (PDA-2)**  
 HYDROLOGIC SOIL GROUP A / B / D  
 TOTAL DRAINAGE AREA = 5.63 AC  
 TOTAL IMPERVIOUS AREA = 0.00 AC  
 TOTAL PERVIOUS AREA = 5.63 AC  
 CURVE NUMBER = 52  
 TIME OF CONCENTRATION = 18.1 MIN.

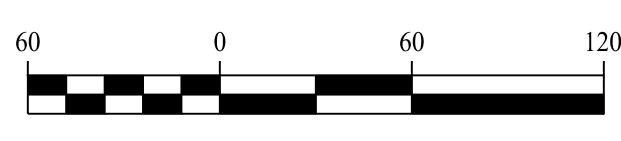
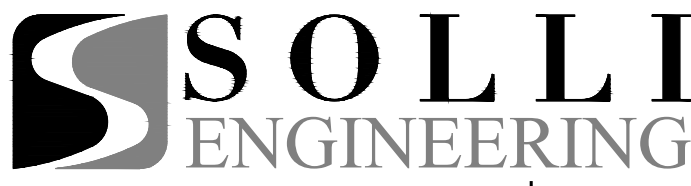
**PROPOSED DRAINAGE AREA 1b (PDA-1b)**  
 HYDROLOGIC SOIL GROUP A / B / D  
 TOTAL DRAINAGE AREA = 1.66 AC  
 TOTAL IMPERVIOUS AREA = 1.32 AC  
 TOTAL PERVIOUS AREA = 0.34 AC  
 CURVE NUMBER = 91  
 TIME OF CONCENTRATION = 8.2 MIN.

**PROPOSED DRAINAGE AREA 1c (PDA-1c)**  
 HYDROLOGIC SOIL GROUP A / B / D  
 TOTAL DRAINAGE AREA = 2.66 AC  
 TOTAL IMPERVIOUS AREA = 0.60 AC  
 TOTAL PERVIOUS AREA = 2.06 AC  
 CURVE NUMBER = 63  
 TIME OF CONCENTRATION = 28.1 MIN.

**PROPOSED DRAINAGE AREA 3 (PDA-3)**  
 HYDROLOGIC SOIL GROUP B  
 TOTAL DRAINAGE AREA = 0.29 AC  
 TOTAL IMPERVIOUS AREA = 0.29 AC  
 TOTAL PERVIOUS AREA = 0.00 AC  
 CURVE NUMBER = 98  
 TIME OF CONCENTRATION = 6.0 MIN.

PROPOSED GAS CONVENIENCE WITH DRIVE-THRU  
 20,000 SF  
 FFL = 147.50

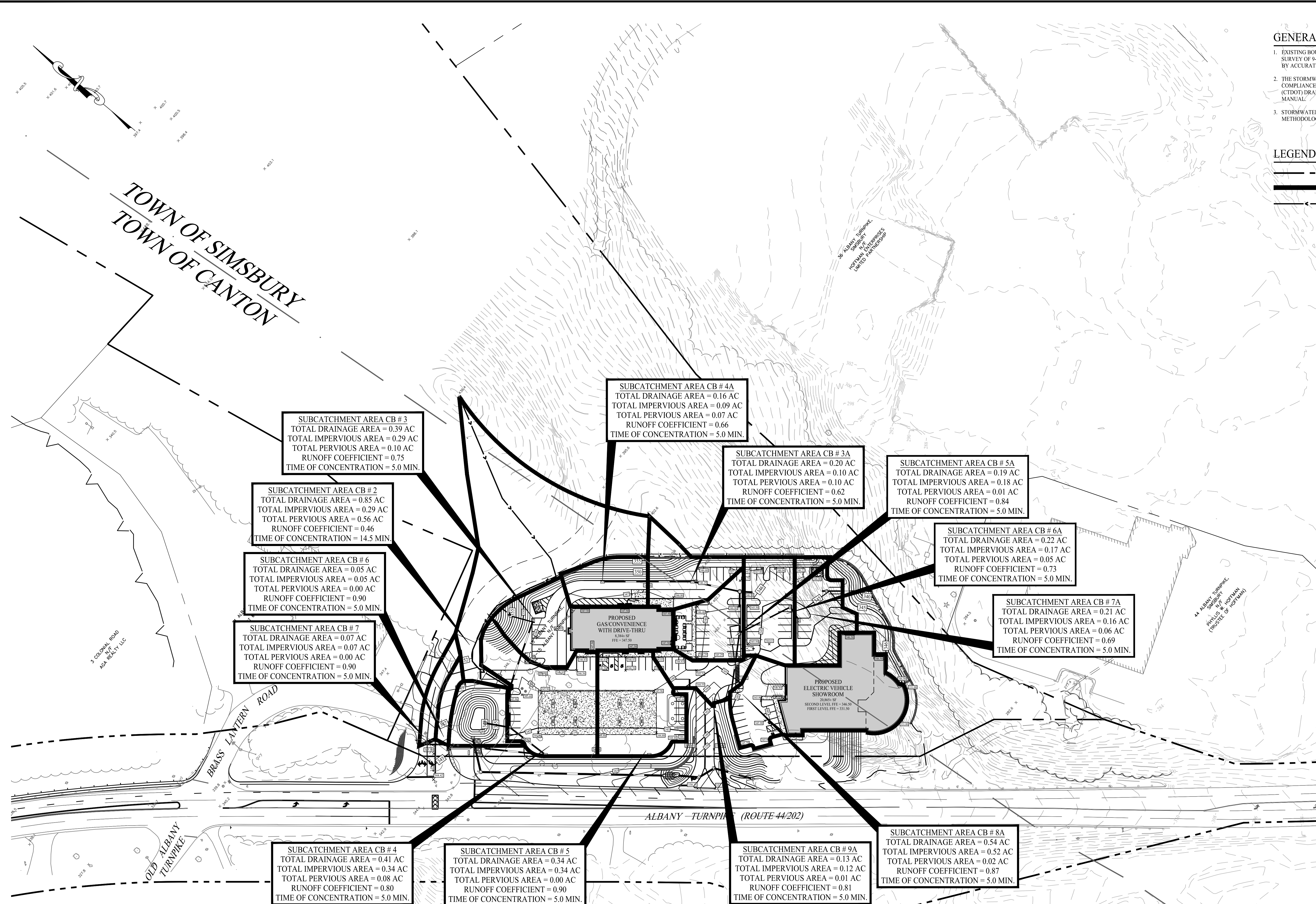
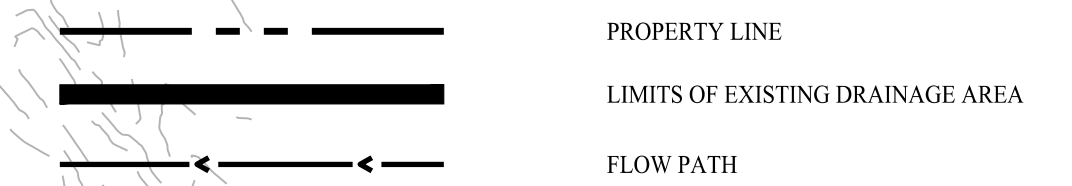
PROPOSED ELECTRIC VEHICLE SHOWROOM  
 20,000 SF  
 SECOND LEVEL FFL = 146.00  
 FIRST LEVEL FFL = 131.50

1		09/04/20	Revised Engineering Report
Rev. #:	Date	Description	
Graphic Scale:			
			
			
501 Main Street, Monroe, CT 06468   T: (203) 880-5455   F: (203) 880-9695			
Drawn By:	MSL		
Checked By:	KMS		
Approved By:	KMS		
Project #:	1904501		
Plan Date:	08/11/20		
Scale:	1" = 60'	Kevin Solli, P.E. CT 25759	
<b>9-15 ALBANY TURNPIKE</b> SIMSBURY & CANTON, CONNECTICUT			
Sheet Title:	PROPOSED DRAINAGE AREA MAP		Sheet #:
			<b>PDA-1</b>

**GENERAL NOTES**

- EXISTING BOUNDARY INFORMATION TAKEN FROM A PLAN ENTITLED "PROPERTY SURVEY OF 9-15 ALBANY TURNPIKE, CANTON, CT" DATED 12/10/19, SCALE: 1" = 60', BY ACCURATE LAND SURVEYING, LLC.
- THE STORMWATER MANAGEMENT PLAN AND DESIGN IS INTENDED TO BE IN COMPLIANCE WITH THE 2000 CONNECTICUT DEPARTMENT OF TRANSPORTATION (CTDOT) DRAINAGE MANUAL AND THE 2004 CONNECTICUT STORMWATER QUALITY MANUAL.
- STORMWATER RUNOFF ANALYSIS WAS CALCULATED USING THE SCS TR-55 METHODOLOGY.

**LEGEND**



**SUBCATCHMENT AREA CB # 3**  
 TOTAL DRAINAGE AREA = 0.39 AC  
 TOTAL IMPERVIOUS AREA = 0.29 AC  
 TOTAL PERVIOUS AREA = 0.10 AC  
 RUNOFF COEFFICIENT = 0.75  
 TIME OF CONCENTRATION = 5.0 MIN.

**SUBCATCHMENT AREA CB # 2**  
 TOTAL DRAINAGE AREA = 0.85 AC  
 TOTAL IMPERVIOUS AREA = 0.29 AC  
 TOTAL PERVIOUS AREA = 0.56 AC  
 RUNOFF COEFFICIENT = 0.46  
 TIME OF CONCENTRATION = 14.5 MIN.

**SUBCATCHMENT AREA CB # 6**  
 TOTAL DRAINAGE AREA = 0.05 AC  
 TOTAL IMPERVIOUS AREA = 0.05 AC  
 TOTAL PERVIOUS AREA = 0.00 AC  
 RUNOFF COEFFICIENT = 0.90  
 TIME OF CONCENTRATION = 5.0 MIN.

**SUBCATCHMENT AREA CB # 7**  
 TOTAL DRAINAGE AREA = 0.07 AC  
 TOTAL IMPERVIOUS AREA = 0.07 AC  
 TOTAL PERVIOUS AREA = 0.00 AC  
 RUNOFF COEFFICIENT = 0.90  
 TIME OF CONCENTRATION = 5.0 MIN.

**SUBCATCHMENT AREA CB # 4**  
 TOTAL DRAINAGE AREA = 0.41 AC  
 TOTAL IMPERVIOUS AREA = 0.34 AC  
 TOTAL PERVIOUS AREA = 0.08 AC  
 RUNOFF COEFFICIENT = 0.80  
 TIME OF CONCENTRATION = 5.0 MIN.

**SUBCATCHMENT AREA CB # 5**  
 TOTAL DRAINAGE AREA = 0.34 AC  
 TOTAL IMPERVIOUS AREA = 0.34 AC  
 TOTAL PERVIOUS AREA = 0.00 AC  
 RUNOFF COEFFICIENT = 0.90  
 TIME OF CONCENTRATION = 5.0 MIN.

**SUBCATCHMENT AREA CB # 4A**  
 TOTAL DRAINAGE AREA = 0.16 AC  
 TOTAL IMPERVIOUS AREA = 0.09 AC  
 TOTAL PERVIOUS AREA = 0.07 AC  
 RUNOFF COEFFICIENT = 0.66  
 TIME OF CONCENTRATION = 5.0 MIN.

**SUBCATCHMENT AREA CB # 3A**  
 TOTAL DRAINAGE AREA = 0.20 AC  
 TOTAL IMPERVIOUS AREA = 0.10 AC  
 TOTAL PERVIOUS AREA = 0.10 AC  
 RUNOFF COEFFICIENT = 0.62  
 TIME OF CONCENTRATION = 5.0 MIN.

**SUBCATCHMENT AREA CB # 5A**  
 TOTAL DRAINAGE AREA = 0.19 AC  
 TOTAL IMPERVIOUS AREA = 0.18 AC  
 TOTAL PERVIOUS AREA = 0.01 AC  
 RUNOFF COEFFICIENT = 0.84  
 TIME OF CONCENTRATION = 5.0 MIN.

**SUBCATCHMENT AREA CB # 6A**  
 TOTAL DRAINAGE AREA = 0.22 AC  
 TOTAL IMPERVIOUS AREA = 0.17 AC  
 TOTAL PERVIOUS AREA = 0.05 AC  
 RUNOFF COEFFICIENT = 0.73  
 TIME OF CONCENTRATION = 5.0 MIN.

**SUBCATCHMENT AREA CB # 7A**  
 TOTAL DRAINAGE AREA = 0.21 AC  
 TOTAL IMPERVIOUS AREA = 0.16 AC  
 TOTAL PERVIOUS AREA = 0.06 AC  
 RUNOFF COEFFICIENT = 0.69  
 TIME OF CONCENTRATION = 5.0 MIN.

**SUBCATCHMENT AREA CB # 9A**  
 TOTAL DRAINAGE AREA = 0.13 AC  
 TOTAL IMPERVIOUS AREA = 0.12 AC  
 TOTAL PERVIOUS AREA = 0.01 AC  
 RUNOFF COEFFICIENT = 0.81  
 TIME OF CONCENTRATION = 5.0 MIN.

**SUBCATCHMENT AREA CB # 8A**  
 TOTAL DRAINAGE AREA = 0.54 AC  
 TOTAL IMPERVIOUS AREA = 0.52 AC  
 TOTAL PERVIOUS AREA = 0.02 AC  
 RUNOFF COEFFICIENT = 0.87  
 TIME OF CONCENTRATION = 5.0 MIN.

09/04/20		Revised Engineering Report	
Rev. #:	Date	Description	
Graphic Scale:			
501 Main Street, Monroe, CT 06468   T: (203) 880-5455   F: (203) 880-9695			
Drawn By:	MSL		
Checked By:	KMS		
Approved By:	KMS		
Project #:	1904501		
Plan Date:	08/11/20		
Scale:	1" = 60'	Kevin Solli, P.E. CT 25759	
<b>9-15 ALBANY TURNPIKE</b> SIMSBURY & CANTON, CONNECTICUT			
Sheet Title:	SUBCATCHMENT DRAINAGE AREA MAP		Sheet #:
			<b>CB-1</b>

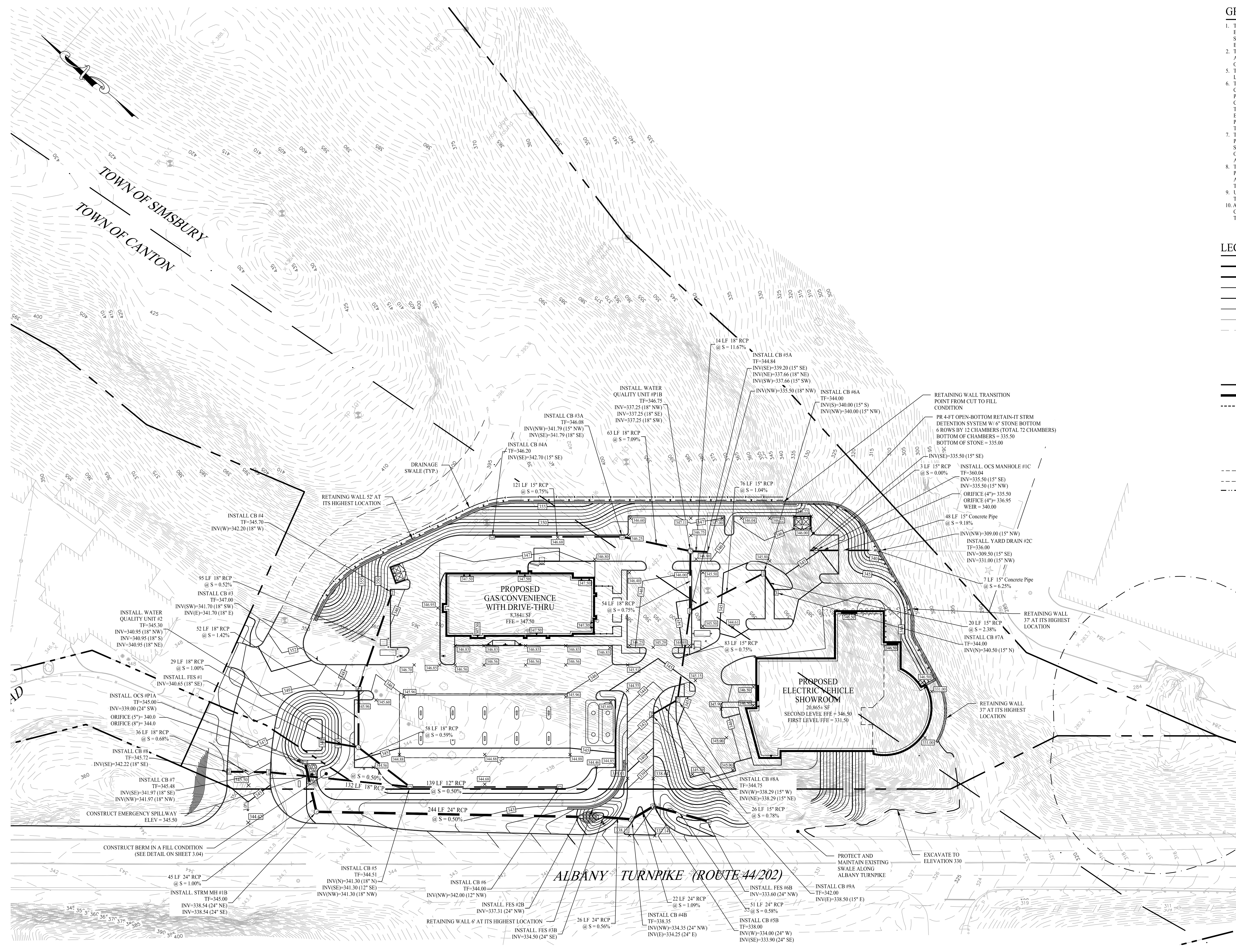
Sep 04, 2020 - 9:47am mls  
 X:\SE Files\Project Data\1904501 - Albany Turnpike, Simsbury\0401 - PDW-catch basin.dwg

**GRADING & DRAINAGE NOTES**

- THIS PLAN IS FOR PERMITTING USE ONLY AND IS NOT FOR CONSTRUCTION. EXISTING SITE CONDITIONS TAKEN FROM A SURVEY PLAN ENTITLED "PROPERTY SURVEY OF 9-15 ALBANY TURNPIKE, CANTON, CT" DATED 12/10/19, SCALE: 1" = 60', BY ACCURATE LAND SURVEYING, LLC.
- THE CONTRACTOR SHALL PRESERVE EXISTING VEGETATION WHERE POSSIBLE AND/OR AS NOTED ON DRAWINGS. REFER TO EROSION CONTROL PLAN FOR LIMIT OF DISTURBANCE AND EROSION CONTROL NOTES.
- TOPSOIL SHALL BE STRIPPED AND STOCKPILED ON SITE FOR USE IN FINAL LANDSCAPING.
- THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION PERMITS REQUIRED BY GOVERNMENT AND LOCAL AGENCIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY CONSTRUCTION PERMITS FROM THE TOWNS OF CANTON AND SIMSBURY REQUIRED TO PERFORM ALL WORK, INCLUDING FOR STREET CUTS AND CONNECTIONS TO EXISTING UTILITIES. THE CONTRACTOR SHALL POST ALL BONDS, PAY ALL FEES, PROVIDE PROOF OF INSURANCE AND PROVIDE TRAFFIC CONTROL NECESSARY FOR THIS WORK.
- THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC DEVICES FOR PROTECTION OF VEHICLES AND PEDESTRIANS CONSISTING OF DRUMS, BARRIERS, SIGNS, LIGHTS, FENCES AND UNIFORMED TRAFFIC CONTROLLERS AS REQUIRED, ORDERED BY THE ENGINEER OR REQUIRED BY THE STATE AND LOCAL GOVERNING AUTHORITIES.
- THE CONTRACTOR SHALL COMPACT FILL IN 12" MAXIMUM LIFTS UNDER ALL PARKING, BUILDING, AND DRIVE AREAS TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557 (MODIFIED PROCTOR TEST), OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
- UNDERDRAINS SHALL BE ADDED, IF DETERMINED NECESSARY IN THE FIELD BY THE OWNER/GEOTECHNICAL ENGINEER, AFTER SUBGRADE IS ROUGH GRADED.
- ALL DISTURBANCE INCURRED TO TOWN OR STATE PROPERTY DUE TO CONSTRUCTION SHALL BE RESTORED TO ITS PREVIOUS CONDITION OR BETTER, TO THE SATISFACTION OF THE TOWNS OF CANTON AND SIMSBURY AUTHORITIES.

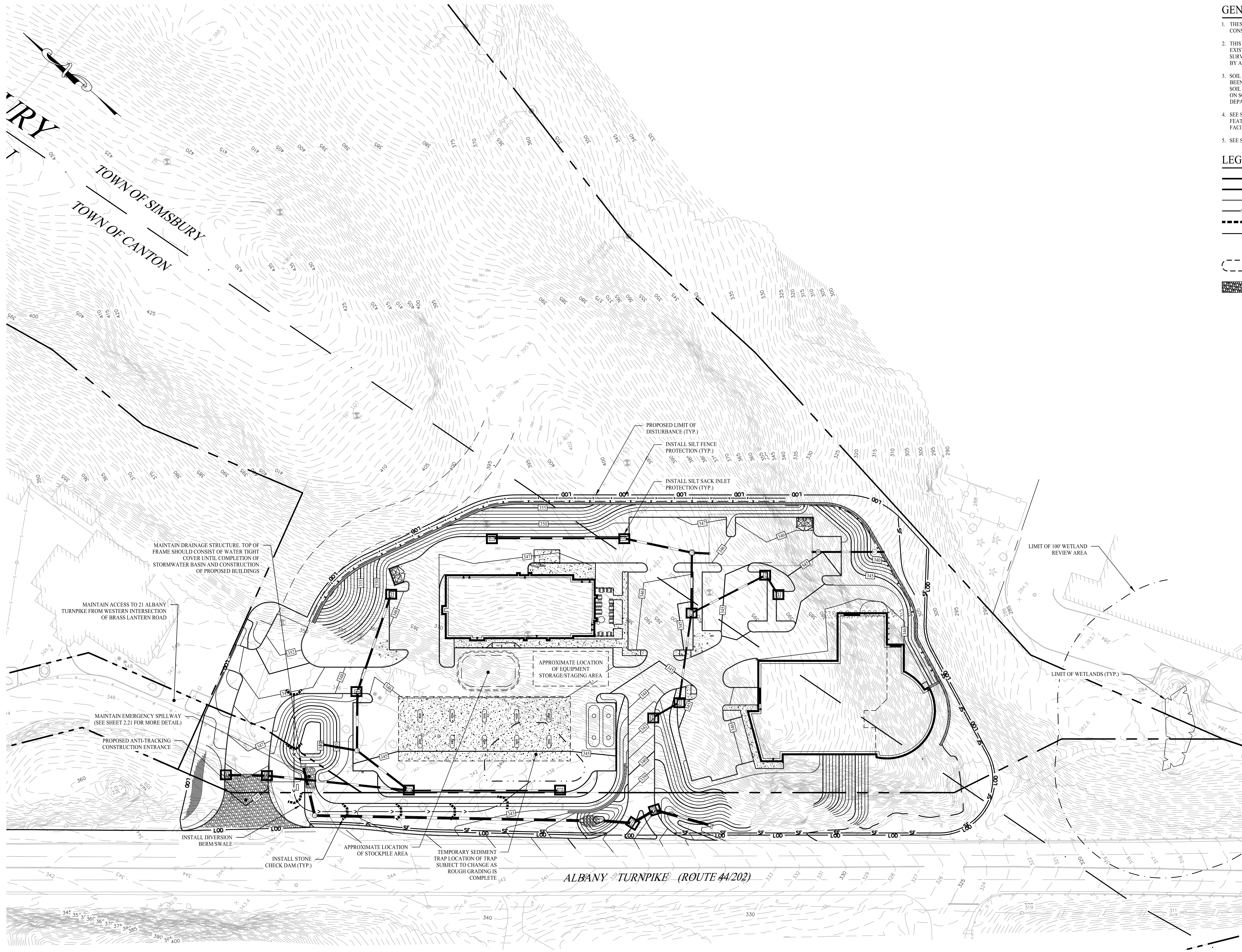
**LEGEND**

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJOINING LOT LINE
- MAJOR CONTOURS
- MINOR CONTOURS
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- CONTOUR LABEL
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- GRADE TO DRAIN
- SWALE
- STORM DRAIN PIPE
- PERFORATED UNDERDRAIN / TRENCH DRAIN
- TYPE "C" CATCH BASIN
- TYPE "CL" CATCH BASIN
- STORM MANHOLE
- WATER QUALITY UNIT
- FLARE END SECTION
- RAMP (SWALES / DRAINAGE BASIN ACCESS)
- WATER ELEVATION WITHIN BASIN
- RIP RAP

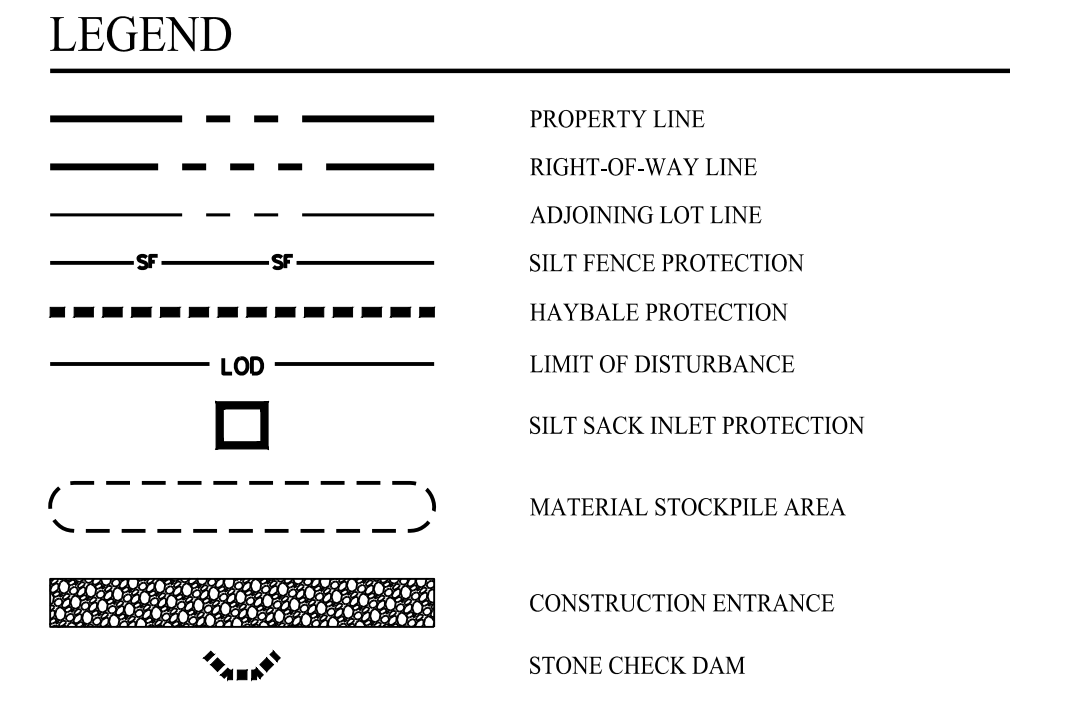


09/04/20	Revised Submission Materials
Rev. #:	Date
	Description
Graphic Scale:	
501 Main Street, Monroe, CT 06468   T: (203) 880-5455   F: (203) 880-9695	
Drawn By:	CJB
Checked By:	KMS
Approved By:	KMS
Project #:	1904501
Plan Date:	08/11/20
Scale:	1" = 40'
Project:	Kevin Solli, P.E. CT 25759
<b>9-15 ALBANY TURNPIKE</b> SIMSBURY & CANTON, CONNECTICUT	
Sheet Title:	Sheet #:
GRADING & DRAINAGE PLAN	2.21

Sep 04, 2020 - 10:27am  
 X:\SE Files\Project Data\2019\1904501 - Albany Turnpike, Simsbury\Coord Data\1904501-2.21.dwg  
 anthony



- GENERAL NOTES**
1. THESE PLANS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT FOR CONSTRUCTION.
  2. THIS PLAN IS FOR PERMITTING USE ONLY AND IS NOT FOR CONSTRUCTION. EXISTING SITE CONDITIONS TAKEN FROM A SURVEY PLAN ENTITLED "PROPERTY SURVEY OF 9-15 ALBANY TURNPIKE, CANTON, CT" DATED 12/10/19, SCALE: 1" = 60', BY ACCURATE LAND SURVEYING, LLC.
  3. SOIL EROSION AND SEDIMENT CONTROL MEASURES DEPICTED HEREON HAVE BEEN DESIGNED IN ACCORDANCE WITH THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL MANUAL, BY THE CONNECTICUT COUNCIL ON SOIL AND WATER CONSERVATION IN COOPERATION WITH THE CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION.
  4. SEE SHEET 2.21 FOR DETAILS REGARDING THE PROPOSED GRADING AND DRAINAGE FEATURES, STORMWATER CONVEYANCE SYSTEM AND STORMWATER DETENTION FACILITIES.
  5. SEE SHEET 2.41 FOR SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.



09/04/20 Revised Submission Materials	
Rev. #:	Date Description
Graphic Scale:	
 <small>501 Main Street, Monroe, CT 06468 T: (203) 880-5455 F: (203) 880-9695</small>	
Drawn By:	AWC
Checked By:	CJB
Approved By:	KMS
Project #:	1904501
Plan Date:	08/11/20
Scale:	1" = 40'
Kevin Solli, P.E. CT 25759	
<b>9-15 ALBANY TURNPIKE</b> SIMSBURY & CANTON, CONNECTICUT	
Sheet Title:	Sheet #:
SOIL EROSION & SEDIMENT CONTROL PLAN	2.31

Sep 04, 2020 - 10:08am anthony  
 X:\SE Files\Project Data\2019\1904501 - Albany Turnpike, Simsbury\Cadd Data\1904501-2.31.dwg

# SOIL EROSION AND SEDIMENT CONTROL GENERAL NOTES

**SEDIMENT & EROSION CONTROL NARRATIVE**  
 THE SEDIMENT AND EROSION CONTROL PLAN WAS DEVELOPED TO PROTECT THE EXISTING ROADWAY AND STORM DRAINAGE SYSTEMS, ADJACENT PROPERTIES, AND ANY ADJACENT WETLAND AREA AND WATERCOURSE FROM SEDIMENT LADEN SURFACE RUNOFF AND EROSION.

**CONSTRUCTION SCHEDULE**  
 THE ANTICIPATED STARTING DATE FOR CONSTRUCTION IS SPRING 2022 WITH COMPLETION ANTICIPATED BY FALL 2023 (APPROXIMATELY 18 MONTHS). APPROPRIATE EROSION CONTROL MEASURES AS DESCRIBED HEREIN SHALL BE INSTALLED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF ALL SITE CLEARING OR CONSTRUCTION ACTIVITY. SCHEDULE WORK TO MINIMIZE THE LENGTH OF TIME THAT BARE SOIL WILL BE EXPOSED.

**CONTINGENCY EROSION PLAN**  
 THE CONTRACTOR SHALL INSTALL ALL SPECIFIED EROSION CONTROL MEASURES AND WILL BE REQUIRED TO MAINTAIN THEM IN THEIR INTENDED FUNCTIONING CONDITION. THE LAND USE AGENTS OF THE TOWN(S) OF CANTON AND SIMSBURY AND PROJECT ENGINEER SHALL HAVE THE AUTHORITY TO REQUIRE ADDITIONAL MAINTENANCE OR ADDITIONAL MEASURES IF FIELD CONDITIONS ARE ENCOUNTERED BEYOND WHAT WOULD NORMALLY BE ANTICIPATED.

**OPERATION REQUIREMENTS**  
**CLEARING AND GRUBBING OPERATIONS:**  
 1. ALL SEDIMENTATION AND EROSION CONTROL MEASURES, INCLUDING THE CONSTRUCTION OF TEMPORARY SEDIMENTATION TRAPS AND STONE CONSTRUCTION ENTRANCE ANTI-TRACKING PADS, WILL BE INSTALLED PRIOR TO THE START OF CLEARING AND GRUBBING OPERATIONS.  
 2. FOLLOWING INSTALLATION OF ALL SEDIMENTATION AND EROSION CONTROL MEASURES, THE CONTRACTOR SHALL NOT PROCEED WITH GRADING, FILLING OR OTHER CONSTRUCTION OPERATIONS UNTIL THE ENGINEER HAS INSPECTED AND APPROVED ALL INSTALLATIONS.  
 3. THE CONTRACTOR SHALL TAKE EXTREME CARE DURING CLEARING AND GRUBBING OPERATIONS SO AS NOT TO DISTURB UNPROTECTED WETLAND AREAS OR SEDIMENTATION AND EROSION CONTROL DEVICES.  
 4. FOLLOWING THE COMPLETION OF CLEARING AND GRUBBING OPERATIONS, ALL AREAS SHALL BE STABILIZED WITH TOPSOIL AND SEEDING OR PROTECTIVE STONE AS SHOWN ON THE PLANS.  
 5. ALL REMOVED INVASIVE PLANT SPECIES MATERIAL SHALL BE FULLY REMOVED FROM THE SITE AND TAKEN TO AN APPROVED AND/OR ACCEPTABLE DISPOSAL LOCATION.

**ROUGH GRADING OPERATIONS:**  
 1. DURING THE REMOVAL AND/OR PLACEMENT OF EARTH AS INDICATED ON THE GRADING PLAN, TOPSOIL SHALL BE STRIPPED AND APPROPRIATELY STOCKPILED FOR REUSE.  
 2. ALL STOCKPILED TOPSOIL SHALL BE SEEDED, MULCHED WITH HAY, AND ENCLOSED BY A SILTATION FENCE.

**FILLING OPERATIONS:**  
 1. PRIOR TO FILLING, ALL SEDIMENTATION AND EROSION CONTROL DEVICES SHALL BE PROPERLY IMPLEMENTED, MAINTAINED AND FULLY INSTALLED, AS DIRECTED BY THE ENGINEER AND AS SHOWN ON THIS PLAN.  
 2. ALL FILL MATERIAL ADJACENT TO ANY WETLAND AREAS, IF APPLICABLE TO THIS PROJECT, SHALL BE GOOD QUALITY, WITH LESS THAN 5% FINES PASSING THROUGH A #20 SIEVE (BANK RUN), SHALL BE PLACED IN LIFT THICKNESS NOT GREATER THAN THAT SPECIFIED IN PROJECT SPECIFICATIONS. LIFTS SHALL BE COMPACTED TO 95% MAX. DRY DENSITY MODIFIED PROCTOR.  
 3. AS GENERAL GRADING OPERATIONS PROGRESS, ANY TEMPORARY DIVERSION DITCHES SHALL BE RAISED OR LOWERED, AS NECESSARY, TO DIVERT SURFACE RUNOFF TO THE SEDIMENT TRAPS.

**PLACEMENT OF DRAINAGE STRUCTURES, UTILITIES, AND ROADWAY CONSTRUCTION OPERATIONS:**  
 1. SILT FENCES SHALL BE INSTALLED AT THE DOWNHILL SIDES OF TEMPORARY SEDIMENT TRAP SLOPES, MUD PUMP DISCHARGES, AND UTILITY TRENCHES AND MULCH STOCKPILES. HAY BALES MAY BE USED IF SHOWN ON THE EROSION CONTROL PLANS OR IF DIRECTED BY THE PROJECT ENGINEER.

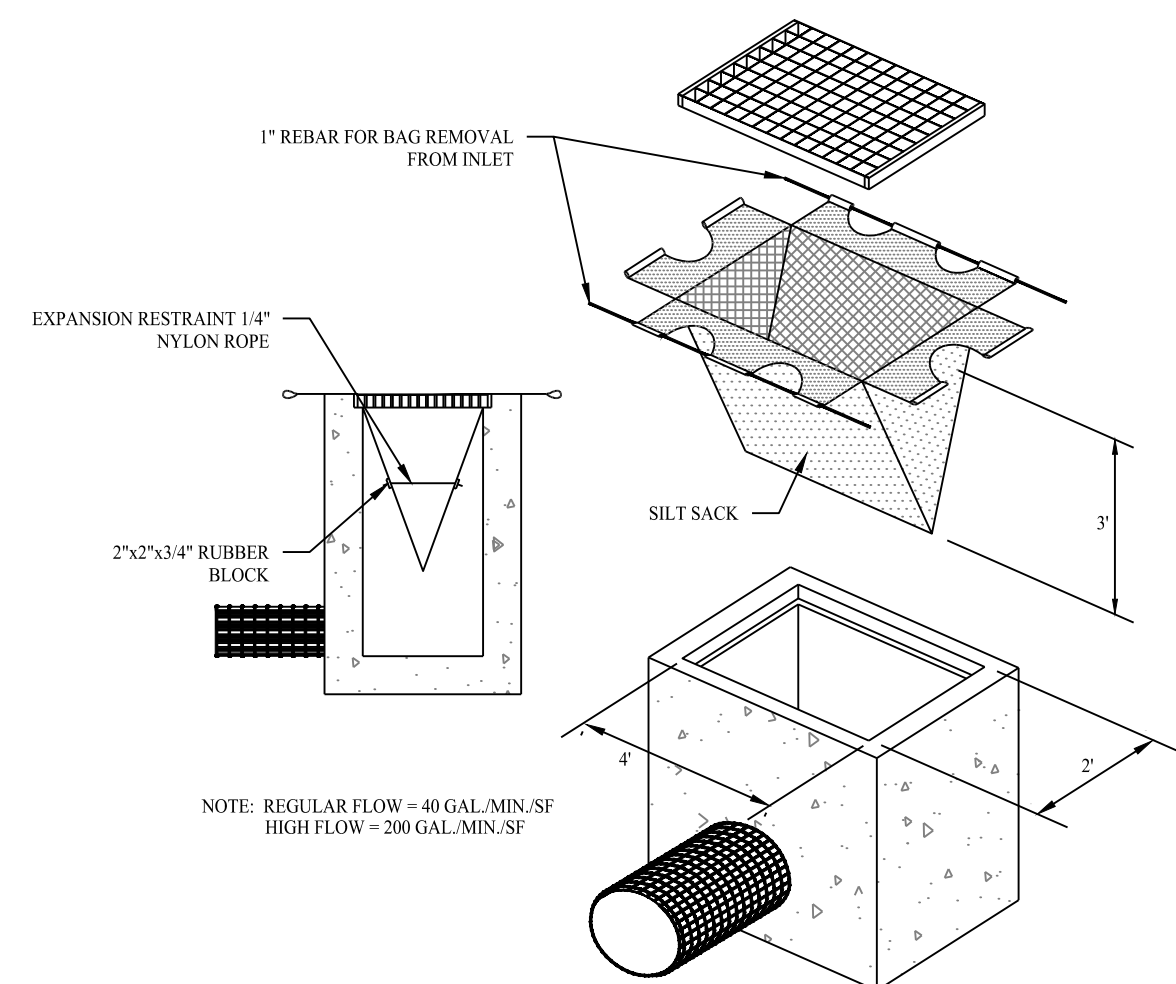
**FINAL GRADING AND PAVING OPERATIONS:**  
 1. ALL INLET AND OUTLET PROTECTION SHALL BE PLACED AND MAINTAINED AS SHOWN ON EROSION CONTROL PLANS AND DETAILS, AND AS DESCRIBED IN SPECIFICATIONS AND AS DESCRIBED HEREIN.  
 2. NO CUT OR FILL SLOPES SHALL EXCEED 2:1 EXCEPT WHERE STABILIZED BY ROCK FACED EMBANKMENTS OR EROSION CONTROL BLANKETS, RITE MESH AND VEGETATION. ALL SLOPES SHALL BE SEEDED, AND ANY ROAD OR DRIVEWAY SHOULDER AND BANKS SHALL BE STABILIZED IMMEDIATELY UPON COMPLETION OF FINAL GRADING UNTIL TURF IS ESTABLISHED.  
 3. PAVEMENT SUB-BASE AND BASE COURSES SHALL BE INSTALLED OVER AREAS TO BE PAVED AS SOON AS FINAL SUB-GRADES ARE ESTABLISHED AND UNDERGROUND UTILITIES AND STORM DRAINAGE SYSTEMS HAVE BEEN INSTALLED.  
 4. AFTER CONSTRUCTION OF PAVEMENT, TOPSOIL, FINAL SEED, MULCH AND LANDSCAPING, REMOVE ALL TEMPORARY EROSION CONTROL DEVICES ONLY AFTER ALL AREAS HAVE BEEN PAVED AND/OR GRASS HAS BEEN WELL ESTABLISHED AND THE SITE HAS BEEN INSPECTED AND APPROVED BY THE TOWN(S) OF CANTON AND SIMSBURY, EASTERN CONNECTICUT SOILS CONSERVATION DISTRICT, TOWN(S) OF CANTON AND SIMSBURY INLAND WETLANDS COMMISSION.

**INSTALLATION OF SEDIMENTATION AND EROSION CONTROL MEASURES**  
**I. SILTATION FENCE:**  
 A. DIG A SIX INCH TRENCH ON THE UPHILL SIDE OF THE DESIGNATED FENCE LINE LOCATION.  
 B. POSITION THE POST AT THE BACK OF THE TRENCH (DOWNHILL SIDE), AND HAMMER THE POST AT LEAST 1.5 FEET INTO THE GROUND.  
 C. AT THE BOTTOM SIX INCHES OF THE FABRIC INTO THE TRENCH TO PREVENT UNDERMINING BY STORM WATER RUN-OFF.  
 D. BACKFILL THE TRENCH AND COMPACT.  
**II. HAY BALES:**  
 A. BALES SHALL BE PLACED IN A SINGLE ROW, LENGTHWISE, ORIENTED PARALLEL TO THE CONTOUR, WITH ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER.  
 B. BALES SHALL BE EXTENDED AND BACKFILLED. A TRENCH SHALL BE EXCAVATED THE WIDTH OF A BALE AND THE LENGTH OF THE PROPOSED BARRIER TO A MINIMUM DEPTH OF FOUR INCHES. AFTER THE BALES ARE STACKED, THE EXCAVATED SOIL SHALL BE BACKFILLED AGAINST THE BARRIER.  
 C. EACH BALE SHALL BE SECURELY ANCHORED BY AT LEAST TWO (2) STAKES.  
 D. THE GAPS BETWEEN BALES SHALL BE WEDGED WITH STRAW TO PREVENT WATER LEAKAGE.  
 E. THE BARRIER SHALL BE EXTENDED TO SUCH A LENGTH THAT THE BOTTOMS OF THE END BALES ARE HIGHER IN ELEVATION THAN THE TOP OF THE LOWEST MIDDLE BALE, TO ENSURE THAT RUN-OFF WILL FLOW EITHER THROUGH OR OVER THE BARRIER, BUT NOT AROUND IT.  
**III. SILT SACK INLET PROTECTION**  
 A. REMOVE CATCH BASIN GRATE AND PROPERLY PLACE THE SILT SACK INTO THE FRAME OF THE CATCH BASIN.  
 B. PLACE GRATE BACK ONTO FRAME AND ENSURE NO PORTIONS OF THE SILT SACK HAVE SAGGED INTO THE CATCH BASIN.  
 C. ONCE GRATE IS PLACED BACK ONTO FRAME OBSERVE TO SEE IF SILT SACK IS INSTALLED IN A MANNER THAT WILL ALLOW FOR SEDIMENT TO BE FILTERED OUT DURING STORM EVENTS.

**OPERATION AND MAINTENANCE OF SEDIMENTATION AND EROSION CONTROL MEASURES**  
**I. SILTATION FENCE:**  
 A. ALL SILTATION FENCES SHALL BE INSPECTED AS A MINIMUM WEEKLY OR AFTER EACH RAINFALL. ALL DETERIORATED FABRIC AND DAMAGED POSTS SHALL BE REPLACED AND PROPERLY REPOSITIONED IN ACCORDANCE WITH THIS PLAN.  
 B. SEDIMENT DEPOSITS SHALL BE REMOVED FROM BEHIND THE FENCE WHEN THEY EXCEED A HEIGHT OF ONE FOOT.  
**II. HAY BALES:**  
 A. ALL HAY BALE RINGS SHALL BE INSPECTED FOLLOWING EACH RAINFALL. REPAIR OR REPLACEMENT SHALL BE PROMPTLY MADE AS NEEDED.  
 B. DEPOSITS SHALL BE REMOVED AND CLEANED-OUT ONE HALF OF THE ORIGINAL HEIGHT OF THE BALES BECOMES FILLED WITH SEDIMENT.  
**III. SEDIMENT TRAPS:**  
 A. CONTRACTOR TO KEEP WEEKLY CHECKLIST LOGS FOR INSPECTIONS OF ALL SEDIMENT AND EROSION CONTROL DEVICES AND HAVE THEM READILY AVAILABLE ON-SITE AT ALL TIMES FOR INSPECTION BY CT DEP, LOCAL AUTHORITIES OR ENGINEER.  
 B. ALL SEDIMENT TRAPS SHALL BE INSPECTED FOLLOWING EACH RAINFALL. REPAIR OF SLOPES SHALL BE PROMPTLY MADE AS NEEDED. EROSION CONTROL BLANKETS MAY BE USED FOLLOWING REPAIR OF SLOPE AS DIRECTED BY THE ENGINEER.  
 C. SEDIMENT DEPOSITS SHALL BE REMOVED FROM SEDIMENT TRAPS AND/OR SEDIMENT TRAPS WHEN THEY EXCEED A HEIGHT OF ONE FOOT UNLESS OTHERWISE INDICATED ON THE EROSION CONTROL PLANS AND DETAILS TO BE AT A SPECIFIC ELEVATION PER CLEAN-OUT MARKERS.  
 D. SEDIMENT SHALL BE DISPOSED OF ON-SITE OR AS DIRECTED BY THE ENGINEER AND LOCAL GOVERNING OFFICIALS. SEE SEDIMENT AND EROSION CONTROL NOTES HEREIN REGARDING DISPOSAL REQUIREMENTS FOR OFF SITE SPOIL DISPOSAL.  
**IV. CHECK DAMS:**  
 A. ALL STONE CHECK DAMS SHALL BE INSPECTED FOLLOWING EACH RAINFALL. REPAIR OF STONE CHECK DAMS SHALL BE PROMPTLY MADE AND ACCUMULATED SEDIMENT REMOVED WHEN IT REACHES ONE HALF OF THE HEIGHT OF THE CHECK DAM.  
**V. TEMPORARY PERMANENT DRAINAGE SWALES:**  
 A. SWALES SHALL BE INSPECTED FOLLOWING EACH RAINFALL. REPAIR OF ANY WASHED OUT OR ERODED SLOPES SHALL BE MADE PROMPTLY AND THE AREA SHALL BE RESEDED AS NECESSARY.  
 B. EROSION CONTROL BLANKETS MAY BE USED TO REPAIR ERODED SWALES AS DIRECTED BY THE ENGINEER OR TOWN(S) OF CANTON AND SIMSBURY AGENY.  
**VI. SILT SACK INLET PROTECTION**  
 A. ALL SILT SACK INLET PROTECTION DEVICES SHALL BE INSPECTED AS A MINIMUM WEEKLY OR AFTER EACH RAINFALL. ALL DETERIORATE SILT SACKS AND SACKS THAT APPEAR TO HAVE AN EXCESS OF SEDIMENT SHALL BE REPLACED AND PROPERLY REPOSITIONED IN ACCORDANCE WITH THIS PLAN.  
 B. SEDIMENT DEPOSITS SHALL BE REMOVED FROM THE SILT SACKS WHEN THEY EXCEED A COUPLE INCHES OF SEDIMENT WITHIN THE CATCH BASIN.

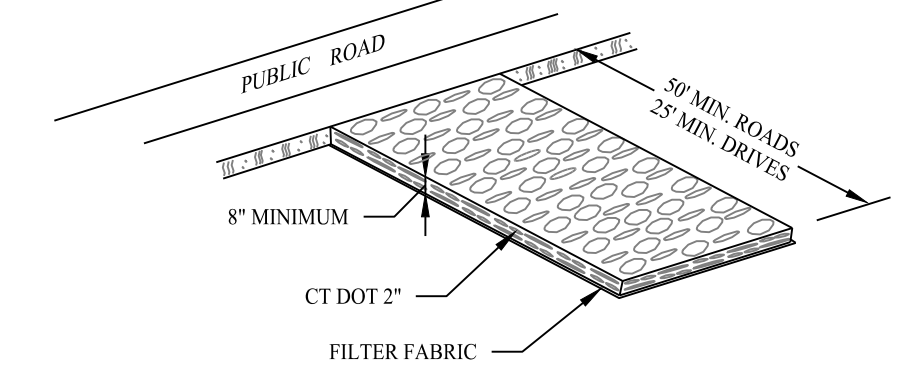
**EROSION AND SEDIMENT CONTROL PLAN**  
 1. HAY BALE FILTERS OR SILTATION FENCE WILL BE INSTALLED AT ALL CULVERT OUTLETS IF CULVERT OUTLETS ARE APPLICABLE TO THIS PROJECT AND ALONG THE TOP OF ALL CRITICAL CUTS AND HILLSLOPES.  
 2. CULVERT DISCHARGE AREAS WILL BE PROTECTED WITH RIP RAP CHANNELS; ENERGY DISSIPATORS WILL BE INSTALLED AS SHOWN ON THESE PLANS AND AS NECESSARY.  
 3. CATCH BASINS WILL BE PROTECTED WITH HAY BALE FILTERS, SILT SACKS, SILTATION FENCE, OR OTHER INLET PROTECTION DEVICES PER DETAILS, THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL ALL DISTURBED AREAS ARE THOROUGHLY STABILIZED.  
 4. ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL MANUAL, LATEST EDITION.  
 5. EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED PRIOR TO CONSTRUCTION WHENEVER POSSIBLE.  
 6. ALL CONTROL MEASURES WILL BE MAINTAINED IN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD.  
 7. ADDITIONAL CONTROL MEASURES WILL BE INSTALLED DURING THE CONSTRUCTION PERIOD, IF NECESSARY OR REQUIRED OR AS DIRECTED BY THE CIVIL ENGINEER OR BY LOCAL GOVERNING OFFICIALS.  
 8. SEDIMENT REMOVED FROM EROSION CONTROL STRUCTURES WILL BE DISPOSED IN A MANNER WHICH IS CONSISTENT WITH THE INTENT AND REQUIREMENTS OF THE EROSION CONTROL PLANS, NOTES, AND DETAILS.  
 9. THE OWNER IS ASSIGNED THE RESPONSIBILITY FOR IMPLEMENTING THIS EROSION AND SEDIMENT CONTROL PLAN. THIS RESPONSIBILITY INCLUDES THE INSTALLATION AND MAINTENANCE OF CONTROL MEASURES, INFORMING ALL PARTIES ENGAGED ON THE CONSTRUCTION SITE OF THE REQUIREMENTS AND OBJECTIVES OF THE PLAN.

**SEDIMENT AND EROSION CONTROL NOTES**  
 1. THE OWNER IS RESPONSIBLE FOR IMPLEMENTING THIS SEDIMENT AND EROSION CONTROL PLAN. THIS RESPONSIBILITY INCLUDES THE PROPER INSTALLATION AND MAINTENANCE OF EROSION CONTROL MEASURES, INFORMING ALL PARTIES ENGAGED WITH CONSTRUCTION ON THE SITE OF THE REQUIREMENTS AND OBJECTIVES OF THIS PLAN, INFORMING THE GOVERNING AUTHORITY OR PLANNING AND WETLANDS AGENCY OF ANY TRANSFER OF THIS RESPONSIBILITY, AND FOR CONVEYING A COPY OF THE SEDIMENT & EROSION CONTROL PLAN IF THE TITLE TO THE LAND IS TRANSFERRED.  
 2. AN EROSION CONTROL BOND MAY BE REQUIRED TO BE POSTED WITH THE TOWN(S) OF CANTON AND SIMSBURY TO ENSURE IMPLEMENTATION OF THE EROSION CONTROL MEASURES. THE OWNER SHALL BE RESPONSIBLE FOR THE POSTING OF THIS BOND AND FOR INQUIRIES TO THE TOWN(S) OF CANTON AND SIMSBURY FOR INFORMATION ON THE METHOD, TYPE AND AMOUNT OF THE BOND POSTING UNLESS OTHERWISE DIRECTED.  
 3. VISUAL SITE INSPECTIONS SHALL BE CONDUCTED WEEKLY, AND AFTER EACH MEASURABLE PRECIPITATION EVENT OF 0.10 INCHES OR GREATER BY QUALIFIED PERSONNEL, TRAINED AND EXPERIENCED IN EROSION AND SEDIMENT CONTROL, TO ASCERTAIN THAT THE EROSION AND SEDIMENT CONTROL (EAS) BMPs ARE OPERATIONAL AND EFFECTIVE IN PREVENTING POLLUTION. A WRITTEN REPORT OF EACH INSPECTION SHALL BE KEPT, AND INCLUDE:  
 A) A SUMMARY OF THE SITE CONDITIONS, EAS BMPs, AND COMPLIANCE; AND  
 B) THE DATE, TIME, AND THE NAME OF THE PERSON CONDUCTING THE INSPECTION.  
 4. THE CONTRACTOR SHALL CONSTRUCT ALL SEDIMENT AND EROSION CONTROLS IN ACCORDANCE WITH THE CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, PREPARED BY CTDEP, LATEST EDITION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, AND AS DIRECTED BY THE TOWN(S) OF CANTON AND SIMSBURY. THE CONTRACTOR SHALL KEEP A COPY OF THE GUIDELINES ON-SITE FOR REFERENCE DURING CONSTRUCTION.  
 5. ADDITIONAL AND/OR ALTERNATIVE SEDIMENT AND EROSION CONTROL MEASURES MAY BE INSTALLED DURING THE CONSTRUCTION PERIOD IF FOUND NECESSARY BY THE CONTRACTOR, OWNER, CIVIL ENGINEER, TOWN(S) OF CANTON AND SIMSBURY, EASTERN CONNECTICUT SOILS CONSERVATION DISTRICT, TOWN(S) OF CANTON AND SIMSBURY INLAND WETLANDS COMMISSIONS, OR GOVERNING AGENCIES. THE CONTRACTOR SHALL CONTACT THE OWNER AND APPROPRIATE GOVERNING AGENCIES FOR APPROVAL IF ALTERNATIVE CONTROLS OTHER THAN THOSE SHOWN ON THE PLANS ARE PROPOSED.  
 6. THE CONTRACTOR SHALL INSPECT ALL SEDIMENT AND EROSION CONTROLS BEFORE AND AFTER EACH STORM (0.10 INCHES OR GREATER RAINFALL), OR AT LEAST WEEKLY, TO VERIFY THAT THE CONTROLS ARE OPERATING PROPERLY AND MAKE REPAIRS WHERE NECESSARY.  
 7. THE CONTRACTOR SHALL KEEP A SUPPLY OF EROSION CONTROL MATERIAL (HAY BALES, SILT FENCE, RITE MESH, RIP RAP ETC.) ON-SITE FOR MAINTENANCE AND EMERGENCY REPAIRS.  
 8. INSTALL PERIMETER SEDIMENT CONTROLS PRIOR TO CLEARING OR CONSTRUCTION. ALL CONSTRUCTION SHALL BE CONTAINED WITHIN THE LIMIT OF DISTURBANCE, WHICH SHALL BE MARKED WITH SILT FENCE, SAFETY FENCE, HAY BALES, RIBBONS, OR OTHER MEANS PRIOR TO CLEARING. CONSTRUCTION ACTIVITY SHALL REMAIN ON THE UPHILL SIDE OF THE SILT FENCE UNLESS WORK IS SPECIFICALLY CALLED FOR ON THE DOWNHILL SIDE OF THE FENCE.  
 9. STONE CONSTRUCTION ENTRANCE ANTI-TRACKING PADS SHALL BE INSTALLED AT START OF CONSTRUCTION AND MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION. THE LOCATION OF THE TRACKING PADS MAY CHANGE AS VARIOUS PHASES OF CONSTRUCTION ARE COMPLETED.  
 10. TOPSOIL SHALL BE STRIPPED AND STOCKPILED FOR USE IN FINAL LANDSCAPING. ALL EARTH STOCKPILES SHALL HAVE HAY BALES OR SILT FENCE AROUND THE LIMIT OF PILE. PILES SHALL BE TEMPORARILY SEEDED IF PILE IS TO REMAIN IN PLACE FOR MORE THAN 7 DAYS.  
 11. SEDIMENTATION TRAPS SHALL PROVIDE 134 CUBIC YARDS OF SEDIMENT STORAGE PER DISTURBED ACRE CONTRIBUTING TO THE BASIN. PADS FOR ALL DISTURBANCE ON SITE.  
 12. STONE CONSTRUCTION ENTRANCE ANTI-TRACKING PADS SHALL BE INSTALLED PRIOR TO ANY ON SITE EXCAVATION AND SHALL BE MAINTAINED DURING ALL EXCAVATION AND CONSTRUCTION ACTIVITIES.  
 13. MINIMIZE AND DISTURBANCES. SEED AND MULCH DISTURBED AREAS WITH TEMPORARY MIX AS SOON AS PRACTICABLE (2 WEEK MAXIMUM UNSTABILIZED PERIOD) USING PERENNIAL RYEGRASS AT 40 LBS PER ACRE. MULCH ALL CUT AND FILL SLOPES AND SWALES WITH LOOSE HAY AT A RATE OF 2 TONS PER ACRE. IF NECESSARY, REPLACE LOOSE HAY ON SLOPES WITH EROSION CONTROL BLANKETS OR RITE CLOTH.  
 14. MODERATELY GRADED AREAS, ISLANDS, AND TEMPORARY CONSTRUCTION STAGING AREAS MAY BE HYDROSEEDED WITH TACKIFIER.  
 15. SILT FENCE AND OTHER SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH CONTRACT DRAWINGS AND MANUFACTURER'S RECOMMENDATIONS IN ANY UPHILL AREAS.  
 16. EXCAVATED MATERIAL FROM TEMPORARY SILT TRAPS MUST BE STOCKPILED ON UPHILL SIDE OF SILT FENCE.  
 17. WHERE INDICATED ON EROSION CONTROL PLANS USE NEW HAY BALES AND REPLACE THEM WHENEVER THEIR CONDITION DETERIORATES TO UNACCEPTABLE LEVELS. HAY BALES SHOULD BE SECURELY UNTO GROUND AND BUTT TIGHTLY TOGETHER TO PREVENT UNDERCUTTING AND BYPASSING.  
 18. INSTALL TEMPORARY DIVERSION DITCHES, PLUNGING POOLS, SEDIMENT TRAPS, AND DEWATERING PITS AS SHOWN AND AS NECESSARY DURING VARIOUS PHASES OF CONSTRUCTION TO CONTROL RUNOFF UNTIL UPHILL AREAS ARE STABILIZED. LOCATION OF TEMPORARY SEDIMENT TRAPS WILL REQUIRE REVIEW AND APPROVAL BY THE CIVIL ENGINEER AND GOVERNING OFFICIAL.  
 19. DIRECT ALL DEWATERING PUMP DISCHARGE TO A SEDIMENT CONTROL DEVICE SUCH AS TEMPORARY PITS, SEDIMENT TRAPS OR GRASS FILTERS WITHIN THE APPROVED LIMIT OF DISTURBANCE. DISCHARGE TO STORM DRAINAGE SYSTEM OR SURFACE WATERS FROM SEDIMENT CONTROLS SHALL BE CLEAR.  
 20. BLOCK THE OPEN UPSTREAM ENDS OF DETENTION BASIN/SEDIMENTATION BASIN OUTLET CONTROL ORIFICE UNTIL SITE IS STABILIZED. CONVERT TEMPORARY SEDIMENT TRAPS TO PERMANENT DETENTION BASINS ONCE SITE HAS BEEN STABILIZED. CLEAN OUTLET CONTROL STRUCTURES AS NECESSARY AND REMOVE ACCUMULATED SEDIMENT FROM BOTTOM OF BASIN. BLOCK END OF STORM SEWERS IN EXPOSED TRENCHES WITH BOARDS AND SANDBAGS AT THE END OF EACH WORKING DAY WHEN RAIN IS EXPECTED.  
 21. SWEEP AFFECTED PORTIONS OF OFF SITE ROADS ONE OR MORE TIMES A DAY OR LESS FREQUENTLY IF TRACKING IS NOT A PROBLEM) DURING CONSTRUCTION. OTHER DUST CONTROL MEASURES TO BE USED AS NECESSARY INCLUDE WATERING DOWN DISTURBED AREAS, USING CALCIUM CHLORIDE, AND COVERING LOADS ON DUMP TRUCKS.  
 22. PERIODICALLY CHECK ACCUMULATED SEDIMENT LEVELS IN THE SEDIMENT TRAPS DURING CONSTRUCTION AND CLEAN ACCUMULATED SILT WHEN NECESSARY OR WHEN ONE FOOT OF SEDIMENT HAS ACCUMULATED OR PER SPECIFIC CLEAN-OUT MARKER ELEVATION. CLEAN ACCUMULATED SEDIMENT FROM CATCH BASIN SUMPS AS NECESSARY AND AS DIRECTED BY THE CIVIL ENGINEER OR OWNERS REPRESENTATIVE. REMOVE ACCUMULATED SEDIMENT FROM BEHIND HAY BALES AND SILT FENCE WHEN LEVEL REACHES HALF THE HEIGHT OF THE HAY BALE OR ONE FOOT AT SILT FENCE. DISPOSE OF SEDIMENT LEGALLY EITHER ON OR OFF SITE.  
 23. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO ELIMINATE THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION.  
 24. ALL PUMPING OF SEDIMENT LADEN WATER SHALL BE THROUGH A SEDIMENT CONTROL BMP, SUCH AS A PUMPED WATER FILTER BAG OR EQUIVALENT SEDIMENT REMOVAL FACILITY, OVER UNDISTURBED VEGETATED AREAS.  
 25. ALL EXCAVATED MATERIAL SHALL BE PLACED ON THE HIGH SIDE OF UTILITY AND STORM PIPE TRENCHES SO AS TO ALLOW THE TRENCH TO INTERCEPT ALL SILT LADEN RUNOFF.  
 26. CONTRACTOR SHALL ONLY EXCAVATE AS MUCH UTILITY AND STORM PIPE TRENCH WORK AS CAN BE COMPLETED, BACKFILLED AND STABILIZED IN ONE DAY SO AS TO LIMIT THE AMOUNT OF OPEN, DISTURBED TRENCHING.  
 27. ANY STOCKPILES OF STRIPPED MATERIALS ARE TO BE PERIODICALLY SPRAYED WITH WATER OR A CRUSTING AGENT TO STABILIZE POTENTIALLY WIND-BLOWN MATERIAL. HAIL ROADS BOTH INTO AND AROUND THE SITE ARE TO BE SPRAYED AS NEEDED TO SUPPRESS DUST. TRUCKS HAULING IMPORT FILL MATERIAL ARE TO BE TARPED TO AID IN THE CONTROL OF AIRBORNE DUST. DURING HIGH WIND EVENTS (20 TO 30 MPH SUSTAINED) CONSTRUCTION ACTIVITY SHALL BE LIMITED OR CEASED IF DUST CANNOT BE CONTROLLED BY WETTING.  
 28. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM OF 70% UNIFORM PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING OR OTHER MOVEMENTS.  
 29. MAINTAIN ALL PERMANENT AND TEMPORARY SEDIMENT CONTROL DEVICES IN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD. UPON COMPLETION OF WORK SWEEP PARKING LOT AND REMOVE ALL TEMPORARY SEDIMENT CONTROLS WHEN AUTHORIZED BY LOCAL GOVERNING AUTHORITY. FILE NOT NOTICE OF TERMINATION WITH GOVERNING AUTHORITY RESPONSIBLE FOR REGULATING STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES PER NPDES.



## SILT SACK DETAIL

SCALE: NTS



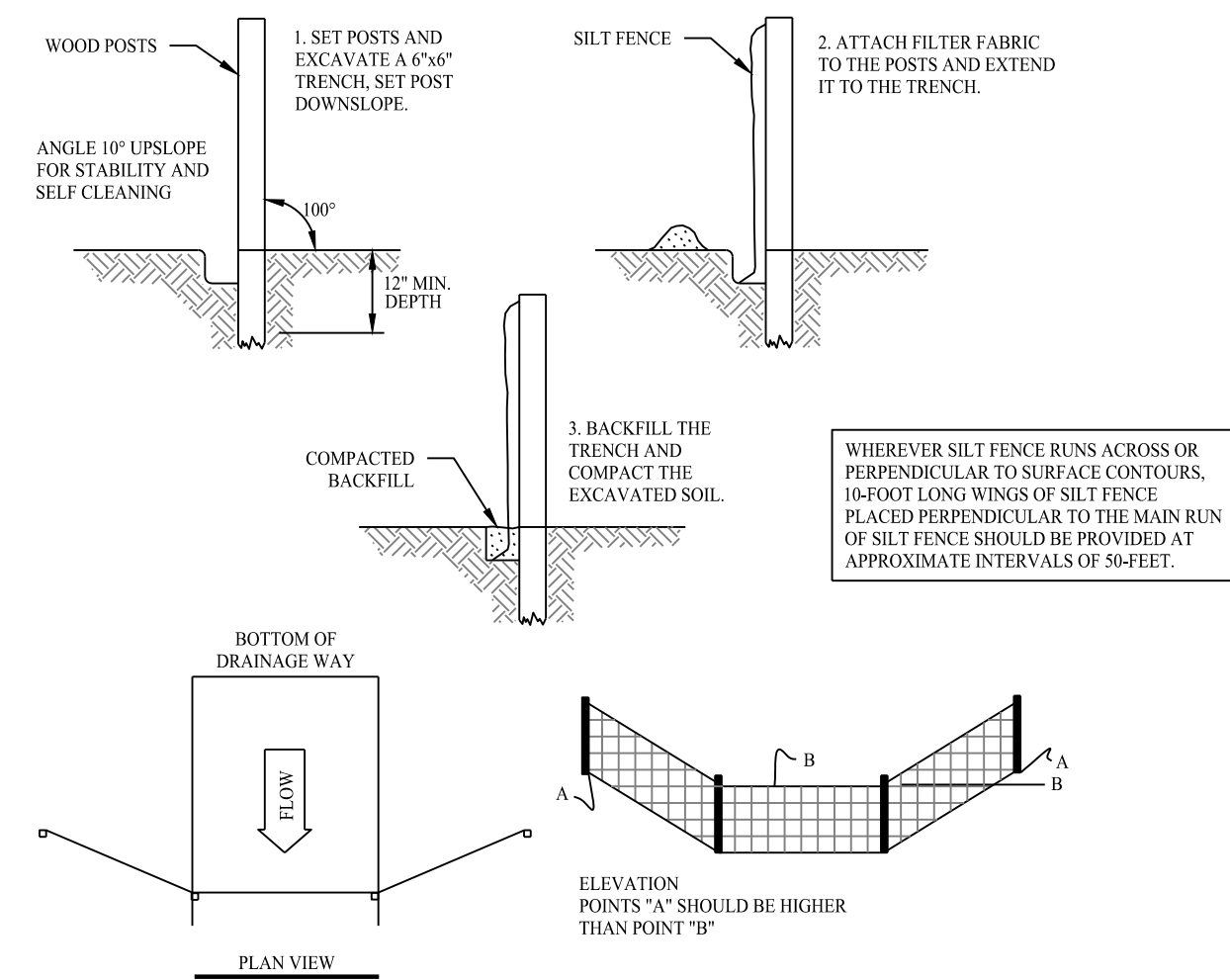
## GRADATION TABLE

SQUARE MESH SIEVES	CONN. DOT 2" CRUSHED GRAVEL	ASTM C-33 NO. 2	ASTM C-33 NO. 5
	% FINER	% FINER	% FINER
2 1/2 INCHES	100	90-100	100
2 INCHES	95-100	35-70	90-100
1 1/2 INCHES	35-70	0-15	35-70
1 INCHES	0-25	—	—
3/4 INCHES	0-10	—	0-15
3/8 INCHES	—	0-5	—
1/2 INCHES	—	—	0-5
3/8 INCHES	—	—	—

SOURCE:  
 U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE,  
 STORRS, CONNECTICUT

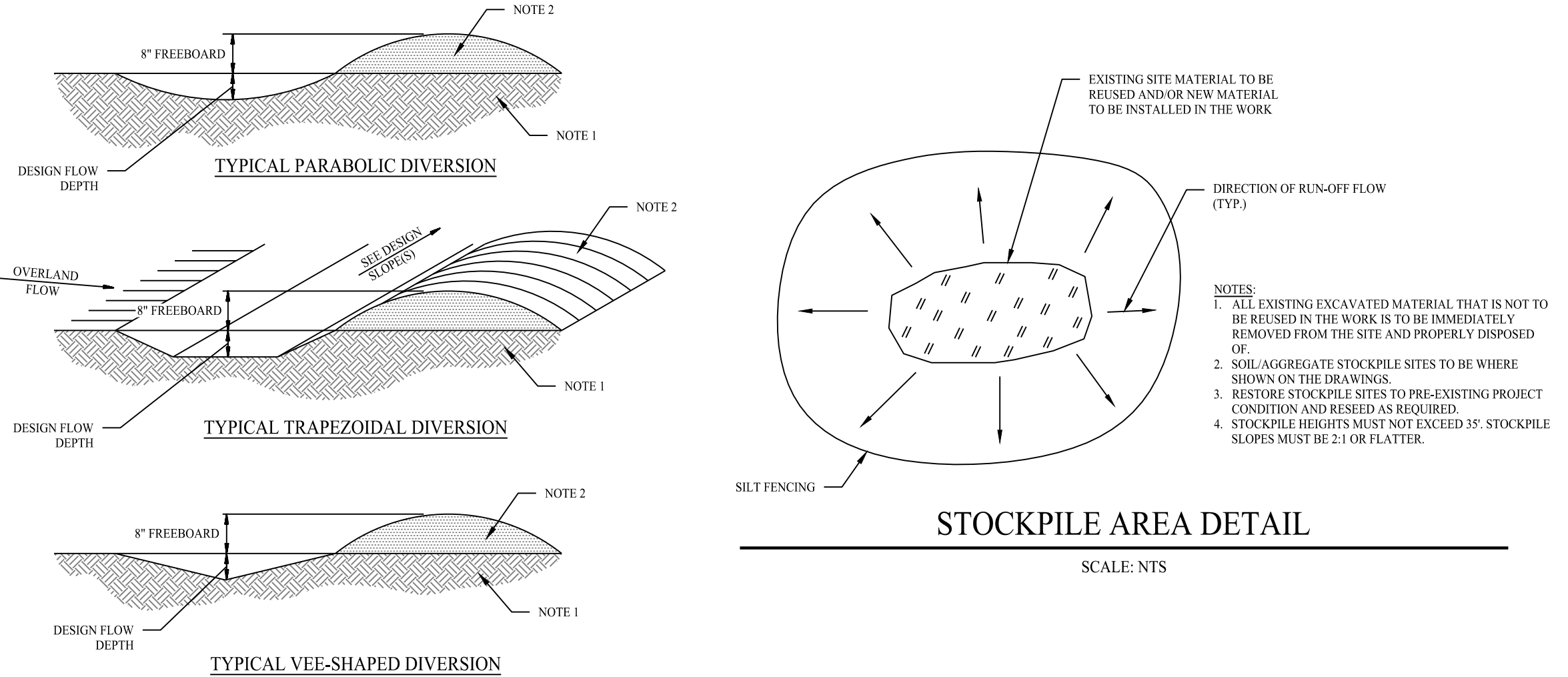
## CONSTRUCTION ENTRANCE

SCALE: NTS



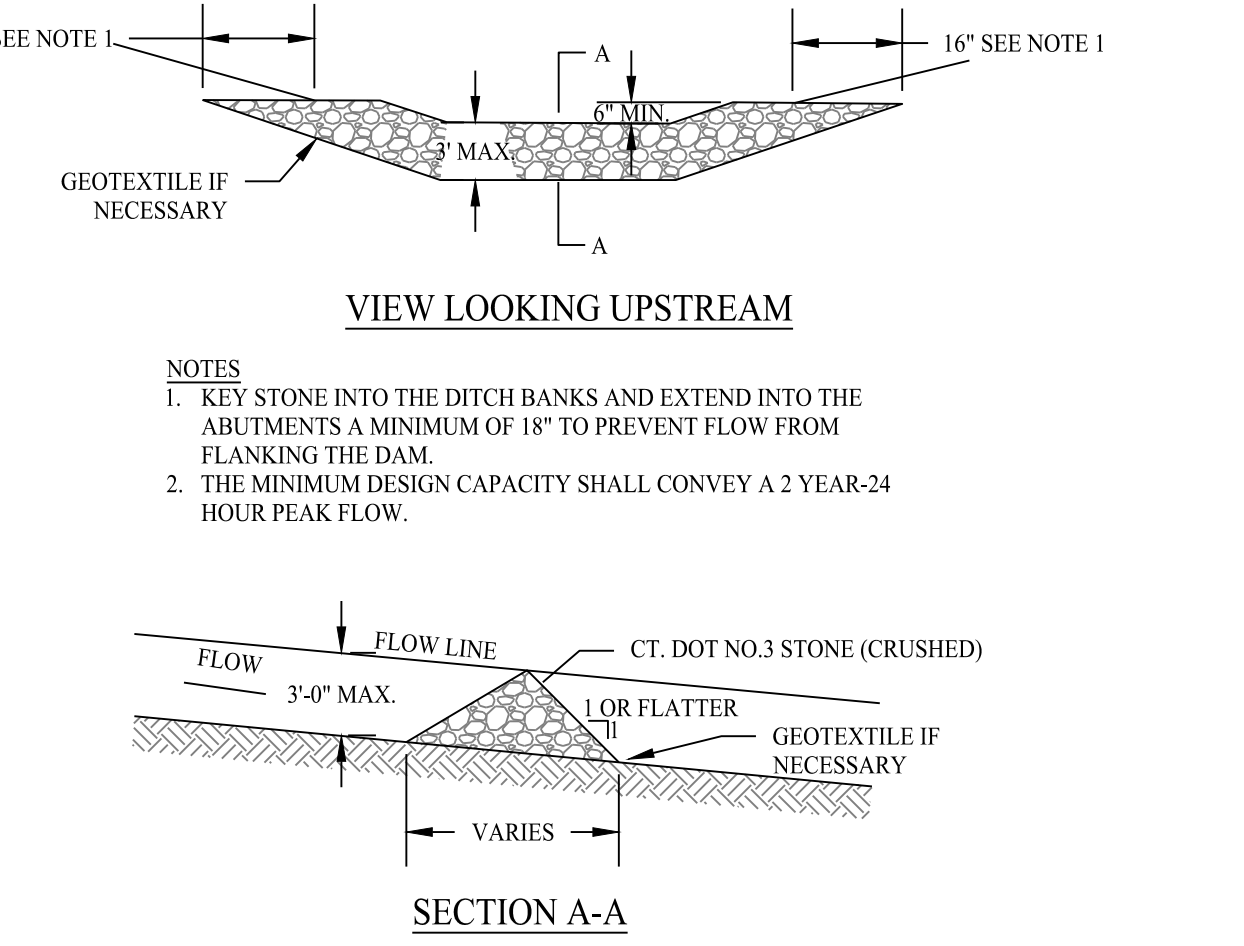
## SILT FENCE BARRIER DETAIL

SCALE: NTS

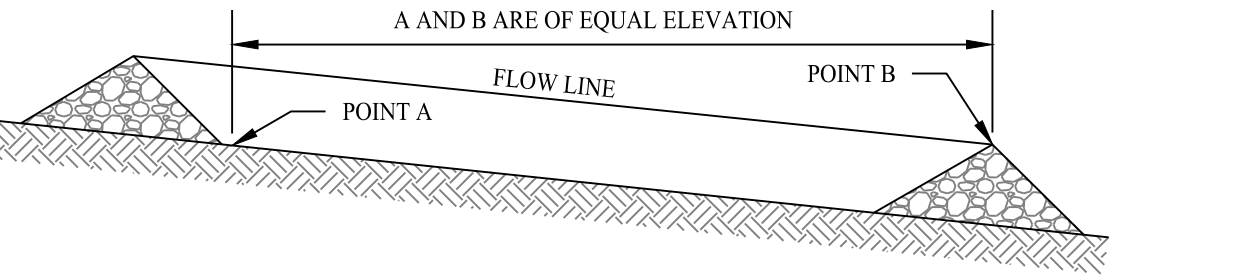


## DIVERSION BERM DETAIL

SCALE: NTS



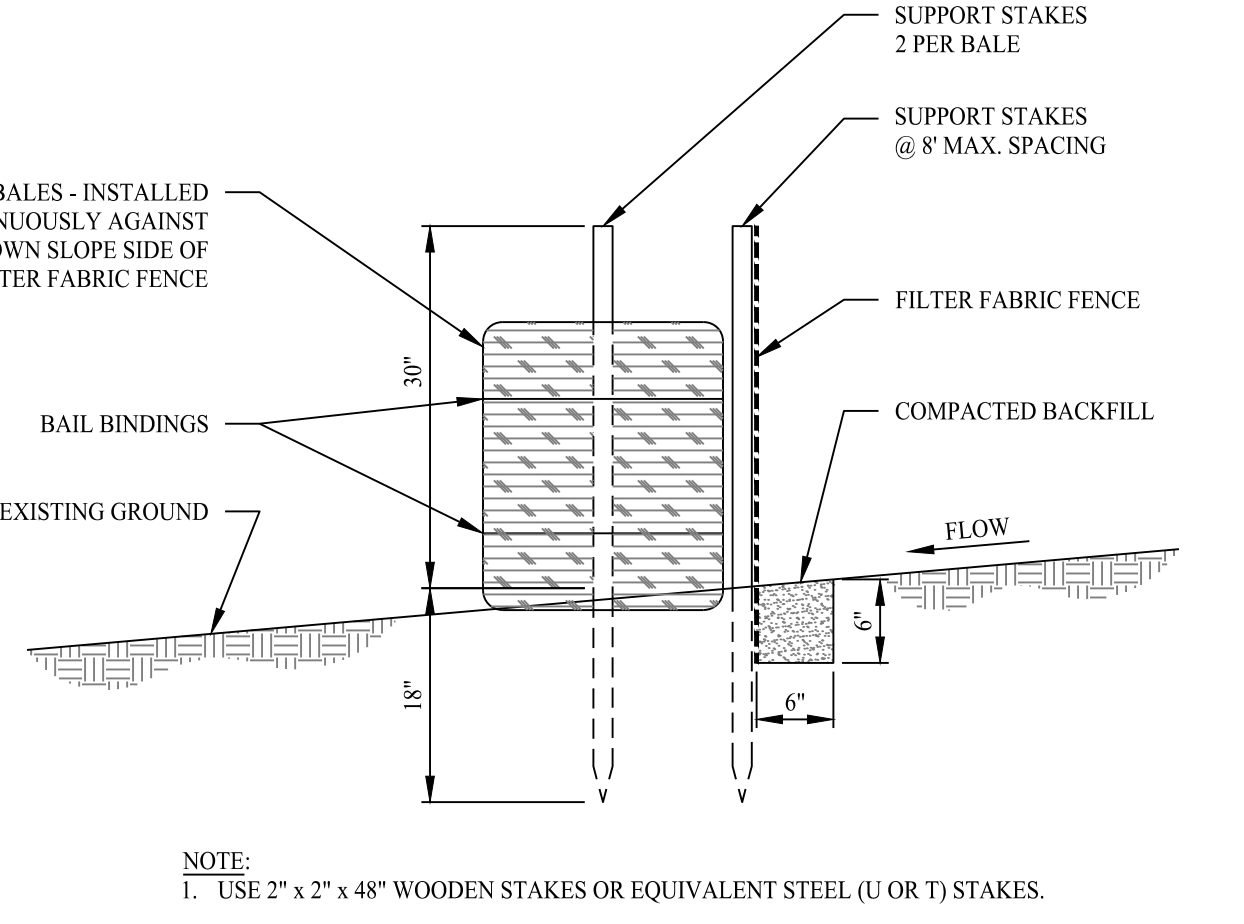
## SECTION A-A



## SPACING BETWEEN CHECK DAMS

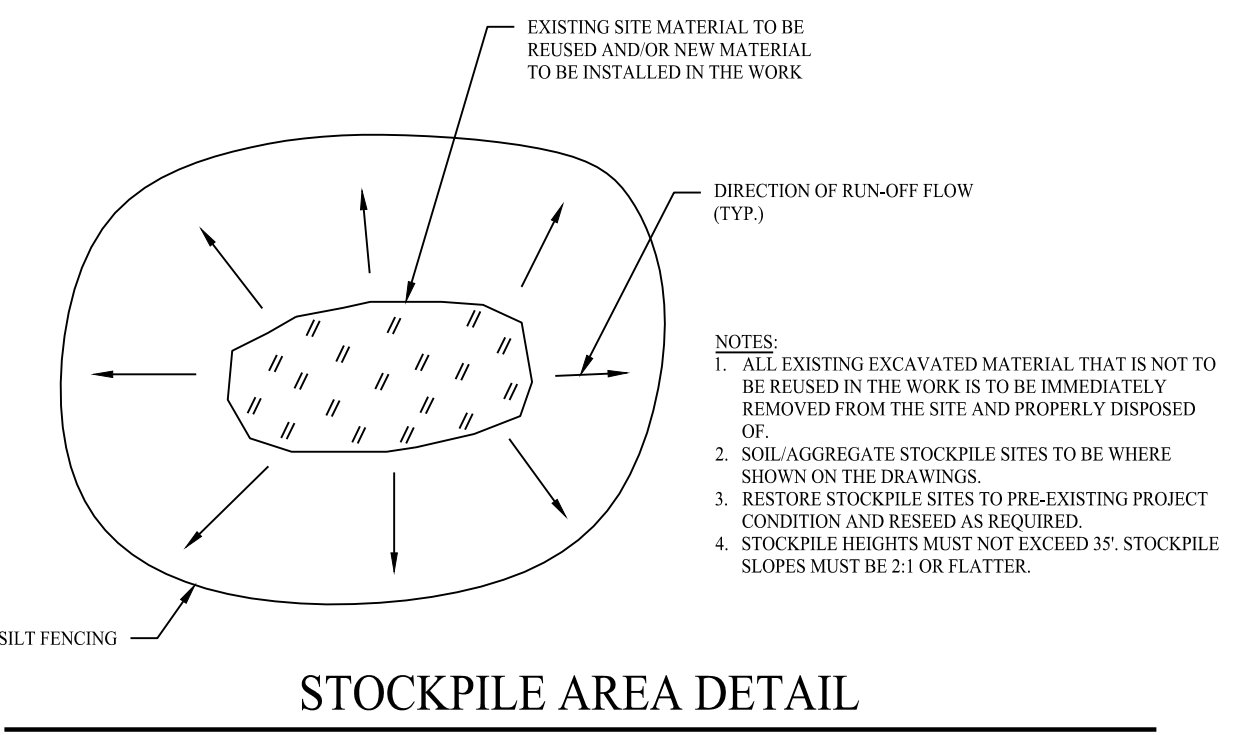
## STONE CHECK DAM DETAIL

SCALE: NTS



## SILT FENCE WITH HAYBALE BACKING

SCALE: NTS



## STOCKPILE AREA DETAIL

SCALE: NTS

Rev. #:	Date	Description

**SOLLI ENGINEERING**  
 501 Main Street, Monro, CT 06468 | T: (203) 880-5435 | F: (203) 880-9695

Drawn By:	AWC	Kevin Solli, P.E. CT 25759
Checked By:	CJB	
Approved By:	KMS	
Project #:	1904501	
Plan Date:	08/11/20	
Scale:	NTS	

# 9-15 ALBANY TURNPIKE

SIMSBURY & CANTON, CONNECTICUT

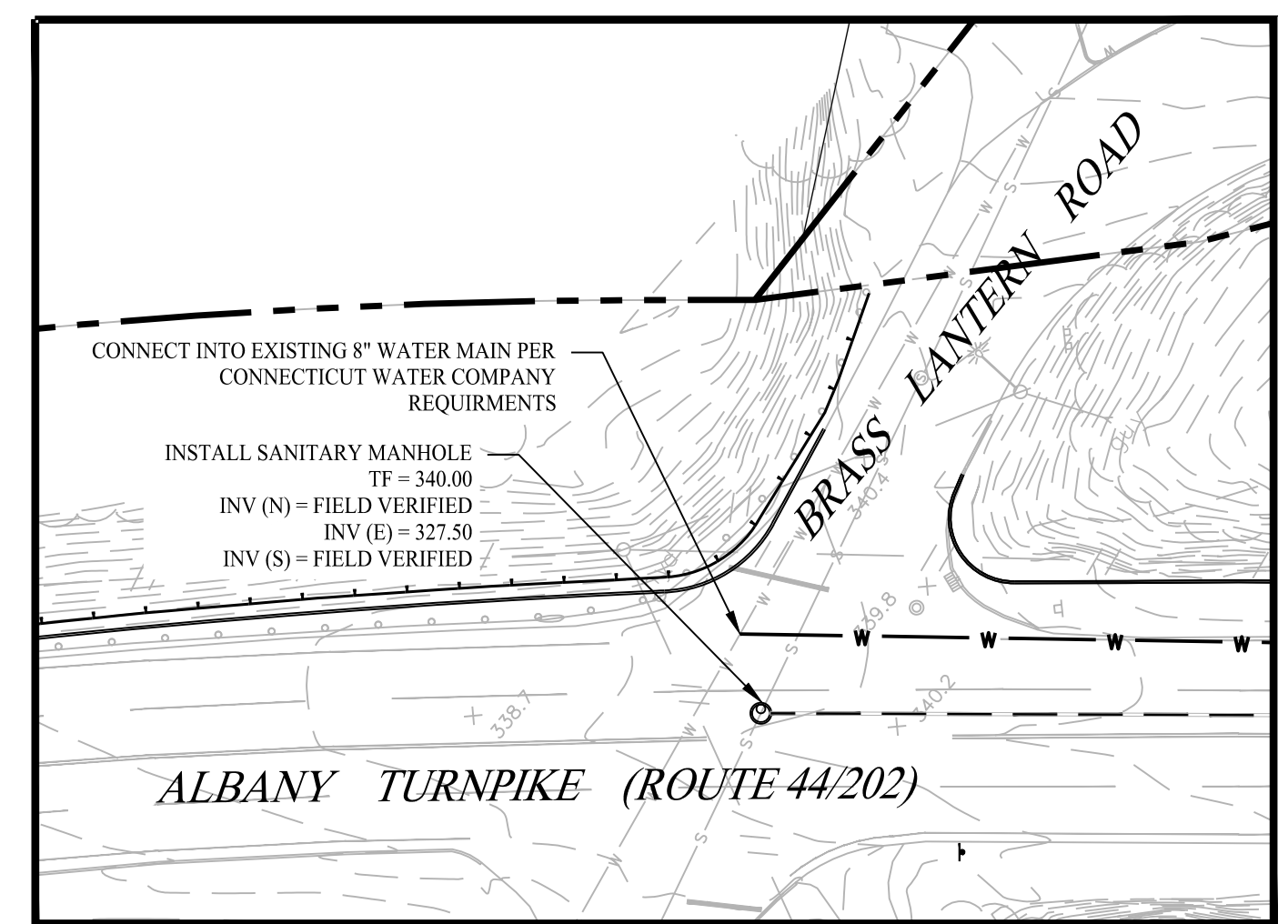
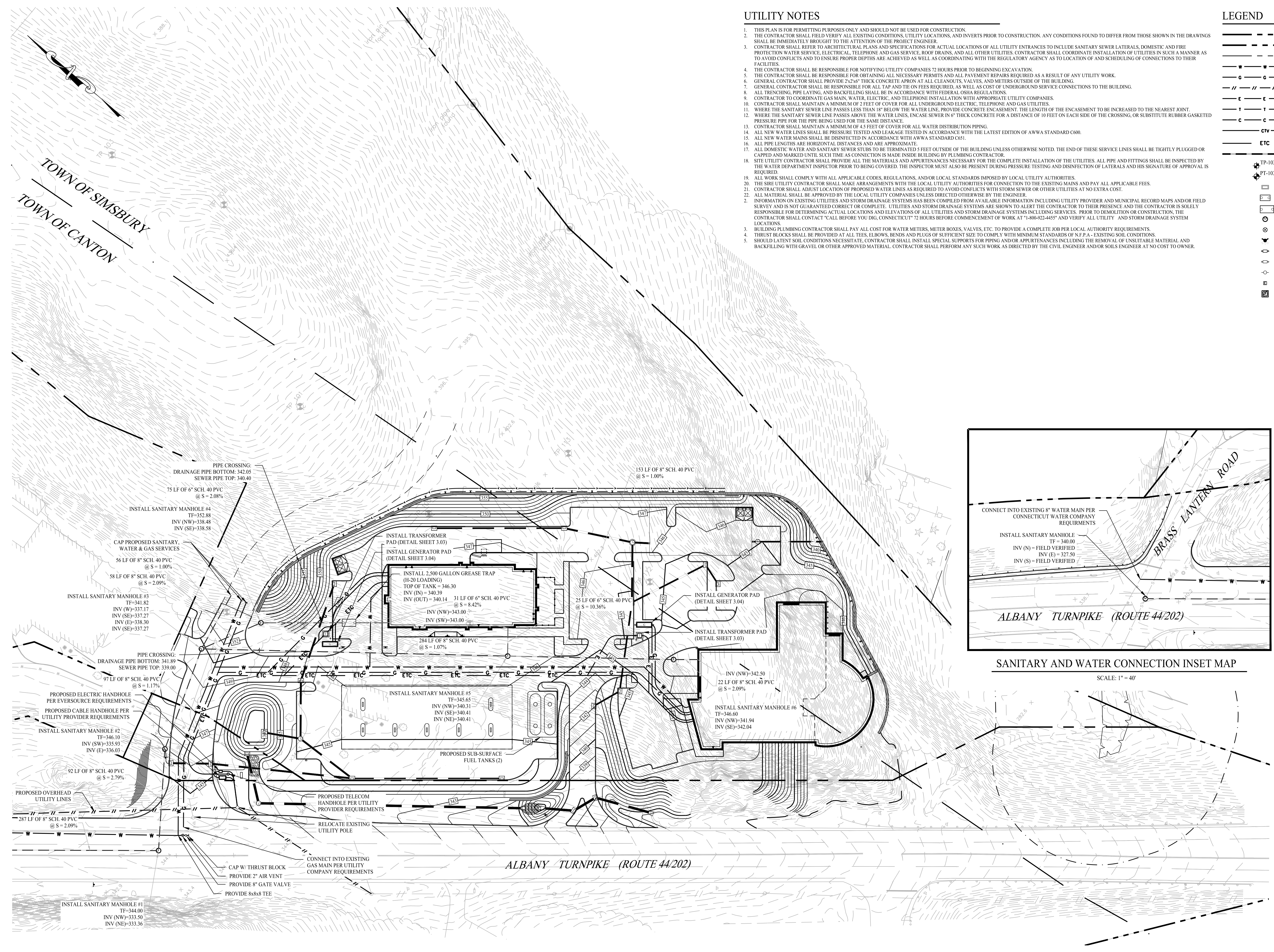
Sheet Title:	SOIL EROSION & SEDIMENT CONTROL DETAILS AND NOTES	Sheet #:	2.41
--------------	---	----------	------

**UTILITY NOTES**

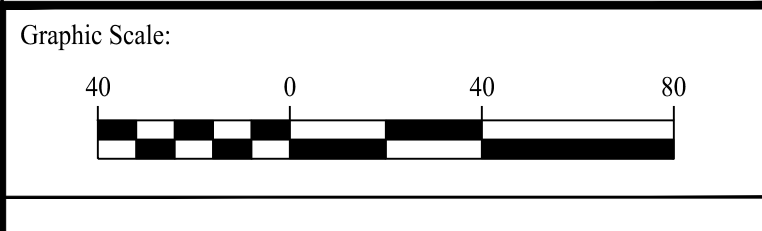
- THIS PLAN IS FOR PERMITTING PURPOSES ONLY AND SHOULD NOT BE USED FOR CONSTRUCTION.
- THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, UTILITY LOCATIONS, AND INVERTS PRIOR TO CONSTRUCTION. ANY CONDITIONS FOUND TO DIFFER FROM THOSE SHOWN IN THE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE PROJECT ENGINEER.
- CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR ACTUAL LOCATIONS OF ALL UTILITY ENTRANCES TO INCLUDE SANITARY SEWER, LATERALS, DOMESTIC AND FIRE PROTECTION WATER SERVICE, ELECTRICAL, TELEPHONE AND GAS SERVICE, ROOF DRAINS, AND ALL OTHER UTILITIES. CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES IN SUCH A MANNER AS TO AVOID CONFLICTS AND TO ENSURE PROPER DEPTHS ARE ACHIEVED AS WELL AS COORDINATING WITH THE REGULATORY AGENCY AS TO LOCATION OF AND SCHEDULING OF CONNECTIONS TO THEIR FACILITIES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING UTILITY COMPANIES 72 HOURS PRIOR TO BEGINNING EXCAVATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND ALL PAYMENT REPAIRS REQUIRED AS A RESULT OF ANY UTILITY WORK.
- GENERAL CONTRACTOR SHALL PROVIDE 2'x2'6" THICK CONCRETE APRON AT ALL CLEANOUTS, VALVES, AND METERS OUTSIDE OF THE BUILDING.
- GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TAP AND TIE ON FEES REQUIRED, AS WELL AS COST OF UNDERGROUND SERVICE CONNECTIONS TO THE BUILDING.
- ALL TRENCHING, PIPE LAYING, AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS.
- CONTRACTOR TO COORDINATE GAS MAIN, WATER, ELECTRIC, AND TELEPHONE INSTALLATION WITH APPROPRIATE UTILITY COMPANIES.
- CONTRACTOR SHALL MAINTAIN A MINIMUM OF 2 FEET OF COVER FOR ALL UNDERGROUND ELECTRIC, TELEPHONE AND GAS UTILITIES.
- WHERE THE SANITARY SEWER LINE PASSES LESS THAN 18" BELOW THE WATER LINE, PROVIDE CONCRETE ENCASUREMENT. THE LENGTH OF THE ENCASUREMENT TO BE INCREASED TO THE NEAREST JOINT.
- WHERE THE SANITARY SEWER LINE PASSES ABOVE THE WATER LINES, ENCASE SEWER IN 6" THICK CONCRETE FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE CROSSING, OR SUBSTITUTE RUBBER GASKETED PRESSURE PIPE FOR THE PIPE BEING USED FOR THE SAME DISTANCE.
- CONTRACTOR SHALL MAINTAIN A MINIMUM OF 4.5 FEET OF COVER FOR ALL WATER DISTRIBUTION PIPING.
- ALL NEW WATER LINES SHALL BE PRESSURE TESTED AND LEAKAGE TESTED IN ACCORDANCE WITH THE LATEST EDITION OF AWWA STANDARD C600.
- ALL NEW WATER MAINS SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA STANDARD C651.
- ALL PIPE LENGTHS ARE HORIZONTAL DISTANCES AND ARE APPROXIMATE.
- ALL DOMESTIC WATER AND SANITARY SEWER STUBS TO BE TERMINATED 5 FEET OUTSIDE OF THE BUILDING UNLESS OTHERWISE NOTED. THE END OF THESE SERVICE LINES SHALL BE TIGHTLY PLUGGED OR CAPPED AND MARKED UNTIL SUCH TIME AS CONNECTION IS MADE INSIDE BUILDING BY PLUMBING CONTRACTOR.
- SITE UTILITY CONTRACTOR SHALL PROVIDE ALL THE MATERIALS AND APPURTENANCES NECESSARY FOR THE COMPLETE INSTALLATION OF THE UTILITIES. ALL PIPE AND FITTINGS SHALL BE INSPECTED BY THE WATER DEPARTMENT INSPECTOR PRIOR TO BEING COVERED. THE INSPECTOR MUST ALSO BE PRESENT DURING PRESSURE TESTING AND DISINFECTION OF LATERALS AND HIS SIGNATURE OF APPROVAL IS REQUIRED.
- ALL WORK SHALL COMPLY WITH ALL APPLICABLE CODES, REGULATIONS, AND/OR LOCAL STANDARDS IMPOSED BY LOCAL UTILITY AUTHORITIES.
- THE SIRE UTILITY CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE LOCAL UTILITY AUTHORITIES FOR CONNECTION TO THE EXISTING MAINS AND PAY ALL APPLICABLE FEES.
- CONTRACTOR SHALL ADJUST LOCATION OF PROPOSED WATER LINES AS REQUIRED TO AVOID CONFLICTS WITH STORM SEWER OR OTHER UTILITIES AT NO EXTRA COST.
- ALL MATERIAL SHALL BE APPROVED BY THE LOCAL UTILITY COMPANIES UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
- INFORMATION ON EXISTING UTILITIES AND STORM DRAINAGE SYSTEMS HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING UTILITY PROVIDER AND MUNICIPAL RECORD MAPS AND/OR FIELD SURVEY AND IS NOT GUARANTEED CORRECT OR COMPLETE. UTILITIES AND STORM DRAINAGE SYSTEMS ARE SHOWN TO ALERT THE CONTRACTOR TO THEIR PRESENCE AND THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS AND DEPTHS OF ALL UTILITIES AND STORM DRAINAGE SYSTEMS INCLUDING SERVICES. PRIOR TO DEMOLITION OR CONSTRUCTION, THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG, CONNECTICUT" 72 HOURS BEFORE COMMENCEMENT OF WORK AT "1-800-922-4455" AND VERIFY ALL UTILITY AND STORM DRAINAGE SYSTEM LOCATIONS.
- BUILDING PLUMBING CONTRACTOR SHALL PAY ALL COST FOR WATER METERS, METER BOXES, VALVES, ETC. TO PROVIDE A COMPLETE JOB PER LOCAL AUTHORITY REQUIREMENTS.
- THRUST BLOCKS SHALL BE PROVIDED AT ALL TEES, ELBOWS, BENDS AND PLUGS OF SUFFICIENT SIZE TO COMPLY WITH MINIMUM STANDARDS OF N.E.P.A. - EXISTING SOIL CONDITIONS.
- SHOULD LATENT SOIL CONDITIONS NECESSITATE, CONTRACTOR SHALL INSTALL SPECIAL SUPPORTS FOR PIPING AND/OR APPURTENANCES INCLUDING THE REMOVAL OF UNSUITABLE MATERIAL AND BACKFILLING WITH GRAVEL OR OTHER APPROVED MATERIAL. CONTRACTOR SHALL PERFORM ANY SUCH WORK AS DIRECTED BY THE CIVIL ENGINEER AND/OR SOILS ENGINEER AT NO COST TO OWNER.

**LEGEND**

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJOINING LOT LINE
- WATER MAIN / LATERAL
- GAS LINE
- OVERHEAD ELECTRIC LINE
- ELECTRIC CONDUIT
- TELEPHONE CONDUIT
- CABLE TV UNDERGROUND LINE
- CABLE & TELEPHONE CONDUIT
- UNDERGROUND ELECTRIC, TELEPHONE AND CABLE LINES
- SANITARY SEWER PIPE
- TEST PIT
- PERC TEST PIT
- DISTRIBUTION BOX
- SEPTIC TANK
- GREASE TRAP
- SANITARY SEWER MANHOLE
- WATER VALVE
- HYDRANT
- GAS METER
- ELECTRIC METER
- UTILITY POLE
- UTILITY HANDHOLE
- ELECTRIC TRANSFORMER



1	09/04/20	Revised Submission Materials
Rev. #:	Date	Description



Drawn By:	AWC
Checked By:	CJB
Approved By:	KMS
Project #:	1904501
Plan Date:	08/11/20
Scale:	1" = 40'
Project:	Kevin Solli, P.E. CT 25759

**9-15 ALBANY TURNPIKE**  
SIMSBURY & CANTON, CONNECTICUT

Sheet Title:	Sheet #:
<b>SITE UTILITY PLAN</b>	<b>2.51</b>

---

# TRAFFIC IMPACT STUDY:

*For The Proposed:*

## **Mixed-Use Development**

*Located At:*

9-15 Albany Turnpike  
Canton & Simsbury, Connecticut

*Prepared For:*

## **9-15 Albany Turnpike, LLC**

184 Fern Avenue  
Litchfield, Connecticut 06759

*Project Number:* 1904501

*Prepared:* August 11, 2020



---

Collene Byrne, Project Manager



---

Kevin M. Solli, Principal  
CT PE #25759



## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>INTRODUCTION.....</b>	<b>2</b>
<b>PROJECT DESCRIPTION .....</b>	<b>2</b>
<b>STUDY AREA.....</b>	<b>2</b>
<b>AREA ROADWAY NETWORK .....</b>	<b>3</b>
<b>EXISTING TRAFFIC .....</b>	<b>4</b>
<b>BACKGROUND TRAFFIC .....</b>	<b>4</b>
<b>PROPOSED DEVELOPMENT.....</b>	<b>5</b>
<b>CAPACITY ANALYSIS .....</b>	<b>6</b>
<b>INTERNAL CIRCULATION.....</b>	<b>7</b>
<b>PROPOSED IMPROVEMENTS .....</b>	<b>8</b>
<b>SAFETY ANALYSIS.....</b>	<b>8</b>
<b>ALTERNATIVE TRANSPORTATION.....</b>	<b>8</b>
<b>SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>9</b>



## **LIST OF APPENDICES**

### **APPENDIX A:**

#### FIGURES

Site Location Map (Figure 1)  
2017 Existing Traffic Volumes (Figure 2)  
Trip Distribution (Figure 3)  
Trip Assignment (Figure 4)  
Pass-By Trips (Figure 5)  
2023 Background Traffic Volumes (Figure 6)  
2023 Build Traffic Volumes (Figure 7)  
Site Layout Plan (Sheet 2.11)  
Preliminary Off-Site Improvement Plan (Sheet 4.11)

### **APPENDIX B:**

#### TRAFFIC ANALYSIS DATA

Peak Hour Trip Generation Summary  
ITE Trip Generation Rate Sheets  
Accident Analysis Summary  
Automatic Traffic Recorder (ATR) Volume Data  
Automatic Traffic Recorder (ATR) Speed Data  
Automatic Traffic Recorder (ATR) Classification Data

### **APPENDIX C:**

#### CAPACITY ANALYSIS WORKSHEETS

Study Area Capacity Analysis Summary  
2017 Existing Traffic Condition  
2023 Background Traffic Condition  
2023 Build Traffic Condition

## **PROJECT KEY FACTS SUMMARY SHEET**

This summary sheet is provided as a reference to the various key pieces of information used throughout this report for the proposed project. This sheet is intended to be used as a guide for the reader although the full methodologies used in the analysis are included in the text of this report.

**APPLICANT:** 9-15 Albany Turnpike, LLC

**PROJECT SITE SIZE:** 26± acres

**PROJECT SIZE & TYPE:** 20,865± sf Automobile Sales and a 4,308± sf Convenience Market with a Gas Station, 2,836± sf Fast Food Restaurant without Drive-Thru Window (Ice Cream Shop & Sandwich Shop), 1,236± sf Coffee Shop w/ Drive Thru

**ESTIMATED YEAR OF COMPLETION:** 2023

**ASSUMED BACKGROUND TRAFFIC GROWTH:** 1.0 percent per year

**PEAK HOURS ANALYZED:** Weekday AM Peak hour, Weekday PM Peak hour

### **STUDY AREA INTERSECTIONS:**

Albany Turnpike (Route 44/202) & Lawton Road (CT-177) / Lovely Street (CT-177) / Trailsend Drive

Albany Turnpike (Route 44/202) & CVS Pharmacy Canton

Albany Turnpike (Route 44/202) & The Shops at Farmington Valley

Albany Turnpike (Route 44/202) & Secret Lake Road / Acura Dealership

Albany Turnpike (Route 44/202) & Proposed Site Driveway

Albany Turnpike (Route 44/202) & Proposed Right-In/Right-Out Site Driveway

Albany Turnpike (Route 44/202) & Hoffman Auto Park / Auto Spa Driveway

Albany Turnpike (Route 44/202) & W. Avon Road (CT-167) / Bushy Hill Road (CT-167)

Bushy Hill Road (CT-167) & Simsbury Commons / W. Mountain Road

Albany Turnpike (Route 44/202) & Simsbury Commons / Dale Road

Albany Turnpike (Route 44/202) & Fox Hollow / CVS

### **ANTICIPATED TRIP GENERATION:**

Weekday AM Peak Hour – 702 Trips (366 entering, 337 exiting)

Weekday PM Peak Hour – 397 Trips (193 entering, 203 exiting)

### **CAPACITY ANALYSIS:**

Methodology – HCM 6<sup>th</sup> Edition

Software - Trafficware Synchro, Version 10

**POSTED SPEED LIMIT:** 40mph

**85<sup>TH</sup> PERCENTILE SPEED (EB/WB):** 44mph / 51mph

**ACCIDENT ANALYSIS YEARS:** 2017-2020

## **EXECUTIVE SUMMARY**

Solli Engineering prepared this Traffic Impact Study to identify the potential impacts of the proposed mixed-use development to be located at 9-15 Albany Turnpike in Canton/Simsbury, Connecticut. The following summarizes our investigation and our recommendations for mitigating the impacts of the proposed traffic on the area roadway network.

The proposed project site consists of 26± acres of undeveloped land with frontage on Albany Turnpike (Route 44/202) in Canton/Simsbury, Connecticut. The proposed development includes the construction of 29,245± sf of mixed-use development along approximately 4 acres of the property frontage with Albany Turnpike (Route 44/202). Eleven (11) key intersections along the area roadway network were analyzed to evaluate the potential impacts of the proposed development and identify any improvements which may be necessary to mitigate the traffic impact associated with the proposed development. Based on our findings, the following improvements are recommended along the area roadway network:

- Geometric improvements & roadway widening at the proposed site driveway intersection of Albany Turnpike (Route 44/202) & Site Driveway
- Traffic Signal installation at the proposed intersection of Albany Turnpike (Route 44/202) & Site Driveway
- Proposed STOP-controlled right-in/right-out driveway along Albany Turnpike (Route 44/202)

In accordance with standard traffic engineering methodologies, we have included other proposed but not yet built developments as background generators in evaluating the potential impact to the area roadway network. A proposed commercial development at 101 & 107 Albany Turnpike is currently approved by the Connecticut Department of Transportation but not yet built. It is the professional opinion of Solli Engineering that the proposed development along with the recommended improvements will not have an adverse impact on the traffic operating conditions in the study area.

## **INTRODUCTION**

Solli Engineering has prepared this assessment to provide an evaluation of the potential traffic impacts associated with the proposed development located at 9-15 Albany Turnpike in Canton/Simsbury, Connecticut. The evaluation has been completed in accordance with the Town of Canton and Town of Simsbury requirements, as well as, standard traffic engineering methodology. The investigation indicates that the proposed development, with the recommended improvements at the site driveway, will not have an adverse impact on the traffic operations of the area roadway network.

## **PROJECT DESCRIPTION**

The project is located at 9-15 Albany Turnpike (Route 44/202) in Canton/Simsbury, Connecticut and consists of a 26± acres of undeveloped land. The property is bounded by Brass Lantern Road and Albany Turnpike (Route 44/202) to the south, commercial development to the east, residential development to the north, and a restaurant and undeveloped land to the west. The project site is located along the Canton-Simsbury town line. Refer to Figure 1, Site Location Map, for more details on the site location.

Based on the most recent plan prepared by our office, the parcel is proposed to be developed with a gas station consisting of 20 fueling stations with a convenience store (4,308± SF), coffee shop with drive-thru (1,236± SF), an ice cream shop (1,733± SF), and a sandwich shop (1,103± SF) on the west side of the site frontage along Albany Turnpike (Route 44/202) and an electric vehicle showroom (20,865± SF) along the east side of the site frontage with Albany Turnpike (Route 44/202). The site is proposed to be accessed via two site driveways; a proposed full movement signalized intersection with Albany Turnpike (Route 44/202) at the west side of the property and a right-in/right-out only driveway approximately 375 feet east of the signalized intersection. Refer to Sheet 2.11, Site Layout Plan, for more details on the site layout.

## **STUDY AREA**

The following study area intersections were analyzed for this study:

- Albany Turnpike (Route 44/202) & Lawton Road (CT-177) / Lovely Street (CT-177) / Trailsend Drive
- Albany Turnpike (Route 44/202) & CVS Pharmacy Canton
- Albany Turnpike (Route 44/202) & The Shops at Farmington Valley
- Albany Turnpike (Route 44/202) & Secret Lake Road / Acura Dealership
- Albany Turnpike (Route 44/202) & Proposed Site Driveway
- Albany Turnpike (Route 44/202) & Proposed Right-In/Right-Out Site Driveway
- Albany Turnpike (Route 44/202) & Hoffman Auto Park / Auto Spa Driveway
- Albany Turnpike (Route 44/202) & W. Avon Road (CT-167) / Bushy Hill Road (CT-167)
- Bushy Hill Road (CT-167) & Simsbury Commons / W. Mountain Road
- Albany Turnpike (Route 44/202) & Simsbury Commons / Dale Road
- Albany Turnpike (Route 44/202) & Fox Hollow / CVS

## **AREA ROADWAY NETWORK**

Albany Turnpike (Route 44/202) is an east-west roadway located just south of the project site with a posted speed limit of 40 miles per hour (mph) in the vicinity of the project frontage. The roadway is classified as a principal arterial by the Connecticut Department of Transportation. Throughout the study area, Albany Turnpike (Route 44/202) is generally a four (4) lane bi-directional roadway with various additional turn lanes in each direction at major intersections. The area immediately surrounding the site contains a mix of uses including commercial, offices, and residential. There are no sidewalks along either side of Albany Turnpike (Route 44/202) in the vicinity of the project site.

Trailsend Drive is a north-south roadway at the western most extent of the study area with a posted speed limit of 25 mph. Trailsend Drive intersects Albany Turnpike (Route 44/202) at the signalized intersection with Lawton Road & Lovely Street (Route 177). Trailsend Drive is local roadway serving access to residential development.

Lovely Street (Route 177) is a north-south roadway west of the proposed development with a posted speed limit of 40 mph. The roadway is classified as a minor arterial by the Connecticut Department of Transportation. In the vicinity of the project site, Lovely Street (Route 167) is a two (2) lane bi-directional roadway which provides access to surrounding residences and regional access to the south to the Town of Farmington. There are no sidewalks along Lovely Street (Route 177) in the project vicinity.

Lawton Road is a north-south roadway west of the proposed development with a posted speed limit of 30 mph. The roadway is classified as a collector roadway by the Connecticut Department of Transportation. Lawton Road is a two (2) lane bi-directional roadway with widening at the intersection with Albany Turnpike (Route 44/202) to provide dual exclusive right turning lanes.

Secret Lake Road is a north-south roadway located west of the project site with a posted speed limit of 25 mph. Secret Lake Road is a two (2) lane, bi-directional roadway which provides access to surrounding residences. There are no sidewalks along Secret Lake Road.

Route-167 is a north-south roadway located east of the project site with a posted speed limit of 35 mph north of Albany Turnpike (Route 44/202) and 40 mph south of Albany Turnpike (Route 44/202). The roadway is classified as a minor arterial by the Connecticut Department of Transportation. North of Albany Turnpike (Route 44/202), Route 167 (Bushy Hill Road) is a two (2) lane, bi-directional roadway which provides access to surrounding residences in the Town of Simsbury. South of Albany Turnpike (Route 44/202), Route 167 (West Avon Road) is a two (2) lane, bi-directional roadway which provides access to surrounding residences in the Town of Avon. There are no sidewalks along this road.

West Mountain Road intersects with Bushy Hill Road east of the project site across from Simsbury Commons. West Mountain Road is a north-south roadway with a posted speed limit of 30 mph, providing regional access to the north with residential development along the corridor. West Mountain Road is classified as a major collector by the Connecticut Department of Transportation. There are no sidewalks along West Mountain Road.

Dale Road intersects with Albany Turnpike (Route 44/202) east of the project site across from Simsbury Commons' south access point. Dale Road has a posted speed limit of 25 mph and provides access to

surrounding residences. It is a two (2) lane, bi-directional roadway with no sidewalks. Dale Road is classified as a local roadway by the Connecticut Department of Transportation.

Fox Hollow intersects with Albany Turnpike (Route 44/202) across from the CVS east of the project site. Fox Hollow has a posted speed limit of 15 mph and provides access to a residential development. It is a two (2) lane, bi-directional local roadway with sidewalks along one side of the roadway.

The remaining portions of the study area include site driveways which service private developments including; Canton CVS, The Shops at Farmington Valley, Acura of Avon, Auto Spa Car Wash, Hoffman Auto Park, Simsbury Commons, CVS.

## **EXISTING TRAFFIC**

As a result of the travel restrictions and social distancing practices associated with the outbreak of COVID-19, recent turning movement count data could not be collected. Per guidance provided by the Connecticut Department of Transportation, traffic volume data for traffic impact studies should not be collected at this time and historical data should be utilized. Available volume data collected by the Connecticut Department of Transportation was obtained for the study area intersections located east of the proposed development in the Town of Simsbury. The available volume data east of the proposed development was collected in October 2017 during the AM and PM weekday peak periods. Manual turning movement count data was obtained from the Connecticut Department of Transportation for the study area intersections west of the proposed development, from a traffic assessment letter prepared by F.A. Hesketh & Associates, Inc *RE: Proposed Commercial Development, 101 & 107 Albany Turnpike, Canton, Connecticut* dated May 7, 2018. Based on available data, it was determined that the weekday AM and weekday PM peak periods should be studied to evaluate the greatest potential for traffic impact on the study area network. The 2017 existing peak hour volumes for the weekday AM and weekday PM peak hours are illustrated on Figure 2.

Volume and speed data were collected during July 2020 using an automatic traffic recorder (ATR) that was installed on Albany Turnpike (Route 44/202) along the property frontage. This data determined the average daily traffic (ADT) to be 11,632 vehicles eastbound and 11,183 vehicles westbound. The 85<sup>th</sup> percentile speed to be 51 miles per hour eastbound and 44 miles per hour westbound. Historical ADT data published by the Connecticut Department of Transportation at count station SIMS-028 along Albany Turnpike (Route 44/202) in the vicinity of Bushy Hill Road (RT 167) reported ADT data in 2016 and 2019 as 33,800 and 26,400 vehicles, respectively.

## **BACKGROUND TRAFFIC**

Background traffic growth is estimated to account for the traffic increase as a result of regional population and economic growth in the study area, in addition to other proposed developments. Based on previous ADT data, there has been a decrease in overall traffic volumes in the study area in recent years (as reported by the CT DOT). Existing traffic volumes were projected to the 2023 design year using a conservative 1.0 percent per year growth factor.

The Connecticut Department of Transportation Office of the State Traffic Administration (OSTA) and the Towns of Canton, Simsbury, and Avon were contacted to identify any ongoing or proposed projects within the study area which may impact the analysis. One (1) project was identified along the study area, a proposed commercial development located at 101 & 107 Albany Turnpike in Canton, Connecticut. This

development has been previously approved under OSTA certificate No. 1842 and subsequent Administrative Decision (AD) Request 206. The current proposal for this development, dated May 7, 2018, includes a 15,429sf pharmacy, 37,750sf of retail, 32,950sf of medical office, and 2,000sf fast food restaurant. The trips associated with this project have been included in the traffic impact analysis as a background generator. One additional development, Avon Village Center Master Plan, was identified in the Town of Avon east of the project site. The study area for the proposed development of Avon Village Center does not overlap the study area intersections for the proposed development, however, the conservative 1.0 percent per year growth rate which was utilized to project the 2017 existing traffic volumes to the 2023 build year, accounts for an increase in ambient street traffic which may occur as a result of this development.

The 2017 existing traffic volumes illustrated in Figure 2 were grown 1.0 percent per year and combined with the trips associated with the background generators to establish the 2023 background traffic volumes. The 2023 background traffic volumes are illustrated in Figure 6 in Appendix A of this report.

## **PROPOSED DEVELOPMENT**

The proposed development includes a gas station with convenience store (4,308± SF) and 20 fueling positions, coffee shop with drive-thru (1,236± SF), ice cream shop (1,733± SF), sandwich shop (1,103± SF) and an electric vehicle showroom (20,865± SF), to be located on approximately 4 acres of the overall 26± acre parcel. The proposed development is located on the north side of Albany Turnpike (Route 44/202) on the town line of Canton and Simsbury, Connecticut. The main site driveway is proposed to be a full movement driveway with a traffic signal. The site will also incorporate a right-in/right-out only driveway approximately 375 feet east of the full movement signalized driveway. Geometric improvements are proposed to Albany Turnpike (Route 44/202) along with the proposed traffic signal, as discussed later in this report.

Intersection sight distance (ISD) at the proposed site driveway was reviewed and evaluated per guidance provided in the 2003 edition of ConnDOT's Highway Design Manual. Based on the 85<sup>th</sup> percentile speed of 51 miles per hour westbound on Albany Turnpike (Route 44/202), a minimum ISD of 563 feet is required for passenger cars looking to the left from the site driveways. For passenger cars looking to the right out from the site driveway, based on the 85<sup>th</sup> percentile speed of 44 miles per hour for vehicles traveling eastbound, a minimum ISD of 518 feet is required. Intersection sight distance looking to the left from the main site driveway exceeds 575 feet, which satisfies the minimum required sight distance. Intersection sight distance looking to the right from the main site driveway exceeds 525 feet, which satisfies the minimum required sight distance. Additionally the ISD looking to the left from the proposed right-out driveway exceeds the minimum required sight distance of 575 feet.

The anticipated number of trips that will be generated by proposed development was estimated using data from the Institute of Transportation Engineers (ITE) Trip Generation, 10<sup>th</sup> Edition. The trip generation was calculated for the weekday AM and weekday PM peak hour based on the proposed land uses. A twenty percent (20%) pass-by credit was applied to the fast food restaurants, coffee shop, and gas station trips as per ConnDOT and OSTA standards. The ITE trip generation rate sheets and detailed trip generation worksheet are provided in Appendix B of this assessment. Table 1 below summarizes the anticipated trips to be generated by the proposed development during the weekday AM and weekday PM peak periods.

TABLE 1 - TRIP GENERATION SUMMARY						
LAND USE	AM PEAK HOUR			PM PEAK HOUR		
	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
Automobile Sales (New) (LUC 840) 20,865±sf	28	11	39	20	30	51
Fast Food Restaurant Without Drive-Thru Window (LUC 933) 2,836±sf	43	28	71	40	40	80
Coffee Shop with Drive-Thru (LUC 937) 1,236±sf	200	200	400	27	27	54
Super Convenience Market/Gas Station (LUC 960) 4,308±sf	179	179	358	149	149	298
<b>Total New Trips</b>	<b>450</b>	<b>418</b>	<b>868</b>	<b>237</b>	<b>247</b>	<b>483</b>
<i>20% Pass-By</i>	<i>84</i>	<i>82</i>	<i>166</i>	<i>43</i>	<i>43</i>	<i>86</i>
<b>Net Trips</b>	<b>366</b>	<b>337</b>	<b>702</b>	<b>193</b>	<b>203</b>	<b>397</b>

The anticipated distribution of new traffic entering and exiting the site was developed based on existing traffic patterns and layout of the adjacent roadway network for the weekday AM and weekday PM peak periods. The anticipated distributions during the weekday AM peak period are expected to operate similarly to pass-by trips given breakdown of existing traffic volumes and heavy commuter route. The weekday AM peak period distributions are expected to be 70% from the west and 30% from the east, and 70% to the east and 30% to the west via Albany Turnpike (Route 44/202). The anticipated distributions during the weekday PM peak period are expected to be 40% to/from the west and 60% to/from the east via Albany Turnpike (Route 44/202). The anticipated percent distributions of the new site generated trips are illustrated in Figure 3. The new site generated trips were then assigned to the study intersections based on the anticipated percent distributions and the resulting trip assignment is illustrated in Figure 4.

The trip assignment volumes illustrated in Figure 4 were combined with the pass-by trips in Figure 5 and the 2023 background volumes illustrated in Figure 6 to develop the 2023 build traffic volumes illustrated in Figure 7.

## CAPACITY ANALYSIS

To determine the impacts of the increase of traffic volumes on the operating conditions of the study area intersections, the network was analyzed using the Synchro 10 capacity analysis software for the existing, background, and build peak hour conditions.

The results of the Synchro analysis describe the traffic impact in terms of Level of Service (LOS). LOS describes the operational condition of study area intersections in terms of delay (in seconds per vehicle) and is expressed on a scale of A through F with LOS A being the best and LOS F being the worst. LOS A reflects intersection operations with little to no vehicle delay (less than 10 seconds per vehicle) and LOS F reflects intersection conditions that are over capacity and experience long delays (more than 80 seconds per vehicle at signalized intersections and more than 50 seconds of delay per vehicle at unsignalized intersections). For unsignalized intersections, only the delay on the STOP-controlled approach is reported. Table 2 below summarizes the results of the analysis for the existing, background, and build conditions for the study area intersections during the weekday AM and PM peak hours.

To determine the traffic impact caused by the proposed development, the existing roadway network was first analyzed to determine operating conditions of each study area intersection during the 2017 existing conditions. The background conditions were analyzed to determine the operating conditions that would



exist in 2023 without the proposed development, but with the background generator and conservative background growth rate applied. The build condition was then analyzed to determine the operating conditions that would exist if the proposed development is constructed in addition to the background generator and background growth rate applied. The results of the background conditions analysis were compared to the analysis of the build condition to determine any significant changes to the operating conditions of the area roadway network. The build analysis includes the recommended intersection geometric and signal improvements discussed later in this report. Table 2 below summarizes the results of the analysis for the existing, background and build scenarios. Additional detail regarding individual movements, as well as, detailed Synchro 10 Capacity Analysis worksheets are provided in Appendix C.

<b>TABLE 2 - PEAK HOUR LEVEL OF SERVICE SUMMARY (AM/PM)</b>			
<b>INTERSECTION</b>	<b>2017 Existing</b>	<b>2023 Background</b>	<b>2023 Build</b>
Albany Turnpike (Route 44/202) & Lawton Road (CT-177) / Lovely Street (CT-177) / Trailsend Drive	D/F	F/E	F/E
Albany Turnpike (Route 44/202) & CVS Pharmacy Canton	B/A	B/B	B/B
Albany Turnpike (Route 44/202) & The Shops at Farmington Valley	B/B	B/B	C/B
Albany Turnpike (Route 44/202) & Secret Lake Road / Acura Dealership	A/A	A/A	A/A
Albany Turnpike (Route 44/202) & Proposed Site Driveway	-	-	B/B
Albany Turnpike (Route 44/202) & Proposed Right-In/Right-Out Site Driveway*	-	-	-
Albany Turnpike (Route 44/202) & Hoffman Auto Park / Auto Spa Driveway	A/B	A/B	A/B
Albany Turnpike (Route 44/202) & W. Avon Road (CT-167) / Bushy Hill Road (CT-167)	C/E	D/E	D/F
Bushy Hill Road (CT-167) & Simsbury Commons / W. Mountain Road	A/C	A/C	A/D
Albany Turnpike (Route 44/202) & Simsbury Commons / Dale Road	B/C	B/C	B/C
Albany Turnpike (Route 44/202) & Fox Hollow / CVS Driveway	A/A	A/A	A/A

\*Unsignalized Intersection

## **INTERNAL CIRCULATION**

The internal site circulation was analyzed to demonstrate truck turning movements for both a fueling truck and a WB-62 at the proposed signalized site driveway as illustrated in Figure TT-1 and TT-2 of

Appendix A. The proposed project incorporates shared access to minimize access points to the State highway. Sidewalks are also proposed internal to the site which will allow for safe pedestrian interconnectivity between the two proposed buildings.

## **PROPOSED IMPROVEMENTS**

Below is a summary of the proposed improvements to the site driveway intersections:

- Albany Turnpike (Route 44/202) & Proposed Site Driveway
  - Traffic signal installation at the proposed site driveway intersection
  - Geometric improvements & roadway widening along Albany Turnpike (Route 44/202) at the proposed site driveway intersection
- Proposed STOP-controlled right-in/right-out driveway along Albany Turnpike (Route 44/202)

Overall, the recommended improvements along the property frontage with Albany Turnpike (Route 44/202) will result in maintaining the current flow of traffic along the Albany Turnpike (Route 44/202) corridor while providing safe access to the proposed site. Refer to the Preliminary Off-Site Improvement Plan, sheet 4.11, for more details on the proposed improvements. Details of the proposed traffic signal operations are included in the Synchro capacity analysis worksheets in Appendix C of this report.

## **SAFETY ANALYSIS**

Accident data was obtained from the Connecticut Crash Data Repository for the three most recent years of available data for the study area intersections and intermediate roadway segment. There was a total of 72 accidents identified along the corridor in the area of study. There were a total of twelve (12) crashes identified at the intersection of Albany Turnpike (Route 44/202) & Secret Lake Road consisting of eight (8) rear end, one (1) angle, two (2) fixed object and one (1) other accident over the three year period. There were a total of eight (8) crashes identified at the intersection of Albany Turnpike (Route 44/202) & Hoffman Autopark over the three year period, consisting of four (4) rear end, three (3) sideswipe in the same direction, and one (1) other accident. A total of fifty two (52) crashes were identified along Albany Turnpike (Route 44/202) on the roadway segment between Secret Lake Road and the Hoffman Autopark over the three year period, consisting of twenty three (23) rear end, six (6) angle, three (3) sideswipe in the opposite direction, eight (8) sideswipe in the same direction, three (3) fixed object, three (3) front to front, four (4) animal, one (1) spinout, and one (1) other accidents. Overall, the safety assessment showed that there are no accident patterns or geometric deficiencies identified that would warrant mitigation. Based on the review of the accident data, the main cause of the accidents was from operator error. A summary of the accident data is provided in Appendix B of this report.

## **ALTERNATIVE TRANSPORTATION**

Alternative forms of transportation were also evaluated as part of this study. Given the mixed-use nature of the proposed development, sidewalks are provided on-site to aid in internal pedestrian circulation, however, Albany Turnpike (Route 44/202) is classified as a principal arterial roadway with no existing sidewalks in the project area, limiting the potential for pedestrian connectivity outside of the project site. There are no existing bike lanes provided along Albany Turnpike (Route 44/202) within the study area. Connecticut Transit (CTT) offers existing bus service on Albany Turnpike (Route 44/202) with the nearest existing stops being located within half of a mile in either direction of the project site.

Connecticut Transit (CTT) offers existing bus stops along Albany Turnpike (Route 44/202) that access

bus routes 901, 926, and 927. The closest stops to the proposed project site are located along Albany Turnpike at McDonalds approximately 0.3 miles east at stop 8746 and near Secret Lake Road approximately 0.4 miles west at stop 9465. Ridership data provided by CTT shows low ridership at these stops. The land uses of the proposed development are next expected to increase ridership significantly. The existing transit system has adequate capacity to serve any increase in ridership by the proposed development.

## **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

This assessment identifies the potential impacts of the site traffic generated by the proposed mixed-use development located at 9-15 Albany Turnpike (Route 44/202) in Canton and Simsbury, Connecticut. The mixed-use development consists of a gas station with convenience store (4,308± SF) and 20 fueling positions, coffee shop with drive-thru (1,236± SF), ice cream shop (1,733± SF), sandwich shop (1,103± SF) and an electric vehicle showroom (20,865± SF), to be located on approximately 4 acres of the overall 26± acre parcel. This study determined that the proposed development is expected to generate 702 (366 entering, 337 exiting) new trips during the weekday AM peak hour and 397 (193 entering, 203 exiting) new trips during the weekday PM peak hour.

The capacity analysis evaluated eleven (11) key intersections and indicates that all study area intersections will generally operate at similar levels of service in the build conditions when compared to the background condition. The project proposes to include a signalized, full-movement site driveway which will require geometric improvements on the eastbound approach of Albany Turnpike (Route 44/202) to provide an exclusive left-turn lane with approximately 170 feet of storage. The site also proposes a right-in/right out only driveway at the midpoint of the property frontage along Albany Turnpike (Route 44/202).

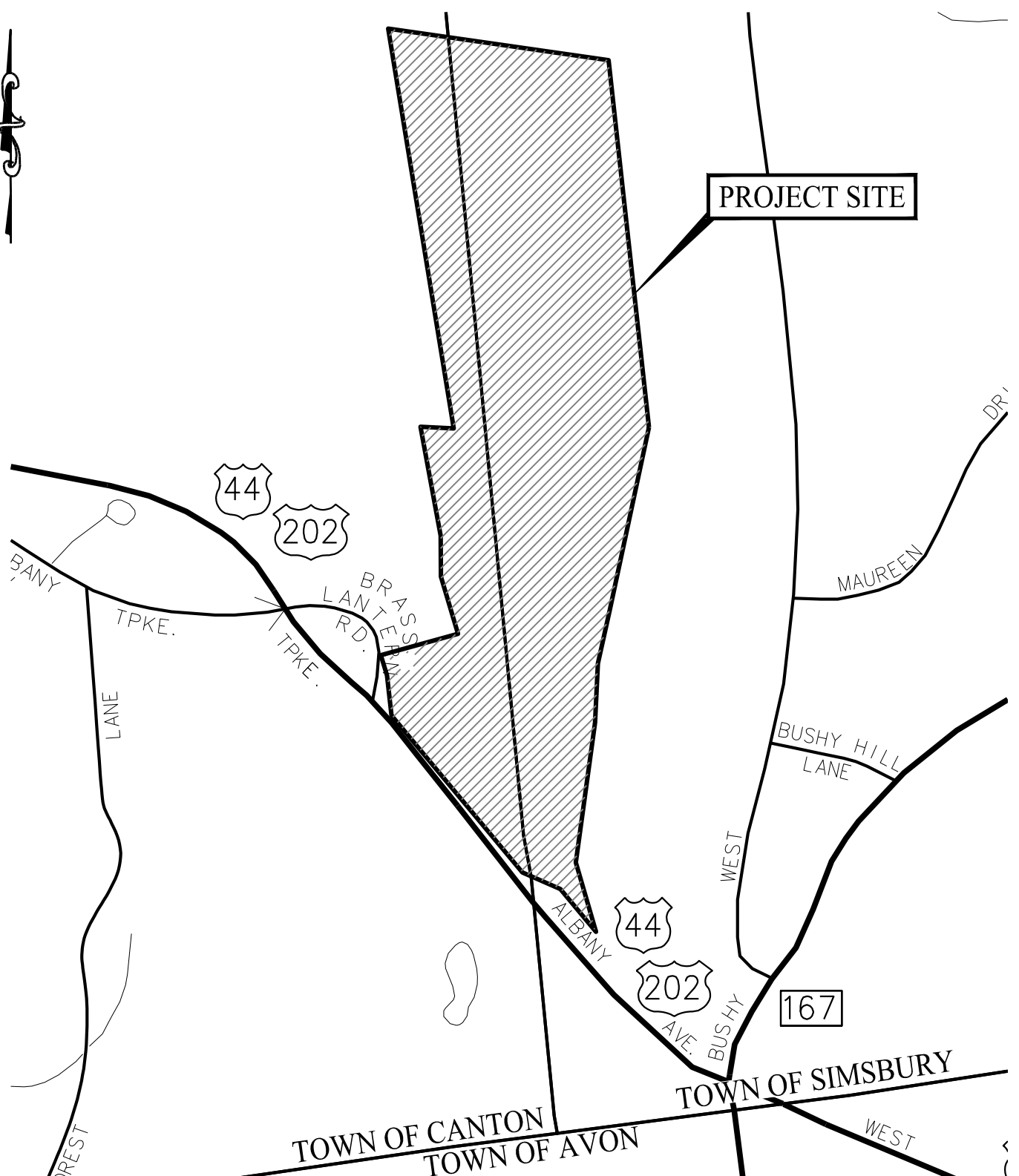
It is the professional opinion of Solli Engineering that the traffic anticipated to be generated by the proposed development can be accommodated by the surrounding roadway network. The study area intersections are expected to maintain similar operating conditions when compared to the background condition.



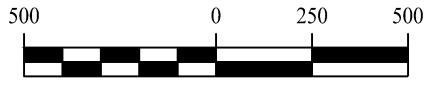
## **Appendix A**

---

Figures



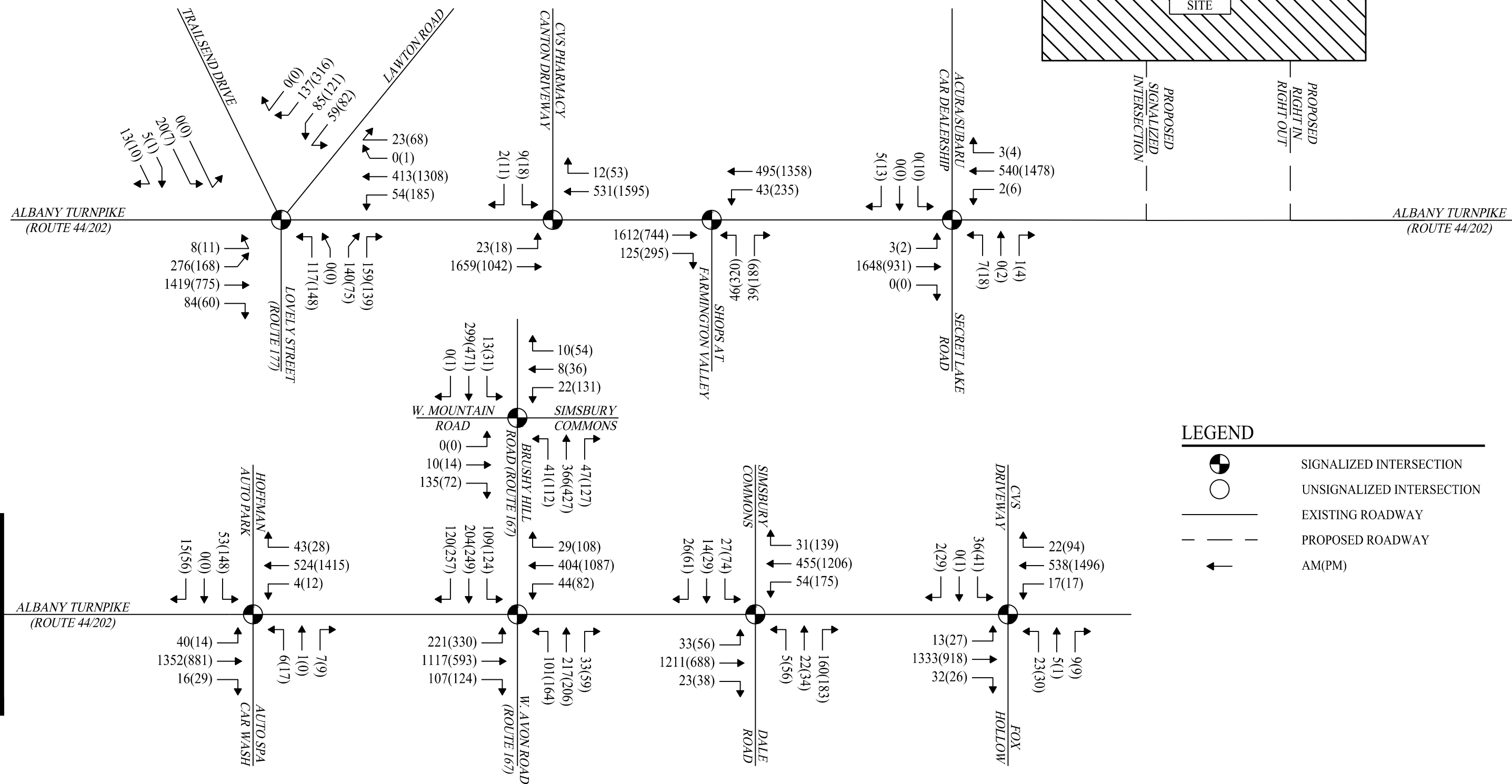
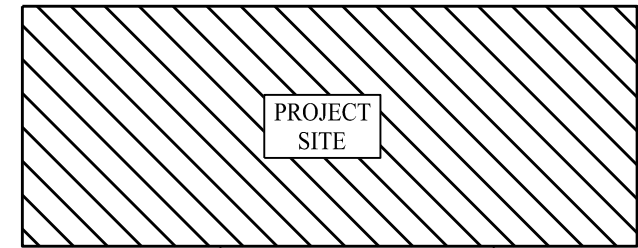
NOTE: BASE MAP INFORMATION TAKEN FROM THE CONNDOT TOWN ROAD MAPS (TRU), MAP NUMBER 004, 023, AND 128



**SOLLI**  
ENGINEERING  
501 Main Street, Monroe, CT 06468  
T: (203) 880-5455 F: (203) 880-9695

**SITE LOCATION MAP**  
9-15 ALBANY TURNPIKE  
CANTON AND SIMSBURY, CONNECTICUT

Project #:	1904501
Plan Date:	08/11/20
Scale:	1" = 500'
Figure:	1



**LEGEND**

	SIGNALIZED INTERSECTION
	UNSIGNALIZED INTERSECTION
	EXISTING ROADWAY
	PROPOSED ROADWAY
	AM(PM)

MATCHLINE

MATCHLINE

Rev. #:	Date:	Description:

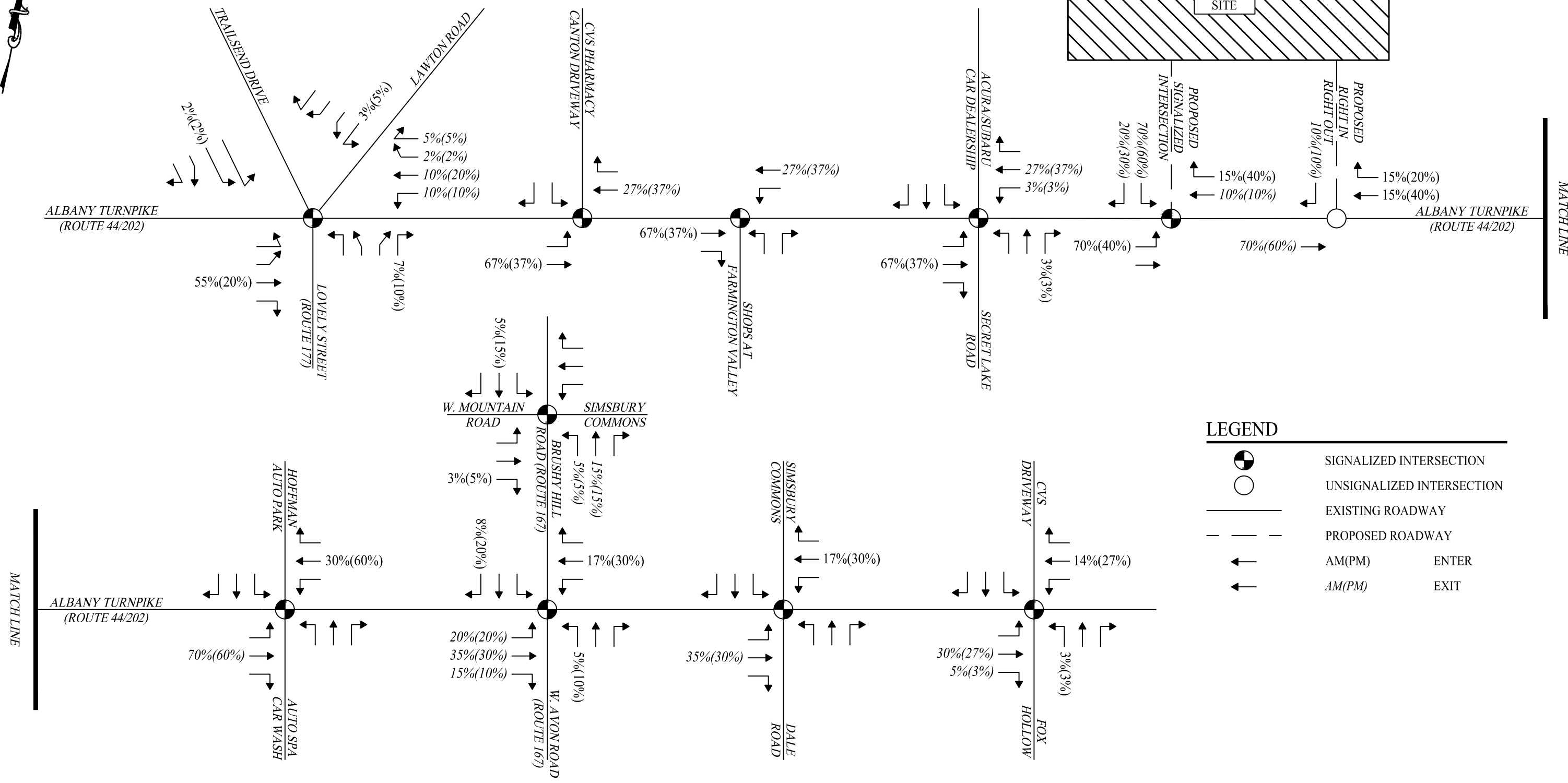
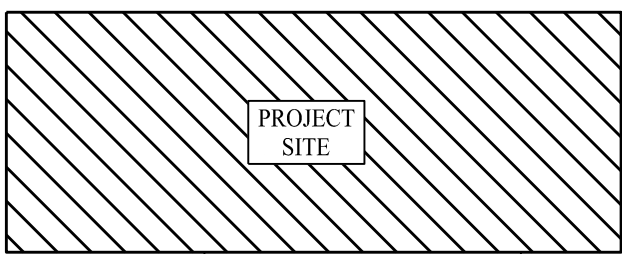
**SOLLI ENGINEERING**  
 501 Main Street, Monroe, CT 06468  
 T: (203) 880-5455 | F: (203) 880-9695

Drawn By: MB  
 Checked By: KMS  
 Project #: 1904501  
 Plan Date: 08/11/20  
 Scale: NTS

Project: **9-15 ALBANY TURNPIKE**  
 SIMSBURY & CANTON, CONNECTICUT

Sheet Title: **2017 EXISTING TRAFFIC VOLUMES**

SHEET #: **FIGURE 2**



LEGEND	
	SIGNALIZED INTERSECTION
	UNSIGNALIZED INTERSECTION
	EXISTING ROADWAY
	PROPOSED ROADWAY
	AM(PM) ENTER
	AM(PM) EXIT

Rev. #:	Date:	Description:

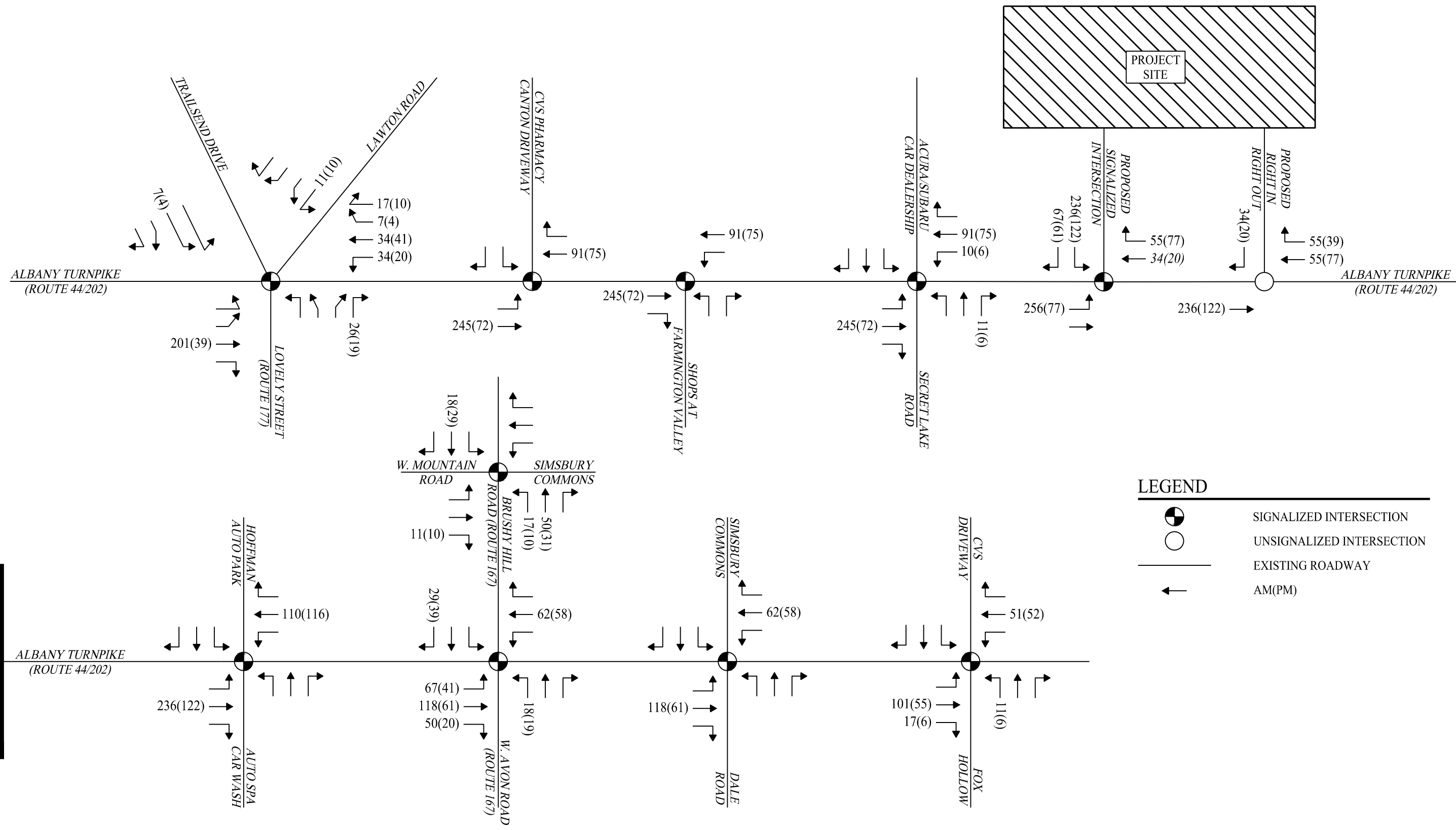
**SOLLI ENGINEERING**  
 501 Main Street, Monroe, CT 06468  
 T: (203) 880-5455 | F: (203) 880-9695

Drawn By: MB  
 Checked By: KMS  
 Project #: 1904501  
 Plan Date: 08/11/20  
 Scale: NTS





Project: **9-15 ALBANY TURNPIKE**  
 SIMSBURY & CANTON, CONNECTICUT

Sheet Title: **TRIP DISTRIBUTION**

SHEET #: **FIGURE 3**



**LEGEND**

-  SIGNALIZED INTERSECTION
-  UNSIGNALIZED INTERSECTION
-  EXISTING ROADWAY
-  AM(PM)

MATCHLINE

MATCHLINE

Rev. #:	Date	Description

**SOLLI ENGINEERING**  
 501 Main Street, Monroe, CT 06468  
 T: (203) 880-5455 | F: (203) 880-9695

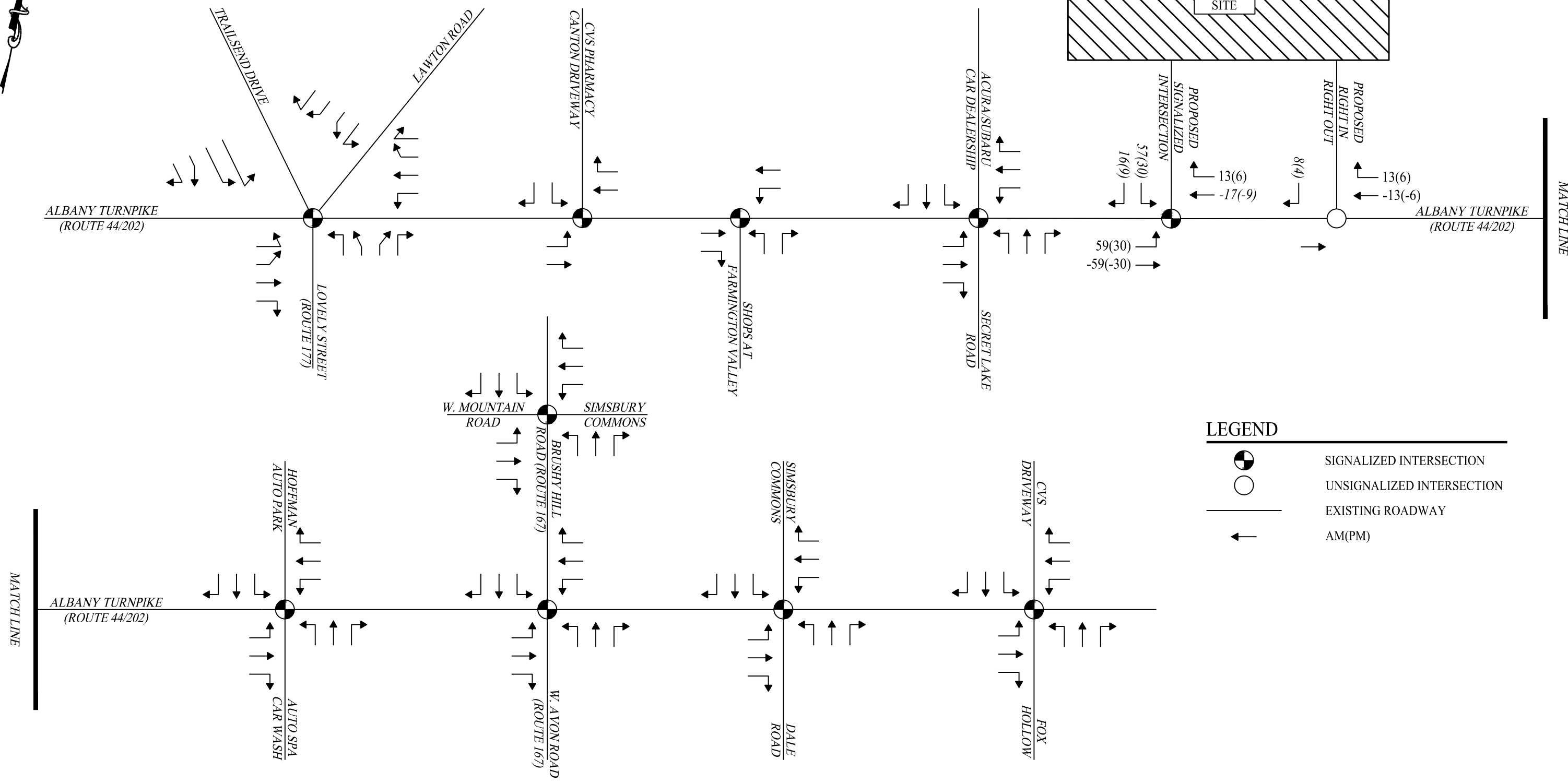
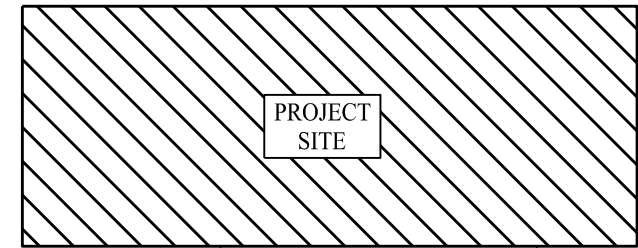
Drawn By: MB  
 Checked By: KMS  
 Project #: 1904501  
 Plan Date: 08/11/20  
 Scale: NTS

Project: **9-15 ALBANY TURNPIKE**  
 SIMSBURY & CANTON, CONNECTICUT

Sheet Title: **TRIP ASSIGNMENT**

SHEET #: **FIGURE 4**





**LEGEND**

	SIGNALIZED INTERSECTION
	UNSIGNALIZED INTERSECTION
	EXISTING ROADWAY
	AM(PM)

MATCHLINE

MATCHLINE

Rev. #:	Date:	Description:

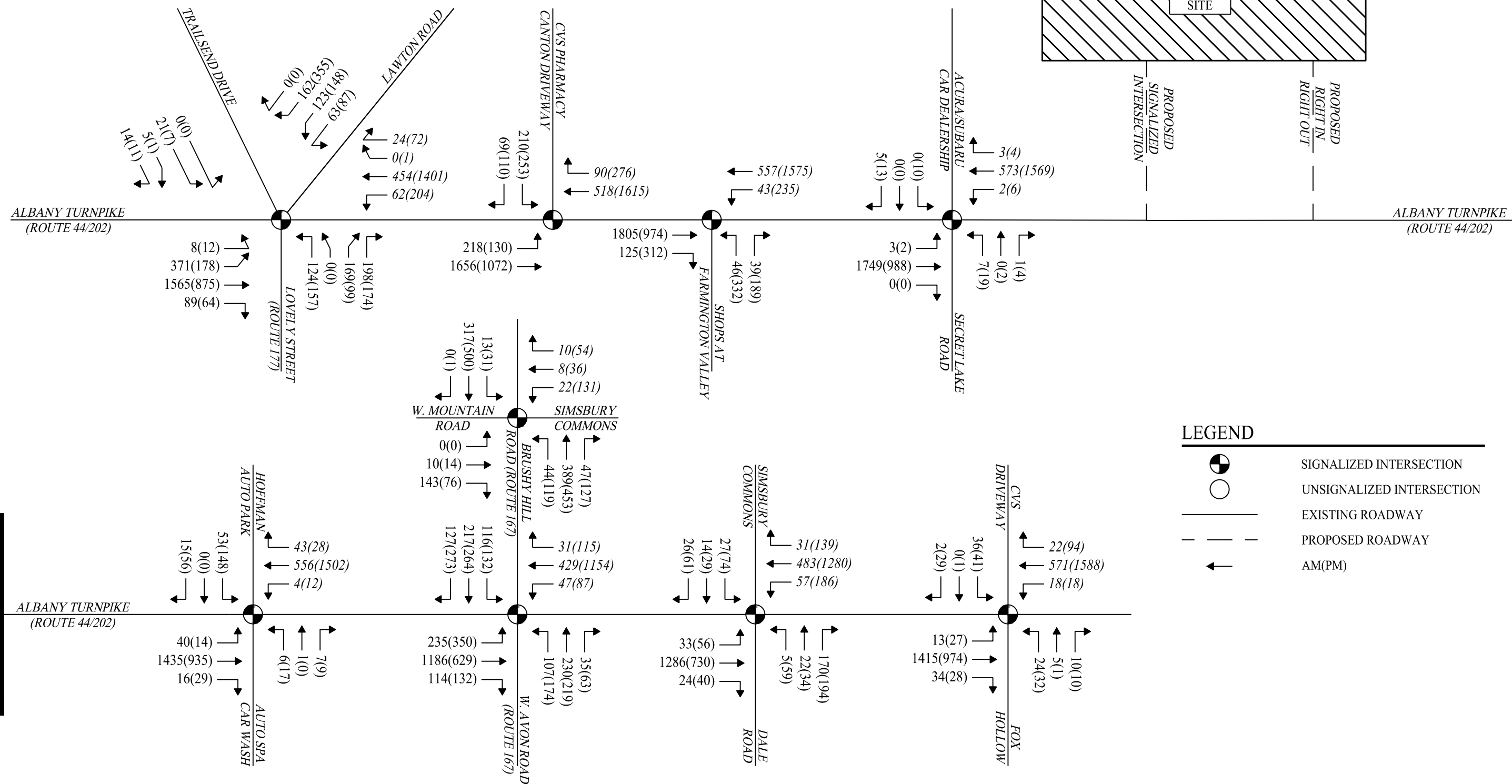
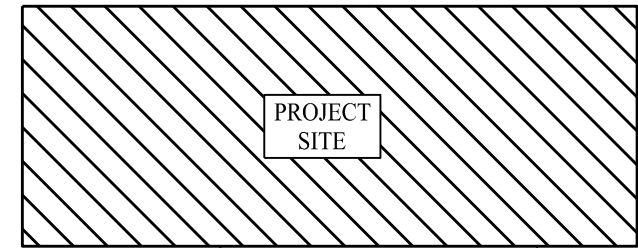
**SOLLI ENGINEERING**  
 501 Main Street, Monroe, CT 06468  
 T: (203) 880-5455 | F: (203) 880-9695

Drawn By: MB  
 Checked By: KMS  
 Project #: 1904501  
 Plan Date: 08/11/20  
 Scale: NTS

Project: **9-15 ALBANY TURNPIKE**  
 SIMSBURY & CANTON, CONNECTICUT

Sheet Title: **PASS-BY TRIPS**

SHEET #: **FIGURE 5**



**LEGEND**

	SIGNALIZED INTERSECTION
	UNSIGNALIZED INTERSECTION
	EXISTING ROADWAY
	PROPOSED ROADWAY
	AM(PM)

MATCHLINE

MATCHLINE

Rev. #:	Date	Description

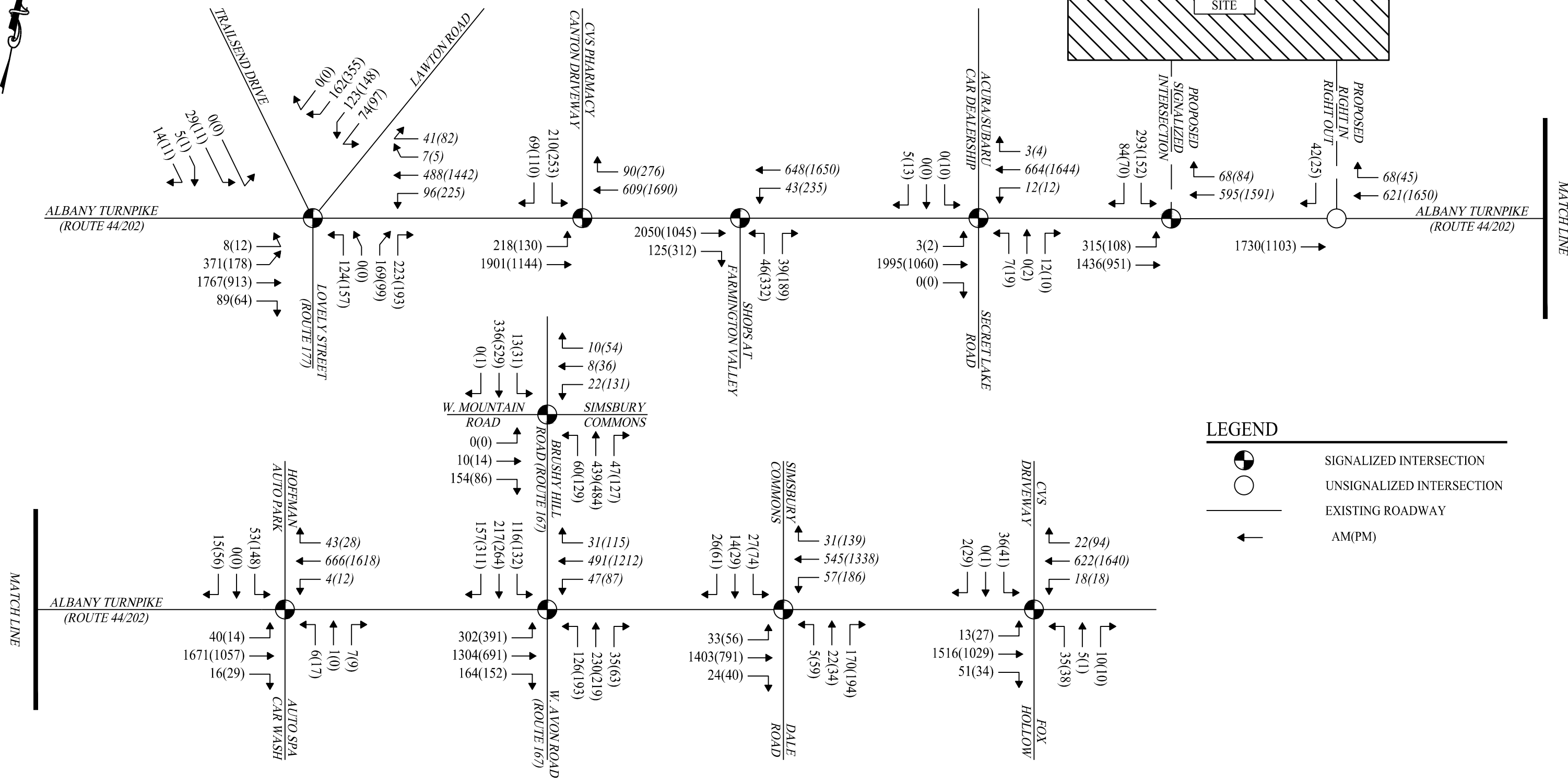
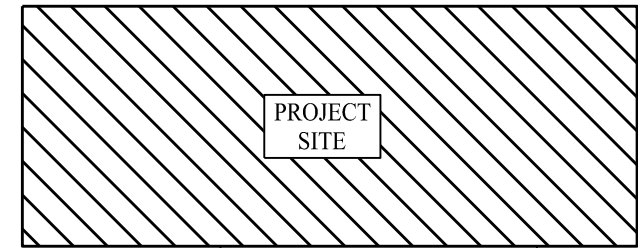
**SOLLI ENGINEERING**  
 501 Main Street, Monroe, CT 06468  
 T: (203) 880-5455 | F: (203) 880-9695

Drawn By:	MB
Checked By:	KMS
Project #:	1904501
Plan Date:	08/11/20
Scale:	NTS

Project: **9-15 ALBANY TURNPIKE**  
 SIMSBURY & CANTON, CONNECTICUT

Sheet Title: **2023 BACKGROUND TRAFFIC VOLUMES**

SHEET #: **FIGURE 6**



**LEGEND**

- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- EXISTING ROADWAY
- AM(PM)

Rev. #:	Date	Description

**SOLLI ENGINEERING**  
 501 Main Street, Monroe, CT 06468  
 T: (203) 880-5455 | F: (203) 880-9695

Drawn By: MB  
 Checked By: KMS  
 Project #: 1904501  
 Plan Date: 08/11/20  
 Scale: NTS

Project: **9-15 ALBANY TURNPIKE**  
 SIMSBURY & CANTON, CONNECTICUT

Sheet Title: **2023 BUILD TRAFFIC VOLUMES**

SHEET #: **FIGURE 7**

**SIGN LEGEND**

A			B			C			D		
SIZES (IN)	CONN DOT #	SUPPORTS	SIZES (IN)	CONN DOT #	SUPPORTS	SIZES (IN)	CONN DOT #	SUPPORTS	SIZES (IN)	CONN DOT #	SUPPORTS
30"	31-0552	1	30"x30"	31-1119	1	12"x18" 12"x6"	31-0629P 31-0648	1	12"x18" 12"x6"	31-0629P 31-0648	1

**LEGEND**

[Symbol]	PROPERTY LINE
[Symbol]	RIGHT-OF-WAY LINE
[Symbol]	ADJOINING LOT LINE
[Symbol]	BUILDING SETBACK
[Symbol]	EXISTING BUILDING LIMITS
[Symbol]	PROPOSED BUILDING LIMITS
[Symbol]	PROPOSED BUILDING HATCH
[Symbol]	BUILDING OVERHANG LINE / CANOPY
[Symbol]	SAWCUT PAVEMENT LINE
[Symbol]	BITUMINOUS CONCRETE CURB
[Symbol]	FUTURE DRIVEWAY LIMITS
[Symbol]	CONCRETE SIDEWALK / PAVEMENT
[Symbol]	RETAINING WALL
[Symbol]	SIDEWALK LIMITS
[Symbol]	PAVEMENT STRIPING - YELLOW
[Symbol]	PAVEMENT STRIPING - WHITE STANDARD AND ADA PARKING SPACES
[Symbol]	PAVEMENT ARROW MARKINGS
[Symbol]	PARKING SPACE COUNT
[Symbol]	DUMPSTER / TRASH RECEPTACLE
[Symbol]	TRAFFIC SIGN
[Symbol]	TRAFFIC SIGN DESIGNATION
[Symbol]	LIMIT OF WETLANDS
[Symbol]	UPLAND REVIEW AREA - 100 FT BUFFER
[Symbol]	UPLAND REVIEW AREA - 200 FT BUFFER

**SITE PLAN NOTES**

- THESE PLANS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT FOR CONSTRUCTION.
- THE OWNER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY ZONING PERMITS REQUIRED BY TOWN(S) OF CANTON AND SIMSBURY PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL POST ALL BONDS, PAY ALL FEES, PROVIDE PROOF OF INSURANCE AND PROVIDE TRAFFIC CONTROL NECESSARY FOR THIS WORK.
- THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS IN THE FIELD AND CONTACT THE CIVIL ENGINEER IF THERE ARE ANY QUESTIONS OR CONFLICTS REGARDING THE CONSTRUCTION DOCUMENTS AND/OR FIELD CONDITIONS.
- SHOULD ANY UNCHARTED OR INCOMPLETELY CHARTED EXISTING PIPING OR OTHER UTILITY BE UNCOVERED DURING EXCAVATION, CONSULT THE CIVIL ENGINEER IMMEDIATELY FOR DIRECTIONS BEFORE PROCEEDING FURTHER WITH WORK.
- EXISTING UTILITIES SERVING FACILITIES ARE TO REMAIN AND BE PROTECTED DURING CONSTRUCTION. ALL UTILITIES SHALL BE LEFT UNINTERRUPTED DURING OCCUPIED HOURS EXCEPT WHEN SUCH INTERRUPTIONS HAVE BEEN AUTHORIZED IN WRITING BY THE OWNER AND THE LOCAL MUNICIPALITIES. INTERRUPTIONS SHALL ONLY OCCUR AFTER ACCEPTABLE TEMPORARY SERVICE HAS BEEN PROVIDED.
- ALL SITE DIMENSIONS ARE REFERENCED TO THE FACE OF CURBS OR EDGE OF PAVING AS APPLICABLE UNLESS OTHERWISE NOTED. ALL BUILDING DIMENSIONS ARE REFERENCED TO THE OUTSIDE FACE OF THE STRUCTURE.
- THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC DEVICES FOR PROTECTION OF VEHICLES AND PEDESTRIANS CONSISTING OF DRUMS, BARRIERS, SIGNS, LIGHTS, FENCES, TRAFFIC CONTROLLERS AND UNIFORMED TRAFFIC OFFICERS AS REQUIRED OR AS ORDERED BY THE ENGINEER OR AS REQUIRED BY THE LOCAL GOVERNING AUTHORITIES OR AS REQUIRED BY PERMIT STIPULATIONS.
- REFER TO DETAIL SHEETS FOR PAVEMENT, CURBING, AND SIDEWALK INFORMATION.
- THE CONTRACTOR SHALL ABIDE BY ALL OSHA FEDERAL STATE AND LOCAL REGULATIONS WHEN OPERATING CRANES, BOOMS, HOISTS, ETC. IN CLOSE PROXIMITY TO OVERHEAD ELECTRIC LINES. IF CONTRACTOR MUST OPERATE EQUIPMENT CLOSE TO ELECTRIC LINES, CONTACT POWER COMPANY TO MAKE ARRANGEMENTS FOR PROPER SAFEGUARDS. ANY UTILITY COMPANY FEES SHALL BE PAID FOR BY THE CONTRACTOR.
- THE CONTRACTOR SHALL SUBMIT A SHOP DRAWING OF THE PAVEMENT MARKING PAINT MIXTURE PRIOR TO STRIPING.
- PAVEMENT MARKING KEY:
  - 4" SWL 4" SOLID WHITE LINE
  - 4" DYL 4" DOUBLE YELLOW LINE
- PARKING SPACES SHALL BE STRIPED WITH 4" SWL. HATCHED AREA SHALL BE STRIPED WITH 4" SWL AT A 45° ANGLE. 2" ON CENTER. HATCHING, SYMBOLS, AND STRIPING FOR HANDICAPPED SPACES SHALL BE PAINTED BLUE. OTHER MARKINGS SHALL BE PAINTED WHITE OR AS NOTED.
- THE CONTRACTOR SHALL RESTORE ANY DRAINAGE STRUCTURE, PIPE, UTILITY, PAVEMENT, CURBS, SIDEWALKS, LANDSCAPED AREAS OR SIGNAGE DISTURBED DURING CONSTRUCTION TO THEIR ORIGINAL CONDITION OR BETTER, AS APPROVED BY THE CIVIL ENGINEER.
- THE ENGINEER IS NOT RESPONSIBLE FOR SITE SAFETY MEASURES TO BE EMPLOYED DURING CONSTRUCTION. THE ENGINEER HAS NO CONTRACTUAL DUTY TO CONTROL THE SAFEST METHODS OR MEANS OF THE WORK, JOB SITE RESPONSIBILITIES, SUPERVISION OR TO SUPERVISE SAFETY AND DOES NOT VOLUNTARILY ASSUME ANY SUCH DUTY OR RESPONSIBILITY.
- INFORMATION ON EXISTING UTILITIES AND STORM DRAINAGE SYSTEMS HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING UTILITY PROVIDER AND MUNICIPAL RECORD MAPS AND/OR FIELD SURVEY AND IS NOT GUARANTEED CORRECT OR COMPLETE. UTILITIES AND STORM DRAINAGE SYSTEMS ARE SHOWN TO ALERT THE CONTRACTOR TO THEIR PRESENCE AND THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND STORM DRAINAGE SYSTEMS INCLUDING SERVICES. PRIOR TO DEMOLITION OR CONSTRUCTION, THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" 72 HOURS BEFORE COMMENCEMENT OF WORK AND VERIFY ALL UTILITY AND STORM DRAINAGE SYSTEM LOCATIONS.
- PAVEMENT MARKINGS SHALL BE HOT APPLIED TYPE IN ACCORDANCE WITH CONNECTICUT DOT SPECIFICATIONS, UNLESS WHERE EPOXY RESIN PAVEMENT MARKINGS ARE INDICATED.
- NO CONSTRUCTION OR DEMOLITION SHALL BEGIN UNTIL APPROVAL OF THE FINAL PLANS IS GRANTED BY ALL GOVERNING AND REGULATORY AGENCIES.
- NO PART OF THE PROJECT PARCEL IS LOCATED WITHIN ANY FEMA DESIGNATED FLOOD HAZARD AREA.
- ALL NOTES AND DIMENSIONS DESIGNATED "TYPICAL" APPLY TO ALL LIKE OR SIMILAR CONDITIONS THROUGHOUT THE PROJECT.
- EXISTING BOUNDARY INFORMATION TAKEN FROM A PLAN ENTITLED "PROPERTY SURVEY OF 9-15 ALBANY TURNPIKE, CANTON, CT" DATED 12/10/19, SCALE: 1" = 60', BY ACCURATE LAND SURVEYING, LLC.

**ZONING COMPLIANCE TABLE - CANTON**

ZONE: CANTON BUSINESS DISTRICT (B)			
ZONING REQUIREMENT	ZONING STANDARD	EXISTING CONDITIONS	PROPOSED CONDITIONS
MINIMUM LOT AREA	30,000 SF	26.0 AC	26.17 AC
MINIMUM LOT FRONTAGE	100 FT	N/A	98.8 FT
MINIMUM SQUARE	90 FT	>90 FT	>90 FT
MINIMUM YARD			
FRONT YARD	10 FT*	N/A	11 FT
SIDE YARD	15 FT	N/A	12.6 FT
REAR YARD	50 FT	N/A	> 1,000 FT
MAXIMUM HEIGHT	2 1/2 STORIES/35 FT	N/A	1 STORY / 2 STORIES
MINIMUM FLOOR AREA	1,400 S.F.	N/A	8,384 S.F. / 20,865 S.F.
PARKING SETBACK			
FRONT	10 FT	N/A	28.5 FT
SIDE/REAR	5 FT	N/A	16 FT
MAXIMUM BUILDING COVERAGE	25%	N/A	2.2%
MAXIMUM IMPERVIOUS COVERAGE	50%	N/A	11%

\*10 FEET FROM THE FRONT PROPERTY LINE WITH A MINIMUM OF 15 FEET FROM THE EDGE OF THE ROADWAY

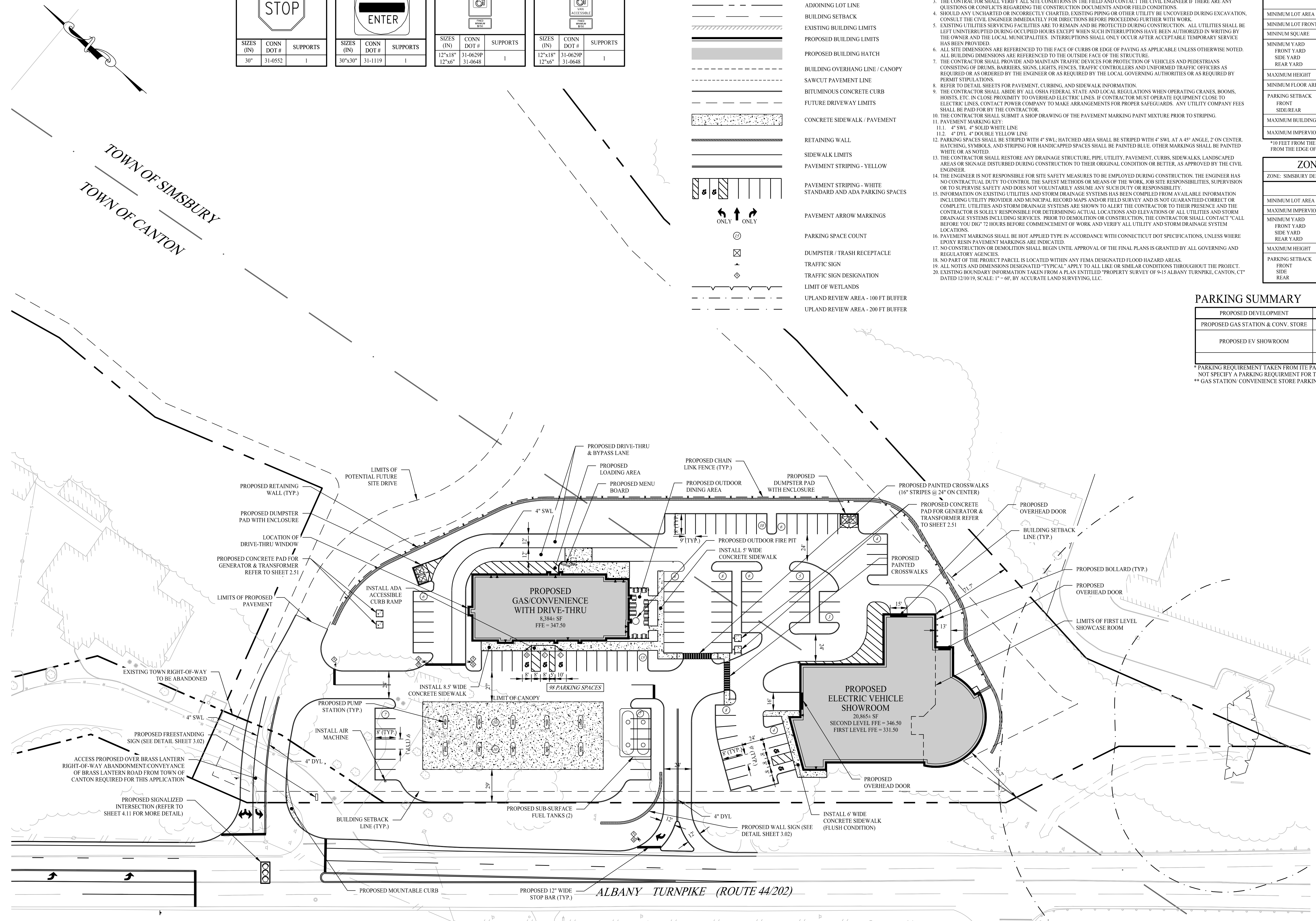
**ZONING COMPLIANCE TABLE - SIMSBURY**

ZONE: SIMSBURY DESIGNATED BUSINESS DEVELOPMENT ZONE (B-3)			
ZONING REQUIREMENT	ZONING STANDARD	EXISTING CONDITIONS	PROPOSED CONDITIONS
MINIMUM LOT AREA	N/A	26.0 AC	26.17 AC
MAXIMUM IMPERVIOUS COVERAGE	40%	N/A	11%
MINIMUM YARD			
FRONT YARD	50 FT	N/A	56.2 FT
SIDE YARD	40 FT	N/A	71.7 FT
REAR YARD	50 FT	N/A	>1,000 FT
MAXIMUM HEIGHT	40 FT	N/A	< 40 FT
PARKING SETBACK			
FRONT	25 FT	N/A	32 FT
SIDE	15 FT	N/A	16 FT
REAR	10 FT	N/A	> 10 FT

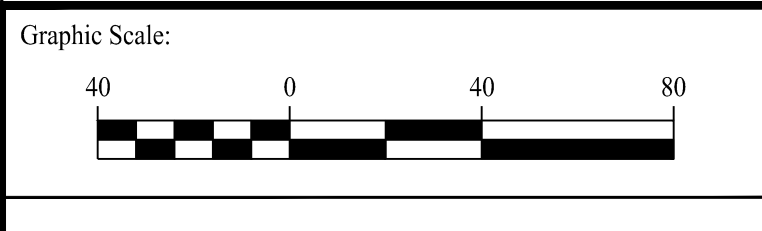
**PARKING SUMMARY**

PROPOSED DEVELOPMENT	GROSS FLOOR AREA	REQUIREMENT	REQUIRED	PROPOSED
PROPOSED GAS STATION & CONV. STORE	20 PUMPS & 8,384 SF	8 SPACES / 1,000 SF *	68 **	48 + 20 PUMPS
PROPOSED EV SHOWROOM	20,865 SF	3 SPACES / SERVICE BAY & 1 SPACE / 2 EMPLOYEES	30	30
TOTAL			98	98

\* PARKING REQUIREMENT TAKEN FROM ITE PARKING GENERATION MANUAL (4TH EDITION), AS TOWN REGULATIONS DO NOT SPECIFY A PARKING REQUIREMENT FOR THIS USE  
 \*\* GAS STATION / CONVENIENCE STORE PARKING REQUIREMENT TO BE DETERMINED DURING SPECIAL EXCEPTION PROCESS



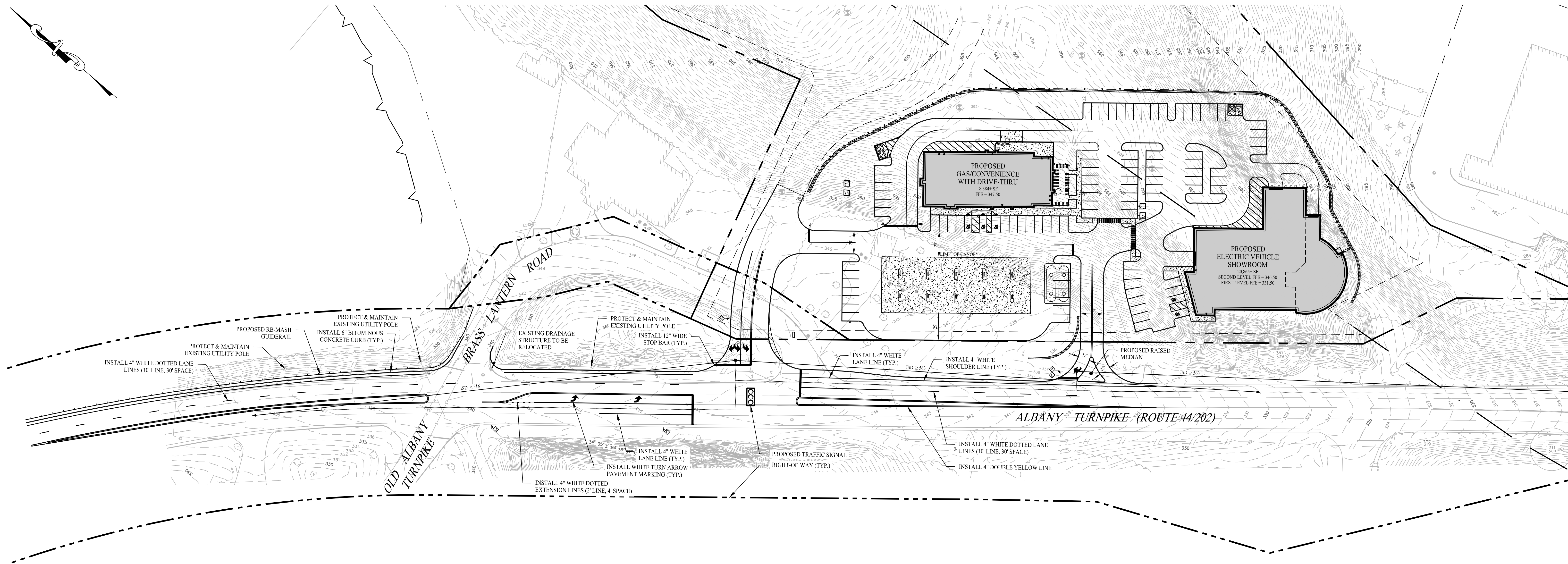
Rev. #:	Date	Description



Drawn By:	PSK	Kevin Solli, P.E. CT 25759
Checked By:	PSK	
Approved By:	KMS	
Project #:	1904501	
Plan Date:	08/11/20	
Scale:	1" = 40'	

Project:  
**9-15 ALBANY TURNPIKE**  
 SIMSBURY & CANTON, CONNECTICUT

Sheet Title:	SITE LAYOUT PLAN	Sheet #:	2.11
--------------	------------------	----------	------



**SIGN LEGEND**

<table border="1"> <tr><th>SIZES (IN)</th><th>CONN DOT #</th><th>SUPPORTS</th></tr> <tr><td>36"</td><td>31-0553</td><td>1</td></tr> </table>	SIZES (IN)	CONN DOT #	SUPPORTS	36"	31-0553	1	<table border="1"> <tr><th>SIZES (IN)</th><th>CONN DOT #</th><th>SUPPORTS</th></tr> <tr><td>30"x30"</td><td>31-1119</td><td>1</td></tr> </table>	SIZES (IN)	CONN DOT #	SUPPORTS	30"x30"	31-1119	1
SIZES (IN)	CONN DOT #	SUPPORTS											
36"	31-0553	1											
SIZES (IN)	CONN DOT #	SUPPORTS											
30"x30"	31-1119	1											
<table border="1"> <tr><th>SIZES (IN)</th><th>CONN DOT #</th><th>SUPPORTS</th></tr> <tr><td>42"x30"</td><td>31-0268</td><td>2</td></tr> </table>	SIZES (IN)	CONN DOT #	SUPPORTS	42"x30"	31-0268	2	<table border="1"> <tr><th>SIZES (IN)</th><th>CONN DOT #</th><th>SUPPORTS</th></tr> <tr><td>42"x30"</td><td>31-0370</td><td>2</td></tr> </table>	SIZES (IN)	CONN DOT #	SUPPORTS	42"x30"	31-0370	2
SIZES (IN)	CONN DOT #	SUPPORTS											
42"x30"	31-0268	2											
SIZES (IN)	CONN DOT #	SUPPORTS											
42"x30"	31-0370	2											

**GENERAL NOTES**

- EXISTING BOUNDARY INFORMATION TAKEN FROM A PLAN ENTITLED "PROPERTY SURVEY OF 9-15 ALBANY TURNPIKE, CANTON, CT" DATED 12/10/19, SCALE: 1"=60', BY ACCURATE LAND SURVEYING, LLC.
- THE SUBJECT PARCELS CONSISTS OF A TOTAL AREA OF APPROXIMATELY 26.0 ACRES, LOCATED IN THE B DISTRICT OF CANTON, CONNECTICUT AND THE B-3 ZONE OF SIMSBURY, CONNECTICUT.
- THESE PLANS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT FOR CONSTRUCTION. NO CONSTRUCTION OR DEMOLITION SHALL BEGIN UNTIL APPROVAL OF THE FINAL PLANS IS GRANTED BY ALL GOVERNING AND REGULATORY AGENCIES AND ISSUANCE OF A DULY AUTHORIZED CERTIFIED ZONING COMPLIANCE AND BUILDING PERMIT FROM THE TOWNS OF CANTON AND SIMSBURY.
- OFF-SITE IMPROVEMENT WITHIN THE STATE RIGHT-OF-WAY ARE SUBJECT TO REVIEW AND APPROVAL BY THE CONNECTICUT DEPARTMENT OF TRANSPORTATION.

**GENERAL TRAFFIC NOTES**

- DURING THE PROGRESS OF WORK, ALL ROADS SHALL REMAIN OPEN FOR THE PASSAGE OF TRAFFIC AND PEDESTRIANS AND SHALL NOT BE UNNECESSARILY OBSTRUCTED UNLESS AUTHORIZED BY THE AUTHORITY HAVING JURISDICTION OVER SAME. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF TRANSPORTATION (D.O.T.), TOWN PUBLIC WORKS DEPARTMENT, LOCAL POLICE AND STATE POLICE AS REQUIRED.
- WARNING SIGNS SHALL BE PROVIDED ALONG ALL ROADS WHERE WORK IS IN PROGRESS. THE CONTRACTOR SHALL NOTIFY AND MAKE ALL ARRANGEMENTS WITH THE D.O.T., TOWN PUBLIC WORKS DEPARTMENT, LOCAL POLICE AND STATE POLICE FOR DIRECTION OF TRAFFIC PAST THE EQUIPMENT, MACHINERY, OR CONSTRUCTION OPERATIONS. BARRICADES AND LIGHTS SHALL BE PROVIDED TO PROTECT TRAFFIC. WHERE TRENCHES HAVE BEEN CUT IN ROAD SHOULDERS, WARNING SIGNS SHALL BE PLACED AT FREQUENT INTERVALS AND MAINTAINED UNTIL THE SHOULDER IS SAFE TO TRAVEL. ALL SUCH WORK AND OPERATIONS SHALL BE IN ACCORDANCE WITH THE REQUIREMENT OF THE D.O.T., PUBLIC WORKS DEPARTMENT, LOCAL POLICE AND STATE POLICE.

**LEGEND**

	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJOINING LOT LINE
	BITUMINOUS CONCRETE CURB
	METAL BEAM GUIDE RAIL
	PAVEMENT STRIPING AND MARKINGS
	SITE DISTANCE
	SIGN
	PAVEMENT ARROW MARKINGS

Rev. #:	Date:	Description:
Graphic Scale: 		
<b>SOLLI ENGINEERING</b> 501 Main Street, Monroe, CT 06468   T: (203) 880-5455   F: (203) 880-9695		
Drawn By: MB	Checked By: CAB	
Approved By: KMS	Project #: 1904501	
Plan Date: 08/11/20	Scale: 1" = 50'	
Project:		Kevin Solli, P.E. CT 25759
<b>9-15 ALBANY TURNPIKE</b> SIMSBURY & CANTON, CONNECTICUT		
Sheet Title: PRELIMINARY OFFSITE IMPROVEMENT PLAN	Sheet #: <b>4.11</b>	



## **Appendix B**

---

Traffic Analysis Data

Trip Generation Summary									
9-15 Albany Turnpike, Canton & Simsbury, Connecticut									
	Variable	LUC	AM Peak Hour			PM Peak Hour			
			Enter	Exit	Total	Enter	Exit	Total	
Automobile Sales (New)	20.87	840	28	11	39	20	30	51	
Fast Food Restaurant without Drive - Thru Window	2.84	933	43	28	71	40	40	80	
Coffee Shop w/ Drive Thru	1.24	937	200	200	400	27	27	54	
Super Convenience Market/Gas Station	4.31	960	179	179	358	149	149	298	
<b>Total New Trips</b>			<b>450</b>	<b>418</b>	<b>868</b>	<b>237</b>	<b>247</b>	<b>483</b>	
			<i>Pass-By (20%)</i>	<i>84</i>	<i>82</i>	<i>166</i>	<i>43</i>	<i>43</i>	<i>86</i>
			<b>Net Trips</b>	<b>366</b>	<b>337</b>	<b>702</b>	<b>193</b>	<b>203</b>	<b>397</b>

Source: ITE Trip Generation, 10th Edition

CT DOT Dunkin' Donuts Trip Generation

Land Use	Time Period	Avg Rate	Entering	Exiting
LUC 840 - Automobile Sales (New)	AM	1.87	73%	27%
	PM	2.43	40%	60%
LUC 933 - Fast Food Restaurant without Drive - Thru (SF)	AM	25.10	60%	40%
	PM	28.34	50%	50%
LUC 937 - Coffee Shop w/ Drive Thru	AM	88.99	51%	49%
	PM	43.38	50%	50%
LUC 960 - Super Convenience Market/Gas Station	AM	83.14	50%	50%
	PM	69.28	50%	50%

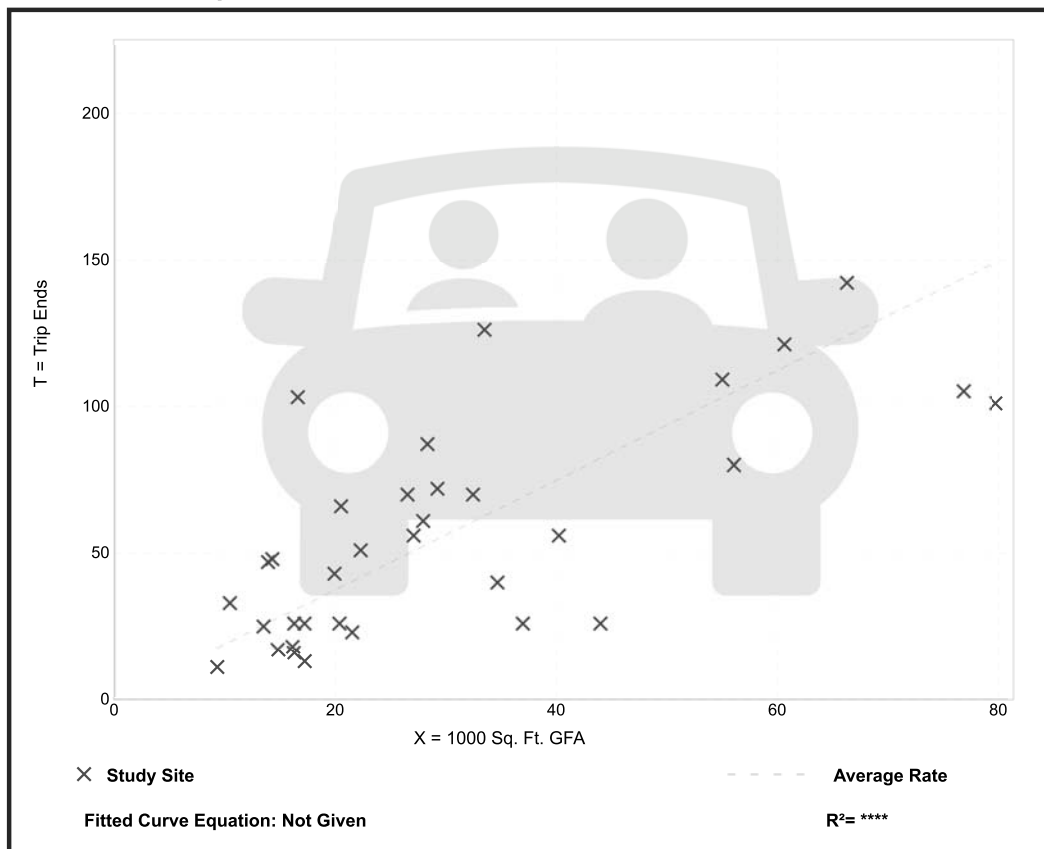
## Automobile Sales (New) (840)

**Vehicle Trip Ends vs:** 1000 Sq. Ft. GFA  
**On a:** Weekday,  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 7 and 9 a.m.**  
**Setting/Location:** General Urban/Suburban  
 Number of Studies: 34  
 Avg. 1000 Sq. Ft. GFA: 31  
 Directional Distribution: 73% entering, 27% exiting

### Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.87	0.59 - 6.17	0.95

### Data Plot and Equation



*Trip Gen Manual, 10th Edition • Institute of Transportation Engineers*



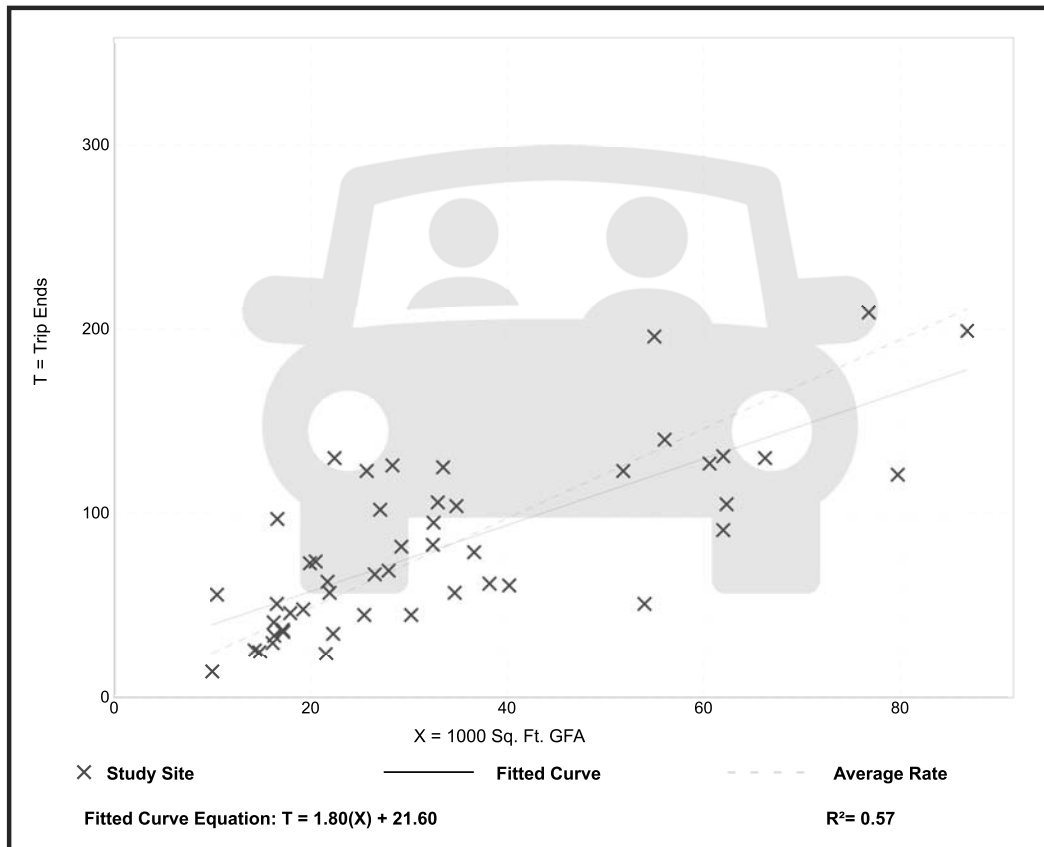
## Automobile Sales (New) (840)

**Vehicle Trip Ends vs:** 1000 Sq. Ft. GFA  
**On a:** Weekday,  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 4 and 6 p.m.**  
**Setting/Location:** General Urban/Suburban  
 Number of Studies: 49  
 Avg. 1000 Sq. Ft. GFA: 34  
 Directional Distribution: 40% entering, 60% exiting

### Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
2.43	0.94 - 5.81	0.99

### Data Plot and Equation



*Trip Gen Manual, 10th Edition* • Institute of Transportation Engineers

# Fast-Food Restaurant without Drive-Through Window (933)

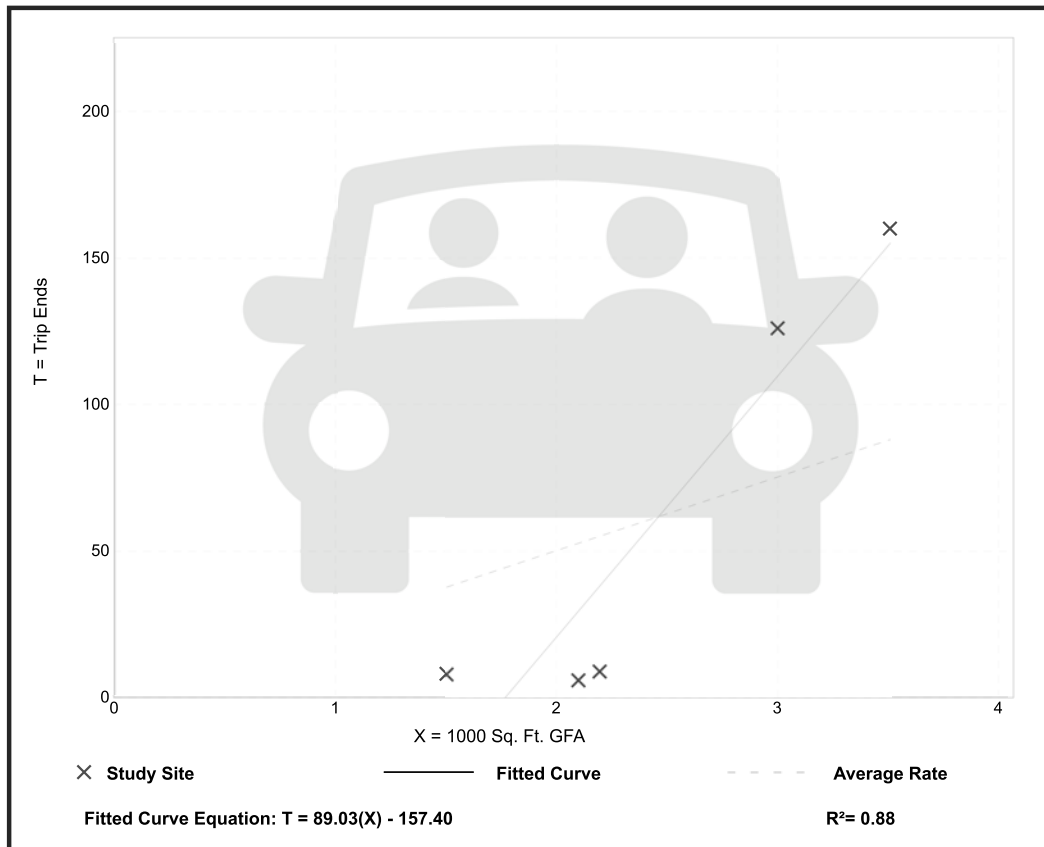
**Vehicle Trip Ends vs: 1000 Sq. Ft. GFA**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 7 and 9 a.m.**  
**Setting/Location: General Urban/Suburban**  
 Number of Studies: 5  
 Avg. 1000 Sq. Ft. GFA: 2  
 Directional Distribution: 60% entering, 40% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
25.10	2.86 - 45.58	22.36

## Data Plot and Equation

*Caution – Small Sample Size*



*Trip Gen Manual, 10th Edition • Institute of Transportation Engineers*

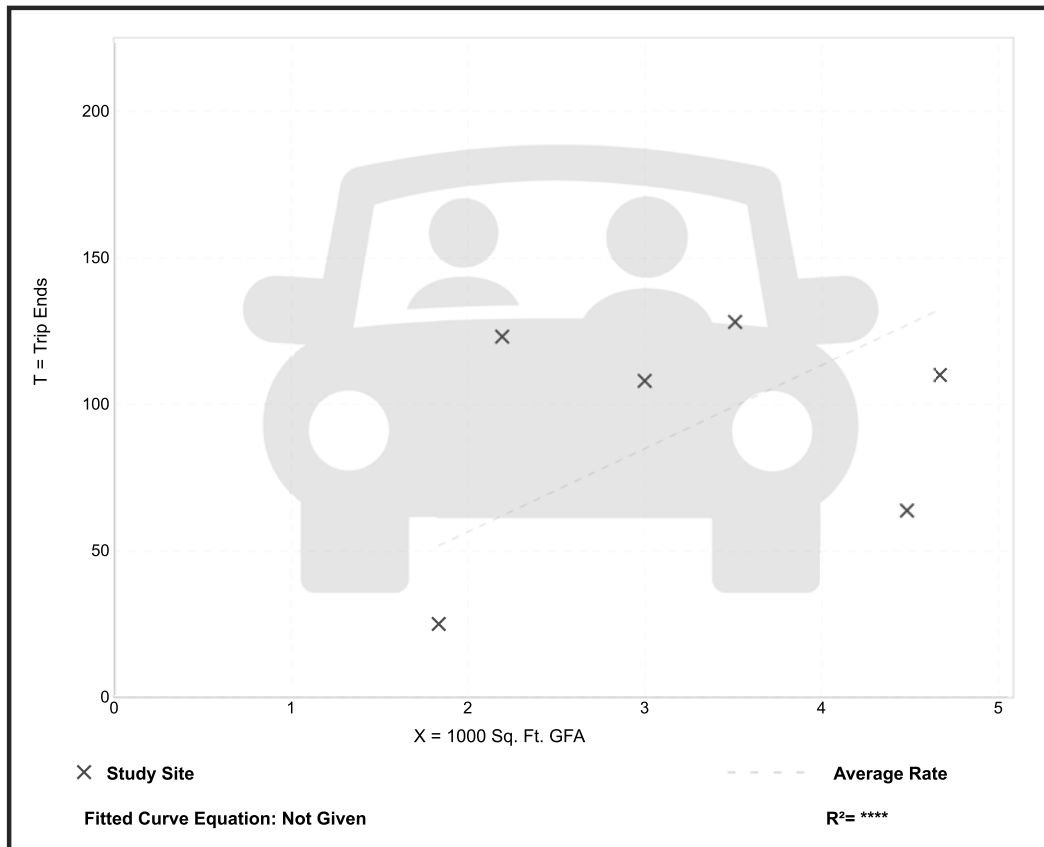
# Fast-Food Restaurant without Drive-Through Window (933)

**Vehicle Trip Ends vs: 1000 Sq. Ft. GFA**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 4 and 6 p.m.**  
**Setting/Location: General Urban/Suburban**  
 Number of Studies: 6  
 Avg. 1000 Sq. Ft. GFA: 3  
 Directional Distribution: 50% entering, 50% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
28.34	13.62 - 56.01	14.56

## Data Plot and Equation



*Trip Gen Manual, 10th Edition • Institute of Transportation Engineers*

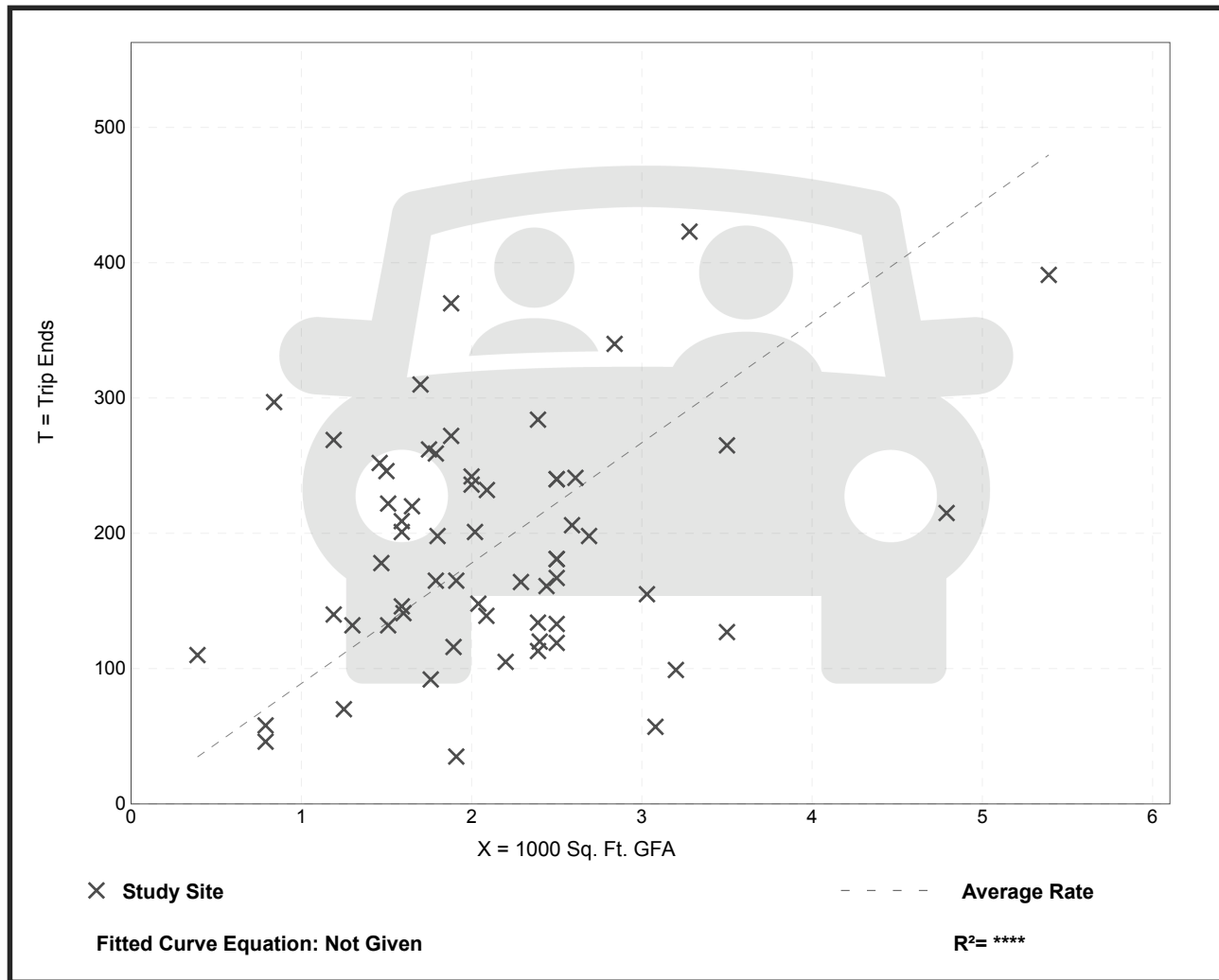
# Coffee/Donut Shop with Drive-Through Window (937)

**Vehicle Trip Ends vs: 1000 Sq. Ft. GFA**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 7 and 9 a.m.**  
**Setting/Location: General Urban/Suburban**  
 Number of Studies: 61  
 Avg. 1000 Sq. Ft. GFA: 2  
 Directional Distribution: 51% entering, 49% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
88.99	18.32 - 353.57	48.19

## Data Plot and Equation



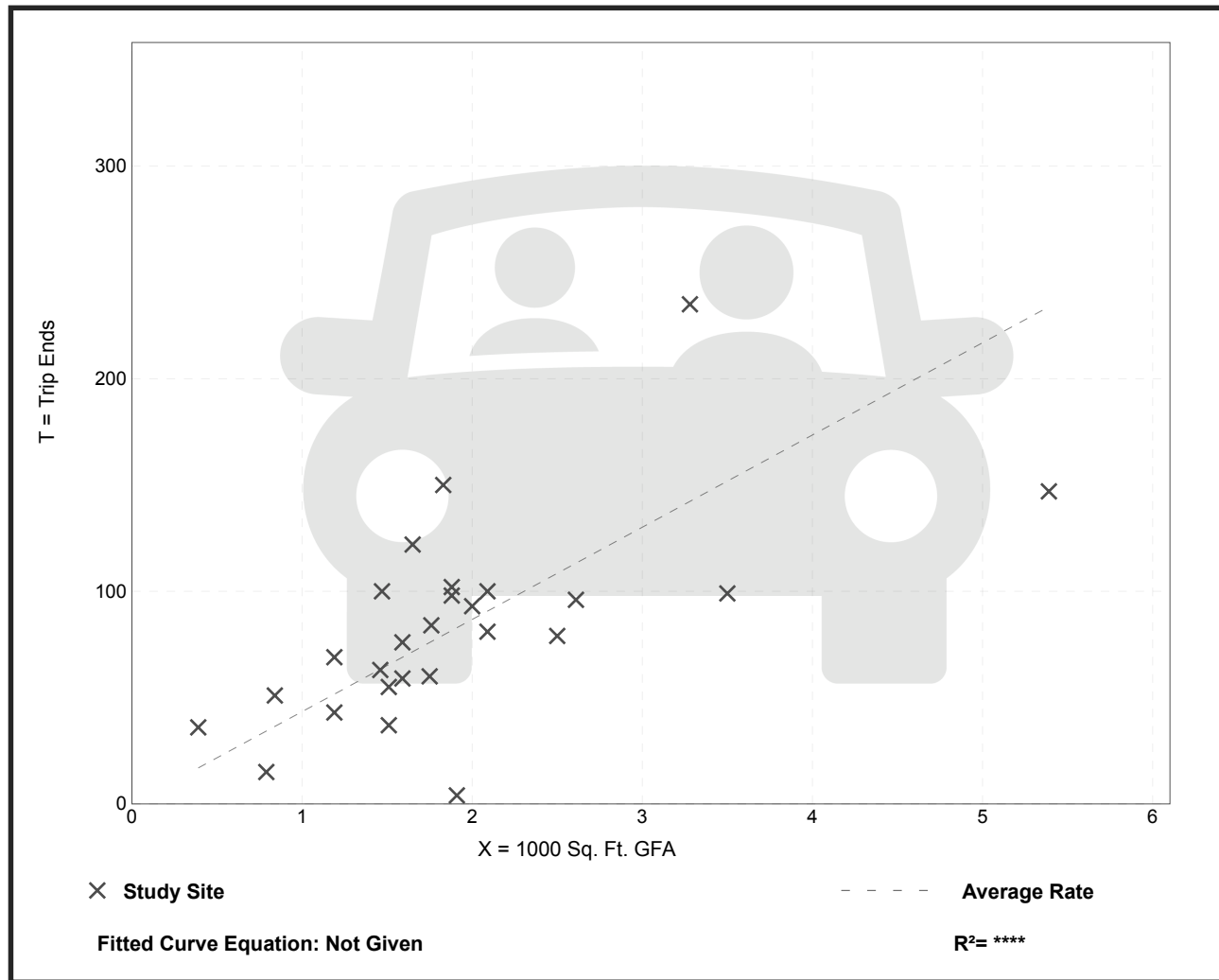
# Coffee/Donut Shop with Drive-Through Window (937)

**Vehicle Trip Ends vs: 1000 Sq. Ft. GFA**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 4 and 6 p.m.**  
**Setting/Location: General Urban/Suburban**  
 Number of Studies: 26  
 Avg. 1000 Sq. Ft. GFA: 2  
 Directional Distribution: 50% entering, 50% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
43.38	2.09 - 92.31	18.88

## Data Plot and Equation



# Super Convenience Market/Gas Station (960)

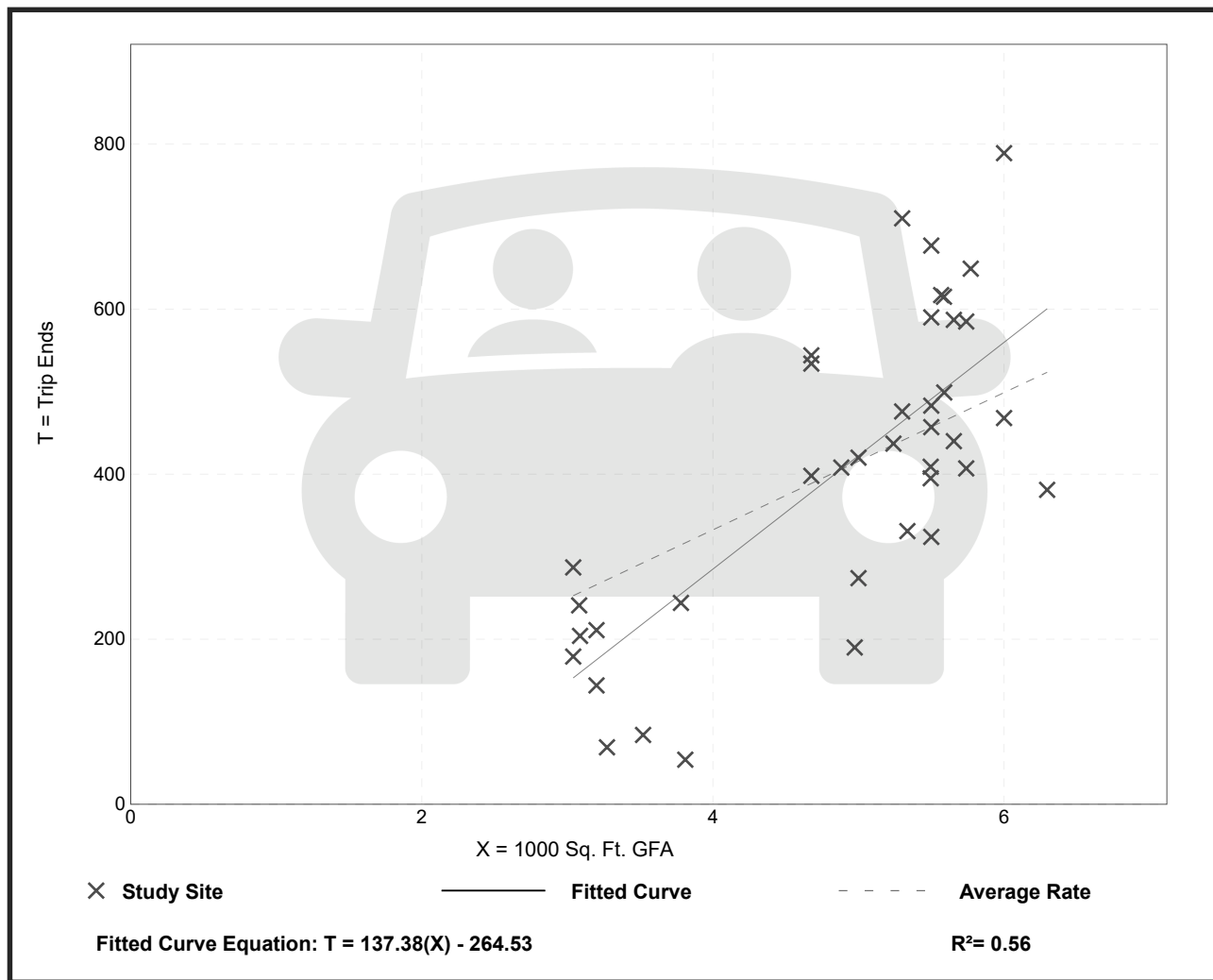
**Vehicle Trip Ends vs: 1000 Sq. Ft. GFA**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 7 and 9 a.m.**

**Setting/Location: General Urban/Suburban**  
 Number of Studies: 39  
 Avg. 1000 Sq. Ft. GFA: 5  
 Directional Distribution: 50% entering, 50% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
83.14	14.17 - 133.96	28.07

## Data Plot and Equation



*Trip Gen Manual, 10th Edition* • Institute of Transportation Engineers

# Super Convenience Market/Gas Station (960)

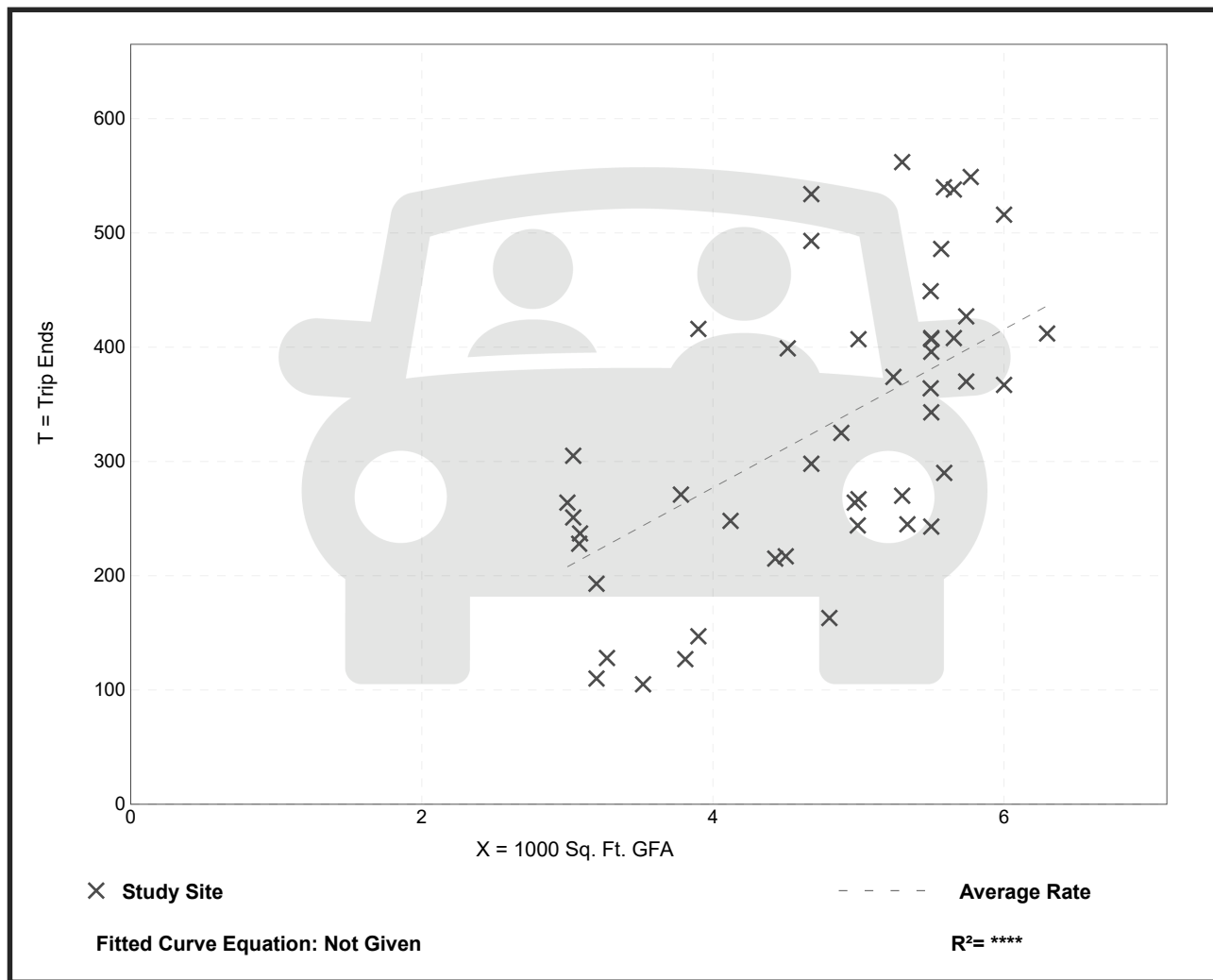
**Vehicle Trip Ends vs: 1000 Sq. Ft. GFA**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 4 and 6 p.m.**

**Setting/Location: General Urban/Suburban**  
 Number of Studies: 48  
 Avg. 1000 Sq. Ft. GFA: 5  
 Directional Distribution: 50% entering, 50% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
69.28	29.83 - 114.20	21.07

## Data Plot and Equation



INTERSECTION ACCIDENT SUMMARY - JULY 2017 THROUGH MAY 2020				
PROPOSED DEVELOPMENT - 9-15 ALBANY TURNPIKE (RTE 44 & 202), CANTON, CONNECTICUT				
ACCIDENT TYPE AND SEVERITY	Albany Tpke (RTE 202) & Secret Lake Road [Intersection 1]	Albany Tpke (RTE 202) from Intersection 1 to Intersection 2	Albany Tpke (RTE 202) & Hoffman Autopark [Intersection 2]	TOTAL
<b>Accident Type:</b>				
Rear End	8	23	4	35
Angle	1	6	0	7
Sideswipe - Opposite Direction	0	3	0	3
Sideswipe - Same Direction	0	8	3	11
Fixed Object	2	3	0	5
Front to Front	0	3	0	3
Animal	0	4	0	4
Spinout	0	1	0	1
Other	1	1	1	3
<b>Accident Severity:</b>				
Injury Any Type	2	9	1	12
Property Damage Only	10	43	7	60
<b>Road Surface Condition:</b>				
Dry	11	41	7	59
Wet	1	7	1	9
Slush	0	1	0	1
Snow	0	3	0	3
Ice/Frost	0	0	0	0
<b>TOTAL NUMBER OF ACCIDENTS</b>	<b>12</b>	<b>52</b>	<b>8</b>	<b>72</b>

\*Source: UConn Crash Data Repository



# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501EB  
 Date Printed: 08-Aug-20

Eastbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
07/24/20	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	8	671	78	1	14	13	2	7	1	1	2	2	2	11	813
10:00	8	695	75	0	19	11	2	7	4	2	0	2	0	12	837
11:00	10	758	68	3	9	12	3	6	2	1	0	3	2	15	892
12 PM	12	796	81	1	10	13	5	4	3	3	0	0	1	8	937
13:00	18	855	85	4	9	13	4	7	2	3	0	0	0	17	1017
14:00	18	921	93	2	11	7	4	7	5	2	2	0	2	14	1088
15:00	8	858	87	1	6	5	4	1	3	2	0	3	1	12	991
16:00	9	787	76	2	7	4	4	4	1	4	1	2	0	10	911
17:00	12	817	75	4	3	5	7	3	2	4	0	1	1	11	945
18:00	11	687	48	2	3	3	2	3	2	1	0	1	0	19	782
19:00	6	587	44	1	2	2	3	0	0	1	0	2	0	4	652
20:00	6	440	23	0	2	2	2	1	1	0	0	0	0	2	479
21:00	4	298	25	0	0	1	1	0	0	0	0	0	0	3	332
22:00	2	195	13	1	0	1	1	0	2	0	0	0	0	0	215
23:00	1	93	11	0	0	1	0	0	1	0	0	0	0	0	107
Total	133	9458	882	22	95	93	44	50	29	24	5	16	9	138	10998
Percent	1.2%	86.0%	8.0%	0.2%	0.9%	0.8%	0.4%	0.5%	0.3%	0.2%	0.0%	0.1%	0.1%	1.3%	
AM Peak	11:00	11:00	09:00	11:00	10:00	09:00	11:00	09:00	10:00	10:00	09:00	11:00	09:00	11:00	
Vol.	10	758	78	3	19	13	3	7	4	2	2	3	2	15	
PM Peak	13:00	14:00	14:00	13:00	14:00	12:00	17:00	13:00	14:00	16:00	14:00	15:00	14:00	18:00	
Vol.	18	921	93	4	11	13	7	7	5	4	2	3	2	19	

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501EB  
 Date Printed: 08-Aug-20

Eastbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
07/25/20	0	52	1	0	0	0	0	2	0	0	0	0	0	0	55
01:00	0	27	1	0	0	0	0	0	0	0	0	0	0	0	28
02:00	2	14	2	1	0	0	0	1	0	0	0	0	0	1	21
03:00	0	15	0	0	0	0	0	1	1	0	0	0	0	0	17
04:00	0	22	6	0	1	0	0	0	0	0	0	0	0	0	29
05:00	0	50	6	0	1	0	0	1	2	0	0	0	0	0	60
06:00	0	108	16	0	0	0	0	1	0	0	0	0	0	0	125
07:00	2	212	28	0	6	1	0	0	2	0	0	1	0	2	254
08:00	9	379	49	0	2	0	1	6	3	0	0	0	0	3	452
09:00	8	520	60	1	5	4	5	3	2	1	0	0	1	4	614
10:00	14	670	69	2	5	1	0	1	1	1	0	1	2	6	773
11:00	15	806	81	3	3	4	2	1	1	2	0	2	1	10	931
12 PM	16	836	74	1	2	3	5	1	1	5	2	1	1	14	962
13:00	11	808	67	0	7	6	1	5	1	2	0	1	0	15	924
14:00	18	839	71	1	4	10	5	4	1	1	0	1	0	13	968
15:00	9	877	60	0	7	3	0	1	2	1	2	0	0	14	976
16:00	10	822	54	2	1	2	4	3	1	3	0	4	1	15	922
17:00	19	736	65	0	1	5	3	1	0	1	0	1	0	16	848
18:00	9	619	54	0	2	3	3	1	1	1	0	2	0	11	706
19:00	11	521	47	0	0	7	2	1	1	0	0	0	0	14	604
20:00	8	424	33	1	1	1	4	0	0	0	0	0	0	4	476
21:00	2	317	22	0	0	3	1	1	0	0	0	0	0	6	352
22:00	3	200	17	0	0	0	0	0	0	0	0	0	0	0	220
23:00	2	113	13	0	1	0	0	0	1	0	0	0	0	0	130
Total	168	9987	896	12	49	53	36	35	21	18	4	14	6	148	11447
Percent	1.5%	87.2%	7.8%	0.1%	0.4%	0.5%	0.3%	0.3%	0.2%	0.2%	0.0%	0.1%	0.1%	1.3%	
AM Peak	11:00	11:00	11:00	11:00	07:00	09:00	09:00	08:00	08:00	11:00		11:00	10:00	11:00	
Vol.	15	806	81	3	6	4	5	6	3	2		2	2	10	
PM Peak	17:00	15:00	12:00	16:00	13:00	14:00	12:00	13:00	15:00	12:00	12:00	16:00	12:00	17:00	
Vol.	19	877	74	2	7	10	5	5	2	5	2	4	1	16	

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501EB  
 Date Printed: 08-Aug-20

Eastbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
07/26/20	0	56	6	0	0	0	0	0	0	0	0	0	0	1	63
01:00	0	37	2	0	0	0	0	0	0	0	0	0	0	1	40
02:00	0	17	4	0	1	0	0	0	0	0	0	0	0	0	22
03:00	0	16	0	0	0	0	0	0	0	0	0	0	0	0	16
04:00	0	7	1	0	1	0	0	0	1	0	0	0	0	0	10
05:00	0	20	3	0	0	0	0	0	1	0	0	0	0	1	25
06:00	0	83	11	0	0	0	0	0	0	0	0	0	0	1	95
07:00	1	149	20	0	2	0	0	1	1	0	1	0	0	0	175
08:00	2	239	20	1	0	1	0	0	0	0	0	0	1	1	265
09:00	6	359	39	0	0	3	1	0	0	1	0	0	0	4	413
10:00	4	485	44	0	1	3	1	1	0	0	0	1	0	5	545
11:00	6	617	57	1	3	3	1	1	1	2	1	1	0	2	696
12 PM	5	761	62	1	1	7	4	1	0	2	0	1	0	10	855
13:00	13	793	52	0	1	1	2	2	1	1	1	2	0	15	884
14:00	13	718	64	0	2	3	2	1	0	2	1	1	0	13	820
15:00	5	741	47	0	4	5	4	0	0	3	0	0	0	9	818
16:00	11	733	48	0	5	3	1	3	1	0	0	0	1	11	817
17:00	10	645	57	0	2	2	2	2	0	3	0	2	0	9	734
18:00	6	609	40	0	1	2	1	2	0	0	0	0	0	8	669
19:00	3	457	34	0	3	3	2	1	2	2	0	0	0	3	510
20:00	5	376	32	0	0	0	1	0	1	0	0	0	0	5	420
21:00	0	245	14	0	0	1	0	0	1	0	0	0	0	3	264
22:00	3	152	14	1	0	1	0	0	0	0	0	0	0	1	172
23:00	0	77	6	0	0	0	0	0	1	0	0	0	0	0	84
Total	93	8392	677	4	27	38	22	15	11	16	4	8	2	103	9412
Percent	1.0%	89.2%	7.2%	0.0%	0.3%	0.4%	0.2%	0.2%	0.1%	0.2%	0.0%	0.1%	0.0%	1.1%	
AM Peak	09:00	11:00	11:00	08:00	11:00	09:00	09:00	07:00	04:00	11:00	07:00	10:00	08:00	10:00	
Vol.	6	617	57	1	3	3	1	1	1	2	1	1	1	5	
PM Peak	13:00	13:00	14:00	12:00	16:00	12:00	12:00	16:00	19:00	15:00	13:00	13:00	16:00	13:00	
Vol.	13	793	64	1	5	7	4	3	2	3	1	2	1	15	

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501EB  
 Date Printed: 08-Aug-20

Eastbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
07/27/20	0	49	2	0	2	0	0	0	1	0	0	0	0	1	55
01:00	0	13	0	0	0	0	0	0	0	0	0	0	0	0	13
02:00	0	14	3	0	1	0	0	0	0	0	0	0	0	0	18
03:00	0	13	1	0	0	0	0	0	2	0	0	0	0	0	16
04:00	0	16	6	0	0	0	0	0	0	1	0	0	0	0	23
05:00	4	96	23	1	3	0	0	0	2	0	0	0	0	1	130
06:00	3	277	45	3	5	4	1	3	2	0	0	0	0	1	344
07:00	10	446	90	6	1	8	6	8	2	2	0	1	0	6	586
08:00	8	628	108	3	9	19	3	5	3	0	0	5	1	7	799
09:00	9	623	83	2	13	9	3	5	3	3	0	1	1	10	765
10:00	8	659	86	1	14	12	2	4	4	0	1	2	0	9	802
11:00	10	686	74	5	5	7	2	2	2	4	0	0	2	9	808
12 PM	11	721	82	2	13	9	1	1	7	1	0	1	1	15	865
13:00	5	774	73	3	10	6	4	2	4	3	1	2	1	8	896
14:00	10	706	84	1	3	9	2	5	3	0	0	3	1	8	835
15:00	7	729	64	2	8	5	4	12	1	2	0	1	1	13	849
16:00	6	683	74	1	6	4	1	2	1	1	1	3	0	8	791
17:00	5	713	51	1	1	5	1	2	1	1	1	3	0	13	798
18:00	7	645	60	5	3	5	2	3	1	0	0	0	0	14	745
19:00	7	489	40	0	3	2	2	0	0	0	0	3	0	6	552
20:00	3	346	20	0	1	2	0	0	0	1	0	0	0	2	375
21:00	2	248	19	0	0	0	0	1	0	0	0	0	0	0	270
22:00	1	128	12	1	2	0	0	0	0	0	0	0	0	1	145
23:00	0	84	5	0	1	0	0	1	2	0	0	0	0	0	93
Total	116	9786	1105	37	104	106	34	56	41	19	4	25	8	132	11573
Percent	1.0%	84.6%	9.5%	0.3%	0.9%	0.9%	0.3%	0.5%	0.4%	0.2%	0.0%	0.2%	0.1%	1.1%	
AM Peak	07:00	11:00	08:00	07:00	10:00	08:00	07:00	07:00	10:00	11:00	10:00	08:00	11:00	09:00	
Vol.	10	686	108	6	14	19	6	8	4	4	1	5	2	10	
PM Peak	12:00	13:00	14:00	18:00	12:00	12:00	13:00	15:00	12:00	13:00	13:00	14:00	12:00	12:00	
Vol.	11	774	84	5	13	9	4	12	7	3	1	3	1	15	

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501EB  
 Date Printed: 08-Aug-20

Eastbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
07/28/20	0	37	2	0	1	0	0	2	0	0	0	0	0	0	42
01:00	0	12	1	0	0	0	0	0	0	0	0	0	0	0	13
02:00	0	15	1	0	1	0	0	1	1	0	0	0	0	0	19
03:00	0	16	2	1	0	0	0	0	0	0	0	0	0	0	19
04:00	0	20	7	0	0	0	0	0	1	0	0	0	0	0	28
05:00	1	92	24	2	2	1	0	1	2	0	0	0	0	0	125
06:00	2	297	54	3	6	3	1	4	0	0	0	0	0	1	371
07:00	8	486	97	8	4	3	2	6	2	1	2	0	1	6	626
08:00	8	678	99	3	9	8	2	5	4	4	0	2	0	9	831
09:00	9	704	69	3	12	3	5	3	3	2	1	1	0	13	828
10:00	5	696	80	3	11	8	0	4	5	1	0	4	1	10	828
11:00	9	726	71	5	11	2	3	2	6	2	0	4	0	12	853
12 PM	13	815	91	4	10	6	1	2	1	0	2	1	0	20	966
13:00	6	877	71	0	11	8	0	9	1	1	0	1	2	10	997
14:00	10	812	68	3	10	8	5	3	0	4	2	0	0	16	941
15:00	10	740	85	0	5	12	4	2	3	3	0	0	2	15	881
16:00	5	735	68	1	8	8	4	1	3	1	1	0	1	12	848
17:00	11	733	57	1	2	3	4	1	2	1	1	1	0	14	831
18:00	9	610	56	3	3	4	3	3	0	1	0	1	0	12	705
19:00	5	507	35	1	0	2	2	2	0	1	0	0	0	1	556
20:00	4	389	28	0	1	0	1	4	0	0	0	1	0	0	428
21:00	4	231	20	0	0	0	1	1	0	0	0	0	0	2	259
22:00	0	134	7	0	0	0	0	0	1	0	0	0	0	0	142
23:00	0	83	6	1	1	0	0	0	1	0	0	0	0	0	92
Total	119	10445	1099	42	108	79	38	56	36	22	9	16	7	153	12229
Percent	1.0%	85.4%	9.0%	0.3%	0.9%	0.6%	0.3%	0.5%	0.3%	0.2%	0.1%	0.1%	0.1%	1.3%	
AM Peak	09:00	11:00	08:00	07:00	09:00	08:00	09:00	07:00	11:00	08:00	07:00	10:00	07:00	09:00	
Vol.	9	726	99	8	12	8	5	6	6	4	2	4	1	13	
PM Peak	12:00	13:00	12:00	12:00	13:00	15:00	14:00	13:00	15:00	14:00	12:00	12:00	13:00	12:00	
Vol.	13	877	91	4	11	12	5	9	3	4	2	1	2	20	

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501EB  
 Date Printed: 08-Aug-20

Eastbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
07/29/20	0	51	1	0	0	0	0	0	1	0	0	0	0	1	54
01:00	0	20	2	0	0	0	0	1	0	0	0	0	0	0	23
02:00	1	12	3	0	0	0	0	1	1	0	0	0	0	0	18
03:00	0	22	1	2	2	0	0	0	0	0	0	0	0	0	27
04:00	0	31	10	1	0	0	0	0	2	0	0	0	0	0	44
05:00	3	100	22	2	3	0	0	0	0	0	0	0	0	0	130
06:00	2	270	54	2	3	6	0	3	4	1	0	0	0	3	348
07:00	10	474	101	5	4	9	5	8	0	4	0	1	1	7	629
08:00	13	648	92	3	9	9	2	6	5	4	2	2	2	20	817
09:00	9	676	87	1	12	9	0	5	2	7	1	5	2	7	823
10:00	13	664	85	3	18	11	3	7	2	0	0	0	2	1	809
11:00	9	705	72	4	7	4	4	4	0	1	2	3	0	12	827
12 PM	6	764	78	2	8	6	2	6	2	1	0	2	2	14	893
13:00	9	837	101	4	15	12	2	4	6	1	1	0	1	9	1002
14:00	4	805	76	3	11	7	1	6	5	3	0	1	2	14	938
15:00	11	798	89	5	10	10	3	4	1	0	0	1	0	8	940
16:00	13	744	89	0	13	11	3	2	1	3	0	1	1	7	888
17:00	16	764	84	2	2	7	3	2	0	1	1	0	1	9	892
18:00	10	719	64	4	2	10	1	0	0	2	1	0	0	8	821
19:00	4	526	38	2	4	2	1	0	2	1	0	1	0	4	585
20:00	3	407	38	0	0	1	1	0	0	0	0	1	0	3	454
21:00	2	289	20	0	2	1	0	0	1	0	0	0	0	3	318
22:00	0	142	15	1	1	0	0	1	0	0	0	0	0	0	160
23:00	0	94	7	0	1	1	0	0	1	0	0	0	0	2	106
Total	138	10562	1229	46	127	116	31	60	36	29	8	18	14	132	12546
Percent	1.1%	84.2%	9.8%	0.4%	1.0%	0.9%	0.2%	0.5%	0.3%	0.2%	0.1%	0.1%	0.1%	1.1%	
AM Peak	08:00	11:00	07:00	07:00	10:00	10:00	07:00	07:00	08:00	09:00	08:00	09:00	08:00	08:00	
Vol.	13	705	101	5	18	11	5	8	5	7	2	5	2	20	
PM Peak	17:00	13:00	13:00	15:00	13:00	13:00	15:00	12:00	13:00	14:00	13:00	12:00	12:00	12:00	
Vol.	16	837	101	5	15	12	3	6	6	3	1	2	2	14	

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501EB  
 Date Printed: 08-Aug-20

Eastbound																
Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total	
07/30/20	0	39	3	0	0	0	0	1	1	0	0	0	0	0	44	
01:00	0	18	2	0	0	0	0	0	1	0	0	0	0	0	21	
02:00	1	9	2	1	1	0	0	1	0	0	0	0	0	0	15	
03:00	0	13	3	1	2	0	0	0	1	0	0	0	0	0	20	
04:00	0	27	7	0	0	0	0	0	0	0	0	0	0	0	34	
05:00	3	80	20	3	3	1	0	1	2	0	1	0	0	2	116	
06:00	0	5	1	0	0	0	0	0	0	0	0	0	0	0	6	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
Total	4	191	38	5	6	1	0	3	5	0	1	0	0	2	256	
Percent	1.6%	74.6%	14.8%	2.0%	2.3%	0.4%	0.0%	1.2%	2.0%	0.0%	0.4%	0.0%	0.0%	0.8%		
AM Peak	05:00	05:00	05:00	05:00	05:00	05:00		00:00	05:00		05:00			05:00		
Vol.	3	80	20	3	3	1		1	2		1			2		
PM Peak																
Vol.																
Grand Total	771	58821	5926	168	516	486	205	275	179	128	35	97	46	808	68461	
Percent	1.1%	85.9%	8.7%	0.2%	0.8%	0.7%	0.3%	0.4%	0.3%	0.2%	0.1%	0.1%	0.1%	1.2%		

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501EB  
 Date Printed: 08-Aug-20

Eastbound

Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	85th Percent	95th Percent
07/24/20	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	10	0	1	4	105	329	302	60	2	0	0	0	0	0	813	44	46
10:00	7	0	1	2	83	382	318	42	2	0	0	0	0	0	837	43	45
11:00	11	0	0	2	77	354	355	86	6	1	0	0	0	0	892	44	47
12 PM	9	0	0	11	73	379	388	73	4	0	0	0	0	0	937	44	47
13:00	14	0	0	11	102	436	368	81	4	1	0	0	0	0	1017	44	47
14:00	10	0	0	17	133	461	370	88	7	2	0	0	0	0	1088	44	47
15:00	8	0	0	2	80	405	404	85	7	0	0	0	0	0	991	44	47
16:00	8	0	0	14	51	328	416	87	7	0	0	0	0	0	911	44	47
17:00	12	0	2	14	89	410	313	98	6	1	0	0	0	0	945	44	47
18:00	19	0	0	4	24	254	360	107	12	1	1	0	0	0	782	45	48
19:00	4	0	0	4	25	209	298	103	8	1	0	0	0	0	652	45	48
20:00	2	0	0	2	28	158	222	59	6	1	1	0	0	0	479	44	48
21:00	3	0	0	5	19	124	142	32	7	0	0	0	0	0	332	44	48
22:00	0	0	0	1	19	82	78	30	5	0	0	0	0	0	215	45	49
23:00	0	0	0	0	4	42	41	15	5	0	0	0	0	0	107	46	49
Total	117	0	4	93	912	4353	4375	1046	88	8	2	0	0	0	10998		
Percent	1.1%	0.0%	0.0%	0.8%	8.3%	39.6%	39.8%	9.5%	0.8%	0.1%	0.0%	0.0%	0.0%	0.0%			
AM Peak	11:00		09:00	09:00	09:00	10:00	11:00	11:00	11:00	11:00					11:00		
Vol.	11		1	4	105	382	355	86	6	1					892		
PM Peak	18:00		17:00	14:00	14:00	14:00	16:00	18:00	18:00	14:00	18:00				14:00		
Vol.	19		2	17	133	461	416	107	12	2	1				1088		



# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501EB  
 Date Printed: 08-Aug-20

Eastbound																	
Start	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	85th	95th
Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Percent	Percent	
07/25/20	0	0	0	0	5	21	22	6	1	0	0	0	0	0	55	44	48
01:00	0	0	0	1	3	6	15	2	1	0	0	0	0	0	28	44	49
02:00	1	0	0	0	3	8	8	1	0	0	0	0	0	0	21	43	44
03:00	0	0	0	0	2	9	5	1	0	0	0	0	0	0	17	43	45
04:00	0	0	0	0	2	15	10	2	0	0	0	0	0	0	29	43	46
05:00	0	0	0	0	6	16	31	6	0	1	0	0	0	0	60	44	48
06:00	0	0	0	1	4	27	49	37	7	0	0	0	0	0	125	48	50
07:00	2	0	0	0	7	59	124	55	7	0	0	0	0	0	254	47	49
08:00	4	0	1	0	18	124	209	89	7	0	0	0	0	0	452	46	49
09:00	4	0	0	2	37	173	289	92	14	3	0	0	0	0	614	45	49
10:00	7	0	1	2	23	241	388	100	11	0	0	0	0	0	773	44	48
11:00	12	0	1	3	37	364	403	107	4	0	0	0	0	0	931	44	48
12 PM	15	0	0	3	73	404	381	80	4	2	0	0	0	0	962	44	47
13:00	14	0	1	6	56	345	408	83	8	3	0	0	0	0	924	44	47
14:00	12	0	0	1	32	338	447	126	9	3	0	0	0	0	968	44	48
15:00	12	0	0	2	59	375	433	89	5	1	0	0	0	0	976	44	47
16:00	15	0	0	0	66	372	376	79	13	1	0	0	0	0	922	44	47
17:00	12	0	0	3	83	302	342	96	9	0	1	0	0	0	848	44	48
18:00	10	0	0	3	41	222	318	101	11	0	0	0	0	0	706	45	48
19:00	15	0	0	2	35	186	257	93	14	2	0	0	0	0	604	45	49
20:00	3	0	0	1	25	182	190	70	5	0	0	0	0	0	476	45	48
21:00	6	0	1	2	25	140	142	30	4	2	0	0	0	0	352	44	48
22:00	0	0	0	1	14	103	78	22	2	0	0	0	0	0	220	44	47
23:00	0	0	1	1	12	56	45	14	0	1	0	0	0	0	130	44	48
Total	144	0	6	34	668	4088	4970	1381	136	19	1	0	0	0	11447		
Percent	1.3%	0.0%	0.1%	0.3%	5.8%	35.7%	43.4%	12.1%	1.2%	0.2%	0.0%	0.0%	0.0%	0.0%			
AM Peak	11:00		08:00	11:00	09:00	11:00	11:00	11:00	09:00	09:00							11:00
Vol.	12		1	3	37	364	403	107	14	3							931
PM Peak	12:00		13:00	13:00	17:00	12:00	14:00	14:00	19:00	13:00	17:00						15:00
Vol.	15		1	6	83	404	447	126	14	3	1						976

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501EB  
 Date Printed: 08-Aug-20

Eastbound

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	Total	85th Percent	95th Percent	
07/26/20	1	0	0	0	5	22	20	13	1	1	0	0	0	0	0	0	0	63	47	49	
01:00	1	0	0	0	5	17	15	2	0	0	0	0	0	0	0	0	0	40	43	45	
02:00	0	0	0	0	1	9	11	0	1	0	0	0	0	0	0	0	0	22	43	44	
03:00	0	0	0	0	4	3	7	1	0	1	0	0	0	0	0	0	0	16	44	55	
04:00	0	0	0	0	0	6	4	0	0	0	0	0	0	0	0	0	0	10	43	44	
05:00	1	0	0	0	3	10	10	0	1	0	0	0	0	0	0	0	0	25	43	44	
06:00	1	0	0	1	6	26	36	20	4	0	1	0	0	0	0	0	0	95	47	50	
07:00	0	1	0	0	8	36	64	46	15	5	0	0	0	0	0	0	0	175	49	53	
08:00	1	0	0	0	6	63	131	55	9	0	0	0	0	0	0	0	0	265	47	49	
09:00	5	0	0	0	22	84	214	70	17	1	0	0	0	0	0	0	0	413	46	49	
10:00	4	0	0	1	14	130	271	104	19	2	0	0	0	0	0	0	0	545	47	49	
11:00	1	0	0	2	16	218	348	106	5	0	0	0	0	0	0	0	0	696	45	48	
12 PM	10	0	2	3	22	338	378	92	9	1	0	0	0	0	0	0	0	855	44	48	
13:00	15	0	1	1	33	292	432	93	15	1	1	0	0	0	0	0	0	884	44	48	
14:00	16	0	0	1	20	257	408	111	7	0	0	0	0	0	0	0	0	820	44	48	
15:00	7	0	0	1	39	259	394	111	6	1	0	0	0	0	0	0	0	818	44	48	
16:00	9	0	0	1	33	285	368	107	12	1	1	0	0	0	0	0	0	817	44	48	
17:00	7	0	0	0	31	206	354	126	10	0	0	0	0	0	0	0	0	734	46	48	
18:00	10	0	0	2	29	182	313	115	17	1	0	0	0	0	0	0	0	669	46	49	
19:00	3	0	0	0	20	118	257	93	18	1	0	0	0	0	0	0	0	510	46	49	
20:00	7	0	0	2	22	121	192	58	14	4	0	0	0	0	0	0	0	420	46	49	
21:00	3	0	0	1	14	101	107	34	4	0	0	0	0	0	0	0	0	264	44	48	
22:00	1	0	0	2	25	40	63	26	12	3	0	0	0	0	0	0	0	172	47	52	
23:00	0	0	0	1	3	30	33	16	1	0	0	0	0	0	0	0	0	84	46	48	
<b>Total</b>	103	1	3	19	381	2853	4430	1399	197	23	3	0	0	0	0	0	0	9412			
Percent	1.1%	0.0%	0.0%	0.2%	4.0%	30.3%	47.1%	14.9%	2.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%				
AM Peak	09:00	07:00		11:00	09:00	11:00	11:00	11:00	10:00	07:00	06:00								11:00		
Vol.	5	1		2	22	218	348	106	19	5	1								696		
PM Peak	14:00		12:00	12:00	15:00	12:00	13:00	17:00	19:00	20:00	13:00								13:00		
Vol.	16		2	3	39	338	432	126	18	4	1								884		

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501EB  
 Date Printed: 08-Aug-20

Eastbound																	
Start	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	85th	95th
Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Percent	Percent	
07/27/20	1	0	0	1	1	13	24	12	3	0	0	0	0	0	55	47	50
01:00	0	0	0	0	2	5	5	1	0	0	0	0	0	0	13	44	46
02:00	0	0	0	0	4	9	4	1	0	0	0	0	0	0	18	42	45
03:00	0	0	0	1	3	4	6	2	0	0	0	0	0	0	16	44	47
04:00	0	0	0	0	2	11	8	2	0	0	0	0	0	0	23	44	47
05:00	1	0	0	1	9	35	65	16	3	0	0	0	0	0	130	44	48
06:00	1	0	0	0	1	63	155	104	<b>16</b>	<b>4</b>	0	0	0	0	344	48	50
07:00	6	0	0	0	15	109	276	<b>169</b>	10	1	0	0	0	0	586	47	49
08:00	3	0	0	1	27	<b>296</b>	344	117	11	0	0	0	0	0	799	45	48
09:00	<b>7</b>	0	0	1	20	242	<b>378</b>	105	11	0	<b>1</b>	0	0	0	765	45	48
10:00	7	0	<b>2</b>	6	38	270	359	106	13	1	0	0	0	0	802	44	48
11:00	7	0	2	<b>10</b>	<b>40</b>	285	341	107	15	1	0	0	0	0	<b>808</b>	45	48
12 PM	<b>15</b>	0	<b>4</b>	4	59	315	325	<b>134</b>	9	0	0	0	0	0	865	45	48
13:00	8	0	0	<b>15</b>	65	333	368	98	9	0	0	0	0	0	<b>896</b>	44	48
14:00	9	0	0	4	<b>69</b>	291	374	82	6	0	0	0	0	0	835	44	47
15:00	11	<b>1</b>	0	2	42	<b>334</b>	334	108	15	1	<b>1</b>	0	0	0	849	44	48
16:00	5	0	1	3	38	264	353	112	15	0	0	0	0	0	791	45	48
17:00	8	0	0	6	50	228	385	104	<b>17</b>	0	0	0	0	0	798	45	48
18:00	11	0	1	3	29	195	<b>396</b>	97	12	1	0	0	0	0	745	44	48
19:00	4	0	0	2	16	159	251	103	17	0	0	0	0	0	552	46	49
20:00	2	0	0	0	16	120	163	61	11	<b>2</b>	0	0	0	0	375	46	49
21:00	0	0	0	2	43	110	87	25	3	0	0	0	0	0	270	44	47
22:00	1	0	0	3	14	49	63	10	5	0	0	0	0	0	145	44	48
23:00	0	0	0	0	5	35	37	11	4	1	0	0	0	0	93	45	50
Total	107	1	10	65	608	3775	5101	1687	205	12	2	0	0	0	11573		
Percent	0.9%	0.0%	0.1%	0.6%	5.3%	32.6%	44.1%	14.6%	1.8%	0.1%	0.0%	0.0%	0.0%	0.0%			
AM Peak	09:00		10:00	11:00	11:00	08:00	09:00	07:00	06:00	06:00	09:00				11:00		
Vol.	7		2	10	40	296	378	169	16	4	1				808		
PM Peak	12:00	15:00	12:00	13:00	14:00	15:00	18:00	12:00	17:00	20:00	15:00				13:00		
Vol.	15	1	4	15	69	334	396	134	17	2	1				896		

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501EB  
 Date Printed: 08-Aug-20

Eastbound																	
Start	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	85th	95th
Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Percent	Percent	
07/28/20	0	0	0	0	5	15	15	5	2	0	0	0	0	0	42	45	49
01:00	0	0	0	0	2	4	4	3	0	0	0	0	0	0	13	46	48
02:00	0	0	0	0	5	11	3	0	0	0	0	0	0	0	19	40	43
03:00	0	0	0	0	3	7	5	4	0	0	0	0	0	0	19	46	48
04:00	0	0	0	0	2	21	4	1	0	0	0	0	0	0	28	41	44
05:00	0	0	0	2	10	37	60	16	0	0	0	0	0	0	125	44	48
06:00	1	0	0	0	6	57	177	105	23	1	1	0	0	0	371	48	51
07:00	5	0	0	0	14	115	312	156	23	1	0	0	0	0	626	47	49
08:00	9	0	0	2	26	248	399	133	13	1	0	0	0	0	831	45	48
09:00	10	0	0	7	50	282	355	108	15	1	0	0	0	0	828	44	48
10:00	7	0	0	0	44	265	397	98	17	0	0	0	0	0	828	44	48
11:00	8	0	0	4	32	304	403	96	6	0	0	0	0	0	853	44	48
12 PM	15	0	0	3	80	393	361	97	16	1	0	0	0	0	966	44	48
13:00	8	0	2	15	56	395	395	112	14	0	0	0	0	0	997	44	48
14:00	13	0	1	4	46	345	420	101	11	0	0	0	0	0	941	44	48
15:00	14	0	0	4	68	315	339	127	13	1	0	0	0	0	881	45	48
16:00	7	0	2	5	32	277	406	100	17	2	0	0	0	0	848	44	48
17:00	12	0	1	0	37	229	405	125	17	4	1	0	0	0	831	45	49
18:00	13	0	0	0	19	170	368	121	14	0	0	0	0	0	705	46	49
19:00	0	0	0	3	28	129	277	99	18	0	2	0	0	0	556	46	49
20:00	0	0	0	1	21	135	181	81	7	1	1	0	0	0	428	46	49
21:00	2	0	0	4	16	90	120	20	7	0	0	0	0	0	259	44	48
22:00	0	0	0	0	7	62	45	23	4	1	0	0	0	0	142	46	49
23:00	0	0	0	0	7	29	34	17	5	0	0	0	0	0	92	47	50
Total	124	0	6	54	616	3935	5485	1748	242	14	5	0	0	0	12229		
Percent	1.0%	0.0%	0.0%	0.4%	5.0%	32.2%	44.9%	14.3%	2.0%	0.1%	0.0%	0.0%	0.0%	0.0%			
AM Peak	09:00			09:00	09:00	11:00	11:00	07:00	06:00	06:00	06:00				11:00		
Vol.	10			7	50	304	403	156	23	1	1				853		
PM Peak	12:00		13:00	13:00	12:00	13:00	14:00	15:00	19:00	17:00	19:00				13:00		
Vol.	15		2	15	80	395	420	127	18	4	2				997		

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501EB  
 Date Printed: 08-Aug-20

Eastbound																	
Start	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	85th	95th
Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Percent	Percent	
07/29/20	1	0	0	2	4	15	19	8	5	0	0	0	0	0	54	48	52
01:00	0	0	0	1	2	8	7	0	4	1	0	0	0	0	23	51	54
02:00	0	0	0	0	2	12	4	0	0	0	0	0	0	0	18	41	43
03:00	0	0	0	0	1	13	9	3	1	0	0	0	0	0	27	44	49
04:00	0	0	0	0	3	16	19	5	1	0	0	0	0	0	44	44	48
05:00	0	0	0	2	5	46	53	17	7	0	0	0	0	0	130	46	50
06:00	3	0	0	1	5	44	164	108	23	0	0	0	0	0	348	48	51
07:00	5	0	0	1	13	103	312	166	28	1	0	0	0	0	629	48	49
08:00	21	0	1	2	38	240	385	117	13	0	0	0	0	0	817	45	48
09:00	6	0	1	2	34	296	374	91	14	5	0	0	0	0	823	44	48
10:00	3	0	0	0	46	298	375	76	8	3	0	0	0	0	809	44	48
11:00	10	0	0	0	30	349	339	91	5	2	1	0	0	0	827	44	48
12 PM	12	0	0	1	49	384	352	87	8	0	0	0	0	0	893	44	47
13:00	7	0	0	3	53	442	402	92	3	0	0	0	0	0	1002	44	47
14:00	11	0	0	6	51	384	388	93	5	0	0	0	0	0	938	44	47
15:00	9	0	0	1	48	353	410	106	13	0	0	0	0	0	940	44	48
16:00	4	0	0	3	62	327	368	111	11	2	0	0	0	0	888	44	48
17:00	10	0	0	2	66	312	376	115	10	1	0	0	0	0	892	44	48
18:00	7	0	0	4	30	280	369	116	13	2	0	0	0	0	821	45	48
19:00	2	0	0	1	13	144	311	97	16	1	0	0	0	0	585	46	49
20:00	2	0	0	0	20	144	209	65	10	2	1	1	0	0	454	45	49
21:00	2	0	0	5	34	132	103	34	7	0	1	0	0	0	318	44	48
22:00	1	0	0	0	10	60	73	12	4	0	0	0	0	0	160	44	48
23:00	2	0	0	0	5	28	49	19	2	1	0	0	0	0	106	46	49
Total	118	0	2	37	624	4430	5470	1629	211	21	3	1	0	0	12546		
Percent	0.9%	0.0%	0.0%	0.3%	5.0%	35.3%	43.6%	13.0%	1.7%	0.2%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00		08:00	00:00	10:00	11:00	08:00	07:00	07:00	09:00	11:00				11:00		
Vol.	21		1	2	46	349	385	166	28	5	1				827		
PM Peak	12:00			14:00	17:00	13:00	15:00	18:00	19:00	16:00	20:00	20:00			13:00		
Vol.	12			6	66	442	410	116	16	2	1	1			1002		

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501EB  
 Date Printed: 08-Aug-20

Eastbound

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total	85th Percent	95th Percent
07/30/20	0	0	0	0	5	15	13	6	3	1	1	0	0	0	44	48	54
01:00	0	0	0	0	2	9	6	4	0	0	0	0	0	0	21	46	48
02:00	0	0	0	1	1	9	2	1	1	0	0	0	0	0	15	44	51
03:00	0	0	0	0	3	6	9	1	1	0	0	0	0	0	20	44	50
04:00	0	0	0	0	2	10	18	3	1	0	0	0	0	0	34	44	48
05:00	2	0	0	0	7	38	50	17	1	1	0	0	0	0	116	45	48
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	2	0	0	1	20	87	98	32	7	2	1	0	0	0	250		
Percent	0.8%	0.0%	0.0%	0.4%	8.0%	34.8%	39.2%	12.8%	2.8%	0.8%	0.4%	0.0%	0.0%	0.0%			
AM Peak	05:00			02:00	05:00	05:00	05:00	05:00	00:00	00:00	00:00				05:00		
Vol.	2			1	7	38	50	17	3	1	1				116		
PM Peak																	
Vol.																	
Grand Total	715	2	31	303	3829	23521	29929	8922	1086	99	17	1	0	0	68455		
Percent	1.0%	0.0%	0.0%	0.4%	5.6%	34.4%	43.7%	13.0%	1.6%	0.1%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 36 MPH  
 50th Percentile : 40 MPH  
 85th Percentile : 44 MPH  
 95th Percentile : 48 MPH

Statistics  
 10 MPH Pace Speed : 36-45 MPH  
 Number in Pace : 53450  
 Percent in Pace : 78.1%  
 Number of Vehicles > 40 MPH : 40054  
 Percent of Vehicles > 40 MPH : 58.5%  
 Mean Speed(Average) : 41 MPH

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501EB  
 Date Printed: 08-Aug-20

Start Time	Mon 20-Jul-20	Tue 21-Jul-20	Wed 22-Jul-20	Thu 23-Jul-20	Fri 24-Jul-20	Average Day	Sat 25-Jul-20	Sun 26-Jul-20	Week Average
12:00 AM	*	*	*	*	*	*	55	63	59
01:00	*	*	*	*	*	*	28	40	34
02:00	*	*	*	*	*	*	21	22	22
03:00	*	*	*	*	*	*	17	16	16
04:00	*	*	*	*	*	*	29	10	20
05:00	*	*	*	*	*	*	60	25	42
06:00	*	*	*	*	*	*	125	95	110
07:00	*	*	*	*	*	*	254	175	214
08:00	*	*	*	*	*	*	452	265	358
09:00	*	*	*	*	813	813	614	413	613
10:00	*	*	*	*	837	837	773	545	718
11:00	*	*	*	*	<b>892</b>	<b>892</b>	<b>931</b>	<b>696</b>	<b>840</b>
12:00 PM	*	*	*	*	937	937	962	855	918
01:00	*	*	*	*	1017	1017	924	<b>884</b>	942
02:00	*	*	*	*	<b>1088</b>	<b>1088</b>	968	820	<b>959</b>
03:00	*	*	*	*	991	991	<b>976</b>	818	928
04:00	*	*	*	*	911	911	922	817	883
05:00	*	*	*	*	945	945	848	734	842
06:00	*	*	*	*	782	782	706	669	719
07:00	*	*	*	*	652	652	604	510	589
08:00	*	*	*	*	479	479	476	420	458
09:00	*	*	*	*	332	332	352	264	316
10:00	*	*	*	*	215	215	220	172	202
11:00	*	*	*	*	107	107	130	84	107
Day Total	0	0	0	0	10998	10998	11447	9412	10909
% Avg. WkDay	0.0%	0.0%	0.0%	0.0%	100.0%				
% Avg. Week	0.0%	0.0%	0.0%	0.0%	100.8%	100.8%	104.9%	86.3%	
AM Peak	-	-	-	-	11:00	11:00	11:00	11:00	11:00
Vol.	-	-	-	-	892	892	931	696	840
PM Peak	-	-	-	-	14:00	14:00	15:00	13:00	14:00
Vol.	-	-	-	-	1088	1088	976	884	959

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501EB  
 Date Printed: 08-Aug-20

Start Time	Mon 27-Jul-20	Tue 28-Jul-20	Wed 29-Jul-20	Thu 30-Jul-20	Fri 31-Jul-20	Average Day	Sat 01-Aug-20	Sun 02-Aug-20	Week Average
12:00 AM	55	42	54	44	*	49	*	*	49
01:00	13	13	23	21	*	18	*	*	18
02:00	18	19	18	15	*	18	*	*	18
03:00	16	19	27	20	*	20	*	*	20
04:00	23	28	44	34	*	32	*	*	32
05:00	130	125	130	116	*	125	*	*	125
06:00	344	371	348	<b>250</b>	*	328	*	*	328
07:00	586	626	629	*	*	614	*	*	614
08:00	799	831	817	*	*	816	*	*	816
09:00	765	828	823	*	*	805	*	*	805
10:00	802	828	809	*	*	813	*	*	813
11:00	<b>808</b>	<b>853</b>	<b>827</b>	*	*	<b>829</b>	*	*	<b>829</b>
12:00 PM	865	966	893	*	*	908	*	*	908
01:00	<b>896</b>	<b>997</b>	<b>1002</b>	*	*	<b>965</b>	*	*	<b>965</b>
02:00	835	941	938	*	*	905	*	*	905
03:00	849	881	940	*	*	890	*	*	890
04:00	791	848	888	*	*	842	*	*	842
05:00	798	831	892	*	*	840	*	*	840
06:00	745	705	821	*	*	757	*	*	757
07:00	552	556	585	*	*	564	*	*	564
08:00	375	428	454	*	*	419	*	*	419
09:00	270	259	318	*	*	282	*	*	282
10:00	145	142	160	*	*	149	*	*	149
11:00	93	92	106	*	*	97	*	*	97
Day Total	11573	12229	12546	500	0	12085	0	0	12085
% Avg. WkDay	95.8%	101.2%	103.8%	4.1%	0.0%				
% Avg. Week	95.8%	101.2%	103.8%	4.1%	0.0%	100.0%	0.0%	0.0%	
AM Peak	11:00	11:00	11:00	06:00	-	11:00	-	-	11:00
Vol.	808	853	827	250	-	829	-	-	829
PM Peak	13:00	13:00	13:00	-	-	13:00	-	-	13:00
Vol.	896	997	1002	-	-	965	-	-	965
Grand Total	11573	12229	12546	500	10998	23083	11447	9412	22994



ADT

ADT 11,632

AADT 11,632

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501  
 Date Printed: 08-Aug-20

Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
07/24/20	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	6	459	85	4	26	2	3	6	2	0	0	2	0	16	611
10:00	1	542	107	9	26	4	0	13	2	2	0	0	0	10	716
11:00	0	680	105	1	37	3	1	16	4	2	0	0	1	13	863
12 PM	9	766	156	3	36	6	1	23	5	2	1	2	0	14	1024
13:00	5	862	156	3	46	4	1	22	3	0	1	1	1	11	1116
14:00	13	861	162	3	30	6	2	19	3	2	2	0	0	18	1121
15:00	12	872	161	4	46	4	2	15	0	1	1	0	2	17	1137
16:00	12	899	155	8	38	5	3	21	2	2	0	0	0	32	1177
17:00	15	802	149	1	31	5	0	21	1	2	2	0	0	22	1051
18:00	8	702	120	3	16	4	0	3	0	3	0	0	0	13	872
19:00	4	564	70	0	15	0	0	5	1	0	0	0	1	8	668
20:00	2	405	53	0	15	0	1	1	1	0	0	0	0	2	480
21:00	2	270	44	0	8	0	1	2	0	0	0	1	0	0	328
22:00	1	141	21	0	5	0	0	2	1	0	0	0	0	1	172
23:00	2	109	9	0	4	0	0	2	0	0	0	0	0	0	126
Total	92	8934	1553	39	379	43	15	171	25	16	7	6	5	177	11462
Percent	0.8%	77.9%	13.5%	0.3%	3.3%	0.4%	0.1%	1.5%	0.2%	0.1%	0.1%	0.1%	0.0%	1.5%	
AM Peak	09:00	11:00	10:00	10:00	11:00	10:00	09:00	11:00	11:00	10:00		09:00	11:00	09:00	
Vol.	6	680	107	9	37	4	3	16	4	2		2	1	16	
PM Peak	17:00	16:00	14:00	16:00	13:00	12:00	16:00	12:00	12:00	18:00	14:00	12:00	15:00	16:00	
Vol.	15	899	162	8	46	6	3	23	5	3	2	2	2	32	

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501  
 Date Printed: 08-Aug-20

Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
07/25/20	0	56	12	0	2	0	0	0	0	0	0	0	0	0	70
01:00	0	24	2	1	1	0	0	0	1	0	0	0	0	0	29
02:00	0	12	2	0	0	0	0	1	0	0	0	0	0	0	15
03:00	0	16	2	0	1	0	0	0	0	0	0	0	0	0	19
04:00	0	12	3	1	0	0	0	1	0	0	0	0	0	0	17
05:00	0	27	5	2	3	0	0	1	1	0	0	0	0	0	39
06:00	0	77	14	2	2	0	0	0	0	0	0	0	0	0	95
07:00	0	172	29	1	10	0	0	2	1	0	0	0	0	1	216
08:00	3	310	47	1	21	0	0	6	2	1	0	0	0	7	398
09:00	4	438	99	1	19	0	1	1	0	0	1	0	0	8	572
10:00	4	632	103	2	34	0	0	11	2	0	1	0	0	9	798
11:00	12	753	129	0	25	1	0	20	0	1	3	1	0	14	959
12 PM	10	811	123	0	24	0	1	13	2	0	0	0	2	12	998
13:00	8	866	119	1	30	3	0	15	1	0	0	1	0	11	1055
14:00	9	804	110	1	32	0	1	12	1	1	2	0	0	16	989
15:00	13	774	113	0	17	5	0	17	2	4	1	0	0	19	965
16:00	8	683	111	1	26	1	0	6	0	2	0	0	0	8	846
17:00	10	589	117	0	25	0	1	10	0	0	2	0	0	7	761
18:00	4	543	89	0	20	0	0	14	1	0	0	0	0	10	681
19:00	2	432	80	0	12	2	0	3	0	1	0	0	0	3	535
20:00	4	354	55	0	10	2	0	2	0	0	1	0	0	6	434
21:00	0	235	39	0	7	0	0	0	0	0	0	0	0	1	282
22:00	1	151	29	0	4	0	0	1	1	0	0	0	0	2	189
23:00	3	77	13	0	6	0	0	0	0	0	0	0	0	1	100
Total	95	8848	1445	14	331	14	4	136	15	10	11	2	2	135	11062
Percent	0.9%	80.0%	13.1%	0.1%	3.0%	0.1%	0.0%	1.2%	0.1%	0.1%	0.1%	0.0%	0.0%	1.2%	
AM Peak	11:00	11:00	11:00	05:00	10:00	11:00	09:00	11:00	08:00	08:00	11:00	11:00		11:00	
Vol.	12	753	129	2	34	1	1	20	2	1	3	1		14	
PM Peak	15:00	13:00	12:00	13:00	14:00	15:00	12:00	15:00	12:00	15:00	14:00	13:00	12:00	15:00	
Vol.	13	866	123	1	32	5	1	17	2	4	2	1	2	19	

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501  
 Date Printed: 08-Aug-20

Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
07/26/20	0	49	11	0	1	0	0	0	0	0	0	0	0	0	61
01:00	0	24	5	0	3	0	0	0	0	0	0	0	0	0	32
02:00	1	19	3	1	0	0	0	0	0	0	0	0	0	0	24
03:00	0	13	1	0	1	0	0	0	0	0	0	0	0	0	15
04:00	0	9	2	0	0	0	0	0	0	0	0	0	0	0	11
05:00	0	19	3	0	3	0	0	2	0	0	0	0	0	0	27
06:00	3	56	9	0	0	0	0	1	1	0	0	0	0	0	70
07:00	2	115	21	0	7	0	0	0	0	0	0	0	0	1	146
08:00	4	221	44	1	16	0	0	1	1	0	0	0	0	3	291
09:00	3	302	59	0	11	0	0	5	0	0	0	0	0	5	385
10:00	4	459	81	0	16	0	0	3	2	0	0	0	0	8	573
11:00	7	554	107	1	13	0	1	9	1	1	0	0	0	13	707
12 PM	8	760	127	0	16	2	1	9	1	2	0	0	2	14	942
13:00	7	709	91	1	15	1	0	13	0	1	2	1	0	10	851
14:00	12	769	100	0	23	1	1	13	0	2	0	0	1	16	938
15:00	4	665	120	0	23	2	0	9	0	2	1	1	0	13	840
16:00	9	540	115	0	17	0	0	6	1	0	0	0	0	13	701
17:00	11	497	65	0	14	0	0	6	0	1	0	0	0	5	599
18:00	4	459	61	0	22	1	1	6	1	0	0	1	0	3	559
19:00	6	343	40	0	10	1	0	5	2	1	1	0	0	6	415
20:00	1	255	37	0	14	0	1	2	1	0	0	0	0	5	316
21:00	6	212	35	0	5	0	0	3	0	0	0	0	0	0	261
22:00	0	98	8	0	4	0	0	1	0	0	0	0	0	0	111
23:00	0	57	7	0	2	0	0	0	0	0	0	0	0	0	66
Total	92	7204	1152	4	236	8	5	94	11	10	4	3	3	115	8941
Percent	1.0%	80.6%	12.9%	0.0%	2.6%	0.1%	0.1%	1.1%	0.1%	0.1%	0.0%	0.0%	0.0%	1.3%	
AM Peak	11:00	11:00	11:00	02:00	08:00		11:00	11:00	10:00	11:00				11:00	
Vol.	7	554	107	1	16		1	9	2	1				13	
PM Peak	14:00	14:00	12:00	13:00	14:00	12:00	12:00	13:00	19:00	12:00	13:00	13:00	12:00	14:00	
Vol.	12	769	127	1	23	2	1	13	2	2	2	1	2	16	

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501  
 Date Printed: 08-Aug-20

Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
07/27/20	0	38	6	0	1	0	0	1	1	0	0	0	0	1	48
01:00	0	14	2	1	2	0	0	0	0	0	0	0	0	0	19
02:00	0	11	1	0	0	0	0	0	1	0	0	0	0	0	13
03:00	0	8	1	0	0	0	0	0	0	0	0	0	0	0	9
04:00	0	15	4	3	0	0	0	0	0	0	0	0	0	0	22
05:00	0	46	7	1	7	0	0	2	2	0	0	0	0	0	65
06:00	1	112	22	5	12	2	0	3	4	0	0	0	0	2	163
07:00	3	199	47	7	33	1	1	6	2	0	0	0	0	2	301
08:00	3	324	74	5	25	3	2	9	3	0	1	0	0	12	461
09:00	2	400	99	1	28	2	0	11	0	1	0	0	0	8	552
10:00	3	481	108	1	32	7	2	9	4	0	0	0	0	18	665
11:00	3	571	140	9	32	7	0	12	2	1	1	0	0	15	793
12 PM	1	708	129	2	37	1	1	24	3	0	0	0	1	6	913
13:00	6	666	122	6	31	0	0	17	5	3	0	0	0	10	866
14:00	4	683	119	2	24	5	0	15	3	2	1	0	1	13	872
15:00	5	757	146	2	38	4	0	22	2	2	0	0	0	17	995
16:00	5	757	154	2	41	6	1	24	0	4	2	0	1	17	1014
17:00	13	788	126	3	32	2	1	22	0	1	0	0	0	14	1002
18:00	9	610	101	2	17	0	2	9	1	2	0	0	1	11	765
19:00	7	433	56	1	18	1	0	8	1	0	0	1	1	1	528
20:00	4	326	54	0	15	0	0	3	0	0	0	0	0	4	406
21:00	4	202	26	0	9	0	0	0	0	0	0	0	0	0	241
22:00	0	127	13	0	11	0	0	3	0	0	0	0	0	1	155
23:00	1	61	3	0	2	0	0	0	0	0	0	0	0	0	67
Total	74	8337	1560	53	447	41	10	200	34	16	5	1	5	152	10935
Percent	0.7%	76.2%	14.3%	0.5%	4.1%	0.4%	0.1%	1.8%	0.3%	0.1%	0.0%	0.0%	0.0%	1.4%	
AM Peak	07:00	11:00	11:00	11:00	07:00	10:00	08:00	11:00	06:00	09:00	08:00			10:00	
Vol.	3	571	140	9	33	7	2	12	4	1	1			18	
PM Peak	17:00	17:00	16:00	13:00	16:00	16:00	18:00	12:00	13:00	16:00	16:00	19:00	12:00	15:00	
Vol.	13	788	154	6	41	6	2	24	5	4	2	1	1	17	

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501  
 Date Printed: 08-Aug-20

Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
07/28/20	0	49	9	0	2	0	0	1	0	0	0	0	0	0	61
01:00	0	11	2	2	1	0	0	0	0	0	0	0	0	0	16
02:00	0	13	1	0	0	0	0	0	0	0	0	0	0	0	14
03:00	0	8	3	0	1	0	0	1	0	0	0	0	0	0	13
04:00	0	12	1	4	0	2	0	3	0	0	0	0	0	0	22
05:00	0	47	15	2	10	0	0	1	3	0	0	0	0	0	78
06:00	0	110	27	10	10	2	1	1	4	0	0	0	0	2	167
07:00	7	263	48	4	23	2	1	5	3	0	2	0	0	2	360
08:00	2	347	84	4	30	8	1	7	5	3	0	0	0	6	497
09:00	5	447	104	4	37	4	0	8	2	0	0	0	0	6	617
10:00	4	526	121	5	37	1	1	10	1	1	0	0	1	3	711
11:00	5	638	138	2	41	3	0	8	4	0	0	0	1	10	850
12 PM	3	685	121	3	41	0	1	21	2	2	1	2	0	20	902
13:00	7	753	119	1	32	4	1	16	1	0	2	1	1	9	947
14:00	7	745	139	1	26	3	4	14	6	2	1	0	0	13	961
15:00	7	778	171	3	42	1	2	19	3	1	0	1	0	26	1054
16:00	14	873	161	2	35	3	3	13	0	1	0	0	0	28	1133
17:00	10	872	144	2	18	1	0	18	0	0	2	0	0	23	1090
18:00	4	647	106	3	17	1	1	13	0	1	0	1	0	4	798
19:00	4	497	77	0	11	0	0	3	0	0	0	0	0	7	599
20:00	2	389	52	0	8	1	0	2	1	0	0	0	0	3	458
21:00	2	245	32	0	10	0	0	3	1	0	0	0	0	1	294
22:00	0	122	17	0	5	0	0	2	2	0	0	0	0	1	149
23:00	0	74	10	0	1	0	0	1	2	0	0	0	0	0	88
Total	83	9151	1702	52	438	36	16	170	40	11	8	5	3	164	11879
Percent	0.7%	77.0%	14.3%	0.4%	3.7%	0.3%	0.1%	1.4%	0.3%	0.1%	0.1%	0.0%	0.0%	1.4%	
AM Peak	07:00	11:00	11:00	06:00	11:00	08:00	06:00	10:00	08:00	08:00	07:00		10:00	11:00	
Vol.	7	638	138	10	41	8	1	10	5	3	2		1	10	
PM Peak	16:00	16:00	15:00	12:00	15:00	13:00	14:00	12:00	14:00	12:00	13:00	12:00	13:00	16:00	
Vol.	14	873	171	3	42	4	4	21	6	2	2	2	1	28	

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501  
 Date Printed: 08-Aug-20

Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
07/29/20	1	53	3	0	1	0	0	0	0	0	0	0	0	0	58
01:00	0	18	3	1	1	0	0	0	0	0	0	0	0	0	23
02:00	0	13	0	0	1	0	0	1	0	0	0	0	0	0	15
03:00	0	13	2	2	2	0	0	1	0	0	0	0	0	0	20
04:00	0	22	1	3	2	0	0	1	1	0	0	0	0	0	30
05:00	0	44	11	6	8	0	0	1	0	0	0	0	0	0	70
06:00	1	110	33	8	12	3	1	2	1	0	0	0	0	0	171
07:00	1	222	62	4	20	4	1	3	2	1	0	1	0	2	323
08:00	9	390	83	4	28	5	2	11	6	2	1	0	0	5	546
09:00	3	452	85	7	18	4	2	11	3	1	0	1	1	7	595
10:00	2	509	82	7	47	2	2	6	1	1	1	0	0	6	666
11:00	7	633	115	4	27	4	1	14	5	1	1	0	1	10	823
12 PM	8	671	139	5	37	1	1	22	1	1	0	0	0	22	908
13:00	2	697	138	4	33	3	1	12	0	2	1	0	0	15	908
14:00	11	721	151	2	27	4	1	15	0	3	1	1	1	21	959
15:00	11	835	170	4	44	6	1	25	2	3	2	0	1	18	1122
16:00	13	862	163	0	30	2	4	22	0	2	2	1	1	23	1125
17:00	14	878	137	3	27	0	0	18	2	3	3	1	0	10	1096
18:00	6	646	94	3	21	5	1	5	0	3	0	0	0	14	798
19:00	8	506	80	0	14	0	1	5	1	1	0	0	0	4	620
20:00	7	405	74	1	12	0	1	2	0	0	1	0	0	5	508
21:00	0	238	45	0	5	1	0	2	0	0	0	0	0	2	293
22:00	1	140	23	0	4	0	0	3	0	0	0	0	0	0	171
23:00	2	80	8	0	4	0	0	1	0	0	0	0	0	1	96
Total	107	9158	1702	68	425	44	20	183	25	24	13	5	5	165	11944
Percent	0.9%	76.7%	14.2%	0.6%	3.6%	0.4%	0.2%	1.5%	0.2%	0.2%	0.1%	0.0%	0.0%	1.4%	
AM Peak	08:00	11:00	11:00	06:00	10:00	08:00	08:00	11:00	08:00	08:00	08:00	07:00	09:00	11:00	
Vol.	9	633	115	8	47	5	2	14	6	2	1	1	1	10	
PM Peak	17:00	17:00	15:00	12:00	15:00	15:00	16:00	15:00	15:00	14:00	17:00	14:00	14:00	16:00	
Vol.	14	878	170	5	44	6	4	25	2	3	3	1	1	23	

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501  
 Date Printed: 08-Aug-20

Westbound

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Not Classed	Total
07/30/20	0	58	4	0	1	0	0	0	1	0	0	0	0	0	64
01:00	0	16	2	0	2	0	0	1	1	0	0	0	0	0	22
02:00	0	11	3	1	0	0	0	2	0	0	0	0	0	0	17
03:00	0	9	3	1	0	0	0	0	0	0	0	0	0	0	13
04:00	0	13	2	4	0	1	0	1	0	0	0	0	0	0	21
05:00	0	37	12	4	10	1	0	1	1	0	0	0	0	0	66
06:00	1	85	32	6	12	2	1	3	1	0	0	0	0	17	160
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	1	229	58	16	25	4	1	8	4	0	0	0	0	17	363
Percent	0.3%	63.1%	16.0%	4.4%	6.9%	1.1%	0.3%	2.2%	1.1%	0.0%	0.0%	0.0%	0.0%	4.7%	
AM Peak	06:00	06:00	06:00	06:00	06:00	06:00	06:00	06:00	00:00					06:00	
Vol.	1	85	32	6	12	2	1	3	1					17	
PM Peak															
Vol.															
Grand Total	544	51861	9172	246	2281	190	71	962	154	87	48	22	23	925	66586
Percent	0.8%	77.9%	13.8%	0.4%	3.4%	0.3%	0.1%	1.4%	0.2%	0.1%	0.1%	0.0%	0.0%	1.4%	



# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501  
 Date Printed: 08-Aug-20

Westbound

Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	85th Percent	95th Percent
	15	20	25	30	35	40	45	50	55	60	65	70	75	999			
07/24/20	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	<b>20</b>	0	<b>2</b>	3	18	107	225	163	56	13	<b>3</b>	1	0	0	611	49	53
10:00	7	<b>2</b>	0	<b>4</b>	11	99	272	221	74	<b>18</b>	2	<b>4</b>	<b>1</b>	<b>1</b>	716	49	54
11:00	8	0	0	2	<b>24</b>	<b>118</b>	<b>326</b>	<b>256</b>	<b>108</b>	16	3	2	0	0	<b>863</b>	49	53
12 PM	11	0	0	1	21	139	396	316	118	20	2	0	0	0	1024	49	53
13:00	6	0	1	4	31	<b>202</b>	409	349	89	21	2	2	0	0	1116	49	53
14:00	16	0	<b>2</b>	<b>6</b>	18	162	407	365	108	24	<b>7</b>	<b>6</b>	0	0	1121	49	54
15:00	15	0	0	1	<b>32</b>	138	<b>441</b>	347	128	32	3	0	0	0	1137	49	54
16:00	<b>26</b>	0	0	4	24	195	427	330	140	24	5	2	0	0	<b>1177</b>	49	54
17:00	18	<b>1</b>	0	0	10	91	338	<b>404</b>	<b>158</b>	23	4	3	<b>1</b>	0	1051	50	54
18:00	10	0	0	1	8	66	267	360	119	<b>33</b>	5	3	0	0	872	51	54
19:00	7	0	0	0	5	50	215	233	119	29	6	2	1	1	668	52	55
20:00	2	0	0	2	9	39	135	175	90	21	4	1	1	1	480	52	55
21:00	0	0	0	1	2	34	118	118	39	13	3	0	0	0	328	50	54
22:00	0	0	0	0	4	13	50	61	29	12	2	0	1	0	172	53	57
23:00	0	0	0	1	1	12	35	39	27	6	3	0	0	<b>2</b>	126	53	57
Total	146	3	5	30	218	1465	4061	3737	1402	305	54	26	5	5	11462		
Percent	1.3%	0.0%	0.0%	0.3%	1.9%	12.8%	35.4%	32.6%	12.2%	2.7%	0.5%	0.2%	0.0%	0.0%			
AM Peak	09:00	10:00	09:00	10:00	11:00	11:00	11:00	11:00	11:00	10:00	09:00	10:00	10:00	10:00	11:00		
Vol.	20	2	2	4	24	118	326	256	108	18	3	4	1	1	863		
PM Peak	16:00	17:00	14:00	14:00	15:00	13:00	15:00	17:00	17:00	18:00	14:00	14:00	17:00	23:00	16:00		
Vol.	26	1	2	6	32	202	441	404	158	33	7	6	1	2	1177		

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501  
 Date Printed: 08-Aug-20

Westbound

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total	85th Percent	95th Percent
07/25/20	0	0	0	0	0	7	26	25	7	3	2	0	0	0	70	51	57
01:00	0	0	0	0	2	3	12	6	5	0	0	1	0	0	29	51	54
02:00	0	0	1	1	1	1	4	4	2	1	0	0	0	0	15	51	56
03:00	0	0	0	0	1	1	8	3	2	3	1	0	0	0	19	56	60
04:00	0	0	0	0	0	4	3	6	3	1	0	0	0	0	17	52	55
05:00	0	0	0	0	3	2	12	10	8	3	1	0	0	0	39	53	58
06:00	0	0	0	0	0	9	20	31	23	9	3	0	0	0	95	54	59
07:00	1	0	0	0	4	18	52	75	41	21	3	1	0	0	216	54	58
08:00	7	0	0	2	4	24	104	158	69	20	7	2	0	1	398	52	57
09:00	7	0	0	0	5	53	185	193	95	19	12	2	1	0	572	52	56
10:00	7	0	0	1	8	59	250	309	127	30	4	2	1	0	798	51	54
11:00	9	0	0	1	9	95	337	318	153	28	5	3	1	0	959	51	54
12 PM	12	0	1	1	8	129	344	357	115	26	5	0	0	0	998	49	54
13:00	10	0	0	5	11	120	375	368	131	31	3	1	0	0	1055	50	54
14:00	13	0	0	0	8	116	352	350	113	26	5	1	4	1	989	50	54
15:00	20	0	0	1	12	102	348	341	114	24	1	1	0	1	965	49	54
16:00	7	0	1	0	10	63	264	336	122	33	8	2	0	0	846	51	55
17:00	6	0	0	0	7	85	244	258	126	28	6	1	0	0	761	51	54
18:00	8	0	0	1	5	43	234	254	103	21	9	1	2	0	681	51	54
19:00	0	0	0	0	5	39	146	202	103	30	6	2	1	1	535	53	57
20:00	4	0	0	0	5	43	166	148	52	10	5	0	0	1	434	50	54
21:00	1	0	1	1	3	35	74	107	47	10	3	0	0	0	282	51	54
22:00	2	0	0	0	1	18	51	75	29	11	0	1	1	0	189	52	56
23:00	1	0	1	2	4	13	28	35	9	5	2	0	0	0	100	50	57
Total	115	0	5	16	116	1082	3639	3969	1599	393	91	21	11	5	11062		
Percent	1.0%	0.0%	0.0%	0.1%	1.0%	9.8%	32.9%	35.9%	14.5%	3.6%	0.8%	0.2%	0.1%	0.0%			
AM Peak	11:00		02:00	08:00	11:00	11:00	11:00	11:00	11:00	10:00	09:00	11:00	09:00	08:00	11:00		
Vol.	9		1	2	9	95	337	318	153	30	12	3	1	1	959		
PM Peak	15:00		12:00	13:00	15:00	12:00	13:00	13:00	13:00	16:00	18:00	16:00	14:00	14:00	13:00		
Vol.	20		1	5	12	129	375	368	131	33	9	2	4	1	1055		

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501  
 Date Printed: 08-Aug-20

Westbound

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total	85th Percent	95th Percent
07/26/20	0	0	0	0	4	8	15	19	11	2	1	0	0	1	61	52	55
01:00	0	0	0	0	0	3	8	11	7	2	0	1	0	0	32	53	58
02:00	0	0	1	0	1	1	4	10	4	3	0	0	0	0	24	54	58
03:00	0	0	0	1	0	2	2	5	2	3	0	0	0	0	15	56	58
04:00	0	0	0	0	1	1	6	2	1	0	0	0	0	0	11	48	52
05:00	0	0	1	0	2	2	6	8	4	3	1	0	0	0	27	54	59
06:00	0	0	1	0	2	5	10	29	13	10	0	0	0	0	70	54	58
07:00	1	0	0	1	3	8	35	53	33	11	1	0	0	0	146	53	57
08:00	2	0	0	0	2	34	71	104	56	19	2	1	0	0	291	53	56
09:00	3	0	0	0	2	27	93	153	67	28	8	0	1	3	385	53	58
10:00	8	0	1	0	4	45	201	197	96	18	3	0	0	0	573	51	54
11:00	13	0	0	1	3	73	198	261	125	31	1	1	0	0	707	52	54
12 PM	11	0	0	0	7	79	342	339	134	25	3	1	1	0	942	50	54
13:00	9	0	0	0	5	57	267	328	152	30	3	0	0	0	851	51	54
14:00	11	0	0	1	3	82	321	353	136	25	2	3	1	0	938	50	54
15:00	12	0	1	1	2	56	275	297	149	40	7	0	0	0	840	52	55
16:00	15	0	0	1	5	39	211	263	119	38	7	2	0	1	701	52	56
17:00	5	0	1	1	3	42	172	222	104	34	10	4	1	0	599	53	57
18:00	2	0	0	1	3	29	145	237	102	29	9	2	0	0	559	52	57
19:00	4	0	0	1	2	32	117	165	75	11	6	1	1	0	415	52	54
20:00	4	0	0	1	3	25	79	120	66	13	5	0	0	0	316	52	55
21:00	0	0	2	7	6	29	87	80	33	15	1	0	1	0	261	51	56
22:00	0	0	0	0	3	16	26	29	28	9	0	0	0	0	111	53	56
23:00	0	0	1	0	2	7	20	16	10	8	2	0	0	0	66	55	59
Total	100	0	9	17	68	702	2711	3301	1527	407	72	16	6	5	8941		
Percent	1.1%	0.0%	0.1%	0.2%	0.8%	7.9%	30.3%	36.9%	17.1%	4.6%	0.8%	0.2%	0.1%	0.1%			
AM Peak	11:00		02:00	03:00	00:00	11:00	10:00	11:00	11:00	11:00	09:00	01:00	09:00	09:00	11:00		
Vol.	13		1	1	4	73	201	261	125	31	8	1	1	3	707		
PM Peak	16:00		21:00	21:00	12:00	14:00	12:00	14:00	13:00	15:00	17:00	17:00	12:00	16:00	12:00		
Vol.	15		2	7	7	82	342	353	152	40	10	4	1	1	942		

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501  
 Date Printed: 08-Aug-20

Westbound

Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	85th Percent	95th Percent
07/27/20	1	0	0	1	2	5	15	11	7	5	1	0	0	0	48	54	58
01:00	0	0	0	2	1	2	6	4	3	0	1	0	0	0	19	51	60
02:00	0	0	0	0	1	1	7	1	2	1	0	0	0	0	13	52	56
03:00	0	0	0	0	0	0	3	4	2	0	0	0	0	0	9	51	53
04:00	0	0	0	0	1	3	7	8	1	1	0	1	0	0	22	49	59
05:00	0	0	0	0	0	8	17	26	11	2	1	0	0	0	65	51	54
06:00	2	0	0	3	1	10	33	51	36	18	6	2	1	0	163	55	60
07:00	2	0	0	0	4	15	78	110	63	17	10	2	0	0	301	53	59
08:00	13	0	0	2	14	56	96	171	75	27	6	0	0	1	461	52	56
09:00	7	1	1	0	6	55	174	186	97	17	6	2	0	0	552	52	54
10:00	15	0	1	1	23	81	219	207	99	15	3	1	0	0	665	50	54
11:00	15	0	0	1	19	95	271	267	97	22	3	3	0	0	793	50	54
12 PM	5	0	1	1	19	104	327	309	112	23	8	4	0	0	913	50	54
13:00	10	0	1	3	9	94	304	271	140	28	4	1	1	0	866	51	54
14:00	10	0	0	4	14	107	312	271	122	28	3	1	0	0	872	50	54
15:00	15	0	0	1	1	78	328	353	159	51	6	3	0	0	995	52	56
16:00	15	0	0	2	10	100	359	332	159	33	4	0	0	0	1014	51	54
17:00	10	0	2	2	7	73	330	394	147	32	4	0	0	1	1002	51	54
18:00	7	0	0	3	3	36	222	319	120	43	9	2	1	0	765	52	56
19:00	2	0	0	0	4	44	139	195	102	33	8	1	0	0	528	53	57
20:00	3	0	0	0	6	32	130	139	78	14	4	0	0	0	406	52	54
21:00	0	0	0	3	5	24	81	77	41	8	2	0	0	0	241	51	54
22:00	1	0	0	0	3	15	40	56	30	10	0	0	0	0	155	52	56
23:00	0	0	0	0	1	8	19	14	20	2	0	3	0	0	67	53	59
<b>Total</b>	<b>133</b>	<b>1</b>	<b>6</b>	<b>29</b>	<b>154</b>	<b>1046</b>	<b>3517</b>	<b>3776</b>	<b>1723</b>	<b>430</b>	<b>89</b>	<b>26</b>	<b>3</b>	<b>2</b>	<b>10935</b>		
<b>Percent</b>	<b>1.2%</b>	<b>0.0%</b>	<b>0.1%</b>	<b>0.3%</b>	<b>1.4%</b>	<b>9.6%</b>	<b>32.2%</b>	<b>34.5%</b>	<b>15.8%</b>	<b>3.9%</b>	<b>0.8%</b>	<b>0.2%</b>	<b>0.0%</b>	<b>0.0%</b>			
<b>AM Peak</b>	<b>10:00</b>	<b>09:00</b>	<b>09:00</b>	<b>06:00</b>	<b>10:00</b>	<b>11:00</b>	<b>11:00</b>	<b>11:00</b>	<b>10:00</b>	<b>08:00</b>	<b>07:00</b>	<b>11:00</b>	<b>06:00</b>	<b>08:00</b>	<b>11:00</b>		
<b>Vol.</b>	<b>15</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>23</b>	<b>95</b>	<b>271</b>	<b>267</b>	<b>99</b>	<b>27</b>	<b>10</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>793</b>		
<b>PM Peak</b>	<b>15:00</b>		<b>17:00</b>	<b>14:00</b>	<b>12:00</b>	<b>14:00</b>	<b>16:00</b>	<b>17:00</b>	<b>15:00</b>	<b>15:00</b>	<b>18:00</b>	<b>12:00</b>	<b>13:00</b>	<b>17:00</b>	<b>16:00</b>		
<b>Vol.</b>	<b>15</b>		<b>2</b>	<b>4</b>	<b>19</b>	<b>107</b>	<b>359</b>	<b>394</b>	<b>159</b>	<b>51</b>	<b>9</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>1014</b>		

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501  
 Date Printed: 08-Aug-20

Westbound

Start Time	15	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	85th Percent	95th Percent
07/28/20	0	0	0	1	0	11	13	17	15	3	0	1	0	0	61	53	56
01:00	0	0	0	0	2	3	4	5	1	1	0	0	0	0	16	49	55
02:00	0	0	0	0	1	4	3	3	2	1	0	0	0	0	14	52	56
03:00	0	0	0	0	1	1	5	3	0	2	1	0	0	0	13	57	61
04:00	0	0	0	0	2	6	6	5	2	1	0	0	0	0	22	49	54
05:00	0	0	0	0	5	14	19	22	14	4	0	0	0	0	78	52	55
06:00	2	0	0	0	3	21	39	54	26	19	1	1	1	0	167	54	58
07:00	3	0	0	2	5	21	94	132	70	24	7	2	0	0	360	53	58
08:00	3	0	0	3	4	47	141	165	103	25	4	2	0	0	497	52	56
09:00	7	0	0	0	15	85	211	199	74	20	4	2	0	0	617	50	54
10:00	1	0	0	2	22	83	251	217	104	25	6	0	0	0	711	51	54
11:00	9	0	3	9	26	141	294	257	79	26	6	0	0	0	850	49	54
12 PM	15	0	0	3	25	122	312	317	91	10	5	1	0	1	902	49	53
13:00	8	0	0	2	26	127	357	302	96	26	3	0	0	0	947	49	54
14:00	12	0	1	1	16	144	350	292	127	17	1	0	0	0	961	50	53
15:00	24	0	1	0	13	109	349	385	139	29	4	0	1	0	1054	50	54
16:00	25	0	0	1	18	121	418	384	133	25	5	2	0	1	1133	49	54
17:00	20	1	2	1	13	117	383	397	113	36	5	2	0	0	1090	49	54
18:00	2	0	0	3	2	54	299	288	117	28	4	1	0	0	798	51	54
19:00	7	0	0	1	3	44	178	236	97	25	6	2	0	0	599	52	55
20:00	2	0	1	0	5	44	149	157	76	18	4	1	1	0	458	52	55
21:00	1	0	0	0	1	27	103	93	47	17	4	0	1	0	294	52	57
22:00	1	0	0	0	3	18	43	54	23	5	2	0	0	0	149	51	54
23:00	0	0	0	0	4	8	23	34	9	9	0	0	1	0	88	53	58
Total	142	1	8	29	215	1372	4044	4018	1558	396	72	17	5	2	11879		
Percent	1.2%	0.0%	0.1%	0.2%	1.8%	11.5%	34.0%	33.8%	13.1%	3.3%	0.6%	0.1%	0.0%	0.0%			
AM Peak	11:00		11:00	11:00	11:00	11:00	11:00	11:00	10:00	11:00	07:00	07:00	06:00		11:00		
Vol.	9		3	9	26	141	294	257	104	26	7	2	1		850		
PM Peak	16:00	17:00	17:00	12:00	13:00	14:00	16:00	17:00	15:00	17:00	19:00	16:00	15:00	12:00	16:00		
Vol.	25	1	2	3	26	144	418	397	139	36	6	2	1	1	1133		

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501  
 Date Printed: 08-Aug-20

Westbound

Start Time	15	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	85th Percent	95th Percent
07/29/20	0	0	1	0	2	7	16	20	8	1	0	1	2	0	58	52	65
01:00	0	0	0	0	4	3	5	5	2	4	0	0	0	0	23	55	58
02:00	0	0	0	0	1	2	6	2	1	2	0	0	0	1	15	54	58
03:00	0	0	0	0	0	3	4	9	2	2	0	0	0	0	20	52	57
04:00	0	0	0	0	1	4	9	9	3	4	0	0	0	0	30	54	58
05:00	0	0	1	0	1	11	21	23	9	3	1	0	0	0	70	51	55
06:00	0	0	0	0	3	13	32	59	43	17	3	1	0	0	171	54	58
07:00	1	0	0	0	5	26	63	100	95	26	6	1	0	0	323	54	58
08:00	8	0	0	1	20	61	163	169	91	25	6	0	2	0	546	52	56
09:00	4	0	0	3	5	71	223	186	74	28	1	0	0	0	595	50	54
10:00	6	0	0	1	7	63	206	252	110	18	1	2	0	0	666	51	54
11:00	9	0	1	1	14	109	321	248	97	21	2	0	0	0	823	49	54
12 PM	24	0	0	1	9	111	331	285	116	23	4	1	0	3	908	50	54
13:00	13	0	0	3	12	111	332	302	111	21	3	0	0	0	908	49	54
14:00	15	0	1	1	7	110	365	313	121	21	3	1	1	0	959	50	54
15:00	18	0	3	1	31	107	380	405	141	29	4	2	0	1	1122	50	54
16:00	22	1	0	3	20	114	371	394	153	36	10	1	0	0	1125	51	54
17:00	11	0	0	1	22	148	356	377	147	22	7	3	1	1	1096	50	54
18:00	15	0	0	0	4	72	209	310	148	33	6	1	0	0	798	52	55
19:00	5	0	0	0	6	40	208	224	102	28	3	4	0	0	620	52	55
20:00	5	0	0	0	3	48	153	180	87	22	6	2	1	1	508	52	56
21:00	1	0	0	0	2	14	87	105	65	14	2	1	2	0	293	53	56
22:00	0	0	0	1	3	17	51	55	27	11	5	1	0	0	171	53	58
23:00	1	0	0	1	2	10	28	32	14	5	2	0	1	0	96	52	58
<b>Total</b>	<b>158</b>	<b>1</b>	<b>7</b>	<b>18</b>	<b>184</b>	<b>1275</b>	<b>3940</b>	<b>4064</b>	<b>1767</b>	<b>416</b>	<b>75</b>	<b>22</b>	<b>10</b>	<b>7</b>	<b>11944</b>		
Percent	1.3%	0.0%	0.1%	0.2%	1.5%	10.7%	33.0%	34.0%	14.8%	3.5%	0.6%	0.2%	0.1%	0.1%			
AM Peak	11:00		00:00	09:00	08:00	11:00	11:00	10:00	10:00	09:00	07:00	10:00	00:00	02:00	11:00		
Vol.	9		1	3	20	109	321	252	110	28	6	2	2	1	823		
PM Peak	12:00	16:00	15:00	13:00	15:00	17:00	15:00	15:00	16:00	16:00	16:00	19:00	21:00	12:00	16:00		
Vol.	24	1	3	3	31	148	380	405	153	36	10	4	2	3	1125		

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501  
 Date Printed: 08-Aug-20

Westbound

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total	85th Percent	95th Percent
07/30/20	0	0	0	1	3	11	16	20	12	1	0	0	0	0	64	51	54
01:00	0	0	0	0	0	4	6	7	4	1	0	0	0	0	22	52	54
02:00	0	0	0	0	4	2	3	4	2	2	0	0	0	0	17	53	57
03:00	0	0	0	0	0	2	5	5	1	0	0	0	0	0	13	49	51
04:00	0	0	0	1	0	2	7	10	1	0	0	0	0	0	21	48	49
05:00	0	0	1	0	3	8	16	20	15	3	0	0	0	0	66	52	54
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	0	0	1	2	10	29	53	66	35	7	0	0	0	0	203		
Percent	0.0%	0.0%	0.5%	1.0%	4.9%	14.3%	26.1%	32.5%	17.2%	3.4%	0.0%	0.0%	0.0%	0.0%			
AM Peak			05:00	00:00	02:00	00:00	00:00	00:00	05:00	05:00					05:00		
Vol.			1	1	4	11	16	20	15	3					66		

PM Peak																	
Vol.																	
Grand Total	794	6	41	141	965	6971	21965	22931	9611	2354	453	128	40	26	66426		
Percent	1.2%	0.0%	0.1%	0.2%	1.5%	10.5%	33.1%	34.5%	14.5%	3.5%	0.7%	0.2%	0.1%	0.0%			

15th Percentile : 40 MPH  
 50th Percentile : 45 MPH  
 85th Percentile : 51 MPH  
 95th Percentile : 54 MPH

Statistics  
 10 MPH Pace Speed : 41-50 MPH  
 Number in Pace : 44896  
 Percent in Pace : 67.6%  
 Number of Vehicles > 40 MPH : 57508  
 Percent of Vehicles > 40 MPH : 86.6%  
 Mean Speed(Average) : 46 MPH

# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501  
 Date Printed: 08-Aug-20

Start Time	Mon 20-Jul-20	Tue 21-Jul-20	Wed 22-Jul-20	Thu 23-Jul-20	Fri 24-Jul-20	Average Day	Sat 25-Jul-20	Sun 26-Jul-20	Week Average
12:00 AM	*	*	*	*	*	*	58	58	58
01:00	*	*	*	*	*	*	20	29	24
02:00	*	*	*	*	*	*	19	21	20
03:00	*	*	*	*	*	*	15	9	12
04:00	*	*	*	*	*	*	18	16	17
05:00	*	*	*	*	*	*	58	29	44
06:00	*	*	*	*	*	*	122	99	110
07:00	*	*	*	*	*	*	263	186	224
08:00	*	*	*	*	*	*	444	315	380
09:00	*	*	*	*	641	641	615	400	552
10:00	*	*	*	*	763	763	856	608	742
11:00	*	*	*	*	<b>927</b>	<b>927</b>	<b>994</b>	<b>788</b>	<b>903</b>
12:00 PM	*	*	*	*	1042	1042	999	<b>930</b>	990
01:00	*	*	*	*	1097	1097	<b>1026</b>	911	<b>1011</b>
02:00	*	*	*	*	1136	1136	1018	867	1007
03:00	*	*	*	*	<b>1188</b>	<b>1188</b>	926	835	983
04:00	*	*	*	*	1109	1109	826	670	868
05:00	*	*	*	*	1042	1042	716	591	783
06:00	*	*	*	*	801	801	660	507	656
07:00	*	*	*	*	617	617	518	404	513
08:00	*	*	*	*	429	429	379	287	365
09:00	*	*	*	*	279	279	256	219	251
10:00	*	*	*	*	162	162	154	107	141
11:00	*	*	*	*	109	109	93	59	87
Day Total	0	0	0	0	11342	11342	11053	8945	10741
% Avg. WkDay	0.0%	0.0%	0.0%	0.0%	100.0%				
% Avg. Week	0.0%	0.0%	0.0%	0.0%	105.6%	105.6%	102.9%	83.3%	
AM Peak	-	-	-	-	11:00	11:00	11:00	11:00	11:00
Vol.	-	-	-	-	927	927	994	788	903
PM Peak	-	-	-	-	15:00	15:00	13:00	12:00	13:00
Vol.	-	-	-	-	1188	1188	1026	930	1011



# Solli Engineering

501 Main Street, Suite 2A  
 Monroe, Connecticut 06468  
 (203) 880-5455

Albany Turnpike (Route 44/202)  
 Canton, Connecticut  
 Date Start: 24-Jul-20  
 Date End: 30-Jul-20  
 Site Code: 1904501  
 Date Printed: 08-Aug-20

Start Time	Mon 27-Jul-20	Tue 28-Jul-20	Wed 29-Jul-20	Thu 30-Jul-20	Fri 31-Jul-20	Average Day	Sat 01-Aug-20	Sun 02-Aug-20	Week Average
12:00 AM	33	41	47	53	*	44	*	*	44
01:00	19	11	22	16	*	17	*	*	17
02:00	9	16	11	17	*	13	*	*	13
03:00	11	13	21	12	*	14	*	*	14
04:00	29	27	37	29	*	30	*	*	30
05:00	81	100	96	<b>84</b>	*	90	*	*	90
06:00	192	223	199	0	*	154	*	*	154
07:00	379	397	412	*	*	396	*	*	396
08:00	481	517	543	*	*	514	*	*	514
09:00	564	645	619	*	*	609	*	*	609
10:00	701	769	719	*	*	730	*	*	730
11:00	<b>825</b>	<b>867</b>	<b>853</b>	*	*	<b>848</b>	*	*	<b>848</b>
12:00 PM	896	915	897	*	*	903	*	*	903
01:00	866	934	908	*	*	903	*	*	903
02:00	895	982	988	*	*	955	*	*	955
03:00	997	1091	<b>1162</b>	*	*	1083	*	*	1083
04:00	<b>1058</b>	<b>1117</b>	1119	*	*	<b>1098</b>	*	*	<b>1098</b>
05:00	949	1037	1026	*	*	1004	*	*	1004
06:00	699	752	747	*	*	733	*	*	733
07:00	491	536	583	*	*	537	*	*	537
08:00	359	431	449	*	*	413	*	*	413
09:00	201	247	244	*	*	231	*	*	231
10:00	139	127	161	*	*	142	*	*	142
11:00	68	76	82	*	*	75	*	*	75
Day Total	10942	11871	11945	211	0	11536	0	0	11536
% Avg. WkDay	94.9%	102.9%	103.5%	1.8%	0.0%				
% Avg. Week	94.9%	102.9%	103.5%	1.8%	0.0%	100.0%	0.0%	0.0%	
AM Peak	11:00	11:00	11:00	05:00	-	11:00	-	-	11:00
Vol.	825	867	853	84	-	848	-	-	848
PM Peak	16:00	16:00	15:00	-	-	16:00	-	-	16:00
Vol.	1058	1117	1162	-	-	1098	-	-	1098
Grand Total	10942	11871	11945	211	11342	22878	11053	8945	22277

ADT

ADT 11,183

AADT 11,183



## **Appendix C**

---

Capacity Analysis Worksheets

Weekday AM Peak Period Capacity Analysis Summary Proposed Development, Albany Turnpike, Canton and Simsbury, Connecticut										
		2023 Background				2023 Build				
Lane Use	Storage Length (ft)	LOS/Delay(s)	V/C Ratio	Queue (ft)		LOS/Delay(s)	V/C Ratio	Queue (ft)		
				50th	95th			50th	95th	
<b>Albany Turnpike (Route 44 &amp; 202) &amp; Lawton Road / Trailsend Drive</b>										
Albany Turnpike (Route 44 & 202)										
	EB-LEFT	370	F/347.9	1.65	~575	#784	F/382.2	1.74	~575	#784
	EB-THRU	>1,000	F/87.5	1.09	~942	#1132	F/177.3	1.31	~1193	#1394
	EB-RIGHT	220	A/0.1	0.06	0	0	A/0.1	0.06	0	0
	<b>Overall EB Approach</b>		<b>F/132.2</b>				<b>F/205.0</b>			
	WB-LEFT	330	E/76.9	0.54	59	108	E/78.2	0.65	92	151
	WB-THRU	>1,000	C/33.0	0.37	170	218	C/33.6	0.41	187	240
	WB-RIGHT	420	A/0.0	0.02	0	0	A/0.0	0.03	0	0
	<b>Overall WB Approach</b>		<b>D/36.5</b>				<b>D/38.1</b>			
Lawton Road (Route 177)										
	NB-LEFT	100	E/68.5	0.60	113	180	E/68.5	0.60	113	180
	NB-THRU	770	F/80.8	0.78	158	239	F/80.8	0.78	158	239
	NB-RIGHT	50	A/9.3	0.46	18	66	B/14.5	0.52	47	99
	<b>Overall NB Approach</b>		<b>D/48.9</b>				<b>D/49.2</b>			
	SB-LEFT/THRU	440	F/92.9	0.87	177	#342	F/92.6	0.88	189	#370
	SB-RIGHT	600	E/62.6	0.50	83	128	E/61.6	0.47	83	128
	<b>Overall SB Approach</b>		<b>E/78.8</b>				<b>E/78.6</b>			
Trailsend Drive										
	SEB-LEFT/THRU/RIGHT	650	A/1.8	0.19	0	0	A/2.2	0.23	0	0
	<b>Overall SB Approach</b>		<b>A/1.8</b>				<b>A/2.2</b>			
	<b>Overall Intersection</b>		<b>F/98.6</b>				<b>F/141.7</b>			
<b>Albany Turnpike (Route 44 &amp; 202) &amp; CVS Pharmacy</b>										
Albany Turnpike (Route 44 & 202)										
	EB-LEFT	150	A/3.6	0.33	26	46	A/3.9	0.37	26	46
	EB-THRU	800	A/6.8	0.64	211	286	A/9.0	0.73	285	391
	<b>Overall EB Approach</b>		<b>A/6.4</b>				<b>A/8.5</b>			
	WB-THRU	>1,000	A/6.0	0.23	57	150	A/2.3	0.27	4	38
	WB-RIGHT	120	A/1.6	0.07	0	44	A/0.4	0.07	0	0
	<b>Overall WB Approach</b>		<b>A/5.4</b>				<b>A/2.0</b>			
CVS Pharmacy										
	SB-LEFT	170	D/46.6	0.72	88	128	E/55.0	0.72	88	128
	<b>Overall SB Approach</b>		<b>D/46.6</b>				<b>E/55.0</b>			
	<b>Overall Intersection</b>		<b>B/10.4</b>				<b>B/11.4</b>			
<b>Albany Turnpike (Route 44 &amp; 202) &amp; The Shops at Farmington Valley</b>										
Albany Turnpike (Route 44 & 202)										
	EB-THRU	>1,000	B/19.3	0.83	497	623	C/28.0	0.95	664	#874
	EB-RIGHT	210	A/1.4	0.10	6	m18	A/1.1	0.10	7	m11
	<b>Overall EB Approach</b>		<b>B/18.1</b>				<b>C/26.5</b>			
	WB-LEFT	760	D/43.5	0.25	14	32	C/26.8	0.24	15	29
	WB-THRU	900	A/2.4	0.21	39	20	A/1.3	0.25	32	2
	<b>Overall WB Approach</b>		<b>A/5.4</b>				<b>A/2.9</b>			
The Shops at Farmington Valley										
	NB-LEFT	380	D/43.4	0.16	15	34	D/43.4	0.16	15	34
	NB-RIGHT	190	C/22.7	0.12	14	42	C/27.3	0.12	17	47
	<b>Overall NB Approach</b>		<b>C/33.9</b>				<b>D/36.0</b>			
	<b>Overall Intersection</b>		<b>B/15.7</b>				<b>C/21.2</b>			
<b>Albany Turnpike (Route 44 &amp; 202) &amp; Secret Lake Road / Acura Dealership</b>										
Albany Turnpike (Route 44 & 202)										
	EB-LEFT	50	A/2.0	0.00	0	m0	A/2.7	0.00	0	m0
	EB-THRU	>1,000	A/4.3	0.58	0	#763	A/6.7	0.70	0	m#916
	<b>Overall EB Approach</b>		<b>A/4.3</b>				<b>A/6.7</b>			
	WB-LEFT	100	D/46.0	0.02	1	9	D/53.5	0.14	8	m16
	WB-THRU	>1,000	A/3.5	0.20	0	142	A/1.7	0.24	0	42
	<b>Overall WB Approach</b>		<b>A/3.6</b>				<b>A/2.6</b>			
Secret Lake Road										
	NB-LEFT/THRU/RIGHT	925	A/0.2	0.03	0	0	A/0.5	0.08	0	0
	<b>Overall NB Approach</b>		<b>A/0.3</b>				<b>A/0.5</b>			
Acura Dealership										
	SB-LEFT/THRU/RIGHT	45	A/0.0	0.01	0	0	A/0.0	0.01	0	0
	<b>Overall NB Approach</b>		<b>A/0.0</b>				<b>A/0.0</b>			
	<b>Overall Intersection</b>		<b>A/4.1</b>				<b>A/5.6</b>			
<b>Albany Turnpike (Route 44 &amp; 202) &amp; Site Driveway</b>										
Albany Turnpike (Route 44 & 202) **										
	SEB-LEFT	175	A/4.4	0.46	17	57	A/4.4	0.46	17	57
	SEB-THRU	>1,000	A/1.7	0.58	8	1	A/1.7	0.58	8	1
	<b>Overall SEB Approach</b>		<b>A/2.2</b>				<b>A/2.2</b>			
	NWB-THRU/RIGHT	>1,000	C/29.0	0.56	194	276	C/29.0	0.56	194	276
	<b>Overall NWB Approach</b>		<b>C/29.0</b>				<b>C/29.0</b>			
Site Driveway										
	SWB-LEFT/RIGHT		D/46.5	0.77	125	163	D/46.5	0.77	125	163
	<b>Overall SWB Approach</b>		<b>D/46.5</b>				<b>B/14.9</b>			
	<b>Overall Intersection</b>		<b>B/14.9</b>				<b>B/14.9</b>			
<b>Albany Turnpike (Route 44 &amp; 202) &amp; Site Driveway Right-in/Right-out</b>										
Albany Turnpike (Route 44 & 202)										
	SEB-THRU	>1,000	-	-	-	-	-	-	-	-
	<b>Overall SEB Approach</b>		-	-	-	-	-	-	-	-
	NWB-THRU/RIGHT	>1,000	-	-	-	-	-	-	-	-
	<b>Overall NWB Approach</b>		-	-	-	-	-	-	-	-
Site Driveway Right-in/Right-out										
	SWB-RIGHT		B/11.2	0.08	-	0.2***	B/11.2	0.08	-	0.2***
	<b>Overall SWB Approach</b>		<b>B/11.2</b>				<b>B/11.2</b>			
	<b>Overall Intersection</b>		<b>B/11.2</b>				<b>B/11.2</b>			
<b>Albany Turnpike (Route 44 &amp; 202) &amp; Hoffman Auto Park / Auto Spa Driveway</b>										
Albany Turnpike (Route 44 & 202)										
	SEB-LEFT	140	A/2.8	0.10	4	14	A/3.0	0.11	4	15
	SEB-THRU/RIGHT	>1,000	A/3.7	0.52	136	223	A/4.5	0.60	182	299
	<b>Overall SEB Approach</b>		<b>A/3.7</b>				<b>A/4.4</b>			
	NWB-LEFT	260	A/8.5	0.02	1	m3	A/8.0	0.03	1	m2
	NWB-THRU/RIGHT	>1,000	A/7.8	0.30	84	102	A/8.4	0.36	101	120
	<b>Overall NWB Approach</b>		<b>A/7.9</b>				<b>A/8.4</b>			
Auto Spa Driveway										
	NEB-LEFT/THRU	30	D/50.0	0.09	9	18	D/50.0	0.09	9	18
	NEB-RIGHT	30	A/1.6	0.10	0	0	A/1.6	0.10	0	0
	<b>Overall NEB Approach</b>		<b>C/25.8</b>				<b>C/25.8</b>			
Hoffman Auto Park										
	SWB-LEFT/THRU	60	E/65.0	0.51	52	83	E/65.0	0.51	52	83
	SWB-RIGHT	60	A/0.8	0.09	0	0	A/0.8	0.09	0	0
	<b>Overall SWB Approach</b>		<b>D/51.1</b>				<b>D/51.1</b>			
	<b>Overall Intersection</b>		<b>A/6.8</b>				<b>A/7.3</b>			
<b>Albany Turnpike (Route 44 &amp; 202) &amp; CT-167 / W. Avon Road</b>										
Albany Turnpike (Route 44 & 202)										
	SEB-LEFT	440	E/70.0	0.69	102	136	E/67.3	0.44	35	87
	SEB-THRU/RIGHT	>1,000	C/27.8	0.74	417	581	C/27.8	0.47	148	234
	<b>Overall SEB Approach</b>		<b>C/28.0</b>				<b>C/34.6</b>			
	WB-LEFT	370	E/77.0	0.44	33	88	F/82.7	0.7	102	161
	WB-THRU/RIGHT	>1,000	B/14.2	0.39	115	186	B/17.1	0.68	107	149
	<b>Overall WB Approach</b>		<b>C/20.0</b>				<b>C/22.5</b>			
CT-167 / W. Avon Road										
	NB-LEFT	230	E/69.4	0.66	87	143	E/69.6	0.5	94	153
	NB-THRU	450	E/56.9	0.68	107	149	E/56.9	0.88	187	#310
	<b>Overall NB Approach</b>		<b>E/60.5</b>				<b>E/61.0</b>			
Bushy Hill Road										
	SB-LEFT	260	E/56.3	0.54	95	156	D/53.2	0.31	0	28
	SB-THRU	260	E/79.8	0.88	187	#310	E/79.8	0.75	124	158
	SB-RIGHT	260	A/4.2	0.28	0	28	A/3.7	0.86	528	#345
	<b>Overall SB Approach</b>		<b>D/53.0</b>				<b>D/49.2</b>			
	<b>Overall Intersection</b>		<b>D/35.9</b>				<b>D/37.8</b>			
<b>Bushy Hill Road (CT-167) &amp; Simsbury Commons / W. Mountain Road</b>										
W. Mountain Road										
	EB-LEFT/THRU/RIGHT	830	A/7.6	0.40	2	37	A/7.7	0.43	2	39
	<b>Overall EB Approach</b>		<b>A/7.6</b>				<b>A/7.7</b>			
Simsbury Commons										
	WB-LEFT/THRU	190	B/17.9	0.18	9	22	B/18.1	0.19	9	23
	WB-RIGHT	190	A/0.2	0.04	0	0	A/0.2	0.04	0	0
	<b>Overall WB Approach</b>		<b>B/13.4</b>				<b>B/13.6</b>			
Bushy Hill Road (CT-167)										
	NB-LEFT/THRU/RIGHT	520	A/4.5	0.43	20	38	A/5.7	0.54	23	49
	<b>Overall NB Approach</b>		<b>A/4.5</b>				<b>A/5.7</b>			
	SB-LEFT/THRU	780	B/11.3	0.30	32	61	B/12.0	0.33	35	66
	<b>Overall SB Approach</b>		<b>B/11.3</b>				<b>B/12.0</b>			
	<b>Overall Intersection</b>		<b>A/7.6</b>				<b>A/8.3</b>			
<b>Albany Turnpike (Route 44 &amp; 202) &amp; Simsbury Commons / Dale Road</b>										
Albany Turnpike (Route 44 & 202)										
	EB-LEFT	180	E/57.2	0.34	30	m42	E/56.9	0.34	30	m38
	EB-THRU/RIGHT	>1,000	A/4.7	0.59	117	113	A/5.4	0.64	98	130
	<b>Overall EB Approach</b>		<b>A/6.0</b>				<b>A/6.5</b>			
	WB-LEFT	460	E/65.9	0.50	51	91	E/65.9	0.50	51	91
	WB-THRU	>1,000	A/6.1	0.21	69	115	A/6.3	0.24	80	131
	WB-RIGHT	550	A/0.8	0.03	0	4	A/0.8	0.03	0	4
	<b>Overall WB Approach</b>		<b>B/11.8</b>				<b>B/11.4</b>			
Dale Road										
	NB-LEFT	310	D/46.0	0.06	5	15	D/46.0	0.06	5	15
	NB-THRU/RIGHT	310	B/19.6	0.70	21	50	B/19.9	0.70	22	51
	<b>Overall NB Approach</b>		<b>C/20.3</b>				<b>C/20.6</b>			
Simsbury Commons										
	SB-LEFT	70	F/84.1	0.59	28	49	F/84.1	0.59	28	49

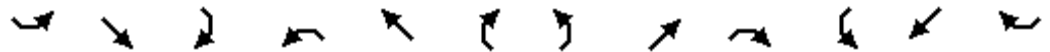
Weekday PM Peak Period Capacity Analysis Summary Proposed Development, Albany Turnpike, Canton and Simsbury, Connecticut										
Lane Use		Storage Length (ft)	2023 Background				2023 Build			
			LOS/Delay(s)	V/C Ratio	Queue (ft)		LOS/Delay(s)	V/C Ratio	Queue (ft)	
					50th	95th			50th	95th
<b>Albany Turnpike (Route 44 &amp; 202) &amp; Lawton Road / Trailsend Drive</b>										
Albany Turnpike (Route 44 & 202)										
EB-LEFT		370	F/114.5	0.97	~245	#410	F/131.4	1.04	~245	#410
EB-THRU		>1,000	D/44.5	0.73	422	520	D/48.3	0.80	457	#579
EB-RIGHT		220	A/0.0	0.04	0	0	A/0.0	0.04	0	0
<b>Overall EB Approach</b>			<b>D/53.7</b>	-	-	-	<b>E/59.2</b>	-	-	-
WB-LEFT		330	F/84.5	0.84	198	#299	F/87.7	0.88	217	#350
WB-THRU		>1,000	F/97.7	1.09	~819	#958	F/104.7	1.12	~867	#1006
WB-RIGHT		420	A/0.1	0.05	0	0	A/0.1	0.06	0	0
<b>Overall WB Approach</b>			<b>F/91.9</b>	-	-	-	<b>F/97.6</b>	-	-	-
Lawton Road (Route 177)										
NB-LEFT		100	F/89.4	0.81	150	#264	F/89.4	0.81	150	#264
NB-THRU		770	E/65.9	0.49	91	153	E/65.9	0.49	91	153
NB-RIGHT		50	A/4.3	0.33	0	37	A/4.3	0.35	0	39
<b>Overall NB Approach</b>			<b>D/49.6</b>	-	-	-	<b>D/47.6</b>	-	-	-
SB-LEFT/THRU		440	F/94.8	0.92	229	#401	F/91.9	0.91	240	#422
SB-RIGHT		600	F/85.2	0.91	196	#306	F/78.2	0.87	196	#306
<b>Overall SB Approach</b>			<b>F/89.0</b>	-	-	-	<b>F/83.8</b>	-	-	-
Trailsend Drive										
SEB-LEFT/THRU/RIGHT		650	A/0.5	0.08	0	0	A/0.7	0.09	0	0
<b>Overall SB Approach</b>			<b>A/0.5</b>	-	-	-	<b>A/0.7</b>	-	-	-
<b>Overall Intersection</b>			<b>E/75.1</b>	-	-	-	<b>E/78.1</b>	-	-	-
<b>Albany Turnpike (Route 44 &amp; 202) &amp; CVS Pharmacy</b>										
Albany Turnpike (Route 44 & 202)										
EB-LEFT		150	C/23.6	0.63	18	81	C/31.1	0.67	31	94
EB-THRU		800	A/4.4	0.42	109	137	A/4.9	0.45	121	151
<b>Overall EB Approach</b>			<b>A/6.5</b>	-	-	-	<b>A/7.6</b>	-	-	-
WB-THRU		>1,000	A/9.4	0.73	125	347	B/10.5	0.77	173	389
WB-RIGHT		120	A/0.3	0.21	0	m1	A/0.4	0.21	0	m1
<b>Overall WB Approach</b>			<b>A/8.1</b>	-	-	-	<b>A/9.1</b>	-	-	-
CVS Pharmacy										
SB-LEFT		170	D/53.0	0.85	119	#170	D/53.0	0.85	119	#170
<b>Overall SB Approach</b>			<b>D/53.0</b>	-	-	-	<b>D/53.0</b>	-	-	-
<b>Overall Intersection</b>			<b>B/12.6</b>	-	-	-	<b>B/13.3</b>	-	-	-
<b>Albany Turnpike (Route 44 &amp; 202) &amp; The Shops at Farmington Valley</b>										
Albany Turnpike (Route 44 & 202)										
EB-THRU		>1,000	C/23.1	0.65	302	377	C/24.3	0.70	331	412
EB-RIGHT		210	A/1.7	0.30	12	m23	A/1.6	0.30	10	m21
<b>Overall EB Approach</b>			<b>B/17.9</b>	-	-	-	<b>B/19.0</b>	-	-	-
WB-LEFT		760	C/33.4	0.35	79	117	C/33.3	0.34	87	118
WB-THRU		900	A/6.5	0.64	417	18	A/7.0	0.67	219	18
<b>Overall WB Approach</b>			<b>B/10.0</b>	-	-	-	<b>B/10.3</b>	-	-	-
The Shops at Farmington Valley										
NB-LEFT		380	E/55.3	0.81	124	163	E/55.3	0.81	124	163
NB-RIGHT		190	B/15.7	0.31	68	112	B/16.5	0.31	72	116
<b>Overall NB Approach</b>			<b>D/41.0</b>	-	-	-	<b>D/41.3</b>	-	-	-
<b>Overall Intersection</b>			<b>B/17.6</b>	-	-	-	<b>B/18.0</b>	-	-	-
<b>Albany Turnpike (Route 44 &amp; 202) &amp; Secret Lake Road / Acura Dealership</b>										
Albany Turnpike (Route 44 & 202)										
EB-LEFT		50	A/4.0	0.01	0	m1	A/5.0	0.01	0	m0
EB-THRU		>1,000	A/5.4	0.38	150	142	A/5.8	0.41	97	171
<b>Overall EB Approach</b>			<b>A/5.4</b>	-	-	-	<b>A/5.8</b>	-	-	-
WB-LEFT		100	D/47.2	0.08	4	19	E/55.6	0.14	9	m12
WB-THRU		>1,000	B/10.7	0.62	201	596	A/5.7	0.65	31	#705
<b>Overall WB Approach</b>			<b>B/10.8</b>	-	-	-	<b>A/6.1</b>	-	-	-
Secret Lake Road										
NB-LEFT/THRU/RIGHT		925	D/40.3	0.19	16	40	D/35.3	0.24	16	42
<b>Overall NB Approach</b>			<b>D/40.3</b>	-	-	-	<b>D/35.3</b>	-	-	-
Acura Dealership										
SB-LEFT/THRU/RIGHT		45	A/0.7	0.10	0	0	A/0.7	0.10	0	0
<b>Overall NB Approach</b>			<b>A/0.7</b>	-	-	-	<b>A/0.7</b>	-	-	-
<b>Overall Intersection</b>			<b>A/6.3</b>	-	-	-	<b>A/6.3</b>	-	-	-
<b>Albany Turnpike (Route 44 &amp; 202) &amp; Site Driveway</b>										
Albany Turnpike (Route 44 & 202)										
SEB-LEFT		175	C/24.6	0.36	34	76	C/24.6	0.36	34	76
SEB-THRU		>1,000	A/4.0	0.36	71	162	A/4.0	0.36	71	162
<b>Overall SEB Approach</b>			<b>A/6.1</b>	-	-	-	<b>A/6.1</b>	-	-	-
NWB-THRU/RIGHT		>1,000	C/21.1	0.83	466	523	C/21.1	0.83	466	523
<b>Overall NWB Approach</b>			<b>C/21.1</b>	-	-	-	<b>C/21.1</b>	-	-	-
Site Driveway										
SWB-LEFT/RIGHT			D/42.7	0.69	60	97	D/42.7	0.69	60	97
<b>Overall SWB Approach</b>			<b>D/42.7</b>	-	-	-	<b>D/42.7</b>	-	-	-
<b>Overall Intersection</b>			<b>B/17.4</b>	-	-	-	<b>B/17.4</b>	-	-	-
<b>Albany Turnpike (Route 44 &amp; 202) &amp; Site Driveway Right-in/Right-out</b>										
Albany Turnpike (Route 44 & 202)										
SEB-THRU		>1,000	-	-	-	-	-	-	-	-
<b>Overall SEB Approach</b>			-	-	-	-	-	-	-	-
NWB-THRU/RIGHT		>1,000	-	-	-	-	-	-	-	-
<b>Overall NWB Approach</b>			-	-	-	-	-	-	-	-
Site Driveway Right-in/Right-out										
SWB-RIGHT			C/18.7	0.09	-	0.3***	C/18.7	0.09	-	0.3***
<b>Overall SWB Approach</b>			<b>C/18.7</b>	-	-	-	<b>C/18.7</b>	-	-	-
<b>Overall Intersection</b>			<b>C/18.7</b>	-	-	-	<b>C/18.7</b>	-	-	-
<b>Albany Turnpike (Route 44 &amp; 202) &amp; Hoffman Auto Park / Auto Spa Driveway</b>										
Albany Turnpike (Route 44 & 202)										
SEB-LEFT		140	B/11.7	0.19	3	17	B/17.6	0.25	3	23
SEB-THRU/RIGHT		>1,000	A/5.8	0.41	124	207	A/6.3	0.46	148	246
<b>Overall SEB Approach</b>			<b>A/5.9</b>	-	-	-	<b>A/6.4</b>	-	-	-
NWB-LEFT		260	A/6.4	0.05	2	m3	A/7.2	0.05	3	m3
NWB-THRU/RIGHT		>1,000	A/8.6	0.76	170	m165	B/11.4	0.83	204	m183
<b>Overall NWB Approach</b>			<b>A/8.6</b>	-	-	-	<b>B/11.4</b>	-	-	-
Auto Spa Driveway										
NEB-LEFT/THRU		30	D/44.4	0.19	18	30	D/44.4	0.19	18	30
NEB-RIGHT		30	A/0.2	0.04	0	0	A/1.9	0.12	0	0
<b>Overall NEB Approach</b>			<b>C/28.9</b>	-	-	-	<b>C/29.5</b>	-	-	-
Hoffman Auto Park										
SWB-LEFT/THRU		60	E/71.4	0.78	130	184	E/71.4	0.78	130	184
SWB-RIGHT		60	A/9.0	0.21	0	29	A/9.0	0.21	0	29
<b>Overall SWB Approach</b>			<b>D/54.3</b>	-	-	-	<b>D/54.3</b>	-	-	-
<b>Overall Intersection</b>			<b>B/11.5</b>	-	-	-	<b>B/12.9</b>	-	-	-
<b>Albany Turnpike (Route 44 &amp; 202) &amp; CT-167 / W. Avon Road</b>										
Albany Turnpike (Route 44 & 202)**										
SEB-LEFT		440	E/71.7	0.79	58	105	E/71.9	0.83	179	237
SEB-THRU/RIGHT		>1,000	C/20.8	0.57	~716	#959	C/22.9	0.65	241	278
<b>Overall SEB Approach</b>			<b>D/36.8</b>	-	-	-	<b>D/38.5</b>	-	-	-
WB-LEFT		370	E/68.7	0.60	141	219	E/68.6	0.60	58	m101
WB-THRU/RIGHT		>1,000	F/142.6	1.24	109	152	F/195.2	1.36	~634	#1016
<b>Overall WB Approach</b>			<b>F/137.8</b>	-	-	-	<b>F/187.4</b>	-	-	-
CT-167 / W. Avon Road										
NB-LEFT		230	E/74.9	0.81	103	167	E/78.1	0.84	156	#265
NB-THRU		450	D/54.6	0.69	233	#379	D/54.6	0.69	109	152
<b>Overall NB Approach</b>			<b>E/62.3</b>	-	-	-	<b>E/64.2</b>	-	-	-
Bushy Hill Road										
SB-LEFT		260	D/47.4	0.45	87	115	D/46.3	0.43	101	167
SB-THRU		260	F/85.8	0.94	171	213	F/85.8	0.94	233	#379
SB-RIGHT		260	B/15.8	0.54	187	238	B/18.2	0.61	105	144
<b>Overall SB Approach</b>			<b>D/49.7</b>	-	-	-	<b>D/48.7</b>	-	-	-
<b>Overall Intersection</b>			<b>E/78.5</b>	-	-	-	<b>F/95.4</b>	-	-	-
<b>Bushy Hill Road (CT-167) &amp; Simsbury Commons / W. Mountain Road</b>										
W. Mountain Road										
EB-LEFT/THRU/RIGHT		830	A/9.4	0.24	6	42	A/9.0	0.27	6	43
<b>Overall EB Approach</b>			<b>A/9.4</b>	-	-	-	<b>A/9.0</b>	-	-	-
Simsbury Commons										
WB-LEFT/THRU		190	D/43.1	0.71	88	146	D/43.5	0.71	88	146
WB-RIGHT		190	A/3.4	0.16	0	13	A/3.4	0.16	0	13
<b>Overall WB Approach</b>			<b>C/33.4</b>	-	-	-	<b>C/33.7</b>	-	-	-
Bushy Hill Road (CT-167)										
NB-LEFT/THRU/RIGHT		520	D/46.9	1.01	~71	#234	F/85.1	1.12	~101	#284
<b>Overall NB Approach</b>			<b>D/46.9</b>	-	-	-	<b>F/85.1</b>	-	-	-
SB-LEFT/THRU		780	B/12.9	0.37	83	150	B/13.2	0.39	88	159
<b>Overall SB Approach</b>			<b>B/12.9</b>	-	-	-	<b>B/13.2</b>	-	-	-
<b>Overall Intersection</b>			<b>C/31.2</b>	-	-	-	<b>D/48.8</b>	-	-	-
<b>Albany Turnpike (Route 44 &amp; 202) &amp; Simsbury Commons / Dale Road</b>										
Albany Turnpike (Route 44 & 202)										
EB-LEFT		180	E/58.9	0.47	47	m83	E/56.0	0.47	47	m76
EB-THRU/RIGHT		>1,000	B/18.9	0.42	108	300	C/21.4	0.45	190	331
<b>Overall EB Approach</b>			<b>C/21.6</b>	-	-	-	<b>C/23.6</b>	-	-	-
WB-LEFT		460	E/74.5	0.81	147	225	E/74.5	0.81	147	225
WB-THRU		>1,000	B/15.4	0.57	296	488	B/16.0	0.60	318	523
WB-RIGHT		550	A/2.5	0.13	0	32	A/2.5	0.13	0	32
<b>Overall WB Approach</b>			<b>C/21.2</b>	-	-	-	<b>C/21.4</b>	-	-	-
Dale Road										
NB-LEFT		310	D/47.5	0.39	51	79	D/47.5	0.39	51	79
NB-THRU/RIGHT		310	B/16.0	0.62	39	78	B/16.0	0.62	39	78
<b>Overall NB Approach</b>			<b>C/22.4</b>	-	-	-	<b>C/22.4</b>	-	-	-
Simsbury Commons										

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

1: Auto Spa Car Wash/Hoffman Auto Park & Albany Turnpike (Route 44 & 202)

2017 Existing AM



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	40	1352	16	4	524	43	6	1	7	53	0	15
Future Volume (vph)	40	1352	16	4	524	43	6	1	7	53	0	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	12	12	12	12	12	12	12
Storage Length (ft)	140		0	250		0	0		50	0		100
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	50			100			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.998			0.989				0.850			0.850
Fl <sub>t</sub> Protected	0.950			0.950				0.960			0.950	
Satd. Flow (prot)	1745	3449	0	1745	3538	0	0	1824	1615	0	1805	1615
Fl <sub>t</sub> Permitted	0.300			0.181				0.739			0.750	
Satd. Flow (perm)	551	3449	0	332	3538	0	0	1404	1615	0	1425	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			11				73			73
Link Speed (mph)		40			40			25			30	
Link Distance (ft)		3567			815			631			754	
Travel Time (s)		60.8			13.9			17.2			17.1	
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.58	0.58	0.58	0.77	0.77	0.77
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	43	1438	17	4	570	47	10	2	12	69	0	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	1455	0	4	617	0	0	12	12	0	69	19
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		22			22			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	3	0		0	0		1	2	2	1	3	3
Detector Template							Left			Left		
Leading Detector (ft)	30	0		0	0		20	16	16	20	16	16
Trailing Detector (ft)	-6	0		0	0		0	0	0	0	-10	-10
Detector 1 Position(ft)	-6	390		0	0		0	0	0	0	-10	-10
Detector 1 Size(ft)	6	6		6	20		20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	12						10	10			0	0
Detector 2 Size(ft)	6						6	6			6	6
Detector 2 Type	Cl+Ex						Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0						0.0	0.0			0.0	0.0
Detector 3 Position(ft)	24										10	10

Lane Group	Ø1
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr <sub>t</sub>	
Fl <sub>t</sub> Protected	
Satd. Flow (prot)	
Fl <sub>t</sub> Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Detector 3 Position(ft)	

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

1: Auto Spa Car Wash/Hoffman Auto Park & Albany Turnpike (Route 44 & 202)

2017 Existing AM

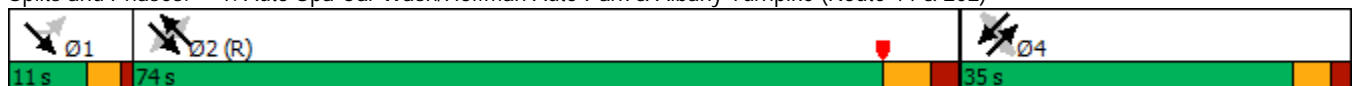


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR	
Detector 3 Size(ft)	6						6						
Detector 3 Type	Cl+Ex						Cl+Ex						
Detector 3 Channel													
Detector 3 Extend (s)	0.0						0.0						
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm	
Protected Phases		1 2			2			4			4		
Permitted Phases	1 2			2			4		4	4		4	
Detector Phase	1 2	1 2		2	2		4	4	4	4	4	4	
Switch Phase													
Minimum Initial (s)				15.0	15.0				10.0	10.0	10.0	10.0	10.0
Minimum Split (s)				22.0	22.0				15.3	15.3	15.3	15.3	15.3
Total Split (s)				74.0	74.0				35.0	35.0	35.0	35.0	35.0
Total Split (%)				61.7%	61.7%				29.2%	29.2%	29.2%	29.2%	29.2%
Maximum Green (s)				67.0	67.0				29.7	29.7	29.7	29.7	29.7
Yellow Time (s)				4.3	4.3				3.3	3.3	3.3	3.3	3.3
All-Red Time (s)				2.7	2.7				2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)				0.0	0.0				0.0	0.0		0.0	0.0
Total Lost Time (s)				7.0	7.0				5.3	5.3		5.3	5.3
Lead/Lag				Lag	Lag								
Lead-Lag Optimize?													
Vehicle Extension (s)				0.2	0.2				1.5	1.5	1.5	1.5	1.5
Recall Mode				C-Max	C-Max				None	None	None	None	None
Act Effect Green (s)	103.2	103.2		74.9	74.9				11.4	11.4		11.4	11.4
Actuated g/C Ratio	0.86	0.86		0.62	0.62				0.10	0.10		0.10	0.10
v/c Ratio	0.09	0.49		0.02	0.28				0.09	0.05		0.51	0.09
Control Delay	2.7	3.5		8.2	7.7				50.0	0.4		65.0	0.8
Queue Delay	0.0	0.0		0.0	0.0				0.0	0.0		0.0	0.0
Total Delay	2.7	3.5		8.2	7.7				50.0	0.4		65.0	0.8
LOS	A	A		A	A				D	A		E	A
Approach Delay		3.4			7.7				25.2			51.1	
Approach LOS		A			A				C			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 27 (23%), Referenced to phase 2:NWSE, Start of Yellow  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.51  
 Intersection Signal Delay: 6.8  
 Intersection Capacity Utilization 66.7%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service C

Splits and Phases: 1: Auto Spa Car Wash/Hoffman Auto Park & Albany Turnpike (Route 44 & 202)





Lane Group	Ø1
Detector 3 Size(ft)	
Detector 3 Type	
Detector 3 Channel	
Detector 3 Extend (s)	
Turn Type	
Protected Phases	1
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	11.0
Total Split (s)	11.0
Total Split (%)	9%
Maximum Green (s)	7.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Queues

15 Albany Turnpike, Canton, CT

1: Auto Spa Car Wash/Hoffman Auto Park & Albany Turnpike (Route 44 & 202)

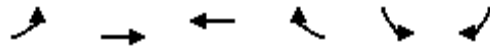
2017 Existing AM



Lane Group	SEL	SET	NWL	NWT	NET	NER	SWT	SWR
Lane Group Flow (vph)	43	1455	4	617	12	12	69	19
v/c Ratio	0.09	0.49	0.02	0.28	0.09	0.05	0.51	0.09
Control Delay	2.7	3.5	8.2	7.7	50.0	0.4	65.0	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.7	3.5	8.2	7.7	50.0	0.4	65.0	0.8
Queue Length 50th (ft)	4	122	1	76	9	0	52	0
Queue Length 95th (ft)	14	201	m3	97	18	0	83	0
Internal Link Dist (ft)		3487		735	551		674	
Turn Bay Length (ft)	140		250			50		100
Base Capacity (vph)	474	2966	207	2211	347	454	352	454
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.49	0.02	0.28	0.03	0.03	0.20	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	23	1659	531	12	9	2
Future Volume (vph)	23	1659	531	12	9	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			120	0	0
Storage Lanes	1			1	2	0
Taper Length (ft)	80				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.95
Frt				0.850	0.975	
Flt Protected	0.950				0.960	
Satd. Flow (prot)	1805	3574	3574	1615	3422	0
Flt Permitted	0.419				0.960	
Satd. Flow (perm)	796	3574	3574	1615	3422	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				13	2	
Link Speed (mph)		30	40		30	
Link Distance (ft)		615	827		249	
Travel Time (s)		14.0	14.1		5.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.88	0.88
Heavy Vehicles (%)	0%	1%	1%	0%	1%	0%
Adj. Flow (vph)	25	1803	577	13	10	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	1803	577	13	12	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	3	0	0	0	1	
Detector Template						
Leading Detector (ft)	27	0	0	0	47	
Trailing Detector (ft)	-3	0	0	0	-3	
Detector 1 Position(ft)	-3	200	200	0	-3	
Detector 1 Size(ft)	6	6	6	20	50	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)	9					
Detector 2 Size(ft)	6					
Detector 2 Type	Cl+Ex					
Detector 2 Channel						
Detector 2 Extend (s)	0.0					
Detector 3 Position(ft)	21					
Detector 3 Size(ft)	6					

Lanes, Volumes, Timings  
 4: Albany Turnpike (Route 44 & 202) & CVS Canton Driveway

15 Albany Turnpike, Canton, CT  
 2017 Existing AM



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 3 Type	Cl+Ex					
Detector 3 Channel						
Detector 3 Extend (s)	0.0					
Turn Type	pm+pt	NA	NA	pt+ov	Prot	
Protected Phases	1	6	2	2 4	4	
Permitted Phases	6					
Detector Phase	1	6	2	2 4	4	
Switch Phase						
Minimum Initial (s)	5.0	25.0	25.0			7.0
Minimum Split (s)	8.1	30.3	30.3			11.0
Total Split (s)	12.0	82.0	70.0			18.0
Total Split (%)	12.0%	82.0%	70.0%			18.0%
Maximum Green (s)	8.9	76.7	64.7			14.0
Yellow Time (s)	3.0	4.3	4.3			3.0
All-Red Time (s)	0.1	1.0	1.0			1.0
Lost Time Adjust (s)	0.0	0.0	0.0			0.0
Total Lost Time (s)	3.1	5.3	5.3			4.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	0.2	0.2			2.0
Recall Mode	None	C-Max	C-Max			None
Act Effect Green (s)	92.5	93.5	90.2	94.6	7.0	
Actuated g/C Ratio	0.92	0.94	0.90	0.95	0.07	
v/c Ratio	0.03	0.54	0.18	0.01	0.05	
Control Delay	0.9	2.0	1.1	0.2	39.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	0.9	2.1	1.1	0.2	39.9	
LOS	A	A	A	A	D	
Approach Delay	2.1		1.1	39.9		
Approach LOS	A		A	D		

Intersection Summary

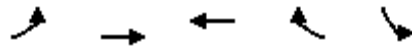
Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	40 (40%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow
Natural Cycle:	50
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.54
Intersection Signal Delay:	2.0
Intersection LOS:	A
Intersection Capacity Utilization	59.4%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 4: Albany Turnpike (Route 44 & 202) & CVS Canton Driveway



Queues

4: Albany Turnpike (Route 44 & 202) & CVS Canton Driveway



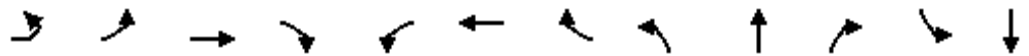
Lane Group	EBL	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	25	1803	577	13	12
v/c Ratio	0.03	0.54	0.18	0.01	0.05
Control Delay	0.9	2.0	1.1	0.2	39.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	0.9	2.1	1.1	0.2	39.9
Queue Length 50th (ft)	1	0	0	0	3
Queue Length 95th (ft)	4	171	1	0	11
Internal Link Dist (ft)		535	747		169
Turn Bay Length (ft)	150			120	
Base Capacity (vph)	826	3341	3225	1574	480
Starvation Cap Reductn	0	199	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.03	0.57	0.18	0.01	0.03

Intersection Summary

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Tailor Road



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SBL	SBT
Lane Configurations		↔	↕↕	↗	↖	↕↕	↗	↖	↕	↗		↕
Traffic Volume (vph)	8	276	1419	84	54	413	23	117	140	159	59	85
Future Volume (vph)	8	276	1419	84	54	413	23	117	140	159	59	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		380		130	325					0	0	
Storage Lanes		1		1	1					1	0	
Taper Length (ft)		300			75						25	
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850			0.850		
Flt Protected		0.950			0.950			0.950				0.980
Satd. Flow (prot)	0	1788	3574	1599	1787	3574	1599	1787	1881	1599	0	1851
Flt Permitted		0.950			0.950			0.950				0.980
Satd. Flow (perm)	0	1788	3574	1599	1787	3574	1599	1787	1881	1599	0	1851
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				215			215			169		
Link Speed (mph)			40			40			40			40
Link Distance (ft)			1074			615			959			864
Travel Time (s)			18.3			10.5			16.3			14.7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	1%
Adj. Flow (vph)	9	300	1542	91	59	449	25	124	149	169	63	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	309	1542	91	59	449	25	124	149	169	0	153
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			16			16			16			16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15		9	15		9	15		9	15	
Number of Detectors	1	3	2	0	3	2	0	3	3	3	1	3
Detector Template	Left											Left
Leading Detector (ft)	20	20	281	0	24	331	0	24	24	24	20	24
Trailing Detector (ft)	0	-10	100	0	-6	150	0	-6	-6	-6	0	-6
Detector 1 Position(ft)	0	-10	100	0	-6	150	0	-6	-6	-6	0	-6
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	6	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		2	275		6	325		6	6	6		6
Detector 2 Size(ft)		6	6		6	6		6	6	6		6
Detector 2 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0
Detector 3 Position(ft)		14			18			18	18	18		18
Detector 3 Size(ft)		6			6			6	6	6		6

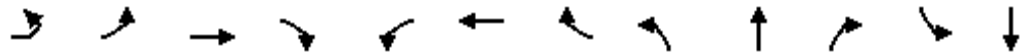


Lane Group	SBR	SEL	SER	SER2
Lane Configurations	FF	FX		
Traffic Volume (vph)	137	20	5	13
Future Volume (vph)	137	20	5	13
Ideal Flow (vphpl)	1900	1900	1900	1900
Storage Length (ft)	250	0	0	
Storage Lanes	2	1	0	
Taper Length (ft)		25		
Lane Util. Factor	0.88	1.00	1.00	1.00
Frt	0.850	0.936		
Flt Protected		0.975		
Satd. Flow (prot)	2814	1734	0	0
Flt Permitted		0.975		
Satd. Flow (perm)	2814	1734	0	0
Right Turn on Red				Yes
Satd. Flow (RTOR)		174		
Link Speed (mph)		30		
Link Distance (ft)		881		
Travel Time (s)		20.0		
Peak Hour Factor	0.94	0.87	0.87	0.87
Heavy Vehicles (%)	1%	0%	0%	0%
Adj. Flow (vph)	146	23	6	15
Shared Lane Traffic (%)				
Lane Group Flow (vph)	146	44	0	0
Enter Blocked Intersection	No	No	No	No
Lane Alignment	Right	Left	Right	Right
Median Width(ft)		12		
Link Offset(ft)		0		
Crosswalk Width(ft)		16		
Two way Left Turn Lane				
Headway Factor	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15	9	9
Number of Detectors	3	0		
Detector Template				
Leading Detector (ft)	24	0		
Trailing Detector (ft)	-6	0		
Detector 1 Position(ft)	-6	0		
Detector 1 Size(ft)	6	20		
Detector 1 Type	Cl+Ex	Cl+Ex		
Detector 1 Channel				
Detector 1 Extend (s)	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0		
Detector 2 Position(ft)	6			
Detector 2 Size(ft)	6			
Detector 2 Type	Cl+Ex			
Detector 2 Channel				
Detector 2 Extend (s)	0.0			
Detector 3 Position(ft)	18			
Detector 3 Size(ft)	6			

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Trailsend Road

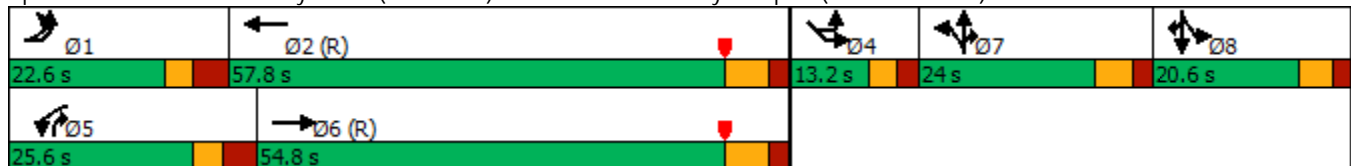


Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SBL	SBT
Detector 3 Type	Cl+Ex				Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 3 Channel												
Detector 3 Extend (s)	0.0				0.0			0.0	0.0	0.0		0.0
Turn Type	Prot	Prot	NA	Free	Prot	NA	Free	Split	NA	pt+ov	Split	NA
Protected Phases	1	1	6		5	2		7	7	75	8	8
Permitted Phases				Free			Free					
Detector Phase	1	1	6		5	2		7	7	75	8	8
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	15.0		9.0	9.0		5.0	5.0
Minimum Split (s)	11.6	11.6	21.8		11.6	21.8		15.0	15.0		14.6	14.6
Total Split (s)	22.6	22.6	54.8		25.6	57.8		24.0	24.0		20.6	20.6
Total Split (%)	16.4%	16.4%	39.7%		18.5%	41.8%		17.4%	17.4%		14.9%	14.9%
Maximum Green (s)	16.0	16.0	48.0		19.0	51.0		18.0	18.0		15.0	15.0
Yellow Time (s)	3.0	3.0	4.5		3.0	4.5		4.0	4.0		3.6	3.6
All-Red Time (s)	3.6	3.6	2.3		3.6	2.3		2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)	6.6		6.8		6.6	6.8		6.0	6.0		5.6	
Lead/Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	3.0		2.0	3.0		2.0	2.0		2.0	2.0
Recall Mode	None	None	C-Min		None	C-Min		None	None		None	None
Act Effect Green (s)	23.5		65.4	138.2	9.1	51.0	138.2	15.1	15.1	24.8	14.6	
Actuated g/C Ratio	0.17		0.47	1.00	0.07	0.37	1.00	0.11	0.11	0.18	0.11	
v/c Ratio	1.02		0.91	0.06	0.50	0.34	0.02	0.64	0.73	0.40	0.78	
Control Delay	112.2		44.5	0.1	76.4	32.4	0.0	72.9	78.8	6.5	86.1	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	112.2		44.5	0.1	76.4	32.4	0.0	72.9	78.8	6.5	86.1	
LOS	F		D	A	E	C	A	E	E	A	F	
Approach Delay	53.2				35.7			49.5			75.2	
Approach LOS	D				D			D			E	

Intersection Summary

Area Type: Other  
 Cycle Length: 138.2  
 Actuated Cycle Length: 138.2  
 Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow  
 Natural Cycle: 100  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.02  
 Intersection Signal Delay: 51.2  
 Intersection LOS: D  
 Intersection Capacity Utilization 88.8%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Trailsend Road





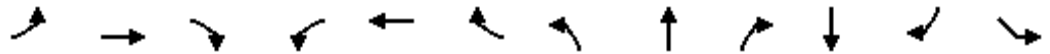


Lane Group	SBR	SEL	SER	SER2
Detector 3 Type	Cl+Ex			
Detector 3 Channel				
Detector 3 Extend (s)	0.0			
Turn Type	Prot	Prot		
Protected Phases	8	4		
Permitted Phases				
Detector Phase	8	4		
Switch Phase				
Minimum Initial (s)	5.0	6.0		
Minimum Split (s)	14.6	11.2		
Total Split (s)	20.6	13.2		
Total Split (%)	14.9%	9.6%		
Maximum Green (s)	15.0	8.0		
Yellow Time (s)	3.6	3.0		
All-Red Time (s)	2.0	2.2		
Lost Time Adjust (s)	0.0	0.0		
Total Lost Time (s)	5.6	5.2		
Lead/Lag	Lag			
Lead-Lag Optimize?				
Vehicle Extension (s)	2.0	2.0		
Recall Mode	None	None		
Act Effct Green (s)	14.6	6.0		
Actuated g/C Ratio	0.11	0.04		
v/c Ratio	0.49	0.18		
Control Delay	63.8	1.7		
Queue Delay	0.0	0.0		
Total Delay	63.8	1.7		
LOS	E	A		
Approach Delay		1.7		
Approach LOS		A		
<b>Intersection Summary</b>				

Queues

15 Albany Turnpike, Canton, CT

6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Tailwind Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SBT	SBR	SEL
Lane Group Flow (vph)	309	1542	91	59	449	25	124	149	169	153	146	44
v/c Ratio	1.02	0.91	0.06	0.50	0.34	0.02	0.64	0.73	0.40	0.78	0.49	0.18
Control Delay	112.2	44.5	0.1	76.4	32.4	0.0	72.9	78.8	6.5	86.1	63.8	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	112.2	44.5	0.1	76.4	32.4	0.0	72.9	78.8	6.5	86.1	63.8	1.7
Queue Length 50th (ft)	~345	705	0	52	152	0	108	131	0	134	70	0
Queue Length 95th (ft)	#573	#967	0	98	198	0	171	200	43	#243	111	0
Internal Link Dist (ft)		994			535			879		784		801
Turn Bay Length (ft)	380		130	325							250	
Base Capacity (vph)	303	1690	1599	245	1318	1599	237	250	562	210	320	264
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.02	0.91	0.06	0.24	0.34	0.02	0.52	0.60	0.30	0.73	0.46	0.17

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

13: Bushy Hill Road/Bushy Hill Rd. & W. Mountain Rd./Simsbury Commons

2017 Existing AM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗		↕	↕		↕	
Traffic Volume (vph)	0	10	135	22	8	10	41	366	47	13	299	0
Future Volume (vph)	0	10	135	22	8	10	41	366	47	13	299	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		180	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.874					0.850		0.985			
Flt Protected					0.964			0.995			0.998	
Satd. Flow (prot)	0	1645	0	0	1832	1615	0	3510	0	0	3567	0
Flt Permitted					0.684			0.924			0.922	
Satd. Flow (perm)	0	1645	0	0	1300	1615	0	3259	0	0	3295	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		147				92		24				
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		536			693			493			335	
Travel Time (s)		12.2			15.8			8.4			5.7	
Peak Hour Factor	0.88	0.88	0.92	0.71	0.71	0.71	0.92	0.92	0.92	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	1%	0%	1%	1%	1%
Adj. Flow (vph)	0	11	147	31	11	14	45	398	51	14	322	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	158	0	0	42	14	0	494	0	0	336	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	3	3	1	1		1	1	
Detector Template	Left			Left			Left			Left		
Leading Detector (ft)	20	106		20	26	26	20	106		20	106	
Trailing Detector (ft)	0	100		0	-4	-4	0	100		0	100	
Detector 1 Position(ft)	0	100		0	-4	-4	0	100		0	100	
Detector 1 Size(ft)	20	6		20	6	6	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)					8	8						
Detector 2 Size(ft)					6	6						
Detector 2 Type					Cl+Ex	Cl+Ex						
Detector 2 Channel												
Detector 2 Extend (s)					0.0	0.0						
Detector 3 Position(ft)					20	20						
Detector 3 Size(ft)					6	6						



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Detector 3 Type							Cl+Ex	Cl+Ex					
Detector 3 Channel													
Detector 3 Extend (s)							0.0	0.0					
Turn Type	NA		Perm		NA	Perm	Prot	NA		Perm		NA	
Protected Phases	4				4		1	1 2		2			
Permitted Phases	4		4		4					2			
Detector Phase	4		4		4		1	1 2		2		2	
Switch Phase													
Minimum Initial (s)	7.0	7.0	7.0		7.0	7.0	5.0		15.0		15.0		
Minimum Split (s)	11.3	11.3	11.3		11.3	11.3	9.0		21.3		21.3		
Total Split (s)	29.3	29.3	29.3		29.3	29.3	11.0		46.3		46.3		
Total Split (%)	33.8%	33.8%	33.8%		33.8%	33.8%	12.7%		53.5%		53.5%		
Maximum Green (s)	25.0	25.0	25.0		25.0	25.0	7.0		40.0		40.0		
Yellow Time (s)	3.3	3.3	3.3		3.3	3.3	3.0		4.2		4.2		
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0		2.1		2.1		
Lost Time Adjust (s)	0.0				0.0	0.0							
Total Lost Time (s)	4.3				4.3	4.3							
Lead/Lag							Lead			Lag		Lag	
Lead-Lag Optimize?													
Vehicle Extension (s)	4.0	4.0	4.0		4.0	4.0	0.2		4.0		4.0		
Recall Mode	None	None	None		None	None	Max		Min		Min		
Act Effect Green (s)	7.3				7.3	7.3			24.7		15.2		
Actuated g/C Ratio	0.18				0.18	0.18			0.59		0.37		
v/c Ratio	0.38				0.18	0.04			0.40		0.28		
Control Delay	7.7				17.9	0.2			4.2		11.2		
Queue Delay	0.0				0.0	0.0			0.0		0.0		
Total Delay	7.7				17.9	0.2			4.2		11.2		
LOS	A				B	A			A		B		
Approach Delay	7.7				13.5				4.2		11.2		
Approach LOS	A				B				A		B		

Intersection Summary

Area Type:	Other
Cycle Length:	86.6
Actuated Cycle Length:	41.6
Natural Cycle:	45
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.40
Intersection Signal Delay:	7.5
Intersection LOS:	A
Intersection Capacity Utilization:	55.8%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 13: Bushy Hill Road/Bushy Hill Rd. & W. Mountain Rd./Simsbury Commons



Queues



Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	158	42	14	494	336
v/c Ratio	0.38	0.18	0.04	0.40	0.28
Control Delay	7.7	17.9	0.2	4.2	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	7.7	17.9	0.2	4.2	11.2
Queue Length 50th (ft)	2	9	0	18	31
Queue Length 95th (ft)	36	22	0	34	56
Internal Link Dist (ft)	456	613		413	255
Turn Bay Length (ft)			180		
Base Capacity (vph)	1060	793	1021	1767	3059
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.15	0.05	0.01	0.28	0.11

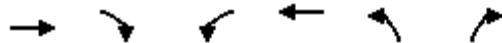
Intersection Summary



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↙↘	↑↑	↙↘	↑
Traffic Volume (vph)	1612	125	43	495	46	39
Future Volume (vph)	1612	125	43	495	46	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	12	12
Storage Length (ft)		220	420		0	0
Storage Lanes		1	2		2	1
Taper Length (ft)			130		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Fr <sub>t</sub>		0.850				0.850
Fl <sub>t</sub> Protected			0.950		0.950	
Satd. Flow (prot)	3455	1561	3385	3574	3502	1615
Fl <sub>t</sub> Permitted			0.950		0.950	
Satd. Flow (perm)	3455	1561	3385	3574	3502	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		136				28
Link Speed (mph)	40			40	30	
Link Distance (ft)	827			847	604	
Travel Time (s)	14.1			14.4	13.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.90	0.90
Heavy Vehicles (%)	1%	0%	0%	1%	0%	0%
Adj. Flow (vph)	1752	136	47	538	51	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1752	136	47	538	51	43
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	22			22	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.04	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	0	3	2	3	3
Detector Template						
Leading Detector (ft)	356	0	38	356	26	26
Trailing Detector (ft)	180	0	0	180	0	0
Detector 1 Position(ft)	180	350	0	180	0	0
Detector 1 Size(ft)	6	6	6	6	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	350		16	350	10	10
Detector 2 Size(ft)	6		6	6	6	6
Detector 2 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 3 Position(ft)			32		20	20

Lanes, Volumes, Timings  
 21: Shops at Farmington Valley & Albany Turnpike (Route 44 & 202)

15 Albany Turnpike, Canton, CT  
 2017 Existing AM

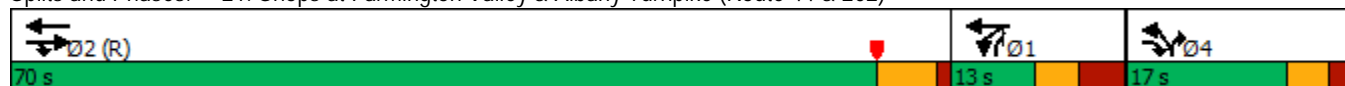


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 3 Size(ft)			6		6	6
Detector 3 Type			Cl+Ex		Cl+Ex	Cl+Ex
Detector 3 Channel						
Detector 3 Extend (s)			0.0		0.0	0.0
Turn Type	NA	pt+ov	Prot	NA	Prot	pt+ov
Protected Phases	2	2 4	1	1 2	4	4 1
Permitted Phases						
Detector Phase	2	2 4	1	1 2	4	4 1
Switch Phase						
Minimum Initial (s)	15.0		5.0		9.0	
Minimum Split (s)	20.5		11.8		14.0	
Total Split (s)	70.0		13.0		17.0	
Total Split (%)	70.0%		13.0%		17.0%	
Maximum Green (s)	64.5		6.2		12.0	
Yellow Time (s)	4.4		3.2		3.0	
All-Red Time (s)	1.1		3.6		2.0	
Lost Time Adjust (s)	0.0		0.0		0.0	
Total Lost Time (s)	5.5		6.8		5.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	2.5		1.5		1.5	
Recall Mode	C-Min		None		None	
Act Effct Green (s)	68.4	82.4	5.3	79.2	9.0	21.1
Actuated g/C Ratio	0.68	0.82	0.05	0.79	0.09	0.21
v/c Ratio	0.74	0.10	0.26	0.19	0.16	0.12
Control Delay	13.9	0.9	44.0	2.3	43.4	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.9	0.9	44.0	2.3	43.4	17.2
LOS	B	A	D	A	D	B
Approach Delay	13.0			5.7	31.4	
Approach LOS	B			A	C	

Intersection Summary

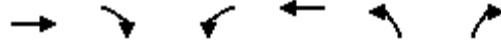
Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 85 (85%), Referenced to phase 2:EBWB, Start of Yellow  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.74  
 Intersection Signal Delay: 12.0  
 Intersection LOS: B  
 Intersection Capacity Utilization 60.8%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 21: Shops at Farmington Valley & Albany Turnpike (Route 44 & 202)



Queues

21: Shops at Farmington Valley & Albany Turnpike (Route 44 & 202)



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1752	136	47	538	51	43
v/c Ratio	0.74	0.10	0.26	0.19	0.16	0.12
Control Delay	13.9	0.9	44.0	2.3	43.4	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.9	0.9	44.0	2.3	43.4	17.2
Queue Length 50th (ft)	329	0	14	34	15	8
Queue Length 95th (ft)	532	18	34	17	34	36
Internal Link Dist (ft)	747			767	524	
Turn Bay Length (ft)		220	420			
Base Capacity (vph)	2362	1274	209	2862	420	361
Starvation Cap Reductn	4	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.11	0.22	0.19	0.12	0.12

Intersection Summary



Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

23: Fox Hollow/CVS Driveway & Albany Turnpike (Route 44 & 202)

2017 Existing AM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	1333	32	17	538	22	23	5	9	36	0	2
Future Volume (vph)	13	1333	32	17	538	22	23	5	9	36	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	13	12	12	12
Storage Length (ft)	130		0	130		150	0		80	0		0
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	70			90			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.996				0.850			0.850			0.850
Fl <sub>t</sub> Protected	0.950			0.950				0.961			0.950	
Satd. Flow (prot)	1745	3476	0	1745	3455	1561	0	1765	1669	0	1805	1615
Fl <sub>t</sub> Permitted	0.402			0.150				0.735			0.732	
Satd. Flow (perm)	738	3476	0	276	3455	1561	0	1350	1669	0	1391	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				70			99			99
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1110			920			549			426	
Travel Time (s)		21.6			17.9			15.0			11.6	
Peak Hour Factor	0.94	0.94	0.94	0.82	0.82	0.82	0.71	0.71	0.71	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	14	1418	34	21	656	27	32	7	13	42	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	1452	0	21	656	27	0	39	13	0	42	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	0.96	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	0		1	0	0	1	1	1	1	1	1
Detector Template							Left			Left		
Leading Detector (ft)	40	0		40	0	0	20	30	30	20	30	30
Trailing Detector (ft)	0	0		0	0	0	0	-10	-10	0	-10	-10
Detector 1 Position(ft)	0	0		0	0	0	0	-10	-10	0	-10	-10
Detector 1 Size(ft)	40	6		40	6	20	20	40	40	20	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6		5	2			4			4	
Permitted Phases	6			2		2	4		4	4		4
Detector Phase	1	6		5	2	2	4	4	4	4	4	4
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	4.0	4.0	4.0	4.0	4.0



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	8.0	22.2		8.0	22.2	22.2	8.8	8.8	8.8	8.8	8.8	8.8
Total Split (s)	12.0	58.0		12.0	58.0	58.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (%)	13.3%	64.4%		13.3%	64.4%	64.4%	22.2%	22.2%	22.2%	22.2%	22.2%	22.2%
Maximum Green (s)	8.0	50.8		8.0	50.8	50.8	15.2	15.2	15.2	15.2	15.2	15.2
Yellow Time (s)	3.0	4.2		3.0	4.2	4.2	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	3.0		1.0	3.0	3.0	1.8	1.8	1.8	1.8	1.8	1.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	7.2		4.0	7.2	7.2		4.8	4.8		4.8	4.8
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	0.2		1.5	0.2	0.2	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None
Act Effect Green (s)	73.9	70.4		74.8	72.1	72.1		7.6	7.6		7.6	7.6
Actuated g/C Ratio	0.82	0.78		0.83	0.80	0.80		0.08	0.08		0.08	0.08
v/c Ratio	0.02	0.53		0.07	0.24	0.02		0.35	0.06		0.36	0.01
Control Delay	2.1	6.5		2.4	3.7	0.0		46.2	0.4		46.7	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	2.1	6.5		2.4	3.7	0.0		46.2	0.4		46.7	0.0
LOS	A	A		A	A	A		D	A		D	A
Approach Delay		6.5			3.5			34.8			44.6	
Approach LOS		A			A			C			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 15 (17%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.53  
 Intersection Signal Delay: 7.0  
 Intersection LOS: A  
 Intersection Capacity Utilization 58.5%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 23: Fox Hollow/CVS Driveway & Albany Turnpike (Route 44 & 202)



Queues

23: Fox Hollow/CVS Driveway & Albany Turnpike (Route 44 & 202)



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	14	1452	21	656	27	39	13	42	2
v/c Ratio	0.02	0.53	0.07	0.24	0.02	0.35	0.06	0.36	0.01
Control Delay	2.1	6.5	2.4	3.7	0.0	46.2	0.4	46.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.1	6.5	2.4	3.7	0.0	46.2	0.4	46.7	0.0
Queue Length 50th (ft)	1	122	2	39	0	21	0	23	0
Queue Length 95th (ft)	5	295	6	89	0	40	0	51	0
Internal Link Dist (ft)		1030		840		469		346	
Turn Bay Length (ft)	130		130		150		80		
Base Capacity (vph)	707	2720	361	2768	1264	228	364	234	355
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.53	0.06	0.24	0.02	0.17	0.04	0.18	0.01

Intersection Summary

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

24: Dale Rd./Simsbury Commons & Albany Turnpike (Route 44 & 202)

2017 Existing AM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	1211	23	54	455	31	5	22	160	27	14	26
Future Volume (vph)	33	1211	23	54	455	31	5	22	160	27	14	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	12	12	11	11	12	12	12	12
Storage Length (ft)	180		0	450		525	200		0	0		0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	115			80			50			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.997				0.850		0.868				0.850
Fl <sub>t</sub> Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1745	3445	0	1770	3574	1615	1454	1594	0	1805	1900	1615
Fl <sub>t</sub> Permitted	0.950			0.950			0.745			0.339		
Satd. Flow (perm)	1745	3445	0	1770	3574	1615	1140	1594	0	644	1900	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				61		213				74
Link Speed (mph)		35			35			25				25
Link Distance (ft)		791			1110			639				380
Travel Time (s)		15.4			21.6			17.4				10.4
Peak Hour Factor	0.90	0.90	0.90	0.85	0.85	0.85	0.75	0.75	0.75	0.73	0.73	0.73
Heavy Vehicles (%)	0%	1%	0%	2%	1%	0%	20%	0%	0%	0%	0%	0%
Adj. Flow (vph)	37	1346	26	64	535	36	7	29	213	37	19	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	1372	0	64	535	36	7	242	0	37	19	36
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.00	1.00	1.00	1.04	1.04	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1		1	1	1
Detector Template										Left		
Leading Detector (ft)	25	306		25	256	256	20	20		30	30	40
Trailing Detector (ft)	-5	300		-5	250	250	-10	-10		0	0	-10
Detector 1 Position(ft)	-5	300		-5	250	250	-10	-10		0	0	-10
Detector 1 Size(ft)	30	6		30	6	6	30	30		30	30	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4				4
Permitted Phases						2	4			4		4
Detector Phase	1	6		5	2	2	4	4		4	4	4
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	15.0	15.0	7.0	7.0		7.0	7.0	7.0



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	12.5	20.6		12.5	20.6	20.6	11.2	11.2		11.2	11.2	11.2
Total Split (s)	20.0	65.0		25.0	70.0	70.0	30.0	30.0		30.0	30.0	30.0
Total Split (%)	16.7%	54.2%		20.8%	58.3%	58.3%	25.0%	25.0%		25.0%	25.0%	25.0%
Maximum Green (s)	14.5	59.4		19.5	64.4	64.4	25.8	25.8		25.8	25.8	25.8
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.5	1.3		2.5	1.3	1.3	1.2	1.2		1.2	1.2	1.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.5	5.6		5.5	5.6	5.6	4.2	4.2		4.2	4.2	4.2
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	5.0		1.5	8.0	8.0	2.0	2.0		2.0	2.0	2.0
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None		None	None	None
Act Effect Green (s)	7.6	86.5		8.9	90.3	90.3	11.8	11.8		11.8	11.8	11.8
Actuated g/C Ratio	0.06	0.72		0.07	0.75	0.75	0.10	0.10		0.10	0.10	0.10
v/c Ratio	0.34	0.55		0.49	0.20	0.03	0.06	0.70		0.59	0.10	0.16
Control Delay	56.1	4.9		65.6	5.8	0.8	46.8	20.5		85.3	47.6	2.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	56.1	5.0		65.6	5.8	0.8	46.8	20.5		85.3	47.6	2.5
LOS	E	A		E	A	A	D	C		F	D	A
Approach Delay		6.3			11.5			21.3			45.1	
Approach LOS		A			B			C			D	

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	20 (17%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.70
Intersection Signal Delay:	10.8
Intersection LOS:	B
Intersection Capacity Utilization	73.2%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 24: Dale Rd./Simsbury Commons & Albany Turnpike (Route 44 & 202)



Queues

24: Dale Rd./Simsbury Commons & Albany Turnpike (Route 44 & 202)

15 Albany Turnpike, Canton, CT

2017 Existing AM



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	37	1372	64	535	36	7	242	37	19	36
v/c Ratio	0.34	0.55	0.49	0.20	0.03	0.06	0.70	0.59	0.10	0.16
Control Delay	56.1	4.9	65.6	5.8	0.8	46.8	20.5	85.3	47.6	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.1	5.0	65.6	5.8	0.8	46.8	20.5	85.3	47.6	2.5
Queue Length 50th (ft)	30	126	49	63	0	5	21	28	14	0
Queue Length 95th (ft)	m45	120	88	104	4	16	51	50	28	0
Internal Link Dist (ft)		711		1030			559		300	
Turn Bay Length (ft)	180		450		525	200				
Base Capacity (vph)	210	2484	287	2688	1229	245	509	138	408	405
Starvation Cap Reductn	0	61	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.57	0.22	0.20	0.03	0.03	0.48	0.27	0.05	0.09

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

25: W. Avon Rd./Bushy Hill Road & Albany Turnpike (Route 44 & 202)

2017 Existing AM



Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SER
Lane Configurations												
Traffic Volume (vph)	44	404	29	101	217	33	109	204	120	221	1117	107
Future Volume (vph)	44	404	29	101	217	33	109	204	120	221	1117	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	11	11	11	11	12	12
Storage Length (ft)	375	0		200		0	0		0		220	0
Storage Lanes	1	2		1		0	1		1		2	0
Taper Length (ft)	125			150			25				140	
Lane Util. Factor	1.00	0.88	1.00	1.00	0.95	0.95	1.00	1.00	1.00	0.97	0.97	0.95
Frt		0.850			0.980				0.850		0.987	
Flt Protected	0.950			0.950			0.950			0.950	0.956	
Satd. Flow (prot)	1745	2722	0	1728	3507	0	1745	1818	1546	3385	3447	0
Flt Permitted	0.950			0.950			0.950			0.950	0.956	
Satd. Flow (perm)	1745	2722	0	1728	3507	0	1745	1818	1546	3385	3447	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		108			12				136		108	
Link Speed (mph)	40				25			40			40	
Link Distance (ft)	791				809			493			815	
Travel Time (s)	13.5				22.1			8.4			13.9	
Peak Hour Factor	0.89	0.89	0.89	0.94	0.94	0.94	0.88	0.88	0.88	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	0%	1%	1%	0%	0%	1%	1%	0%	1%	0%
Adj. Flow (vph)	49	454	33	107	231	35	124	232	136	235	1188	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	49	487	0	107	266	0	124	232	136	235	1302	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	11				11			11			46	
Link Offset(ft)	0				0			0			0	
Crosswalk Width(ft)	16				16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.04	1.00	1.00	1.04	1.04	1.04	1.04	1.00	1.00
Turning Speed (mph)	15	9	9	15		9	15		9	15	15	9
Number of Detectors	1	2		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	40	368		34	30		30	30	30	40	190	
Trailing Detector (ft)	0	176		-6	-10		-10	-10	-10	0	184	
Detector 1 Position(ft)	0	176		-6	-10		-10	-10	-10	0	184	
Detector 1 Size(ft)	40	6		40	40		40	40	40	40	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		362										
Detector 2 Size(ft)		6										
Detector 2 Type		Cl+Ex										
Detector 2 Channel												
Detector 2 Extend (s)		0.0										
Turn Type	Prot	Prot		Prot	NA		Prot	NA	pt+ov	Prot	Prot	

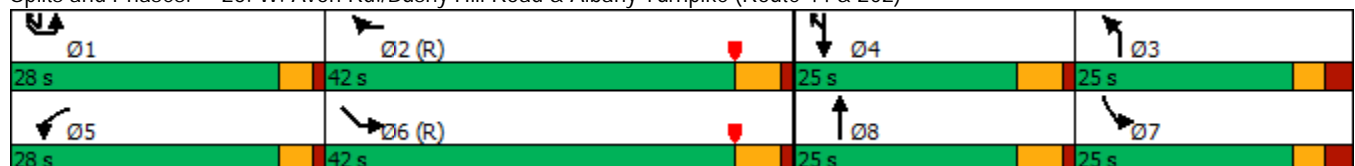


Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SER
Protected Phases	5	2		3	8		7	4	14	1	6	
Permitted Phases												
Detector Phase	5	2		3	8		7	4	14	1	6	
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	7.0		7.0	7.0		7.0	15.0	
Minimum Split (s)	11.0	20.4		12.6	12.2		12.6	12.2		11.1	20.4	
Total Split (s)	28.0	42.0		25.0	25.0		25.0	25.0		28.0	42.0	
Total Split (%)	23.3%	35.0%		20.8%	20.8%		20.8%	20.8%		23.3%	35.0%	
Maximum Green (s)	24.0	36.6		19.4	19.8		19.4	19.8		23.9	36.6	
Yellow Time (s)	3.0	4.2		3.0	4.2		3.0	4.2		3.0	4.2	
All-Red Time (s)	1.0	1.2		2.6	1.0		2.6	1.0		1.1	1.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.4		5.6	5.2		5.6	5.2		4.1	5.4	
Lead/Lag	Lead	Lag		Lag	Lead		Lag	Lead		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	4.0		1.5	2.0		1.5	2.0		1.5	4.0	
Recall Mode	None	C-Min		None	None		None	None		None	C-Min	
Act Effct Green (s)	8.1	57.8		11.6	13.3		16.3	18.1	31.4	12.2	64.2	
Actuated g/C Ratio	0.07	0.48		0.10	0.11		0.14	0.15	0.26	0.10	0.54	
v/c Ratio	0.42	0.36		0.64	0.67		0.52	0.85	0.27	0.68	0.69	
Control Delay	71.2	13.6		69.0	56.9		55.8	76.3	4.3	70.6	20.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	71.2	13.6		69.0	56.9		55.8	76.3	4.3	70.6	20.5	
LOS	E	B		E	E		E	E	A	E	C	
Approach Delay	18.9				60.4			51.2			28.1	
Approach LOS	B				E			D			C	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 5 (4%), Referenced to phase 2:WBR and 6:SEL, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.85  
 Intersection Signal Delay: 34.4  
 Intersection LOS: C  
 Intersection Capacity Utilization 74.5%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 25: W. Avon Rd./Bushy Hill Road & Albany Turnpike (Route 44 & 202)





Queues



Lane Group	WBL	WBR	NBL	NBT	SBL	SBT	SBR	SEL2	SEL
Lane Group Flow (vph)	49	487	107	266	124	232	136	235	1302
v/c Ratio	0.42	0.36	0.64	0.67	0.52	0.85	0.27	0.68	0.69
Control Delay	71.2	13.6	69.0	56.9	55.8	76.3	4.3	70.6	20.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.2	13.6	69.0	56.9	55.8	76.3	4.3	70.6	20.5
Queue Length 50th (ft)	38	105	81	101	89	174	0	97	372
Queue Length 95th (ft)	83	169	136	142	147	#282	28	131	520
Internal Link Dist (ft)	711			729		413			735
Turn Bay Length (ft)	375		200					220	220
Base Capacity (vph)	349	1366	279	588	282	299	662	674	1893
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.36	0.38	0.45	0.44	0.78	0.21	0.35	0.69

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

35: Secret Lake/Car Dealer & Albany Turnpike (Route 44 & 202)

2017 Existing AM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1648	0	2	540	1	7	0	1	0	0	5
Future Volume (vph)	3	1648	0	2	540	1	7	0	1	0	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	11	11	11	11	12	12	12	12	12	12
Storage Length (ft)	50		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	75			70			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>								0.986				0.865
Fl <sub>t</sub> Protected	0.950			0.950				0.957				
Satd. Flow (prot)	1745	3574	0	1745	3455	0	0	1793	0	0	1627	0
Fl <sub>t</sub> Permitted	0.430			0.950				0.957				
Satd. Flow (perm)	790	3574	0	1745	3455	0	0	1793	0	0	1627	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)								155				436
Link Speed (mph)		40			40			25				30
Link Distance (ft)		847			3567			498				493
Travel Time (s)		14.4			60.8			13.6				11.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.80	0.80	0.80	0.90	0.90	0.90
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	1%
Adj. Flow (vph)	3	1791	0	2	587	1	9	0	1	0	0	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	1791	0	2	588	0	0	10	0	0	6	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		22			22			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.04	1.04	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	3	0		3	0		1	3		1	2	
Detector Template							Left					
Leading Detector (ft)	26	0		26	0		20	26		6	16	
Trailing Detector (ft)	0	0		0	0		0	0		0	-6	
Detector 1 Position(ft)	0	0		0	894		0	0		0	-6	
Detector 1 Size(ft)	6	6		6	6		20	6		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	10			10			10				10	
Detector 2 Size(ft)	6			6			6				6	
Detector 2 Type	Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0			0.0			0.0				0.0	
Detector 3 Position(ft)	20			20			20					



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Size(ft)	6			6			6					
Detector 3 Type	Cl+Ex			Cl+Ex			Cl+Ex					
Detector 3 Channel												
Detector 3 Extend (s)	0.0			0.0			0.0					
Turn Type	pm+pt	NA		Prot	NA		Split		NA		NA	
Protected Phases	1	6		5	2		7		7		8	8
Permitted Phases	6											
Detector Phase	1	6		5	2		7		7		8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0		9.0		9.0		7.0	7.0
Minimum Split (s)	9.0	22.0		9.0	22.0		15.2		15.2		13.2	13.2
Total Split (s)	10.0	58.0		10.0	58.0		17.0		17.0		15.0	15.0
Total Split (%)	10.0%	58.0%		10.0%	58.0%		17.0%		17.0%		15.0%	15.0%
Maximum Green (s)	6.0	51.0		6.0	51.0		10.8		10.8		8.8	8.8
Yellow Time (s)	3.0	4.4		3.0	4.4		3.0		3.0		3.0	3.0
All-Red Time (s)	1.0	2.6		1.0	2.6		3.2		3.2		3.2	3.2
Lost Time Adjust (s)	0.0			0.0			0.0			0.0		
Total Lost Time (s)	4.0	7.0		4.0	7.0		6.2			6.2		
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead		Lag		Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	2.5		1.5	2.5		1.5		1.5		1.5	1.5
Recall Mode	None	C-Min		None	C-Min		None		None		None	None
Act Effct Green (s)	89.5	91.1		5.0	91.1		9.0		9.0		7.0	
Actuated g/C Ratio	0.90	0.91		0.05	0.91		0.09		0.09		0.07	
v/c Ratio	0.00	0.55		0.02	0.19		0.03		0.03		0.01	
Control Delay	2.3	4.7		46.0	3.5		0.2		0.2		0.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0		0.0		0.0	
Total Delay	2.3	4.7		46.0	3.5		0.2		0.2		0.0	
LOS	A	A		D	A		A		A		A	
Approach Delay	4.7		3.6		0.3							
Approach LOS	A		A		A							

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 89 (89%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.55  
 Intersection Signal Delay: 4.4  
 Intersection LOS: A  
 Intersection Capacity Utilization 64.1%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 35: Secret Lake/Car Dealer & Albany Turnpike (Route 44 & 202)





Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	3	1791	2	588	10	6
v/c Ratio	0.00	0.55	0.02	0.19	0.03	0.01
Control Delay	2.3	4.7	46.0	3.5	0.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.3	4.7	46.0	3.5	0.2	0.0
Queue Length 50th (ft)	0	0	1	0	0	0
Queue Length 95th (ft)	m0	#676	9	133	0	0
Internal Link Dist (ft)		767		3487	418	413
Turn Bay Length (ft)	50		100			
Base Capacity (vph)	765	3257	104	3148	331	540
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.55	0.02	0.19	0.03	0.01

#### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

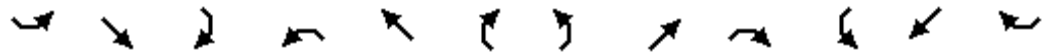
m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

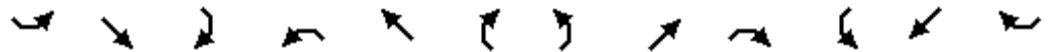
1: Auto Spa Car Wash/Hoffman Auto Park & Albany Turnpike (Route 44 & 202)

2017 Existing PM



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	14	881	29	12	1415	28	17	0	9	148	0	56
Future Volume (vph)	14	881	29	12	1415	28	17	0	9	148	0	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	12	12	12	12	12	12	12
Storage Length (ft)	140		0	250		0	0		50	0		100
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	50			100			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.995			0.997				0.850			0.850
Flt Protected	0.950			0.950				0.950			0.950	
Satd. Flow (prot)	1745	3439	0	1745	3564	0	0	1805	1615	0	1805	1615
Flt Permitted	0.076			0.283				0.463			0.740	
Satd. Flow (perm)	140	3439	0	520	3564	0	0	880	1615	0	1406	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			3				121			73
Link Speed (mph)		40			40			25				30
Link Distance (ft)		3567			815			631				754
Travel Time (s)		60.8			13.9			17.2				17.1
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.65	0.65	0.65	0.86	0.86	0.86
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	16	979	32	13	1474	29	26	0	14	172	0	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	1011	0	13	1503	0	0	26	14	0	172	65
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		22			22			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	3	0		0	0		1	2	2	1	3	3
Detector Template							Left			Left		
Leading Detector (ft)	30	0		0	0		20	16	16	20	16	16
Trailing Detector (ft)	-6	0		0	0		0	0	0	0	-10	-10
Detector 1 Position(ft)	-6	390		0	0		0	0	0	0	-10	-10
Detector 1 Size(ft)	6	6		6	20		20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	12						10	10			0	0
Detector 2 Size(ft)	6						6	6			6	6
Detector 2 Type	Cl+Ex						Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0						0.0	0.0			0.0	0.0
Detector 3 Position(ft)	24										10	10

Lane Group	Ø1
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Fr <sub>t</sub>	
Fl <sub>t</sub> Protected	
Satd. Flow (prot)	
Fl <sub>t</sub> Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Detector 3 Position(ft)	

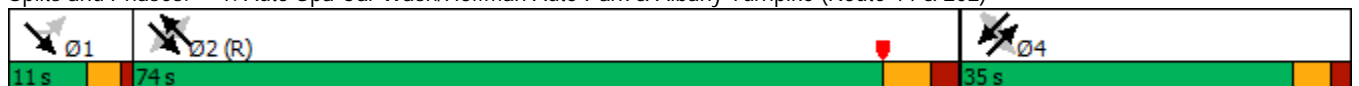


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector 3 Size(ft)	6						6					
Detector 3 Type	Cl+Ex						Cl+Ex					
Detector 3 Channel												
Detector 3 Extend (s)	0.0						0.0					
Turn Type	Perm	NA		Perm	NA		Perm	NA	NA	Perm	NA	Perm
Protected Phases	1 2			2			4			4		
Permitted Phases	1 2			2			4			4		
Detector Phase	1 2	1 2		2	2		4	4		4	4	4
Switch Phase												
Minimum Initial (s)				15.0	15.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)				22.0	22.0		15.3	15.3		15.3	15.3	15.3
Total Split (s)				74.0	74.0		35.0	35.0		35.0	35.0	35.0
Total Split (%)				61.7%	61.7%		29.2%	29.2%		29.2%	29.2%	29.2%
Maximum Green (s)				67.0	67.0		29.7	29.7		29.7	29.7	29.7
Yellow Time (s)				4.3	4.3		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)				2.7	2.7		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)				0.0	0.0		0.0			0.0	0.0	0.0
Total Lost Time (s)				7.0	7.0		5.3			5.3	5.3	5.3
Lead/Lag				Lag	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)				0.2	0.2		1.5	1.5		1.5	1.5	1.5
Recall Mode				C-Max	C-Max		None	None		None	None	None
Act Effect Green (s)	91.9	91.9		70.8	70.8		18.8	0.0		18.8	18.8	18.8
Actuated g/C Ratio	0.77	0.77		0.59	0.59		0.16	0.00		0.16	0.16	0.16
v/c Ratio	0.15	0.38		0.04	0.72		0.19	0.12		0.78	0.21	0.21
Control Delay	9.0	5.7		6.4	7.9		44.4	1.9		71.4	9.0	9.0
Queue Delay	0.0	0.0		0.0	0.3		0.0	0.0		0.0	0.0	0.0
Total Delay	9.0	5.7		6.4	8.2		44.4	1.9		71.4	9.0	9.0
LOS	A	A		A	A		D	A		E	A	A
Approach Delay				5.7	8.2		29.5			54.3		
Approach LOS				A	A		C			D		

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 35 (29%), Referenced to phase 2:NWSE, Start of Yellow  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.78  
 Intersection Signal Delay: 11.5  
 Intersection LOS: B  
 Intersection Capacity Utilization 71.3%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 1: Auto Spa Car Wash/Hoffman Auto Park & Albany Turnpike (Route 44 & 202)



Lane Group	Ø1
Detector 3 Size(ft)	
Detector 3 Type	
Detector 3 Channel	
Detector 3 Extend (s)	
Turn Type	
Protected Phases	1
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	11.0
Total Split (s)	11.0
Total Split (%)	9%
Maximum Green (s)	7.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	



Queues

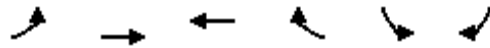
1: Auto Spa Car Wash/Hoffman Auto Park & Albany Turnpike (Route 44 & 202)



Lane Group	SEL	SET	NWL	NWT	NET	NER	SWT	SWR
Lane Group Flow (vph)	16	1011	13	1503	26	14	172	65
v/c Ratio	0.15	0.38	0.04	0.72	0.19	0.12	0.78	0.21
Control Delay	9.0	5.7	6.4	7.9	44.4	1.9	71.4	9.0
Queue Delay	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Total Delay	9.0	5.7	6.4	8.2	44.4	1.9	71.4	9.0
Queue Length 50th (ft)	3	114	2	154	18	0	130	0
Queue Length 95th (ft)	15	192	m3	m163	30	0	184	29
Internal Link Dist (ft)		3487		735	551		674	
Turn Bay Length (ft)	140		250			50		100
Base Capacity (vph)	107	2635	306	2102	217	121	347	454
Starvation Cap Reductn	0	0	0	149	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.38	0.04	0.77	0.12	0.12	0.50	0.14

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	18	1042	1595	53	18	11
Future Volume (vph)	18	1042	1595	53	18	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			120	0	0
Storage Lanes	1			1	2	0
Taper Length (ft)	80				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.95
Frt				0.850	0.943	
Flt Protected	0.950				0.970	
Satd. Flow (prot)	1805	3574	3574	1615	3351	0
Flt Permitted	0.106				0.970	
Satd. Flow (perm)	201	3574	3574	1615	3351	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				58	13	
Link Speed (mph)		30	40		30	
Link Distance (ft)		615	827		249	
Travel Time (s)		14.0	14.1		5.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.85	0.85
Heavy Vehicles (%)	0%	1%	1%	0%	1%	0%
Adj. Flow (vph)	20	1133	1734	58	21	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	1133	1734	58	34	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	3	0	0	0	1	
Detector Template						
Leading Detector (ft)	27	0	0	0	47	
Trailing Detector (ft)	-3	0	0	0	-3	
Detector 1 Position(ft)	-3	200	200	0	-3	
Detector 1 Size(ft)	6	6	6	20	50	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)	9					
Detector 2 Size(ft)	6					
Detector 2 Type	Cl+Ex					
Detector 2 Channel						
Detector 2 Extend (s)	0.0					
Detector 3 Position(ft)	21					
Detector 3 Size(ft)	6					

Lanes, Volumes, Timings  
 4: Albany Turnpike (Route 44 & 202) & CVS Canton Driveway

15 Albany Turnpike, Canton, CT  
 2017 Existing PM



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 3 Type	Cl+Ex					
Detector 3 Channel						
Detector 3 Extend (s)	0.0					
Turn Type	pm+pt	NA	NA	pt+ov	Prot	
Protected Phases	1	6	2	2 4	4	
Permitted Phases	6					
Detector Phase	1	6	2	2 4	4	
Switch Phase						
Minimum Initial (s)	5.0	25.0	25.0			7.0
Minimum Split (s)	8.1	30.3	30.3			11.0
Total Split (s)	12.0	82.0	70.0			18.0
Total Split (%)	12.0%	82.0%	70.0%			18.0%
Maximum Green (s)	8.9	76.7	64.7			14.0
Yellow Time (s)	3.0	4.3	4.3			3.0
All-Red Time (s)	0.1	1.0	1.0			1.0
Lost Time Adjust (s)	0.0	0.0	0.0			0.0
Total Lost Time (s)	3.1	5.3	5.3			4.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	0.2	0.2			2.0
Recall Mode	None	C-Max	C-Max			None
Act Effect Green (s)	88.1	87.0	83.7	94.6	7.0	
Actuated g/C Ratio	0.88	0.87	0.84	0.95	0.07	
v/c Ratio	0.08	0.36	0.58	0.04	0.14	
Control Delay	1.6	2.0	3.6	0.4	32.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	1.6	2.0	3.6	0.4	32.4	
LOS	A	A	A	A	C	
Approach Delay	2.0		3.5			32.4
Approach LOS	A		A			C

Intersection Summary

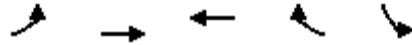
Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	20 (20%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.58
Intersection Signal Delay:	3.3
Intersection LOS:	A
Intersection Capacity Utilization:	57.7%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 4: Albany Turnpike (Route 44 & 202) & CVS Canton Driveway



Queues

4: Albany Turnpike (Route 44 & 202) & CVS Canton Driveway



Lane Group	EBL	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	20	1133	1734	58	34
v/c Ratio	0.08	0.36	0.58	0.04	0.14
Control Delay	1.6	2.0	3.6	0.4	32.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	1.6	2.0	3.6	0.4	32.4
Queue Length 50th (ft)	1	62	28	0	6
Queue Length 95th (ft)	3	78	249	m5	20
Internal Link Dist (ft)		535	747		169
Turn Bay Length (ft)	150			120	
Base Capacity (vph)	319	3108	2992	1575	480
Starvation Cap Reductn	0	0	54	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.06	0.36	0.59	0.04	0.07

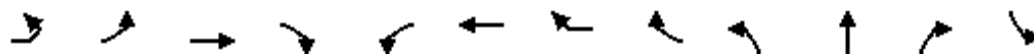
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Tailor Road



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL
Lane Configurations		↔	↕↕	↗	↖	↕↕		↗	↖	↕	↗	
Traffic Volume (vph)	11	168	775	60	185	1308	1	68	148	75	139	82
Future Volume (vph)	11	168	775	60	185	1308	1	68	148	75	139	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		380		130	325		0				0	0
Storage Lanes		1		1	1		1				1	0
Taper Length (ft)		300			75							25
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00
Frt				0.850				0.850			0.850	
Flt Protected		0.950			0.950				0.950			
Satd. Flow (prot)	0	1788	3574	1599	1787	3574	0	1599	1787	1881	1599	0
Flt Permitted		0.950			0.950				0.950			
Satd. Flow (perm)	0	1788	3574	1599	1787	3574	0	1599	1787	1881	1599	0
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)				263				263			148	
Link Speed (mph)			40			40				40		
Link Distance (ft)			1074			615				959		
Travel Time (s)			18.3			10.5				16.3		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	1%	1%	1%	1%	0%	1%	1%	1%	1%	0%
Adj. Flow (vph)	12	183	842	65	201	1422	1	74	157	80	148	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	195	842	65	201	1423	0	74	157	80	148	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Right	Left	Left	Right	Left
Median Width(ft)			12			12				12		
Link Offset(ft)			0			0				0		
Crosswalk Width(ft)			16			16				16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15		9	15		9	9	15		9	15
Number of Detectors	1	3	2	0	3	2		0	3	3	3	1
Detector Template	Left											Left
Leading Detector (ft)	20	20	281	0	24	331		0	24	24	24	20
Trailing Detector (ft)	0	-10	100	0	-6	150		0	-6	-6	-6	0
Detector 1 Position(ft)	0	-10	100	0	-6	150		0	-6	-6	-6	0
Detector 1 Size(ft)	20	6	6	20	6	6		20	6	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		2	275		6	325			6	6	6	
Detector 2 Size(ft)		6	6		6	6			6	6	6	
Detector 2 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0	0.0		0.0	0.0			0.0	0.0	0.0	
Detector 3 Position(ft)		14			18				18	18	18	
Detector 3 Size(ft)		6			6				6	6	6	

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Tailor Road

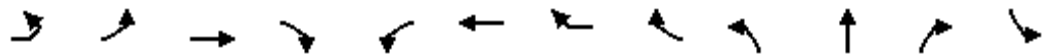


Lane Group	SBT	SBR	SEL	SER	SER2
Lane Configurations	↑	↑↑	↑↑		
Traffic Volume (vph)	121	316	7	1	10
Future Volume (vph)	121	316	7	1	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Storage Length (ft)		250	0	0	
Storage Lanes		2	1	0	
Taper Length (ft)			25		
Lane Util. Factor	1.00	0.88	1.00	1.00	1.00
Frt		0.850	0.919		
Flt Protected	0.980		0.980		
Satd. Flow (prot)	1851	2814	1711	0	0
Flt Permitted	0.980		0.980		
Satd. Flow (perm)	1851	2814	1711	0	0
Right Turn on Red					Yes
Satd. Flow (RTOR)			223		
Link Speed (mph)	40		30		
Link Distance (ft)	864		881		
Travel Time (s)	14.7		20.0		
Peak Hour Factor	0.94	0.94	0.87	0.87	0.87
Heavy Vehicles (%)	1%	1%	0%	0%	0%
Adj. Flow (vph)	129	336	8	1	11
Shared Lane Traffic (%)					
Lane Group Flow (vph)	216	336	20	0	0
Enter Blocked Intersection	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Right
Median Width(ft)	12		12		
Link Offset(ft)	0		0		
Crosswalk Width(ft)	16		16		
Two way Left Turn Lane					
Headway Factor	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15	9	9
Number of Detectors	3	3	0		
Detector Template					
Leading Detector (ft)	24	24	0		
Trailing Detector (ft)	-6	-6	0		
Detector 1 Position(ft)	-6	-6	0		
Detector 1 Size(ft)	6	6	20		
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel					
Detector 1 Extend (s)	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0		
Detector 2 Position(ft)	6	6			
Detector 2 Size(ft)	6	6			
Detector 2 Type	Cl+Ex	Cl+Ex			
Detector 2 Channel					
Detector 2 Extend (s)	0.0	0.0			
Detector 3 Position(ft)	18	18			
Detector 3 Size(ft)	6	6			

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Trailsend Road

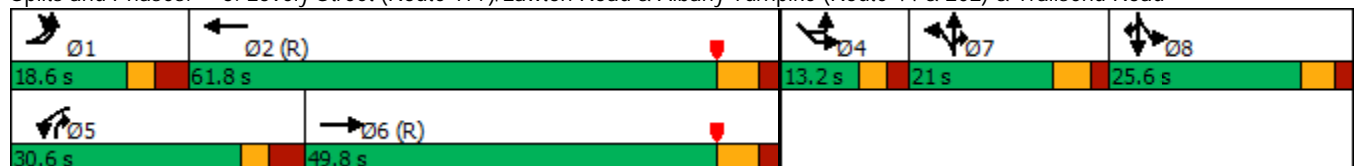


Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL
Detector 3 Type	Cl+Ex			Cl+Ex				Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 3 Channel												
Detector 3 Extend (s)	0.0			0.0				0.0		0.0	0.0	0.0
Turn Type	Prot	Prot	NA	Free	Prot	NA	Free		Split	NA	pt+ov	Split
Protected Phases	1	1	6	5			2	7		7	7.5	8
Permitted Phases				Free			Free					
Detector Phase	1	1	6	5			2	7		7	7.5	8
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0			15.0	9.0		9.0	5.0	
Minimum Split (s)	11.6	11.6	21.8	11.6			21.8	15.0		15.0	14.6	
Total Split (s)	18.6	18.6	49.8	30.6			61.8	21.0		21.0	25.6	
Total Split (%)	13.3%	13.3%	35.5%	21.8%			44.1%	15.0%		15.0%	18.3%	
Maximum Green (s)	12.0	12.0	43.0	24.0			55.0	15.0		15.0	20.0	
Yellow Time (s)	3.0	3.0	4.5	3.0			4.5	4.0		4.0	3.6	
All-Red Time (s)	3.6	3.6	2.3	3.6			2.3	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0			0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.6		6.8	6.6			6.8	6.0		6.0		
Lead/Lag	Lead	Lead	Lag	Lead			Lag	Lead		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	3.0	2.0			3.0	2.0		2.0	2.0	
Recall Mode	None	None	C-Min	None			C-Min	None		None	None	
Act Effect Green (s)	18.9		54.4	140.2	19.5	55.0	140.2		15.6	15.6	35.7	
Actuated g/C Ratio	0.13		0.39	1.00	0.14	0.39	1.00		0.11	0.11	0.25	
v/c Ratio	0.81		0.61	0.04	0.81	1.01	0.05		0.79	0.38	0.29	
Control Delay	83.7		39.2	0.1	82.3	69.8	0.1		87.5	62.9	4.5	
Queue Delay	0.0		0.0	0.0	0.0	32.4	0.0		0.0	0.0	0.0	
Total Delay	83.7		39.2	0.1	82.3	102.2	0.1		87.5	62.9	4.5	
LOS	F		D	A	F	F	A		F	E	A	
Approach Delay				44.7	95.4					50.5		
Approach LOS				D	F					D		

Intersection Summary

Area Type: Other  
 Cycle Length: 140.2  
 Actuated Cycle Length: 140.2  
 Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow  
 Natural Cycle: 130  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.01  
 Intersection Signal Delay: 74.0  
 Intersection LOS: E  
 Intersection Capacity Utilization 95.4%  
 ICU Level of Service F  
 Analysis Period (min) 15

Splits and Phases: 6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Trailsend Road





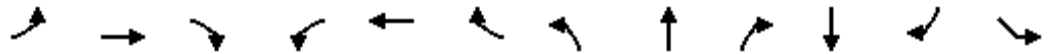
Lane Group	SBT	SBR	SEL	SER	SER2
Detector 3 Type	Cl+Ex	Cl+Ex			
Detector 3 Channel					
Detector 3 Extend (s)	0.0	0.0			
Turn Type	NA	Prot	Prot		
Protected Phases	8	8	4		
Permitted Phases					
Detector Phase	8	8	4		
Switch Phase					
Minimum Initial (s)	5.0	5.0	6.0		
Minimum Split (s)	14.6	14.6	11.2		
Total Split (s)	25.6	25.6	13.2		
Total Split (%)	18.3%	18.3%	9.4%		
Maximum Green (s)	20.0	20.0	8.0		
Yellow Time (s)	3.6	3.6	3.0		
All-Red Time (s)	2.0	2.0	2.2		
Lost Time Adjust (s)	0.0	0.0	0.0		
Total Lost Time (s)	5.6	5.6	5.2		
Lead/Lag	Lag	Lag			
Lead-Lag Optimize?					
Vehicle Extension (s)	2.0	2.0	2.0		
Recall Mode	None	None	None		
Act Effct Green (s)	19.0	19.0	6.0		
Actuated g/C Ratio	0.14	0.14	0.04		
v/c Ratio	0.86	0.88	0.07		
Control Delay	89.1	83.2	0.5		
Queue Delay	0.0	0.0	0.0		
Total Delay	89.1	83.2	0.5		
LOS	F	F	A		
Approach Delay	85.5		0.5		
Approach LOS	F		A		
<b>Intersection Summary</b>					



Queues

15 Albany Turnpike, Canton, CT

6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Tailsend Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SBT	SBR	SEL
Lane Group Flow (vph)	195	842	65	201	1423	74	157	80	148	216	336	20
v/c Ratio	0.81	0.61	0.04	0.81	1.01	0.05	0.79	0.38	0.29	0.86	0.88	0.07
Control Delay	83.7	39.2	0.1	82.3	69.8	0.1	87.5	62.9	4.5	89.1	83.2	0.5
Queue Delay	0.0	0.0	0.0	0.0	32.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.7	39.2	0.1	82.3	102.2	0.1	87.5	62.9	4.5	89.1	83.2	0.5
Queue Length 50th (ft)	~224	352	0	179	~718	0	140	68	0	194	172	0
Queue Length 95th (ft)	#385	447	0	262	#858	0	#240	123	34	#327	#257	0
Internal Link Dist (ft)		994			535			879		784		801
Turn Bay Length (ft)	380		130	325							250	
Base Capacity (vph)	240	1386	1599	305	1402	1599	207	218	570	264	401	307
Starvation Cap Reductn	0	0	0	0	187	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.61	0.04	0.66	1.17	0.05	0.76	0.37	0.26	0.82	0.84	0.07

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

13: Bushy Hill Road/Bushy Hill Rd. & W. Mountain Rd./Simsbury Commons

2017 Existing PM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	0	14	72	131	36	54	112	427	127	31	471	1
Future Volume (vph)	0	14	72	131	36	54	112	427	127	31	471	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		180	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.887				0.850		0.971				
Flt Protected					0.962			0.992			0.997	
Satd. Flow (prot)	0	1671	0	0	1828	1615	0	3455	0	0	3564	0
Flt Permitted					0.710			0.767			0.875	
Satd. Flow (perm)	0	1671	0	0	1349	1615	0	2671	0	0	3127	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79				92		55				
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		536			693			493			335	
Travel Time (s)		12.2			15.8			8.4			5.7	
Peak Hour Factor	0.91	0.91	0.91	0.86	0.86	0.86	0.88	0.88	0.88	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	1%	0%	1%	1%	1%
Adj. Flow (vph)	0	15	79	152	42	63	127	485	144	34	523	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	94	0	0	194	63	0	756	0	0	558	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	3	3	1	1		1	1	
Detector Template	Left			Left			Left			Left		
Leading Detector (ft)	20	106		20	26	26	20	106		20	106	
Trailing Detector (ft)	0	100		0	-4	-4	0	100		0	100	
Detector 1 Position(ft)	0	100		0	-4	-4	0	100		0	100	
Detector 1 Size(ft)	20	6		20	6	6	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)					8	8						
Detector 2 Size(ft)					6	6						
Detector 2 Type					Cl+Ex	Cl+Ex						
Detector 2 Channel												
Detector 2 Extend (s)					0.0	0.0						
Detector 3 Position(ft)					20	20						
Detector 3 Size(ft)					6	6						



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Detector 3 Type							Cl+Ex	Cl+Ex					
Detector 3 Channel													
Detector 3 Extend (s)							0.0	0.0					
Turn Type	NA		Perm		NA	Perm	Prot	NA		Perm		NA	
Protected Phases	4				4		1	1 2		2		2	
Permitted Phases	4		4		4				2				
Detector Phase	4		4		4		1	1 2		2		2	
Switch Phase													
Minimum Initial (s)	7.0	7.0	7.0		7.0	7.0	5.0		15.0		15.0		
Minimum Split (s)	11.3	11.3	11.3		11.3	11.3	9.0		21.3		21.3		
Total Split (s)	29.3	29.3	29.3		29.3	29.3	11.0		46.3		46.3		
Total Split (%)	33.8%	33.8%	33.8%		33.8%	33.8%	12.7%		53.5%		53.5%		
Maximum Green (s)	25.0	25.0	25.0		25.0	25.0	7.0		40.0		40.0		
Yellow Time (s)	3.3	3.3	3.3		3.3	3.3	3.0		4.2		4.2		
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0		2.1		2.1		
Lost Time Adjust (s)	0.0				0.0	0.0					0.0		
Total Lost Time (s)	4.3				4.3	4.3					6.3		
Lead/Lag							Lead			Lag		Lag	
Lead-Lag Optimize?													
Vehicle Extension (s)	4.0	4.0	4.0		4.0	4.0	0.2		4.0		4.0		
Recall Mode	None	None	None		None	None	Max		Min		Min		
Act Effect Green (s)	15.8				15.8	15.8			49.6		40.2		
Actuated g/C Ratio	0.20				0.20	0.20			0.64		0.52		
v/c Ratio	0.23				0.71	0.16			0.93		0.34		
Control Delay	9.6				43.1	3.5			29.7		12.7		
Queue Delay	0.0				0.0	0.0			0.0		0.0		
Total Delay	9.6				43.1	3.5			29.7		12.7		
LOS	A				D	A			C		B		
Approach Delay	9.6				33.4				29.7		12.7		
Approach LOS	A				C				C		B		

Intersection Summary

Area Type:	Other
Cycle Length:	86.6
Actuated Cycle Length:	77.7
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.93
Intersection Signal Delay:	23.4
Intersection LOS:	C
Intersection Capacity Utilization:	61.0%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 13: Bushy Hill Road/Bushy Hill Rd. & W. Mountain Rd./Simsbury Commons



Queues

13: Bushy Hill Road/Bushy Hill Rd. & W. Mountain Rd./Simsbury Commons



Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	94	194	63	756	558
v/c Ratio	0.23	0.71	0.16	0.93	0.34
Control Delay	9.6	43.1	3.5	29.7	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.6	43.1	3.5	29.7	12.7
Queue Length 50th (ft)	6	88	0	57	77
Queue Length 95th (ft)	40	145	13	#198	140
Internal Link Dist (ft)	456	613		413	255
Turn Bay Length (ft)			180		
Base Capacity (vph)	594	436	584	809	1618
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.16	0.44	0.11	0.93	0.34

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↔	↑↑	↔	↑
Traffic Volume (vph)	744	295	235	1358	320	189
Future Volume (vph)	744	295	235	1358	320	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	12	12
Storage Length (ft)		220	420		0	0
Storage Lanes		1	2		2	1
Taper Length (ft)			130		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Fr <sub>t</sub>		0.850				0.850
Fl <sub>t</sub> Protected			0.950		0.950	
Satd. Flow (prot)	3455	1561	3385	3574	3502	1615
Fl <sub>t</sub> Permitted			0.950		0.950	
Satd. Flow (perm)	3455	1561	3385	3574	3502	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		260				98
Link Speed (mph)	40			40	30	
Link Distance (ft)	827			847	604	
Travel Time (s)	14.1			14.4	13.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.85	0.85
Heavy Vehicles (%)	1%	0%	0%	1%	0%	0%
Adj. Flow (vph)	809	321	255	1476	376	222
Shared Lane Traffic (%)						
Lane Group Flow (vph)	809	321	255	1476	376	222
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	22			22	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.04	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	0	3	2	3	3
Detector Template						
Leading Detector (ft)	356	0	38	356	26	26
Trailing Detector (ft)	180	0	0	180	0	0
Detector 1 Position(ft)	180	350	0	180	0	0
Detector 1 Size(ft)	6	6	6	6	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	350		16	350	10	10
Detector 2 Size(ft)	6		6	6	6	6
Detector 2 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 3 Position(ft)			32		20	20

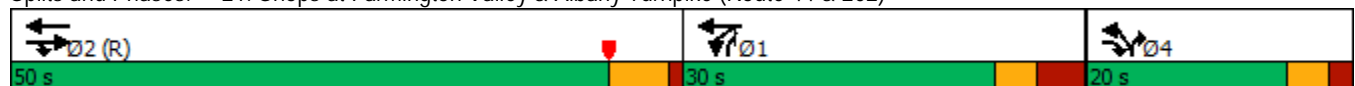


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 3 Size(ft)			6		6	6
Detector 3 Type			Cl+Ex		Cl+Ex	Cl+Ex
Detector 3 Channel						
Detector 3 Extend (s)			0.0		0.0	0.0
Turn Type	NA	pt+ov	Prot	NA	Prot	pt+ov
Protected Phases	2	2 4	1	1 2	4	4 1
Permitted Phases						
Detector Phase	2	2 4	1	1 2	4	4 1
Switch Phase						
Minimum Initial (s)	15.0		5.0		9.0	
Minimum Split (s)	20.5		11.8		14.0	
Total Split (s)	50.0		30.0		20.0	
Total Split (%)	50.0%		30.0%		20.0%	
Maximum Green (s)	44.5		23.2		15.0	
Yellow Time (s)	4.4		3.2		3.0	
All-Red Time (s)	1.1		3.6		2.0	
Lost Time Adjust (s)	0.0		0.0		0.0	
Total Lost Time (s)	5.5		6.8		5.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	2.5		1.5		1.5	
Recall Mode	C-Min		None		None	
Act Effct Green (s)	48.9	67.4	20.3	74.7	13.5	40.6
Actuated g/C Ratio	0.49	0.67	0.20	0.75	0.14	0.41
v/c Ratio	0.48	0.28	0.37	0.55	0.79	0.31
Control Delay	17.7	1.3	34.2	5.1	54.6	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	1.3	34.2	5.1	54.6	11.1
LOS	B	A	C	A	D	B
Approach Delay	13.0			9.4	38.5	
Approach LOS	B			A	D	

Intersection Summary

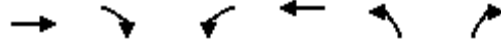
Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 16 (16%), Referenced to phase 2:EBWB, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.79  
 Intersection Signal Delay: 15.6  
 Intersection LOS: B  
 Intersection Capacity Utilization 56.5%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 21: Shops at Farmington Valley & Albany Turnpike (Route 44 & 202)



Queues

21: Shops at Farmington Valley & Albany Turnpike (Route 44 & 202)



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	809	321	255	1476	376	222
v/c Ratio	0.48	0.28	0.37	0.55	0.79	0.31
Control Delay	17.7	1.3	34.2	5.1	54.6	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	1.3	34.2	5.1	54.6	11.1
Queue Length 50th (ft)	190	5	68	252	120	46
Queue Length 95th (ft)	250	17	118	7	158	86
Internal Link Dist (ft)	747			767	524	
Turn Bay Length (ft)		220	420			
Base Capacity (vph)	1688	1113	785	2773	525	734
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.29	0.32	0.53	0.72	0.30

Intersection Summary

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

23: Fox Hollow/CVS Driveway & Albany Turnpike (Route 44 & 202)

2017 Existing PM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	918	26	17	1496	94	30	1	9	41	1	29
Future Volume (vph)	27	918	26	17	1496	94	30	1	9	41	1	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	13	12	12	12
Storage Length (ft)	130		0	130		150	0		80	0		0
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	70			90			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996				0.850			0.850			0.850
Flt Protected	0.950			0.950				0.954			0.953	
Satd. Flow (prot)	1745	3476	0	1745	3455	1561	0	1752	1669	0	1776	1615
Flt Permitted	0.122			0.283				0.692			0.701	
Satd. Flow (perm)	224	3476	0	520	3455	1561	0	1271	1669	0	1306	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				64			89			89
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1110			920			549			426	
Travel Time (s)		21.6			17.9			15.0			11.6	
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%
Adj. Flow (vph)	28	956	27	18	1591	100	39	1	12	53	1	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	983	0	18	1591	100	0	40	12	0	54	38
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	0.96	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	0		1	0	0	1	1	1	1	1	1
Detector Template							Left			Left		
Leading Detector (ft)	40	0		40	0	0	20	30	30	20	30	30
Trailing Detector (ft)	0	0		0	0	0	0	-10	-10	0	-10	-10
Detector 1 Position(ft)	0	0		0	0	0	0	-10	-10	0	-10	-10
Detector 1 Size(ft)	40	6		40	6	20	20	40	40	20	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6		5	2			4			4	
Permitted Phases	6			2		2	4		4	4		4
Detector Phase	1	6		5	2	2	4	4	4	4	4	4
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	4.0	4.0	4.0	4.0	4.0





Queues

23: Fox Hollow/CVS Driveway & Albany Turnpike (Route 44 & 202)



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	28	983	18	1591	100	40	12	54	38
v/c Ratio	0.11	0.36	0.04	0.59	0.08	0.36	0.05	0.48	0.17
Control Delay	3.0	5.0	2.2	8.1	2.5	51.0	0.4	56.2	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.0	5.0	2.2	8.1	2.5	51.0	0.4	56.2	1.7
Queue Length 50th (ft)	2	73	2	247	6	24	0	33	0
Queue Length 95th (ft)	8	174	6	373	24	47	0	60	0
Internal Link Dist (ft)		1030		840		469		346	
Turn Bay Length (ft)	130		130		150		80		
Base Capacity (vph)	356	2756	573	2679	1224	256	408	263	397
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.36	0.03	0.59	0.08	0.16	0.03	0.21	0.10

Intersection Summary

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

24: Dale Rd./Simsbury Commons & Albany Turnpike (Route 44 & 202)

2017 Existing PM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	688	38	175	1206	139	56	34	183	74	29	61
Future Volume (vph)	56	688	38	175	1206	139	56	34	183	74	29	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	12	12	11	11	12	12	12	12
Storage Length (ft)	180		0	450		525	200		0	0		0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	115			80			50			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992				0.850		0.874				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1745	3429	0	1770	3574	1615	1454	1605	0	1805	1900	1615
Flt Permitted	0.950			0.950			0.735			0.204		
Satd. Flow (perm)	1745	3429	0	1770	3574	1615	1125	1605	0	388	1900	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				145		215				74
Link Speed (mph)		35			35			25				25
Link Distance (ft)		791			1110			639				380
Travel Time (s)		15.4			21.6			17.4				10.4
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.80	0.80	0.80	0.85	0.85	0.85
Heavy Vehicles (%)	0%	1%	0%	2%	1%	0%	20%	0%	0%	0%	0%	0%
Adj. Flow (vph)	59	724	40	182	1256	145	70	43	229	87	34	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	764	0	182	1256	145	70	272	0	87	34	72
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.00	1.00	1.00	1.04	1.04	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1		1	1	1
Detector Template										Left		
Leading Detector (ft)	25	306		25	256	256	20	20		30	30	40
Trailing Detector (ft)	-5	300		-5	250	250	-10	-10		0	0	-10
Detector 1 Position(ft)	-5	300		-5	250	250	-10	-10		0	0	-10
Detector 1 Size(ft)	30	6		30	6	6	30	30		30	30	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4				4
Permitted Phases						2	4			4		4
Detector Phase	1	6		5	2	2	4	4		4	4	4
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	15.0	15.0	7.0	7.0		7.0	7.0	7.0



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	12.5	20.6		12.5	20.6	20.6	11.2	11.2		11.2	11.2	11.2
Total Split (s)	25.0	60.0		25.0	60.0	60.0	35.0	35.0		35.0	35.0	35.0
Total Split (%)	20.8%	50.0%		20.8%	50.0%	50.0%	29.2%	29.2%		29.2%	29.2%	29.2%
Maximum Green (s)	19.5	54.4		19.5	54.4	54.4	30.8	30.8		30.8	30.8	30.8
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.5	1.3		2.5	1.3	1.3	1.2	1.2		1.2	1.2	1.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.5	5.6		5.5	5.6	5.6	4.2	4.2		4.2	4.2	4.2
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	5.0		1.5	8.0	8.0	2.0	2.0		2.0	2.0	2.0
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None		None	None	None
Act Effect Green (s)	8.7	69.4		15.7	78.9	78.9	19.6	19.6		19.6	19.6	19.6
Actuated g/C Ratio	0.07	0.58		0.13	0.66	0.66	0.16	0.16		0.16	0.16	0.16
v/c Ratio	0.47	0.38		0.79	0.53	0.13	0.38	0.62		1.38	0.11	0.22
Control Delay	60.0	16.8		73.5	14.4	2.5	47.8	16.4		281.6	39.3	9.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	60.0	16.8		73.5	14.4	2.5	47.8	16.4		281.6	39.3	9.5
LOS	E	B		E	B	A	D	B		F	D	A
Approach Delay		19.9			20.1			22.9			137.4	
Approach LOS		B			C			C			F	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 112 (93%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.38  
 Intersection Signal Delay: 28.1  
 Intersection LOS: C  
 Intersection Capacity Utilization 74.3%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 24: Dale Rd./Simsbury Commons & Albany Turnpike (Route 44 & 202)



Queues

24: Dale Rd./Simsbury Commons & Albany Turnpike (Route 44 & 202)



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	59	764	182	1256	145	70	272	87	34	72
v/c Ratio	0.47	0.38	0.79	0.53	0.13	0.38	0.62	1.38	0.11	0.22
Control Delay	60.0	16.8	73.5	14.4	2.5	47.8	16.4	281.6	39.3	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.0	16.8	73.5	14.4	2.5	47.8	16.4	281.6	39.3	9.5
Queue Length 50th (ft)	47	83	138	262	0	49	39	-89	23	0
Queue Length 95th (ft)	92	272	213	445	32	75	78	#153	45	31
Internal Link Dist (ft)		711		1030			559		300	
Turn Bay Length (ft)	180		450		525	200				
Base Capacity (vph)	283	1986	287	2349	1111	288	571	99	487	469
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.38	0.63	0.53	0.13	0.24	0.48	0.88	0.07	0.15

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

25: W. Avon Rd./Bushy Hill Road & Albany Turnpike (Route 44 & 202)

2017 Existing PM



Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SER
Lane Configurations												
Traffic Volume (vph)	82	1087	108	164	206	59	124	249	257	330	593	124
Future Volume (vph)	82	1087	108	164	206	59	124	249	257	330	593	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	11	11	11	11	12	12
Storage Length (ft)	375	0		200		0	0		0		220	0
Storage Lanes	1	2		1		0	1		1		2	0
Taper Length (ft)	125			150			25				140	
Lane Util. Factor	1.00	0.88	1.00	1.00	0.95	0.95	1.00	1.00	1.00	0.97	0.97	0.95
Frt		0.850			0.967				0.850		0.974	
Flt Protected	0.950			0.950			0.950			0.950	0.960	
Satd. Flow (prot)	1745	2723	0	1728	3464	0	1745	1818	1546	3385	3418	0
Flt Permitted	0.950			0.950			0.950			0.950	0.960	
Satd. Flow (perm)	1745	2723	0	1728	3464	0	1745	1818	1546	3385	3418	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		108			27				97		108	
Link Speed (mph)	40			25			40			40		
Link Distance (ft)	791			809			493			815		
Travel Time (s)	13.5			22.1			8.4			13.9		
Peak Hour Factor	0.96	0.96	0.96	0.93	0.93	0.93	0.87	0.87	0.87	0.86	0.86	0.86
Heavy Vehicles (%)	0%	1%	0%	1%	1%	0%	0%	1%	1%	0%	1%	0%
Adj. Flow (vph)	85	1132	113	176	222	63	143	286	295	384	690	144
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	1245	0	176	285	0	143	286	295	384	834	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	11				11			11			46	
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)	16			16			16			16		
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.04	1.00	1.00	1.04	1.04	1.04	1.04	1.00	1.00
Turning Speed (mph)	15	9	9	15		9	15		9	15	15	9
Number of Detectors	1	2		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	40	368		34	30		30	30	30	40	190	
Trailing Detector (ft)	0	176		-6	-10		-10	-10	-10	0	184	
Detector 1 Position(ft)	0	176		-6	-10		-10	-10	-10	0	184	
Detector 1 Size(ft)	40	6		40	40		40	40	40	40	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		362										
Detector 2 Size(ft)		6										
Detector 2 Type		Cl+Ex										
Detector 2 Channel												
Detector 2 Extend (s)		0.0										
Turn Type	Prot	Prot		Prot	NA		Prot	NA	pt+ov	Prot	Prot	



Queues



Lane Group	WBL	WBR	NBL	NBT	SBL	SBT	SBR	SEL2	SEL
Lane Group Flow (vph)	85	1245	176	285	143	286	295	384	834
v/c Ratio	0.58	1.13	0.79	0.69	0.43	0.91	0.51	0.78	0.51
Control Delay	67.4	96.2	73.8	54.6	46.8	80.0	14.7	71.1	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.4	96.2	73.8	54.6	46.8	80.0	14.7	71.1	18.5
Queue Length 50th (ft)	53	-628	133	102	97	217	76	161	160
Queue Length 95th (ft)	99	#829	207	144	157	#348	104	201	212
Internal Link Dist (ft)	711			729		413			735
Turn Bay Length (ft)	375		200					220	220
Base Capacity (vph)	334	1104	279	651	337	330	650	645	1635
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	1.13	0.63	0.44	0.42	0.87	0.45	0.60	0.51

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.



Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

35: Secret Lake/Car Dealer & Albany Turnpike (Route 44 & 202)

2017 Existing PM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	931	0	6	1478	4	18	2	4	10	0	13
Future Volume (vph)	2	931	0	6	1478	4	18	2	4	10	0	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	11	11	11	11	12	12	12	12	12	12
Storage Length (ft)	50		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	75			70			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>								0.978			0.924	
Fl <sub>t</sub> Protected	0.950			0.950				0.964			0.978	
Satd. Flow (prot)	1745	3574	0	1745	3455	0	0	1791	0	0	1707	0
Fl <sub>t</sub> Permitted	0.104			0.950				0.964			0.978	
Satd. Flow (perm)	191	3574	0	1745	3455	0	0	1791	0	0	1707	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)								5			155	
Link Speed (mph)		40			40			25			30	
Link Distance (ft)		847			3567			498			493	
Travel Time (s)		14.4			60.8			13.6			11.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.80	0.80	0.80	0.90	0.90	0.90
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	1%
Adj. Flow (vph)	2	1012	0	7	1607	4	23	3	5	11	0	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1012	0	7	1611	0	0	31	0	0	25	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		22			22			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.04	1.04	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	3	0		3	0		1	3		1	2	
Detector Template							Left					
Leading Detector (ft)	26	0		26	0		20	26		6	16	
Trailing Detector (ft)	0	0		0	0		0	0		0	-6	
Detector 1 Position(ft)	0	0		0	894		0	0		0	-6	
Detector 1 Size(ft)	6	6		6	6		20	6		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	10			10			10			10		
Detector 2 Size(ft)	6			6			6			6		
Detector 2 Type	Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)	0.0			0.0			0.0			0.0		
Detector 3 Position(ft)	20			20			20					



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Size(ft)	6			6			6					
Detector 3 Type	Cl+Ex			Cl+Ex			Cl+Ex					
Detector 3 Channel												
Detector 3 Extend (s)	0.0			0.0			0.0					
Turn Type	pm+pt	NA		Prot	NA		Split		NA		Split	NA
Protected Phases	1	6		5	2		7		7		8	8
Permitted Phases	6											
Detector Phase	1	6		5	2		7		7		8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0		9.0		9.0		7.0	7.0
Minimum Split (s)	9.0	22.0		9.0	22.0		15.2		15.2		13.2	13.2
Total Split (s)	10.0	58.0		10.0	58.0		17.0		17.0		15.0	15.0
Total Split (%)	10.0%	58.0%		10.0%	58.0%		17.0%		17.0%		15.0%	15.0%
Maximum Green (s)	6.0	51.0		6.0	51.0		10.8		10.8		8.8	8.8
Yellow Time (s)	3.0	4.4		3.0	4.4		3.0		3.0		3.0	3.0
All-Red Time (s)	1.0	2.6		1.0	2.6		3.2		3.2		3.2	3.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0		0.0		0.0	0.0
Total Lost Time (s)	4.0	7.0		4.0	7.0		6.2		6.2		6.2	6.2
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	2.5		1.5	2.5		1.5		1.5		1.5	1.5
Recall Mode	None	C-Min		None	C-Min		None		None		None	None
Act Effct Green (s)	80.7	79.5		5.1	79.6		9.0		9.0		7.0	7.0
Actuated g/C Ratio	0.81	0.80		0.05	0.80		0.09		0.09		0.07	0.07
v/c Ratio	0.01	0.36		0.08	0.59		0.19		0.19		0.10	0.10
Control Delay	4.0	5.2		47.2	9.8		40.0		40.0		0.7	0.7
Queue Delay	0.0	0.0		0.0	0.0		0.0		0.0		0.0	0.0
Total Delay	4.0	5.2		47.2	9.8		40.0		40.0		0.7	0.7
LOS	A	A		D	A		D		D		A	A
Approach Delay		5.2			10.0		40.0		40.0		0.7	0.7
Approach LOS		A			B		D		D		A	A

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 16 (16%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.59  
 Intersection Signal Delay: 8.5  
 Intersection LOS: A  
 Intersection Capacity Utilization 59.5%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 35: Secret Lake/Car Dealer & Albany Turnpike (Route 44 & 202)



Queues

35: Secret Lake/Car Dealer & Albany Turnpike (Route 44 & 202)



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	2	1012	7	1611	31	25
v/c Ratio	0.01	0.36	0.08	0.59	0.19	0.10
Control Delay	4.0	5.2	47.2	9.8	40.0	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.0	5.2	47.2	9.8	40.0	0.7
Queue Length 50th (ft)	0	150	4	178	16	0
Queue Length 95th (ft)	m1	116	19	531	39	0
Internal Link Dist (ft)		767		3487	418	413
Turn Bay Length (ft)	50		100			
Base Capacity (vph)	247	2841	104	2750	197	291
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.36	0.07	0.59	0.16	0.09

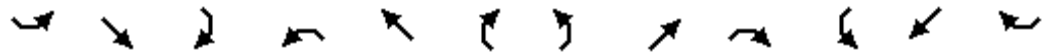
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

1: Auto Spa Car Wash/Hoffman Auto Park & Albany Turnpike (Route 44 & 202) 2023 Background AM



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	40	1435	16	4	556	43	6	1	7	53	0	15
Future Volume (vph)	40	1435	16	4	556	43	6	1	7	53	0	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	12	12	12	12	12	12	12
Storage Length (ft)	140		0	250		0	0		50	0		100
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	50			100			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.998			0.989				0.850			0.850
Fl <sub>t</sub> Protected	0.950			0.950				0.960			0.950	
Satd. Flow (prot)	1745	3449	0	1745	3537	0	0	1824	1615	0	1805	1615
Fl <sub>t</sub> Permitted	0.283			0.166				0.739			0.750	
Satd. Flow (perm)	520	3449	0	305	3537	0	0	1404	1615	0	1425	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			11				121			73
Link Speed (mph)		40			40			25			30	
Link Distance (ft)		3567			815			631			754	
Travel Time (s)		60.8			13.9			17.2			17.1	
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.58	0.58	0.58	0.77	0.77	0.77
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	43	1527	17	4	604	47	10	2	12	69	0	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	1544	0	4	651	0	0	12	12	0	69	19
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		22			22			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	3	0		0	0		1	2	2	1	3	3
Detector Template							Left			Left		
Leading Detector (ft)	30	0		0	0		20	16	16	20	16	16
Trailing Detector (ft)	-6	0		0	0		0	0	0	0	-10	-10
Detector 1 Position(ft)	-6	390		0	0		0	0	0	0	-10	-10
Detector 1 Size(ft)	6	6		6	20		20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	12						10	10			0	0
Detector 2 Size(ft)	6						6	6			6	6
Detector 2 Type	Cl+Ex						Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0						0.0	0.0			0.0	0.0
Detector 3 Position(ft)	24										10	10

Lane Group	Ø1
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Detector 3 Position(ft)	

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

1: Auto Spa Car Wash/Hoffman Auto Park & Albany Turnpike (Route 44 & 202) 2023 Background AM

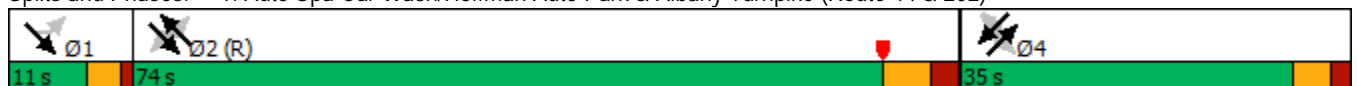


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector 3 Size(ft)	6						6					
Detector 3 Type	Cl+Ex						Cl+Ex					
Detector 3 Channel												
Detector 3 Extend (s)	0.0						0.0					
Turn Type	Perm	NA		Perm	NA		Perm	NA	NA	Perm	NA	Perm
Protected Phases	1 2			2			4			4		
Permitted Phases	1 2			2	2		4			4		4
Detector Phase	1 2	1 2		2	2		4	4		4	4	4
Switch Phase												
Minimum Initial (s)				15.0	15.0		10.0	10.0		10.0	10.0	10.0
Minimum Split (s)				22.0	22.0		15.3	15.3		15.3	15.3	15.3
Total Split (s)				74.0	74.0		35.0	35.0		35.0	35.0	35.0
Total Split (%)				61.7%	61.7%		29.2%	29.2%		29.2%	29.2%	29.2%
Maximum Green (s)				67.0	67.0		29.7	29.7		29.7	29.7	29.7
Yellow Time (s)				4.3	4.3		3.3	3.3		3.3	3.3	3.3
All-Red Time (s)				2.7	2.7		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)				0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)				7.0	7.0		5.3	5.3		5.3	5.3	5.3
Lead/Lag				Lag	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)				0.2	0.2		1.5	1.5		1.5	1.5	1.5
Recall Mode				C-Max	C-Max		None	None		None	None	None
Act Effect Green (s)	103.2	103.2		74.0	74.0		11.4	0.0		11.4	11.4	11.4
Actuated g/C Ratio	0.86	0.86		0.62	0.62		0.10	0.00		0.10	0.10	0.10
v/c Ratio	0.10	0.52		0.02	0.30		0.09	0.10		0.51	0.09	0.09
Control Delay	2.8	3.7		8.5	7.8		50.0	1.6		65.0	0.8	0.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	2.8	3.7		8.5	7.8		50.0	1.6		65.0	0.8	0.8
LOS	A	A		A	A		D	A		E	A	A
Approach Delay				3.7	7.9		25.8			51.1		
Approach LOS				A	A		C			D		

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 27 (23%), Referenced to phase 2:NWSE, Start of Yellow  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.52  
 Intersection Signal Delay: 6.8      Intersection LOS: A  
 Intersection Capacity Utilization 62.9%      ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 1: Auto Spa Car Wash/Hoffman Auto Park & Albany Turnpike (Route 44 & 202)



Lane Group	Ø1
Detector 3 Size(ft)	
Detector 3 Type	
Detector 3 Channel	
Detector 3 Extend (s)	
Turn Type	
Protected Phases	1
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	11.0
Total Split (s)	11.0
Total Split (%)	9%
Maximum Green (s)	7.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Queues

15 Albany Turnpike, Canton, CT

1: Auto Spa Car Wash/Hoffman Auto Park & Albany Turnpike (Route 44 & 202) 2023 Background AM



Lane Group	SEL	SET	NWL	NWT	NET	NER	SWT	SWR
Lane Group Flow (vph)	43	1544	4	651	12	12	69	19
v/c Ratio	0.10	0.52	0.02	0.30	0.09	0.10	0.51	0.09
Control Delay	2.8	3.7	8.5	7.8	50.0	1.6	65.0	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.8	3.7	8.5	7.8	50.0	1.6	65.0	0.8
Queue Length 50th (ft)	4	136	1	84	9	0	52	0
Queue Length 95th (ft)	14	223	m3	102	18	0	83	0
Internal Link Dist (ft)		3487		735	551		674	
Turn Bay Length (ft)	140		250			50		100
Base Capacity (vph)	447	2966	188	2185	347	121	352	454
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.52	0.02	0.30	0.03	0.10	0.20	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lanes, Volumes, Timings  
 4: Albany Turnpike (Route 44 & 202) & CVS Canton Driveway

15 Albany Turnpike, Canton, CT  
 2023 Background AM



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	218	1656	518	90	210	69
Future Volume (vph)	218	1656	518	90	210	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			120	0	0
Storage Lanes	1			1	2	0
Taper Length (ft)	80				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.95
Frt				0.850	0.963	
Flt Protected	0.950				0.964	
Satd. Flow (prot)	1805	3574	3574	1615	3396	0
Flt Permitted	0.416				0.964	
Satd. Flow (perm)	790	3574	3574	1615	3396	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				98	38	
Link Speed (mph)		30	40		30	
Link Distance (ft)		615	827		249	
Travel Time (s)		14.0	14.1		5.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.88	0.88
Heavy Vehicles (%)	0%	1%	1%	0%	1%	0%
Adj. Flow (vph)	237	1800	563	98	239	78
Shared Lane Traffic (%)						
Lane Group Flow (vph)	237	1800	563	98	317	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	3	0	0	0	1	
Detector Template						
Leading Detector (ft)	27	0	0	0	47	
Trailing Detector (ft)	-3	0	0	0	-3	
Detector 1 Position(ft)	-3	200	200	0	-3	
Detector 1 Size(ft)	6	6	6	20	50	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)	9					
Detector 2 Size(ft)	6					
Detector 2 Type	Cl+Ex					
Detector 2 Channel						
Detector 2 Extend (s)	0.0					
Detector 3 Position(ft)	21					
Detector 3 Size(ft)	6					

Lanes, Volumes, Timings  
 4: Albany Turnpike (Route 44 & 202) & CVS Canton Driveway

15 Albany Turnpike, Canton, CT  
 2023 Background AM



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 3 Type	Cl+Ex					
Detector 3 Channel						
Detector 3 Extend (s)	0.0					
Turn Type	pm+pt	NA	NA	pt+ov	Prot	
Protected Phases	1	6	2	2 4	4	
Permitted Phases	6					
Detector Phase	1	6	2	2 4	4	
Switch Phase						
Minimum Initial (s)	5.0	25.0	25.0			7.0
Minimum Split (s)	8.1	30.3	30.3			11.0
Total Split (s)	12.0	82.0	70.0			18.0
Total Split (%)	12.0%	82.0%	70.0%			18.0%
Maximum Green (s)	8.9	76.7	64.7			14.0
Yellow Time (s)	3.0	4.3	4.3			3.0
All-Red Time (s)	0.1	1.0	1.0			1.0
Lost Time Adjust (s)	0.0	0.0	0.0			0.0
Total Lost Time (s)	3.1	5.3	5.3			4.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	0.2	0.2			2.0
Recall Mode	None	C-Max	C-Max			None
Act Effect Green (s)	80.9	78.7	68.5	84.5	12.0	
Actuated g/C Ratio	0.81	0.79	0.68	0.84	0.12	
v/c Ratio	0.33	0.64	0.23	0.07	0.72	
Control Delay	3.6	6.1	6.0	1.6	46.6	
Queue Delay	0.0	0.7	0.0	0.0	0.0	
Total Delay	3.6	6.8	6.0	1.6	46.6	
LOS	A	A	A	A	D	
Approach Delay	6.4		5.4	46.6		
Approach LOS	A		A	D		

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	40 (40%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.72
Intersection Signal Delay:	10.4
Intersection LOS:	B
Intersection Capacity Utilization	61.7%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 4: Albany Turnpike (Route 44 & 202) & CVS Canton Driveway



Queues

4: Albany Turnpike (Route 44 & 202) & CVS Canton Driveway



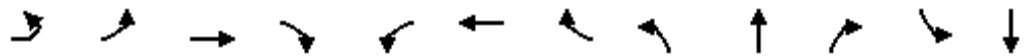
Lane Group	EBL	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	237	1800	563	98	317
v/c Ratio	0.33	0.64	0.23	0.07	0.72
Control Delay	3.6	6.1	6.0	1.6	46.6
Queue Delay	0.0	0.7	0.0	0.0	0.0
Total Delay	3.6	6.8	6.0	1.6	46.6
Queue Length 50th (ft)	26	211	57	0	88
Queue Length 95th (ft)	46	286	150	44	128
Internal Link Dist (ft)		535	747		169
Turn Bay Length (ft)	150			120	
Base Capacity (vph)	729	2811	2448	1410	508
Starvation Cap Reductn	0	589	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.33	0.81	0.23	0.07	0.62

Intersection Summary

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Pleasant Road



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SBL	SBT
Lane Configurations		↔	↕	↗	↖	↕	↗	↖	↕	↗		↖
Traffic Volume (vph)	8	371	1565	89	62	454	24	124	169	198	63	123
Future Volume (vph)	8	371	1565	89	62	454	24	124	169	198	63	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		380		130	325					0	0	
Storage Lanes		1		1	1					1	0	
Taper Length (ft)		300			75						25	
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.850			0.850			0.850		
Flt Protected		0.950			0.950			0.950				0.983
Satd. Flow (prot)	0	1788	3574	1599	1787	3574	1599	1787	1881	1599	0	1855
Flt Permitted		0.950			0.950			0.950				0.983
Satd. Flow (perm)	0	1788	3574	1599	1787	3574	1599	1787	1881	1599	0	1855
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				215			215			177		
Link Speed (mph)			40			40			40			40
Link Distance (ft)			1074			615			959			864
Travel Time (s)			18.3			10.5			16.3			14.7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	1%
Adj. Flow (vph)	9	403	1701	97	67	493	26	132	180	211	67	131
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	412	1701	97	67	493	26	132	180	211	0	198
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left
Median Width(ft)			12			12			12			12
Link Offset(ft)			0			0			0			0
Crosswalk Width(ft)			16			16			16			16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15		9	15		9	15		9	15	
Number of Detectors	1	3	2	0	3	2	0	3	3	3	1	3
Detector Template	Left											Left
Leading Detector (ft)	20	20	281	0	24	331	0	24	24	24	20	24
Trailing Detector (ft)	0	-10	100	0	-6	150	0	-6	-6	-6	0	-6
Detector 1 Position(ft)	0	-10	100	0	-6	150	0	-6	-6	-6	0	-6
Detector 1 Size(ft)	20	6	6	20	6	6	20	6	6	6	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		2	275		6	325		6	6	6		6
Detector 2 Size(ft)		6	6		6	6		6	6	6		6
Detector 2 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0
Detector 3 Position(ft)		14			18			18	18	18		18
Detector 3 Size(ft)		6			6			6	6	6		6

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Pleasant Road

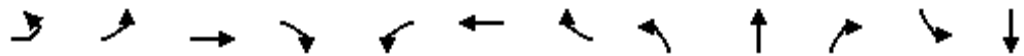


Lane Group	SBR	SEL	SER	SER2
Lane Configurations	TT	TT		
Traffic Volume (vph)	162	21	5	14
Future Volume (vph)	162	21	5	14
Ideal Flow (vphp)	1900	1900	1900	1900
Storage Length (ft)	250	0	0	
Storage Lanes	2	1	0	
Taper Length (ft)		25		
Lane Util. Factor	0.88	1.00	1.00	1.00
Frt	0.850	0.935		
Flt Protected		0.975		
Satd. Flow (prot)	2814	1732	0	0
Flt Permitted		0.975		
Satd. Flow (perm)	2814	1732	0	0
Right Turn on Red				Yes
Satd. Flow (RTOR)		174		
Link Speed (mph)		30		
Link Distance (ft)		881		
Travel Time (s)		20.0		
Peak Hour Factor	0.94	0.87	0.87	0.87
Heavy Vehicles (%)	1%	0%	0%	0%
Adj. Flow (vph)	172	24	6	16
Shared Lane Traffic (%)				
Lane Group Flow (vph)	172	46	0	0
Enter Blocked Intersection	No	No	No	No
Lane Alignment	Right	Left	Right	Right
Median Width(ft)		12		
Link Offset(ft)		0		
Crosswalk Width(ft)		16		
Two way Left Turn Lane				
Headway Factor	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15	9	9
Number of Detectors	3	0		
Detector Template				
Leading Detector (ft)	24	0		
Trailing Detector (ft)	-6	0		
Detector 1 Position(ft)	-6	0		
Detector 1 Size(ft)	6	20		
Detector 1 Type	Cl+Ex	Cl+Ex		
Detector 1 Channel				
Detector 1 Extend (s)	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0		
Detector 2 Position(ft)	6			
Detector 2 Size(ft)	6			
Detector 2 Type	Cl+Ex			
Detector 2 Channel				
Detector 2 Extend (s)	0.0			
Detector 3 Position(ft)	18			
Detector 3 Size(ft)	6			

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Trailsend Road

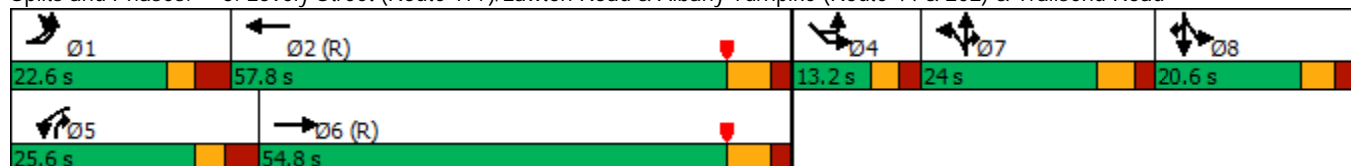


Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SBL	SBT
Detector 3 Type	Cl+Ex				Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 3 Channel												
Detector 3 Extend (s)	0.0				0.0			0.0	0.0	0.0		0.0
Turn Type	Prot	Prot	NA	Free	Prot	NA	Free	Split	NA	pt+ov	Split	NA
Protected Phases	1	1	6		5	2		7	7	7.5	8	8
Permitted Phases			Free				Free					
Detector Phase	1	1	6		5	2		7	7	7.5	8	8
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0		5.0	15.0		9.0	9.0		5.0	5.0
Minimum Split (s)	11.6	11.6	21.8		11.6	21.8		15.0	15.0		14.6	14.6
Total Split (s)	22.6	22.6	54.8		25.6	57.8		24.0	24.0		20.6	20.6
Total Split (%)	16.4%	16.4%	39.7%		18.5%	41.8%		17.4%	17.4%		14.9%	14.9%
Maximum Green (s)	16.0	16.0	48.0		19.0	51.0		18.0	18.0		15.0	15.0
Yellow Time (s)	3.0	3.0	4.5		3.0	4.5		4.0	4.0		3.6	3.6
All-Red Time (s)	3.6	3.6	2.3		3.6	2.3		2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)	6.6		6.8		6.6	6.8		6.0	6.0		5.6	
Lead/Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	3.0		2.0	3.0		2.0	2.0		2.0	2.0
Recall Mode	None	None	C-Min		None	C-Min		None	None		None	None
Act Effect Green (s)	19.2		60.6	138.2	9.7	51.0	138.2	17.0	17.0	27.3	17.0	
Actuated g/C Ratio	0.14		0.44	1.00	0.07	0.37	1.00	0.12	0.12	0.20	0.12	
v/c Ratio	1.65		1.09	0.06	0.54	0.37	0.02	0.60	0.78	0.46	0.87	
Control Delay	347.9		87.5	0.1	76.9	33.0	0.0	68.5	80.8	9.3	92.9	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	347.9		87.5	0.1	76.9	33.0	0.0	68.5	80.8	9.3	92.9	
LOS	F		F	A	E	C	A	E	F	A	F	
Approach Delay			132.2			36.5			48.9		78.8	
Approach LOS			F			D			D		E	

Intersection Summary

Area Type: Other  
 Cycle Length: 138.2  
 Actuated Cycle Length: 138.2  
 Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow  
 Natural Cycle: 130  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.65  
 Intersection Signal Delay: 98.6  
 Intersection LOS: F  
 Intersection Capacity Utilization 96.4%  
 ICU Level of Service F  
 Analysis Period (min) 15

Splits and Phases: 6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Trailsend Road



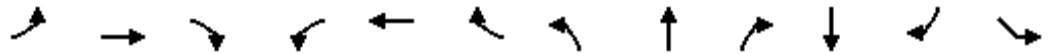


Lane Group	SBR	SEL	SER	SER2
Detector 3 Type	Cl+Ex			
Detector 3 Channel				
Detector 3 Extend (s)	0.0			
Turn Type	Prot	Prot		
Protected Phases	8	4		
Permitted Phases				
Detector Phase	8	4		
Switch Phase				
Minimum Initial (s)	5.0	6.0		
Minimum Split (s)	14.6	11.2		
Total Split (s)	20.6	13.2		
Total Split (%)	14.9%	9.6%		
Maximum Green (s)	15.0	8.0		
Yellow Time (s)	3.6	3.0		
All-Red Time (s)	2.0	2.2		
Lost Time Adjust (s)	0.0	0.0		
Total Lost Time (s)	5.6	5.2		
Lead/Lag	Lag			
Lead-Lag Optimize?				
Vehicle Extension (s)	2.0	2.0		
Recall Mode	None	None		
Act Effct Green (s)	17.0	6.0		
Actuated g/C Ratio	0.12	0.04		
v/c Ratio	0.50	0.19		
Control Delay	62.6	1.8		
Queue Delay	0.0	0.0		
Total Delay	62.6	1.8		
LOS	E	A		
Approach Delay		1.8		
Approach LOS		A		
<b>Intersection Summary</b>				

Queues

15 Albany Turnpike, Canton, CT

6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Pleasant Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SBT	SBR	SEL
Lane Group Flow (vph)	412	1701	97	67	493	26	132	180	211	198	172	46
v/c Ratio	1.65	1.09	0.06	0.54	0.37	0.02	0.60	0.78	0.46	0.87	0.50	0.19
Control Delay	347.9	87.5	0.1	76.9	33.0	0.0	68.5	80.8	9.3	92.9	62.6	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	347.9	87.5	0.1	76.9	33.0	0.0	68.5	80.8	9.3	92.9	62.6	1.8
Queue Length 50th (ft)	~575	~942	0	59	170	0	113	158	18	177	83	0
Queue Length 95th (ft)	#784	#1132	0	108	218	0	180	239	66	#342	128	0
Internal Link Dist (ft)		994			535			879		784		801
Turn Bay Length (ft)	380		130	325							250	
Base Capacity (vph)	249	1565	1599	245	1318	1599	242	255	571	228	345	264
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.65	1.09	0.06	0.27	0.37	0.02	0.55	0.71	0.37	0.87	0.50	0.17

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

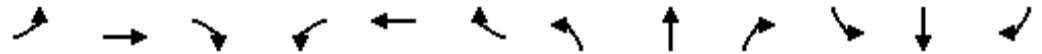


Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

13: Bushy Hill Road/Bushy Hill Rd. & W. Mountain Rd./Simsbury Commons

2023 Background AM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗		↕			↕	
Traffic Volume (vph)	0	10	143	22	8	10	44	389	47	13	317	0
Future Volume (vph)	0	10	143	22	8	10	44	389	47	13	317	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		180	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.874				0.850		0.985				
Flt Protected					0.964			0.995			0.998	
Satd. Flow (prot)	0	1645	0	0	1832	1615	0	3510	0	0	3567	0
Flt Permitted					0.679			0.920			0.922	
Satd. Flow (perm)	0	1645	0	0	1290	1615	0	3245	0	0	3295	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		155				92		22				
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		536			693			493			335	
Travel Time (s)		12.2			15.8			8.4			5.7	
Peak Hour Factor	0.88	0.88	0.92	0.71	0.71	0.71	0.92	0.92	0.92	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	1%	0%	1%	1%	1%
Adj. Flow (vph)	0	11	155	31	11	14	48	423	51	14	341	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	166	0	0	42	14	0	522	0	0	355	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	3	3	1	1		1	1	
Detector Template	Left			Left			Left			Left		
Leading Detector (ft)	20	106		20	26	26	20	106		20	106	
Trailing Detector (ft)	0	100		0	-4	-4	0	100		0	100	
Detector 1 Position(ft)	0	100		0	-4	-4	0	100		0	100	
Detector 1 Size(ft)	20	6		20	6	6	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)					8	8						
Detector 2 Size(ft)					6	6						
Detector 2 Type					Cl+Ex	Cl+Ex						
Detector 2 Channel												
Detector 2 Extend (s)					0.0	0.0						
Detector 3 Position(ft)					20	20						
Detector 3 Size(ft)					6	6						



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Detector 3 Type							Cl+Ex	Cl+Ex					
Detector 3 Channel													
Detector 3 Extend (s)							0.0	0.0					
Turn Type	NA		Perm		NA	Perm	Prot	NA		Perm		NA	
Protected Phases	4				4		1	1 2		2			
Permitted Phases	4		4		4							2	
Detector Phase	4		4		4		1	1 2		2		2	
Switch Phase													
Minimum Initial (s)	7.0	7.0	7.0		7.0	7.0	5.0			15.0	15.0		
Minimum Split (s)	11.3	11.3	11.3		11.3	11.3	9.0			21.3	21.3		
Total Split (s)	29.3	29.3	29.3		29.3	29.3	11.0			46.3	46.3		
Total Split (%)	33.8%	33.8%	33.8%		33.8%	33.8%	12.7%			53.5%	53.5%		
Maximum Green (s)	25.0	25.0	25.0		25.0	25.0	7.0			40.0	40.0		
Yellow Time (s)	3.3	3.3	3.3		3.3	3.3	3.0			4.2	4.2		
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0			2.1	2.1		
Lost Time Adjust (s)	0.0				0.0	0.0						0.0	
Total Lost Time (s)	4.3				4.3	4.3						6.3	
Lead/Lag							Lead			Lag		Lag	
Lead-Lag Optimize?													
Vehicle Extension (s)	4.0	4.0	4.0		4.0	4.0	0.2			4.0	4.0		
Recall Mode	None	None	None		None	None	Max			Min	Min		
Act Effct Green (s)	7.4				7.4	7.4			24.7	15.2			
Actuated g/C Ratio	0.18				0.18	0.18			0.59	0.36			
v/c Ratio	0.40				0.18	0.04			0.43	0.30			
Control Delay	7.6				17.9	0.2			4.5	11.3			
Queue Delay	0.0				0.0	0.0			0.0	0.0			
Total Delay	7.6				17.9	0.2			4.5	11.3			
LOS	A				B	A			A	B			
Approach Delay	7.6				13.4			4.5		11.3			
Approach LOS	A				B			A		B			

Intersection Summary

Area Type:	Other
Cycle Length:	86.6
Actuated Cycle Length:	41.7
Natural Cycle:	45
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.43
Intersection Signal Delay:	7.6
Intersection LOS:	A
Intersection Capacity Utilization:	57.0%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 13: Bushy Hill Road/Bushy Hill Rd. & W. Mountain Rd./Simsbury Commons

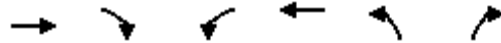


Queues



Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	166	42	14	522	355
v/c Ratio	0.40	0.18	0.04	0.43	0.30
Control Delay	7.6	17.9	0.2	4.5	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	7.6	17.9	0.2	4.5	11.3
Queue Length 50th (ft)	2	9	0	20	32
Queue Length 95th (ft)	37	22	0	38	61
Internal Link Dist (ft)	456	613		413	255
Turn Bay Length (ft)			180		
Base Capacity (vph)	1062	785	1019	1752	3053
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.16	0.05	0.01	0.30	0.12

Intersection Summary



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↔	↑↑	↔	↑
Traffic Volume (vph)	1805	125	43	557	46	39
Future Volume (vph)	1805	125	43	557	46	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	12	12
Storage Length (ft)		220	420		0	0
Storage Lanes		1	2		2	1
Taper Length (ft)			130		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Fr <sub>t</sub>		0.850				0.850
Fl <sub>t</sub> Protected			0.950		0.950	
Satd. Flow (prot)	3455	1561	3385	3574	3502	1615
Fl <sub>t</sub> Permitted			0.950		0.950	
Satd. Flow (perm)	3455	1561	3385	3574	3502	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		136				17
Link Speed (mph)	40			40	30	
Link Distance (ft)	827			847	604	
Travel Time (s)	14.1			14.4	13.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.90	0.90
Heavy Vehicles (%)	1%	0%	0%	1%	0%	0%
Adj. Flow (vph)	1962	136	47	605	51	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1962	136	47	605	51	43
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	22			22	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.04	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	0	3	2	3	3
Detector Template						
Leading Detector (ft)	356	0	38	356	26	26
Trailing Detector (ft)	180	0	0	180	0	0
Detector 1 Position(ft)	180	350	0	180	0	0
Detector 1 Size(ft)	6	6	6	6	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	350		16	350	10	10
Detector 2 Size(ft)	6		6	6	6	6
Detector 2 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 3 Position(ft)			32		20	20

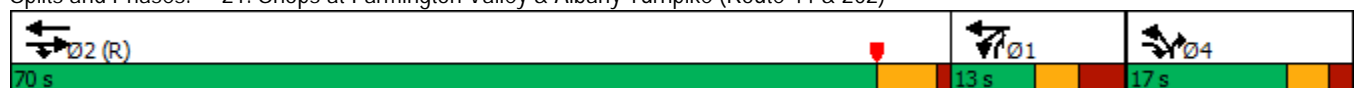


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 3 Size(ft)			6		6	6
Detector 3 Type			Cl+Ex		Cl+Ex	Cl+Ex
Detector 3 Channel						
Detector 3 Extend (s)			0.0		0.0	0.0
Turn Type	NA	pt+ov	Prot	NA	Prot	pt+ov
Protected Phases	2	2 4	1	1 2	4	4 1
Permitted Phases						
Detector Phase	2	2 4	1	1 2	4	4 1
Switch Phase						
Minimum Initial (s)	15.0		5.0		9.0	
Minimum Split (s)	20.5		11.8		14.0	
Total Split (s)	70.0		13.0		17.0	
Total Split (%)	70.0%		13.0%		17.0%	
Maximum Green (s)	64.5		6.2		12.0	
Yellow Time (s)	4.4		3.2		3.0	
All-Red Time (s)	1.1		3.6		2.0	
Lost Time Adjust (s)	0.0		0.0		0.0	
Total Lost Time (s)	5.5		6.8		5.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	2.5		1.5		1.5	
Recall Mode	C-Min		None		None	
Act Effct Green (s)	68.2	82.2	5.5	79.2	9.0	21.3
Actuated g/C Ratio	0.68	0.82	0.06	0.79	0.09	0.21
v/c Ratio	0.83	0.10	0.25	0.21	0.16	0.12
Control Delay	19.3	1.4	43.5	2.4	43.4	22.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.3	1.4	43.5	2.4	43.4	22.7
LOS	B	A	D	A	D	C
Approach Delay	18.1			5.4	33.9	
Approach LOS	B			A	C	

Intersection Summary

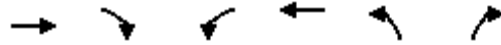
Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	85 (85%), Referenced to phase 2:EBWB, Start of Yellow
Natural Cycle:	80
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.83
Intersection Signal Delay:	15.7
Intersection LOS:	B
Intersection Capacity Utilization	66.1%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 21: Shops at Farmington Valley & Albany Turnpike (Route 44 & 202)



Queues

21: Shops at Farmington Valley & Albany Turnpike (Route 44 & 202)



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1962	136	47	605	51	43
v/c Ratio	0.83	0.10	0.25	0.21	0.16	0.12
Control Delay	19.3	1.4	43.5	2.4	43.4	22.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.3	1.4	43.5	2.4	43.4	22.7
Queue Length 50th (ft)	497	6	14	39	15	14
Queue Length 95th (ft)	623	m18	32	20	34	42
Internal Link Dist (ft)	747			767	524	
Turn Bay Length (ft)		220	420			
Base Capacity (vph)	2357	1271	209	2856	420	368
Starvation Cap Reductn	2	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.11	0.22	0.21	0.12	0.12

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

23: Fox Hollow/CVS Driveway & Albany Turnpike (Route 44 & 202)

2023 Background AM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	1415	34	18	571	22	24	5	10	36	0	2
Future Volume (vph)	13	1415	34	18	571	22	24	5	10	36	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	13	12	12	12
Storage Length (ft)	130		0	130		150	0		80	0		0
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	70			90			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.996				0.850			0.850			0.850
Fl <sub>t</sub> Protected	0.950			0.950				0.960			0.950	
Satd. Flow (prot)	1745	3476	0	1745	3455	1561	0	1763	1669	0	1805	1615
Fl <sub>t</sub> Permitted	0.387			0.132				0.733			0.730	
Satd. Flow (perm)	711	3476	0	242	3455	1561	0	1346	1669	0	1387	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				70			99			99
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1110			920			549			426	
Travel Time (s)		21.6			17.9			15.0			11.6	
Peak Hour Factor	0.94	0.94	0.94	0.82	0.82	0.82	0.71	0.71	0.71	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	14	1505	36	22	696	27	34	7	14	42	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	1541	0	22	696	27	0	41	14	0	42	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	0.96	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	0		1	0	0	1	1	1	1	1	1
Detector Template							Left			Left		
Leading Detector (ft)	40	0		40	0	0	20	30	30	20	30	30
Trailing Detector (ft)	0	0		0	0	0	0	-10	-10	0	-10	-10
Detector 1 Position(ft)	0	0		0	0	0	0	-10	-10	0	-10	-10
Detector 1 Size(ft)	40	6		40	6	20	20	40	40	20	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6		5	2			4			4	
Permitted Phases	6			2		2	4		4	4		4
Detector Phase	1	6		5	2	2	4	4	4	4	4	4
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	4.0	4.0	4.0	4.0	4.0



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	8.0	22.2		8.0	22.2	22.2	8.8	8.8	8.8	8.8	8.8	8.8
Total Split (s)	12.0	58.0		12.0	58.0	58.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (%)	13.3%	64.4%		13.3%	64.4%	64.4%	22.2%	22.2%	22.2%	22.2%	22.2%	22.2%
Maximum Green (s)	8.0	50.8		8.0	50.8	50.8	15.2	15.2	15.2	15.2	15.2	15.2
Yellow Time (s)	3.0	4.2		3.0	4.2	4.2	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	3.0		1.0	3.0	3.0	1.8	1.8	1.8	1.8	1.8	1.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	7.2		4.0	7.2	7.2		4.8	4.8		4.8	4.8
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	0.2		1.5	0.2	0.2	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None
Act Effect Green (s)	73.9	70.4		74.8	72.1	72.1		7.6	7.6		7.6	7.6
Actuated g/C Ratio	0.82	0.78		0.83	0.80	0.80		0.08	0.08		0.08	0.08
v/c Ratio	0.02	0.57		0.08	0.25	0.02		0.37	0.06		0.36	0.01
Control Delay	2.1	6.9		2.6	3.7	0.0		47.1	0.5		46.8	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	2.1	6.9		2.6	3.7	0.0		47.1	0.5		46.8	0.0
LOS	A	A		A	A	A		D	A		D	A
Approach Delay		6.9			3.6			35.3			44.7	
Approach LOS		A			A			D			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 15 (17%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.57  
 Intersection Signal Delay: 7.2  
 Intersection LOS: A  
 Intersection Capacity Utilization 60.9%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 23: Fox Hollow/CVS Driveway & Albany Turnpike (Route 44 & 202)





Queues

23: Fox Hollow/CVS Driveway & Albany Turnpike (Route 44 & 202)



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	14	1541	22	696	27	41	14	42	2
v/c Ratio	0.02	0.57	0.08	0.25	0.02	0.37	0.06	0.36	0.01
Control Delay	2.1	6.9	2.6	3.7	0.0	47.1	0.5	46.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.1	6.9	2.6	3.7	0.0	47.1	0.5	46.8	0.0
Queue Length 50th (ft)	1	135	2	42	0	22	0	23	0
Queue Length 95th (ft)	5	328	6	95	0	42	0	51	0
Internal Link Dist (ft)		1030		840		469		346	
Turn Bay Length (ft)	130		130		150		80		
Base Capacity (vph)	687	2720	336	2768	1264	227	364	234	355
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.57	0.07	0.25	0.02	0.18	0.04	0.18	0.01

Intersection Summary

Lanes, Volumes, Timings

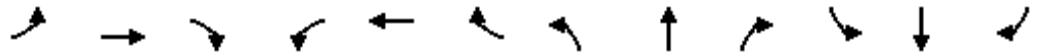
15 Albany Turnpike, Canton, CT

24: Dale Rd./Simsbury Commons & Albany Turnpike (Route 44 & 202)

2023 Background AM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	1286	24	57	483	31	5	22	170	27	14	26
Future Volume (vph)	33	1286	24	57	483	31	5	22	170	27	14	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	12	12	11	11	12	12	12	12
Storage Length (ft)	180		0	450		525	200		0	0		0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	115			80			50			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.997				0.850		0.867				0.850
Fl <sub>t</sub> Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1745	3445	0	1770	3574	1615	1454	1592	0	1805	1900	1615
Fl <sub>t</sub> Permitted	0.950			0.950			0.745			0.325		
Satd. Flow (perm)	1745	3445	0	1770	3574	1615	1140	1592	0	618	1900	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				61		227				74
Link Speed (mph)		35			35			25				25
Link Distance (ft)		791			1110			639				380
Travel Time (s)		15.4			21.6			17.4				10.4
Peak Hour Factor	0.90	0.90	0.90	0.85	0.85	0.85	0.75	0.75	0.75	0.73	0.73	0.73
Heavy Vehicles (%)	0%	1%	0%	2%	1%	0%	20%	0%	0%	0%	0%	0%
Adj. Flow (vph)	37	1429	27	67	568	36	7	29	227	37	19	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	1456	0	67	568	36	7	256	0	37	19	36
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.00	1.00	1.00	1.04	1.04	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1		1	1	1
Detector Template										Left		
Leading Detector (ft)	25	306		25	256	256	20	20		30	30	40
Trailing Detector (ft)	-5	300		-5	250	250	-10	-10		0	0	-10
Detector 1 Position(ft)	-5	300		-5	250	250	-10	-10		0	0	-10
Detector 1 Size(ft)	30	6		30	6	6	30	30		30	30	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4				4
Permitted Phases						2	4			4		4
Detector Phase	1	6		5	2	2	4	4		4	4	4
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	15.0	15.0	7.0	7.0		7.0	7.0	7.0



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	12.5	20.6		12.5	20.6	20.6	11.2	11.2		11.2	11.2	11.2
Total Split (s)	20.0	65.0		25.0	70.0	70.0	30.0	30.0		30.0	30.0	30.0
Total Split (%)	16.7%	54.2%		20.8%	58.3%	58.3%	25.0%	25.0%		25.0%	25.0%	25.0%
Maximum Green (s)	14.5	59.4		19.5	64.4	64.4	25.8	25.8		25.8	25.8	25.8
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.5	1.3		2.5	1.3	1.3	1.2	1.2		1.2	1.2	1.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.5	5.6		5.5	5.6	5.6	4.2	4.2		4.2	4.2	4.2
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	5.0		1.5	8.0	8.0	2.0	2.0		2.0	2.0	2.0
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None		None	None	None
Act Effect Green (s)	7.6	85.8		9.0	89.7	89.7	12.3	12.3		12.3	12.3	12.3
Actuated g/C Ratio	0.06	0.72		0.08	0.75	0.75	0.10	0.10		0.10	0.10	0.10
v/c Ratio	0.34	0.59		0.50	0.21	0.03	0.06	0.70		0.59	0.10	0.16
Control Delay	57.2	4.7		65.9	6.1	0.8	46.0	19.6		84.1	46.8	2.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	57.2	4.7		65.9	6.1	0.8	46.0	19.6		84.1	46.8	2.3
LOS	E	A		E	A	A	D	B		F	D	A
Approach Delay		6.0			11.8			20.3			44.4	
Approach LOS		A			B			C			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 20 (17%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.70  
 Intersection Signal Delay: 10.4      Intersection LOS: B  
 Intersection Capacity Utilization 75.9%      ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 24: Dale Rd./Simsbury Commons & Albany Turnpike (Route 44 & 202)



Queues

24: Dale Rd./Simsbury Commons & Albany Turnpike (Route 44 & 202)



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	37	1456	67	568	36	7	256	37	19	36
v/c Ratio	0.34	0.59	0.50	0.21	0.03	0.06	0.70	0.59	0.10	0.16
Control Delay	57.2	4.7	65.9	6.1	0.8	46.0	19.6	84.1	46.8	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.2	4.7	65.9	6.1	0.8	46.0	19.6	84.1	46.8	2.3
Queue Length 50th (ft)	30	117	51	69	0	5	21	28	14	0
Queue Length 95th (ft)	m42	113	91	115	4	15	50	49	28	0
Internal Link Dist (ft)		711		1030			559		300	
Turn Bay Length (ft)	180		450		525	200				
Base Capacity (vph)	210	2464	287	2672	1222	245	520	132	408	405
Starvation Cap Reductn	0	57	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.60	0.23	0.21	0.03	0.03	0.49	0.28	0.05	0.09

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

25: W. Avon Rd./Bushy Hill Road & Albany Turnpike (Route 44 & 202)

2023 Background AM



Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SER
Lane Configurations												
Traffic Volume (vph)	47	429	31	107	230	35	116	217	127	235	1186	114
Future Volume (vph)	47	429	31	107	230	35	116	217	127	235	1186	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	11	11	11	11	12	12
Storage Length (ft)	375	0		200		0	0		0		220	0
Storage Lanes	1	2		1		0	1		1		2	0
Taper Length (ft)	125			150			25				140	
Lane Util. Factor	1.00	0.88	1.00	1.00	0.95	0.95	1.00	1.00	1.00	0.97	0.97	0.95
Frt		0.850			0.980				0.850		0.987	
Flt Protected	0.950			0.950			0.950			0.950	0.956	
Satd. Flow (prot)	1745	2722	0	1728	3507	0	1745	1818	1546	3385	3447	0
Flt Permitted	0.950			0.950			0.950			0.950	0.956	
Satd. Flow (perm)	1745	2722	0	1728	3507	0	1745	1818	1546	3385	3447	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		108			12				144		108	
Link Speed (mph)	40				25			40			40	
Link Distance (ft)	791				809			493			815	
Travel Time (s)	13.5				22.1			8.4			13.9	
Peak Hour Factor	0.89	0.89	0.89	0.94	0.94	0.94	0.88	0.88	0.88	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	0%	1%	1%	0%	0%	1%	1%	0%	1%	0%
Adj. Flow (vph)	53	482	35	114	245	37	132	247	144	250	1262	121
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	517	0	114	282	0	132	247	144	250	1383	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	11				11			11			46	
Link Offset(ft)	0				0			0			0	
Crosswalk Width(ft)	16				16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.04	1.00	1.00	1.04	1.04	1.04	1.04	1.00	1.00
Turning Speed (mph)	15	9	9	15		9	15		9	15	15	9
Number of Detectors	1	2		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	40	368		34	30		30	30	30	40	190	
Trailing Detector (ft)	0	176		-6	-10		-10	-10	-10	0	184	
Detector 1 Position(ft)	0	176		-6	-10		-10	-10	-10	0	184	
Detector 1 Size(ft)	40	6		40	40		40	40	40	40	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		362										
Detector 2 Size(ft)		6										
Detector 2 Type		Cl+Ex										
Detector 2 Channel												
Detector 2 Extend (s)		0.0										
Turn Type	Prot	Prot		Prot	NA		Prot	NA	pt+ov	Prot	Prot	

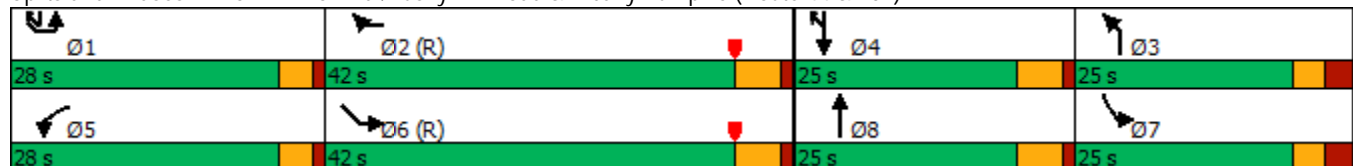


Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SER
Protected Phases	5	2		3	8		7	4	14	1	6	
Permitted Phases												
Detector Phase	5	2		3	8		7	4	14	1	6	
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	7.0		7.0	7.0		7.0	15.0	
Minimum Split (s)	11.0	20.4		12.6	12.2		12.6	12.2		11.1	20.4	
Total Split (s)	28.0	42.0		25.0	25.0		25.0	25.0		28.0	42.0	
Total Split (%)	23.3%	35.0%		20.8%	20.8%		20.8%	20.8%		23.3%	35.0%	
Maximum Green (s)	24.0	36.6		19.4	19.8		19.4	19.8		23.9	36.6	
Yellow Time (s)	3.0	4.2		3.0	4.2		3.0	4.2		3.0	4.2	
All-Red Time (s)	1.0	1.2		2.6	1.0		2.6	1.0		1.1	1.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.4		5.6	5.2		5.6	5.2		4.1	5.4	
Lead/Lag	Lead	Lag		Lag	Lead		Lag	Lead		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	4.0		1.5	2.0		1.5	2.0		1.5	4.0	
Recall Mode	None	C-Min		None	None		None	None		None	C-Min	
Act Effct Green (s)	8.3	56.3		12.0	13.9		16.7	18.6	32.5	12.8	63.0	
Actuated g/C Ratio	0.07	0.47		0.10	0.12		0.14	0.16	0.27	0.11	0.52	
v/c Ratio	0.44	0.39		0.66	0.68		0.54	0.88	0.28	0.69	0.74	
Control Delay	77.0	14.2		69.4	56.9		56.3	79.8	4.2	70.0	22.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	77.0	14.2		69.4	56.9		56.3	79.8	4.2	70.0	22.7	
LOS	E	B		E	E		E	E	A	E	C	
Approach Delay	20.0				60.5			53.0			30.0	
Approach LOS	C				E			D			C	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 5 (4%), Referenced to phase 2:WBR and 6:SEL, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay: 35.9  
 Intersection LOS: D  
 Intersection Capacity Utilization 77.4%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 25: W. Avon Rd./Bushy Hill Road & Albany Turnpike (Route 44 & 202)



Queues



Lane Group	WBL	WBR	NBL	NBT	SBL	SBT	SBR	SEL2	SEL
Lane Group Flow (vph)	53	517	114	282	132	247	144	250	1383
v/c Ratio	0.44	0.39	0.66	0.68	0.54	0.88	0.28	0.69	0.74
Control Delay	77.0	14.2	69.4	56.9	56.3	79.8	4.2	70.0	22.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.0	14.2	69.4	56.9	56.3	79.8	4.2	70.0	22.7
Queue Length 50th (ft)	33	115	87	107	95	187	0	102	417
Queue Length 95th (ft)	88	186	143	149	156	#310	28	136	581
Internal Link Dist (ft)	711			729		413			735
Turn Bay Length (ft)	375		200					220	220
Base Capacity (vph)	349	1334	279	588	282	299	667	674	1862
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.39	0.41	0.48	0.47	0.83	0.22	0.37	0.74

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

35: Secret Lake/Car Dealer & Albany Turnpike (Route 44 & 202)

2023 Background AM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1749	0	2	573	3	7	0	1	0	0	5
Future Volume (vph)	3	1749	0	2	573	3	7	0	1	0	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	11	11	11	11	12	12	12	12	12	12
Storage Length (ft)	50		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	75			70			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>					0.999			0.986				0.865
Fl <sub>t</sub> Protected	0.950			0.950				0.957				
Satd. Flow (prot)	1745	3574	0	1745	3452	0	0	1793	0	0	1627	0
Fl <sub>t</sub> Permitted	0.414			0.950				0.957				
Satd. Flow (perm)	760	3574	0	1745	3452	0	0	1793	0	0	1627	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					1			155				419
Link Speed (mph)		40			40			25				30
Link Distance (ft)		847			3567			498				493
Travel Time (s)		14.4			60.8			13.6				11.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.80	0.80	0.80	0.90	0.90	0.90
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	1%
Adj. Flow (vph)	3	1901	0	2	623	3	9	0	1	0	0	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	1901	0	2	626	0	0	10	0	0	6	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		22			22			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.04	1.04	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	3	0		3	0		1	3		1	2	
Detector Template							Left					
Leading Detector (ft)	26	0		26	0		20	26		6	16	
Trailing Detector (ft)	0	0		0	0		0	0		0	-6	
Detector 1 Position(ft)	0	0		0	894		0	0		0	-6	
Detector 1 Size(ft)	6	6		6	6		20	6		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	10			10			10				10	
Detector 2 Size(ft)	6			6			6				6	
Detector 2 Type	Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0			0.0			0.0				0.0	
Detector 3 Position(ft)	20			20			20					



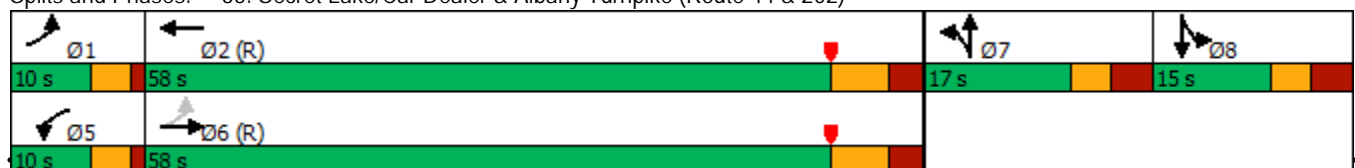


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Size(ft)	6			6			6					
Detector 3 Type	Cl+Ex			Cl+Ex			Cl+Ex					
Detector 3 Channel												
Detector 3 Extend (s)	0.0			0.0			0.0					
Turn Type	pm+pt	NA		Prot	NA		Split		NA		NA	
Protected Phases	1	6		5	2		7		7		8	8
Permitted Phases	6											
Detector Phase	1	6		5	2		7		7		8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0		9.0		9.0		7.0	7.0
Minimum Split (s)	9.0	22.0		9.0	22.0		15.2		15.2		13.2	13.2
Total Split (s)	10.0	58.0		10.0	58.0		17.0		17.0		15.0	15.0
Total Split (%)	10.0%	58.0%		10.0%	58.0%		17.0%		17.0%		15.0%	15.0%
Maximum Green (s)	6.0	51.0		6.0	51.0		10.8		10.8		8.8	8.8
Yellow Time (s)	3.0	4.4		3.0	4.4		3.0		3.0		3.0	3.0
All-Red Time (s)	1.0	2.6		1.0	2.6		3.2		3.2		3.2	3.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0		0.0		0.0	0.0
Total Lost Time (s)	4.0	7.0		4.0	7.0		6.2		6.2		6.2	6.2
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	2.5		1.5	2.5		1.5		1.5		1.5	1.5
Recall Mode	None	C-Min		None	C-Min		None		None		None	None
Act Effct Green (s)	89.5	91.1		5.0	91.1		9.0		9.0		7.0	7.0
Actuated g/C Ratio	0.90	0.91		0.05	0.91		0.09		0.09		0.07	0.07
v/c Ratio	0.00	0.58		0.02	0.20		0.03		0.03		0.01	0.01
Control Delay	2.0	4.3		46.0	3.5		0.2		0.2		0.0	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0		0.0		0.0	0.0
Total Delay	2.0	4.3		46.0	3.5		0.2		0.2		0.0	0.0
LOS	A	A		D	A		A		A		A	A
Approach Delay		4.3			3.6		0.3		0.3			
Approach LOS		A			A		A		A			

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 89 (89%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.58  
 Intersection Signal Delay: 4.1  
 Intersection LOS: A  
 Intersection Capacity Utilization 66.8%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 35: Secret Lake/Car Dealer & Albany Turnpike (Route 44 & 202)





Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	3	1901	2	626	10	6
v/c Ratio	0.00	0.58	0.02	0.20	0.03	0.01
Control Delay	2.0	4.3	46.0	3.5	0.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.0	4.3	46.0	3.5	0.2	0.0
Queue Length 50th (ft)	0	0	1	0	0	0
Queue Length 95th (ft)	m0	#763	9	142	0	0
Internal Link Dist (ft)		767		3487	418	413
Turn Bay Length (ft)	50		100			
Base Capacity (vph)	740	3257	104	3145	331	525
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.58	0.02	0.20	0.03	0.01

**Intersection Summary**

# 95th percentile volume exceeds capacity, queue may be longer.

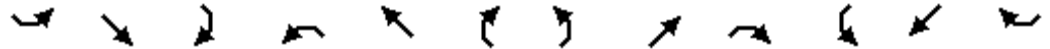
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

1: Auto Spa Car Wash/Hoffman Auto Park & Albany Turnpike (Route 44 & 202) 2023 Background PM



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	14	935	29	12	1502	28	17	0	9	148	0	56
Future Volume (vph)	14	935	29	12	1502	28	17	0	9	148	0	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	12	12	12	12	12	12	12
Storage Length (ft)	140		0	250		0	0		50	0		100
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	50			100			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.997				0.850			0.850
Flt Protected	0.950			0.950				0.950			0.950	
Satd. Flow (prot)	1745	3442	0	1745	3564	0	0	1805	1615	0	1805	1615
Flt Permitted	0.060			0.267				0.463			0.740	
Satd. Flow (perm)	110	3442	0	490	3564	0	0	880	1615	0	1406	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			2				73			73
Link Speed (mph)		40			40			25			30	
Link Distance (ft)		3567			815			631			754	
Travel Time (s)		60.8			13.9			17.2			17.1	
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.65	0.65	0.65	0.86	0.86	0.86
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	16	1039	32	13	1565	29	26	0	14	172	0	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	1071	0	13	1594	0	0	26	14	0	172	65
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		22			22			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	3	0		0	0		1	2	2	1	3	3
Detector Template							Left			Left		
Leading Detector (ft)	30	0		0	0		20	16	16	20	16	16
Trailing Detector (ft)	-6	0		0	0		0	0	0	0	-10	-10
Detector 1 Position(ft)	-6	390		0	0		0	0	0	0	-10	-10
Detector 1 Size(ft)	6	6		6	20		20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	12						10	10			0	0
Detector 2 Size(ft)	6						6	6			6	6
Detector 2 Type	Cl+Ex						Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0						0.0	0.0			0.0	0.0
Detector 3 Position(ft)	24										10	10

Lane Group	Ø1
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Detector 3 Position(ft)	

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

1: Auto Spa Car Wash/Hoffman Auto Park & Albany Turnpike (Route 44 & 202) 2023 Background PM

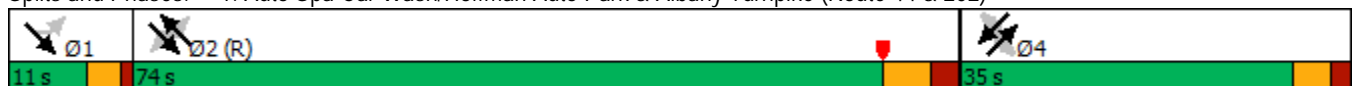


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR	
Detector 3 Size(ft)	6						6						
Detector 3 Type	Cl+Ex						Cl+Ex						
Detector 3 Channel													
Detector 3 Extend (s)	0.0						0.0						
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm	
Protected Phases		1 2			2			4			4		
Permitted Phases	1 2			2			4		4	4		4	
Detector Phase	1 2	1 2		2	2		4	4	4	4	4	4	
Switch Phase													
Minimum Initial (s)				15.0	15.0				10.0	10.0	10.0	10.0	10.0
Minimum Split (s)				22.0	22.0				15.3	15.3	15.3	15.3	15.3
Total Split (s)				74.0	74.0				35.0	35.0	35.0	35.0	35.0
Total Split (%)				61.7%	61.7%				29.2%	29.2%	29.2%	29.2%	29.2%
Maximum Green (s)				67.0	67.0				29.7	29.7	29.7	29.7	29.7
Yellow Time (s)				4.3	4.3				3.3	3.3	3.3	3.3	3.3
All-Red Time (s)				2.7	2.7				2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)				0.0	0.0				0.0	0.0		0.0	0.0
Total Lost Time (s)				7.0	7.0				5.3	5.3		5.3	5.3
Lead/Lag				Lag	Lag								
Lead-Lag Optimize?													
Vehicle Extension (s)				0.2	0.2				1.5	1.5	1.5	1.5	1.5
Recall Mode				C-Max	C-Max				None	None	None	None	None
Act Effect Green (s)	91.9	91.9		70.3	70.3				18.8	18.8		18.8	18.8
Actuated g/C Ratio	0.77	0.77		0.59	0.59				0.16	0.16		0.16	0.16
v/c Ratio	0.19	0.41		0.05	0.76				0.19	0.04		0.78	0.21
Control Delay	11.7	5.8		6.4	8.2				44.4	0.2		71.4	9.0
Queue Delay	0.0	0.0		0.0	0.4				0.0	0.0		0.0	0.0
Total Delay	11.7	5.8		6.4	8.6				44.4	0.2		71.4	9.0
LOS	B	A		A	A				D	A		E	A
Approach Delay		5.9			8.6				28.9			54.3	
Approach LOS		A			A				C			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 35 (29%), Referenced to phase 2:NWSE, Start of Yellow  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.78  
 Intersection Signal Delay: 11.5 Intersection LOS: B  
 Intersection Capacity Utilization 73.7% ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 1: Auto Spa Car Wash/Hoffman Auto Park & Albany Turnpike (Route 44 & 202)



Lane Group	Ø1
Detector 3 Size(ft)	
Detector 3 Type	
Detector 3 Channel	
Detector 3 Extend (s)	
Turn Type	
Protected Phases	1
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	11.0
Total Split (s)	11.0
Total Split (%)	9%
Maximum Green (s)	7.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Queues

15 Albany Turnpike, Canton, CT

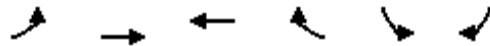
1: Auto Spa Car Wash/Hoffman Auto Park & Albany Turnpike (Route 44 & 202) 2023 Background PM



Lane Group	SEL	SET	NWL	NWT	NET	NER	SWT	SWR
Lane Group Flow (vph)	16	1071	13	1594	26	14	172	65
v/c Ratio	0.19	0.41	0.05	0.76	0.19	0.04	0.78	0.21
Control Delay	11.7	5.8	6.4	8.2	44.4	0.2	71.4	9.0
Queue Delay	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0
Total Delay	11.7	5.8	6.4	8.6	44.4	0.2	71.4	9.0
Queue Length 50th (ft)	3	124	2	170	18	0	130	0
Queue Length 95th (ft)	17	207	m3	m165	30	0	184	29
Internal Link Dist (ft)		3487		735	551		674	
Turn Bay Length (ft)	140		250			50		100
Base Capacity (vph)	84	2637	286	2088	217	454	347	454
Starvation Cap Reductn	0	0	0	148	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.41	0.05	0.82	0.12	0.03	0.50	0.14

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	130	1072	1615	276	253	110
Future Volume (vph)	130	1072	1615	276	253	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			120	0	0
Storage Lanes	1			1	2	0
Taper Length (ft)	80				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.95
Frt				0.850	0.955	
Flt Protected	0.950				0.966	
Satd. Flow (prot)	1805	3574	3574	1615	3377	0
Flt Permitted	0.072				0.966	
Satd. Flow (perm)	137	3574	3574	1615	3377	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				300	59	
Link Speed (mph)		30	40		30	
Link Distance (ft)		615	827		249	
Travel Time (s)		14.0	14.1		5.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.85	0.85
Heavy Vehicles (%)	0%	1%	1%	0%	1%	0%
Adj. Flow (vph)	141	1165	1755	300	298	129
Shared Lane Traffic (%)						
Lane Group Flow (vph)	141	1165	1755	300	427	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	3	0	0	0	1	
Detector Template						
Leading Detector (ft)	27	0	0	0	47	
Trailing Detector (ft)	-3	0	0	0	-3	
Detector 1 Position(ft)	-3	200	200	0	-3	
Detector 1 Size(ft)	6	6	6	20	50	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)	9					
Detector 2 Size(ft)	6					
Detector 2 Type	Cl+Ex					
Detector 2 Channel						
Detector 2 Extend (s)	0.0					
Detector 3 Position(ft)	21					
Detector 3 Size(ft)	6					



Lanes, Volumes, Timings  
 4: Albany Turnpike (Route 44 & 202) & CVS Canton Driveway

15 Albany Turnpike, Canton, CT  
 2023 Background PM

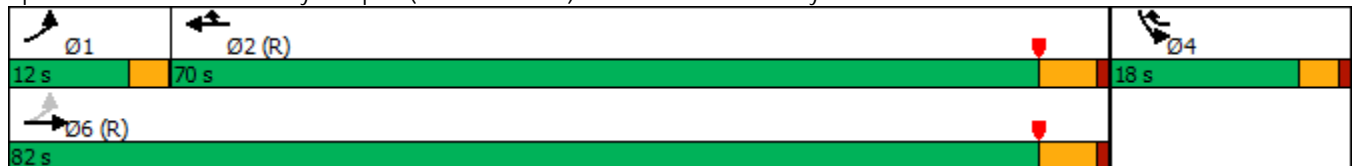


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 3 Type	Cl+Ex					
Detector 3 Channel						
Detector 3 Extend (s)	0.0					
Turn Type	pm+pt	NA	NA	pt+ov	Prot	
Protected Phases	1	6	2	2 4	4	
Permitted Phases	6					
Detector Phase	1	6	2	2 4	4	
Switch Phase						
Minimum Initial (s)	5.0	25.0	25.0			7.0
Minimum Split (s)	8.1	30.3	30.3			11.0
Total Split (s)	12.0	82.0	70.0			18.0
Total Split (%)	12.0%	82.0%	70.0%			18.0%
Maximum Green (s)	8.9	76.7	64.7			14.0
Yellow Time (s)	3.0	4.3	4.3			3.0
All-Red Time (s)	0.1	1.0	1.0			1.0
Lost Time Adjust (s)	0.0	0.0	0.0			0.0
Total Lost Time (s)	3.1	5.3	5.3			4.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	0.2	0.2			2.0
Recall Mode	None	C-Max	C-Max			None
Act Effect Green (s)	79.5	77.3	67.3	84.7	13.4	
Actuated g/C Ratio	0.80	0.77	0.67	0.85	0.13	
v/c Ratio	0.63	0.42	0.73	0.21	0.85	
Control Delay	23.6	4.4	9.3	0.3	53.0	
Queue Delay	0.0	0.0	0.1	0.0	0.0	
Total Delay	23.6	4.4	9.4	0.3	53.0	
LOS	C	A	A	A	D	
Approach Delay			6.5	8.1	53.0	
Approach LOS			A	A	D	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 20 (20%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.85  
 Intersection Signal Delay: 12.6  
 Intersection LOS: B  
 Intersection Capacity Utilization 73.6%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 4: Albany Turnpike (Route 44 & 202) & CVS Canton Driveway





Lane Group	EBL	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	141	1165	1755	300	427
v/c Ratio	0.63	0.42	0.73	0.21	0.85
Control Delay	23.6	4.4	9.3	0.3	53.0
Queue Delay	0.0	0.0	0.1	0.0	0.0
Total Delay	23.6	4.4	9.4	0.3	53.0
Queue Length 50th (ft)	18	109	125	0	119
Queue Length 95th (ft)	81	137	347	m1	#170
Internal Link Dist (ft)		535	747		169
Turn Bay Length (ft)	150			120	
Base Capacity (vph)	257	2762	2404	1421	523
Starvation Cap Reductn	0	0	46	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.55	0.42	0.74	0.21	0.82

#### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

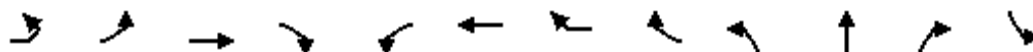
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Pleasant Road



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL
Lane Configurations		↔	↕	↗	↖	↕		↗	↖	↕	↗	
Traffic Volume (vph)	12	178	875	64	204	1401	1	72	157	99	174	87
Future Volume (vph)	12	178	875	64	204	1401	1	72	157	99	174	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		380		130	325		0				0	0
Storage Lanes		1		1	1		1				1	0
Taper Length (ft)		300			75							25
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00
Frt				0.850				0.850			0.850	
Flt Protected		0.950			0.950				0.950			
Satd. Flow (prot)	0	1788	3574	1599	1787	3574	0	1599	1787	1881	1599	0
Flt Permitted		0.950			0.950				0.950			
Satd. Flow (perm)	0	1788	3574	1599	1787	3574	0	1599	1787	1881	1599	0
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)				263				263			185	
Link Speed (mph)			40			40				40		
Link Distance (ft)			1074			615				959		
Travel Time (s)			18.3			10.5				16.3		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	1%	1%	1%	1%	0%	1%	1%	1%	1%	0%
Adj. Flow (vph)	13	193	951	70	222	1523	1	78	167	105	185	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	206	951	70	222	1524	0	78	167	105	185	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Right	Left	Left	Right	Left
Median Width(ft)			12			12				12		
Link Offset(ft)			0			0				0		
Crosswalk Width(ft)			16			16				16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15		9	15		9	9	15		9	15
Number of Detectors	1	3	2	0	3	2		0	3	3	3	1
Detector Template	Left											Left
Leading Detector (ft)	20	20	281	0	24	331		0	24	24	24	20
Trailing Detector (ft)	0	-10	100	0	-6	150		0	-6	-6	-6	0
Detector 1 Position(ft)	0	-10	100	0	-6	150		0	-6	-6	-6	0
Detector 1 Size(ft)	20	6	6	20	6	6		20	6	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		2	275		6	325			6	6	6	
Detector 2 Size(ft)		6	6		6	6			6	6	6	
Detector 2 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0	0.0		0.0	0.0			0.0	0.0	0.0	
Detector 3 Position(ft)		14			18				18	18	18	
Detector 3 Size(ft)		6			6				6	6	6	

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Pleasant Road

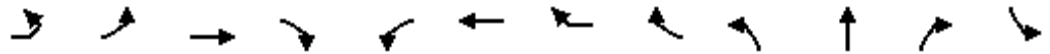


Lane Group	SBT	SBR	SEL	SER	SER2
Lane Configurations	↑	↑↑	↑↑		
Traffic Volume (vph)	148	355	7	1	11
Future Volume (vph)	148	355	7	1	11
Ideal Flow (vphp)	1900	1900	1900	1900	1900
Storage Length (ft)		250	0	0	
Storage Lanes		2	1	0	
Taper Length (ft)			25		
Lane Util. Factor	1.00	0.88	1.00	1.00	1.00
Frt		0.850	0.914		
Flt Protected	0.982		0.982		
Satd. Flow (prot)	1854	2814	1705	0	0
Flt Permitted	0.982		0.982		
Satd. Flow (perm)	1854	2814	1705	0	0
Right Turn on Red					Yes
Satd. Flow (RTOR)			223		
Link Speed (mph)	40		30		
Link Distance (ft)	864		881		
Travel Time (s)	14.7		20.0		
Peak Hour Factor	0.94	0.94	0.87	0.87	0.87
Heavy Vehicles (%)	1%	1%	0%	0%	0%
Adj. Flow (vph)	157	378	8	1	13
Shared Lane Traffic (%)					
Lane Group Flow (vph)	250	378	22	0	0
Enter Blocked Intersection	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Right
Median Width(ft)	12		12		
Link Offset(ft)	0		0		
Crosswalk Width(ft)	16		16		
Two way Left Turn Lane					
Headway Factor	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15	9	9
Number of Detectors	3	3	0		
Detector Template					
Leading Detector (ft)	24	24	0		
Trailing Detector (ft)	-6	-6	0		
Detector 1 Position(ft)	-6	-6	0		
Detector 1 Size(ft)	6	6	20		
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel					
Detector 1 Extend (s)	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0		
Detector 2 Position(ft)	6	6			
Detector 2 Size(ft)	6	6			
Detector 2 Type	Cl+Ex	Cl+Ex			
Detector 2 Channel					
Detector 2 Extend (s)	0.0	0.0			
Detector 3 Position(ft)	18	18			
Detector 3 Size(ft)	6	6			

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Trailsend Road

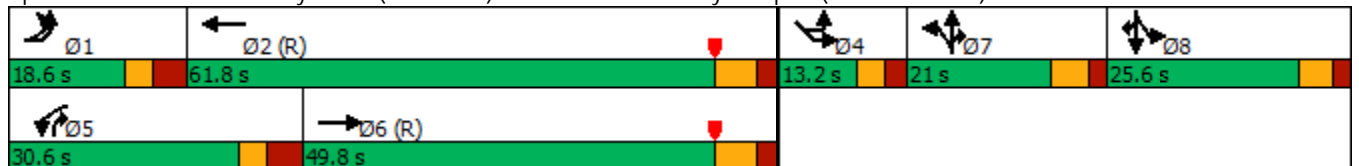


Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL
Detector 3 Type	Cl+Ex			Cl+Ex				Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 3 Channel												
Detector 3 Extend (s)	0.0			0.0				0.0		0.0	0.0	0.0
Turn Type	Prot	Prot	NA	Free	Prot	NA	Free		Split	NA	pt+ov	Split
Protected Phases	1	1	6	5			2	7		7	7.5	8
Permitted Phases				Free			Free					
Detector Phase	1	1	6	5			2	7		7	7.5	8
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0			15.0	9.0		9.0	5.0	
Minimum Split (s)	11.6	11.6	21.8	11.6			21.8	15.0		15.0	14.6	
Total Split (s)	18.6	18.6	49.8	30.6			61.8	21.0		21.0	25.6	
Total Split (%)	13.3%	13.3%	35.5%	21.8%			44.1%	15.0%		15.0%	18.3%	
Maximum Green (s)	12.0	12.0	43.0	24.0			55.0	15.0		15.0	20.0	
Yellow Time (s)	3.0	3.0	4.5	3.0			4.5	4.0		4.0	3.6	
All-Red Time (s)	3.6	3.6	2.3	3.6			2.3	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0			0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.6		6.8	6.6			6.8	6.0		6.0		
Lead/Lag	Lead	Lead	Lag	Lead			Lag	Lead		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	3.0	2.0			3.0	2.0		2.0	2.0	
Recall Mode	None	None	C-Min	None			C-Min	None		None	None	
Act Effect Green (s)	16.7		51.0	140.2	20.7	55.0	140.2		16.1	16.1	37.4	
Actuated g/C Ratio	0.12		0.36	1.00	0.15	0.39	1.00		0.11	0.11	0.27	
v/c Ratio	0.97		0.73	0.04	0.84	1.09	0.05		0.81	0.49	0.33	
Control Delay	114.5		44.5	0.0	84.5	91.7	0.1		89.4	65.9	4.3	
Queue Delay	0.0		0.0	0.0	0.0	5.9	0.0		0.0	0.0	0.0	
Total Delay	114.5		44.5	0.0	84.5	97.7	0.1		89.4	65.9	4.3	
LOS	F		D	A	F	F	A		F	E	A	
Approach Delay				53.7			91.9			49.6		
Approach LOS				D			F			D		

Intersection Summary

Area Type: Other  
 Cycle Length: 140.2  
 Actuated Cycle Length: 140.2  
 Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.09  
 Intersection Signal Delay: 75.1  
 Intersection LOS: E  
 Intersection Capacity Utilization 100.8%  
 ICU Level of Service G  
 Analysis Period (min) 15

Splits and Phases: 6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Trailsend Road



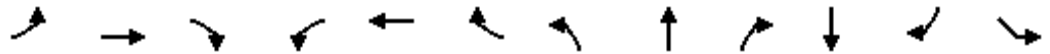


Lane Group	SBT	SBR	SEL	SER	SER2
Detector 3 Type	Cl+Ex	Cl+Ex			
Detector 3 Channel					
Detector 3 Extend (s)	0.0	0.0			
Turn Type	NA	Prot	Prot		
Protected Phases	8	8	4		
Permitted Phases					
Detector Phase	8	8	4		
Switch Phase					
Minimum Initial (s)	5.0	5.0	6.0		
Minimum Split (s)	14.6	14.6	11.2		
Total Split (s)	25.6	25.6	13.2		
Total Split (%)	18.3%	18.3%	9.4%		
Maximum Green (s)	20.0	20.0	8.0		
Yellow Time (s)	3.6	3.6	3.0		
All-Red Time (s)	2.0	2.0	2.2		
Lost Time Adjust (s)	0.0	0.0	0.0		
Total Lost Time (s)	5.6	5.6	5.2		
Lead/Lag	Lag	Lag			
Lead-Lag Optimize?					
Vehicle Extension (s)	2.0	2.0	2.0		
Recall Mode	None	None	None		
Act Effct Green (s)	20.7	20.7	6.0		
Actuated g/C Ratio	0.15	0.15	0.04		
v/c Ratio	0.92	0.91	0.08		
Control Delay	94.8	85.2	0.5		
Queue Delay	0.0	0.0	0.0		
Total Delay	94.8	85.2	0.5		
LOS	F	F	A		
Approach Delay	89.0		0.5		
Approach LOS	F		A		
<b>Intersection Summary</b>					

Queues

15 Albany Turnpike, Canton, CT

6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Pleasant Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SBT	SBR	SEL
Lane Group Flow (vph)	206	951	70	222	1524	78	167	105	185	250	378	22
v/c Ratio	0.97	0.73	0.04	0.84	1.09	0.05	0.81	0.49	0.33	0.92	0.91	0.08
Control Delay	114.5	44.5	0.0	84.5	91.7	0.1	89.4	65.9	4.3	94.8	85.2	0.5
Queue Delay	0.0	0.0	0.0	0.0	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	114.5	44.5	0.0	84.5	97.7	0.1	89.4	65.9	4.3	94.8	85.2	0.5
Queue Length 50th (ft)	~245	422	0	198	-819	0	150	91	0	229	196	0
Queue Length 95th (ft)	#410	520	0	#299	#958	0	#264	153	37	#401	#306	0
Internal Link Dist (ft)		994			535			879		784		801
Turn Bay Length (ft)	380		130	325							250	
Base Capacity (vph)	212	1299	1599	305	1402	1599	210	222	599	274	417	307
Starvation Cap Reductn	0	0	0	0	177	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.73	0.04	0.73	1.24	0.05	0.80	0.47	0.31	0.91	0.91	0.07

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

13: Bushy Hill Road/Bushy Hill Rd. & W. Mountain Rd./Simsbury Commons

2023 Background PM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	0	14	76	131	36	54	119	453	127	31	500	1
Future Volume (vph)	0	14	76	131	36	54	119	453	127	31	500	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		180	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.885				0.850		0.973				
Flt Protected					0.962			0.992			0.997	
Satd. Flow (prot)	0	1667	0	0	1828	1615	0	3462	0	0	3564	0
Flt Permitted					0.707			0.754			0.875	
Satd. Flow (perm)	0	1667	0	0	1343	1615	0	2631	0	0	3127	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		84				92		51				
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		536			693			493			335	
Travel Time (s)		12.2			15.8			8.4			5.7	
Peak Hour Factor	0.91	0.91	0.91	0.86	0.86	0.86	0.88	0.88	0.88	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	1%	0%	1%	1%	1%
Adj. Flow (vph)	0	15	84	152	42	63	135	515	144	34	556	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	99	0	0	194	63	0	794	0	0	591	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	3	3	1	1		1	1	
Detector Template	Left			Left			Left			Left		
Leading Detector (ft)	20	106		20	26	26	20	106		20	106	
Trailing Detector (ft)	0	100		0	-4	-4	0	100		0	100	
Detector 1 Position(ft)	0	100		0	-4	-4	0	100		0	100	
Detector 1 Size(ft)	20	6		20	6	6	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)					8	8						
Detector 2 Size(ft)					6	6						
Detector 2 Type					Cl+Ex	Cl+Ex						
Detector 2 Channel												
Detector 2 Extend (s)					0.0	0.0						
Detector 3 Position(ft)					20	20						
Detector 3 Size(ft)					6	6						

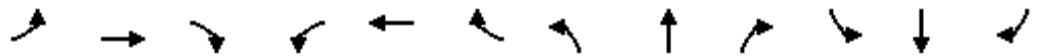


Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

13: Bushy Hill Road/Bushy Hill Rd. & W. Mountain Rd./Simsbury Commons

2023 Background PM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Detector 3 Type							Cl+Ex	Cl+Ex					
Detector 3 Channel													
Detector 3 Extend (s)							0.0	0.0					
Turn Type	NA		Perm		NA	Perm	Prot	NA		Perm		NA	
Protected Phases	4				4		1	1 2		2			
Permitted Phases	4		4		4							2	
Detector Phase	4		4		4		1	1 2		2		2	
Switch Phase													
Minimum Initial (s)	7.0	7.0	7.0		7.0	7.0	5.0		15.0		15.0		
Minimum Split (s)	11.3	11.3	11.3		11.3	11.3	9.0		21.3		21.3		
Total Split (s)	29.3	29.3	29.3		29.3	29.3	11.0		46.3		46.3		
Total Split (%)	33.8%	33.8%	33.8%		33.8%	33.8%	12.7%		53.5%		53.5%		
Maximum Green (s)	25.0	25.0	25.0		25.0	25.0	7.0		40.0		40.0		
Yellow Time (s)	3.3	3.3	3.3		3.3	3.3	3.0		4.2		4.2		
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0		2.1		2.1		
Lost Time Adjust (s)	0.0				0.0		0.0						
Total Lost Time (s)	4.3				4.3		4.3						
Lead/Lag							Lead			Lag		Lag	
Lead-Lag Optimize?													
Vehicle Extension (s)	4.0	4.0	4.0		4.0	4.0	0.2		4.0		4.0		
Recall Mode	None	None	None		None	None	Max		Min		Min		
Act Effect Green (s)	15.8				15.8	15.8	49.5		40.2				
Actuated g/C Ratio	0.20				0.20	0.20	0.64		0.52				
v/c Ratio	0.24				0.71	0.16	1.01		0.37				
Control Delay	9.4				43.1	3.4	46.9		12.9				
Queue Delay	0.0				0.0	0.0	0.0		0.0				
Total Delay	9.4				43.1	3.4	46.9		12.9				
LOS	A				D	A	D		B				
Approach Delay	9.4				33.4		46.9		12.9				
Approach LOS	A				C		D		B				

Intersection Summary

Area Type:	Other
Cycle Length:	86.6
Actuated Cycle Length:	77.7
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.01
Intersection Signal Delay:	31.2
Intersection LOS:	C
Intersection Capacity Utilization:	62.8%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 13: Bushy Hill Road/Bushy Hill Rd. & W. Mountain Rd./Simsbury Commons



Queues



Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	99	194	63	794	591
v/c Ratio	0.24	0.71	0.16	1.01	0.37
Control Delay	9.4	43.1	3.4	46.9	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.4	43.1	3.4	46.9	12.9
Queue Length 50th (ft)	6	88	0	~71	83
Queue Length 95th (ft)	42	146	13	#234	150
Internal Link Dist (ft)	456	613		413	255
Turn Bay Length (ft)			180		
Base Capacity (vph)	595	433	584	786	1616
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.17	0.45	0.11	1.01	0.37

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↔	↑↑	↔	↑
Traffic Volume (vph)	974	312	235	1575	332	189
Future Volume (vph)	974	312	235	1575	332	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	12	12
Storage Length (ft)		220	420		0	0
Storage Lanes		1	2		2	1
Taper Length (ft)			130		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Fr <sub>t</sub>		0.850				0.850
Fl <sub>t</sub> Protected			0.950		0.950	
Satd. Flow (prot)	3455	1561	3385	3574	3502	1615
Fl <sub>t</sub> Permitted			0.950		0.950	
Satd. Flow (perm)	3455	1561	3385	3574	3502	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		260				44
Link Speed (mph)	40			40	30	
Link Distance (ft)	827			847	604	
Travel Time (s)	14.1			14.4	13.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.85	0.85
Heavy Vehicles (%)	1%	0%	0%	1%	0%	0%
Adj. Flow (vph)	1059	339	255	1712	391	222
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1059	339	255	1712	391	222
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	22			22	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.04	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	0	3	2	3	3
Detector Template						
Leading Detector (ft)	356	0	38	356	26	26
Trailing Detector (ft)	180	0	0	180	0	0
Detector 1 Position(ft)	180	350	0	180	0	0
Detector 1 Size(ft)	6	6	6	6	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	350		16	350	10	10
Detector 2 Size(ft)	6		6	6	6	6
Detector 2 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 3 Position(ft)			32		20	20

Lanes, Volumes, Timings  
 21: Shops at Farmington Valley & Albany Turnpike (Route 44 & 202)

15 Albany Turnpike, Canton, CT  
 2023 Background PM

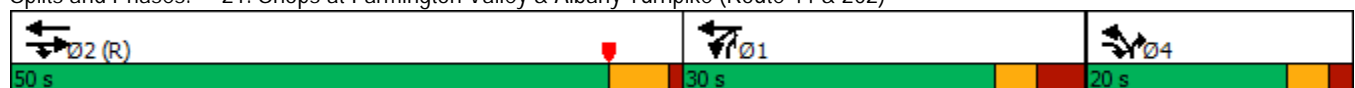


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 3 Size(ft)			6		6	6
Detector 3 Type			Cl+Ex		Cl+Ex	Cl+Ex
Detector 3 Channel						
Detector 3 Extend (s)			0.0		0.0	0.0
Turn Type	NA	pt+ov	Prot	NA	Prot	pt+ov
Protected Phases	2	2 4	1	1 2	4	4 1
Permitted Phases						
Detector Phase	2	2 4	1	1 2	4	4 1
Switch Phase						
Minimum Initial (s)	15.0		5.0		9.0	
Minimum Split (s)	20.5		11.8		14.0	
Total Split (s)	50.0		30.0		20.0	
Total Split (%)	50.0%		30.0%		20.0%	
Maximum Green (s)	44.5		23.2		15.0	
Yellow Time (s)	4.4		3.2		3.0	
All-Red Time (s)	1.1		3.6		2.0	
Lost Time Adjust (s)	0.0		0.0		0.0	
Total Lost Time (s)	5.5		6.8		5.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	2.5		1.5		1.5	
Recall Mode	C-Min		None		None	
Act Effct Green (s)	47.0	65.9	21.8	74.4	13.8	42.5
Actuated g/C Ratio	0.47	0.66	0.22	0.74	0.14	0.42
v/c Ratio	0.65	0.30	0.35	0.64	0.81	0.31
Control Delay	23.1	1.7	33.4	6.5	55.3	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.1	1.7	33.4	6.5	55.3	15.7
LOS	C	A	C	A	E	B
Approach Delay	17.9			10.0	41.0	
Approach LOS	B			B	D	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 16 (16%), Referenced to phase 2:EBWB, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.81  
 Intersection Signal Delay: 17.6  
 Intersection LOS: B  
 Intersection Capacity Utilization 62.8%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 21: Shops at Farmington Valley & Albany Turnpike (Route 44 & 202)

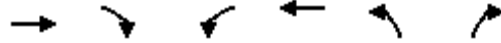


Queues

21: Shops at Farmington Valley & Albany Turnpike (Route 44 & 202)

15 Albany Turnpike, Canton, CT

2023 Background PM



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1059	339	255	1712	391	222
v/c Ratio	0.65	0.30	0.35	0.64	0.81	0.31
Control Delay	23.1	1.7	33.4	6.5	55.3	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.1	1.7	33.4	6.5	55.3	15.7
Queue Length 50th (ft)	302	12	79	417	124	68
Queue Length 95th (ft)	377	m23	117	18	163	112
Internal Link Dist (ft)	747			767	524	
Turn Bay Length (ft)		220	420			
Base Capacity (vph)	1625	1103	785	2707	525	714
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.31	0.32	0.63	0.74	0.31

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

23: Fox Hollow/CVS Driveway & Albany Turnpike (Route 44 & 202)

2023 Background PM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	974	28	18	1588	94	32	1	10	41	1	29
Future Volume (vph)	27	974	28	18	1588	94	32	1	10	41	1	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	13	12	12	12
Storage Length (ft)	130		0	130		150	0		80	0		0
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	70			90			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.996				0.850			0.850			0.850
Fl <sub>t</sub> Protected	0.950			0.950				0.953			0.953	
Satd. Flow (prot)	1745	3476	0	1745	3455	1561	0	1750	1669	0	1776	1615
Fl <sub>t</sub> Permitted	0.105			0.263				0.691			0.698	
Satd. Flow (perm)	193	3476	0	483	3455	1561	0	1269	1669	0	1301	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				63			89			89
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1110			920			549			426	
Travel Time (s)		21.6			17.9			15.0			11.6	
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%
Adj. Flow (vph)	28	1015	29	19	1689	100	42	1	13	53	1	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	1044	0	19	1689	100	0	43	13	0	54	38
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	0.96	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	0		1	0	0	1	1	1	1	1	1
Detector Template							Left			Left		
Leading Detector (ft)	40	0		40	0	0	20	30	30	20	30	30
Trailing Detector (ft)	0	0		0	0	0	0	-10	-10	0	-10	-10
Detector 1 Position(ft)	0	0		0	0	0	0	-10	-10	0	-10	-10
Detector 1 Size(ft)	40	6		40	6	20	20	40	40	20	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6		5	2			4			4	
Permitted Phases	6			2		2	4		4	4		4
Detector Phase	1	6		5	2	2	4	4	4	4	4	4
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	4.0	4.0	4.0	4.0	4.0

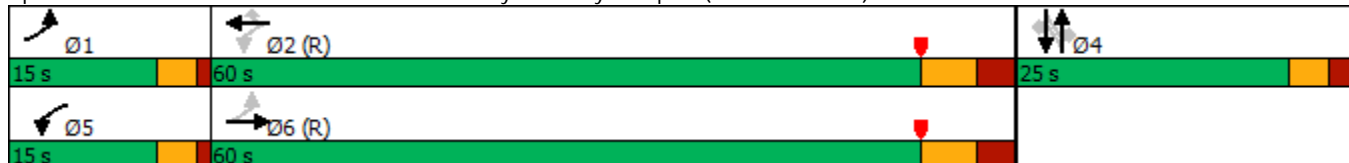


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	8.0	22.2		8.0	22.2	22.2	8.8	8.8	8.8	8.8	8.8	8.8
Total Split (s)	15.0	60.0		15.0	60.0	60.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	15.0%	60.0%		15.0%	60.0%	60.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Maximum Green (s)	11.0	52.8		11.0	52.8	52.8	20.2	20.2	20.2	20.2	20.2	20.2
Yellow Time (s)	3.0	4.2		3.0	4.2	4.2	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	3.0		1.0	3.0	3.0	1.8	1.8	1.8	1.8	1.8	1.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	7.2		4.0	7.2	7.2		4.8	4.8		4.8	4.8
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	0.2		1.5	0.2	0.2	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None
Act Effect Green (s)	82.9	79.3		81.9	77.5	77.5		8.7	8.7		8.7	8.7
Actuated g/C Ratio	0.83	0.79		0.82	0.78	0.78		0.09	0.09		0.09	0.09
v/c Ratio	0.12	0.38		0.04	0.63	0.08		0.39	0.06		0.48	0.17
Control Delay	3.2	5.2		2.3	8.7	2.5		52.2	0.5		56.3	1.7
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	3.2	5.2		2.3	8.7	2.5		52.2	0.5		56.3	1.7
LOS	A	A		A	A	A		D	A		E	A
Approach Delay		5.1			8.3			40.2			33.7	
Approach LOS		A			A			D			C	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 83 (83%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.63  
 Intersection Signal Delay: 8.5  
 Intersection LOS: A  
 Intersection Capacity Utilization 64.6%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 23: Fox Hollow/CVS Driveway & Albany Turnpike (Route 44 & 202)



Queues

23: Fox Hollow/CVS Driveway & Albany Turnpike (Route 44 & 202)



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	28	1044	19	1689	100	43	13	54	38
v/c Ratio	0.12	0.38	0.04	0.63	0.08	0.39	0.06	0.48	0.17
Control Delay	3.2	5.2	2.3	8.7	2.5	52.2	0.5	56.3	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.2	5.2	2.3	8.7	2.5	52.2	0.5	56.3	1.7
Queue Length 50th (ft)	2	80	2	276	6	26	0	33	0
Queue Length 95th (ft)	8	189	6	418	24	50	0	60	0
Internal Link Dist (ft)		1030		840		469		346	
Turn Bay Length (ft)	130		130		150		80		
Base Capacity (vph)	333	2756	546	2679	1224	256	408	262	397
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.38	0.03	0.63	0.08	0.17	0.03	0.21	0.10

Intersection Summary



Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

24: Dale Rd./Simsbury Commons & Albany Turnpike (Route 44 & 202)

2023 Background PM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	730	40	186	1280	139	59	34	194	74	29	61
Future Volume (vph)	56	730	40	186	1280	139	59	34	194	74	29	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	12	12	11	11	12	12	12	12
Storage Length (ft)	180		0	450		525	200		0	0		0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	115			80			50			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.992				0.850		0.873				0.850
Fl <sub>t</sub> Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1745	3429	0	1770	3574	1615	1454	1603	0	1805	1900	1615
Fl <sub>t</sub> Permitted	0.950			0.950			0.735			0.197		
Satd. Flow (perm)	1745	3429	0	1770	3574	1615	1125	1603	0	374	1900	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				145		228				74
Link Speed (mph)		35			35			25				25
Link Distance (ft)		791			1110			639				380
Travel Time (s)		15.4			21.6			17.4				10.4
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.80	0.80	0.80	0.85	0.85	0.85
Heavy Vehicles (%)	0%	1%	0%	2%	1%	0%	20%	0%	0%	0%	0%	0%
Adj. Flow (vph)	59	768	42	194	1333	145	74	43	243	87	34	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	810	0	194	1333	145	74	286	0	87	34	72
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.00	1.00	1.00	1.04	1.04	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1		1	1	1
Detector Template										Left		
Leading Detector (ft)	25	306		25	256	256	20	20		30	30	40
Trailing Detector (ft)	-5	300		-5	250	250	-10	-10		0	0	-10
Detector 1 Position(ft)	-5	300		-5	250	250	-10	-10		0	0	-10
Detector 1 Size(ft)	30	6		30	6	6	30	30		30	30	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4				4
Permitted Phases						2	4			4		4
Detector Phase	1	6		5	2	2	4	4		4	4	4
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	15.0	15.0	7.0	7.0		7.0	7.0	7.0

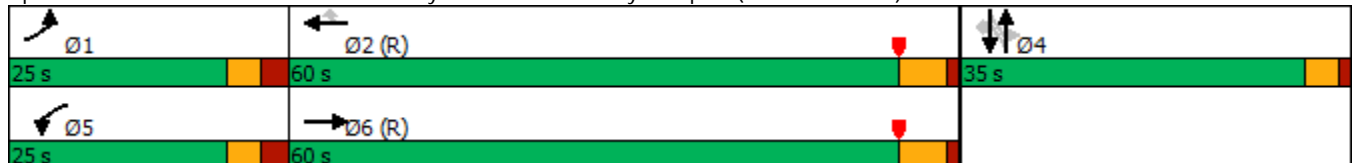


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	12.5	20.6		12.5	20.6	20.6	11.2	11.2		11.2	11.2	11.2
Total Split (s)	25.0	60.0		25.0	60.0	60.0	35.0	35.0		35.0	35.0	35.0
Total Split (%)	20.8%	50.0%		20.8%	50.0%	50.0%	29.2%	29.2%		29.2%	29.2%	29.2%
Maximum Green (s)	19.5	54.4		19.5	54.4	54.4	30.8	30.8		30.8	30.8	30.8
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.5	1.3		2.5	1.3	1.3	1.2	1.2		1.2	1.2	1.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.5	5.6		5.5	5.6	5.6	4.2	4.2		4.2	4.2	4.2
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	5.0		1.5	8.0	8.0	2.0	2.0		2.0	2.0	2.0
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None		None	None	None
Act Effect Green (s)	8.7	68.1		16.3	78.2	78.2	20.3	20.3		20.3	20.3	20.3
Actuated g/C Ratio	0.07	0.57		0.14	0.65	0.65	0.17	0.17		0.17	0.17	0.17
v/c Ratio	0.47	0.42		0.81	0.57	0.13	0.39	0.62		1.38	0.11	0.22
Control Delay	58.9	18.9		74.5	15.4	2.5	47.5	16.0		285.1	38.7	9.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	58.9	18.9		74.5	15.4	2.5	47.5	16.0		285.1	38.7	9.3
LOS	E	B		E	B	A	D	B		F	D	A
Approach Delay		21.6			21.2			22.4			138.8	
Approach LOS		C			C			C			F	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 112 (93%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.38  
 Intersection Signal Delay: 28.8  
 Intersection LOS: C  
 Intersection Capacity Utilization 77.1%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 24: Dale Rd./Simsbury Commons & Albany Turnpike (Route 44 & 202)



Queues

24: Dale Rd./Simsbury Commons & Albany Turnpike (Route 44 & 202)



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	59	810	194	1333	145	74	286	87	34	72
v/c Ratio	0.47	0.42	0.81	0.57	0.13	0.39	0.62	1.38	0.11	0.22
Control Delay	58.9	18.9	74.5	15.4	2.5	47.5	16.0	285.1	38.7	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.9	18.9	74.5	15.4	2.5	47.5	16.0	285.1	38.7	9.3
Queue Length 50th (ft)	47	108	147	296	0	51	39	-88	22	0
Queue Length 95th (ft)	m83	300	225	488	32	79	78	#156	45	31
Internal Link Dist (ft)		711		1030			559		300	
Turn Bay Length (ft)	180		450		525	200				
Base Capacity (vph)	283	1948	288	2329	1103	288	580	95	487	469
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.42	0.67	0.57	0.13	0.26	0.49	0.92	0.07	0.15

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings

25: W. Avon Rd./Bushy Hill Road & Albany Turnpike (Route 44 & 202)



Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SER
Lane Configurations												
Traffic Volume (vph)	87	1154	115	174	219	63	132	264	273	350	629	132
Future Volume (vph)	87	1154	115	174	219	63	132	264	273	350	629	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	11	11	11	11	12	12
Storage Length (ft)	375	0		200		0	0		0		220	0
Storage Lanes	1	2		1		0	1		1		2	0
Taper Length (ft)	125			150			25				140	
Lane Util. Factor	1.00	0.88	1.00	1.00	0.95	0.95	1.00	1.00	1.00	0.97	0.97	0.95
Fr <sub>t</sub>		0.850			0.966				0.850		0.974	
Fl <sub>t</sub> Protected	0.950			0.950			0.950			0.950	0.960	
Satd. Flow (prot)	1745	2723	0	1728	3460	0	1745	1818	1546	3385	3418	0
Fl <sub>t</sub> Permitted	0.950			0.950			0.950			0.950	0.960	
Satd. Flow (perm)	1745	2723	0	1728	3460	0	1745	1818	1546	3385	3418	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		108			27				87		108	
Link Speed (mph)	40				25			40			40	
Link Distance (ft)	791				809			493			815	
Travel Time (s)	13.5				22.1			8.4			13.9	
Peak Hour Factor	0.96	0.96	0.96	0.93	0.93	0.93	0.87	0.87	0.87	0.86	0.86	0.86
Heavy Vehicles (%)	0%	1%	0%	1%	1%	0%	0%	1%	1%	0%	1%	0%
Adj. Flow (vph)	91	1202	120	187	235	68	152	303	314	407	731	153
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	1322	0	187	303	0	152	303	314	407	884	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	11				11			11			46	
Link Offset(ft)	0				0			0			0	
Crosswalk Width(ft)	16				16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.04	1.00	1.00	1.04	1.04	1.04	1.04	1.00	1.00
Turning Speed (mph)	15	9	9	15		9	15		9	15	15	9
Number of Detectors	1	2		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	40	368		34	30		30	30	30	40	190	
Trailing Detector (ft)	0	176		-6	-10		-10	-10	-10	0	184	
Detector 1 Position(ft)	0	176		-6	-10		-10	-10	-10	0	184	
Detector 1 Size(ft)	40	6		40	40		40	40	40	40	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		362										
Detector 2 Size(ft)		6										
Detector 2 Type		Cl+Ex										
Detector 2 Channel												
Detector 2 Extend (s)		0.0										
Turn Type	Prot	Prot		Prot	NA		Prot	NA	pt+ov	Prot	Prot	

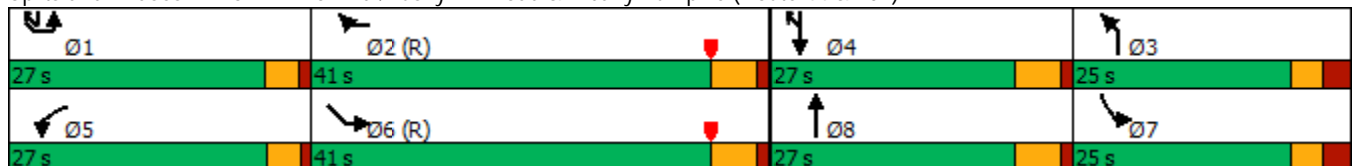


Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SER
Protected Phases	5	2		3	8		7	4	14	1	6	
Permitted Phases												
Detector Phase	5	2		3	8		7	4	14	1	6	
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	7.0		7.0	7.0		7.0	15.0	
Minimum Split (s)	11.0	20.4		12.6	12.2		12.6	12.2		11.1	20.4	
Total Split (s)	27.0	41.0		25.0	27.0		25.0	27.0		27.0	41.0	
Total Split (%)	22.5%	34.2%		20.8%	22.5%		20.8%	22.5%		22.5%	34.2%	
Maximum Green (s)	23.0	35.6		19.4	21.8		19.4	21.8		22.9	35.6	
Yellow Time (s)	3.0	4.2		3.0	4.2		3.0	4.2		3.0	4.2	
All-Red Time (s)	1.0	1.2		2.6	1.0		2.6	1.0		1.1	1.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.4		5.6	5.2		5.6	5.2		4.1	5.4	
Lead/Lag	Lead	Lag		Lag	Lead		Lag	Lead		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	4.0		1.5	2.0		1.5	2.0		1.5	4.0	
Recall Mode	None	C-Min		None	None		None	None		None	C-Min	
Act Effect Green (s)	10.5	44.0		16.2	14.3		23.2	21.3	40.6	18.2	51.9	
Actuated g/C Ratio	0.09	0.37		0.14	0.12		0.19	0.18	0.34	0.15	0.43	
v/c Ratio	0.60	1.24		0.81	0.69		0.45	0.94	0.54	0.79	0.57	
Control Delay	68.7	142.5		74.9	54.6		47.4	85.8	15.8	71.7	20.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	68.7	142.6		74.9	54.6		47.4	85.8	15.8	71.7	20.8	
LOS	E	F		E	D		D	F	B	E	C	
Approach Delay	137.8				62.3			49.7			36.8	
Approach LOS	F				E			D			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 7 (6%), Referenced to phase 2:WBR and 6:SEL, Start of Yellow  
 Natural Cycle: 130  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.24  
 Intersection Signal Delay: 78.5  
 Intersection LOS: E  
 Intersection Capacity Utilization 83.2%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 25: W. Avon Rd./Bushy Hill Road & Albany Turnpike (Route 44 & 202)



Queues



Lane Group	WBL	WBR	NBL	NBT	SBL	SBT	SBR	SEL2	SEL
Lane Group Flow (vph)	91	1322	187	303	152	303	314	407	884
v/c Ratio	0.60	1.24	0.81	0.69	0.45	0.94	0.54	0.79	0.57
Control Delay	68.7	142.5	74.9	54.6	47.4	85.8	15.8	71.7	20.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.7	142.6	74.9	54.6	47.4	85.8	15.8	71.7	20.8
Queue Length 50th (ft)	58	~716	141	109	103	233	87	171	187
Queue Length 95th (ft)	105	#959	219	152	167	#379	115	213	238
Internal Link Dist (ft)	711			729		413			735
Turn Bay Length (ft)	375		200					220	220
Base Capacity (vph)	334	1066	279	650	337	330	643	645	1538
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	7	0	0	0	0	2	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	1.25	0.67	0.47	0.45	0.92	0.49	0.63	0.57

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	988	0	6	1569	4	19	2	4	10	0	13
Future Volume (vph)	2	988	0	6	1569	4	19	2	4	10	0	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	11	11	11	11	12	12	12	12	12	12
Storage Length (ft)	50		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	75			70			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>								0.979			0.924	
Fl <sub>t</sub> Protected	0.950			0.950				0.964			0.978	
Satd. Flow (prot)	1745	3574	0	1745	3455	0	0	1793	0	0	1707	0
Fl <sub>t</sub> Permitted	0.087			0.950				0.964			0.978	
Satd. Flow (perm)	160	3574	0	1745	3455	0	0	1793	0	0	1707	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)								5			155	
Link Speed (mph)		40			40			25			30	
Link Distance (ft)		847			3567			498			493	
Travel Time (s)		14.4			60.8			13.6			11.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.80	0.80	0.80	0.90	0.90	0.90
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	1%
Adj. Flow (vph)	2	1074	0	7	1705	4	24	3	5	11	0	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1074	0	7	1709	0	0	32	0	0	25	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		22			22			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.04	1.04	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	3	0		3	0		1	3		1	2	
Detector Template							Left					
Leading Detector (ft)	26	0		26	0		20	26		6	16	
Trailing Detector (ft)	0	0		0	0		0	0		0	-6	
Detector 1 Position(ft)	0	0		0	894		0	0		0	-6	
Detector 1 Size(ft)	6	6		6	6		20	6		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	10			10			10			10		
Detector 2 Size(ft)	6			6			6			6		
Detector 2 Type	Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)	0.0			0.0			0.0			0.0		
Detector 3 Position(ft)	20			20			20					



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Detector 3 Size(ft)	6			6			6						
Detector 3 Type	Cl+Ex			Cl+Ex			Cl+Ex						
Detector 3 Channel													
Detector 3 Extend (s)	0.0			0.0			0.0						
Turn Type	pm+pt	NA		Prot	NA		Split		NA		Split	NA	
Protected Phases	1	6		5	2		7		7		8	8	
Permitted Phases	6												
Detector Phase	1	6		5	2		7		7		8	8	
Switch Phase													
Minimum Initial (s)	5.0	15.0		5.0	15.0		9.0		9.0		7.0	7.0	
Minimum Split (s)	9.0	22.0		9.0	22.0		15.2		15.2		13.2	13.2	
Total Split (s)	10.0	58.0		10.0	58.0		17.0		17.0		15.0	15.0	
Total Split (%)	10.0%	58.0%		10.0%	58.0%		17.0%		17.0%		15.0%	15.0%	
Maximum Green (s)	6.0	51.0		6.0	51.0		10.8		10.8		8.8	8.8	
Yellow Time (s)	3.0	4.4		3.0	4.4		3.0		3.0		3.0	3.0	
All-Red Time (s)	1.0	2.6		1.0	2.6		3.2		3.2		3.2	3.2	
Lost Time Adjust (s)	0.0			0.0			0.0			0.0			
Total Lost Time (s)	4.0	7.0		4.0	7.0		6.2		6.2		6.2		
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead		Lag		Lag	
Lead-Lag Optimize?													
Vehicle Extension (s)	1.5	2.5		1.5	2.5		1.5		1.5		1.5	1.5	
Recall Mode	None	C-Min		None	C-Min		None		None		None	None	
Act Effct Green (s)	80.7	79.5		5.1	79.6		9.0		9.0		7.0		
Actuated g/C Ratio	0.81	0.80		0.05	0.80		0.09		0.09		0.07		
v/c Ratio	0.01	0.38		0.08	0.62		0.19		0.19		0.10		
Control Delay	4.0	5.4		47.2	10.7		40.3		40.3		0.7		
Queue Delay	0.0	0.0		0.0	0.0		0.0		0.0		0.0		
Total Delay	4.0	5.4		47.2	10.7		40.3		40.3		0.7		
LOS	A	A		D	B		D		D		A		
Approach Delay	5.4		10.8		40.3		0.7		0.7		0.7		
Approach LOS	A		B		D		A		A		A		

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 16 (16%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.62  
 Intersection Signal Delay: 9.0  
 Intersection LOS: A  
 Intersection Capacity Utilization 62.0%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 35: Secret Lake/Car Dealer & Albany Turnpike (Route 44 & 202)







Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	2	1074	7	1709	32	25
v/c Ratio	0.01	0.38	0.08	0.62	0.19	0.10
Control Delay	4.0	5.4	47.2	10.7	40.3	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.0	5.4	47.2	10.7	40.3	0.7
Queue Length 50th (ft)	0	150	4	201	16	0
Queue Length 95th (ft)	m1	142	19	596	40	0
Internal Link Dist (ft)		767		3487	418	413
Turn Bay Length (ft)	50		100			
Base Capacity (vph)	224	2841	104	2750	198	291
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.38	0.07	0.62	0.16	0.09

#### Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

1: Auto Spa Car Wash/Hoffman Auto Park & Albany Turnpike (Route 44 & 202)

2023 Build AM



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	40	1671	16	4	666	43	6	1	7	53	0	15
Future Volume (vph)	40	1671	16	4	666	43	6	1	7	53	0	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	12	12	12	12	12	12	12
Storage Length (ft)	140		0	250		0	0		50	0		100
Storage Lanes	1		0	2		0	0		1	0		1
Taper Length (ft)	50			100			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.999			0.991				0.850			0.850
Fl <sub>t</sub> Protected	0.950			0.950				0.960			0.950	
Satd. Flow (prot)	1745	3452	0	1745	3544	0	0	1824	1615	0	1805	1615
Fl <sub>t</sub> Permitted	0.237			0.128				0.739			0.750	
Satd. Flow (perm)	435	3452	0	235	3544	0	0	1404	1615	0	1425	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			9				121			73
Link Speed (mph)		40			40			25			30	
Link Distance (ft)		862			815			305			754	
Travel Time (s)		14.7			13.9			8.3			17.1	
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.58	0.58	0.58	0.77	0.77	0.77
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	43	1778	17	4	724	47	10	2	12	69	0	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	1795	0	4	771	0	0	12	12	0	69	19
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	3	0		0	0		1	2	2	1	3	3
Detector Template							Left			Left		
Leading Detector (ft)	30	0		0	0		20	16	16	20	16	16
Trailing Detector (ft)	-6	0		0	0		0	0	0	0	-10	-10
Detector 1 Position(ft)	-6	390		0	0		0	0	0	0	-10	-10
Detector 1 Size(ft)	6	6		6	20		20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	12							10	10		0	0
Detector 2 Size(ft)	6							6	6		6	6
Detector 2 Type	Cl+Ex							Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0							0.0	0.0		0.0	0.0
Detector 3 Position(ft)	24										10	10

Lane Group	Ø1
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Detector 3 Position(ft)	

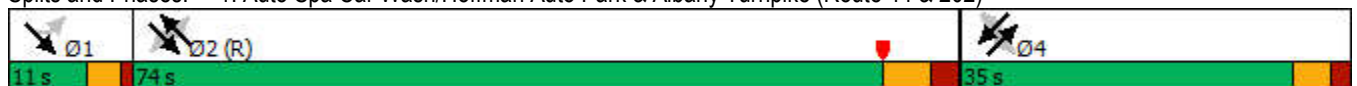


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR	
Detector 3 Size(ft)	6						6						
Detector 3 Type	Cl+Ex						Cl+Ex						
Detector 3 Channel													
Detector 3 Extend (s)	0.0						0.0						
Turn Type	Perm	NA		Perm	NA		Perm	NA	NA	Perm	NA	Perm	
Protected Phases		1 2			2			4			4		
Permitted Phases	1 2			2			4			4		4	
Detector Phase	1 2	1 2		2	2		4	4		4	4	4	
Switch Phase													
Minimum Initial (s)				15.0	15.0				10.0	10.0	10.0	10.0	10.0
Minimum Split (s)				22.0	22.0				15.3	15.3	15.3	15.3	15.3
Total Split (s)				74.0	74.0				35.0	35.0	35.0	35.0	35.0
Total Split (%)				61.7%	61.7%				29.2%	29.2%	29.2%	29.2%	29.2%
Maximum Green (s)				67.0	67.0				29.7	29.7	29.7	29.7	29.7
Yellow Time (s)				4.3	4.3				3.3	3.3	3.3	3.3	3.3
All-Red Time (s)				2.7	2.7				2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)				0.0	0.0				0.0		0.0	0.0	0.0
Total Lost Time (s)				7.0	7.0				5.3		5.3	5.3	5.3
Lead/Lag				Lag	Lag								
Lead-Lag Optimize?													
Vehicle Extension (s)				0.2	0.2				1.5	1.5	1.5	1.5	1.5
Recall Mode				C-Max	C-Max				None	None	None	None	None
Act Effct Green (s)	103.2	103.2		72.9	72.9				11.4	0.0		11.4	11.4
Actuated g/C Ratio	0.86	0.86		0.61	0.61				0.10	0.00		0.10	0.10
v/c Ratio	0.11	0.60		0.03	0.36				0.09	0.10		0.51	0.09
Control Delay	3.0	4.5		8.2	8.4				50.0	1.6		65.0	0.8
Queue Delay	0.0	0.0		0.0	0.0				0.0	0.0		0.0	0.0
Total Delay	3.0	4.5		8.2	8.4				50.0	1.6		65.0	0.8
LOS	A	A		A	A				D	A		E	A
Approach Delay				4.4	8.4				25.8			51.1	
Approach LOS				A	A				C			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 27 (23%), Referenced to phase 2:NWSE, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.60  
 Intersection Signal Delay: 7.3      Intersection LOS: A  
 Intersection Capacity Utilization 69.4%      ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 1: Auto Spa Car Wash/Hoffman Auto Park & Albany Turnpike (Route 44 & 202)



Lane Group	Ø1
Detector 3 Size(ft)	
Detector 3 Type	
Detector 3 Channel	
Detector 3 Extend (s)	
Turn Type	
Protected Phases	1
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	11.0
Total Split (s)	11.0
Total Split (%)	9%
Maximum Green (s)	7.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Queues

1: Auto Spa Car Wash/Hoffman Auto Park & Albany Turnpike (Route 44 & 202)



Lane Group	SEL	SET	NWL	NWT	NET	NER	SWT	SWR
Lane Group Flow (vph)	43	1795	4	771	12	12	69	19
v/c Ratio	0.11	0.60	0.03	0.36	0.09	0.10	0.51	0.09
Control Delay	3.0	4.5	8.2	8.4	50.0	1.6	65.0	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.0	4.5	8.2	8.4	50.0	1.6	65.0	0.8
Queue Length 50th (ft)	4	182	1	101	9	0	52	0
Queue Length 95th (ft)	15	299	m2	120	18	0	83	0
Internal Link Dist (ft)		782		735	225		674	
Turn Bay Length (ft)	140		250			50		100
Base Capacity (vph)	374	2969	142	2155	347	121	352	454
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.60	0.03	0.36	0.03	0.10	0.20	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings  
 4: Albany Turnpike (Route 44 & 202) & CVS Canton Driveway

15 Albany Turnpike, Canton, CT  
 2023 Build AM



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	218	1901	609	90	210	69
Future Volume (vph)	218	1901	609	90	210	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			120	0	0
Storage Lanes	1			1	2	0
Taper Length (ft)	80				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.95
Frt				0.850	0.963	
Flt Protected	0.950				0.964	
Satd. Flow (prot)	1805	3574	3574	1615	3396	0
Flt Permitted	0.370				0.964	
Satd. Flow (perm)	703	3574	3574	1615	3396	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				98	38	
Link Speed (mph)		30	40		30	
Link Distance (ft)		615	827		249	
Travel Time (s)		14.0	14.1		5.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.88	0.88
Heavy Vehicles (%)	0%	1%	1%	0%	1%	0%
Adj. Flow (vph)	237	2066	662	98	239	78
Shared Lane Traffic (%)						
Lane Group Flow (vph)	237	2066	662	98	317	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	3	0	0	0	1	
Detector Template						
Leading Detector (ft)	27	0	0	0	47	
Trailing Detector (ft)	-3	0	0	0	-3	
Detector 1 Position(ft)	-3	200	200	0	-3	
Detector 1 Size(ft)	6	6	6	20	50	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)	9					
Detector 2 Size(ft)	6					
Detector 2 Type	Cl+Ex					
Detector 2 Channel						
Detector 2 Extend (s)	0.0					
Detector 3 Position(ft)	21					
Detector 3 Size(ft)	6					

Lanes, Volumes, Timings  
 4: Albany Turnpike (Route 44 & 202) & CVS Canton Driveway

15 Albany Turnpike, Canton, CT  
 2023 Build AM



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 3 Type	Cl+Ex					
Detector 3 Channel						
Detector 3 Extend (s)	0.0					
Turn Type	pm+pt	NA	NA	pt+ov	Prot	
Protected Phases	1	6	2	2 4	4	
Permitted Phases	6					
Detector Phase	1	6	2	2 4	4	
Switch Phase						
Minimum Initial (s)	5.0	25.0	25.0		7.0	
Minimum Split (s)	8.1	30.3	30.3		11.0	
Total Split (s)	12.0	82.0	70.0		18.0	
Total Split (%)	12.0%	82.0%	70.0%		18.0%	
Maximum Green (s)	8.9	76.7	64.7		14.0	
Yellow Time (s)	3.0	4.3	4.3		3.0	
All-Red Time (s)	0.1	1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	3.1	5.3	5.3		4.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	0.2	0.2		2.0	
Recall Mode	None	C-Max	C-Max		None	
Act Effct Green (s)	80.9	78.7	68.5	84.5	12.0	
Actuated g/C Ratio	0.81	0.79	0.68	0.84	0.12	
v/c Ratio	0.37	0.73	0.27	0.07	0.72	
Control Delay	3.9	7.7	2.3	0.4	46.6	
Queue Delay	0.0	1.3	0.0	0.0	8.5	
Total Delay	3.9	9.0	2.3	0.4	55.0	
LOS	A	A	A	A	E	
Approach Delay		8.5	2.0		55.0	
Approach LOS		A	A		E	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 40 (40%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.73  
 Intersection Signal Delay: 11.4  
 Intersection LOS: B  
 Intersection Capacity Utilization 68.5%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 4: Albany Turnpike (Route 44 & 202) & CVS Canton Driveway





Queues

4: Albany Turnpike (Route 44 & 202) & CVS Canton Driveway



Lane Group	EBL	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	237	2066	662	98	317
v/c Ratio	0.37	0.73	0.27	0.07	0.72
Control Delay	3.9	7.7	2.3	0.4	46.6
Queue Delay	0.0	1.3	0.0	0.0	8.5
Total Delay	3.9	9.0	2.3	0.4	55.0
Queue Length 50th (ft)	26	285	4	0	88
Queue Length 95th (ft)	46	391	38	0	128
Internal Link Dist (ft)		535	747		169
Turn Bay Length (ft)	150			120	
Base Capacity (vph)	666	2811	2448	1410	508
Starvation Cap Reductn	0	492	0	0	0
Spillback Cap Reductn	0	5	0	0	152
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.36	0.89	0.27	0.07	0.89

Intersection Summary



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL
Lane Configurations		↔	↕	↕	↕	↕		↕	↕	↕	↕	
Traffic Volume (vph)	8	371	1767	89	96	488	7	41	124	169	223	74
Future Volume (vph)	8	371	1767	89	96	488	7	41	124	169	223	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		380		130	325		0				0	0
Storage Lanes		1		1	1		1				1	0
Taper Length (ft)		300			75							25
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00
Frt				0.850		0.998		0.850				0.850
Flt Protected		0.950			0.950				0.950			
Satd. Flow (prot)	0	1788	3574	1599	1787	3568	0	1599	1787	1881	1599	0
Flt Permitted		0.950			0.950				0.950			
Satd. Flow (perm)	0	1788	3574	1599	1787	3568	0	1599	1787	1881	1599	0
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)				215				215			149	
Link Speed (mph)			40			40				40		
Link Distance (ft)			1074			615				959		
Travel Time (s)			18.3			10.5				16.3		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	1%	1%	1%	1%	0%	1%	1%	1%	1%	0%
Adj. Flow (vph)	9	403	1921	97	104	530	8	45	132	180	237	79
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	412	1921	97	104	538	0	45	132	180	237	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Right	Left	Left	Right	Left
Median Width(ft)			12			12				12		
Link Offset(ft)			0			0				0		
Crosswalk Width(ft)			16			16				16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15		9	15		9	9	15		9	15
Number of Detectors	1	3	2	0	3	2		0	3	3	3	1
Detector Template	Left											Left
Leading Detector (ft)	20	20	281	0	24	331		0	24	24	24	20
Trailing Detector (ft)	0	-10	100	0	-6	150		0	-6	-6	-6	0
Detector 1 Position(ft)	0	-10	100	0	-6	150		0	-6	-6	-6	0
Detector 1 Size(ft)	20	6	6	20	6	6		20	6	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		2	275		6	325			6	6	6	
Detector 2 Size(ft)		6	6		6	6			6	6	6	
Detector 2 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0	0.0		0.0	0.0			0.0	0.0	0.0	
Detector 3 Position(ft)		14			18				18	18	18	
Detector 3 Size(ft)		6			6				6	6	6	

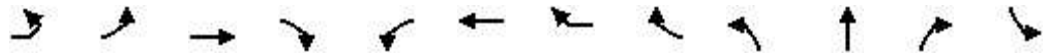


Lane Group	SBT	SBR	SEL	SER	SER2
Lane Configurations					
Traffic Volume (vph)	123	162	29	5	14
Future Volume (vph)	123	162	29	5	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Storage Length (ft)		250	0	0	
Storage Lanes		2	1	0	
Taper Length (ft)			25		
Lane Util. Factor	1.00	0.88	1.00	1.00	1.00
Frt		0.850	0.946		
Flt Protected	0.982		0.971		
Satd. Flow (prot)	1854	2814	1745	0	0
Flt Permitted	0.982		0.971		
Satd. Flow (perm)	1854	2814	1745	0	0
Right Turn on Red					Yes
Satd. Flow (RTOR)			174		
Link Speed (mph)	40		30		
Link Distance (ft)	864		881		
Travel Time (s)	14.7		20.0		
Peak Hour Factor	0.94	0.94	0.87	0.87	0.87
Heavy Vehicles (%)	1%	1%	0%	0%	0%
Adj. Flow (vph)	131	172	33	6	16
Shared Lane Traffic (%)					
Lane Group Flow (vph)	210	172	55	0	0
Enter Blocked Intersection	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Right
Median Width(ft)	12		12		
Link Offset(ft)	0		0		
Crosswalk Width(ft)	16		16		
Two way Left Turn Lane					
Headway Factor	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15	9	9
Number of Detectors	3	3	0		
Detector Template					
Leading Detector (ft)	24	24	0		
Trailing Detector (ft)	-6	-6	0		
Detector 1 Position(ft)	-6	-6	0		
Detector 1 Size(ft)	6	6	20		
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel					
Detector 1 Extend (s)	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0		
Detector 2 Position(ft)	6	6			
Detector 2 Size(ft)	6	6			
Detector 2 Type	Cl+Ex	Cl+Ex			
Detector 2 Channel					
Detector 2 Extend (s)	0.0	0.0			
Detector 3 Position(ft)	18	18			
Detector 3 Size(ft)	6	6			

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Trailsend Road

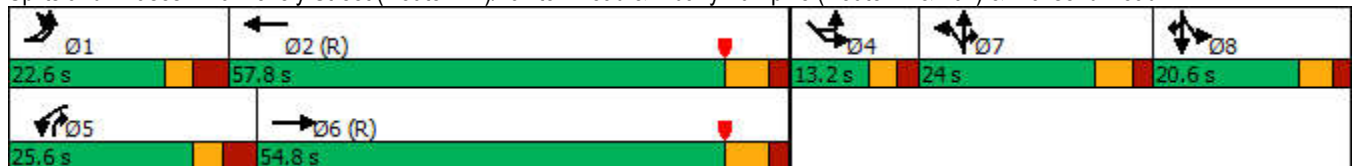


Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL
Detector 3 Type	Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex
Detector 3 Channel												
Detector 3 Extend (s)	0.0			0.0			0.0			0.0	0.0	0.0
Turn Type	Prot	Prot	NA	Free	Prot	NA	Free		Split	NA	pt+ov	Split
Protected Phases	1	1	6	5			2	7		7	5	7
Permitted Phases				Free			Free					
Detector Phase	1	1	6	5			2	7		7	5	7
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0			15.0	9.0		9.0	5.0	
Minimum Split (s)	11.6	11.6	21.8	11.6			21.8	15.0		15.0	14.6	
Total Split (s)	22.6	22.6	54.8	25.6			57.8	24.0		24.0	20.6	
Total Split (%)	16.4%	16.4%	39.7%	18.5%			41.8%	17.4%		17.4%	14.9%	
Maximum Green (s)	16.0	16.0	48.0	19.0			51.0	18.0		18.0	15.0	
Yellow Time (s)	3.0	3.0	4.5	3.0			4.5	4.0		4.0	3.6	
All-Red Time (s)	3.6	3.6	2.3	3.6			2.3	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0		0.0	0.0			0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.6		6.8	6.6			6.8	6.0		6.0		
Lead/Lag	Lead	Lead	Lag	Lead			Lag	Lead		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	3.0	2.0			3.0	2.0		2.0	2.0	
Recall Mode	None	None	C-Min	None			C-Min	None		None	None	
Act Effct Green (s)	18.4		56.9	138.2	12.5	51.0	138.2		17.0	17.0	28.9	
Actuated g/C Ratio	0.13		0.41	1.00	0.09	0.37	1.00		0.12	0.12	0.21	
v/c Ratio	1.74		1.31	0.06	0.65	0.41	0.03		0.60	0.78	0.52	
Control Delay	382.2		177.3	0.1	78.2	33.6	0.0		68.5	80.8	14.5	
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	382.2		177.3	0.1	78.2	33.6	0.0		68.5	80.8	14.5	
LOS	F		F	A	E	C	A		E	F	B	
Approach Delay	205.0			38.1			49.2					
Approach LOS	F			D			D					

Intersection Summary

Area Type: Other  
 Cycle Length: 138.2  
 Actuated Cycle Length: 138.2  
 Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.74  
 Intersection Signal Delay: 141.7  
 Intersection LOS: F  
 Intersection Capacity Utilization 103.8%  
 ICU Level of Service G  
 Analysis Period (min) 15

Splits and Phases: 6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Trailsend Road



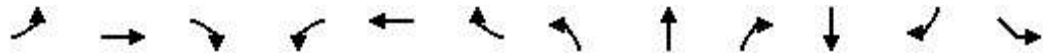


Lane Group	SBT	SBR	SEL	SER	SER2
Detector 3 Type	Cl+Ex	Cl+Ex			
Detector 3 Channel					
Detector 3 Extend (s)	0.0	0.0			
Turn Type	NA	Prot	Prot		
Protected Phases	8	8	4		
Permitted Phases					
Detector Phase	8	8	4		
Switch Phase					
Minimum Initial (s)	5.0	5.0	6.0		
Minimum Split (s)	14.6	14.6	11.2		
Total Split (s)	20.6	20.6	13.2		
Total Split (%)	14.9%	14.9%	9.6%		
Maximum Green (s)	15.0	15.0	8.0		
Yellow Time (s)	3.6	3.6	3.0		
All-Red Time (s)	2.0	2.0	2.2		
Lost Time Adjust (s)	0.0	0.0	0.0		
Total Lost Time (s)	5.6	5.6	5.2		
Lead/Lag	Lag	Lag			
Lead-Lag Optimize?					
Vehicle Extension (s)	2.0	2.0	2.0		
Recall Mode	None	None	None		
Act Effct Green (s)	17.9	17.9	6.0		
Actuated g/C Ratio	0.13	0.13	0.04		
v/c Ratio	0.88	0.47	0.23		
Control Delay	92.6	61.6	2.2		
Queue Delay	0.0	0.0	0.0		
Total Delay	92.6	61.6	2.2		
LOS	F	E	A		
Approach Delay	78.6		2.2		
Approach LOS	E		A		
<b>Intersection Summary</b>					

Queues

15 Albany Turnpike, Canton, CT

6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Transend Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SBT	SBR	SEL
Lane Group Flow (vph)	412	1921	97	104	538	45	132	180	237	210	172	55
v/c Ratio	1.74	1.31	0.06	0.65	0.41	0.03	0.60	0.78	0.52	0.88	0.47	0.23
Control Delay	382.2	177.3	0.1	78.2	33.6	0.0	68.5	80.8	14.5	92.6	61.6	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	382.2	177.3	0.1	78.2	33.6	0.0	68.5	80.8	14.5	92.6	61.6	2.2
Queue Length 50th (ft)	~575	~1193	0	92	187	0	113	158	47	189	83	0
Queue Length 95th (ft)	#784	#1394	0	151	240	0	180	239	99	#370	128	0
Internal Link Dist (ft)		994			535			879		784		801
Turn Bay Length (ft)	380		130	325							250	
Base Capacity (vph)	237	1470	1599	245	1316	1599	242	255	538	239	363	264
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.74	1.31	0.06	0.42	0.41	0.03	0.55	0.71	0.44	0.88	0.47	0.21

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	10	154	22	8	10	60	439	47	13	336	0
Future Volume (vph)	0	10	154	22	8	10	60	439	47	13	336	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		180	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.873					0.850			0.987		
Flt Protected					0.964			0.995			0.998	
Satd. Flow (prot)	0	1643	0	0	1832	1615	0	3517	0	0	3567	0
Flt Permitted					0.692			0.900			0.919	
Satd. Flow (perm)	0	1643	0	0	1315	1615	0	3181	0	0	3285	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		167				92		19				
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		536			693			493			335	
Travel Time (s)		12.2			15.8			8.4			5.7	
Peak Hour Factor	0.88	0.88	0.92	0.71	0.71	0.71	0.92	0.92	0.92	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	1%	0%	1%	1%	1%
Adj. Flow (vph)	0	11	167	31	11	14	65	477	51	14	361	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	178	0	0	42	14	0	593	0	0	375	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	3	3	1	1		1	1	
Detector Template	Left			Left			Left			Left		
Leading Detector (ft)	20	106		20	26	26	20	106		20	106	
Trailing Detector (ft)	0	100		0	-4	-4	0	100		0	100	
Detector 1 Position(ft)	0	100		0	-4	-4	0	100		0	100	
Detector 1 Size(ft)	20	6		20	6	6	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)					8	8						
Detector 2 Size(ft)					6	6						
Detector 2 Type					Cl+Ex	Cl+Ex						
Detector 2 Channel												
Detector 2 Extend (s)					0.0	0.0						
Detector 3 Position(ft)					20	20						
Detector 3 Size(ft)					6	6						



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Detector 3 Type							Cl+Ex	Cl+Ex					
Detector 3 Channel													
Detector 3 Extend (s)							0.0	0.0					
Turn Type	NA		Perm		NA	Perm	Prot	NA		Perm		NA	
Protected Phases	4				4		1	1 2		2		2	
Permitted Phases	4		4		4				2				
Detector Phase	4		4		4		1	1 2		2		2	
Switch Phase													
Minimum Initial (s)	7.0	7.0	7.0		7.0	7.0	5.0		15.0		15.0		
Minimum Split (s)	11.3	11.3	11.3		11.3	11.3	9.0		21.3		21.3		
Total Split (s)	29.3	29.3	29.3		29.3	29.3	11.0		46.3		46.3		
Total Split (%)	33.8%	33.8%	33.8%		33.8%	33.8%	12.7%		53.5%		53.5%		
Maximum Green (s)	25.0	25.0	25.0		25.0	25.0	7.0		40.0		40.0		
Yellow Time (s)	3.3	3.3	3.3		3.3	3.3	3.0		4.2		4.2		
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0		2.1		2.1		
Lost Time Adjust (s)	0.0				0.0	0.0					0.0		
Total Lost Time (s)	4.3				4.3	4.3					6.3		
Lead/Lag							Lead			Lag		Lag	
Lead-Lag Optimize?													
Vehicle Extension (s)	4.0	4.0	4.0		4.0	4.0	0.2		4.0		4.0		
Recall Mode	None	None	None		None	None	Max		Min		Min		
Act Effct Green (s)	7.6				7.6	7.6			24.6		15.3		
Actuated g/C Ratio	0.17				0.17	0.17			0.55		0.34		
v/c Ratio	0.43				0.19	0.04			0.54		0.33		
Control Delay	7.7				18.1	0.2			5.7		12.0		
Queue Delay	0.0				0.0	0.0			0.0		0.0		
Total Delay	7.7				18.1	0.2			5.7		12.0		
LOS	A				B	A			A		B		
Approach Delay	7.7				13.6				5.7		12.0		
Approach LOS	A				B				A		B		

Intersection Summary

Area Type:	Other
Cycle Length:	86.6
Actuated Cycle Length:	44.5
Natural Cycle:	45
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.54
Intersection Signal Delay:	8.3
Intersection LOS:	A
Intersection Capacity Utilization:	59.5%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 13: Bushy Hill Road/Bushy Hill Rd. & W. Mountain Rd./Simsbury Commons







Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	178	42	14	593	375
v/c Ratio	0.43	0.19	0.04	0.54	0.33
Control Delay	7.7	18.1	0.2	5.7	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	7.7	18.1	0.2	5.7	12.0
Queue Length 50th (ft)	2	9	0	23	35
Queue Length 95th (ft)	39	23	0	49	66
Internal Link Dist (ft)	456	613		413	255
Turn Bay Length (ft)			180		
Base Capacity (vph)	997	740	948	1662	2956
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.18	0.06	0.01	0.36	0.13

Intersection Summary



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑↑	↑↑	↑↑	↑
Traffic Volume (vph)	2050	125	43	648	46	39
Future Volume (vph)	2050	125	43	648	46	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	12	12
Storage Length (ft)		220	420		0	0
Storage Lanes		1	2		2	1
Taper Length (ft)			130		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3455	1561	3385	3574	3502	1615
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	3455	1561	3385	3574	3502	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		136				9
Link Speed (mph)	40			40	30	
Link Distance (ft)	827			847	604	
Travel Time (s)	14.1			14.4	13.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.90	0.90
Heavy Vehicles (%)	1%	0%	0%	1%	0%	0%
Adj. Flow (vph)	2228	136	47	704	51	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2228	136	47	704	51	43
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	22			22	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.04	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	0	3	2	3	3
Detector Template						
Leading Detector (ft)	356	0	38	356	26	26
Trailing Detector (ft)	180	0	0	180	0	0
Detector 1 Position(ft)	180	350	0	180	0	0
Detector 1 Size(ft)	6	6	6	6	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	350		16	350	10	10
Detector 2 Size(ft)	6		6	6	6	6
Detector 2 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 3 Position(ft)			32		20	20



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 3 Size(ft)			6		6	6
Detector 3 Type			Cl+Ex		Cl+Ex	Cl+Ex
Detector 3 Channel						
Detector 3 Extend (s)			0.0		0.0	0.0
Turn Type	NA	pt+ov	Prot	NA	Prot	pt+ov
Protected Phases	2	2 4	1	1 2	4	4 1
Permitted Phases						
Detector Phase	2	2 4	1	1 2	4	4 1
Switch Phase						
Minimum Initial (s)	15.0		5.0		9.0	
Minimum Split (s)	20.5		11.8		14.0	
Total Split (s)	70.0		13.0		17.0	
Total Split (%)	70.0%		13.0%		17.0%	
Maximum Green (s)	64.5		6.2		12.0	
Yellow Time (s)	4.4		3.2		3.0	
All-Red Time (s)	1.1		3.6		2.0	
Lost Time Adjust (s)	0.0		0.0		0.0	
Total Lost Time (s)	5.5		6.8		5.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	2.5		1.5		1.5	
Recall Mode	C-Min		None		None	
Act Effct Green (s)	68.0	82.0	5.7	79.2	9.0	21.5
Actuated g/C Ratio	0.68	0.82	0.06	0.79	0.09	0.22
v/c Ratio	0.95	0.10	0.24	0.25	0.16	0.12
Control Delay	28.0	1.1	26.8	1.3	43.4	27.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	1.1	26.8	1.3	43.4	27.3
LOS	C	A	C	A	D	C
Approach Delay	26.5			2.9	36.0	
Approach LOS	C			A	D	

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	85 (85%), Referenced to phase 2:EBWB, Start of Yellow
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.95
Intersection Signal Delay:	21.2
Intersection LOS:	C
Intersection Capacity Utilization:	72.9%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 21: Shops at Farmington Valley & Albany Turnpike (Route 44 & 202)



Queues

21: Shops at Farmington Valley & Albany Turnpike (Route 44 & 202)



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	2228	136	47	704	51	43
v/c Ratio	0.95	0.10	0.24	0.25	0.16	0.12
Control Delay	28.0	1.1	26.8	1.3	43.4	27.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	1.1	26.8	1.3	43.4	27.3
Queue Length 50th (ft)	664	7	15	32	15	17
Queue Length 95th (ft)	#874	m11	29	2	34	47
Internal Link Dist (ft)	747			767	524	
Turn Bay Length (ft)		220	420			
Base Capacity (vph)	2350	1268	209	2849	420	362
Starvation Cap Reductn	1	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.11	0.22	0.25	0.12	0.12

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	1516	51	18	622	22	35	5	10	36	0	2
Future Volume (vph)	13	1516	51	18	622	22	35	5	10	36	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	13	12	12	12
Storage Length (ft)	130		0	130		150	0		80	0		0
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	70			90			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.995				0.850			0.850			0.850
Fl <sub>t</sub> Protected	0.950			0.950				0.958			0.950	
Satd. Flow (prot)	1745	3472	0	1745	3455	1561	0	1760	1669	0	1805	1615
Fl <sub>t</sub> Permitted	0.364			0.107				0.723			0.720	
Satd. Flow (perm)	669	3472	0	197	3455	1561	0	1328	1669	0	1368	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				70			99			99
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1110			920			549			426	
Travel Time (s)		21.6			17.9			15.0			11.6	
Peak Hour Factor	0.94	0.94	0.94	0.82	0.82	0.82	0.71	0.71	0.71	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	14	1613	54	22	759	27	49	7	14	42	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	1667	0	22	759	27	0	56	14	0	42	2
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	0.96	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	0		1	0	0	1	1	1	1	1	1
Detector Template							Left			Left		
Leading Detector (ft)	40	0		40	0	0	20	30	30	20	30	30
Trailing Detector (ft)	0	0		0	0	0	0	-10	-10	0	-10	-10
Detector 1 Position(ft)	0	0		0	0	0	0	-10	-10	0	-10	-10
Detector 1 Size(ft)	40	6		40	6	20	20	40	40	20	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6		5	2			4			4	
Permitted Phases	6			2		2	4		4	4		4
Detector Phase	1	6		5	2	2	4	4	4	4	4	4
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	4.0	4.0	4.0	4.0	4.0

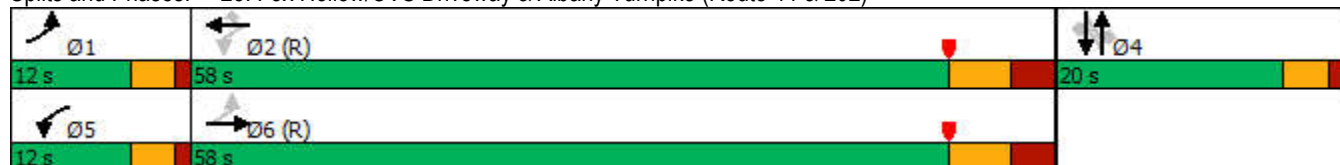


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	8.0	22.2		8.0	22.2	22.2	8.8	8.8	8.8	8.8	8.8	8.8
Total Split (s)	12.0	58.0		12.0	58.0	58.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (%)	13.3%	64.4%		13.3%	64.4%	64.4%	22.2%	22.2%	22.2%	22.2%	22.2%	22.2%
Maximum Green (s)	8.0	50.8		8.0	50.8	50.8	15.2	15.2	15.2	15.2	15.2	15.2
Yellow Time (s)	3.0	4.2		3.0	4.2	4.2	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	3.0		1.0	3.0	3.0	1.8	1.8	1.8	1.8	1.8	1.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	7.2		4.0	7.2	7.2		4.8	4.8		4.8	4.8
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	0.2		1.5	0.2	0.2	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None
Act Effect Green (s)	73.0	69.5		73.9	71.2	71.2		8.5	8.5		8.5	8.5
Actuated g/C Ratio	0.81	0.77		0.82	0.79	0.79		0.09	0.09		0.09	0.09
v/c Ratio	0.02	0.62		0.09	0.28	0.02		0.45	0.06		0.33	0.01
Control Delay	2.4	8.3		3.0	4.2	0.0		49.1	0.4		43.8	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	2.4	8.3		3.0	4.2	0.0		49.1	0.4		43.8	0.0
LOS	A	A		A	A	A		D	A		D	A
Approach Delay		8.3			4.1			39.3			41.8	
Approach LOS		A			A			D			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 15 (17%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.62  
 Intersection Signal Delay: 8.4  
 Intersection LOS: A  
 Intersection Capacity Utilization 64.2%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 23: Fox Hollow/CVS Driveway & Albany Turnpike (Route 44 & 202)



Queues

23: Fox Hollow/CVS Driveway & Albany Turnpike (Route 44 & 202)



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	14	1667	22	759	27	56	14	42	2
v/c Ratio	0.02	0.62	0.09	0.28	0.02	0.45	0.06	0.33	0.01
Control Delay	2.4	8.3	3.0	4.2	0.0	49.1	0.4	43.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.4	8.3	3.0	4.2	0.0	49.1	0.4	43.8	0.0
Queue Length 50th (ft)	1	167	2	51	0	31	0	23	0
Queue Length 95th (ft)	5	405	6	111	0	51	0	50	0
Internal Link Dist (ft)		1030		840		469		346	
Turn Bay Length (ft)	130		130		150		80		
Base Capacity (vph)	648	2681	300	2733	1249	224	364	231	355
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.62	0.07	0.28	0.02	0.25	0.04	0.18	0.01

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	1403	24	57	545	31	5	22	170	27	14	26
Future Volume (vph)	33	1403	24	57	545	31	5	22	170	27	14	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	12	12	11	11	12	12	12	12
Storage Length (ft)	180		0	450		525	200		0	0		0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	115			80			50			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.997				0.850		0.867				0.850
Fl <sub>t</sub> Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1745	3445	0	1770	3574	1615	1454	1592	0	1805	1900	1615
Fl <sub>t</sub> Permitted	0.950			0.950			0.745			0.325		
Satd. Flow (perm)	1745	3445	0	1770	3574	1615	1140	1592	0	618	1900	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				61		226				74
Link Speed (mph)		35			35			25				25
Link Distance (ft)		791			1110			639				380
Travel Time (s)		15.4			21.6			17.4				10.4
Peak Hour Factor	0.90	0.90	0.90	0.85	0.85	0.85	0.75	0.75	0.75	0.73	0.73	0.73
Heavy Vehicles (%)	0%	1%	0%	2%	1%	0%	20%	0%	0%	0%	0%	0%
Adj. Flow (vph)	37	1559	27	67	641	36	7	29	227	37	19	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	1586	0	67	641	36	7	256	0	37	19	36
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.00	1.00	1.00	1.04	1.04	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1		1	1	1
Detector Template										Left		
Leading Detector (ft)	25	306		25	256	256	20	20		30	30	40
Trailing Detector (ft)	-5	300		-5	250	250	-10	-10		0	0	-10
Detector 1 Position(ft)	-5	300		-5	250	250	-10	-10		0	0	-10
Detector 1 Size(ft)	30	6		30	6	6	30	30		30	30	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4				4
Permitted Phases						2	4			4		4
Detector Phase	1	6		5	2	2	4	4		4	4	4
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	15.0	15.0	7.0	7.0		7.0	7.0	7.0





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	12.5	20.6		12.5	20.6	20.6	11.2	11.2		11.2	11.2	11.2
Total Split (s)	20.0	65.0		25.0	70.0	70.0	30.0	30.0		30.0	30.0	30.0
Total Split (%)	16.7%	54.2%		20.8%	58.3%	58.3%	25.0%	25.0%		25.0%	25.0%	25.0%
Maximum Green (s)	14.5	59.4		19.5	64.4	64.4	25.8	25.8		25.8	25.8	25.8
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.5	1.3		2.5	1.3	1.3	1.2	1.2		1.2	1.2	1.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.5	5.6		5.5	5.6	5.6	4.2	4.2		4.2	4.2	4.2
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	5.0		1.5	8.0	8.0	2.0	2.0		2.0	2.0	2.0
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None		None	None	None
Act Effct Green (s)	7.6	85.8		9.0	89.7	89.7	12.3	12.3		12.3	12.3	12.3
Actuated g/C Ratio	0.06	0.72		0.08	0.75	0.75	0.10	0.10		0.10	0.10	0.10
v/c Ratio	0.34	0.64		0.50	0.24	0.03	0.06	0.70		0.59	0.10	0.16
Control Delay	56.9	5.3		65.9	6.3	0.8	46.0	19.9		84.1	46.8	2.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	56.9	5.4		65.9	6.3	0.8	46.0	19.9		84.1	46.8	2.3
LOS	E	A		E	A	A	D	B		F	D	A
Approach Delay		6.5			11.4			20.6			44.4	
Approach LOS		A			B			C			D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 20 (17%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

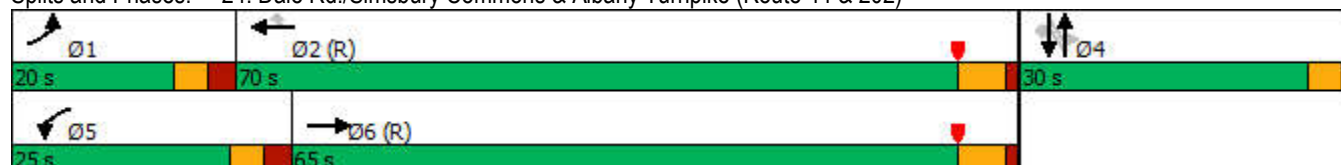
Maximum v/c Ratio: 0.70

Intersection Signal Delay: 10.5      Intersection LOS: B

Intersection Capacity Utilization 76.5%      ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 24: Dale Rd./Simsbury Commons & Albany Turnpike (Route 44 & 202)



Queues

24: Dale Rd./Simsbury Commons & Albany Turnpike (Route 44 & 202)



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	37	1586	67	641	36	7	256	37	19	36
v/c Ratio	0.34	0.64	0.50	0.24	0.03	0.06	0.70	0.59	0.10	0.16
Control Delay	56.9	5.3	65.9	6.3	0.8	46.0	19.9	84.1	46.8	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.9	5.4	65.9	6.3	0.8	46.0	19.9	84.1	46.8	2.3
Queue Length 50th (ft)	30	98	51	80	0	5	22	28	14	0
Queue Length 95th (ft)	m38	130	91	131	4	15	51	49	28	0
Internal Link Dist (ft)		711		1030			559		300	
Turn Bay Length (ft)	180		450		525	200				
Base Capacity (vph)	210	2464	287	2672	1222	245	519	132	408	405
Starvation Cap Reductn	0	71	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.66	0.23	0.24	0.03	0.03	0.49	0.28	0.05	0.09

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SER
Lane Configurations												
Traffic Volume (vph)	47	491	31	126	230	35	116	217	157	302	1304	164
Future Volume (vph)	47	491	31	126	230	35	116	217	157	302	1304	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	11	11	11	11	12	12
Storage Length (ft)	375	0		200		0	0		0		220	0
Storage Lanes	1	2		1		0	1		1		2	0
Taper Length (ft)	125			150			25				140	
Lane Util. Factor	1.00	0.88	1.00	1.00	0.95	0.95	1.00	1.00	1.00	0.97	0.97	0.95
Fr <sub>t</sub>		0.850			0.980				0.850		0.983	
Fl <sub>t</sub> Protected	0.950			0.950			0.950			0.950	0.957	
Satd. Flow (prot)	1745	2722	0	1728	3507	0	1745	1818	1546	3385	3437	0
Fl <sub>t</sub> Permitted	0.950			0.950			0.950			0.950	0.957	
Satd. Flow (perm)	1745	2722	0	1728	3507	0	1745	1818	1546	3385	3437	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		108			12				178		108	
Link Speed (mph)	40				25			40			40	
Link Distance (ft)	791				809			493			815	
Travel Time (s)	13.5				22.1			8.4			13.9	
Peak Hour Factor	0.89	0.89	0.89	0.94	0.94	0.94	0.88	0.88	0.88	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	0%	1%	1%	0%	0%	1%	1%	0%	1%	0%
Adj. Flow (vph)	53	552	35	134	245	37	132	247	178	321	1387	174
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	587	0	134	282	0	132	247	178	321	1561	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	11				11			11			47	
Link Offset(ft)	0				0			0			0	
Crosswalk Width(ft)	16				16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.04	1.00	1.00	1.04	1.04	1.04	1.04	1.00	1.00
Turning Speed (mph)	15	9	9	15		9	15		9	15	15	9
Number of Detectors	1	2		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	40	368		34	30		30	30	30	40	190	
Trailing Detector (ft)	0	176		-6	-10		-10	-10	-10	0	184	
Detector 1 Position(ft)	0	176		-6	-10		-10	-10	-10	0	184	
Detector 1 Size(ft)	40	6		40	40		40	40	40	40	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		362										
Detector 2 Size(ft)		6										
Detector 2 Type		Cl+Ex										
Detector 2 Channel												
Detector 2 Extend (s)		0.0										
Turn Type	Prot	Prot		Prot	NA		Prot	NA	pt+ov	Prot	Prot	

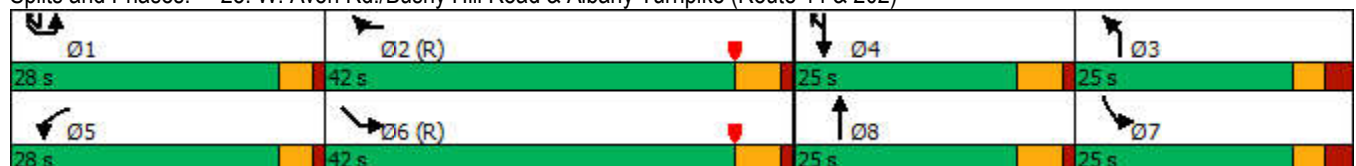


Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SER
Protected Phases	5	2		3	8		7	4	14	1	6	
Permitted Phases												
Detector Phase	5	2		3	8		7	4	14	1	6	
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	7.0		7.0	7.0		7.0	15.0	
Minimum Split (s)	11.0	20.4		12.6	12.2		12.6	12.2		11.1	20.4	
Total Split (s)	28.0	42.0		25.0	25.0		25.0	25.0		28.0	42.0	
Total Split (%)	23.3%	35.0%		20.8%	20.8%		20.8%	20.8%		23.3%	35.0%	
Maximum Green (s)	24.0	36.6		19.4	19.8		19.4	19.8		23.9	36.6	
Yellow Time (s)	3.0	4.2		3.0	4.2		3.0	4.2		3.0	4.2	
All-Red Time (s)	1.0	1.2		2.6	1.0		2.6	1.0		1.1	1.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.4		5.6	5.2		5.6	5.2		4.1	5.4	
Lead/Lag	Lead	Lag		Lag	Lead		Lag	Lead		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	4.0		1.5	2.0		1.5	2.0		1.5	4.0	
Recall Mode	None	C-Min		None	None		None	None		None	C-Min	
Act Effct Green (s)	8.3	52.5		13.4	13.9		18.1	18.6	35.0	15.3	61.7	
Actuated g/C Ratio	0.07	0.44		0.11	0.12		0.15	0.16	0.29	0.13	0.51	
v/c Ratio	0.44	0.47		0.70	0.68		0.50	0.88	0.31	0.75	0.86	
Control Delay	82.1	17.3		69.6	56.9		53.2	79.8	3.7	67.3	27.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	82.1	17.3		69.6	56.9		53.2	79.8	3.7	67.3	27.8	
LOS	F	B		E	E		D	E	A	E	C	
Approach Delay	22.7				61.0			49.2			34.6	
Approach LOS	C				E			D			C	

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Offset:	5 (4%), Referenced to phase 2:WBR and 6:SEL, Start of Yellow
Natural Cycle:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.88
Intersection Signal Delay:	37.9
Intersection LOS:	D
Intersection Capacity Utilization	83.4%
ICU Level of Service	E
Analysis Period (min)	15

Splits and Phases: 25: W. Avon Rd./Bushy Hill Road & Albany Turnpike (Route 44 & 202)



## Queues

15 Albany Turnpike, Canton, CT

25: W. Avon Rd./Bushy Hill Road &amp; Albany Turnpike (Route 44 &amp; 202)

2023 Build AM



Lane Group	WBL	WBR	NBL	NBT	SBL	SBT	SBR	SEL2	SEL
Lane Group Flow (vph)	53	587	134	282	132	247	178	321	1561
v/c Ratio	0.44	0.47	0.70	0.68	0.50	0.88	0.31	0.75	0.86
Control Delay	82.1	17.3	69.6	56.9	53.2	79.8	3.7	67.3	27.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.1	17.3	69.6	56.9	53.2	79.8	3.7	67.3	27.8
Queue Length 50th (ft)	35	149	102	107	94	187	0	124	528
Queue Length 95th (ft)	88	234	161	149	153	#310	28	158	#345
Internal Link Dist (ft)	711			729		413			735
Turn Bay Length (ft)	375		200					220	220
Base Capacity (vph)	349	1251	279	588	288	299	688	674	1819
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.47	0.48	0.48	0.46	0.83	0.26	0.48	0.86

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings  
 28: Albany Turnpike (Route 44 & 202) & Site Driveway

15 Albany Turnpike, Canton, CT  
 2023 Build AM



Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations	↖	↑↑	↑↑		↘↘	
Traffic Volume (vph)	315	1436	595	68	293	84
Future Volume (vph)	315	1436	595	68	293	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	12	11	11
Storage Length (ft)	175			0	0	0
Storage Lanes	1			0	2	0
Taper Length (ft)	35				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	0.97	0.95
Frt			0.985		0.967	
Flt Protected	0.950				0.963	
Satd. Flow (prot)	1745	3574	3524	0	3318	0
Flt Permitted	0.274				0.963	
Satd. Flow (perm)	503	3574	3524	0	3318	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			13		34	
Link Speed (mph)		40	40		30	
Link Distance (ft)		2282	413		859	
Travel Time (s)		38.9	7.0		19.5	
Peak Hour Factor	0.94	0.94	0.92	0.92	0.88	0.88
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%
Adj. Flow (vph)	335	1528	647	74	333	95
Shared Lane Traffic (%)						
Lane Group Flow (vph)	335	1528	721	0	428	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		11	11		22	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.04	1.00	1.00	1.00	1.04	1.04
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	0	0		1	
Detector Template						
Leading Detector (ft)	34	0	0		34	
Trailing Detector (ft)	-6	0	0		-6	
Detector 1 Position(ft)	-6	0	0		-6	
Detector 1 Size(ft)	40	6	6		40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	1	1 2	2		4	
Permitted Phases	1 2					
Detector Phase	1	1 2	2		4	
Switch Phase						
Minimum Initial (s)	5.0		10.0		5.0	

Lanes, Volumes, Timings  
 28: Albany Turnpike (Route 44 & 202) & Site Driveway

15 Albany Turnpike, Canton, CT  
 2023 Build AM



Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Minimum Split (s)	9.5		17.0		10.5	
Total Split (s)	36.0		39.0		25.0	
Total Split (%)	36.0%		39.0%		25.0%	
Maximum Green (s)	31.5		32.0		19.5	
Yellow Time (s)	3.5		4.3		3.5	
All-Red Time (s)	1.0		2.7		2.0	
Lost Time Adjust (s)	0.0		0.0		0.0	
Total Lost Time (s)	4.5		7.0		5.5	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		0.2		1.5	
Recall Mode	None		C-Min		None	
Act Effect Green (s)	69.6	74.1	36.4		15.9	
Actuated g/C Ratio	0.70	0.74	0.36		0.16	
v/c Ratio	0.46	0.58	0.56		0.77	
Control Delay	4.4	1.7	29.0		46.5	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	4.4	1.7	29.0		46.5	
LOS	A	A	C		D	
Approach Delay		2.2	29.0		46.5	
Approach LOS		A	C		D	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 46 (46%), Referenced to phase 2:NWSE, Start of Yellow  
 Natural Cycle: 50  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.77  
 Intersection Signal Delay: 14.9  
 Intersection LOS: B  
 Intersection Capacity Utilization 61.2%  
 ICU Level of Service B  
 Analysis Period (min) 15

Splits and Phases: 28: Albany Turnpike (Route 44 & 202) & Site Driveway





Lane Group	SEL	SET	NWT	SWL
Lane Group Flow (vph)	335	1528	721	428
v/c Ratio	0.46	0.58	0.56	0.77
Control Delay	4.4	1.7	29.0	46.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	4.4	1.7	29.0	46.5
Queue Length 50th (ft)	17	8	194	125
Queue Length 95th (ft)	57	1	276	163
Internal Link Dist (ft)		2202	333	779
Turn Bay Length (ft)	175			
Base Capacity (vph)	778	2714	1357	681
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.43	0.56	0.53	0.63
<b>Intersection Summary</b>				





Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↑↑	↑↑			↑
Traffic Volume (vph)	0	1730	621	68	0	42
Future Volume (vph)	0	1730	621	68	0	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.985			0.865
Flt Protected						
Satd. Flow (prot)	0	3574	3524	0	0	1644
Flt Permitted						
Satd. Flow (perm)	0	3574	3524	0	0	1644
Link Speed (mph)		40	40		30	
Link Distance (ft)		413	862		682	
Travel Time (s)		7.0	14.7		15.5	
Peak Hour Factor	0.94	0.94	0.92	0.92	0.88	0.88
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%
Adj. Flow (vph)	0	1840	675	74	0	48
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1840	749	0	0	48
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		11	11		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	51.2%
	ICU Level of Service A
Analysis Period (min)	15

**Intersection**

Int Delay, s/veh      0.2

**Movement**      SEL    SET    NWT    NWR    SWL    SWR

Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	0	1730	621	68	0	42
Future Vol, veh/h	0	1730	621	68	0	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	92	92	88	88
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	0	1840	675	74	0	48

**Major/Minor**      Major1      Major2      Minor2

Conflicting Flow All	-	0	-	0	-	375
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	628
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	628
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

**Approach**      SE      NW      SW

HCM Control Delay, s	0	0	11.2
HCM LOS			B

**Minor Lane/Major Mvmt**      NWT    NWR    SETSWLn1

Capacity (veh/h)	-	-	-	628
HCM Lane V/C Ratio	-	-	-	0.076
HCM Control Delay (s)	-	-	-	11.2
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.2

Lanes, Volumes, Timings

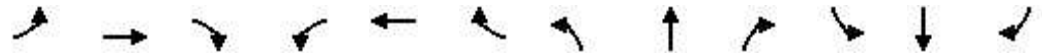
15 Albany Turnpike, Canton, CT

35: Secret Lake/Car Dealer & Albany Turnpike (Route 44 & 202)

2023 Build AM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1995	0	12	664	3	7	0	12	0	0	5
Future Volume (vph)	3	1995	0	12	664	3	7	0	12	0	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	11	11	11	11	12	12	12	12	12	12
Storage Length (ft)	50		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	75			70			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>					0.999			0.916				0.865
Fl <sub>t</sub> Protected	0.950			0.950				0.982				
Satd. Flow (prot)	1745	3574	0	1745	3452	0	0	1709	0	0	1627	0
Fl <sub>t</sub> Permitted	0.373			0.950				0.982				
Satd. Flow (perm)	685	3574	0	1745	3452	0	0	1709	0	0	1627	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					1			155				381
Link Speed (mph)		40			40			25				30
Link Distance (ft)		847			2282			498				493
Travel Time (s)		14.4			38.9			13.6				11.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.80	0.80	0.80	0.90	0.90	0.90
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	1%
Adj. Flow (vph)	3	2168	0	13	722	3	9	0	15	0	0	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	2168	0	13	725	0	0	24	0	0	6	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		22			22			0				0
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.04	1.04	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	3	0		3	0		1	3		1	2	
Detector Template							Left					
Leading Detector (ft)	26	0		26	0		20	26		6	16	
Trailing Detector (ft)	0	0		0	0		0	0		0	-6	
Detector 1 Position(ft)	0	0		0	894		0	0		0	-6	
Detector 1 Size(ft)	6	6		6	6		20	6		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	10			10			10				10	
Detector 2 Size(ft)	6			6			6				6	
Detector 2 Type	Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0			0.0			0.0				0.0	
Detector 3 Position(ft)	20			20			20					

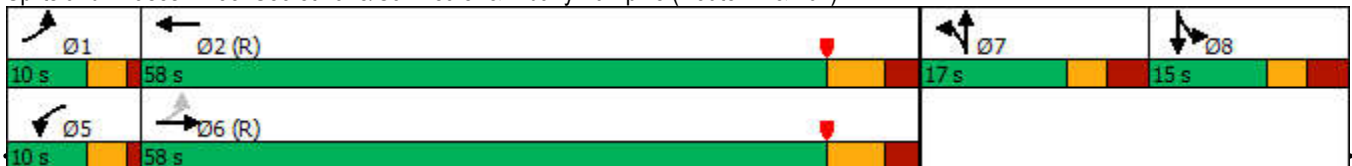


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Size(ft)	6			6			6					
Detector 3 Type	Cl+Ex			Cl+Ex			Cl+Ex					
Detector 3 Channel												
Detector 3 Extend (s)	0.0			0.0			0.0					
Turn Type	pm+pt	NA		Prot	NA		Split	NA				NA
Protected Phases	1	6		5	2		7	7		8	8	
Permitted Phases	6											
Detector Phase	1	6		5	2		7	7		8	8	
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0		9.0	9.0		7.0	7.0	
Minimum Split (s)	9.0	22.0		9.0	22.0		15.2	15.2		13.2	13.2	
Total Split (s)	10.0	58.0		10.0	58.0		17.0	17.0		15.0	15.0	
Total Split (%)	10.0%	58.0%		10.0%	58.0%		17.0%	17.0%		15.0%	15.0%	
Maximum Green (s)	6.0	51.0		6.0	51.0		10.8	10.8		8.8	8.8	
Yellow Time (s)	3.0	4.4		3.0	4.4		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	2.6		1.0	2.6		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	7.0		4.0	7.0		6.2	6.2			6.2	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	2.5		1.5	2.5		1.5	1.5		1.5	1.5	
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	
Act Effct Green (s)	86.2	86.4		5.3	86.7		9.0	9.0		7.0	7.0	
Actuated g/C Ratio	0.86	0.86		0.05	0.87		0.09	0.09		0.07	0.07	
v/c Ratio	0.00	0.70		0.14	0.24		0.08	0.08		0.01	0.01	
Control Delay	2.7	6.7		53.5	1.7		0.5	0.5		0.0	0.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	2.7	6.7		53.5	1.7		0.5	0.5		0.0	0.0	
LOS	A	A		D	A		A	A		A	A	
Approach Delay	6.7			2.6			0.5					
Approach LOS	A			A			A					

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 89 (89%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.70  
 Intersection Signal Delay: 5.6  
 Intersection LOS: A  
 Intersection Capacity Utilization 73.7%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 35: Secret Lake/Car Dealer & Albany Turnpike (Route 44 & 202)





Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	3	2168	13	725	24	6
v/c Ratio	0.00	0.70	0.14	0.24	0.08	0.01
Control Delay	2.7	6.7	53.5	1.7	0.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.7	6.7	53.5	1.7	0.5	0.0
Queue Length 50th (ft)	0	0	8	0	0	0
Queue Length 95th (ft)	m0	m#916	m16	42	0	0
Internal Link Dist (ft)		767		2202	418	413
Turn Bay Length (ft)	50		100			
Base Capacity (vph)	655	3088	105	2992	322	490
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.70	0.12	0.24	0.07	0.01

**Intersection Summary**

- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

1: Auto Spa Car Wash/Hoffman Auto Park & Albany Turnpike (Route 44 & 202)

2023 Build PM



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	14	1057	29	12	1618	28	17	0	9	148	0	56
Future Volume (vph)	14	1057	29	12	1618	28	17	0	9	148	0	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	12	12	12	12	12	12	12
Storage Length (ft)	140		0	250		0	0		50	0		100
Storage Lanes	1		0	2		0	0		1	0		1
Taper Length (ft)	50			100			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.996			0.997				0.850			0.850
Fl <sub>t</sub> Protected	0.950			0.950				0.950			0.950	
Satd. Flow (prot)	1745	3442	0	1745	3564	0	0	1805	1615	0	1805	1615
Fl <sub>t</sub> Permitted	0.045			0.233				0.463			0.740	
Satd. Flow (perm)	83	3442	0	428	3564	0	0	880	1615	0	1406	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			2				121			73
Link Speed (mph)		40			40			25			30	
Link Distance (ft)		944			815			631			754	
Travel Time (s)		16.1			13.9			17.2			17.1	
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.65	0.65	0.65	0.86	0.86	0.86
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	16	1174	32	13	1685	29	26	0	14	172	0	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	1206	0	13	1714	0	0	26	14	0	172	65
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		11			11			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	3	0		0	0		1	2	2	1	3	3
Detector Template							Left			Left		
Leading Detector (ft)	30	0		0	0		20	16	16	20	16	16
Trailing Detector (ft)	-6	0		0	0		0	0	0	0	-10	-10
Detector 1 Position(ft)	-6	390		0	0		0	0	0	0	-10	-10
Detector 1 Size(ft)	6	6		6	20		20	6	6	20	6	6
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	12						10	10			0	0
Detector 2 Size(ft)	6						6	6			6	6
Detector 2 Type	Cl+Ex						Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0						0.0	0.0			0.0	0.0
Detector 3 Position(ft)	24										10	10

Lane Group	Ø1
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Detector 3 Position(ft)	



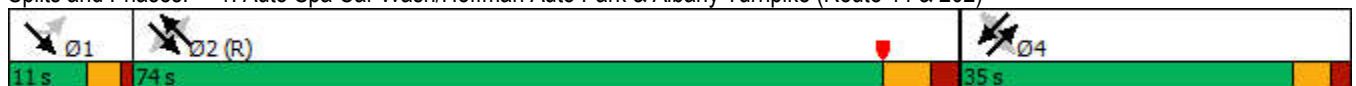


Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector 3 Size(ft)	6						6					
Detector 3 Type	Cl+Ex						Cl+Ex Cl+Ex					
Detector 3 Channel												
Detector 3 Extend (s)	0.0						0.0 0.0					
Turn Type	Perm	NA		Perm	NA		Perm	NA	NA	Perm	NA	Perm
Protected Phases	1 2			2			4			4		
Permitted Phases	1 2		2		4		4		4		4	
Detector Phase	1 2	1 2	2 2		4 4		4 4		4 4		4 4	
Switch Phase												
Minimum Initial (s)				15.0	15.0	10.0		10.0	10.0		10.0	10.0
Minimum Split (s)				22.0	22.0	15.3		15.3	15.3		15.3	15.3
Total Split (s)				74.0	74.0	35.0		35.0	35.0		35.0	35.0
Total Split (%)				61.7%	61.7%	29.2%		29.2%	29.2%		29.2%	29.2%
Maximum Green (s)				67.0	67.0	29.7		29.7	29.7		29.7	29.7
Yellow Time (s)				4.3	4.3	3.3		3.3	3.3		3.3	3.3
All-Red Time (s)				2.7	2.7	2.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)				0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)				7.0	7.0	5.3		5.3	5.3		5.3	5.3
Lead/Lag				Lag	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)				0.2	0.2	1.5		1.5	1.5		1.5	1.5
Recall Mode				C-Max	C-Max	None		None	None		None	None
Act Effct Green (s)	91.9	91.9	69.5		69.5	18.8		0.0	18.8		18.8	18.8
Actuated g/C Ratio	0.77	0.77	0.58		0.58	0.16		0.00	0.16		0.16	0.16
v/c Ratio	0.25	0.46	0.05		0.83	0.19		0.12	0.78		0.21	0.21
Control Delay	17.6	6.3	7.2		10.4	44.4		1.9	71.4		9.0	9.0
Queue Delay	0.0	0.0	0.0		1.0	0.0		0.0	0.0		0.0	0.0
Total Delay	17.6	6.3	7.2		11.4	44.4		1.9	71.4		9.0	9.0
LOS	B	A	A		B	D		A	E		A	A
Approach Delay	6.4		11.4			29.5			54.3			
Approach LOS	A		B			C			D			

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 35 (29%), Referenced to phase 2:NWSE, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 12.9 Intersection LOS: B  
 Intersection Capacity Utilization 76.9% ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 1: Auto Spa Car Wash/Hoffman Auto Park & Albany Turnpike (Route 44 & 202)



Lane Group	Ø1
Detector 3 Size(ft)	
Detector 3 Type	
Detector 3 Channel	
Detector 3 Extend (s)	
Turn Type	
Protected Phases	1
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	11.0
Total Split (s)	11.0
Total Split (%)	9%
Maximum Green (s)	7.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

Queues

1: Auto Spa Car Wash/Hoffman Auto Park & Albany Turnpike (Route 44 & 202)



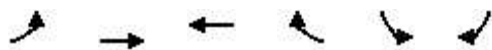
Lane Group	SEL	SET	NWL	NWT	NET	NER	SWT	SWR
Lane Group Flow (vph)	16	1206	13	1714	26	14	172	65
v/c Ratio	0.25	0.46	0.05	0.83	0.19	0.12	0.78	0.21
Control Delay	17.6	6.3	7.2	10.4	44.4	1.9	71.4	9.0
Queue Delay	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Total Delay	17.6	6.3	7.2	11.4	44.4	1.9	71.4	9.0
Queue Length 50th (ft)	3	148	3	204	18	0	130	0
Queue Length 95th (ft)	23	246	m3	m183	30	0	184	29
Internal Link Dist (ft)		864		735	551		674	
Turn Bay Length (ft)	140		250			50		100
Base Capacity (vph)	63	2637	247	2063	217	121	347	454
Starvation Cap Reductn	0	0	0	147	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.46	0.05	0.89	0.12	0.12	0.50	0.14

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings  
 4: Albany Turnpike (Route 44 & 202) & CVS Canton Driveway

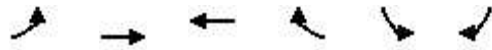
15 Albany Turnpike, Canton, CT  
 2023 Build PM



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	130	1144	1690	276	253	110
Future Volume (vph)	130	1144	1690	276	253	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			120	0	0
Storage Lanes	1			1	2	0
Taper Length (ft)	80				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.95
Frt				0.850	0.955	
Flt Protected	0.950				0.966	
Satd. Flow (prot)	1805	3574	3574	1615	3377	0
Flt Permitted	0.060				0.966	
Satd. Flow (perm)	114	3574	3574	1615	3377	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				275	59	
Link Speed (mph)		30	40		30	
Link Distance (ft)		615	827		249	
Travel Time (s)		14.0	14.1		5.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.85	0.85
Heavy Vehicles (%)	0%	1%	1%	0%	1%	0%
Adj. Flow (vph)	141	1243	1837	300	298	129
Shared Lane Traffic (%)						
Lane Group Flow (vph)	141	1243	1837	300	427	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		24	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	3	0	0	0	1	
Detector Template						
Leading Detector (ft)	27	0	0	0	47	
Trailing Detector (ft)	-3	0	0	0	-3	
Detector 1 Position(ft)	-3	200	200	0	-3	
Detector 1 Size(ft)	6	6	6	20	50	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)	9					
Detector 2 Size(ft)	6					
Detector 2 Type	Cl+Ex					
Detector 2 Channel						
Detector 2 Extend (s)	0.0					
Detector 3 Position(ft)	21					
Detector 3 Size(ft)	6					

Lanes, Volumes, Timings  
 4: Albany Turnpike (Route 44 & 202) & CVS Canton Driveway

15 Albany Turnpike, Canton, CT  
 2023 Build PM



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 3 Type	Cl+Ex					
Detector 3 Channel						
Detector 3 Extend (s)	0.0					
Turn Type	pm+pt	NA	NA	pt+ov	Prot	
Protected Phases	1	6	2	2 4	4	
Permitted Phases	6					
Detector Phase	1	6	2	2 4	4	
Switch Phase						
Minimum Initial (s)	5.0	25.0	25.0		7.0	
Minimum Split (s)	8.1	30.3	30.3		11.0	
Total Split (s)	12.0	82.0	70.0		18.0	
Total Split (%)	12.0%	82.0%	70.0%		18.0%	
Maximum Green (s)	8.9	76.7	64.7		14.0	
Yellow Time (s)	3.0	4.3	4.3		3.0	
All-Red Time (s)	0.1	1.0	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	3.1	5.3	5.3		4.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	1.5	0.2	0.2		2.0	
Recall Mode	None	C-Max	C-Max		None	
Act Effct Green (s)	79.5	77.3	67.2	84.6	13.4	
Actuated g/C Ratio	0.80	0.77	0.67	0.85	0.13	
v/c Ratio	0.67	0.45	0.77	0.21	0.85	
Control Delay	31.1	4.6	10.4	0.4	53.0	
Queue Delay	0.0	0.3	0.1	0.0	0.0	
Total Delay	31.1	4.9	10.5	0.4	53.0	
LOS	C	A	B	A	D	
Approach Delay		7.6	9.1		53.0	
Approach LOS		A	A		D	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 20 (20%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.85  
 Intersection Signal Delay: 13.3  
 Intersection LOS: B  
 Intersection Capacity Utilization 75.7%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 4: Albany Turnpike (Route 44 & 202) & CVS Canton Driveway





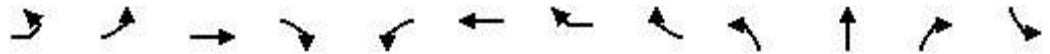
Lane Group	EBL	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	141	1243	1837	300	427
v/c Ratio	0.67	0.45	0.77	0.21	0.85
Control Delay	31.1	4.6	10.4	0.4	53.0
Queue Delay	0.0	0.3	0.1	0.0	0.0
Total Delay	31.1	4.9	10.5	0.4	53.0
Queue Length 50th (ft)	31	121	173	0	119
Queue Length 95th (ft)	94	151	389	m1	#170
Internal Link Dist (ft)		535	747		169
Turn Bay Length (ft)	150			120	
Base Capacity (vph)	241	2762	2400	1416	523
Starvation Cap Reductn	0	771	42	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.59	0.62	0.78	0.21	0.82

#### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL
Lane Configurations		↔	↕↕	↗	↖	↕↕		↗	↖	↕	↗	
Traffic Volume (vph)	12	178	913	64	225	1442	5	82	157	99	193	97
Future Volume (vph)	12	178	913	64	225	1442	5	82	157	99	193	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		380		130	325		0				0	0
Storage Lanes		1		1	1		1				1	0
Taper Length (ft)		300			75							25
Lane Util. Factor	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00
Frt				0.850				0.850			0.850	
Flt Protected		0.950			0.950				0.950			
Satd. Flow (prot)	0	1788	3574	1599	1787	3574	0	1599	1787	1881	1599	0
Flt Permitted		0.950			0.950				0.950			
Satd. Flow (perm)	0	1788	3574	1599	1787	3574	0	1599	1787	1881	1599	0
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)				263				263			205	
Link Speed (mph)			40			40				40		
Link Distance (ft)			1074			615				959		
Travel Time (s)			18.3			10.5				16.3		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	1%	1%	1%	1%	1%	0%	1%	1%	1%	1%	0%
Adj. Flow (vph)	13	193	992	70	245	1567	5	89	167	105	205	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	206	992	70	245	1572	0	89	167	105	205	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Left	Right	Right	Left	Left	Right	Left
Median Width(ft)			12			12				12		
Link Offset(ft)			0			0				0		
Crosswalk Width(ft)			16			16				16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15		9	15		9	9	15		9	15
Number of Detectors	1	3	2	0	3	2		0	3	3	3	1
Detector Template	Left											Left
Leading Detector (ft)	20	20	281	0	24	331		0	24	24	24	20
Trailing Detector (ft)	0	-10	100	0	-6	150		0	-6	-6	-6	0
Detector 1 Position(ft)	0	-10	100	0	-6	150		0	-6	-6	-6	0
Detector 1 Size(ft)	20	6	6	20	6	6		20	6	6	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		2	275		6	325			6	6	6	
Detector 2 Size(ft)		6	6		6	6			6	6	6	
Detector 2 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0	0.0		0.0	0.0			0.0	0.0	0.0	
Detector 3 Position(ft)		14			18				18	18	18	
Detector 3 Size(ft)		6			6				6	6	6	



Lane Group	SBT	SBR	SEL	SER	SER2
Lane Configurations					
Traffic Volume (vph)	148	355	11	1	11
Future Volume (vph)	148	355	11	1	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Storage Length (ft)		250	0	0	
Storage Lanes		2	1	0	
Taper Length (ft)			25		
Lane Util. Factor	1.00	0.88	1.00	1.00	1.00
Frt		0.850	0.930		
Flt Protected	0.981		0.976		
Satd. Flow (prot)	1853	2814	1725	0	0
Flt Permitted	0.981		0.976		
Satd. Flow (perm)	1853	2814	1725	0	0
Right Turn on Red					Yes
Satd. Flow (RTOR)			223		
Link Speed (mph)	40		30		
Link Distance (ft)	864		881		
Travel Time (s)	14.7		20.0		
Peak Hour Factor	0.94	0.94	0.87	0.87	0.87
Heavy Vehicles (%)	1%	1%	0%	0%	0%
Adj. Flow (vph)	157	378	13	1	13
Shared Lane Traffic (%)					
Lane Group Flow (vph)	260	378	27	0	0
Enter Blocked Intersection	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Right
Median Width(ft)	12		12		
Link Offset(ft)	0		0		
Crosswalk Width(ft)	16		16		
Two way Left Turn Lane					
Headway Factor	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15	9	9
Number of Detectors	3	3	0		
Detector Template					
Leading Detector (ft)	24	24	0		
Trailing Detector (ft)	-6	-6	0		
Detector 1 Position(ft)	-6	-6	0		
Detector 1 Size(ft)	6	6	20		
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel					
Detector 1 Extend (s)	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0		
Detector 2 Position(ft)	6	6			
Detector 2 Size(ft)	6	6			
Detector 2 Type	Cl+Ex	Cl+Ex			
Detector 2 Channel					
Detector 2 Extend (s)	0.0	0.0			
Detector 3 Position(ft)	18	18			
Detector 3 Size(ft)	6	6			



Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Trailsend Road

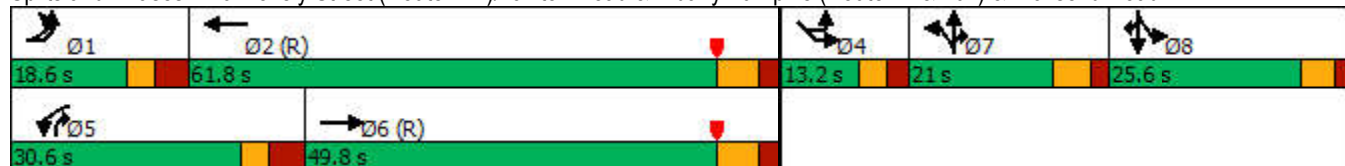


Lane Group	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBT	NBR	SBL	
Detector 3 Type	Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex	
Detector 3 Channel													
Detector 3 Extend (s)	0.0			0.0			0.0			0.0	0.0	0.0	
Turn Type	Prot	Prot	NA	Free	Prot	NA	Free		Split	NA	pt+ov	Split	
Protected Phases	1	1	6	5			2	7		7	7.5	8	
Permitted Phases				Free			Free						
Detector Phase	1	1	6	5			2	7		7	7.5	8	
Switch Phase													
Minimum Initial (s)	5.0	5.0	5.0	5.0			15.0	9.0		9.0	9.0		
Minimum Split (s)	11.6	11.6	21.8	11.6			21.8	15.0		15.0	14.6		
Total Split (s)	18.6	18.6	49.8	30.6			61.8	21.0		21.0	25.6		
Total Split (%)	13.3%	13.3%	35.5%	21.8%			44.1%	15.0%		15.0%	18.3%		
Maximum Green (s)	12.0	12.0	43.0	24.0			55.0	15.0		15.0	20.0		
Yellow Time (s)	3.0	3.0	4.5	3.0			4.5	4.0		4.0	3.6		
All-Red Time (s)	3.6	3.6	2.3	3.6			2.3	2.0		2.0	2.0		
Lost Time Adjust (s)	0.0		0.0	0.0			0.0	0.0		0.0	0.0		
Total Lost Time (s)	6.6		6.8	6.6			6.8	6.0		6.0			
Lead/Lag	Lead	Lead	Lag	Lead			Lag	Lead		Lead	Lag		
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0	3.0	2.0			3.0	2.0		2.0	2.0		
Recall Mode	None	None	C-Min	None			C-Min	None		None	None		
Act Effct Green (s)	15.7		48.7	140.2	21.9	55.0	140.2		16.1	16.1	38.6		
Actuated g/C Ratio	0.11		0.35	1.00	0.16	0.39	1.00		0.11	0.11	0.28		
v/c Ratio	1.04		0.80	0.04	0.88	1.12	0.06		0.81	0.49	0.35		
Control Delay	131.4		48.3	0.0	87.7	104.2	0.1		89.4	65.9	4.3		
Queue Delay	0.0		0.0	0.0	0.0	0.5	0.0		0.0	0.0	0.0		
Total Delay	131.4		48.3	0.0	87.7	104.7	0.1		89.4	65.9	4.3		
LOS	F		D	A	F	F	A		F	E	A		
Approach Delay	59.2			97.6			47.6						
Approach LOS	E			F			D						

Intersection Summary

Area Type: Other  
 Cycle Length: 140.2  
 Actuated Cycle Length: 140.2  
 Offset: 73.6 (52%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.12  
 Intersection Signal Delay: 78.1  
 Intersection LOS: E  
 Intersection Capacity Utilization 102.6%  
 ICU Level of Service G  
 Analysis Period (min) 15

Splits and Phases: 6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Trailsend Road



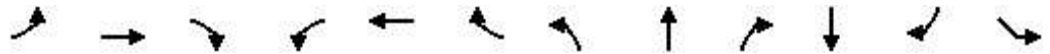


Lane Group	SBT	SBR	SEL	SER	SER2
Detector 3 Type	Cl+Ex	Cl+Ex			
Detector 3 Channel					
Detector 3 Extend (s)	0.0	0.0			
Turn Type	NA	Prot	Prot		
Protected Phases	8	8	4		
Permitted Phases					
Detector Phase	8	8	4		
Switch Phase					
Minimum Initial (s)	9.0	9.0	6.0		
Minimum Split (s)	14.6	14.6	11.2		
Total Split (s)	25.6	25.6	13.2		
Total Split (%)	18.3%	18.3%	9.4%		
Maximum Green (s)	20.0	20.0	8.0		
Yellow Time (s)	3.6	3.6	3.0		
All-Red Time (s)	2.0	2.0	2.2		
Lost Time Adjust (s)	0.0	0.0	0.0		
Total Lost Time (s)	5.6	5.6	5.2		
Lead/Lag	Lag	Lag			
Lead-Lag Optimize?					
Vehicle Extension (s)	2.0	2.0	2.0		
Recall Mode	None	None	None		
Act Effct Green (s)	21.7	21.7	6.0		
Actuated g/C Ratio	0.15	0.15	0.04		
v/c Ratio	0.91	0.87	0.09		
Control Delay	91.9	78.2	0.7		
Queue Delay	0.0	0.0	0.0		
Total Delay	91.9	78.2	0.7		
LOS	F	E	A		
Approach Delay	83.8		0.7		
Approach LOS	F		A		
<b>Intersection Summary</b>					

Queues

15 Albany Turnpike, Canton, CT

6: Lovely Street (Route 177)/Lawton Road & Albany Turnpike (Route 44 & 202) & Transend Road



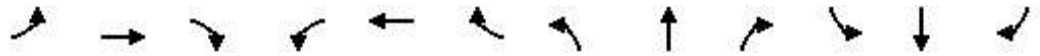
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SBT	SBR	SEL
Lane Group Flow (vph)	206	992	70	245	1572	89	167	105	205	260	378	27
v/c Ratio	1.04	0.80	0.04	0.88	1.12	0.06	0.81	0.49	0.35	0.91	0.87	0.09
Control Delay	131.4	48.3	0.0	87.7	104.2	0.1	89.4	65.9	4.3	91.9	78.2	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	131.4	48.3	0.0	87.7	104.7	0.1	89.4	65.9	4.3	91.9	78.2	0.7
Queue Length 50th (ft)	~245	457	0	217	~867	0	150	91	0	240	196	0
Queue Length 95th (ft)	#410	#579	0	#350	#1006	0	#264	153	39	#422	#306	0
Internal Link Dist (ft)		994			535			879		784		801
Turn Bay Length (ft)	380		130	325							250	
Base Capacity (vph)	199	1242	1599	305	1402	1599	210	222	613	287	435	308
Starvation Cap Reductn	0	0	0	0	173	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.80	0.04	0.80	1.28	0.06	0.80	0.47	0.33	0.91	0.87	0.09

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	0	14	86	131	36	54	129	484	127	31	529	1
Future Volume (vph)	0	14	86	131	36	54	129	484	127	31	529	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		180	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.883					0.850		0.974			
Flt Protected					0.962			0.991			0.997	
Satd. Flow (prot)	0	1663	0	0	1828	1615	0	3462	0	0	3564	0
Flt Permitted					0.700			0.736			0.873	
Satd. Flow (perm)	0	1663	0	0	1330	1615	0	2571	0	0	3120	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		95				92		46				
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		536			693			493			335	
Travel Time (s)		12.2			15.8			8.4			5.7	
Peak Hour Factor	0.91	0.91	0.91	0.86	0.86	0.86	0.88	0.88	0.88	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	1%	0%	1%	1%	1%
Adj. Flow (vph)	0	15	95	152	42	63	147	550	144	34	588	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	110	0	0	194	63	0	841	0	0	623	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	3	3	1	1		1	1	
Detector Template	Left			Left			Left			Left		
Leading Detector (ft)	20	106		20	26	26	20	106		20	106	
Trailing Detector (ft)	0	100		0	-4	-4	0	100		0	100	
Detector 1 Position(ft)	0	100		0	-4	-4	0	100		0	100	
Detector 1 Size(ft)	20	6		20	6	6	20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)					8	8						
Detector 2 Size(ft)					6	6						
Detector 2 Type					Cl+Ex	Cl+Ex						
Detector 2 Channel												
Detector 2 Extend (s)					0.0	0.0						
Detector 3 Position(ft)					20	20						
Detector 3 Size(ft)					6	6						



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type					Cl+Ex	Cl+Ex						
Detector 3 Channel												
Detector 3 Extend (s)					0.0	0.0						
Turn Type		NA		Perm	NA	Perm	Prot	NA		Perm	NA	
Protected Phases		4			4		1	1 2				2
Permitted Phases	4			4		4				2		
Detector Phase	4	4		4	4	4	1	1 2		2		2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	5.0			15.0		15.0
Minimum Split (s)	11.3	11.3		11.3	11.3	11.3	9.0			21.3		21.3
Total Split (s)	29.3	29.3		29.3	29.3	29.3	11.0			46.3		46.3
Total Split (%)	33.8%	33.8%		33.8%	33.8%	33.8%	12.7%			53.5%		53.5%
Maximum Green (s)	25.0	25.0		25.0	25.0	25.0	7.0			40.0		40.0
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.0			4.2		4.2
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0			2.1		2.1
Lost Time Adjust (s)		0.0			0.0	0.0						0.0
Total Lost Time (s)		4.3			4.3	4.3						6.3
Lead/Lag							Lead			Lag		Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0		4.0	4.0	4.0	0.2			4.0		4.0
Recall Mode	None	None		None	None	None	Max			Min		Min
Act Effct Green (s)		15.9			15.9	15.9		49.5				40.2
Actuated g/C Ratio		0.20			0.20	0.20		0.64				0.52
v/c Ratio		0.27			0.71	0.16		1.12				0.39
Control Delay		9.0			43.5	3.4		85.1				13.2
Queue Delay		0.0			0.0	0.0		0.0				0.0
Total Delay		9.0			43.5	3.4		85.1				13.2
LOS		A			D	A		F				B
Approach Delay		9.0			33.7			85.1				13.2
Approach LOS		A			C			F				B

Intersection Summary

Area Type:	Other
Cycle Length:	86.6
Actuated Cycle Length:	77.8
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	1.12
Intersection Signal Delay:	48.8
Intersection LOS:	D
Intersection Capacity Utilization:	64.7%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 13: Bushy Hill Road/Bushy Hill Rd. & W. Mountain Rd./Simsbury Commons





Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	110	194	63	841	623
v/c Ratio	0.27	0.71	0.16	1.12	0.39
Control Delay	9.0	43.5	3.4	85.1	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	43.5	3.4	85.1	13.2
Queue Length 50th (ft)	6	88	0	~101	88
Queue Length 95th (ft)	43	146	13	#284	159
Internal Link Dist (ft)	456	613		413	255
Turn Bay Length (ft)			180		
Base Capacity (vph)	601	429	583	751	1611
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.18	0.45	0.11	1.12	0.39

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑↑	↑↑	↑↑	↑
Traffic Volume (vph)	1045	312	235	1650	332	189
Future Volume (vph)	1045	312	235	1650	332	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	12	12
Storage Length (ft)		220	420		0	0
Storage Lanes		1	2		2	1
Taper Length (ft)			130		25	
Lane Util. Factor	0.95	1.00	0.97	0.95	0.97	1.00
Fr <sub>t</sub>		0.850				0.850
Fl <sub>t</sub> Protected			0.950		0.950	
Satd. Flow (prot)	3455	1561	3385	3574	3502	1615
Fl <sub>t</sub> Permitted			0.950		0.950	
Satd. Flow (perm)	3455	1561	3385	3574	3502	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		260				35
Link Speed (mph)	40			40	30	
Link Distance (ft)	827			847	604	
Travel Time (s)	14.1			14.4	13.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.85	0.85
Heavy Vehicles (%)	1%	0%	0%	1%	0%	0%
Adj. Flow (vph)	1136	339	255	1793	391	222
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1136	339	255	1793	391	222
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	22			22	24	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.04	1.04	1.04	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	2	0	3	2	3	3
Detector Template						
Leading Detector (ft)	356	0	38	356	26	26
Trailing Detector (ft)	180	0	0	180	0	0
Detector 1 Position(ft)	180	350	0	180	0	0
Detector 1 Size(ft)	6	6	6	6	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)	350		16	350	10	10
Detector 2 Size(ft)	6		6	6	6	6
Detector 2 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)	0.0		0.0	0.0	0.0	0.0
Detector 3 Position(ft)			32		20	20

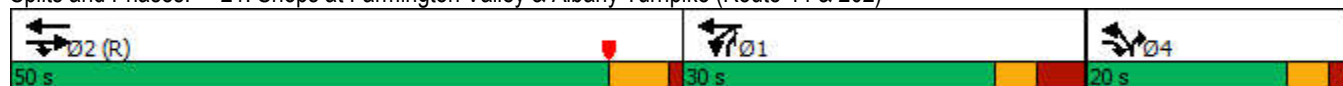


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 3 Size(ft)			6		6	6
Detector 3 Type			Cl+Ex		Cl+Ex	Cl+Ex
Detector 3 Channel						
Detector 3 Extend (s)			0.0		0.0	0.0
Turn Type	NA	pt+ov	Prot	NA	Prot	pt+ov
Protected Phases	2	2 4	1	1 2	4	4 1
Permitted Phases						
Detector Phase	2	2 4	1	1 2	4	4 1
Switch Phase						
Minimum Initial (s)	15.0		5.0		9.0	
Minimum Split (s)	20.5		11.8		14.0	
Total Split (s)	50.0		30.0		20.0	
Total Split (%)	50.0%		30.0%		20.0%	
Maximum Green (s)	44.5		23.2		15.0	
Yellow Time (s)	4.4		3.2		3.0	
All-Red Time (s)	1.1		3.6		2.0	
Lost Time Adjust (s)	0.0		0.0		0.0	
Total Lost Time (s)	5.5		6.8		5.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	2.5		1.5		1.5	
Recall Mode	C-Min		None		None	
Act Effct Green (s)	46.7	65.5	22.2	74.4	13.8	42.8
Actuated g/C Ratio	0.47	0.66	0.22	0.74	0.14	0.43
v/c Ratio	0.70	0.30	0.34	0.67	0.81	0.31
Control Delay	24.3	1.6	33.3	6.6	55.3	16.5
Queue Delay	0.0	0.0	0.0	0.4	0.0	0.0
Total Delay	24.3	1.6	33.3	7.0	55.3	16.5
LOS	C	A	C	A	E	B
Approach Delay	19.0			10.3	41.3	
Approach LOS	B			B	D	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 16 (16%), Referenced to phase 2:EBWB, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.81  
 Intersection Signal Delay: 18.0  
 Intersection LOS: B  
 Intersection Capacity Utilization 64.9%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 21: Shops at Farmington Valley & Albany Turnpike (Route 44 & 202)





## Queues

15 Albany Turnpike, Canton, CT

## 21: Shops at Farmington Valley &amp; Albany Turnpike (Route 44 &amp; 202)

2023 Build PM



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1136	339	255	1793	391	222
v/c Ratio	0.70	0.30	0.34	0.67	0.81	0.31
Control Delay	24.3	1.6	33.3	6.6	55.3	16.5
Queue Delay	0.0	0.0	0.0	0.4	0.0	0.0
Total Delay	24.3	1.6	33.3	7.0	55.3	16.5
Queue Length 50th (ft)	331	10	87	219	124	72
Queue Length 95th (ft)	412	m21	118	18	163	116
Internal Link Dist (ft)	747			767	524	
Turn Bay Length (ft)		220	420			
Base Capacity (vph)	1612	1099	785	2694	525	730
Starvation Cap Reductn	0	0	0	399	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.31	0.32	0.78	0.74	0.30

## Intersection Summary

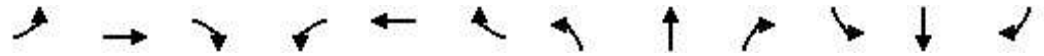
m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings

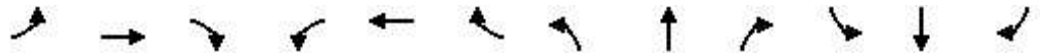
15 Albany Turnpike, Canton, CT

23: Fox Hollow/CVS Driveway & Albany Turnpike (Route 44 & 202)

2023 Build PM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	1029	34	18	1640	94	38	1	10	41	1	29
Future Volume (vph)	27	1029	34	18	1640	94	38	1	10	41	1	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	11	11	13	12	12	12
Storage Length (ft)	130		0	130		150	0		80	0		0
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	70			90			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.995				0.850			0.850			0.850
Fl <sub>t</sub> Protected	0.950			0.950				0.953			0.953	
Satd. Flow (prot)	1745	3472	0	1745	3455	1561	0	1750	1669	0	1776	1615
Fl <sub>t</sub> Permitted	0.096			0.243				0.691			0.693	
Satd. Flow (perm)	176	3472	0	446	3455	1561	0	1269	1669	0	1291	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				63			89			89
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1110			920			549			426	
Travel Time (s)		21.6			17.9			15.0			11.6	
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94	0.77	0.77	0.77	0.77	0.77	0.77
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%
Adj. Flow (vph)	28	1072	35	19	1745	100	49	1	13	53	1	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	1107	0	19	1745	100	0	50	13	0	54	38
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	0.96	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	0		1	0	0	1	1	1	1	1	1
Detector Template							Left			Left		
Leading Detector (ft)	40	0		40	0	0	20	30	30	20	30	30
Trailing Detector (ft)	0	0		0	0	0	0	-10	-10	0	-10	-10
Detector 1 Position(ft)	0	0		0	0	0	0	-10	-10	0	-10	-10
Detector 1 Size(ft)	40	6		40	6	20	20	40	40	20	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6		5	2			4			4	
Permitted Phases	6			2		2	4		4	4		4
Detector Phase	1	6		5	2	2	4	4	4	4	4	4
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0	15.0	4.0	4.0	4.0	4.0	4.0	4.0

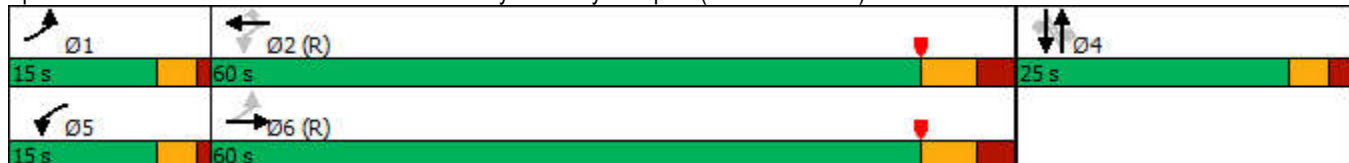


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	8.0	22.2		8.0	22.2	22.2	8.8	8.8	8.8	8.8	8.8	8.8
Total Split (s)	15.0	60.0		15.0	60.0	60.0	25.0	25.0	25.0	25.0	25.0	25.0
Total Split (%)	15.0%	60.0%		15.0%	60.0%	60.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Maximum Green (s)	11.0	52.8		11.0	52.8	52.8	20.2	20.2	20.2	20.2	20.2	20.2
Yellow Time (s)	3.0	4.2		3.0	4.2	4.2	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	3.0		1.0	3.0	3.0	1.8	1.8	1.8	1.8	1.8	1.8
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	7.2		4.0	7.2	7.2		4.8	4.8		4.8	4.8
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	0.2		1.5	0.2	0.2	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None
Act Effect Green (s)	82.8	79.2		81.9	77.5	77.5		8.8	8.8		8.8	8.8
Actuated g/C Ratio	0.83	0.79		0.82	0.78	0.78		0.09	0.09		0.09	0.09
v/c Ratio	0.13	0.40		0.05	0.65	0.08		0.45	0.06		0.48	0.17
Control Delay	3.4	5.4		2.3	9.1	2.5		55.2	0.5		56.4	1.7
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	3.4	5.4		2.3	9.1	2.5		55.2	0.5		56.4	1.7
LOS	A	A		A	A	A		E	A		E	A
Approach Delay		5.3			8.7			43.9			33.8	
Approach LOS		A			A			D			C	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 83 (83%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.65  
 Intersection Signal Delay: 8.9  
 Intersection LOS: A  
 Intersection Capacity Utilization 66.0%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 23: Fox Hollow/CVS Driveway & Albany Turnpike (Route 44 & 202)



Queues

23: Fox Hollow/CVS Driveway & Albany Turnpike (Route 44 & 202)



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	28	1107	19	1745	100	50	13	54	38
v/c Ratio	0.13	0.40	0.05	0.65	0.08	0.45	0.06	0.48	0.17
Control Delay	3.4	5.4	2.3	9.1	2.5	55.2	0.5	56.4	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.4	5.4	2.3	9.1	2.5	55.2	0.5	56.4	1.7
Queue Length 50th (ft)	2	86	2	295	6	31	0	33	0
Queue Length 95th (ft)	8	205	6	449	24	56	0	60	0
Internal Link Dist (ft)		1030		840		469		346	
Turn Bay Length (ft)	130		130		150		80		
Base Capacity (vph)	320	2751	519	2677	1224	256	408	260	397
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.40	0.04	0.65	0.08	0.20	0.03	0.21	0.10

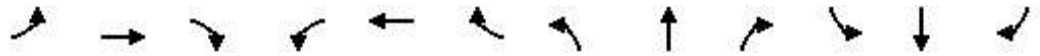
Intersection Summary

Lanes, Volumes, Timings

15 Albany Turnpike, Canton, CT

24: Dale Rd./Simsbury Commons & Albany Turnpike (Route 44 & 202)

2023 Build PM



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗	↖	↗		↖	↗	↗
Traffic Volume (vph)	56	791	40	186	1338	139	59	34	194	74	29	61
Future Volume (vph)	56	791	40	186	1338	139	59	34	194	74	29	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	12	12	12	11	11	12	12	12	12
Storage Length (ft)	180		0	450		525	200		0	0		0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	115			80			50			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.993				0.850		0.873				0.850
Fl <sub>t</sub> Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1745	3433	0	1770	3574	1615	1454	1603	0	1805	1900	1615
Fl <sub>t</sub> Permitted	0.950			0.950			0.735			0.197		
Satd. Flow (perm)	1745	3433	0	1770	3574	1615	1125	1603	0	374	1900	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				145		228				74
Link Speed (mph)		35			35			25				25
Link Distance (ft)		791			1110			639				380
Travel Time (s)		15.4			21.6			17.4				10.4
Peak Hour Factor	0.95	0.95	0.95	0.96	0.96	0.96	0.80	0.80	0.80	0.85	0.85	0.85
Heavy Vehicles (%)	0%	1%	0%	2%	1%	0%	20%	0%	0%	0%	0%	0%
Adj. Flow (vph)	59	833	42	194	1394	145	74	43	243	87	34	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	875	0	194	1394	145	74	286	0	87	34	72
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.04	1.00	1.00	1.00	1.04	1.04	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1	1	1	1		1	1	1
Detector Template										Left		
Leading Detector (ft)	25	306		25	256	256	20	20		30	30	40
Trailing Detector (ft)	-5	300		-5	250	250	-10	-10		0	0	-10
Detector 1 Position(ft)	-5	300		-5	250	250	-10	-10		0	0	-10
Detector 1 Size(ft)	30	6		30	6	6	30	30		30	30	50
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4				4
Permitted Phases						2	4			4		4
Detector Phase	1	6		5	2	2	4	4		4	4	4
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	15.0	15.0	7.0	7.0		7.0	7.0	7.0

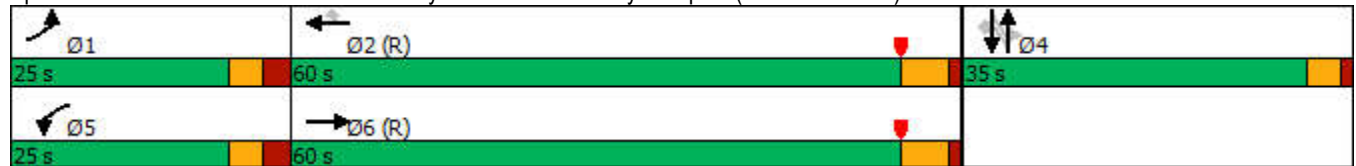


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	12.5	20.6		12.5	20.6	20.6	11.2	11.2		11.2	11.2	11.2
Total Split (s)	25.0	60.0		25.0	60.0	60.0	35.0	35.0		35.0	35.0	35.0
Total Split (%)	20.8%	50.0%		20.8%	50.0%	50.0%	29.2%	29.2%		29.2%	29.2%	29.2%
Maximum Green (s)	19.5	54.4		19.5	54.4	54.4	30.8	30.8		30.8	30.8	30.8
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	2.5	1.3		2.5	1.3	1.3	1.2	1.2		1.2	1.2	1.2
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	5.5	5.6		5.5	5.6	5.6	4.2	4.2		4.2	4.2	4.2
Lead/Lag	Lead	Lag		Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	5.0		1.5	8.0	8.0	2.0	2.0		2.0	2.0	2.0
Recall Mode	None	C-Min		None	C-Min	C-Min	None	None		None	None	None
Act Effect Green (s)	8.7	68.1		16.3	78.2	78.2	20.3	20.3		20.3	20.3	20.3
Actuated g/C Ratio	0.07	0.57		0.14	0.65	0.65	0.17	0.17		0.17	0.17	0.17
v/c Ratio	0.47	0.45		0.81	0.60	0.13	0.39	0.62		1.38	0.11	0.22
Control Delay	56.0	21.4		74.5	16.0	2.5	47.5	16.0		285.1	38.7	9.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	56.0	21.4		74.5	16.0	2.5	47.5	16.0		285.1	38.7	9.3
LOS	E	C		E	B	A	D	B		F	D	A
Approach Delay		23.6			21.4			22.4			138.8	
Approach LOS		C			C			C			F	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 112 (93%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow  
 Natural Cycle: 55  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.38  
 Intersection Signal Delay: 29.2  
 Intersection LOS: C  
 Intersection Capacity Utilization 78.7%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 24: Dale Rd./Simsbury Commons & Albany Turnpike (Route 44 & 202)



Queues

24: Dale Rd./Simsbury Commons & Albany Turnpike (Route 44 & 202)



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	59	875	194	1394	145	74	286	87	34	72
v/c Ratio	0.47	0.45	0.81	0.60	0.13	0.39	0.62	1.38	0.11	0.22
Control Delay	56.0	21.4	74.5	16.0	2.5	47.5	16.0	285.1	38.7	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.0	21.4	74.5	16.0	2.5	47.5	16.0	285.1	38.7	9.3
Queue Length 50th (ft)	47	190	147	318	0	51	39	~88	22	0
Queue Length 95th (ft)	m76	331	225	523	32	79	78	#156	45	31
Internal Link Dist (ft)		711		1030			559		300	
Turn Bay Length (ft)	180		450		525	200				
Base Capacity (vph)	283	1950	288	2329	1103	288	580	95	487	469
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.45	0.67	0.60	0.13	0.26	0.49	0.92	0.07	0.15

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SER
Lane Configurations	↶	↶↶		↶	↶↶		↶	↶	↶	↶↶	↶↶	
Traffic Volume (vph)	87	1212	115	193	219	63	132	264	311	391	691	152
Future Volume (vph)	87	1212	115	193	219	63	132	264	311	391	691	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	11	12	12	11	11	11	11	12	12
Storage Length (ft)	375	0		200		0	0		0		220	0
Storage Lanes	1	2		1		0	1		1		2	0
Taper Length (ft)	125			150			25				140	
Lane Util. Factor	1.00	0.88	1.00	1.00	0.95	0.95	1.00	1.00	1.00	0.97	0.97	0.95
Fr <sub>t</sub>		0.850			0.966				0.850		0.973	
Fl <sub>t</sub> Protected	0.950			0.950			0.950			0.950	0.961	
Satd. Flow (prot)	1745	2723	0	1728	3460	0	1745	1818	1546	3385	3419	0
Fl <sub>t</sub> Permitted	0.950			0.950			0.950			0.950	0.961	
Satd. Flow (perm)	1745	2723	0	1728	3460	0	1745	1818	1546	3385	3419	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		108			27				73		108	
Link Speed (mph)	40			25			40			40		40
Link Distance (ft)	791			809			493			815		815
Travel Time (s)	13.5			22.1			8.4			13.9		13.9
Peak Hour Factor	0.96	0.96	0.96	0.93	0.93	0.93	0.87	0.87	0.87	0.86	0.86	0.86
Heavy Vehicles (%)	0%	1%	0%	1%	1%	0%	0%	1%	1%	0%	1%	0%
Adj. Flow (vph)	91	1263	120	208	235	68	152	303	357	455	803	177
Shared Lane Traffic (%)												
Lane Group Flow (vph)	91	1383	0	208	303	0	152	303	357	455	980	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	11				11			11			47	
Link Offset(ft)	0				0			0			0	
Crosswalk Width(ft)	16				16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.04	1.00	1.04	1.00	1.00	1.04	1.04	1.04	1.04	1.00	1.00
Turning Speed (mph)	15	9	9	15		9	15		9	15	15	9
Number of Detectors	1	2		1	1		1	1	1	1	1	
Detector Template												
Leading Detector (ft)	40	368		34	30		30	30	30	40	190	
Trailing Detector (ft)	0	176		-6	-10		-10	-10	-10	0	184	
Detector 1 Position(ft)	0	176		-6	-10		-10	-10	-10	0	184	
Detector 1 Size(ft)	40	6		40	40		40	40	40	40	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		362										
Detector 2 Size(ft)		6										
Detector 2 Type		Cl+Ex										
Detector 2 Channel												
Detector 2 Extend (s)		0.0										
Turn Type	Prot	Prot		Prot	NA		Prot	NA	pt+ov	Prot	Prot	



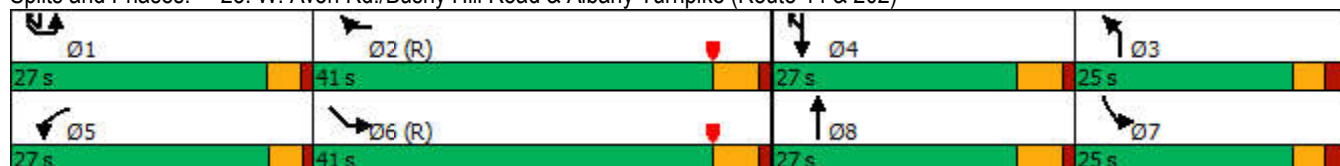


Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SER
Protected Phases	5	2		3	8		7	4	14	1	6	
Permitted Phases												
Detector Phase	5	2		3	8		7	4	14	1	6	
Switch Phase												
Minimum Initial (s)	7.0	15.0		7.0	7.0		7.0	7.0		7.0	15.0	
Minimum Split (s)	11.0	20.4		12.6	12.2		12.6	12.2		11.1	20.4	
Total Split (s)	27.0	41.0		25.0	27.0		25.0	27.0		27.0	41.0	
Total Split (%)	22.5%	34.2%		20.8%	22.5%		20.8%	22.5%		22.5%	34.2%	
Maximum Green (s)	23.0	35.6		19.4	21.8		19.4	21.8		22.9	35.6	
Yellow Time (s)	3.0	4.2		3.0	4.2		3.0	4.2		3.0	4.2	
All-Red Time (s)	1.0	1.2		2.6	1.0		2.6	1.0		1.1	1.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	5.4		5.6	5.2		5.6	5.2		4.1	5.4	
Lead/Lag	Lead	Lag		Lag	Lead		Lag	Lead		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	4.0		1.5	2.0		1.5	2.0		1.5	4.0	
Recall Mode	None	C-Min		None	None		None	None		None	C-Min	
Act Effct Green (s)	10.5	41.7		17.2	14.3		24.2	21.3	41.9	19.5	50.9	
Actuated g/C Ratio	0.09	0.35		0.14	0.12		0.20	0.18	0.35	0.16	0.42	
v/c Ratio	0.60	1.36		0.84	0.69		0.43	0.94	0.61	0.83	0.65	
Control Delay	68.6	195.1		78.1	54.6		46.3	85.8	18.2	71.9	22.9	
Queue Delay	0.0	0.2		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	68.6	195.2		78.1	54.6		46.3	85.8	18.2	71.9	22.9	
LOS	E	F		E	D		D	F	B	E	C	
Approach Delay	187.4				64.2			48.7			38.5	
Approach LOS	F				E			D			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 7 (6%), Referenced to phase 2:WBR and 6:SEL, Start of Yellow  
 Natural Cycle: 140  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.36  
 Intersection Signal Delay: 95.4  
 Intersection LOS: F  
 Intersection Capacity Utilization 88.6%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 25: W. Avon Rd./Bushy Hill Road & Albany Turnpike (Route 44 & 202)



Queues



Lane Group	WBL	WBR	NBL	NBT	SBL	SBT	SBR	SEL2	SEL
Lane Group Flow (vph)	91	1383	208	303	152	303	357	455	980
v/c Ratio	0.60	1.36	0.84	0.69	0.43	0.94	0.61	0.83	0.65
Control Delay	68.6	195.1	78.1	54.6	46.3	85.8	18.2	71.9	22.9
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.6	195.2	78.1	54.6	46.3	85.8	18.2	71.9	22.9
Queue Length 50th (ft)	58	~634	156	109	101	233	105	179	241
Queue Length 95th (ft)	m101	#1016	#265	152	167	#379	144	237	278
Internal Link Dist (ft)	711			729		413			735
Turn Bay Length (ft)	375		200					220	220
Base Capacity (vph)	334	1017	279	650	351	330	635	645	1511
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	34	0	0	0	0	3	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	1.41	0.75	0.47	0.43	0.92	0.56	0.71	0.65

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings  
 28: Albany Turnpike (Route 44 & 202) & Site Driveway

15 Albany Turnpike, Canton, CT  
 2023 Build PM



Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations	↖	↑↑	↑↑		↘↘	
Traffic Volume (vph)	108	951	1591	84	152	70
Future Volume (vph)	108	951	1591	84	152	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	12	11	11
Storage Length (ft)	175			0	0	0
Storage Lanes	1			0	2	0
Taper Length (ft)	35				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	0.97	0.95
Frt			0.992		0.953	
Flt Protected	0.950				0.967	
Satd. Flow (prot)	1745	3574	3547	0	3284	0
Flt Permitted	0.067				0.967	
Satd. Flow (perm)	123	3574	3547	0	3284	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			10		65	
Link Speed (mph)		40	40		30	
Link Distance (ft)		2232	380		896	
Travel Time (s)		38.0	6.5		20.4	
Peak Hour Factor	0.92	0.92	0.96	0.96	0.88	0.88
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%
Adj. Flow (vph)	117	1034	1657	88	173	80
Shared Lane Traffic (%)						
Lane Group Flow (vph)	117	1034	1745	0	253	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		11	11		22	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.04	1.00	1.00	1.00	1.04	1.04
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	0	0		1	
Detector Template						
Leading Detector (ft)	34	0	0		34	
Trailing Detector (ft)	-6	0	0		-6	
Detector 1 Position(ft)	-6	0	0		-6	
Detector 1 Size(ft)	40	6	6		40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	1	1 2	2		4	
Permitted Phases	1 2					
Detector Phase	1	1 2	2		4	
Switch Phase						
Minimum Initial (s)	5.0		10.0		5.0	

Lanes, Volumes, Timings  
 28: Albany Turnpike (Route 44 & 202) & Site Driveway

15 Albany Turnpike, Canton, CT  
 2023 Build PM



Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Minimum Split (s)	9.5		17.0		10.5	
Total Split (s)	16.0		67.4		16.6	
Total Split (%)	16.0%		67.4%		16.6%	
Maximum Green (s)	11.5		60.4		11.1	
Yellow Time (s)	3.5		4.3		3.5	
All-Red Time (s)	1.0		2.7		2.0	
Lost Time Adjust (s)	0.0		0.0		0.0	
Total Lost Time (s)	4.5		7.0		5.5	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		0.2		1.5	
Recall Mode	None		C-Min		None	
Act Effect Green (s)	76.2	80.7	59.3		9.3	
Actuated g/C Ratio	0.76	0.81	0.59		0.09	
v/c Ratio	0.36	0.36	0.83		0.69	
Control Delay	24.6	4.0	21.1		42.7	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	24.6	4.0	21.1		42.7	
LOS	C	A	C		D	
Approach Delay		6.1	21.1		42.7	
Approach LOS		A	C		D	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 92 (92%), Referenced to phase 2:NWSE, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 17.4  
 Intersection LOS: B  
 Intersection Capacity Utilization 73.3%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 28: Albany Turnpike (Route 44 & 202) & Site Driveway



Queues  
 28: Albany Turnpike (Route 44 & 202) & Site Driveway

15 Albany Turnpike, Canton, CT  
 2023 Build PM



Lane Group	SEL	SET	NWT	SWL
Lane Group Flow (vph)	117	1034	1745	253
v/c Ratio	0.36	0.36	0.83	0.69
Control Delay	24.6	4.0	21.1	42.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	24.6	4.0	21.1	42.7
Queue Length 50th (ft)	34	71	466	60
Queue Length 95th (ft)	76	162	523	97
Internal Link Dist (ft)		2152	300	816
Turn Bay Length (ft)	175			
Base Capacity (vph)	327	2932	2186	423
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.36	0.35	0.80	0.60
<b>Intersection Summary</b>				



Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↑↑	↑↑			↑
Traffic Volume (vph)	0	1103	1650	45	0	25
Future Volume (vph)	0	1103	1650	45	0	25
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.996			0.865
Flt Protected						
Satd. Flow (prot)	0	3539	3525	0	0	1611
Flt Permitted						
Satd. Flow (perm)	0	3539	3525	0	0	1611
Link Speed (mph)		40	40		30	
Link Distance (ft)		380	944		492	
Travel Time (s)		6.5	16.1		11.2	
Peak Hour Factor	0.92	0.92	0.96	0.96	0.92	0.92
Adj. Flow (vph)	0	1199	1719	47	0	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1199	1766	0	0	27
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		11	11		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	57.0%
Analysis Period (min)	15
	ICU Level of Service B

**Intersection**

Int Delay, s/veh 0.2

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↑↑	↑↑			↑
Traffic Vol, veh/h	0	1103	1650	45	0	25
Future Vol, veh/h	0	1103	1650	45	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	96	96	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1199	1719	47	0	27

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	-
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	-
Pot Cap-1 Maneuver	0	-	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SE	NW	SW
HCM Control Delay, s	0	0	18.7
HCM LOS			C

Minor Lane/Major Mvmt	NWT	NWR	SETSWLn1
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	-	-	-
HCM Lane LOS	-	-	-
HCM 95th %tile Q(veh)	-	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	1060	0	12	1644	4	19	2	10	10	0	13
Future Volume (vph)	2	1060	0	12	1644	4	19	2	10	10	0	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	11	11	11	11	12	12	12	12	12	12
Storage Length (ft)	50		0	100		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	75			70			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>								0.956			0.924	
Fl <sub>t</sub> Protected	0.950			0.950				0.971			0.978	
Satd. Flow (prot)	1745	3574	0	1745	3455	0	0	1764	0	0	1707	0
Fl <sub>t</sub> Permitted	0.074			0.950				0.971			0.978	
Satd. Flow (perm)	136	3574	0	1745	3455	0	0	1764	0	0	1707	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)								13			155	
Link Speed (mph)		40			40			25			30	
Link Distance (ft)		847			2232			498			493	
Travel Time (s)		14.4			38.0			13.6			11.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.80	0.80	0.80	0.90	0.90	0.90
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	1%
Adj. Flow (vph)	2	1152	0	13	1787	4	24	3	13	11	0	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	1152	0	13	1791	0	0	40	0	0	25	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		22			22			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.04	1.00	1.04	1.04	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	3	0		3	0		1	3		1	2	
Detector Template							Left					
Leading Detector (ft)	26	0		26	0		20	26		6	16	
Trailing Detector (ft)	0	0		0	0		0	0		0	-6	
Detector 1 Position(ft)	0	0		0	894		0	0		0	-6	
Detector 1 Size(ft)	6	6		6	6		20	6		6	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	10			10			10			10		
Detector 2 Size(ft)	6			6			6			6		
Detector 2 Type	Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)	0.0			0.0			0.0			0.0		
Detector 3 Position(ft)	20			20			20					



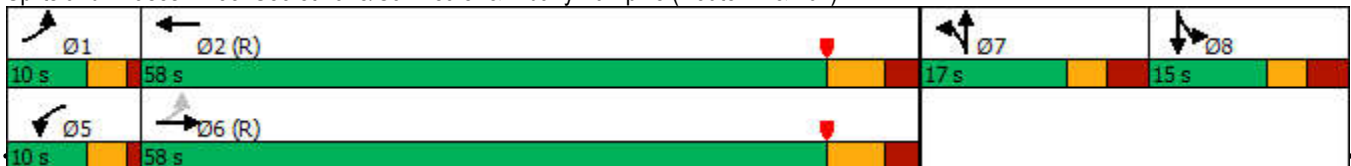


Table with 13 columns (Lane Group: EBL, EBT, EBR, WBL, WBT, WBR, NBL, NBT, NBR, SBL, SBT, SBR) and 34 rows of traffic signal timing and control parameters.

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 16 (16%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 6.3
Intersection LOS: A
Intersection Capacity Utilization 64.1%
ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 35: Secret Lake/Car Dealer & Albany Turnpike (Route 44 & 202)





Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	2	1152	13	1791	40	25
v/c Ratio	0.01	0.41	0.14	0.65	0.24	0.10
Control Delay	5.0	5.8	55.6	5.7	35.3	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.0	5.8	55.6	5.7	35.3	0.7
Queue Length 50th (ft)	0	97	9	31	16	0
Queue Length 95th (ft)	m0	171	m12	#705	42	0
Internal Link Dist (ft)		767		2152	418	413
Turn Bay Length (ft)	50		100			
Base Capacity (vph)	206	2835	105	2750	202	291
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.41	0.12	0.65	0.20	0.09

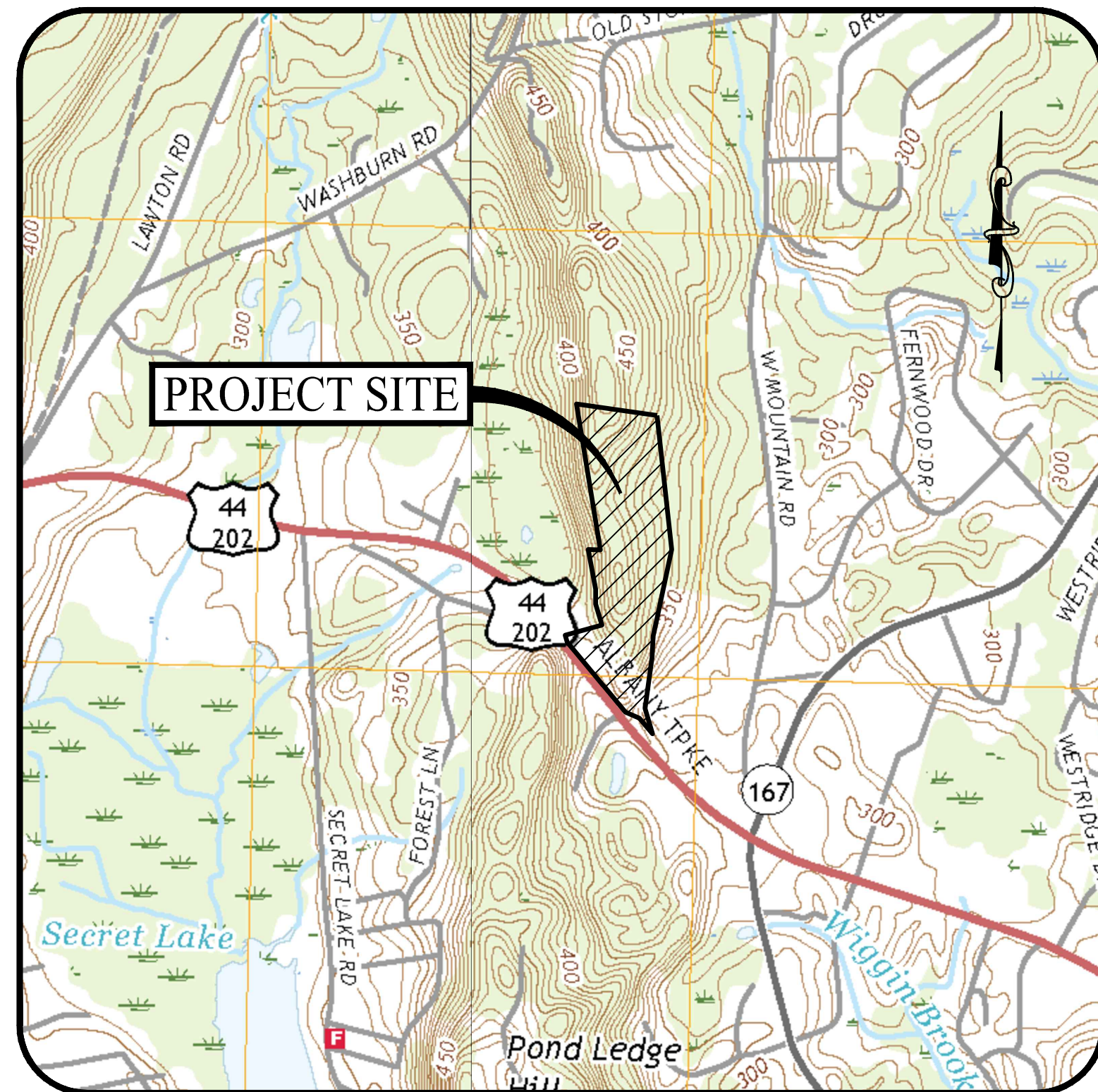
**Intersection Summary**

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



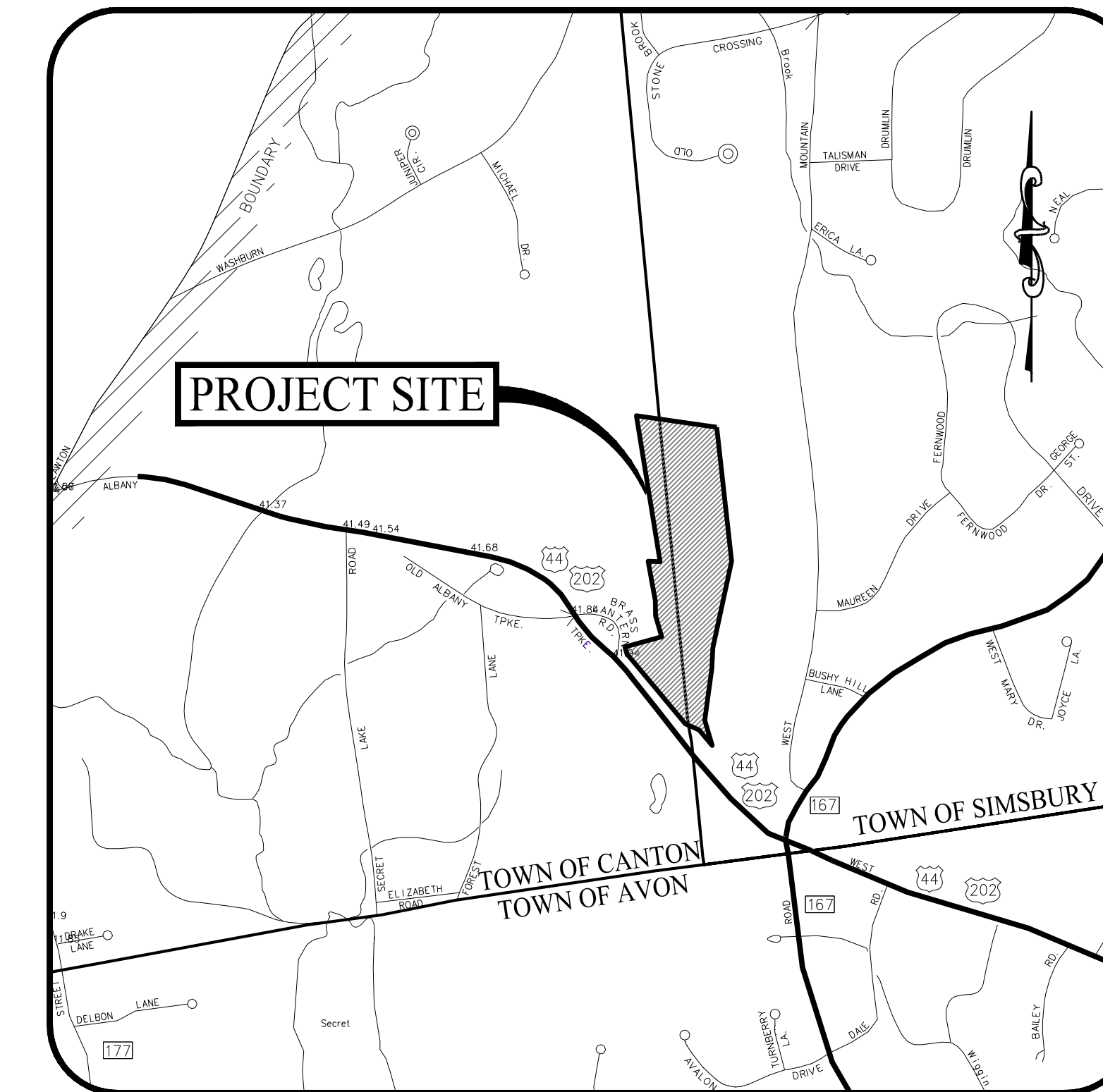


USGS MAP

SCALE: 1" = 1,000'

# 9-15 ALBANY TURNPIKE

CANTON & SIMSBURY, CONNECTICUT



LOCATION MAP

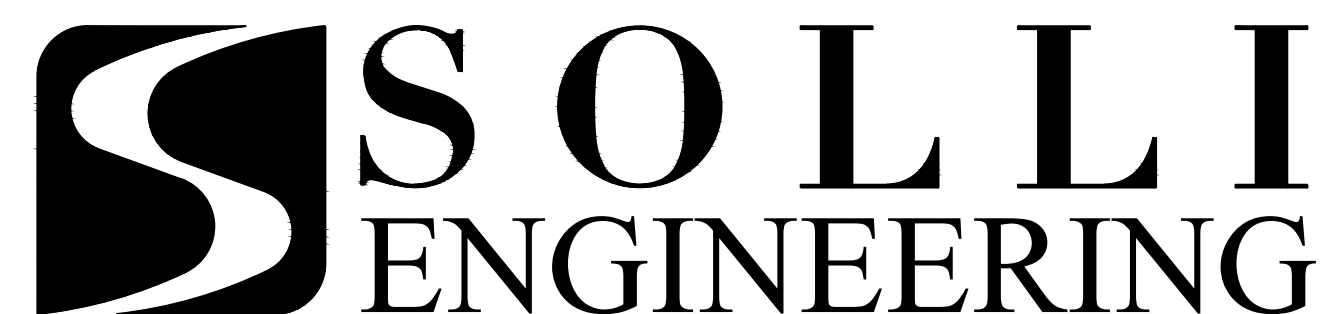
SCALE: 1" = 1,000'

PREPARED FOR:

## 9-15 ALBANY TURNPIKE, LLC

184 FERN AVENUE  
LITCHFIELD, CONNECTICUT 06759

PREPARED BY:



501 MAIN STREET, MONROE, CONNECTICUT 06468

**ARCHITECT (GAS STATION)**

JOSEPH DELUCA  
MDA ARCHITECTURE  
1599 WASHINGTON STREET  
BRAINTREE, MA 02184  
(781) 843-9400

**ARCHITECT (ELECTRIC  
VEHICLE SHOWROOM)**

MATT WITTMER  
PHASE ZERO DESIGN  
8 WILCOX STREET, CT 06070  
(203) 878-1326

**PROPERTY INFORMATION**

ADDRESS: 9-15 ALBANY TURNPIKE, CANTON, CT 06022  
MAP-BLOCK-LOT: 32/101/0009 & 36/101/0015

ADDRESS: 9-15 ALBANY TURNPIKE, SIMSBURY, CT 06070  
MAP-BLOCK-LOT: A20-503-002-A

**OWNER / APPLICANT**

9-15 ALBANY TURNPIKE, LLC  
ATTN: MARK GREENBERG  
184 FERN AVENUE  
LITCHFIELD, CONNECTICUT 06759

**SITE/CIVIL ENGINEER**

KEVIN SOLLI, P.E., CPESC, LEED AP BD+C  
LICENSE NO. 25759  
SOLLI ENGINEERING, LLC  
501 MAIN STREET  
MONROE, CONNECTICUT 06468  
(203) 880-5455

**SURVEYOR OF RECORD**

BRYAN NESTERIAK, PE, LS  
LICENSE NO. 23556  
ACCURATE LAND SURVEYING  
15 RESEARCH DRIVE, SUITE 3  
SEYMOUR, CONNECTICUT 06525  
(203) 881-8145

**LANDSCAPE ARCHITECT**

MARY BLACKBURN, PLA  
LICENSE NO. 1499  
SOLLI ENGINEERING, LLC  
501 MAIN STREET  
MONROE, CONNECTICUT 06468  
(203) 880-5455

**DRAWING LIST**

**SITE CIVIL DRAWINGS**

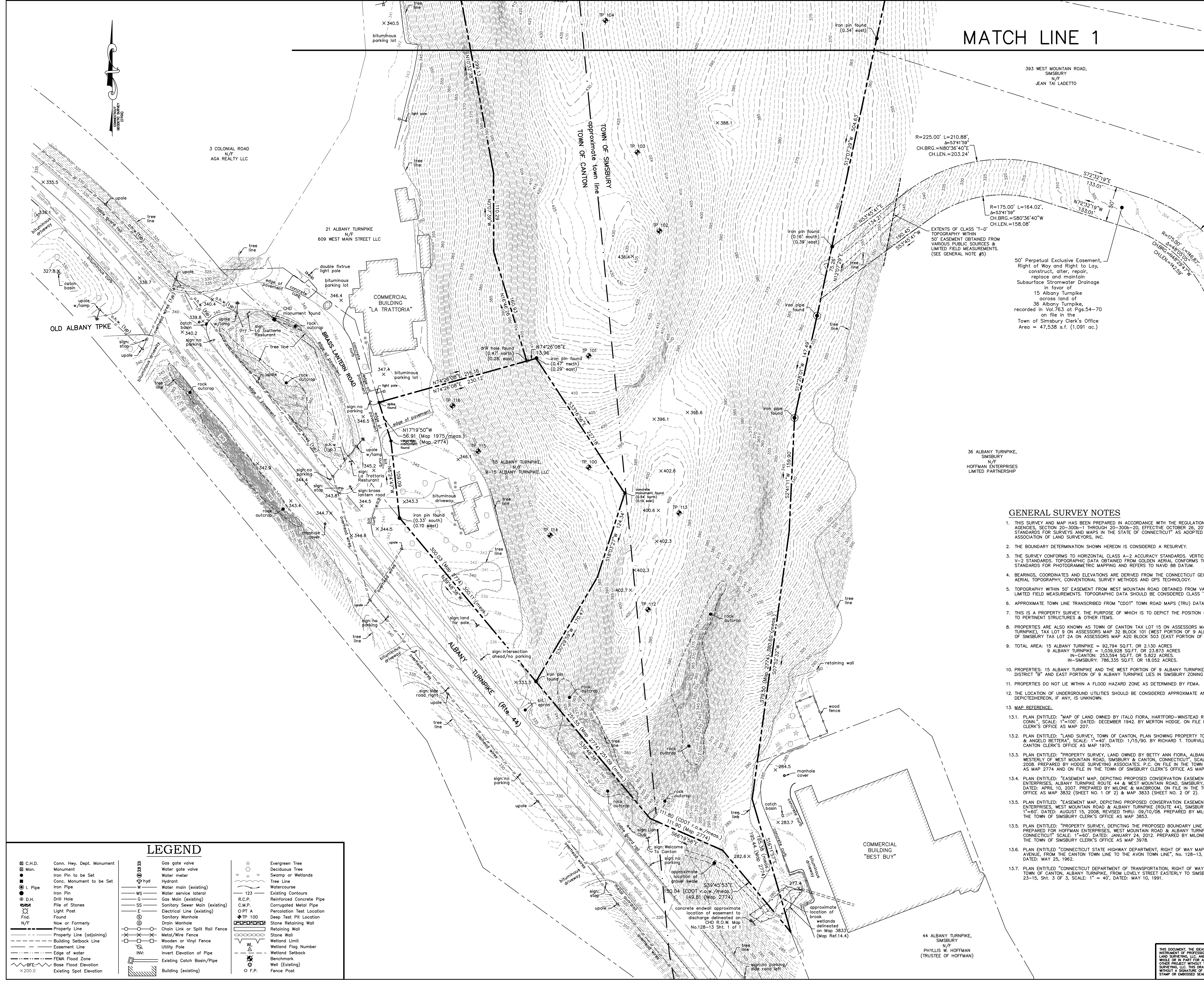
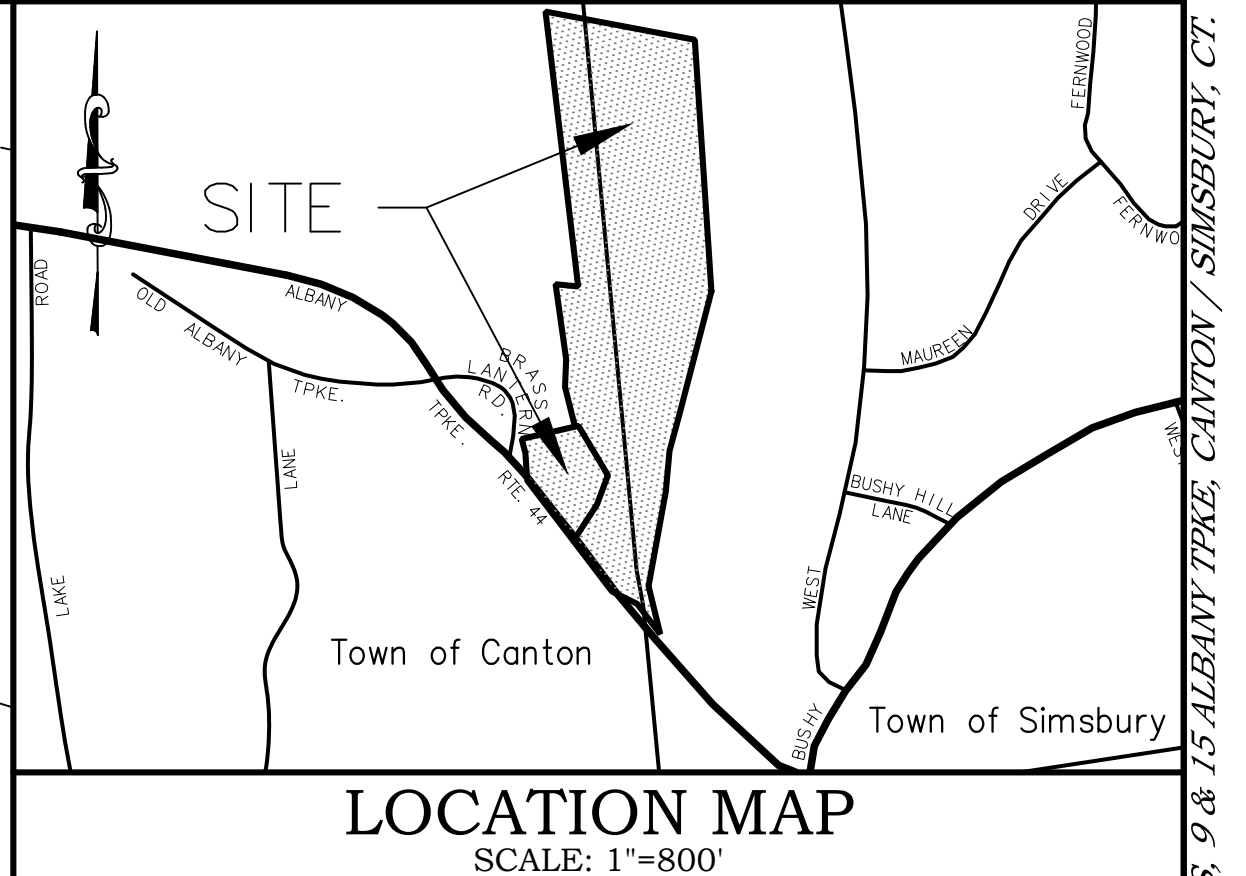
SHEET #	SHEET NAME	PLAN DATE	LATEST REVISION
0.00	COVER SHEET	08/11/20	09/04/20
1 of 1	PROPERTY SURVEY (1 OF 2)	12/10/19	N/A
2 of 2	PROPERTY SURVEY (2 OF 2)	12/10/19	N/A
2.10	OVERALL SITE LAYOUT PLAN	08/11/20	09/04/20
2.11	SITE LAYOUT PLAN	08/11/20	09/04/20
2.21	GRADING, DRAINAGE & UTILITY PLAN	08/11/20	09/04/20
2.31	SOIL EROSION & SEDIMENT CONTROL PLAN	08/11/20	09/04/20
2.41	SOIL EROSION & SEDIMENT CONTROL NOTES & DETAILS	08/11/20	N/A
2.51	SITE UTILITY PLAN	08/11/20	09/04/20
2.61	LANDSCAPE PLAN	08/11/20	N/A
2.62	LANDSCAPE DETAILS SHEET	08/11/20	N/A
2.71	LIGHTING PLAN	08/11/20	N/A
2.72	LIGHTING DETAILS SHEET	08/11/20	N/A
3.01	DETAIL SHEET	08/11/20	09/04/20
3.02	DETAIL SHEET	08/11/20	N/A
3.03	DETAIL SHEET	08/11/20	09/04/20
3.04	DETAIL SHEET	08/11/20	N/A
4.11	PRELIMINARY OFF-SITE IMPROVEMENT PLAN	08/11/20	09/04/20

**ARCHITECTURAL DRAWINGS**

SHEET #	SHEET NAME	PLAN DATE	LATEST REVISION
-	CAR SALES AND MAINTENANCE BUILDING - MAIN LEVEL FLOOR PLAN	08/11/20	N/A
-	CAR SALES AND MAINTENANCE BUILDING - LOWER LEVEL FLOOR PLAN	08/11/20	N/A
-	CAR SALES AND MAINTENANCE BUILDING - EXTERIOR ELEVATIONS 1	08/11/20	N/A
CP1.1	CONCEPTUAL PLAN	08/11/20	N/A
CP1.2	CONCEPTUAL ELEVATIONS	08/11/20	N/A
CP1.3	CONCEPTUAL ELEVATIONS - COLORED	08/11/20	N/A
CP1.4	FUEL DISPENSER CANOPY PLAN AND ELEVATIONS	08/11/20	N/A

Project:	
9-15 ALBANY TURNPIKE CANTON & SIMSBURY, CONNECTICUT	
Sheet Title:	Sheet #:
COVER SHEET	0.00

MATCH LINE 1



GENERAL SURVEY NOTES

- THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH THE REGULATION OF CONNECTICUT STATE AGENCIES, SECTION 20-300b-1 THROUGH 20-300b-20, EFFECTIVE OCTOBER 26, 2018, AND THE "MINIMUM STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC.
- THE BOUNDARY DETERMINATION SHOWN HEREON IS CONSIDERED A RESURVEY.
- THE SURVEY CONFORMS TO HORIZONTAL CLASS A-2 ACCURACY STANDARDS. VERTICAL DATA CONFORMS TO CLASS V-2 STANDARDS. TOPOGRAPHIC DATA OBTAINED FROM GOLDEN AERIAL CONFORMS TO CLASS T-3 NATIONAL MAP STANDARDS FOR PHOTOGRAMMETRIC MAPPING AND REFERS TO NAVD 88 DATUM.
- BEARINGS, COORDINATES AND ELEVATIONS ARE DERIVED FROM THE CONNECTICUT GEODETIC SURVEY (CGTS) VIA AERIAL TOPOGRAPHY, CONVENTIONAL SURVEY METHODS AND GPS TECHNOLOGY.
- TOPOGRAPHY WITHIN 50' EASEMENT FROM WEST MOUNTAIN ROAD OBTAINED FROM VARIOUS PUBLIC SOURCES & LIMITED FIELD MEASUREMENTS. TOPOGRAPHIC DATA SHOULD BE CONSIDERED CLASS "T-D".
- APPROXIMATE TOWN LINE TRANSCRIBED FROM "CDOT" TOWN ROAD MAPS (TRU) DATA FOR CANTON AND SIMSBURY.
- THIS IS A PROPERTY SURVEY. THE PURPOSE OF WHICH IS TO DEPICT THE POSITION OF BOUNDARIES WITH RESPECT TO PERTINENT STRUCTURES & OTHER ITEMS.
- PROPERTIES ARE ALSO KNOWN AS TOWN OF CANTON TAX LOT 15 ON ASSESSORS MAP 36 BLOCK 101 (15 ALBANY TURNPIKE), TAX LOT 9 ON ASSESSORS MAP 32 BLOCK 101 (WEST PORTION OF 9 ALBANY TURNPIKE) AND TOWN OF SIMSBURY TAX LOT 2A ON ASSESSORS MAP 420 BLOCK 503 (EAST PORTION OF 9 ALBANY TURNPIKE)
- TOTAL AREA: 15 ALBANY TURNPIKE = 92,794 SQ.FT. OR 2.130 ACRES  
9 ALBANY TURNPIKE = 1,039,928 SQ.FT. OR 23.873 ACRES  
IN-CANTON: 253,594 SQ.FT. OR 5.822 ACRES  
IN-SIMSBURY: 786,335 SQ.FT. OR 18.052 ACRES.
- PROPERTIES: 15 ALBANY TURNPIKE AND THE WEST PORTION OF 9 ALBANY TURNPIKE LIES IN CANTON ZONING DISTRICT "B" AND EAST PORTION OF 9 ALBANY TURNPIKE LIES IN SIMSBURY ZONING DISTRICT "B3"
- PROPERTIES DO NOT LIE WITHIN A FLOOD HAZARD ZONE AS DETERMINED BY FEMA.
- THE LOCATION OF UNDERGROUND UTILITIES SHOULD BE CONSIDERED APPROXIMATE AND OTHER THAN DEPICTED HEREON, IF ANY, IS UNKNOWN.
- MAP REFERENCE:
- PLAN ENTITLED: "MAP OF LAND OWNED BY ITALO FIORA, HARTFORD-WINSTEAD ROAD, CANTON & SIMSBURY, CONN.", SCALE: 1"=100', DATED: DECEMBER 1942, BY MERTON HODGE, ON FILE IN THE TOWN OF CANTON CLERK'S OFFICE AS MAP 207.
- PLAN ENTITLED: "LAND SURVEY, TOWN OF CANTON, PLAN SHOWING PROPERTY TO BE ACQUIRED BY JUSTINE P. & ANGELO BETTERA", SCALE: 1"=40', DATED: 1/15/90, BY RICHARD T. TOURVILLE, ON FILE IN THE TOWN OF CANTON CLERK'S OFFICE AS MAP 1975.
- PLAN ENTITLED: "PROPERTY SURVEY, LAND OWNED BY BETTY ANN FIORA, ALBANY TURNPIKE (ROUTE 44) & WESTERNLY OF WEST MOUNTAIN ROAD, SIMSBURY & CANTON, CONNECTICUT", SCALE: 1"=80', DATED: DECEMBER 2008, PREPARED BY HODGE SURVEYING ASSOCIATES, P.C. ON FILE IN THE TOWN OF CANTON CLERK'S OFFICE AS MAP 2774 AND ON FILE IN THE TOWN OF SIMSBURY CLERK'S OFFICE AS MAP 3864.
- PLAN ENTITLED: "EASEMENT MAP, DEPICTING PROPOSED CONSERVATION EASEMENT AREA, HOFFMAN ENTERPRISES, ALBANY TURNPIKE ROUTE 44 & WEST MOUNTAIN ROAD, SIMSBURY, CONNECTICUT", SCALE: 1"=40', DATED: APRIL 30, 2007, PREPARED BY MILONE & MAGROOM, ON FILE IN THE TOWN OF SIMSBURY CLERK'S OFFICE AS MAP 3832 (SHEET NO. 1 OF 2) & MAP 3833 (SHEET NO. 2 OF 2).
- PLAN ENTITLED: "EASEMENT MAP, DEPICTING PROPOSED CONSERVATION EASEMENT AREA, HOFFMAN ENTERPRISES, WEST MOUNTAIN ROAD & ALBANY TURNPIKE (ROUTE 44), SIMSBURY, CONNECTICUT", SCALE: 1"=60', DATED: AUGUST 15, 2008, REVISED THRU: 09/10/08, PREPARED BY MILONE & MAGROOM, ON FILE IN THE TOWN OF SIMSBURY CLERK'S OFFICE AS MAP 3853.
- PLAN ENTITLED: "PROPERTY SURVEY, DEPICTING THE PROPOSED BOUNDARY LINE FOR LOT 1 AND LOT 2, PREPARED FOR HOFFMAN ENTERPRISES, WEST MOUNTAIN ROAD & ALBANY TURNPIKE (ROUTE 44), SIMSBURY, CONNECTICUT", SCALE: 1"=60', DATED: JANUARY 24, 2012, PREPARED BY MILONE & MAGROOM, ON FILE IN THE TOWN OF SIMSBURY CLERK'S OFFICE AS MAP 3978.
- PLAN ENTITLED: "CONNECTICUT STATE HIGHWAY DEPARTMENT, RIGHT OF WAY MAP, BUREAU OF HIGHWAYS, TOWN OF CANTON, ALBANY TURNPIKE, FROM LOVELY STREET EASTERLY TO SIMSBURY-CANTON TOWN LINE", No. 23-15, SH. 3 OF 3, SCALE: 1" = 40', DATED: MAY 10, 1991.

**LEGEND**

<ul style="list-style-type: none"> <li>□ C.H.D. Monument</li> <li>● Mon.</li> <li>● Iron Pin to be Set</li> <li>● Conc. Monument to be Set</li> <li>○ I. Pipe</li> <li>○ Iron Pin</li> <li>○ D.H. Drill Hole</li> <li>○ Pile of Stones</li> <li>○ Light Post</li> <li>○ Found</li> <li>○ N/F Now or Formerly</li> <li>— Property Line</li> <li>— Property Line (adjoining)</li> <li>— Building Setback Line</li> <li>— Easement Line</li> <li>— Edge of water</li> <li>— FEMA Flood Zone</li> <li>— Base Flood Elevation</li> <li>— Existing Spot Elevation</li> </ul>	<ul style="list-style-type: none"> <li>— Gas gate valve</li> <li>— Water meter</li> <li>— Hydrant</li> <li>— Water main (existing)</li> <li>— Water service lateral</li> <li>— Gas Main (existing)</li> <li>— Sanitary Sewer Main (existing)</li> <li>— Electrical Line (existing)</li> <li>— Sanitary Manhole</li> <li>— Drain Manhole</li> <li>— Chain Link or Split Rail Fence</li> <li>— Metal/Wire Fence</li> <li>— Wooden or Vinyl Fence</li> <li>— Utility Pole</li> <li>— INV: Invert Elevation of Pipe</li> <li>— Existing Catch Basin/Pipe</li> <li>— Building (existing)</li> </ul>	<ul style="list-style-type: none"> <li>— Evergreen Tree</li> <li>— Deciduous Tree</li> <li>— Swamp or Wetlands</li> <li>— Tree Line</li> <li>— Watercourse</li> <li>— Existing Contours</li> <li>— R.C.P. Reinforced Concrete Pipe</li> <li>— C.M.P. Corrugated Metal Pipe</li> <li>— O.P.T. Deep Test Pit Location</li> <li>— TP 100</li> <li>— Stone Retaining Wall</li> <li>— Retaining Wall</li> <li>— Stone Wall</li> <li>— Wetland Limit</li> <li>— Wetland Flag Number</li> <li>— Wetland Setback</li> <li>— Benchmark</li> <li>— Well (Existing)</li> <li>— Fence Post</li> <li>— O.F.P.</li> </ul>
--	--	---

No.	Date	REVISION DESCRIPTION

SCALE: 1"=60'

**ACCURATE LAND SURVEYING, LLC**  
15 RESEARCH DRIVE WOODBRIDGE, CT 06625  
501 MAIN STREET MONROE, CT 06468  
TEL: 203.881.8145 TEL: 203.880.5455

**PROPERTY SURVEY**  
OF  
**9-15 ALBANY TURNPIKE**  
CANTON, CONNECTICUT

PREPARED FOR  
9-15 ALBANY TURNPIKE, LLC

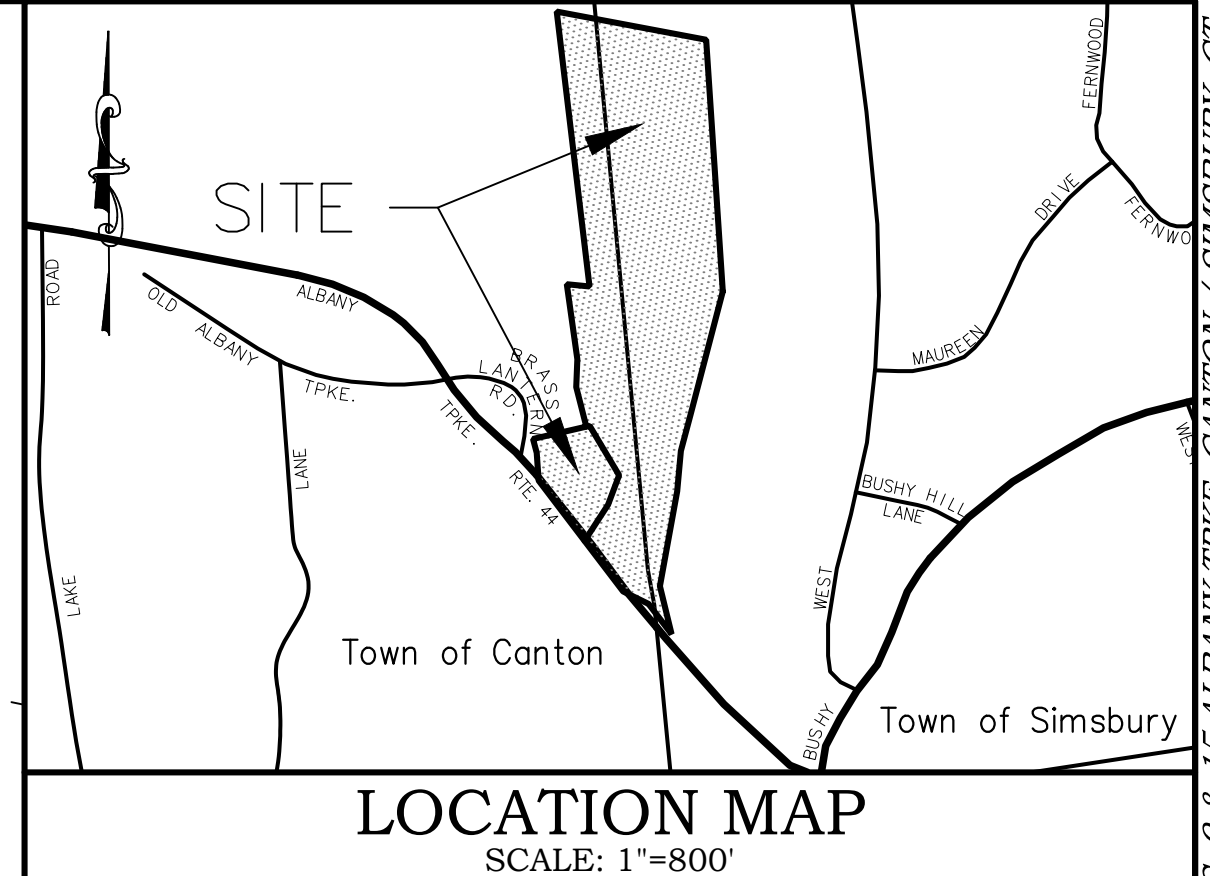
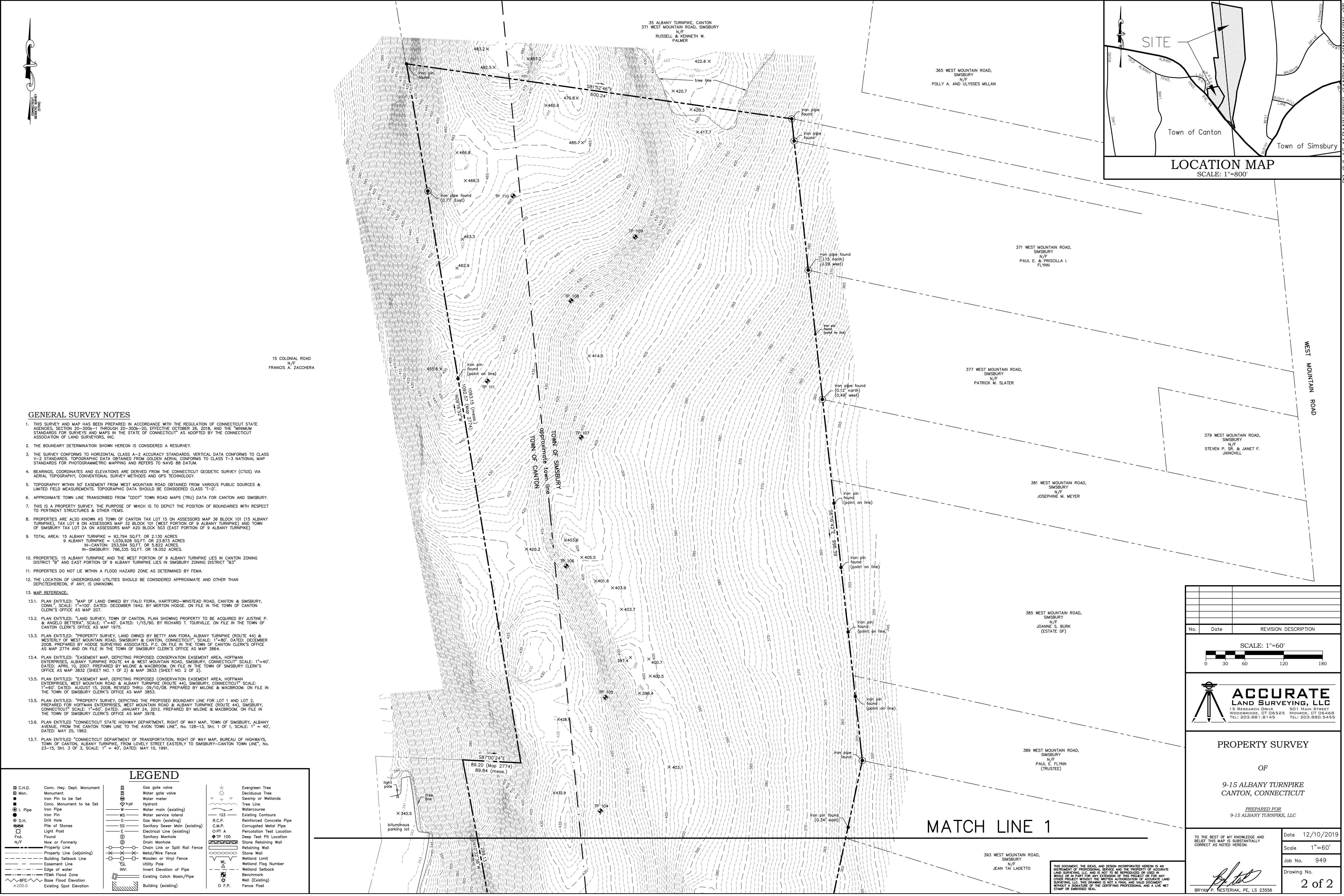
TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

Date 12/10/2019  
Scale 1"=60'  
Job No. 949  
Drawing No. 1 of 2

BRYAN P. NESTERAK, PE, LS 23556

THIS DOCUMENT, THE SEAL, AND DESIGN INCORPORATED HEREON IS AN INSTRUMENT OF PROFESSIONAL SERVICE AND THE PROPERTY OF ACCURATE LAND SURVEYING, LLC AND IS NOT TO BE REPRODUCED OR USED IN WHOLE OR IN PART FOR ANY EXTENSION OF THIS PROJECT OR FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF ACCURATE LAND SURVEYING, LLC. THIS DRAWING IS NOT A FINAL AND VALID DOCUMENT WITHOUT A SIGNATURE OF THE CERTIFIED PROFESSIONAL AND A LIVE WET STAMP OR EMBOSSED SEAL.

PS: 9 & 15 ALBANY TPKE, CANTON / SIMSBURY, CT.



**GENERAL SURVEY NOTES**

- THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH THE REGULATION OF CONNECTICUT STATE AGENCIES, SECTION 20-300b-1 THROUGH 20-300b-20, EFFECTIVE OCTOBER 26, 2016, AND THE "MINIMUM STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC.
- THE BOUNDARY DETERMINATION SHOWN HEREON IS CONSIDERED A RESURVEY.
- THE SURVEY CONFORMS TO HORIZONTAL CLASS A-2 ACCURACY STANDARDS. VERTICAL DATA CONFORMS TO CLASS V-2 STANDARDS. TOPOGRAPHIC DATA OBTAINED FROM GOLDEN AERIAL CONFORMS TO CLASS T-3 NATIONAL STANDARDS FOR PHOTOGAMMETRIC MAPPING AND REFERS TO NAVD 88 DATUM.
- BEARINGS, COORDINATES AND ELEVATIONS ARE DERIVED FROM THE CONNECTICUT GEODETIC SURVEY (CTGS) VIA AERIAL TOPOGRAPHY, CONVENTIONAL SURVEY METHODS AND GPS TECHNOLOGY.
- TOPOGRAPHY WITHIN 50' EASEMENT FROM WEST MOUNTAIN ROAD OBTAINED FROM VARIOUS PUBLIC SOURCES & LIMITED FIELD MEASUREMENTS. TOPOGRAPHIC DATA SHOULD BE CONSIDERED CLASS "T-D".
- APPROXIMATE TOWN LINE TRANSCRIBED FROM "CDOT" TOWN ROAD MAPS (TRU) DATA FOR CANTON AND SIMSBURY.
- THIS IS A PROPERTY SURVEY, THE PURPOSE OF WHICH IS TO DEPICT THE POSITION OF BOUNDARIES WITH RESPECT TO PERTINENT STRUCTURES & OTHER ITEMS.
- PROPERTIES ARE ALSO KNOWN AS TOWN OF CANTON TAX LOT 15 ON ASSESSORS MAP 36 BLOCK 101 (15 ALBANY TURNPIKE), TAX LOT 9 ON ASSESSORS MAP 32 BLOCK 101 (WEST PORTION OF 9 ALBANY TURNPIKE) AND TOWN OF SIMSBURY TAX LOT 2A ON ASSESSORS MAP A20 BLOCK 503 (EAST PORTION OF 9 ALBANY TURNPIKE)
- TOTAL AREA: 15 ALBANY TURNPIKE = 92,794 SQ.FT. OR 2.130 ACRES  
9 ALBANY TURNPIKE = 1,039,928 SQ.FT. OR 23.873 ACRES  
IN-CANTON: 253,594 SQ.FT. OR 5.822 ACRES  
IN-SIMSBURY: 786,335 SQ.FT. OR 18.052 ACRES.
- PROPERTIES: 15 ALBANY TURNPIKE AND THE WEST PORTION OF 9 ALBANY TURNPIKE LIES IN CANTON ZONING DISTRICT "B" AND EAST PORTION OF 9 ALBANY TURNPIKE LIES IN SIMSBURY ZONING DISTRICT "B3"
- PROPERTIES DO NOT LIE WITHIN A FLOOD HAZARD ZONE AS DETERMINED BY FEMA.
- THE LOCATION OF UNDERGROUND UTILITIES SHOULD BE CONSIDERED APPROXIMATE AND OTHER THAN DEPICTED HEREON, IF ANY, IS UNKNOWN.
- MAP REFERENCE:
- PLAN ENTITLED: "MAP OF LAND OWNED BY ITALO FLORA, HARTFORD-WINSTEAD ROAD, CANTON & SIMSBURY, CONN.", SCALE: 1"=100' DATED: DECEMBER 1942, BY MERTON HODGE, ON FILE IN THE TOWN OF CANTON CLERK'S OFFICE AS MAP 207.
- PLAN ENTITLED: "LAND SURVEY, TOWN OF CANTON, PLAN SHOWING PROPERTY TO BE ACQUIRED BY JUSTINE P. & ANGELO BETERA", SCALE: 1"=40', DATED: 1/15/90, BY RICHARD T. TOURVILLE, ON FILE IN THE TOWN OF CANTON CLERK'S OFFICE AS MAP 1975.
- PLAN ENTITLED: "PROPERTY SURVEY, LAND OWNED BY BETTY ANN FLORA, ALBANY TURNPIKE (ROUTE 44) & WESTERLY OF WEST MOUNTAIN ROAD, SIMSBURY & CANTON, CONNECTICUT, SCALE: 1"=80', DATED: DECEMBER 2008, PREPARED BY HODGE SURVEYING ASSOCIATES, P.C. ON FILE IN THE TOWN OF CANTON CLERK'S OFFICE AS MAP 2774 AND ON FILE IN THE TOWN OF SIMSBURY CLERK'S OFFICE AS MAP 3864.
- PLAN ENTITLED: "EASEMENT MAP, DEPICTING PROPOSED CONSERVATION EASEMENT AREA, HOFFMAN ENTERPRISES, ALBANY TURNPIKE, ROUTE 44 & WEST MOUNTAIN ROAD, SIMSBURY, CONNECTICUT, SCALE: 1"=40', DATED: APRIL 10, 2007, PREPARED BY MILONE & MACBROOM, ON FILE IN THE TOWN OF SIMSBURY CLERK'S OFFICE AS MAP 3832 (SHEET NO. 1 OF 2) & MAP 3833 (SHEET NO. 2 OF 2).
- PLAN ENTITLED: "EASEMENT MAP, DEPICTING PROPOSED CONSERVATION EASEMENT AREA, HOFFMAN ENTERPRISES, WEST MOUNTAIN ROAD & ALBANY TURNPIKE (ROUTE 44), SIMSBURY, CONNECTICUT, SCALE: 1"=60', DATED: AUGUST 15, 2008, REVISED THRU: 09/10/08, PREPARED BY MILONE & MACBROOM, ON FILE IN THE TOWN OF SIMSBURY CLERK'S OFFICE AS MAP 3853.
- PLAN ENTITLED: "PROPERTY SURVEY, DEPICTING THE PROPOSED BOUNDARY LINE FOR LOT 1 AND LOT 2, PREPARED FOR HOFFMAN ENTERPRISES, WEST MOUNTAIN ROAD & ALBANY TURNPIKE (ROUTE 44), SIMSBURY, CONNECTICUT, SCALE: 1"=60', DATED: JANUARY 24, 2012, PREPARED BY MILONE & MACBROOM, ON FILE IN THE TOWN OF SIMSBURY CLERK'S OFFICE AS MAP 3978.
- PLAN ENTITLED "CONNECTICUT STATE HIGHWAY DEPARTMENT, RIGHT OF WAY MAP, TOWN OF SIMSBURY, ALBANY AVENUE, FROM THE CANTON TOWN LINE TO THE AVON TOWN LINE", No. 128-13, Sht. 1 of 1, SCALE: 1" = 40', DATED: MAY 25, 1962.
- PLAN ENTITLED "CONNECTICUT DEPARTMENT OF TRANSPORTATION, RIGHT OF WAY MAP, BUREAU OF HIGHWAYS, TOWN OF CANTON, ALBANY TURNPIKE, FROM LOVELY STREET EASTERLY TO SIMSBURY-CANTON TOWN LINE", No. 23-15, Sht. 3 of 3, SCALE: 1" = 40', DATED: MAY 10, 1991.

**LEGEND**

<ul style="list-style-type: none"> <li>Conn. Hwy. Dept. Monument</li> <li>Mon.</li> <li>Mon. to be Set</li> <li>Conc. Monument to be Set</li> <li>Iron Pipe</li> <li>Iron Pin</li> <li>D.H.</li> <li>Pile of Stones</li> <li>Light Post</li> <li>Fnd.</li> <li>N/F</li> <li>Property Line</li> <li>Property Line (adjoining)</li> <li>Building Setback Line</li> <li>Easement Line</li> <li>Edge of water</li> <li>FEMA Flood Zone</li> <li>Rose Flood Elevation</li> <li>Existing Spot Elevation</li> </ul>	<ul style="list-style-type: none"> <li>Gas gate valve</li> <li>Water gate valve</li> <li>Water meter</li> <li>Hydrant</li> <li>Water main (existing)</li> <li>Water service lateral</li> <li>Gas Main (existing)</li> <li>Sanitary Sewer Main (existing)</li> <li>Electrical Line (existing)</li> <li>Sanitary Manhole</li> <li>Drain Manhole</li> <li>Chain Link or Split Rail Fence</li> <li>Metal/Wire Fence</li> <li>Wooden or Vinyl Fence</li> <li>Utility Pole</li> <li>Invt. Elevation of Pipe</li> <li>Existing Catch Basin/Pipe</li> <li>Building (existing)</li> </ul>	<ul style="list-style-type: none"> <li>Evergreen Tree</li> <li>Deciduous Tree</li> <li>Swamp or Wetlands</li> <li>Tree Line</li> <li>Watercourse</li> <li>Existing Contours</li> <li>R.C.P.</li> <li>C.M.P.</li> <li>O.P.T.A.</li> <li>Deep Test Pit Location</li> <li>Stone Retaining Wall</li> <li>Retaining Wall</li> <li>Stone Wall</li> <li>Wetland Limit</li> <li>Wetland Flag Number</li> <li>Wetland Setback</li> <li>Benchmark</li> <li>Well (Existing)</li> <li>Fence Post</li> </ul>
--	--	---

**MATCH LINE 1**

No.	Date	REVISION DESCRIPTION

SCALE: 1"=60'

**ACCURATE LAND SURVEYING, LLC**  
 15 RESEARCH DRIVE 501 MAIN STREET  
 WOODBRIDGE, CT 06429 HONOLULU, HI 96815  
 TEL: 203.681.8145 TEL: 203.880.5495

**PROPERTY SURVEY**

OF

**9-15 ALBANY TURNPIKE**  
**CANTON, CONNECTICUT**

PREPARED FOR  
**9-15 ALBANY TURNPIKE, LLC**

TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

Date 12/10/2019  
 Scale 1"=60'  
 Job No. 949  
 Drawing No. 2 of 2

BRYAN P. NESTERIAK, PE, LS 23556

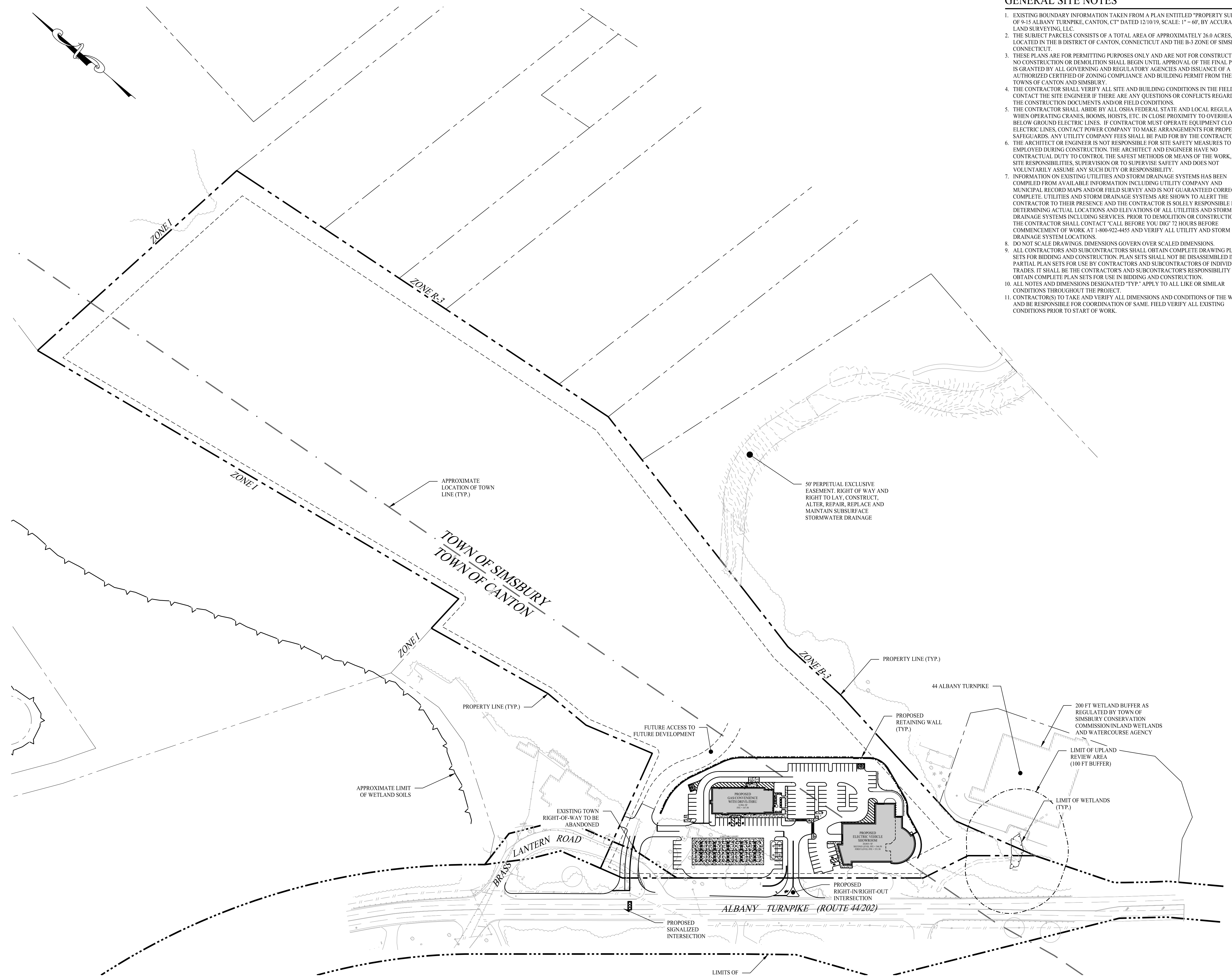
THIS DOCUMENT, THE IDEAS AND DESIGN INCORPORATED HEREON IS AN INSTRUMENT OF PROFESSIONAL SERVICE AND THE PROPERTY OF ACCURATE LAND SURVEYING, LLC AND IS NOT TO BE REPRODUCED OR USED IN WHOLE OR IN PART FOR ANY EXTENSION OF THIS PROJECT OR FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF ACCURATE LAND SURVEYING, LLC. THIS DRAWING IS NOT A FINAL AND VALID DOCUMENT WITHOUT A SIGNATURE OF THE CERTIFYING PROFESSIONAL, AND A LINE, NET STAMP OR EMBOSSED SEAL.

**GENERAL SITE NOTES**

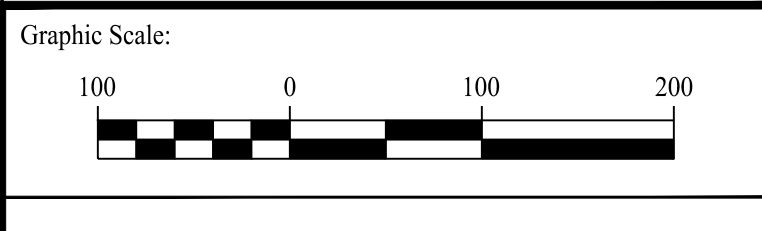
- EXISTING BOUNDARY INFORMATION TAKEN FROM A PLAN ENTITLED "PROPERTY SURVEY OF 9-15 ALBANY TURNPIKE, CANTON, CT" DATED 12/10/19, SCALE: 1" = 60', BY ACCURATE LAND SURVEYING, LLC.
- THE SUBJECT PARCELS CONSISTS OF A TOTAL AREA OF APPROXIMATELY 26.0 ACRES, LOCATED IN THE B DISTRICT OF CANTON, CONNECTICUT AND THE B-3 ZONE OF SIMSBURY, CONNECTICUT.
- THESE PLANS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT FOR CONSTRUCTION. NO CONSTRUCTION OR DEMOLITION SHALL BEGIN UNTIL APPROVAL OF THE FINAL PLANS IS GRANTED BY ALL GOVERNING AND REGULATORY AGENCIES AND ISSUANCE OF A DULY AUTHORIZED CERTIFIED ZONING COMPLIANCE AND BUILDING PERMIT FROM THE TOWNS OF CANTON AND SIMSBURY.
- THE CONTRACTOR SHALL VERIFY ALL SITE AND BUILDING CONDITIONS IN THE FIELD AND CONTACT THE SITE ENGINEER IF THERE ARE ANY QUESTIONS OR CONFLICTS REGARDING THE CONSTRUCTION DOCUMENTS AND/OR FIELD CONDITIONS.
- THE CONTRACTOR SHALL ABIDE BY ALL OSHA FEDERAL STATE AND LOCAL REGULATIONS WHEN OPERATING CRANES, BOOMS, HOISTS, ETC. IN CLOSE PROXIMITY TO OVERHEAD AND BELOW GROUND ELECTRIC LINES. IF CONTRACTOR MUST OPERATE EQUIPMENT CLOSE TO ELECTRIC LINES, CONTACT POWER COMPANY TO MAKE ARRANGEMENTS FOR PROPER SAFEGUARDS. ANY UTILITY COMPANY FEES SHALL BE PAID FOR BY THE CONTRACTOR.
- THE ARCHITECT OR ENGINEER IS NOT RESPONSIBLE FOR SITE SAFETY MEASURES TO BE EMPLOYED DURING CONSTRUCTION. THE ARCHITECT AND ENGINEER HAVE NO CONTRACTUAL DUTY TO CONTROL THE SAFEST METHODS OR MEANS OF THE WORK, JOB SITE RESPONSIBILITIES, SUPERVISION OR TO SUPERVISE SAFETY AND DOES NOT VOLUNTARILY ASSUME ANY SUCH DUTY OR RESPONSIBILITY.
- INFORMATION ON EXISTING UTILITIES AND STORM DRAINAGE SYSTEMS HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING UTILITY COMPANY AND MUNICIPAL RECORD MAPS AND/OR FIELD SURVEY AND IS NOT GUARANTEED CORRECT OR COMPLETE. UTILITIES AND STORM DRAINAGE SYSTEMS ARE SHOWN TO ALERT THE CONTRACTOR TO THEIR PRESENCE AND THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND STORM DRAINAGE SYSTEMS INCLUDING SERVICES. PRIOR TO DEMOLITION OR CONSTRUCTION, THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" 72 HOURS BEFORE COMMENCEMENT OF WORK AT 1-800-922-4455 AND VERIFY ALL UTILITY AND STORM DRAINAGE SYSTEM LOCATIONS.
- DO NOT SCALE DRAWINGS. DIMENSIONS GOVERN OVER SCALED DIMENSIONS.
- ALL CONTRACTORS AND SUBCONTRACTORS SHALL OBTAIN COMPLETE DRAWING PLAN SETS FOR BIDDING AND CONSTRUCTION. PLAN SETS SHALL NOT BE DISASSEMBLED INTO PARTIAL PLAN SETS FOR USE BY CONTRACTORS AND SUBCONTRACTORS OF INDIVIDUAL TRADES. IT SHALL BE THE CONTRACTOR'S AND SUBCONTRACTOR'S RESPONSIBILITY TO OBTAIN COMPLETE PLAN SETS FOR USE IN BIDDING AND CONSTRUCTION.
- ALL NOTES AND DIMENSIONS DESIGNATED "TYP." APPLY TO ALL LIKE OR SIMILAR CONDITIONS THROUGHOUT THE PROJECT.
- CONTRACTOR(S) TO TAKE AND VERIFY ALL DIMENSIONS AND CONDITIONS OF THE WORK AND BE RESPONSIBLE FOR COORDINATION OF SAME. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO START OF WORK.

**LEGEND**

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJOINING LOT LINE
- ZONE LINE
- TOWN BOUNDARY
- BUILDING SETBACK
- EXISTING BUILDING LIMITS
- PROPOSED BUILDING LIMITS
- PROPOSED BUILDING HATCH
- BUILDING OVERHANG LINE / CANOPY
- BITUMINOUS CONCRETE CURB
- CONCRETE SIDEWALK / PAVEMENT
- RETAINING WALL
- SIDEWALK LIMITS
- PAVEMENT STRIPING - YELLOW
- PAVEMENT STRIPING - WHITE STANDARD AND ADA PARKING SPACES
- PAVEMENT ARROW MARKINGS
- DUMPSTER / TRASH RECEPTACLE
- TRAFFIC SIGN
- LIMIT OF WETLANDS
- UPLAND REVIEW AREA - 100 FT BUFFER
- UPLAND REVIEW AREA - 200 FT BUFFER
- TRAFFIC SIGNAL
- GATE



Rev. #:	Date	Description



**SOLLI ENGINEERING**  
 501 Main Street, Monroe, CT 06468 | T: (203) 880-5455 | F: (203) 880-9695

Drawn By:	AWC
Checked By:	CJB
Approved By:	KMS
Project #:	1904501
Plan Date:	08/11/20
Scale:	1" = 100'

Kevin Solli, P.E.  
CT 25759

Project:  
**9-15 ALBANY TURNPIKE**  
SIMSBURY & CANTON, CONNECTICUT

Sheet Title:	Sheet #:
<b>OVERALL SITE LAYOUT PLAN</b>	<b>2.10</b>

Sep 04, 2020 - 5:46pm Peter  
 X:\SE Files\Project Data\2019\1904501 - Albany Turnpike, Simsbury\Coord Data\1904501-2.10.dwg

**SIGN LEGEND**

<b>A</b>		<b>B</b>		<b>C</b>		<b>D</b>	
SIZES (IN)	CONN DOT #	SUPPORTS	SIZES (IN)	CONN DOT #	SUPPORTS	SIZES (IN)	CONN DOT #
30"	31-0552	1	30"x30"	31-1119	1	12"x18" 12"x6"	31-0629P 31-0648
<b>E</b>		<b>F</b>		<b>G</b>			
SIZES (IN)	CONN DOT #	SUPPORTS	SIZES (IN)	CONN DOT #	SUPPORTS	SIZES (IN)	CONN DOT #
42"x30"	31-0268	2	42"x30"	31-0370	2	36"x30"	31-0219

**LEGEND**

	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJOINING LOT LINE
	BUILDING SETBACK
	EXISTING BUILDING LIMITS
	PROPOSED BUILDING LIMITS
	PROPOSED BUILDING HATCH
	BUILDING OVERHANG LINE / CANOPY
	SAWCUT PAVEMENT LINE
	BITUMINOUS CONCRETE CURB
	FUTURE DRIVEWAY LIMITS
	CONCRETE SIDEWALK / PAVEMENT
	RETAINING WALL
	SIDEWALK LIMITS
	PAVEMENT STRIPING - YELLOW
	PAVEMENT STRIPING - WHITE
	STANDARD AND ADA PARKING SPACES
	PAVEMENT ARROW MARKINGS
	PARKING SPACE COUNT
	DUMPSTER / TRASH RECEPTACLE
	TRAFFIC SIGN DESIGNATION
	LIMIT OF WETLANDS
	UPLAND REVIEW AREA - 100 FT BUFFER
	UPLAND REVIEW AREA - 200 FT BUFFER

**SITE PLAN NOTES**

- THESE PLANS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT FOR CONSTRUCTION.
- THE OWNER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY ZONING PERMITS REQUIRED BY TOWN(S) OF CANTON AND SIMSBURY PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL POST ALL BONDS, PAY ALL FEES, PROVIDE PROOF OF INSURANCE AND PROVIDE TRAFFIC CONTROL NECESSARY FOR THIS WORK.
- THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS IN THE FIELD AND CONTACT THE CIVIL ENGINEER IF THERE ARE ANY QUESTIONS OR CONFLICTS REGARDING THE CONSTRUCTION DOCUMENTS AND/OR FIELD CONDITIONS.
- SHOULD ANY UNCHARTED OR INCORRECTLY CHARTED EXISTING PIPING OR OTHER UTILITY BE UNCOVERED DURING EXCAVATION, CONSULT THE CIVIL ENGINEER IMMEDIATELY FOR DIRECTIONS BEFORE PROCEEDING FURTHER WITH WORK.
- EXISTING UTILITIES SERVING FACILITIES ARE TO REMAIN AND BE PROTECTED DURING CONSTRUCTION. ALL UTILITIES SHALL BE LEFT UNINTERRUPTED DURING OCCUPIED HOURS EXCEPT WHEN SUCH INTERRUPTIONS HAVE BEEN AUTHORIZED IN WRITING BY THE OWNER AND THE LOCAL MUNICIPALITIES. INTERRUPTIONS SHALL ONLY OCCUR AFTER ACCEPTABLE TEMPORARY SERVICE HAS BEEN PROVIDED.
- ALL SITE DIMENSIONS ARE REFERENCED TO THE FACE OF CURBS OR EDGE OF PAVING AS APPLICABLE UNLESS OTHERWISE NOTED. ALL BUILDING DIMENSIONS ARE REFERENCED TO THE OUTSIDE FACE OF THE STRUCTURE.
- THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC DEVICES FOR PROTECTION OF VEHICLES AND PEDESTRIANS CONSISTING OF DRUMS, BARRIERS, SIGNS, LIGHTS, FENCES, TRAFFIC CONTROLLERS AND UNIFORMED TRAFFIC OFFICERS AS REQUIRED OR AS ORDERED BY THE ENGINEER OR AS REQUIRED BY THE LOCAL GOVERNING AUTHORITIES OR AS REQUIRED BY PERMIT STIPULATIONS.
- REFER TO DETAIL SHEETS FOR PAVEMENT, CURBING, AND SIDEWALK INFORMATION.
- THE CONTRACTOR SHALL ABIDE BY ALL OSHA FEDERAL STATE AND LOCAL REGULATIONS WHEN OPERATING CRANES, BOOMS, HOISTS, ETC. IN CLOSE PROXIMITY TO OVERHEAD ELECTRIC LINES. IF CONTRACTOR MUST OPERATE EQUIPMENT CLOSE TO ELECTRIC LINES, CONTACT POWER COMPANY TO MAKE ARRANGEMENTS FOR PROPER SAFEGUARDS. ANY UTILITY COMPANY FEES SHALL BE PAID FOR BY THE CONTRACTOR.
- THE CONTRACTOR SHALL SUBMIT A SHOP DRAWING OF THE PAVEMENT MARKING PAINT MIXTURE PRIOR TO STRIPING.
- PAVEMENT MARKING KEY:
  - 4" SWL 4" SOLID WHITE LINE
  - 4" DYL 4" DOUBLE YELLOW LINE
- PARKING SPACES SHALL BE STRIPED WITH 4" SWL. HATCHED AREA SHALL BE STRIPED WITH 4" SWL AT A 45° ANGLE. 2" ON CENTER. HATCHING, SYMBOLS, AND STRIPING FOR HANDICAPPED SPACES SHALL BE PAINTED BLUE. OTHER MARKINGS SHALL BE PAINTED WHITE OR AS NOTED.
- THE CONTRACTOR SHALL RESTORE ANY DRAINAGE STRUCTURE, PIPE, UTILITY, PAVEMENT, CURBS, SIDEWALKS, LANDSCAPED AREAS OR SIGNAGE DISTURBED DURING CONSTRUCTION TO THEIR ORIGINAL CONDITION OR BETTER, AS APPROVED BY THE CIVIL ENGINEER.
- THE ENGINEER IS NOT RESPONSIBLE FOR SITE SAFETY MEASURES TO BE EMPLOYED DURING CONSTRUCTION. THE ENGINEER HAS NO CONTRACTUAL DUTY TO CONTROL THE SAFEST METHODS OR MEANS OF THE WORK, JOB SITE RESPONSIBILITIES, SUPERVISION OR TO SUPERVISE SAFETY AND DOES NOT VOLUNTARILY ASSUME ANY SUCH DUTY OR RESPONSIBILITY.
- INFORMATION ON EXISTING UTILITIES AND STORM DRAINAGE SYSTEMS HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING UTILITY PROVIDER AND MUNICIPAL RECORD MAPS AND/OR FIELD SURVEY AND IS NOT GUARANTEED CORRECT OR COMPLETE. UTILITIES AND STORM DRAINAGE SYSTEMS ARE SHOWN TO ALERT THE CONTRACTOR TO THEIR PRESENCE AND THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND STORM DRAINAGE SYSTEMS INCLUDING SERVICES. PRIOR TO DEMOLITION OR CONSTRUCTION, THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" 72 HOURS BEFORE COMMENCEMENT OF WORK AND VERIFY ALL UTILITY AND STORM DRAINAGE SYSTEM LOCATIONS.
- PAVEMENT MARKINGS SHALL BE HOT APPLIED TYPE IN ACCORDANCE WITH CONNECTICUT DOT SPECIFICATIONS, UNLESS WHERE EPOXY RESIN PAVEMENT MARKINGS ARE INDICATED.
- NO CONSTRUCTION OR DEMOLITION SHALL BEGIN UNTIL APPROVAL OF THE FINAL PLANS IS GRANTED BY ALL GOVERNING AND REGULATORY AGENCIES.
- NO PART OF THE PROJECT PARCEL IS LOCATED WITHIN ANY FEMA DESIGNATED FLOOD HAZARD AREAS.
- ALL NOTES AND DIMENSIONS DESIGNATED "TYPICAL" APPLY TO ALL LIKE OR SIMILAR CONDITIONS THROUGHOUT THE PROJECT.
- EXISTING BOUNDARY INFORMATION TAKEN FROM A PLAN ENTITLED "PROPERTY SURVEY OF 9-15 ALBANY TURNPIKE, CANTON, CT DATED 12/10/19, SCALE: 1" = 60', BY ACCURATE LAND SURVEYING, LLC.

**ZONING COMPLIANCE TABLE - CANTON**

ZONE: CANTON BUSINESS DISTRICT (B)

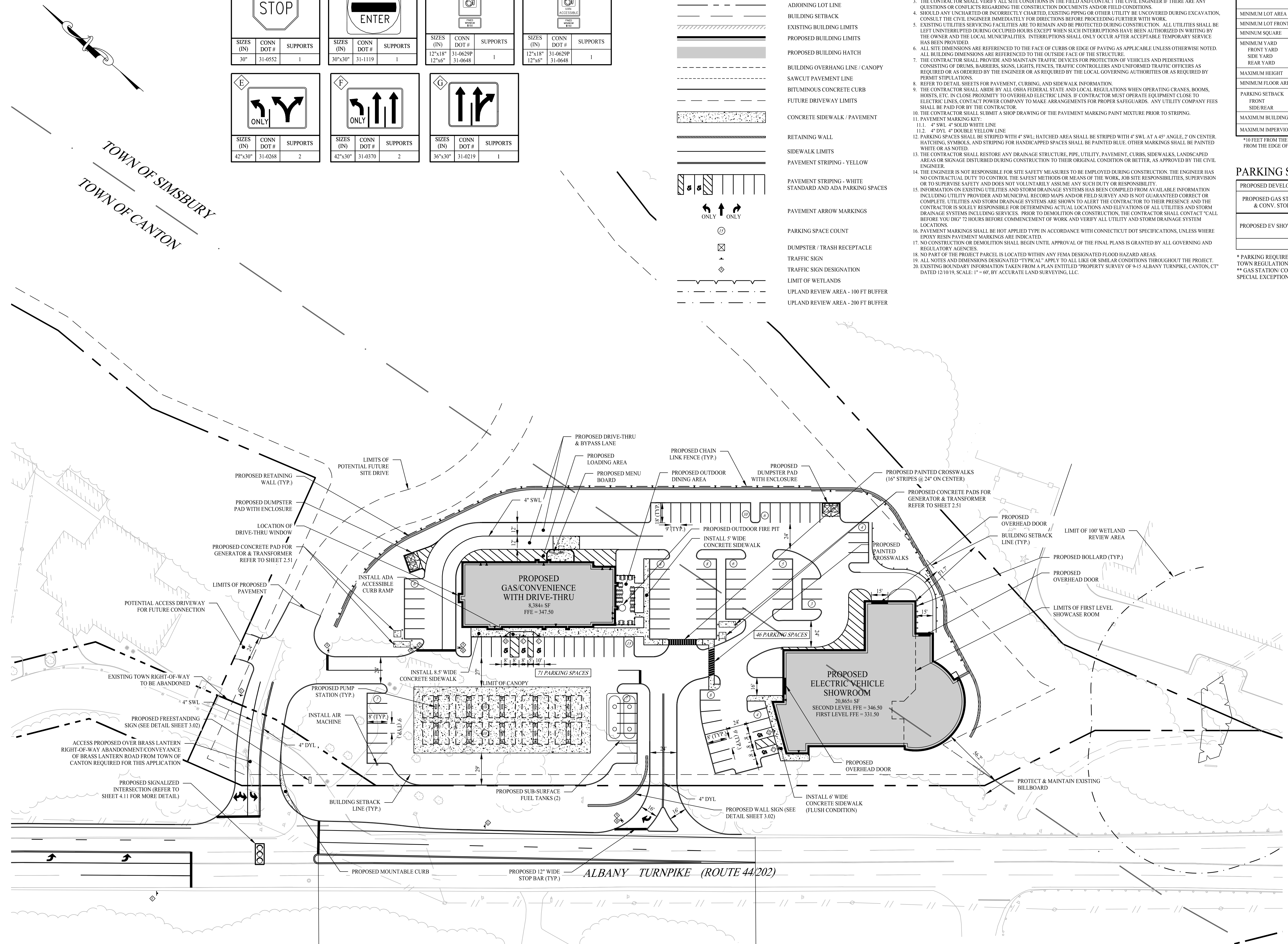
ZONING REQUIREMENT	ZONING STANDARD	EXISTING CONDITIONS	PROPOSED CONDITIONS
MINIMUM LOT AREA	30,000 SF	26.0 AC	26.17 AC
MINIMUM LOT FRONTAGE	100 FT	N/A	98.8 FT
MINIMUM SQUARE	90 FT	> 90 FT	> 90 FT
MINIMUM YARD			
FRONT YARD	10 FT*	N/A	11 FT
SIDE YARD	15 FT	N/A	126 FT
REAR YARD	5 FT	N/A	> 1,000 FT
MAXIMUM HEIGHT	2 STORIES/35 FT	N/A	1 STORY   2 STORIES
MINIMUM FLOOR AREA	1,400 S.F.	N/A	8,384 S.F.   20,865 S.F.
PARKING SETBACK			
FRONT	10 FT	N/A	28.5 FT
SIDE/REAR	5 FT	N/A	16 FT
MAXIMUM BUILDING COVERAGE	25%	N/A	2.2%
MAXIMUM IMPERVIOUS COVERAGE	50%	N/A	11%

\*10 FEET FROM THE FRONT PROPERTY LINE WITH A MINIMUM OF 15 FEET FROM THE EDGE OF THE ROADWAY

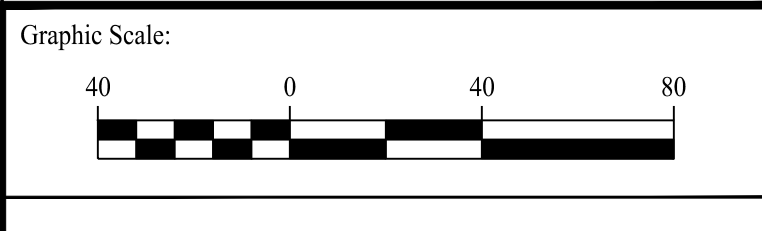
**PARKING SUMMARY - CANTON**

PROPOSED DEVELOPMENT	GROSS FLOOR AREA	REQUIREMENT	REQUIRED	PROPOSED
PROPOSED GAS STATION & CONV. STORE	20 PUMPS & 8,384 SF	8 SPACES / 1,000 SF *	68 **	51 + 20 PUMPS
PROPOSED EV SHOWROOM	20,865 SF (6 SERVICE BAYS & 24 EMPLOYEES)	3 SPACES / SERVICE BAY & 1 SPACE / 2 EMPLOYEES	30	46
<b>TOTAL</b>			<b>98</b>	<b>117</b>

\* PARKING REQUIREMENT TAKEN FROM ITE PARKING GENERATION MANUAL (4TH EDITION), AS TOWN REGULATIONS DO NOT SPECIFY A PARKING REQUIREMENT FOR THIS USE  
 \*\* GAS STATION CONVENIENCE STORE PARKING REQUIREMENT TO BE DETERMINED DURING SPECIAL EXCEPTION PROCESS



Rev. #:	Date	Description
1	09/04/20	Revised Submission Materials



Drawn By:	PSK
Checked By:	PSK
Approved By:	KMS
Project #:	1904501
Plan Date:	08/11/20
Scale:	1" = 40'
	Kevin Solli, P.E. CT 25759

**9-15 ALBANY TURNPIKE**  
 SIMSBURY & CANTON, CONNECTICUT

Sheet Title:	Sheet #:
<b>SITE LAYOUT PLAN</b>	<b>2.11</b>

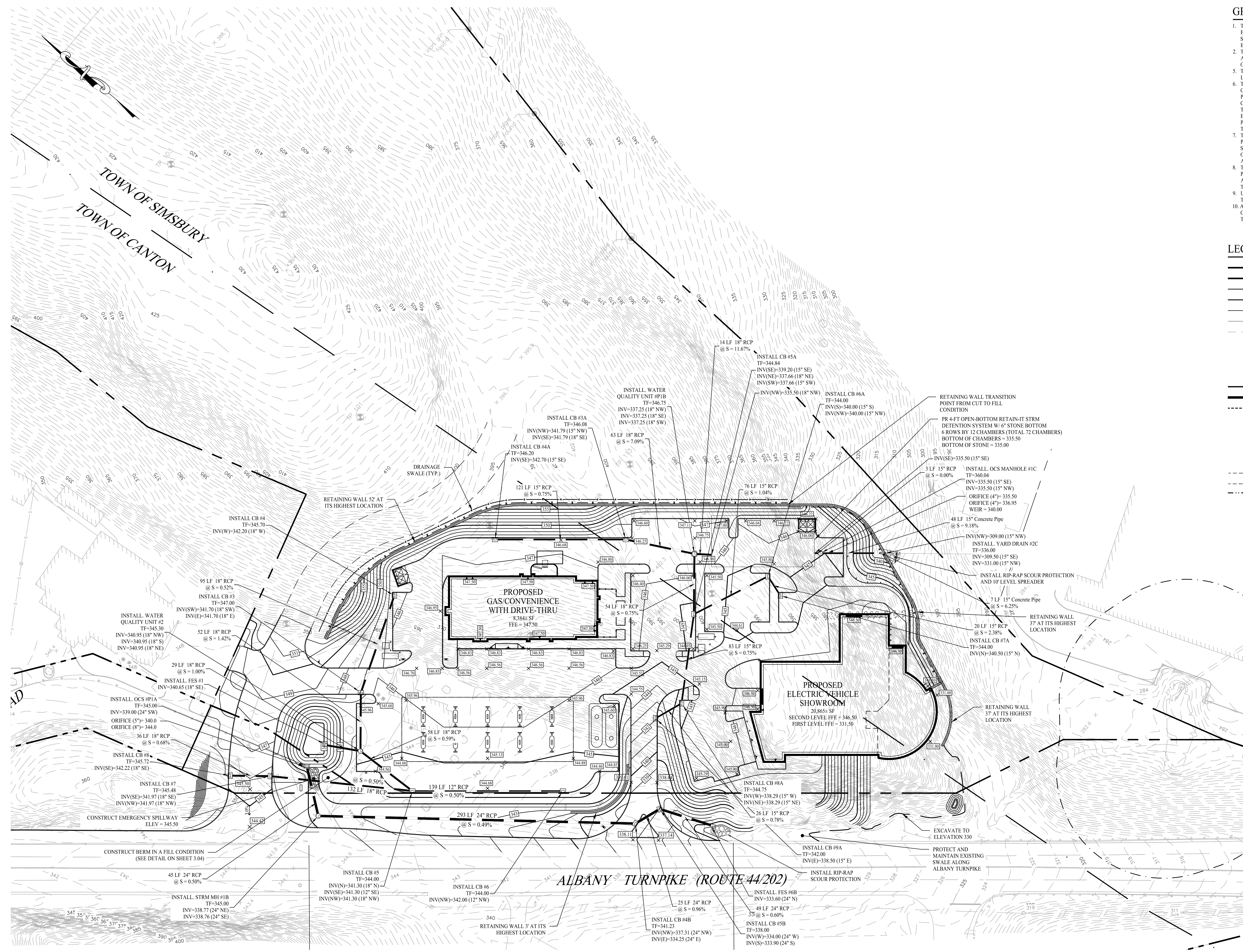


**GRADING & DRAINAGE NOTES**

- THIS PLAN IS FOR PERMITTING USE ONLY AND IS NOT FOR CONSTRUCTION. EXISTING SITE CONDITIONS TAKEN FROM A SURVEY PLAN ENTITLED "PROPERTY SURVEY OF 9-15 ALBANY TURNPIKE, CANTON, CT" DATED 12/10/19, SCALE: 1"=60', BY ACCURATE LAND SURVEYING, LLC.
- THE CONTRACTOR SHALL PRESERVE EXISTING VEGETATION WHERE POSSIBLE AND/OR AS NOTED ON DRAWINGS. REFER TO EROSION CONTROL PLAN FOR LIMIT OF DISTURBANCE AND EROSION CONTROL NOTES.
- TOPSOIL SHALL BE STRIPPED AND STOCKPILED ON SITE FOR USE IN FINAL LANDSCAPING.
- THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION PERMITS REQUIRED BY GOVERNMENT AND LOCAL AGENCIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY CONSTRUCTION PERMITS FROM THE TOWNS OF CANTON AND SIMSBURY REQUIRED TO PERFORM ALL WORK, INCLUDING FOR STREET CUTS AND CONNECTIONS TO EXISTING UTILITIES. THE CONTRACTOR SHALL POST ALL BONDS, PAY ALL FEES, PROVIDE PROOF OF INSURANCE AND PROVIDE TRAFFIC CONTROL NECESSARY FOR THIS WORK.
- THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC DEVICES FOR PROTECTION OF VEHICLES AND PEDESTRIANS CONSISTING OF DRUMS, BARRIERS, SIGNS, LIGHTS, FENCES AND UNIFORMED TRAFFIC CONTROLLERS AS REQUIRED, ORDERED BY THE ENGINEER OR REQUIRED BY THE STATE AND LOCAL GOVERNING AUTHORITIES.
- THE CONTRACTOR SHALL COMPACT FILL IN 12" MAXIMUM LIFTS UNDER ALL PARKING, BUILDING, AND DRIVE AREAS TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557 (MODIFIED PROCTOR TEST), OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
- UNDERDRAINS SHALL BE ADDED, IF DETERMINED NECESSARY IN THE FIELD BY THE OWNER GEOTECHNICAL ENGINEER, AFTER SUBGRADE IS ROUGH GRADED.
- ALL DISTURBANCE INCURRED TO TOWN OR STATE PROPERTY DUE TO CONSTRUCTION SHALL BE RESTORED TO ITS PREVIOUS CONDITION OR BETTER, TO THE SATISFACTION OF THE TOWNS OF CANTON AND SIMSBURY AUTHORITIES.

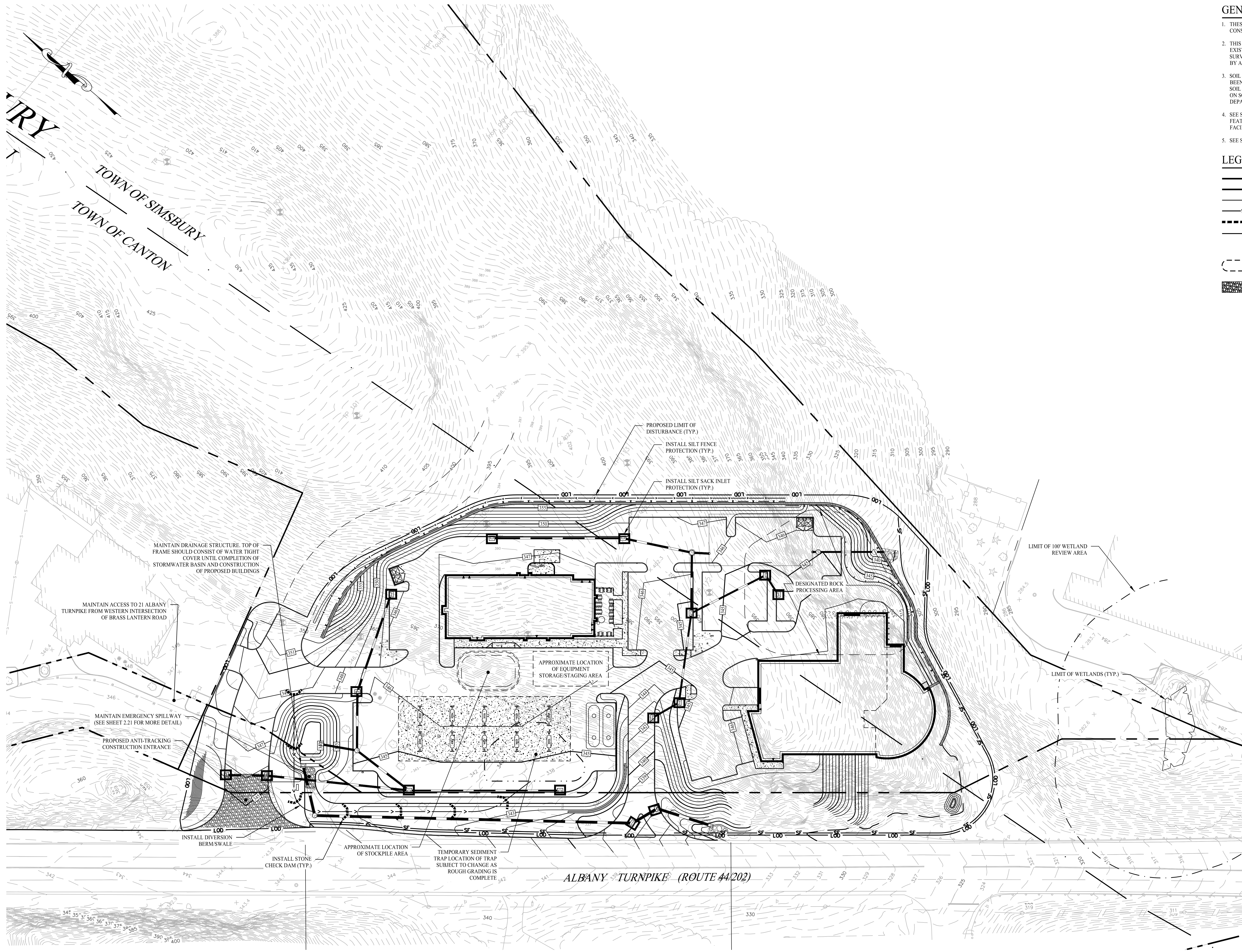
**LEGEND**

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJOINING LOT LINE
- MAJOR CONTOURS
- MINOR CONTOURS
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- CONTOUR LABEL
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- GRADE TO DRAIN
- SWALE
- STORM DRAIN PIPE
- PERFORATED UNDERDRAIN / TRENCH DRAIN
- TYPE "C" CATCH BASIN
- TYPE "CL" CATCH BASIN
- STORM MANHOLE
- WATER QUALITY UNIT
- FLARE END SECTION
- RAMP (SWALES / DRAINAGE BASIN ACCESS)
- WATER ELEVATION WITHIN BASIN
- RIP RAP



09/04/20	Revised Submission Materials
Rev. #:	Date
	Description
Graphical Scale:	
501 Main Street, Monroe, CT 06468   T: (203) 880-5455   F: (203) 880-9695	
Drawn By:	CJB
Checked By:	KMS
Approved By:	KMS
Project #:	1904501
Plan Date:	08/11/20
Scale:	1" = 40'
Kevin Solli, P.E. CT 25759	
<b>9-15 ALBANY TURNPIKE</b> SIMSBURY & CANTON, CONNECTICUT	
Sheet Title:	Sheet #:
GRADING & DRAINAGE PLAN	2.21

Sep 04, 2020 - 5:46pm Peter Albany Turnpike, Simsbury/Canton Data 1904501 - 2.21.dwg



**GENERAL NOTES**

1. THESE PLANS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT FOR CONSTRUCTION.
2. THIS PLAN IS FOR PERMITTING USE ONLY AND IS NOT FOR CONSTRUCTION. EXISTING SITE CONDITIONS TAKEN FROM A SURVEY PLAN ENTITLED "PROPERTY SURVEY OF 9-15 ALBANY TURNPIKE, CANTON, CT" DATED 12/10/19, SCALE: 1" = 60', BY ACCURATE LAND SURVEYING, LLC.
3. SOIL EROSION AND SEDIMENT CONTROL MEASURES DEPICTED HEREON HAVE BEEN DESIGNED IN ACCORDANCE WITH THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL MANUAL, BY THE CONNECTICUT COUNCIL ON SOIL AND WATER CONSERVATION IN COOPERATION WITH THE CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION.
4. SEE SHEET 2.21 FOR DETAILS REGARDING THE PROPOSED GRADING AND DRAINAGE FEATURES, STORMWATER CONVEYANCE SYSTEM AND STORMWATER DETENTION FACILITIES.
5. SEE SHEET 2.41 FOR SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.

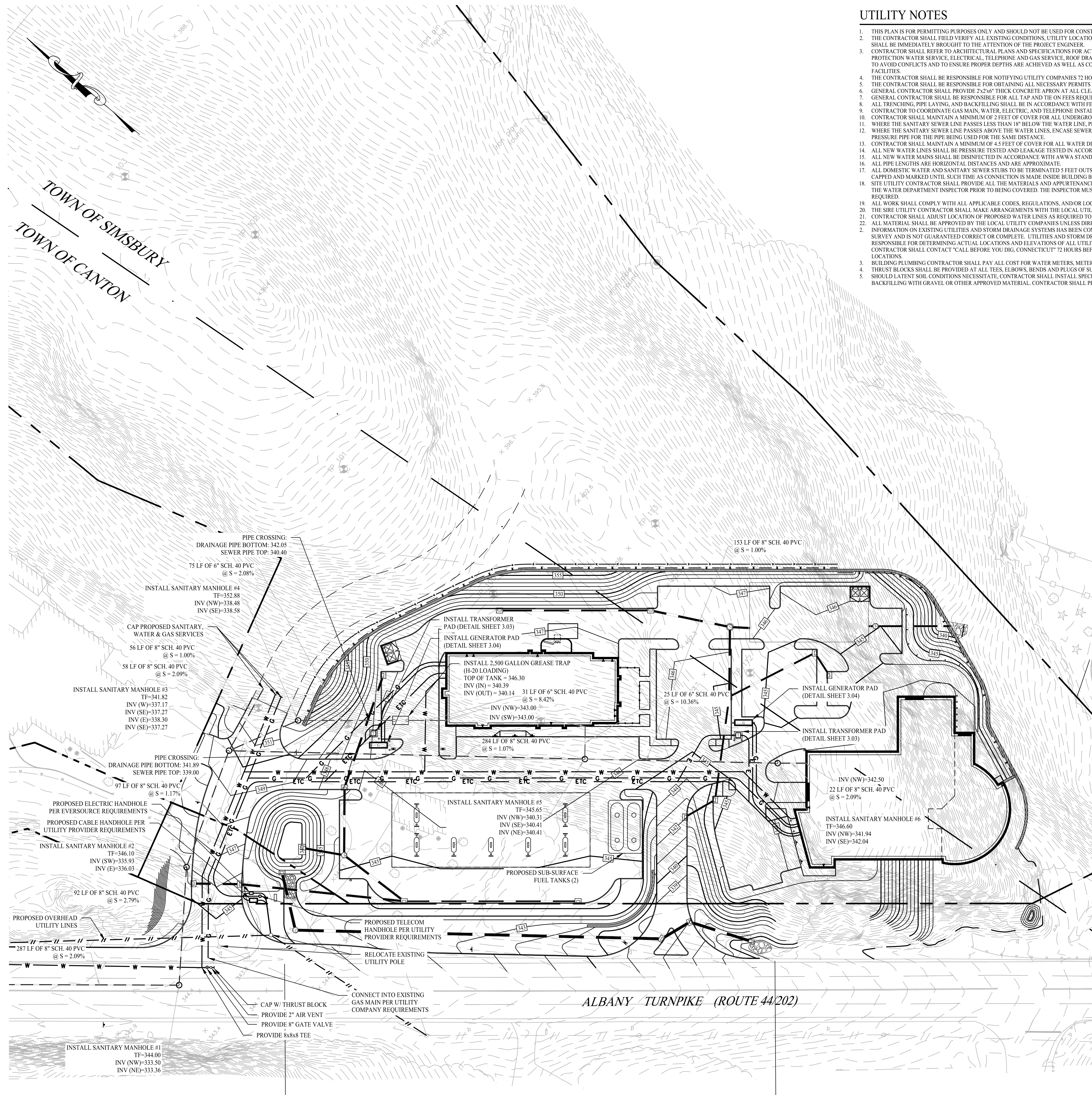
**LEGEND**

	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJOINING LOT LINE
	SILT FENCE PROTECTION
	HAYBALE PROTECTION
	LIMIT OF DISTURBANCE
	SILT SACK INLET PROTECTION
	MATERIAL STOCKPILE AREA
	CONSTRUCTION ENTRANCE
	STONE CHECK DAM

09/04/20 Revised Submission Materials	
Rev. #:	Date Description
Graphic Scale: 	
 501 Main Street, Monroe, CT 06468 T: (203) 880-5455 F: (203) 880-9695	
Drawn By: AWC	Kevin Solli, P.E. CT 25759
Checked By: CJB	
Approved By: KMS	
Project #: 1904501	
Plan Date: 08/11/20	
Scale: 1" = 40'	
Project:	
<b>9-15 ALBANY TURNPIKE</b> SIMSBURY & CANTON, CONNECTICUT	
Sheet Title: <b>SOIL EROSION &amp; SEDIMENT CONTROL PLAN</b>	Sheet #: <b>2.31</b>

Sep 04, 2020 - 5:46pm Peter  
 X:\SE Files\Project Data\2019\1904501 - Albany Turnpike, Simsbury\Coord Data\1904501-2.31.dwg



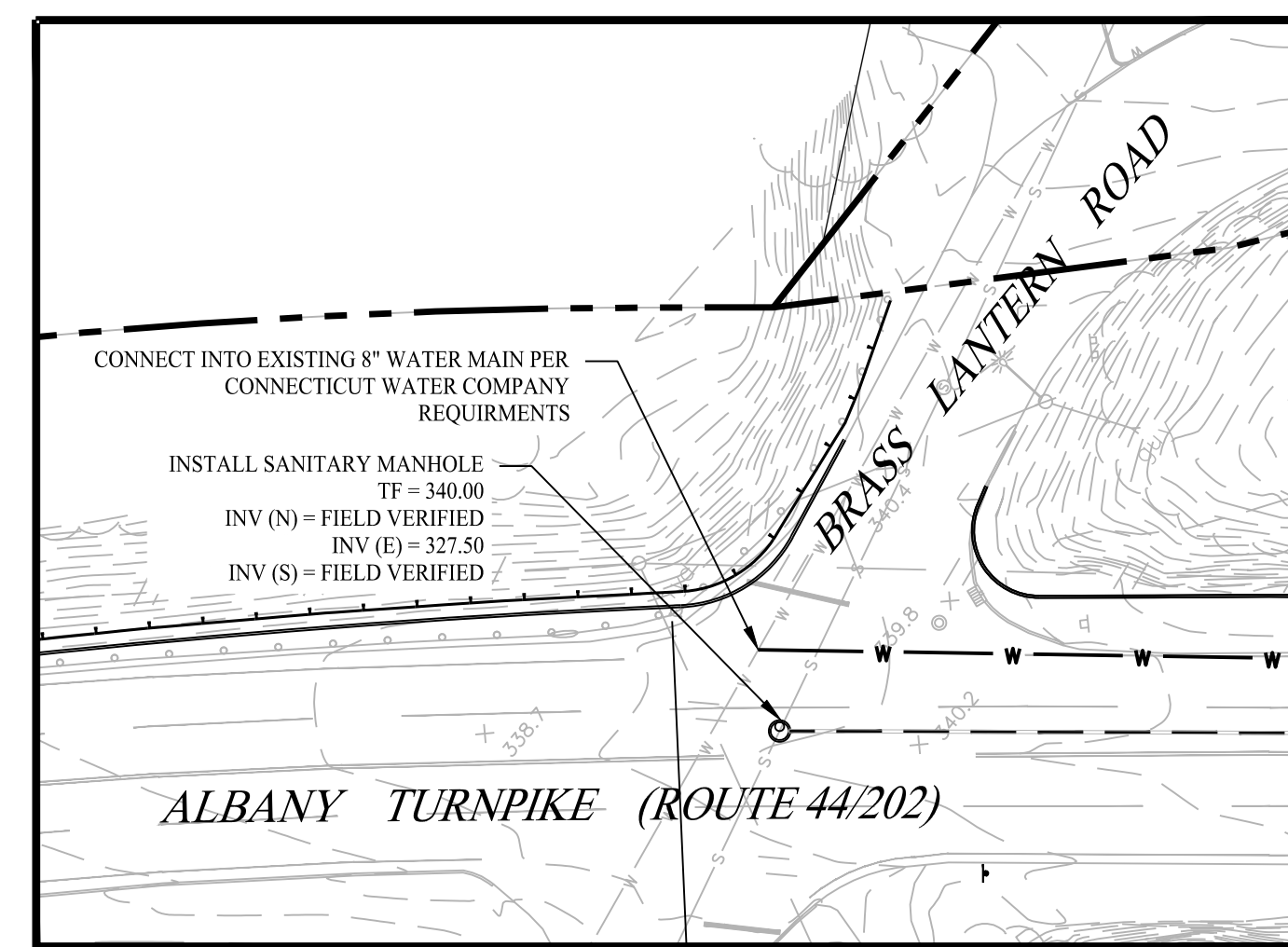


**UTILITY NOTES**

- THIS PLAN IS FOR PERMITTING PURPOSES ONLY AND SHOULD NOT BE USED FOR CONSTRUCTION.
- THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, UTILITY LOCATIONS, AND INVERTS PRIOR TO CONSTRUCTION. ANY CONDITIONS FOUND TO DIFFER FROM THOSE SHOWN IN THE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE PROJECT ENGINEER.
- CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR ACTUAL LOCATIONS OF ALL UTILITY ENTRANCES TO INCLUDE SANITARY SEWER, LATERALS, DOMESTIC AND FIRE PROTECTION WATER SERVICE, ELECTRICAL, TELEPHONE, AND GAS SERVICE, ROOF DRAINS, AND ALL OTHER UTILITIES. CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES IN SUCH A MANNER AS TO AVOID CONFLICTS AND TO ENSURE PROPER DEPTHS ARE ACHIEVED AS WELL AS COORDINATING WITH THE REGULATORY AGENCY AS TO LOCATION OF AND SCHEDULING OF CONNECTIONS TO THEIR FACILITIES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING UTILITY COMPANIES 72 HOURS PRIOR TO BEGINNING EXCAVATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND ALL PAYMENT REPAIRS REQUIRED AS A RESULT OF ANY UTILITY WORK.
- GENERAL CONTRACTOR SHALL PROVIDE 2'x2'x6" THICK CONCRETE APRON AT ALL CLEANOUTS, VALVES, AND METERS OUTSIDE OF THE BUILDING.
- GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TAP AND TIE ON FEES REQUIRED, AS WELL AS COST OF UNDERGROUND SERVICE CONNECTIONS TO THE BUILDING.
- ALL TRENCHING, PIPE LAYING, AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS.
- CONTRACTOR TO COORDINATE GAS MAIN, WATER, ELECTRIC, AND TELEPHONE INSTALLATION WITH APPROPRIATE UTILITY COMPANIES.
- CONTRACTOR SHALL MAINTAIN A MINIMUM OF 2 FEET OF COVER FOR ALL UNDERGROUND ELECTRIC, TELEPHONE AND GAS UTILITIES.
- WHERE THE SANITARY SEWER LINE PASSES LESS THAN 18" BELOW THE WATER LINE, PROVIDE CONCRETE ENCASUREMENT. THE LENGTH OF THE ENCASUREMENT TO BE INCREASED TO THE NEAREST JOINT.
- WHERE THE SANITARY SEWER LINE PASSES ABOVE THE WATER LINES, ENCASE SEWER IN 6" THICK CONCRETE FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE CROSSING, OR SUBSTITUTE RUBBER GASKETED PRESSURE PIPE FOR THE PIPE BEING USED FOR THE SAME DISTANCE.
- CONTRACTOR SHALL MAINTAIN A MINIMUM OF 4.5 FEET OF COVER FOR ALL WATER DISTRIBUTION PIPING.
- ALL NEW WATER LINES SHALL BE PRESSURE TESTED AND LEAKAGE TESTED IN ACCORDANCE WITH THE LATEST EDITION OF AWWA STANDARD C600.
- ALL NEW WATER MAINS SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA STANDARD C651.
- ALL PIPE LENGTHS ARE HORIZONTAL DISTANCES AND ARE APPROXIMATE.
- ALL DOMESTIC WATER AND SANITARY SEWER STUBS TO BE TERMINATED 5 FEET OUTSIDE OF THE BUILDING UNLESS OTHERWISE NOTED. THE END OF THESE SERVICE LINES SHALL BE TIGHTLY PLUGGED OR CAPPED AND MARKED UNTIL SUCH TIME AS CONNECTION IS MADE INSIDE BUILDING BY PLUMBING CONTRACTOR.
- SITE UTILITY CONTRACTOR SHALL PROVIDE ALL THE MATERIALS AND APPURTENANCES NECESSARY FOR THE COMPLETE INSTALLATION OF THE UTILITIES. ALL PIPE AND FITTINGS SHALL BE INSPECTED BY THE WATER DEPARTMENT INSPECTOR PRIOR TO BEING COVERED. THE INSPECTOR MUST ALSO BE PRESENT DURING PRESSURE TESTING AND DISINFECTION OF LATERALS AND HIS SIGNATURE OF APPROVAL IS REQUIRED.
- ALL WORK SHALL COMPLY WITH ALL APPLICABLE CODES, REGULATIONS, AND/OR LOCAL STANDARDS IMPOSED BY LOCAL UTILITY AUTHORITIES.
- THE SIRE UTILITY CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE LOCAL UTILITY AUTHORITIES FOR CONNECTION TO THE EXISTING MAINS AND PAY ALL APPLICABLE FEES.
- CONTRACTOR SHALL ADJUST LOCATION OF PROPOSED WATER LINES AS REQUIRED TO AVOID CONFLICTS WITH STORM SEWER OR OTHER UTILITIES AT NO EXTRA COST.
- ALL MATERIAL SHALL BE APPROVED BY THE LOCAL UTILITY COMPANIES UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
- INFORMATION ON EXISTING UTILITIES AND STORM DRAINAGE SYSTEMS HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING UTILITY PROVIDER AND MUNICIPAL RECORD MAPS AND/OR FIELD SURVEY AND IS NOT GUARANTEED CORRECT OR COMPLETE. UTILITIES AND STORM DRAINAGE SYSTEMS ARE SHOWN TO ALERT THE CONTRACTOR TO THEIR PRESENCE AND THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND STORM DRAINAGE SYSTEMS INCLUDING SERVICES. PRIOR TO DEMOLITION OR CONSTRUCTION, THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG, CONNECTICUT" 72 HOURS BEFORE COMMENCEMENT OF WORK AT "1-800-922-4455" AND VERIFY ALL UTILITY AND STORM DRAINAGE SYSTEM LOCATIONS.
- BUILDING PLUMBING CONTRACTOR SHALL PAY ALL COST FOR WATER METERS, METER BOXES, VALVES, ETC. TO PROVIDE A COMPLETE JOB PER LOCAL AUTHORITY REQUIREMENTS.
- THRUST BLOCKS SHALL BE PROVIDED AT ALL TEES, ELBOWS, BENDS AND PLUGS OF SUFFICIENT SIZE TO COMPLY WITH MINIMUM STANDARDS OF N.E.P.A. - EXISTING SOIL CONDITIONS.
- SHOULD LATENT SOIL CONDITIONS NECESSITATE, CONTRACTOR SHALL INSTALL SPECIAL SUPPORTS FOR PIPING AND/OR APPURTENANCES INCLUDING THE REMOVAL OF UNSUITABLE MATERIAL AND BACKFILLING WITH GRAVEL OR OTHER APPROVED MATERIAL. CONTRACTOR SHALL PERFORM ANY SUCH WORK AS DIRECTED BY THE CIVIL ENGINEER AND/OR SOILS ENGINEER AT NO COST TO OWNER.

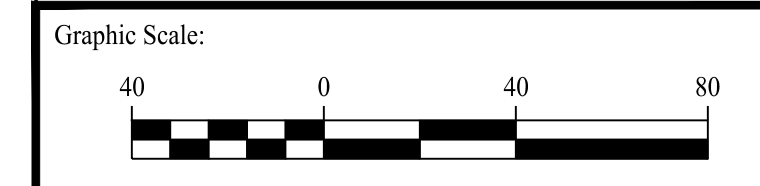
**LEGEND**

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJOINING LOT LINE
- WATER MAIN / LATERAL
- GAS LINE
- OVERHEAD ELECTRIC LINE
- ELECTRIC CONDUIT
- TELEPHONE CONDUIT
- CABLE TV UNDERGROUND LINE
- CABLE & TELEPHONE CONDUIT
- UNDERGROUND ELECTRIC, TELEPHONE AND CABLE LINES
- SANITARY SEWER PIPE
- TEST PIT
- PERC TEST PIT
- DISTRIBUTION BOX
- SEPTIC TANK
- GREASE TRAP
- SANITARY SEWER MANHOLE
- WATER VALVE
- HYDRANT
- GAS METER
- ELECTRIC METER
- UTILITY POLE
- UTILITY HANDHOLE
- ELECTRIC TRANSFORMER



**SANITARY AND WATER CONNECTION INSET MAP**  
SCALE: 1" = 40'

Rev. #:	Date	Description
1	09/04/20	Revised Submission Materials



Drawn By:	AWC
Checked By:	CJB
Approved By:	KMS
Project #:	1904501
Plan Date:	08/11/20
Scale:	1" = 40'
Project:	Kevin Solli, P.E. CT 25759

**9-15 ALBANY TURNPIKE**  
SIMSBURY & CANTON, CONNECTICUT

Sheet Title:	Sheet #:
<b>SITE UTILITY PLAN</b>	<b>2.51</b>

**REQUIRED LANDSCAPE AREA COMPLIANCE TABLE**

PARKING LOT AREA	REQUIRED LANDSCAPE AREA	PROVIDED LANDSCAPE AREA
8,250± SF	8,275± SF	9,900± SF (11.9%)

THE TOWN OF CANTON REQUIRES A MINIMUM OF 10% LANDSCAPING WITHIN A PARKING AREA PER ZONING REGULATION 7.1.1(1).

**PROPOSED PLANT SCHEDULE**

KEY	QTY	BOTANICAL NAME	COMMON NAME	ROOT SIZE	COMMENTS
<b>TREES</b>					
AR	3	ACER RUBRUM	RED MAPLE	B&B 3"-3 1/2" CAL	FULL EXTRA HEAVY
AS	1	ACER SACCHARUM	SUGAR MAPLE	B&B 3"-3 1/2" CAL	FULL EXTRA HEAVY
BN	3	BETULA NIGRA 'HERITAGE'	HERITAGE RIVER BIRCH	B&B 3"-3 1/2" CAL	MULTI-STEM
GT	1	GLEDISIA TRIACANTHOS INERMIS	THORNLESS COMMON HONEYLOCUST	B&B 3"-3 1/2" CAL	FULL EXTRA HEAVY
NS	1	NYSSA SYLVATICA	BLACK TUPELO	B&B 3"-3 1/2" CAL	FULL EXTRA HEAVY
QR	1	QUERCUS RUBRA	RED OAK	B&B 3"-3 1/2" CAL	FULL EXTRA HEAVY
TA	13	TILIA AMERICANA 'REDMOND'	REDMOND AMERICAN LINDEN	B&B 3"-3 1/2" CAL	FULL EXTRA HEAVY
<b>UNDERSTORY TREES</b>					
AL	1	AMELANCHIER LAEVIS	SERVICEBERRY	B&B 2"-2 1/2" CAL	FULL EXTRA HEAVY
CC	5	CERCIS CANADENSIS	EASTERN REDBUD	B&B 2"-2 1/2" CAL	FULL EXTRA HEAVY
CF	1	CORNUS FLORIDA	FLOWERING DOGWOOD	B&B 2"-2 1/2" CAL	FULL EXTRA HEAVY
CV	7	CRATAEGUS VIRIDIS 'WINTER KING'	WINTER KING HAWTHORN	B&B 2"-2 1/2" CAL	FULL EXTRA HEAVY
OV	3	OSTRYA VIRGINIANA	AMERICAN HOPHORNBEAM	B&B 2"-2 1/2" CAL	FULL EXTRA HEAVY
<b>UPLAND SHRUBS / GRASSES / VINES</b>					
CA	22	CLETHRA ALNIFOLIA 'RUBY SPICE'	RUBY SPICE SUMMERSWEET	CONT 18"-24" HT	FULL EXTRA HEAVY
CS	14	CORNUS SERICEA	RED OSIER DOGWOOD	CONT 18"-24" HT	FULL EXTRA HEAVY
FI	2	FORSYTHIA X INTERMEDIA	FORSYTHIA	CONT 18"-24" HT	FULL EXTRA HEAVY
IG	15	ILEX GLABRA	HICKBERRY	CONT 18"-24" HT	FULL EXTRA HEAVY
JC	6	JUNIPER CHINENSIS 'BLUE POINT'	BLUE POINT JUNIPER	CONT 18"-24" HT	FULL EXTRA HEAVY
MC	14	MUHLENBERGIA CAPILLARIS	PINK MUHLYGRASS	CONT 18"-24" HT	FULL EXTRA HEAVY
PM	21	PINUS MUGO 'MOPS'	MOPS MUGO PINE	CONT 18"-24" HT	FULL EXTRA HEAVY
RS	7	RHODODENDRON 'SCHLIPPENBACHII'	ROYAL AZALEA	CONT 18"-24" HT	FULL EXTRA HEAVY
VA	12	VIBURNUM ACERIFOLIUM	MAPLE LEAF VIBURNUM	CONT 18"-24" HT	FULL EXTRA HEAVY
WF	15	WEIGELA FLORIDA 'MIDNIGHT WINE'	MIDNIGHT WINE WEIGELA	CONT 18"-24" HT	FULL EXTRA HEAVY
<b>GROUND COVER</b>					
AU	33	ARCTOSTAPHYLOS UVA-URSI	BEARBERRY	CONT #1 CONT	
JH	12	JUNIPERUS HORIZONTALIS 'BAR HARBOR'	BAR HARBOR CREEPING JUNIPER	CONT #1 CONT	
LM	39	LIRIOPE MUSCARI 'BIG BLUE'	BIG BLUE LILY TURF	CONT #1 CONT	
<b>PERENNIALS</b>					
FG	18	FESTUCA GLAUCA 'ELIJAH BLUE'	BLUE FESCUE GRASS	CONT 1 GAL	
HO	14	HEUCHERA 'OBSIDIAN'	OBSIDIAN CORAL BELLS	CONT 1 GAL	

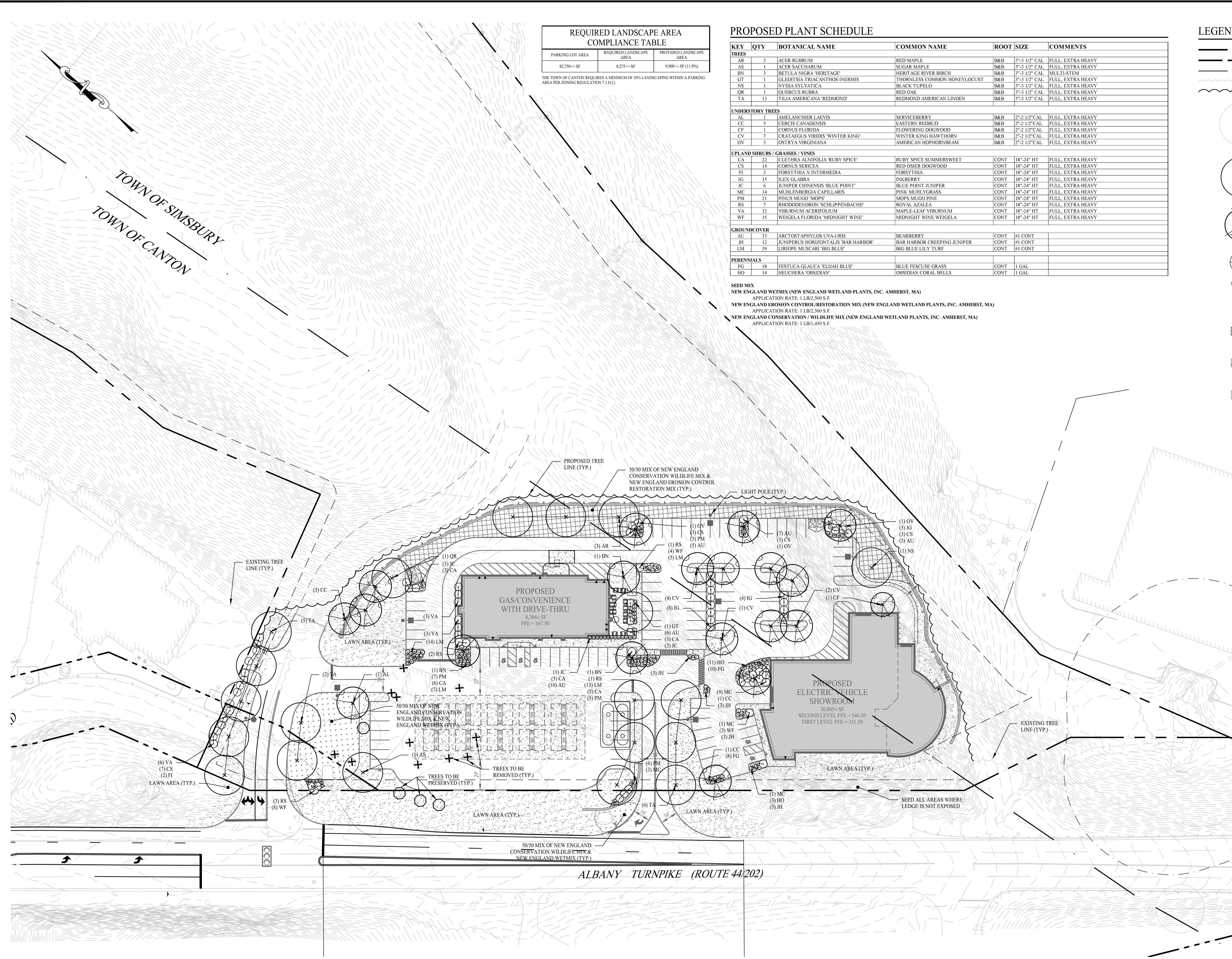
**SEED MIX**  
 NEW ENGLAND WETMIX (NEW ENGLAND WETLAND PLANTS, INC. AMHERST, MA)  
 APPLICATION RATE: 1 LB/2,500 S.F.  
 NEW ENGLAND EROSION CONTROL/RESTORATION MIX (NEW ENGLAND WETLAND PLANTS, INC. AMHERST, MA)  
 APPLICATION RATE: 1 LB/2,500 S.F.  
 NEW ENGLAND CONSERVATION / WILDLIFE MIX (NEW ENGLAND WETLAND PLANTS, INC. AMHERST, MA)  
 APPLICATION RATE: 1 LB/1,450 S.F.

**LEGEND**

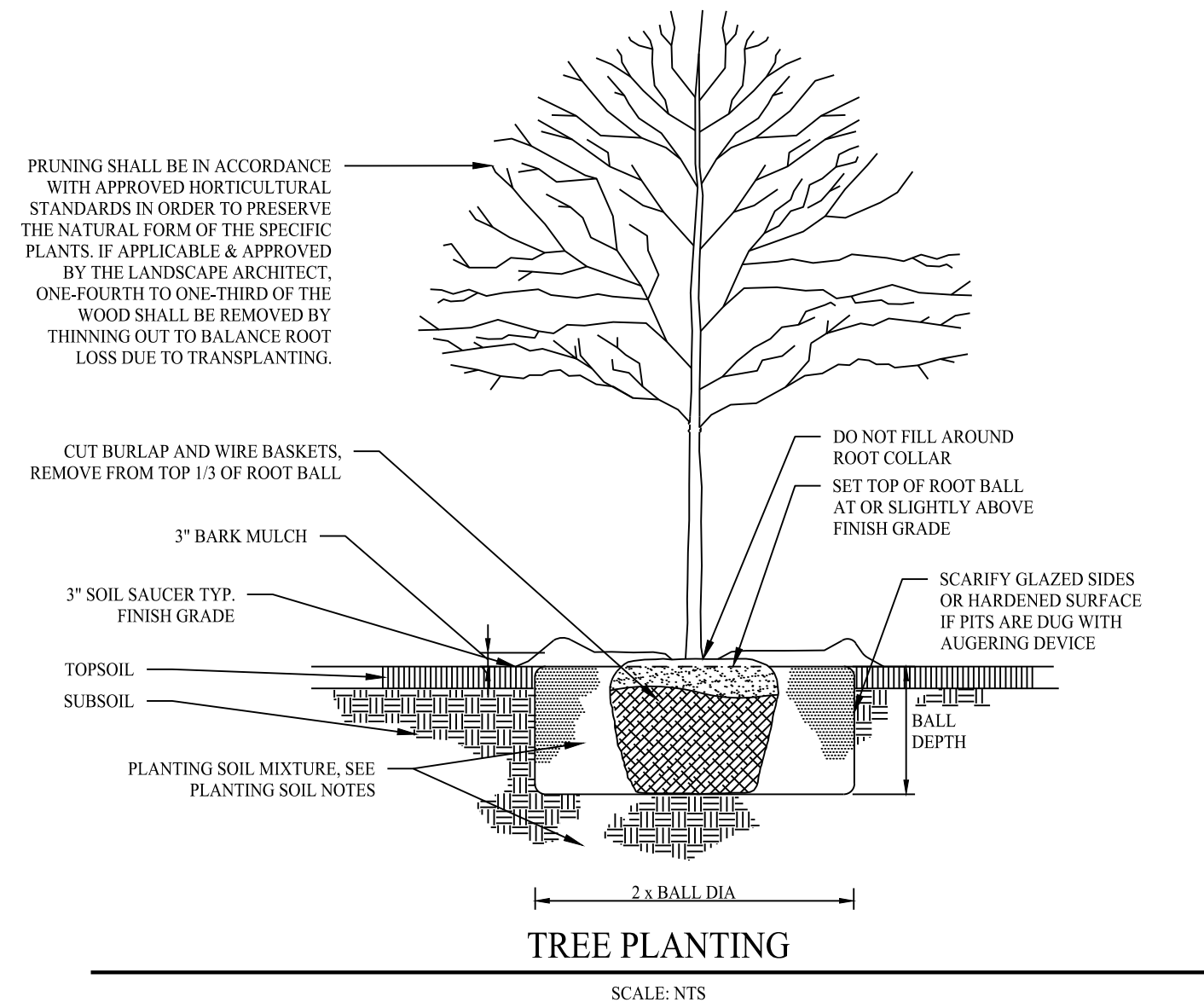
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJOINING LOT LINE
- EXISTING TREE LINE
- PROPOSED TREE LINE
- EXISTING TREE
- OVERSTORY TREE
- UNDERSTORY TREE
- EVERGREEN TREE
- SHRUBS & GROUND COVER
- TREE TO BE REMOVED
- TREE PROTECTION
- LAWN
- 50/50 MIX OF NEW ENGLAND CONSERVATION WILDLIFE MIX & NEW ENGLAND EROSION CONTROL RESTORATION MIX (TYP.)
- 50/50 MIX OF NEW ENGLAND CONSERVATION WILDLIFE MIX & NEW ENGLAND WETMIX (TYP.)

**NOTE**

1. SEE SHEET 2.62 FOR DETAILS FOR PLANTING SOIL NOTES, PLANTING NOTES AND GENERAL NOTES

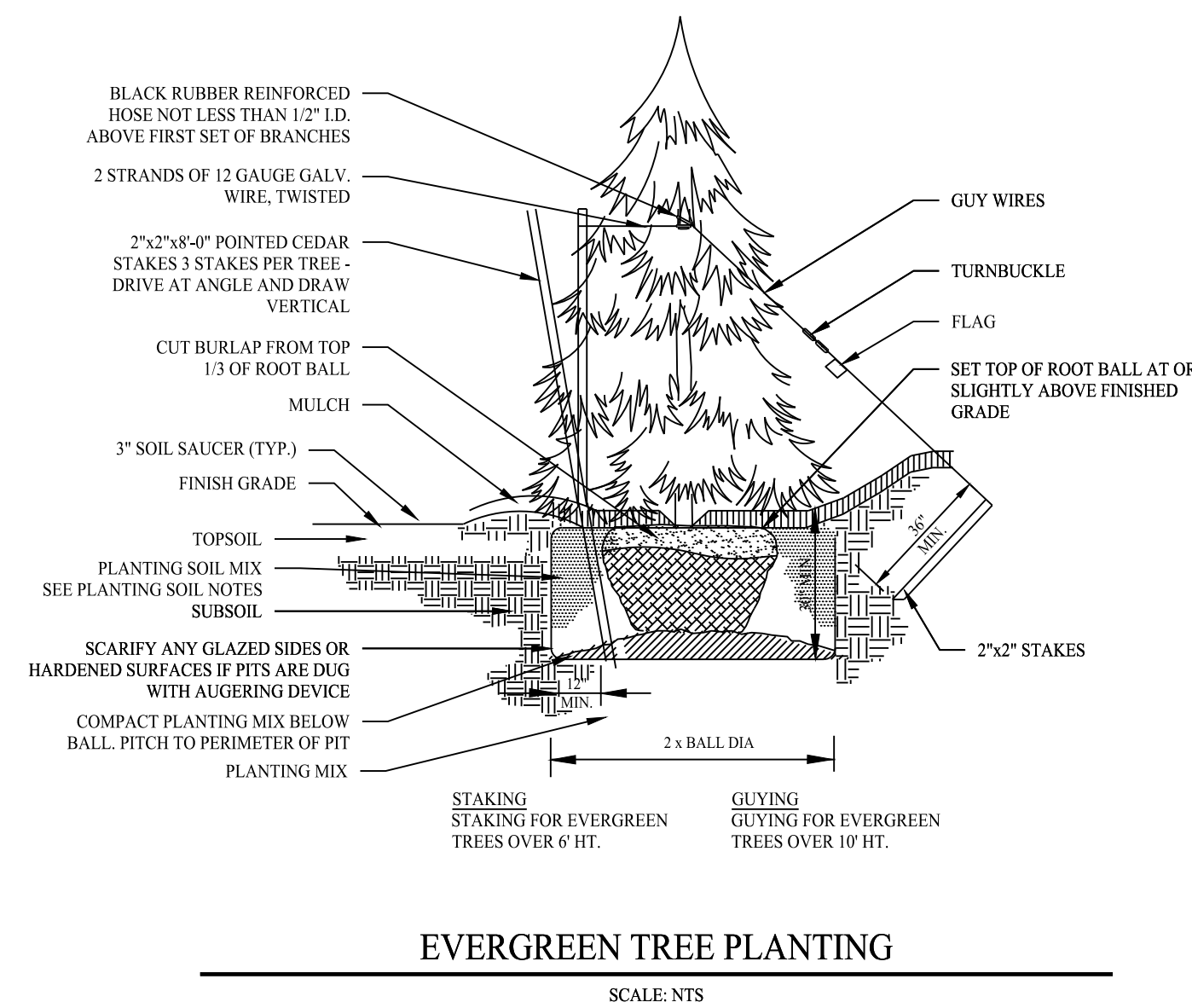


Rev. #:	Date:	Description:
Graphic Scale: 0 40 80		
<b>SOLLI ENGINEERING</b> 501 Main Street, Monroe, CT 06468   T: (203) 880-5455   F: (203) 880-9695		
Drawn By:	MFB	
Checked By:	KMS	
Approved By:	KMS	
Project #:	1904501	
Plan Date:	08/11/20	
Scale:	1" = 40'	Mary Blackburn, P.L.A. CT 1499
<b>9-15 ALBANY TURNPIKE</b> SIMSBURY & CANTON, CONNECTICUT		
Sheet Title:	LANDSCAPE PLAN	Sheet #: <b>2.61</b>



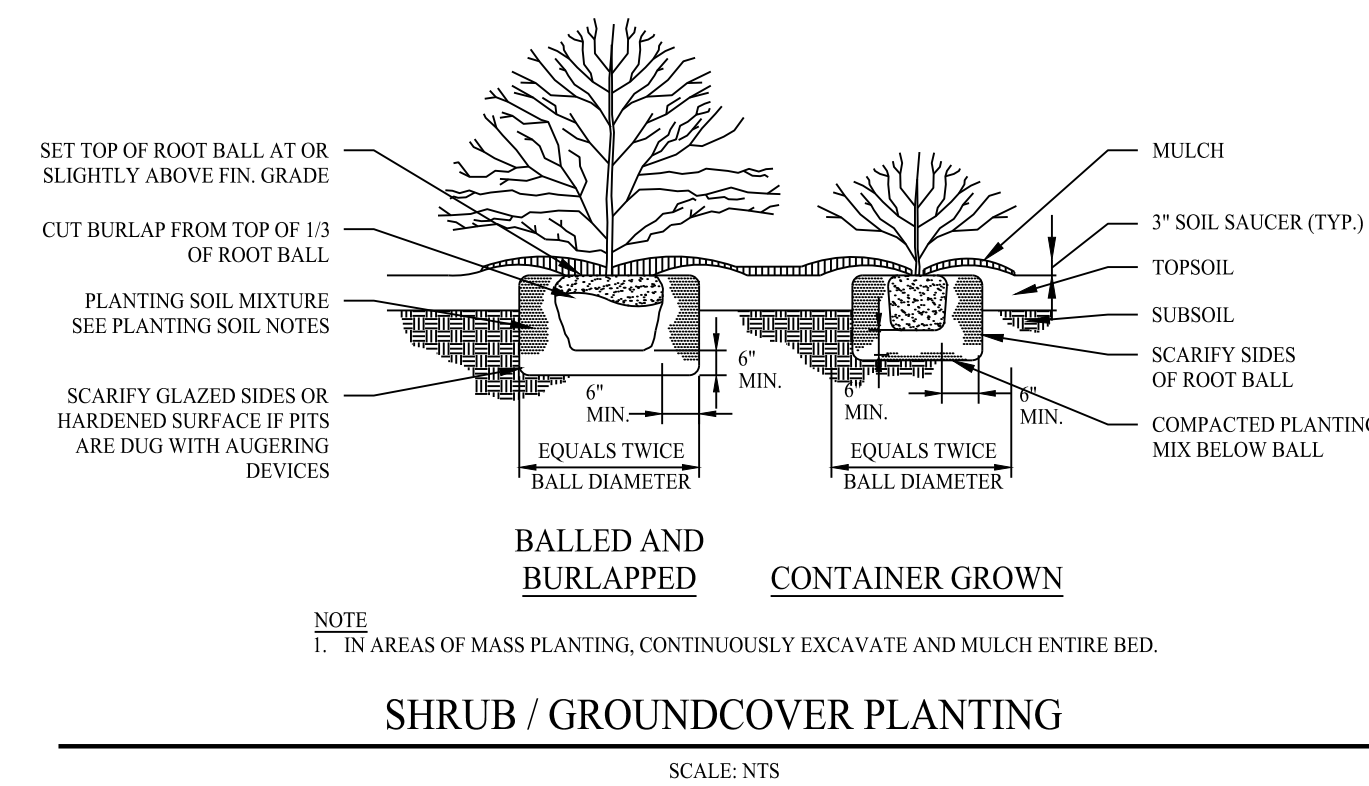
TREE PLANTING

SCALE: NTS



EVERGREEN TREE PLANTING

SCALE: NTS



SHRUB / GROUND COVER PLANTING

SCALE: NTS

**PLANTING SOIL NOTES**

- ALL PLANTING MIXES SHALL BE PREPARED PRIOR TO DELIVERY TO SITE
- PLANTING MIX FOR TREES AND SHRUBS SHALL BE AS FOLLOWS
  - 3 PARTS SCREENED TOPSOIL
  - 1 PART CLEAN WASHED COARSE SAND
  - 1 PART PEAT HUMUS
  - 5 LBS. SUPER PHOSPHATE PER CUBIC YARD OF MIX
- MYCORRHIZAL INOCULANT TO BE MYCOR TREE SAVER TRANSPLANT BY PLANT HEALTH CARE, INC. (1-800-421-9051) OR APPROVED EQUAL.
- TERRASORB AVAILABLE FROM PLANT HEALTH CARE, INC. OR APPROVED EQUAL.
- SUBMIT CERTIFICATION OF PLANTING MIX FOR TREES AND SHRUBS FROM SOIL DISTRIBUTOR.
- TOPSOIL MIX SHALL INCLUDE:
  - 3 PARTS SCREENED TOPSOIL
  - 1 PART SAND
  - 1 PART HUMUS
  - 5 LBS. SUPER PHOSPHATE PER CU. YD. OF MIX
- TOPSOIL:
  - PROVIDE A NATURAL, FERTILE, FRIABLE, NATURAL LOAM SURFACE SOIL CAPABLE OF SUSTAINING VIGOROUS PLANT GROWTH OF UNIFORM COMPOSITION THROUGHOUT AND WITHOUT ADMIXTURES OF SUBSOIL, AND FREE OF STONES, LUMPS, PLANTS, ROOTS, STICKS OR OTHER EXTRANEOUS MATTER.
  - TOPSOIL SHALL CONTAIN NOT LESS THAN 4% NOR MORE THAN 20% ORGANIC MATTER AS DETERMINED BY THE WET COMBUSTION METHOD.
- MECHANICAL ANALYSIS
 

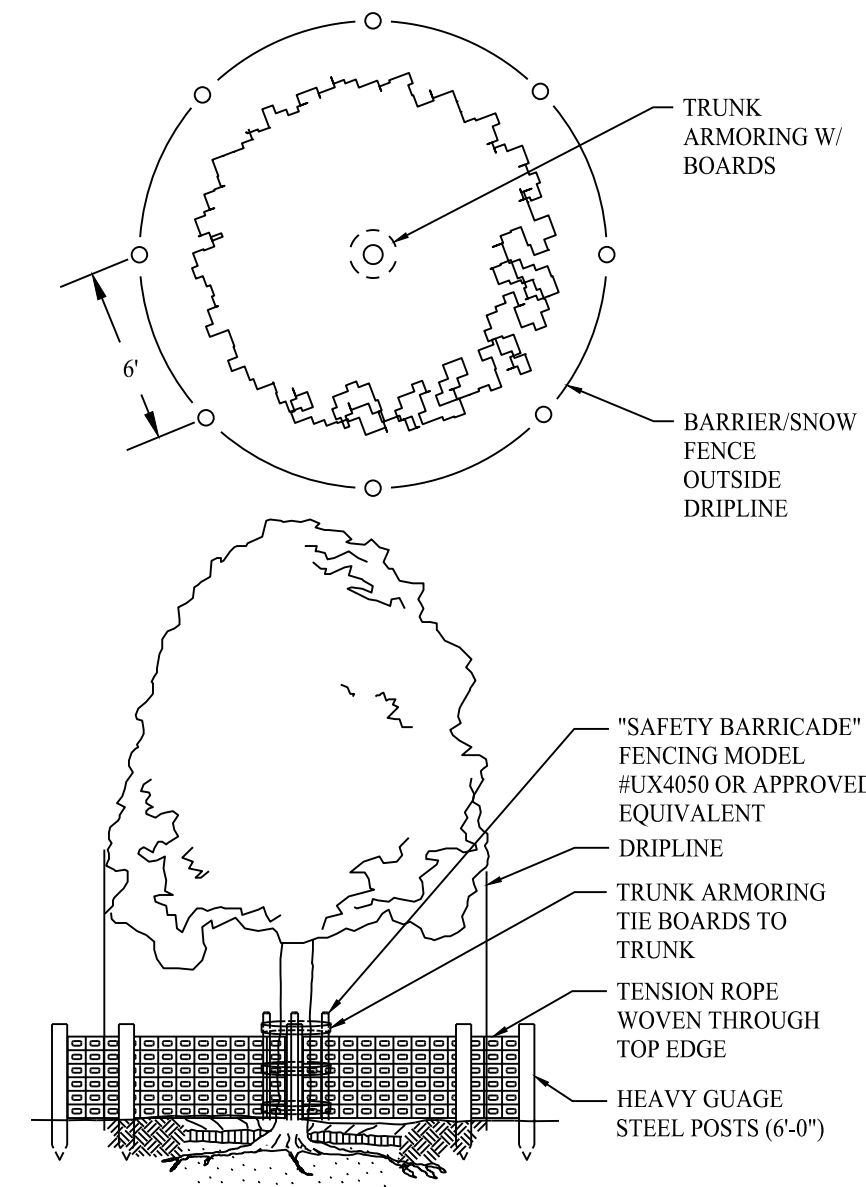
SCREEN SIZE	% BY WEIGHT PASSING
1"	100
3/4"	97 - 100
NO. 200	20 - 65
- CONTRACTORS SHALL BE RESPONSIBLE FOR ALL TESTING AND ANALYSIS OF EXISTING AND IMPORTED SOILS. FURNISH A SOIL ANALYSIS MADE BY A QUALIFIED INDEPENDENT SOIL - TESTING AGENCY STATING PERCENTAGES OF ORGANIC MATTER, INORGANIC MATTER (SILT, CLAY, AND SAND), DELETERIOUS MATERIAL, PH, AND MINERAL AND PLANT - NUTRIENT CONTENT OF TOPSOIL.
- REPORT SUITABILITY OF TOPSOIL FOR LAWN AND SHRUB PLANTING GROWTH. RECOMMEND QUANTITIES OF NITROGEN, PHOSPHORUS, AND POTASH NUTRIENT AND ANY LIMESTONE, ALUMINUM SULFATE, OR OTHER SOIL AMENDMENTS TO BE ADDED TO PRODUCE A SATISFACTORY TOPSOIL.

**PLANTING NOTES**

- BE AWARE OF ALL UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION OR PLANTING OPERATIONS. USE CARE TO PROTECT EXISTING UTILITIES FROM DAMAGE. CONTACT "CALL BEFORE YOU DIG" PRIOR TO EXCAVATION.
- ALL PLANTINGS ARE TO BE INSTALLED BY A QUALIFIED LANDSCAPE CONTRACTOR.
- THE CONTRACTOR SHALL BE REQUIRED TO CARRY WORKMENS COMPENSATION INSURANCE AND COMPREHENSIVE GENERAL LIABILITY INSURANCE. CERTIFICATES WILL BE REQUIRED PRIOR TO SIGNING CONTRACTS.
- CONTRACTOR IS RESPONSIBLE FOR JOBSITE SAFETY. CONTRACTOR SHALL MAINTAIN A SAFE JOBSITE AT ALL TIMES.
- CONTRACTOR SHALL BE FAMILIAR WITH THE SITE VERIFY ALL DIMENSIONS, GRADES AND EXISTING CONDITIONS. REPORT ANY DISCREPANCIES TO LANDSCAPE DESIGNER.
- CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS AND LICENSES REQUIRED FOR COMPLETING WORK.
- CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF ALL EXCAVATED SOIL, BRUSH AND DEBRIS OFF-SITE IN A SAFE AND LEGAL MANNER.
- NOTIFY OWNER OR LANDSCAPE DESIGNER 72 HOURS MINIMUM IN ADVANCE OF STARTING PLANTING OPERATIONS. RECEIVE APPROVAL FOR LAYOUT OF ALL BED LINES AND MATERIAL LOCATIONS PRIOR TO INSTALLATION.
- PROTECT EXISTING VEGETATION TO REMAIN FROM DAMAGE DURING CONSTRUCTION. IT IS THE INTENT OF THIS CONTRACT TO AVOID ANY DISTURBANCE TO EXISTING VEGETATION ON THE SITE OTHER THAN THOSE SPECIFICALLY DESIGNATED FOR REMOVAL. ADJUSTMENTS SHALL BE MADE IN THE FIELD AT THE DIRECTION OF THE LANDSCAPE DESIGNER.
- CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL PLANTING, SEEDING AND TREE WORK WITH OTHER TRADES. RESPECT OTHER TRADES WORK AT ALL TIMES.
- CONTRACTOR IS TO EXERCISE EXTREME CARE DURING THE COURSE OF DEMOLITION AND REMOVALS ANY DAMAGE TO EXISTING FACILITIES, UTILITIES OR TREES TO REMAIN SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE IN KIND.
- CONTRACTOR IS RESPONSIBLE FOR RESTORING ALL AREAS DAMAGED TO PRE-EXISTING CONDITIONS AS A RESULT OF PLANTING OPERATIONS TO OWNERS AND/OR LANDSCAPE DESIGNERS APPROVAL.
- VEGETATION TO BE REMOVED, NOT INDICATED ON PLAN, SHALL BE TAGGED IN FIELD BY LANDSCAPE DESIGNER.
- THE LANDSCAPE DESIGNER RESERVES THE RIGHT TO REJECT INFERIOR PLANT MATERIALS AND SUBSTITUTIONS. THE LANDSCAPE DESIGNER IS WILLING TO MAKE TWO TRIPS TO SUPPLIERS TO TAG, REVIEW AND APPROVE MATERIALS. PREVIOUSLY UNAPPROVED MATERIALS MAY BE REJECTED AT THE SITE. MINIMALLY, ALL MATERIALS WILL CONFORM TO THE "AMERICAN STANDARD FOR NURSERY STOCK" (ANSI Z60.1 - 2004) OF THE AMERICAN ASSOCIATION OF NURSERYMEN.
- ALL PLANT MATERIAL SHALL BE GUARANTEED BY THE CONTRACTOR TO BE IN GOOD, HEALTHY AND FLOURISHING CONDITION FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE. THE CONTRACTOR SHALL REPLACE, AS SOON AS WEATHER AND SEASONAL CONDITIONS PERMIT, ALL DEAD PLANTS AND ALL PLANTS NOT IN A VIGOROUS, THRIVING CONDITION, AS DETERMINED BY THE LANDSCAPE DESIGNER DURING, AND AT THE END OF THE GUARANTEE PERIOD. WARRANTY REPLACEMENT WILL BE PROVIDED AT NO COST TO THE OWNER AND INCLUDE MATERIALS AND LABOR. CONTRACTOR IS RESPONSIBLE FOR REPAIR OF ANY DAMAGE INCURRED DURING REPLACEMENT OF WARRANTY MATERIALS.
- WHEN THERE IS A DISCREPANCY BETWEEN PLANT QUANTITIES SHOWN ON THE PLANT LIST & THE PLAN, USE THE QUANTITIES FROM THE PLAN.
- PERENNIALS, GROUNDCOVERS & GRASSES TO BE FIELD LOCATED BY LANDSCAPE DESIGNER. COORDINATE TO NOTIFY LANDSCAPE DESIGNER AT LEAST 72 HOURS IN ADVANCE OF EXPECTED INSTALLATION DATE. ON THAT DATE ALL BEDS SHALL BE PREPARED & ALL PLANT MATERIAL SHALL BE ON SITE.
- PROVIDE A MINIMUM 6" TOPSOIL FOR ALL DISTURBED AREAS. SUBMIT SAMPLE OF TOPSOIL AND SOIL TEST RESULTS FOR LANDSCAPE DESIGNER APPROVAL PRIOR TO DELIVERING TO SITE.
- MULCH ALL BEDS SHOWN AS CONTINUOUS WITH A 3" MINIMUM OF DOUBLE SHREDDED CEDAR BARK MULCH. SAMPLE TO BE SUBMITTED TO LANDSCAPE DESIGNER FOR APPROVAL.
- ALL PLANT MATERIALS TO BE Sourced FROM LOCALLY GROWN GROWERS.
- TRANSPLANTED MATERIALS TO BE WATERED, HEeled IN AND TENDED BY CONTRACTOR UNTIL FINAL PLACEMENT.
- TREES LOCATED WITHIN PARKING LOTS SHALL HAVE A CLEAR TRUNK HEIGHT OF AT LEAST SIX (6) FEET.
- ALL TREES SHALL BE STAKED FOR ONE (1) YEAR FROM THE DATE OF INSTALLATION. STAKES SHALL BE REMOVED AT THE COMPLETION OF ONE (1) YEAR.

**GENERAL NOTES**

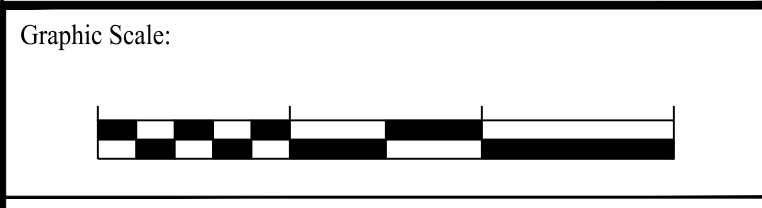
- THESE PLANS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT FOR CONSTRUCTION. NO CONSTRUCTION OR DEMOLITION SHALL BEGIN UNTIL APPROVAL OF THE FINAL PLANS IS GRANTED BY ALL GOVERNING AND REGULATORY AGENCIES AND ISSUANCE OF A DULY AUTHORIZED CERTIFIED ZONING COMPLIANCE AND BUILDING PERMIT FROM THE TOWNS OF CANTON AND SIMSBURY.
- EXISTING BOUNDARY INFORMATION TAKEN FROM A PLAN ENTITLED "PROPERTY SURVEY OF 9-15 ALBANY TURNPIKE, CANTON, CT" DATED 12/10/19, SCALE: 1" = 60', BY ACCURATE LAND SURVEYING, LLC.



TREE PROTECTION DETAIL

SCALE: NTS

Rev. #:	Date	Description



**SOLLI ENGINEERING**  
 501 Main Street, Monroe, CT 06468 | T: (203) 880-5455 | F: (203) 880-9695

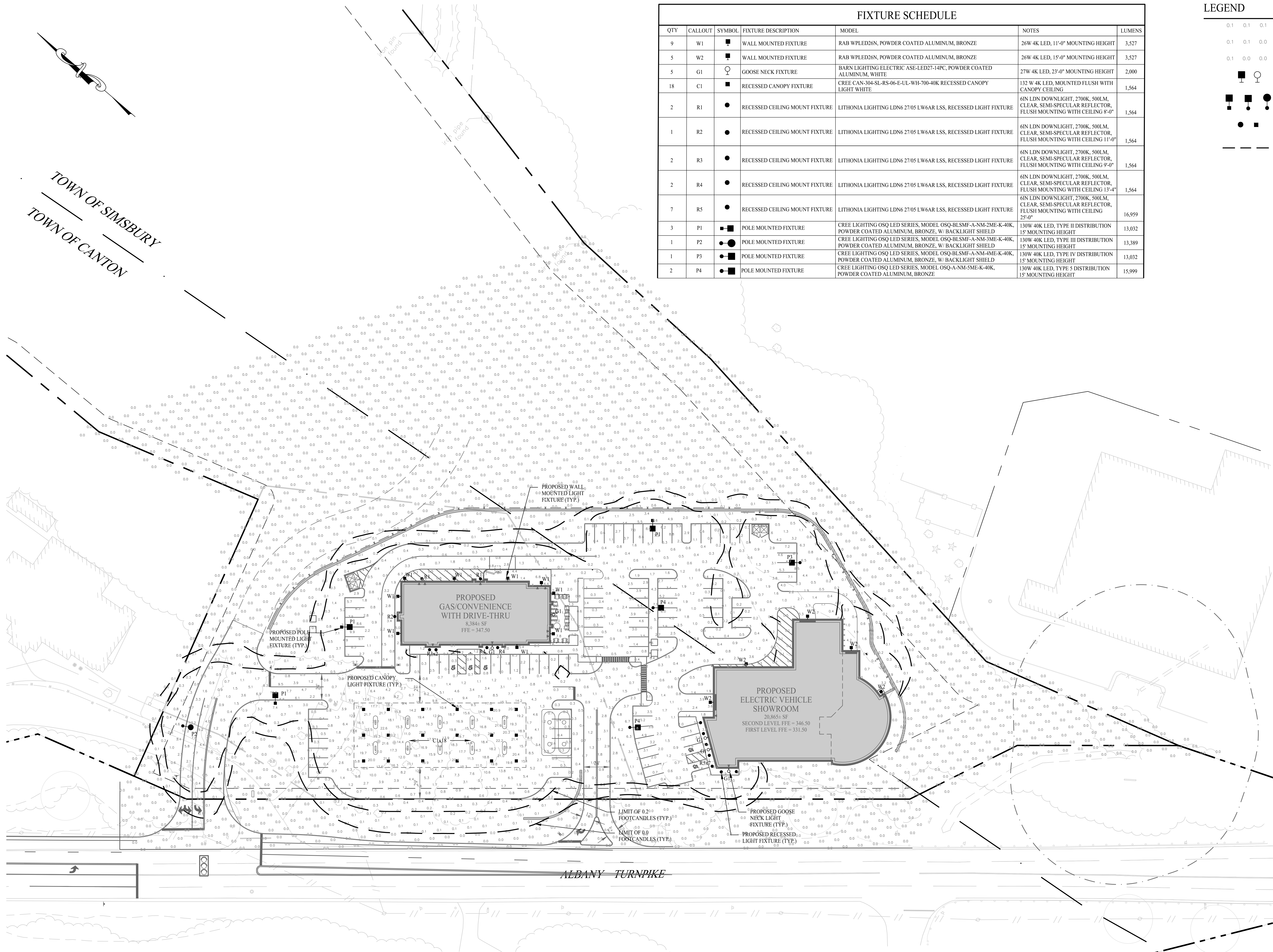
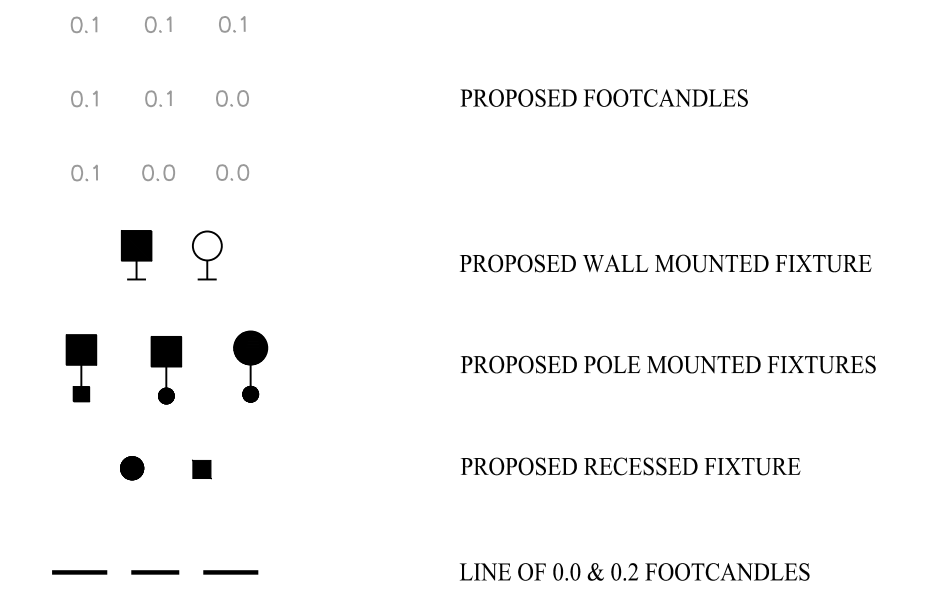
Drawn By:	MFB	Mary Blackburn, P.L.A. CT 1499
Checked By:	KMS	
Approved By:	KMS	
Project #:	1904501	
Plan Date:	08/11/20	
Scale:	NTS	

Project:  
**9-15 ALBANY TURNPIKE**  
 SIMSBURY & CANTON, CONNECTICUT

Sheet Title:	LANDSCAPE DETAILS SHEET	Sheet #:	2.62
--------------	-------------------------	----------	------

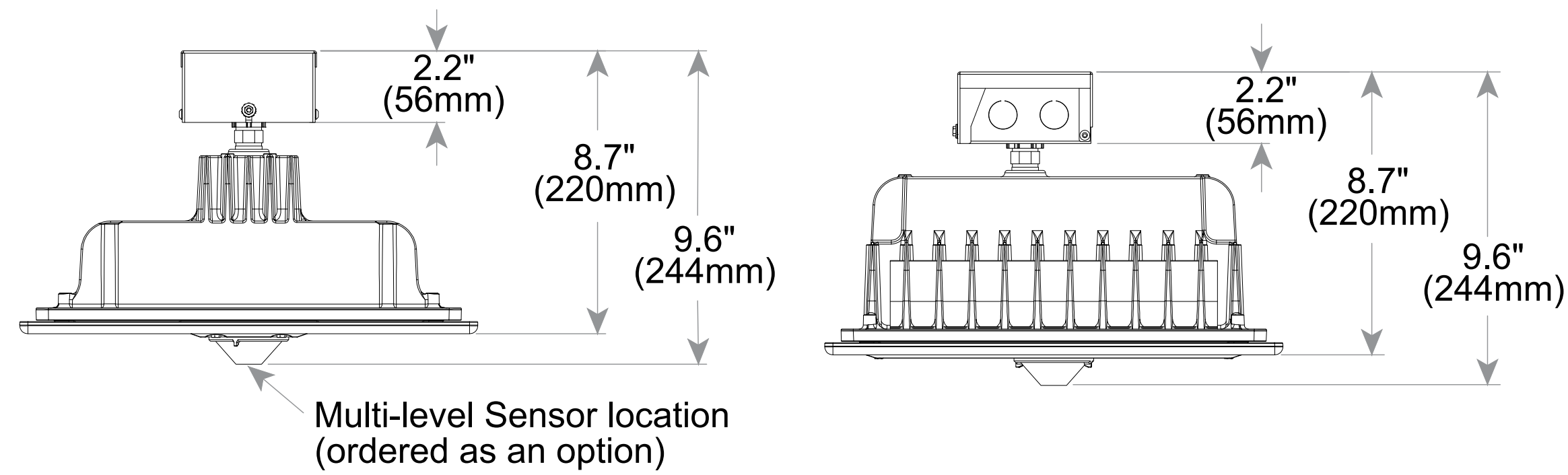
FIXTURE SCHEDULE						
QTY	CALLOUT	SYMBOL	FIXTURE DESCRIPTION	MODEL	NOTES	LUMENS
9	W1	■	WALL MOUNTED FIXTURE	RAB WPLED26N, POWDER COATED ALUMINUM, BRONZE	26W 4K LED, 11'-0" MOUNTING HEIGHT	3,527
5	W2	■	WALL MOUNTED FIXTURE	RAB WPLED26N, POWDER COATED ALUMINUM, BRONZE	26W 4K LED, 15'-0" MOUNTING HEIGHT	3,527
5	G1	○	GOOSE NECK FIXTURE	BARN LIGHTING ELECTRIC ASE-LED27-14PC, POWDER COATED ALUMINUM, WHITE	27W 4K LED, 23'-0" MOUNTING HEIGHT	2,000
18	C1	■	RECESSED CANOPY FIXTURE	CREE CAN-304-ST-RS-06-E-UL-WH-700-40K, RECESSED CANOPY LIGHT WHITE	132 W 4K LED, MOUNTED FLUSH WITH CANOPY CEILING	1,564
2	R1	●	RECESSED CEILING MOUNT FIXTURE	LITHONIA LIGHTING LDN6 27/05 LW6AR LSS, RECESSED LIGHT FIXTURE	6IN LDN DOWNLIGHT, 2700K, 500LM, CLEAR, SEMI-SPECULAR REFLECTOR, FLUSH MOUNTING WITH CEILING 8'-0"	1,564
1	R2	●	RECESSED CEILING MOUNT FIXTURE	LITHONIA LIGHTING LDN6 27/05 LW6AR LSS, RECESSED LIGHT FIXTURE	6IN LDN DOWNLIGHT, 2700K, 500LM, CLEAR, SEMI-SPECULAR REFLECTOR, FLUSH MOUNTING WITH CEILING 11'-0"	1,564
2	R3	●	RECESSED CEILING MOUNT FIXTURE	LITHONIA LIGHTING LDN6 27/05 LW6AR LSS, RECESSED LIGHT FIXTURE	6IN LDN DOWNLIGHT, 2700K, 500LM, CLEAR, SEMI-SPECULAR REFLECTOR, FLUSH MOUNTING WITH CEILING 9'-0"	1,564
2	R4	●	RECESSED CEILING MOUNT FIXTURE	LITHONIA LIGHTING LDN6 27/05 LW6AR LSS, RECESSED LIGHT FIXTURE	6IN LDN DOWNLIGHT, 2700K, 500LM, CLEAR, SEMI-SPECULAR REFLECTOR, FLUSH MOUNTING WITH CEILING 13'-4"	1,564
7	R5	●	RECESSED CEILING MOUNT FIXTURE	LITHONIA LIGHTING LDN6 27/05 LW6AR LSS, RECESSED LIGHT FIXTURE	6IN LDN DOWNLIGHT, 2700K, 500LM, CLEAR, SEMI-SPECULAR REFLECTOR, FLUSH MOUNTING WITH CEILING 25'-0"	16,959
3	P1	■	POLE MOUNTED FIXTURE	CREE LIGHTING OSQ LED SERIES, MODEL OSQ-BLSMF-A-NM-2ME-K-40K, POWDER COATED ALUMINUM, BRONZE, W/ BACKLIGHT SHIELD	130W 40K LED, TYPE II DISTRIBUTION 15' MOUNTING HEIGHT	13,032
1	P2	●	POLE MOUNTED FIXTURE	CREE LIGHTING OSQ LED SERIES, MODEL OSQ-BLSMF-A-NM-3ME-K-40K, POWDER COATED ALUMINUM, BRONZE, W/ BACKLIGHT SHIELD	130W 40K LED, TYPE III DISTRIBUTION 15' MOUNTING HEIGHT	13,389
1	P3	●	POLE MOUNTED FIXTURE	CREE LIGHTING OSQ LED SERIES, MODEL OSQ-BLSMF-A-NM-4ME-K-40K, POWDER COATED ALUMINUM, BRONZE, W/ BACKLIGHT SHIELD	130W 40K LED, TYPE IV DISTRIBUTION 15' MOUNTING HEIGHT	13,032
2	P4	●	POLE MOUNTED FIXTURE	CREE LIGHTING OSQ LED SERIES, MODEL OSQ-A-NM-5ME-K-40K, POWDER COATED ALUMINUM, BRONZE	130W 40K LED, TYPE 5 DISTRIBUTION 15' MOUNTING HEIGHT	15,999

LEGEND



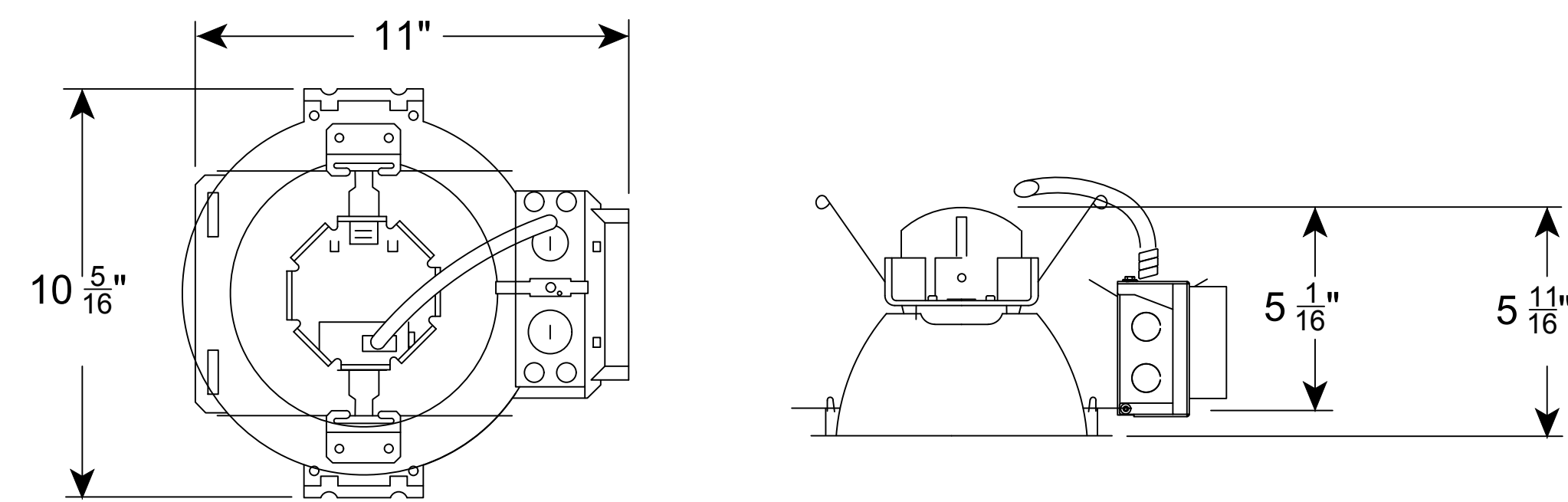
Rev. #:	Date:	Description:
Graphic Scale: 40 0 40 80		
 <small>501 Main Street, Monroe, CT 06468 T: (203) 880-5455 F: (203) 880-9695</small>		
Drawn By:	MFB	
Checked By:	KMS	
Approved By:	KMS	
Project #:	1904501	
Plan Date:	08/11/20	
Scale:	1" = 40'	Mary Blackburn, P.L.A. CT 1499
<b>9-15 ALBANY TURNPIKE</b> SIMSBURY & CANTON, CONNECTICUT		
Sheet Title:	LIGHTING PLAN	Sheet #: <b>2.71</b>

Sep 04, 2020 - 5:50pm Peter  
 X:\SE Files\Project Data\2019\1904501 - Albany Turnpike, Simsbury\Cadd Data\1904501-2.71.dwg



**RECESSED CANOPY LIGHT FIXTURE - C1**

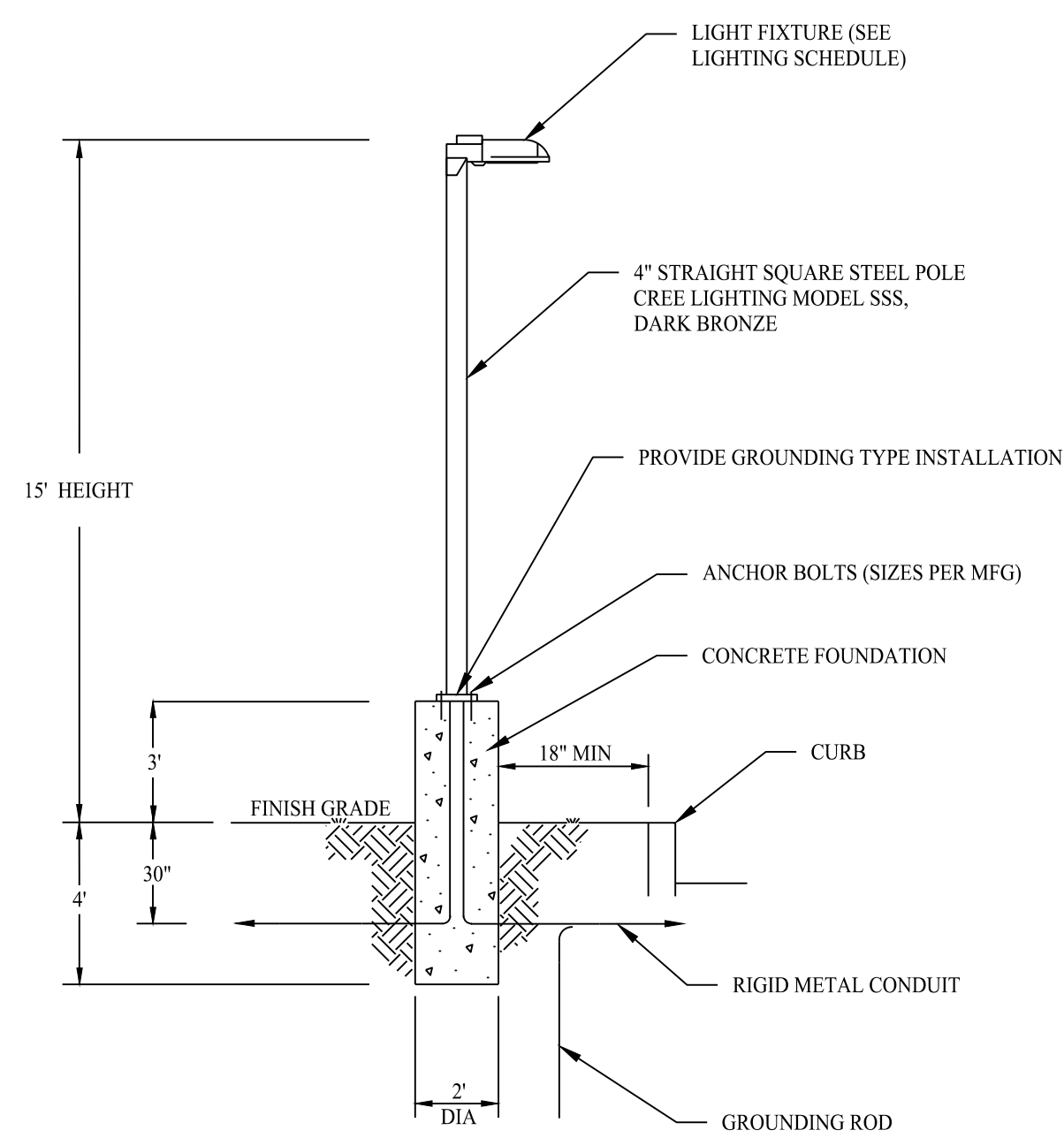
CREE, POWDER COATED CAST ALUMINUM - MATCH CANOPY CEILING COLOR  
SCALE: NTS



Aperture: 6 1/4"  
Ceiling Opening: 7 1/8"  
Overlap Trim: 7 1/2"

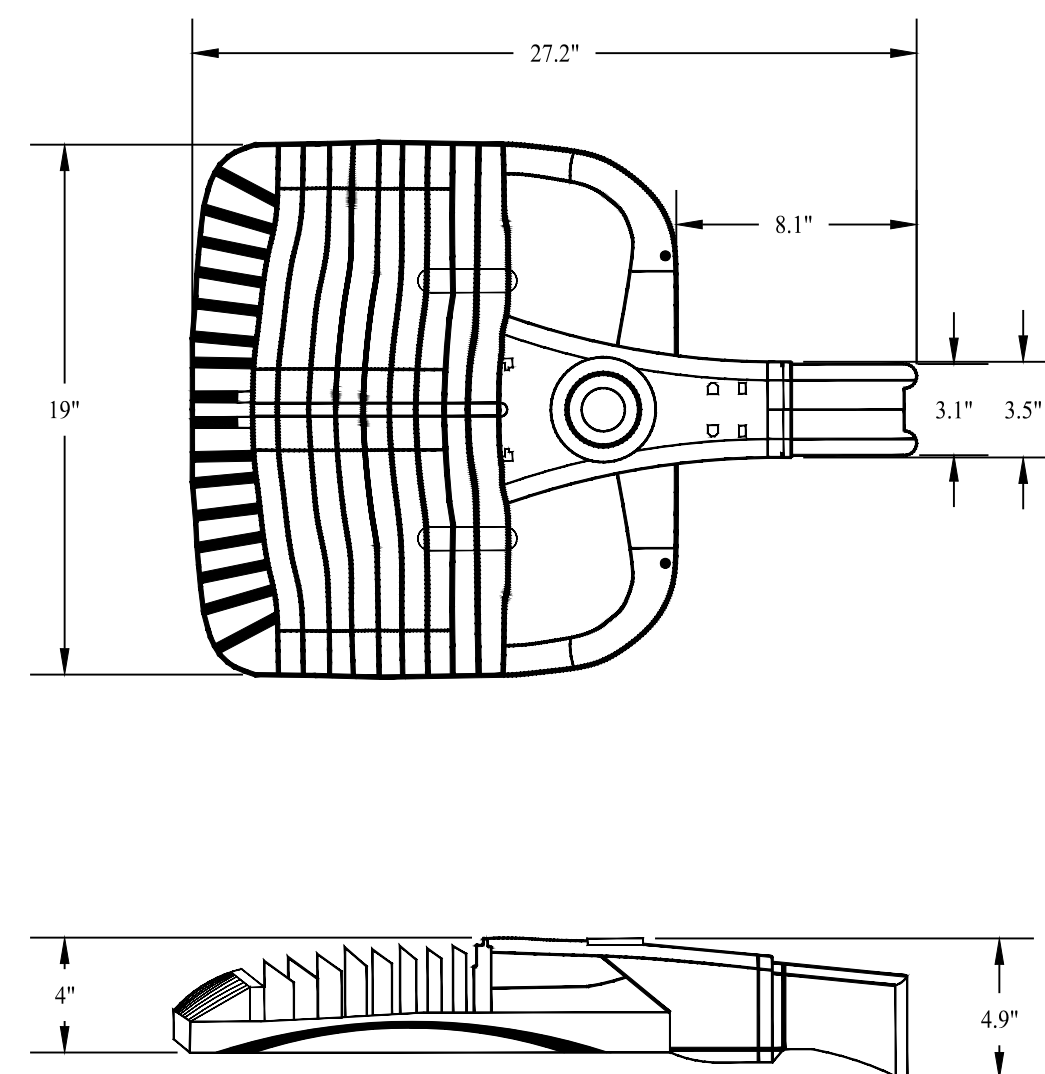
**RECESSED LIGHT FIXTURE - R1, R2, R3, R4 & R5**

SEE FIXTURE SCHEDULE  
SCALE: NTS



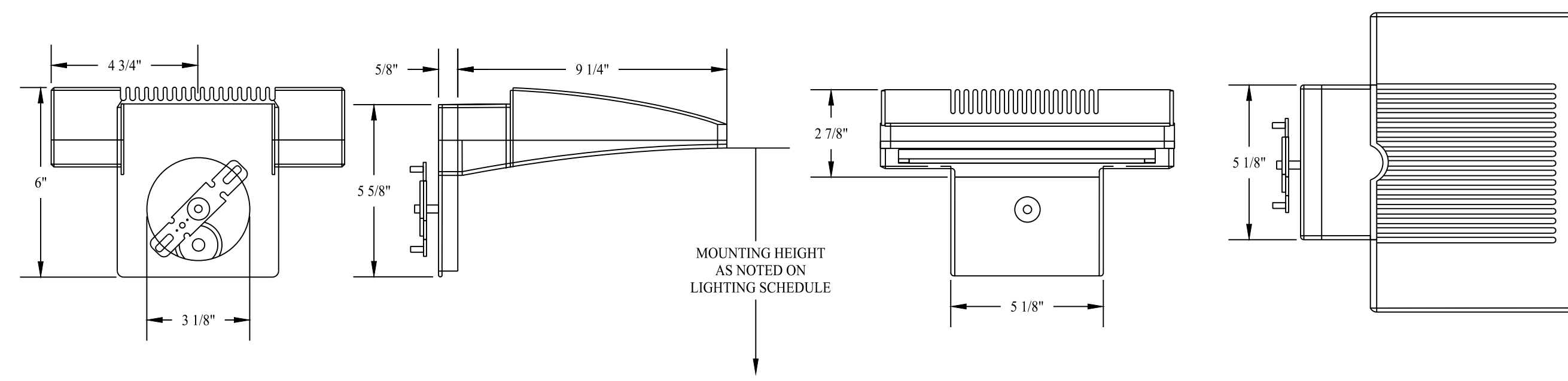
**PROPOSED LIGHT POLE - P1, P2, P3 & P4**

SCALE: NTS



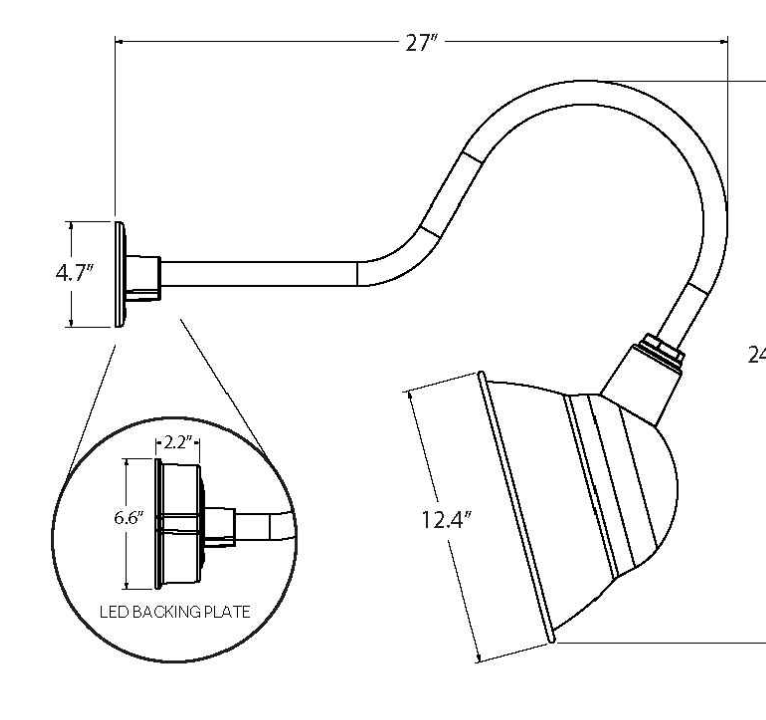
**POLE MOUNTED LIGHT FIXTURE - P1, P2, P3 & P4**

CREE LIGHTING, OSQ-A LED SERIES, BRONZE  
SCALE: NTS



**PROPOSED WALL MOUNTED LIGHT FIXTURE - W1 & W2**

BARN LIGHTING LED WALL PACK, MODEL WPLED26N, POWDER COATED ALUMINUM, BRONZE  
SCALE: NTS



SHOWN WITH G25 GOOSENECK ARM @ 12" SHADE

**PROPOSED WALL MOUNTED LIGHT FIXTURE - W3**

BARN LIGHTING ELECTRIC ASE-LED27-14PC, POWDER COATED ALUMINUM, WHITE  
SCALE: NTS

AVAILABLE SHADE SIZES		
SHADE CODE	HEIGHT (A)	DIAMETER (B)
ASE5	6"	8"
ASE10	7"	10"
ASE12	8.5"	12"
ASE14	9.5"	14"

**GENERAL NOTES**

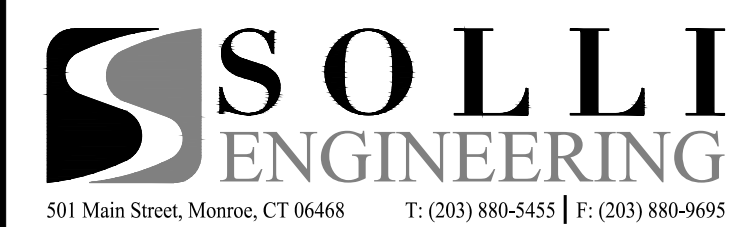
1. THESE PLANS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT FOR CONSTRUCTION. NO CONSTRUCTION OR DEMOLITION SHALL BEGIN UNTIL APPROVAL OF THE FINAL PLANS IS GRANTED BY ALL GOVERNING AND REGULATORY AGENCIES AND ISSUANCE OF A DULY AUTHORIZED CERTIFIED ZONING COMPLIANCE AND BUILDING PERMIT FROM THE TOWNS OF CANTON AND SIMSBURY.
2. EXISTING BOUNDARY INFORMATION TAKEN FROM A PLAN ENTITLED "PROPERTY SURVEY OF 9-15 ALBANY TURNPIKE, CANTON, CT" DATED 12/10/19, SCALE: 1" = 66', BY ACCURATE LAND SURVEYING, LLC.

**LIGHTING NOTES**

1. ALL LIGHT FIXTURES TO BE MOUNTED AND INSTALLED PER MANUFACTURER SPECIFICATIONS.
2. ALL WORK AND RELATED MATERIALS SHALL COMPLY WITH CITY, COUNTY, AND OTHER APPLICABLE GOVERNING AUTHORITY REQUIREMENTS.

Rev. #: \_\_\_\_\_ Date \_\_\_\_\_ Description \_\_\_\_\_

Graphic Scale:



Drawn By: MFB  
Checked By: KMS  
Approved By: KMS  
Project #: 1904501  
Plan Date: 08/11/20  
Scale: NTS

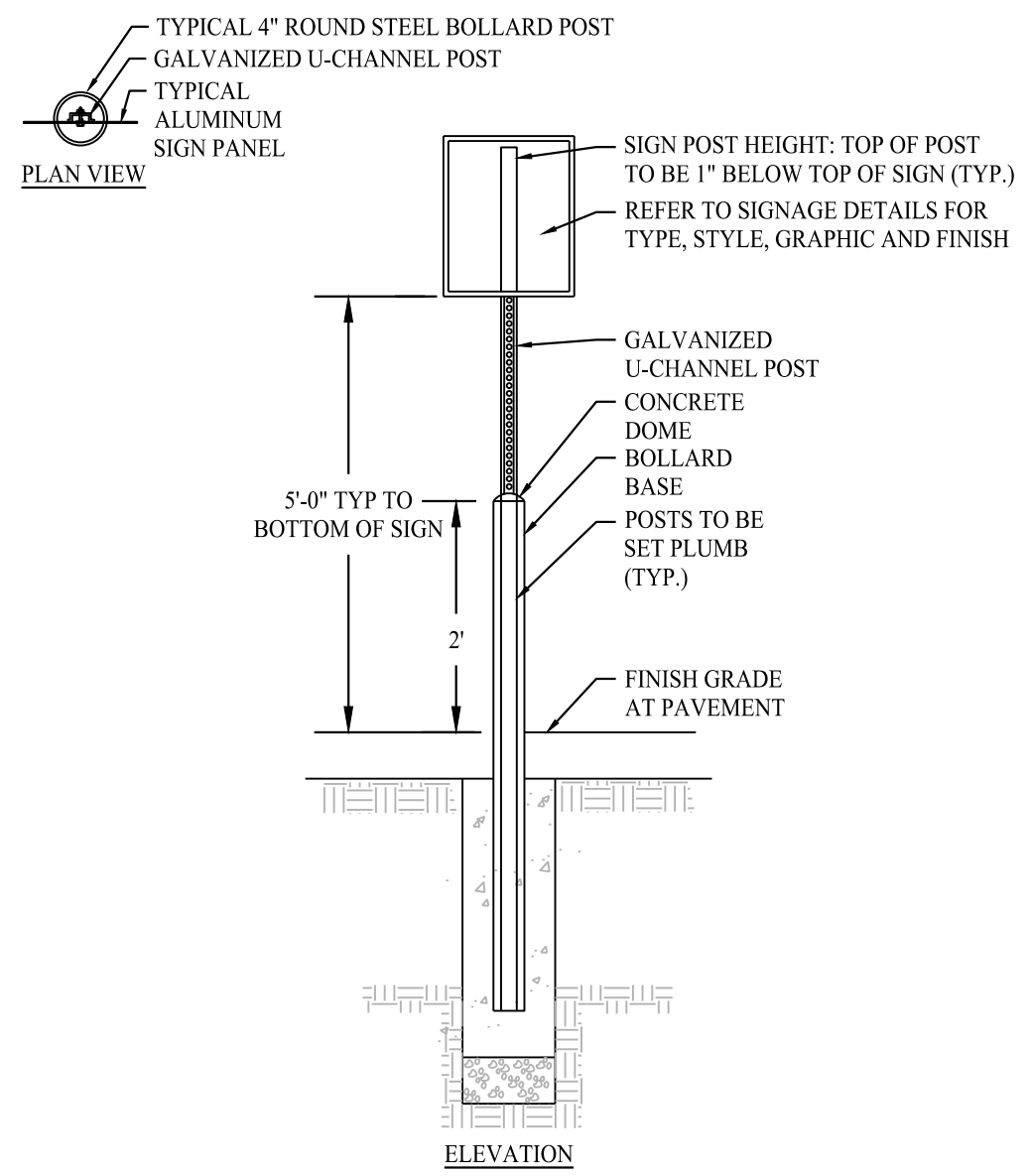
Mary Blackburn, P.L.A.  
CT 1499

Project:  
**9-15 ALBANY  
TURNPIKE**  
SIMSBURY & CANTON, CONNECTICUT

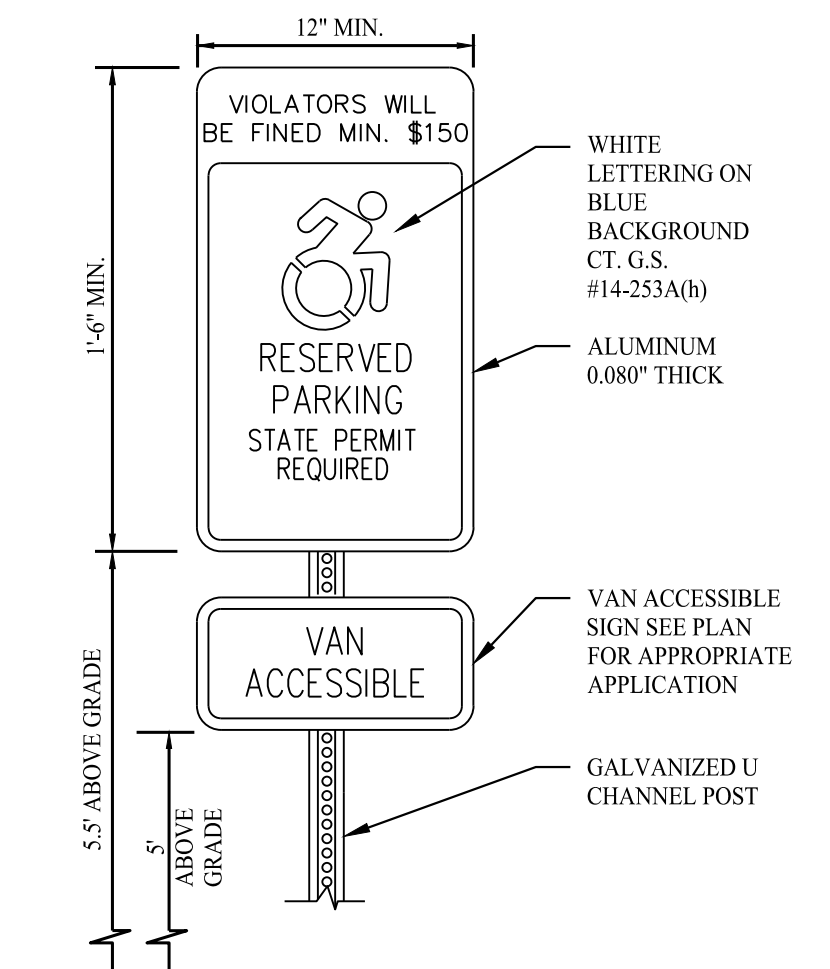
Sheet Title:  
**LIGHTING  
DETAILS  
SHEET**

Sheet #:  
**2.72**

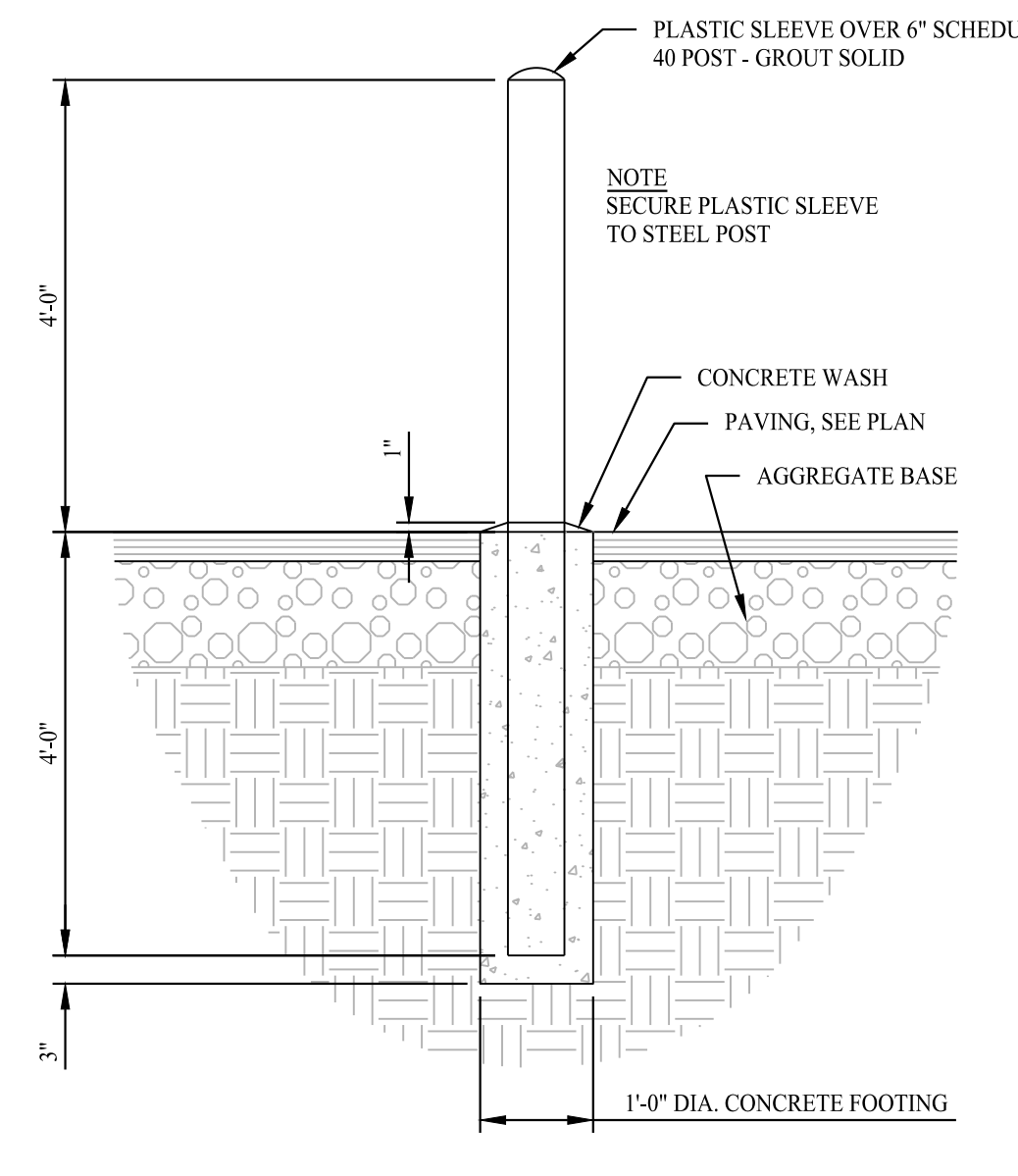




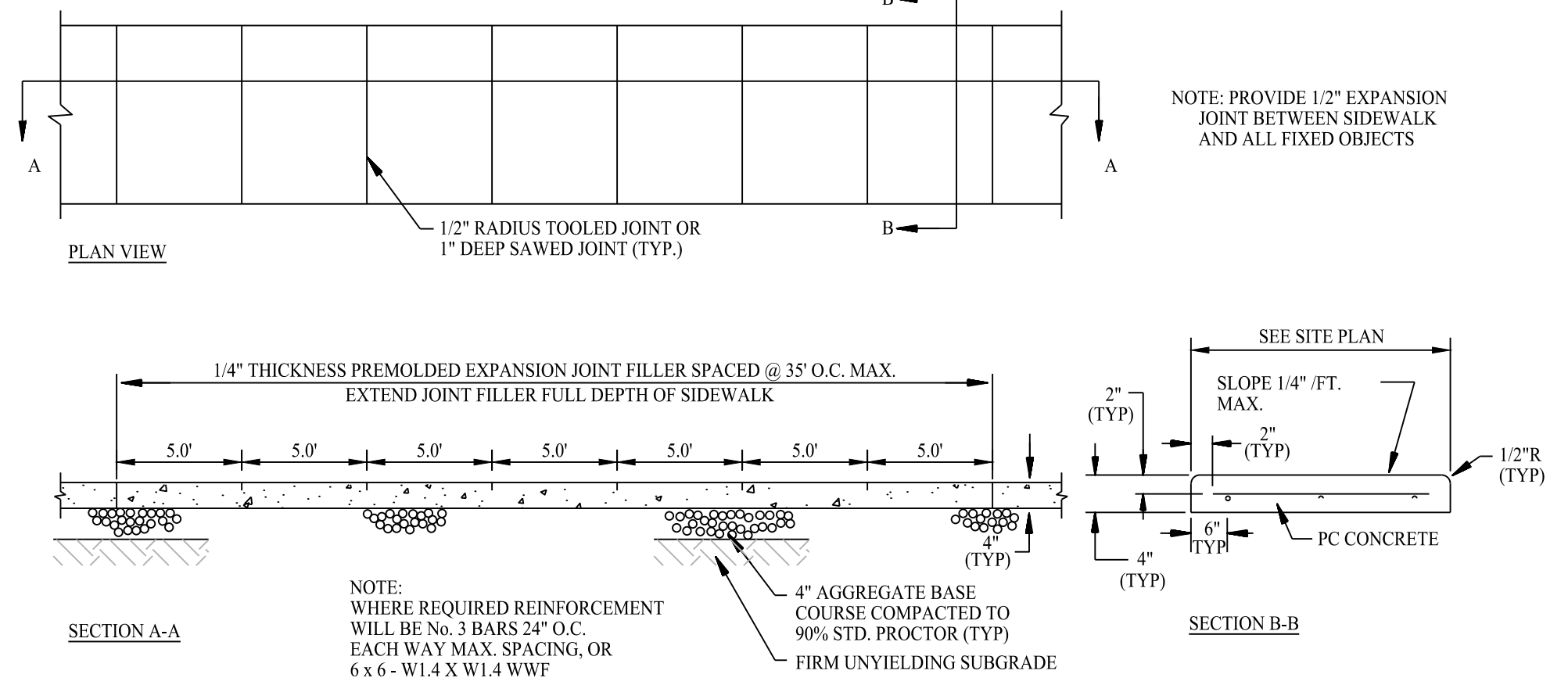
**SIGN MOUNTING FOR ACCESSIBLE SIGN**  
SCALE: NTS



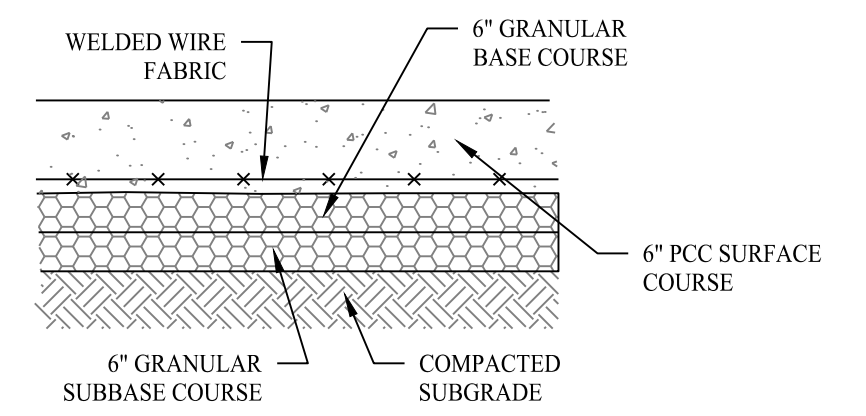
**ACCESSIBLE PARKING SIGN DETAIL**  
SCALE: NTS



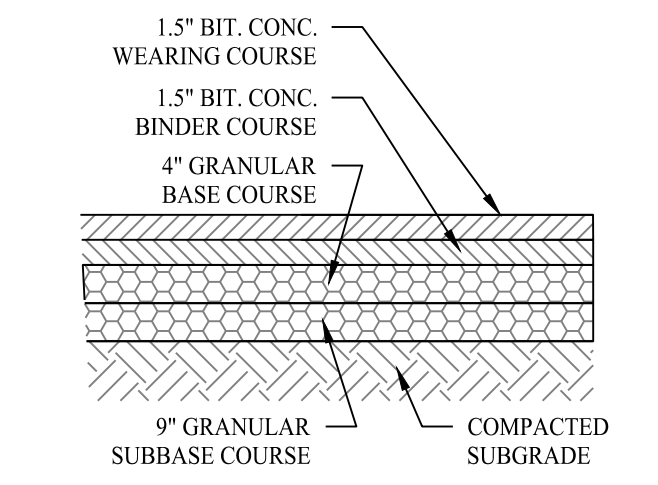
**CONCRETE BOLLARD DETAIL**  
SCALE: NTS



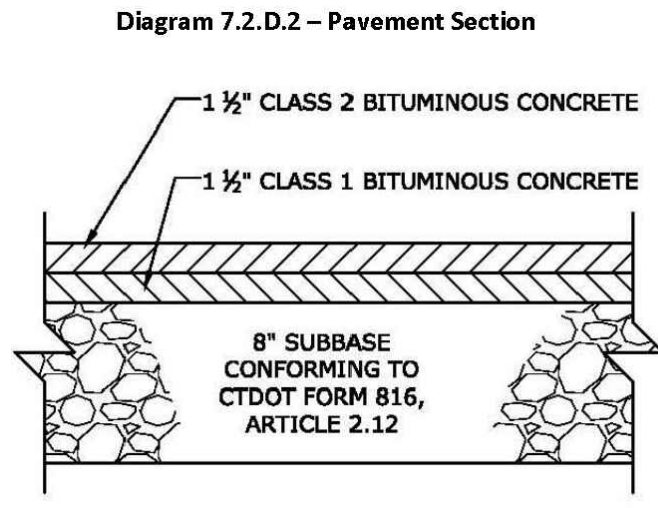
**CONCRETE SIDEWALK**  
SCALE: NTS



**HEAVY DUTY CONCRETE PAVING**

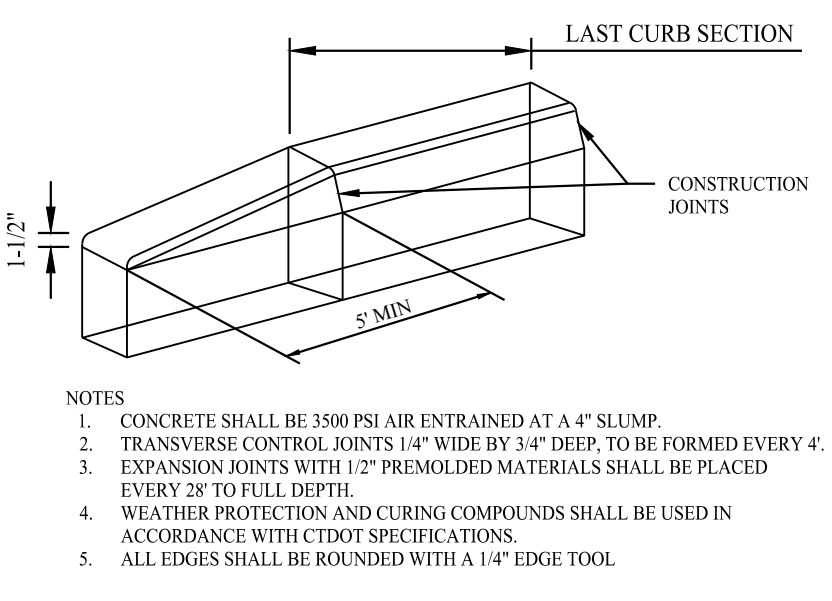


**HEAVY DUTY ASPHALT PAVING**

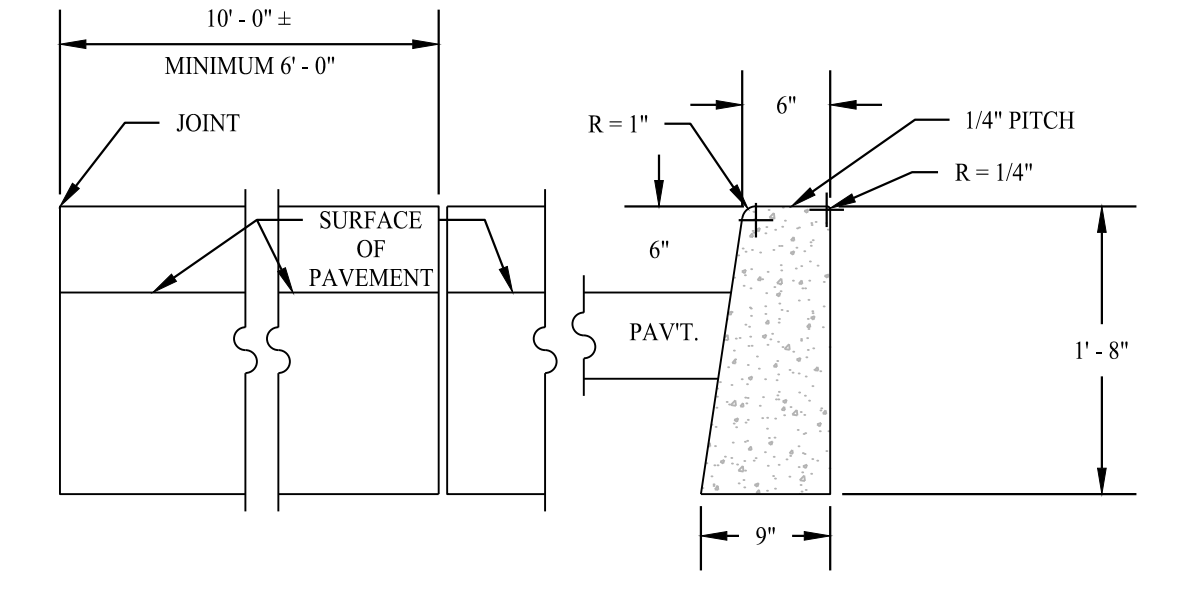


**STANDARD DUTY ASPHALT PAVING**  
DETAIL PROVIDED BY TOWN OF CANTON

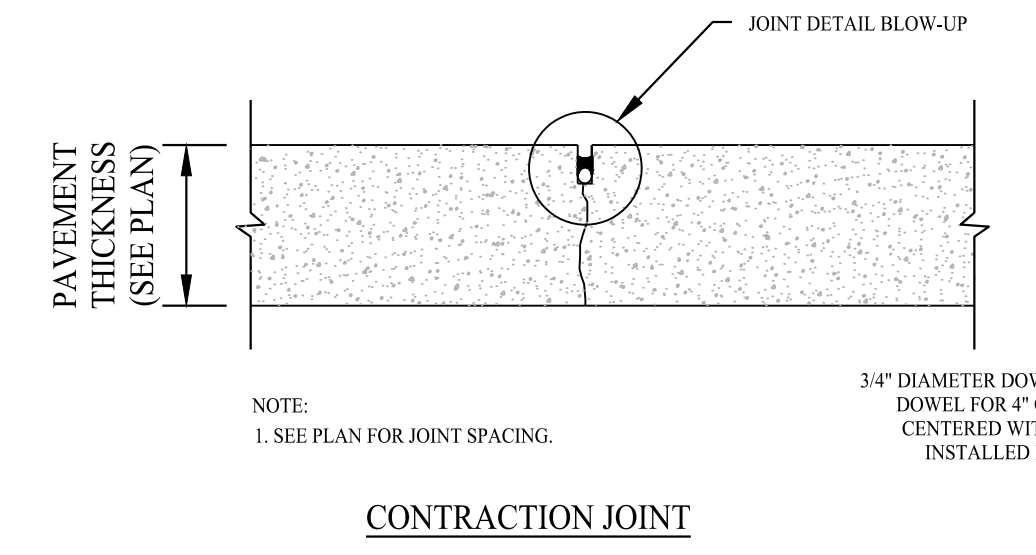
**PAVING DETAILS**  
SCALE: NTS



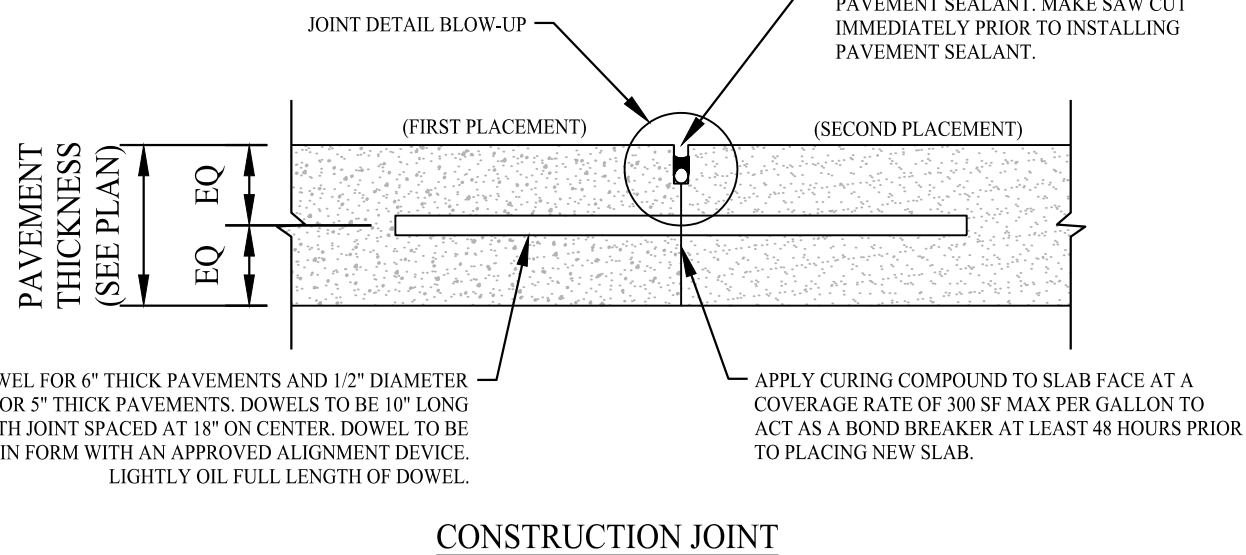
**CURB TRANSITION DETAIL**  
SCALE: NTS



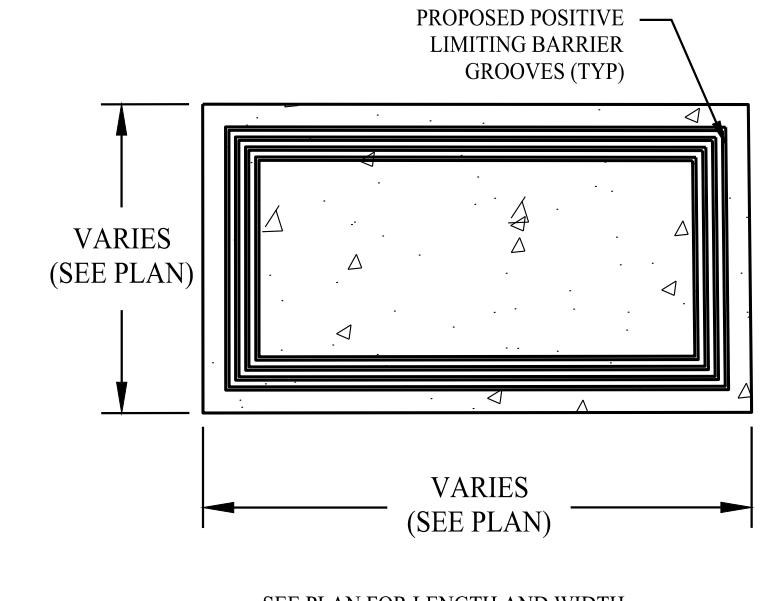
**CONCRETE CURBING DETAIL**  
SCALE: NTS



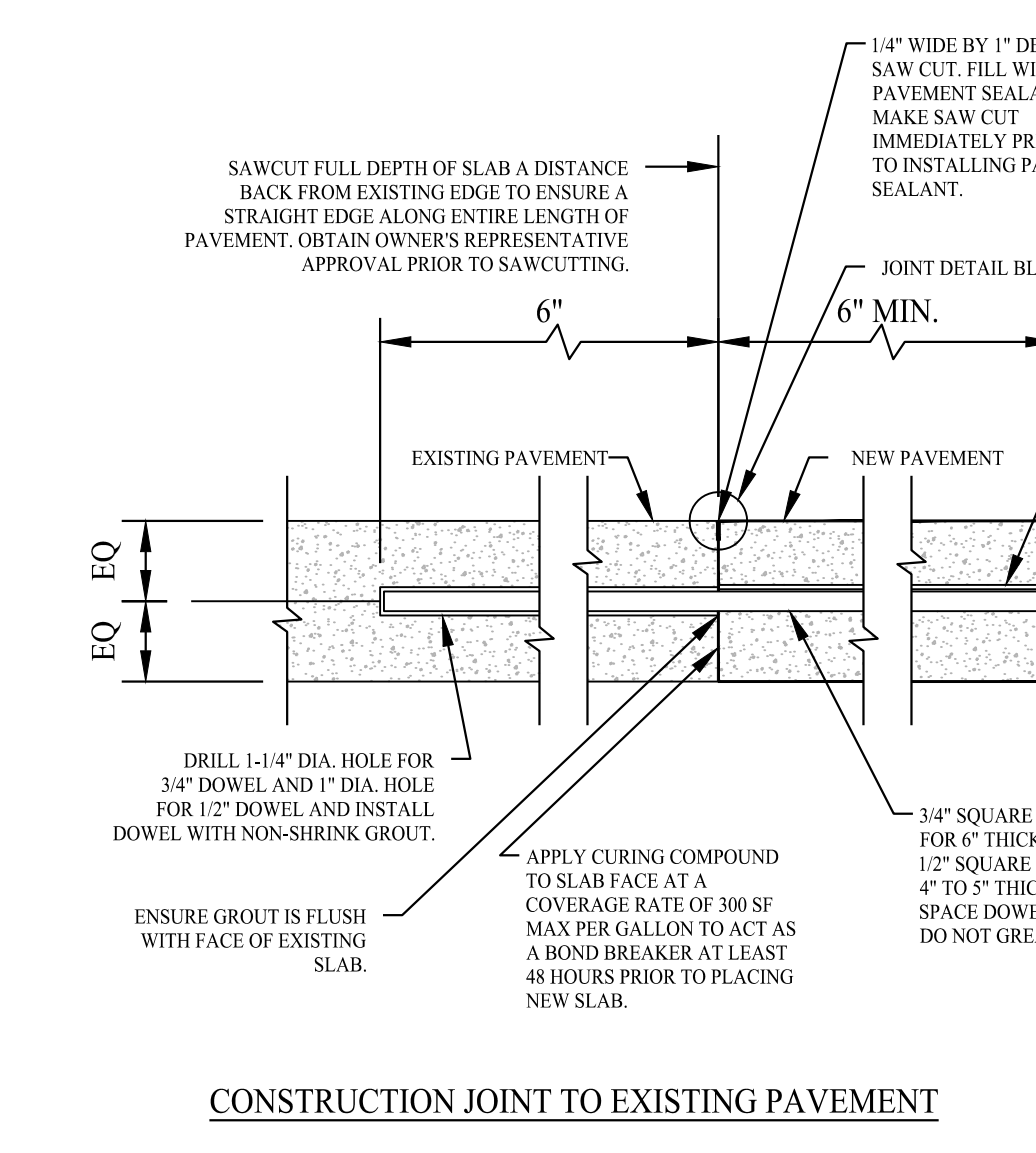
**CONTRACTION JOINT**



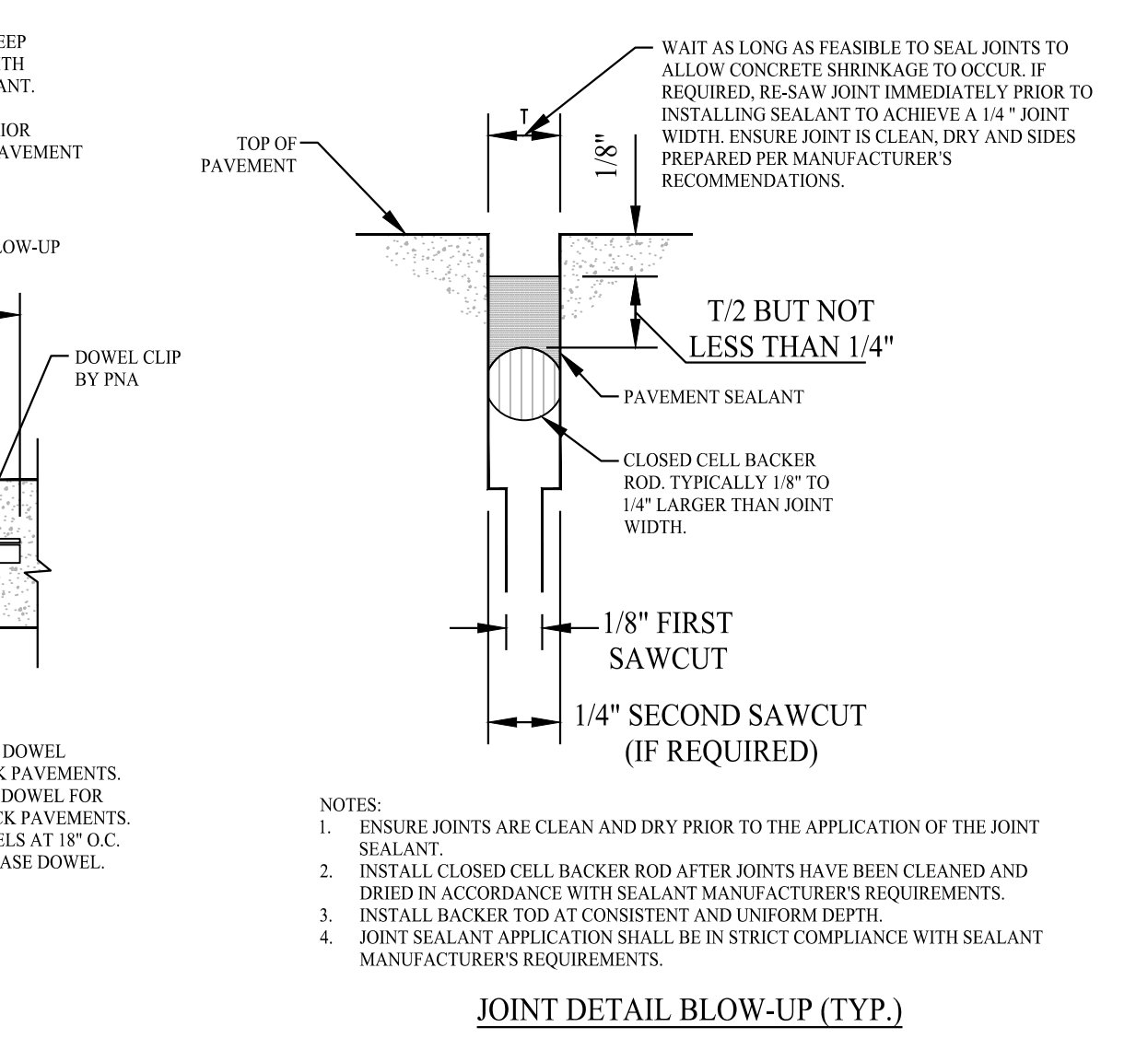
**CONSTRUCTION JOINT**



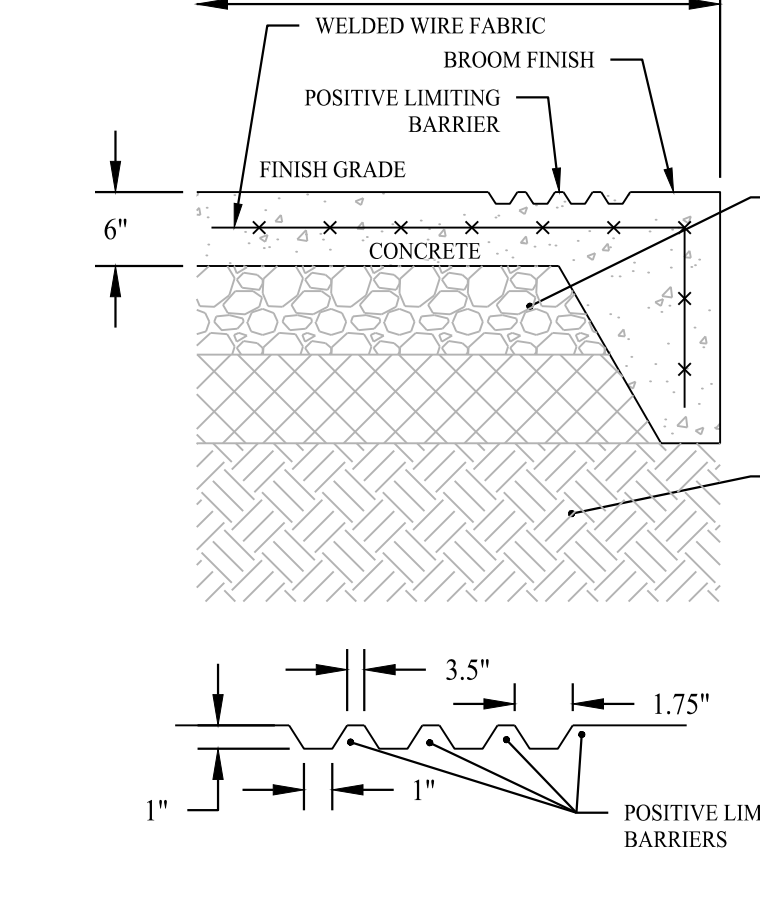
**PROPOSED POSITIVE LIMITING BARRIER GROOVES (TYP.)**  
SCALE: NTS



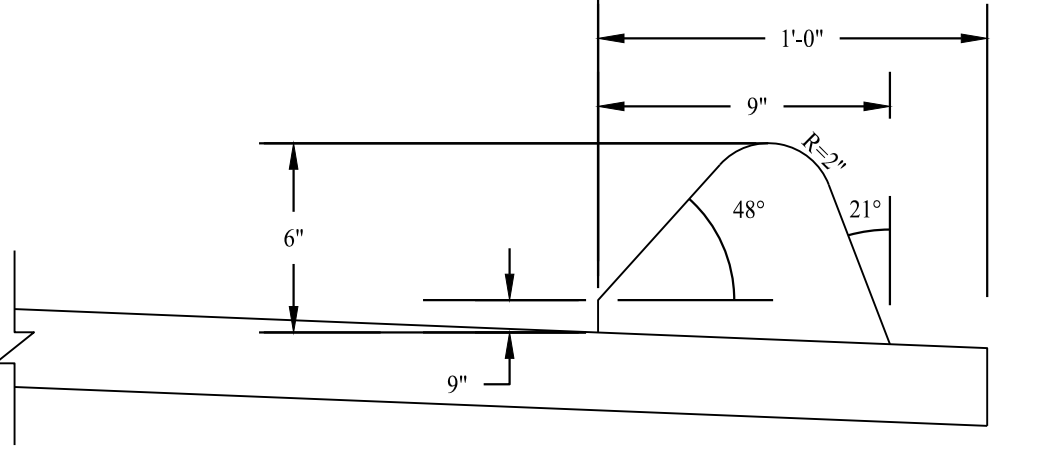
**CONSTRUCTION JOINT TO EXISTING PAVEMENT**



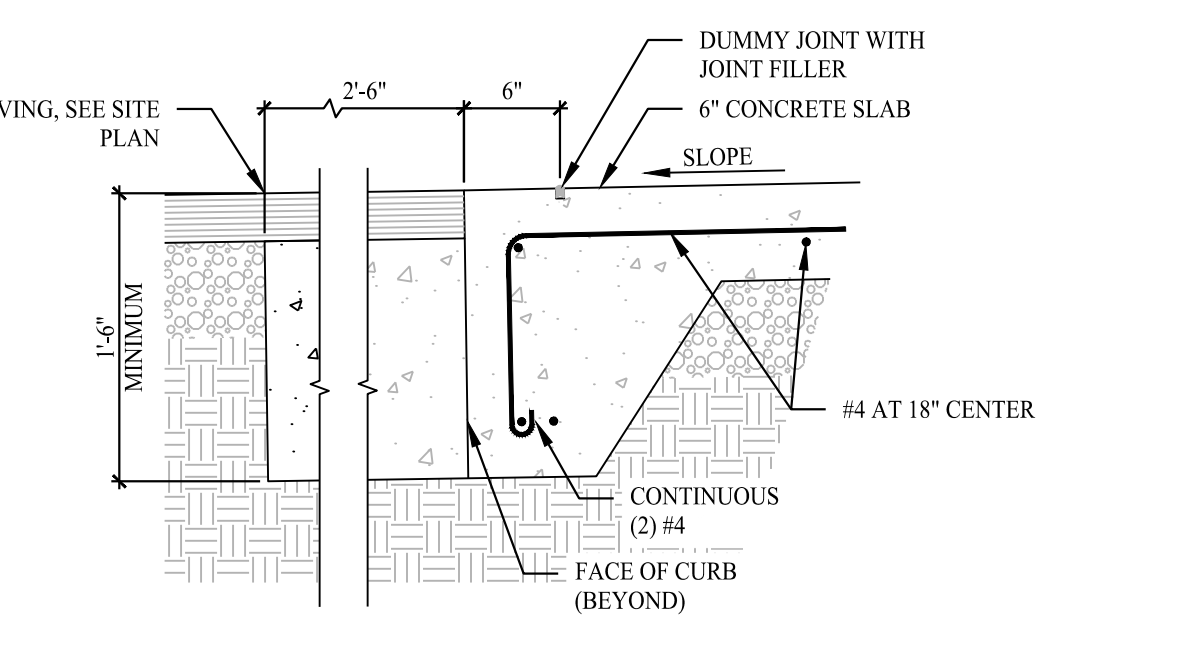
**JOINT DETAIL BLOW-UP (TYP.)**



**FUEL TANK CONCRETE PAD DETAIL**  
SCALE: NTS

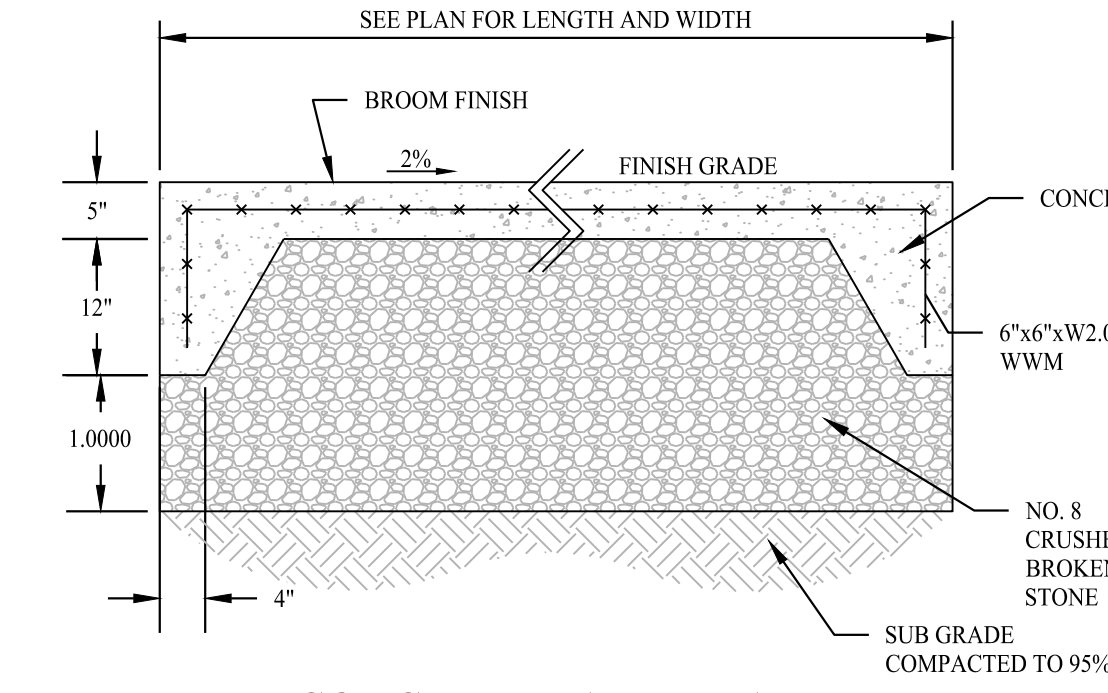


**BITUMINOUS CONCRETE LIP CURBING DETAIL**  
SCALE: NTS

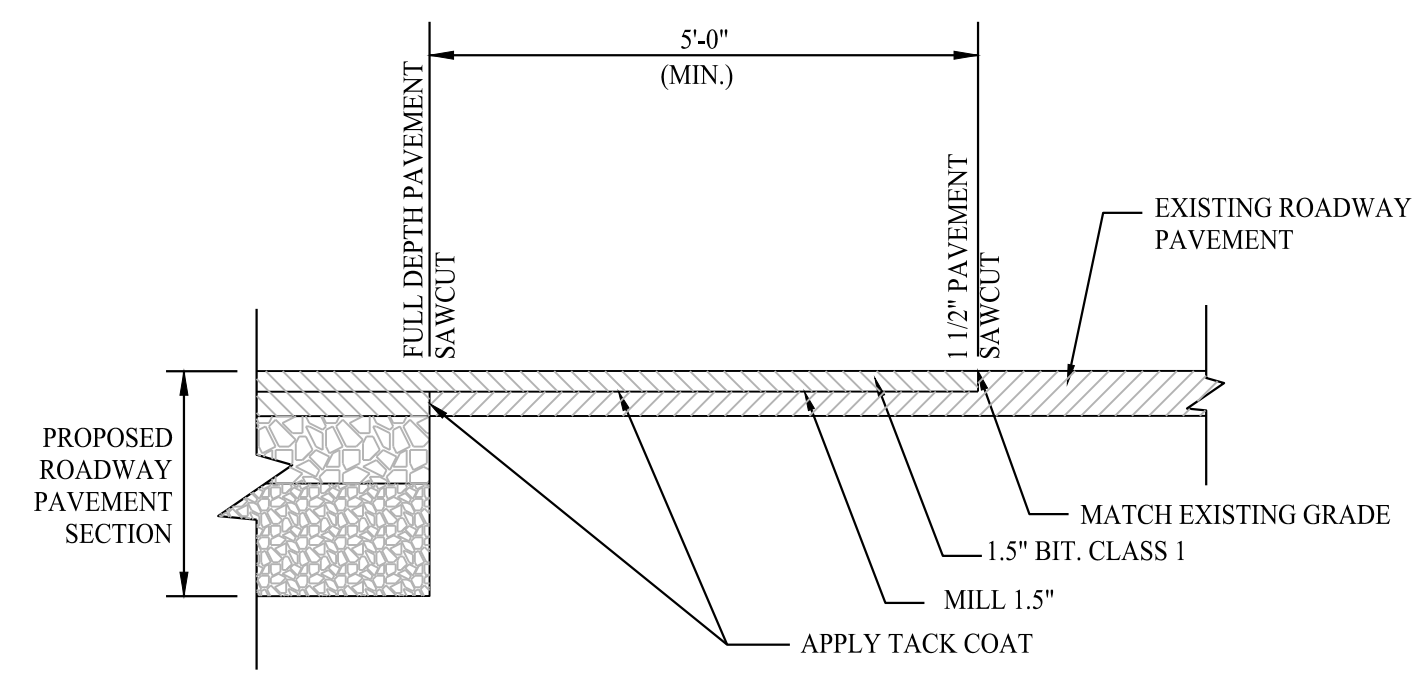


**FLUSH CURB AT PAVEMENT**  
SCALE: NTS

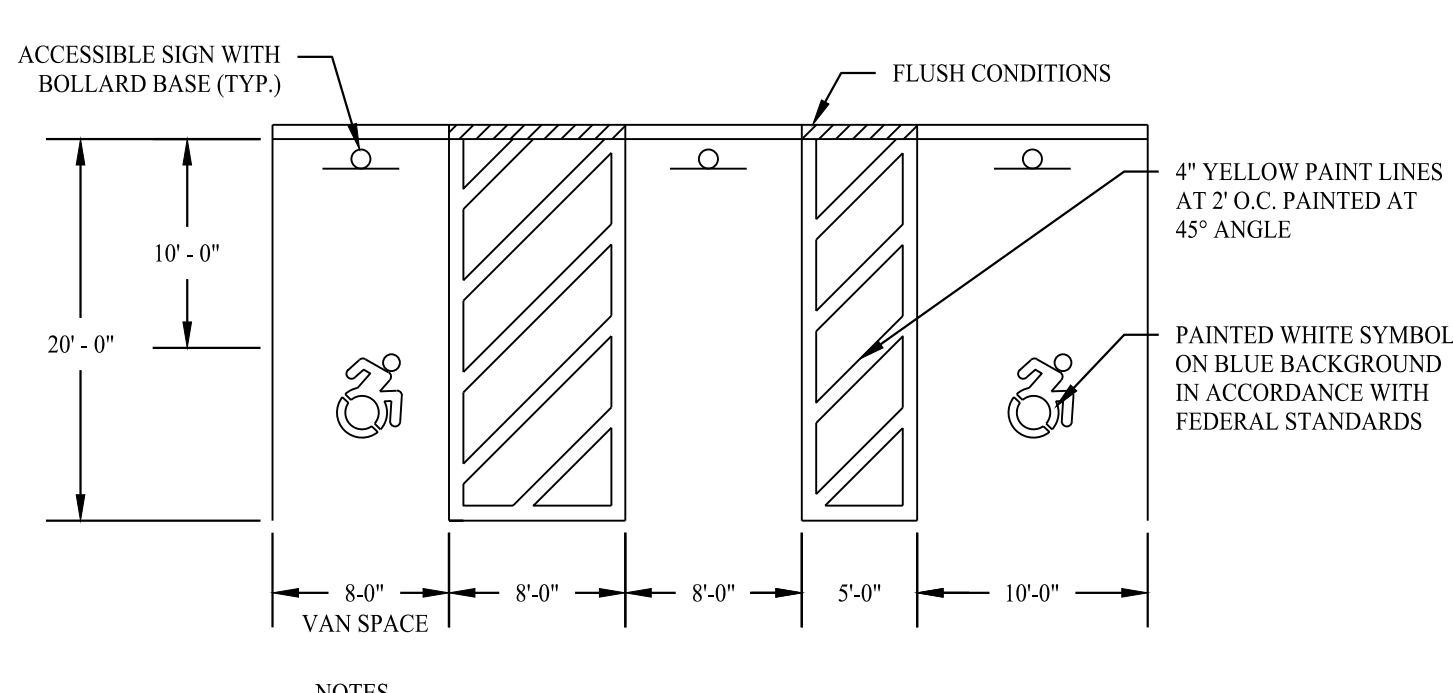
**CONCRETE JOINT DETAIL**  
SCALE: NTS



**CONCRETE PAD DETAIL**  
SCALE: NTS



**PAVEMENT MATCHING DETAIL**  
SCALE: NTS



**ACCESSIBLE PARKING SPACE DETAIL**  
SCALE: NTS

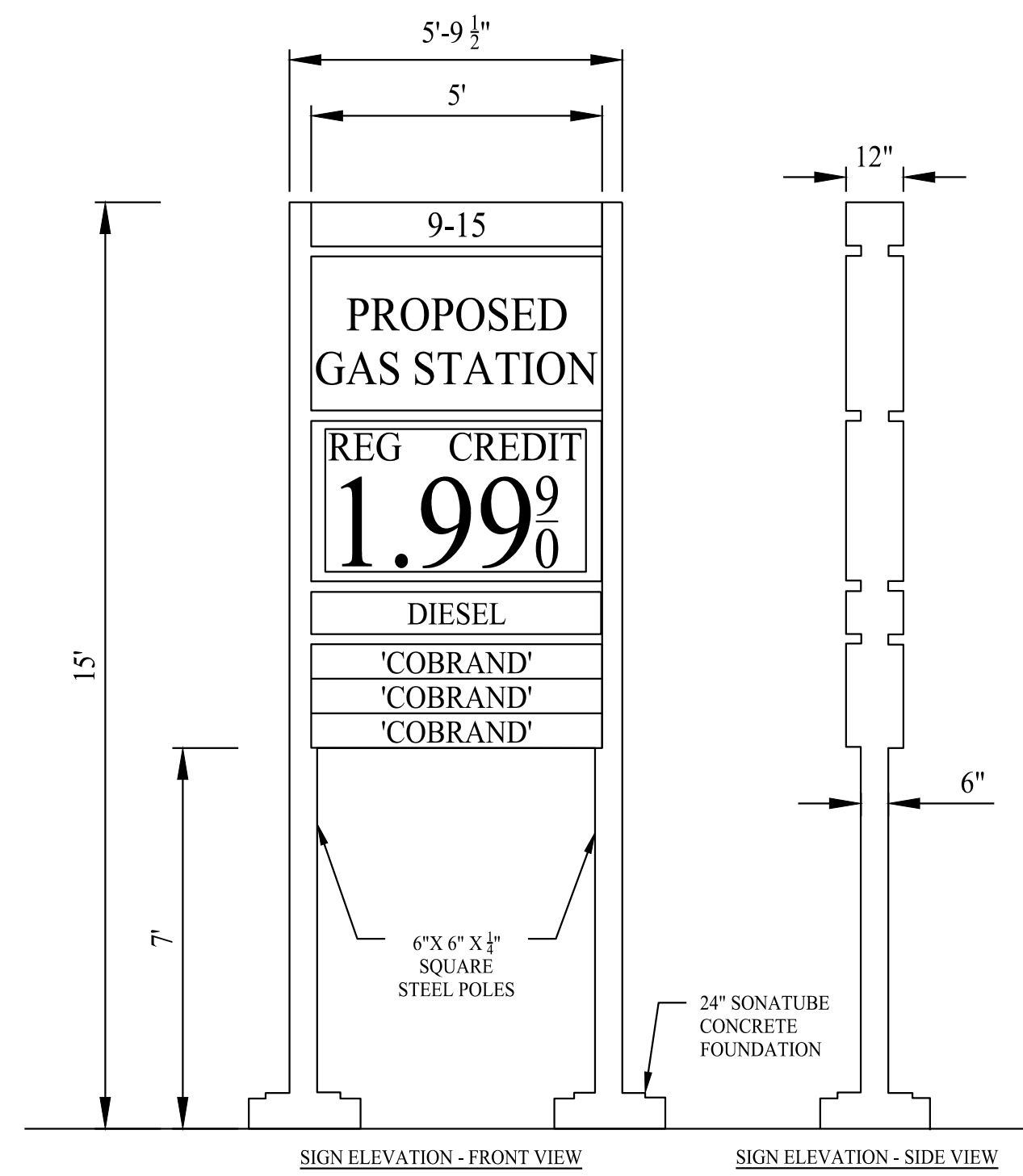
Rev. #:	Date	Description

**SOLLI ENGINEERING**  
501 Main Street, Monroe, CT 06468 | T: (203) 880-5455 | F: (203) 880-9695

Drawn By:	CJP
Checked By:	MLS
Approved By:	KMS
Project #:	1904501
Plan Date:	08/11/20
Scale:	NTS
Project:	Kevin Solli, P.E. CT 25759

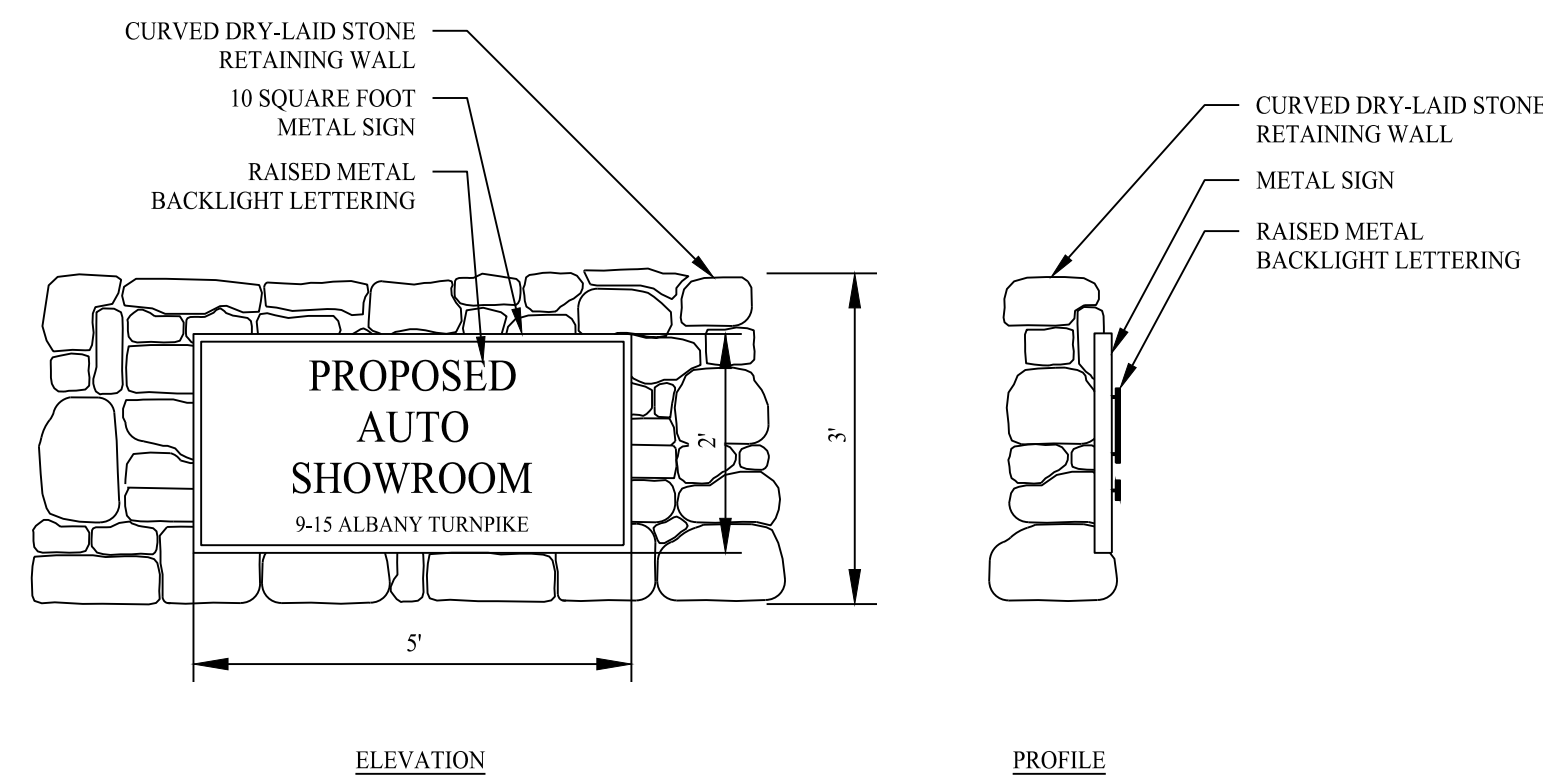
**9-15 ALBANY TURNPIKE**  
SIMSBURY & CANTON, CONNECTICUT

Sheet Title:	Sheet #:
<b>DETAIL SHEET</b>	<b>3.01</b>



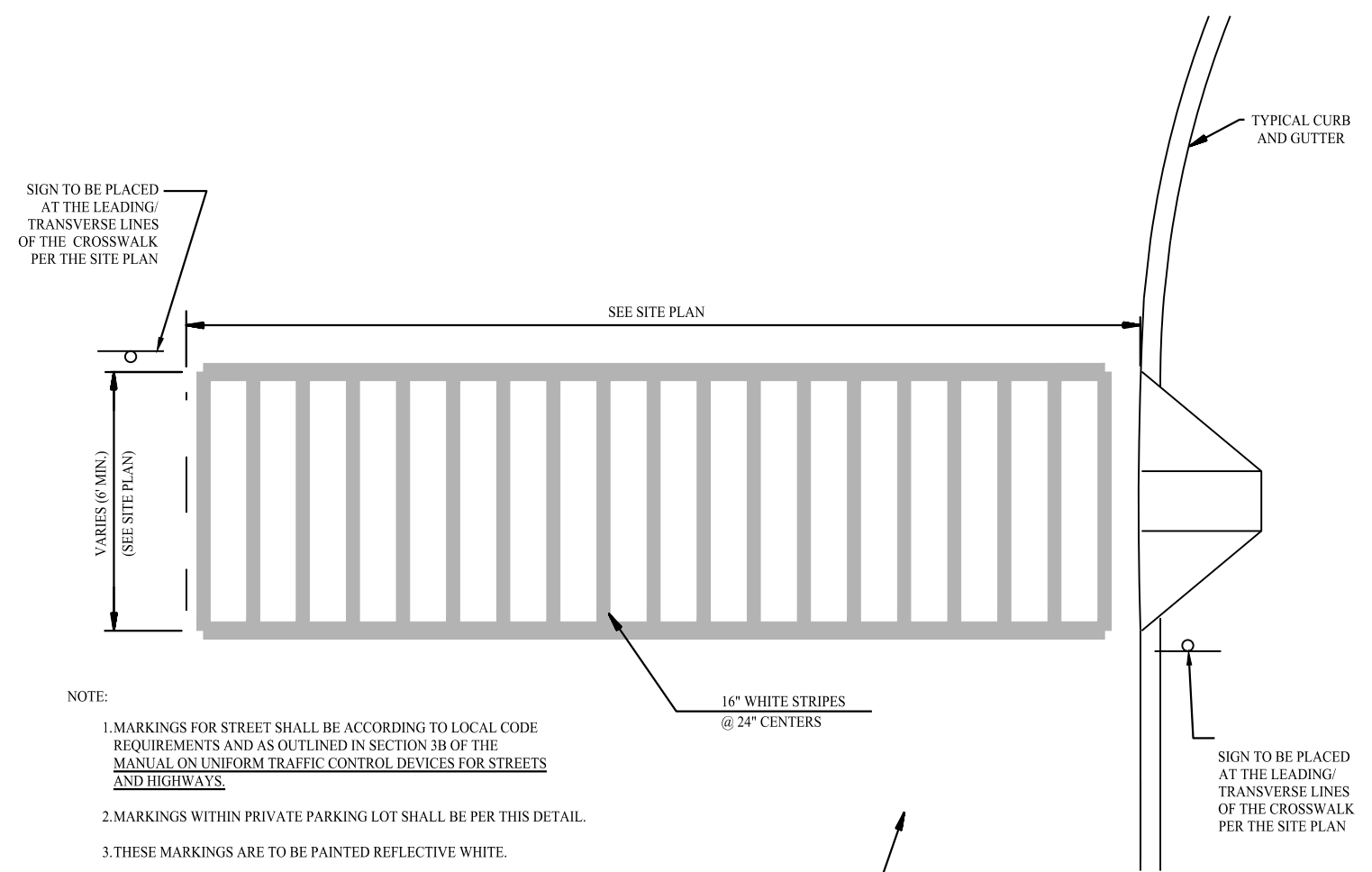
**GAS STATION SIGNAGE DETAIL**

SCALE: NTS



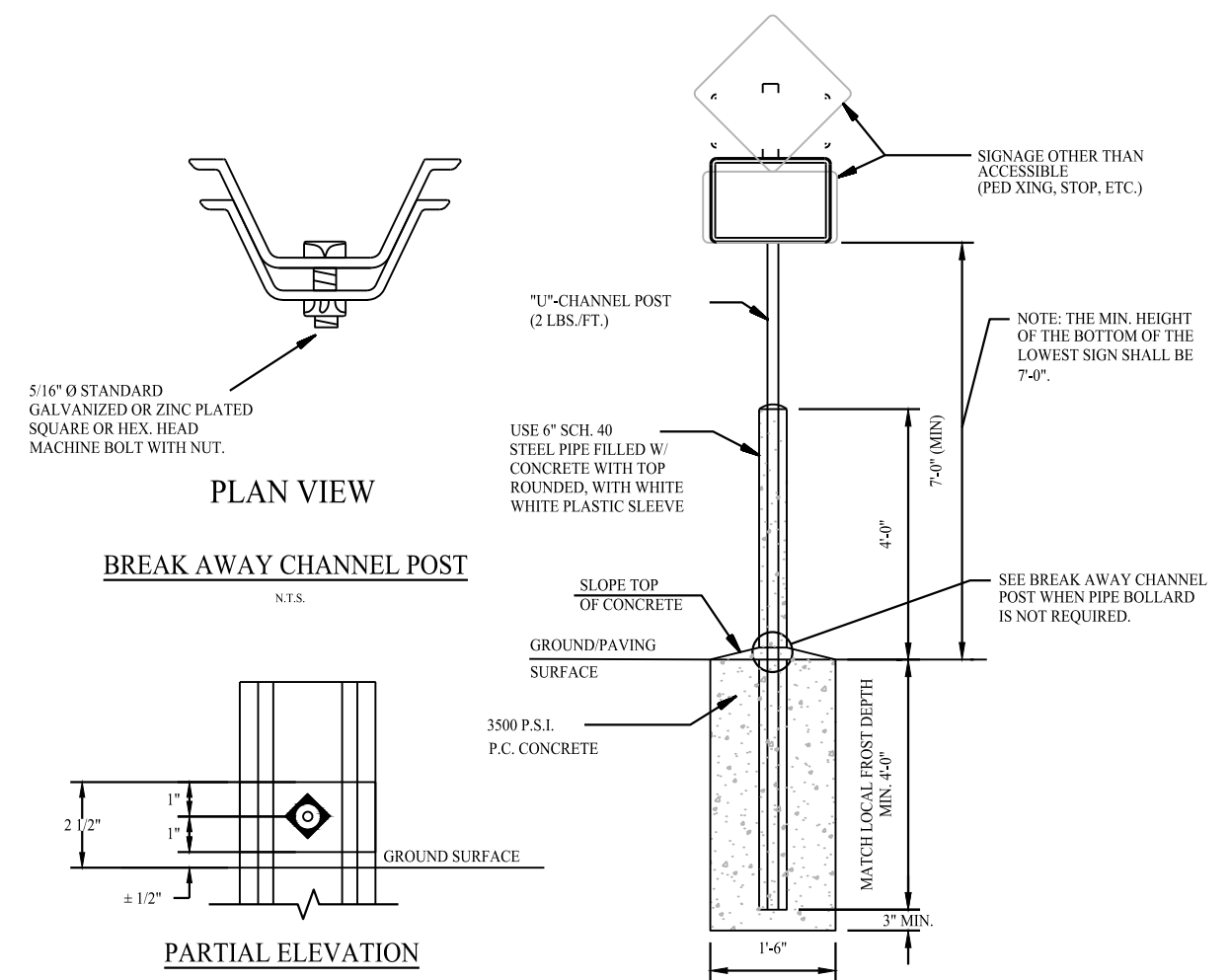
**WALL SIGN DETAIL**

SCALE: NTS



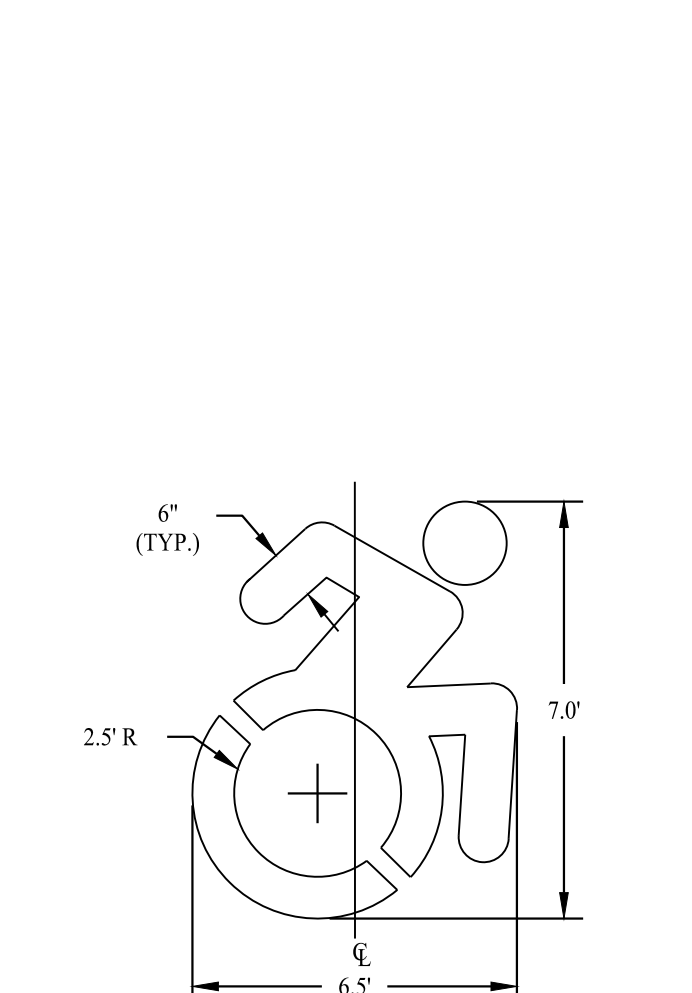
**CROSSWALK/PED. CROSSING DETAIL**

SCALE: NTS



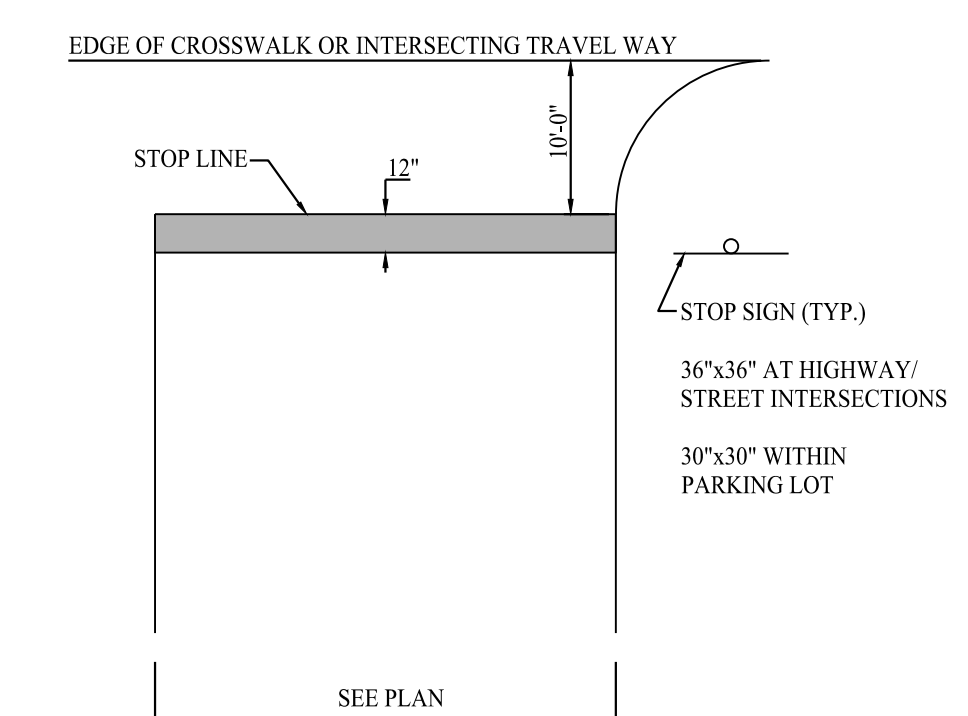
**SITE SIGN BASE DETAILS**

SCALE: NTS



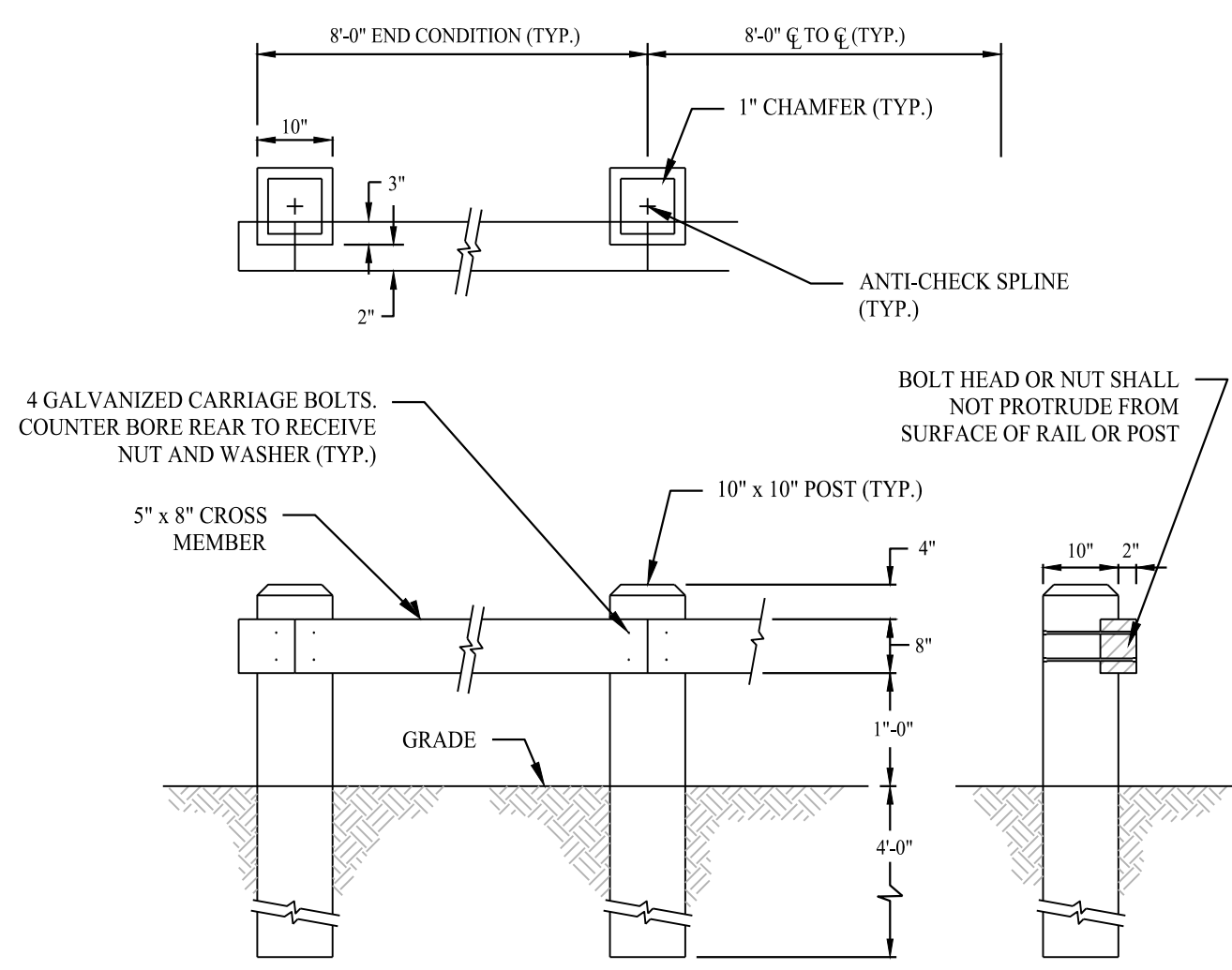
**ACCESSIBLE PARKING SYMBOL**

SCALE: NTS



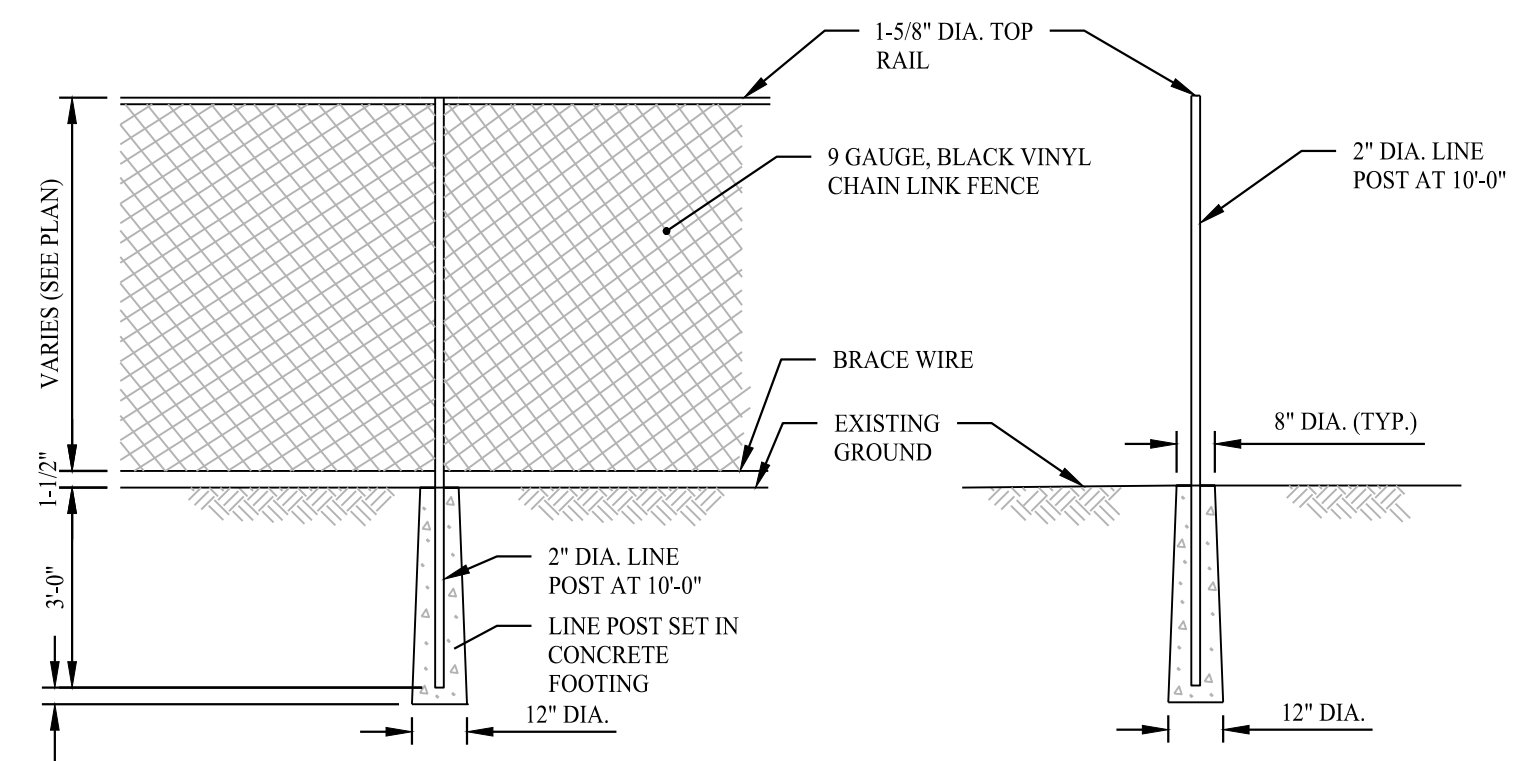
**STOP SIGNAGE AND MARKING**

SCALE: NTS



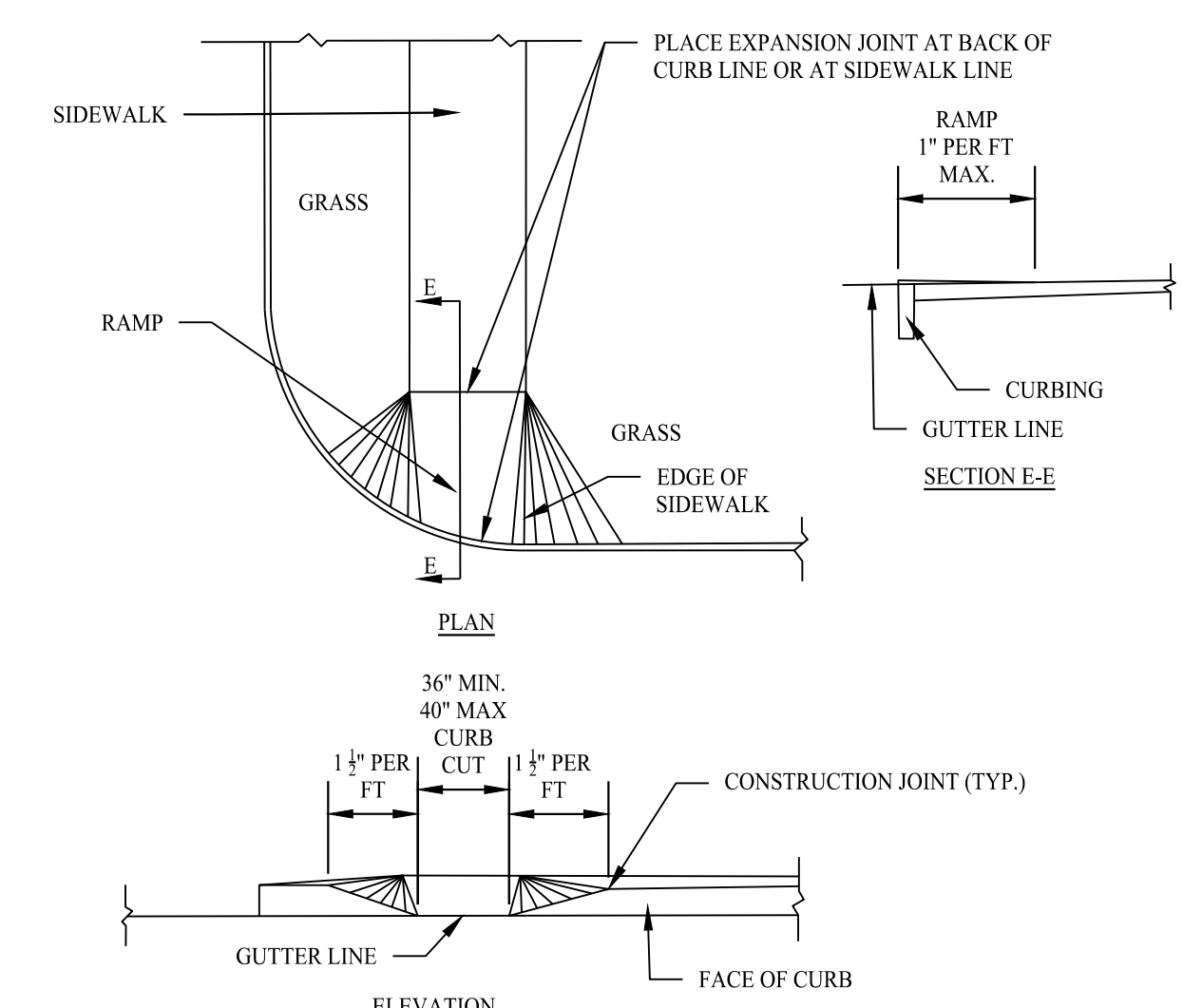
**TIMBER GUIDE RAIL**

SCALE: NTS



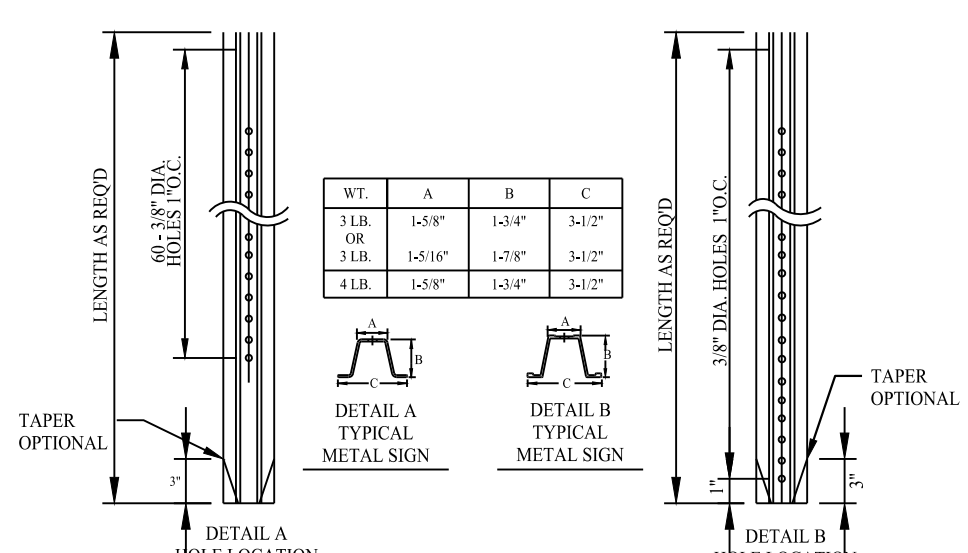
**CHAIN LINK FENCE DETAIL**

SCALE: NTS



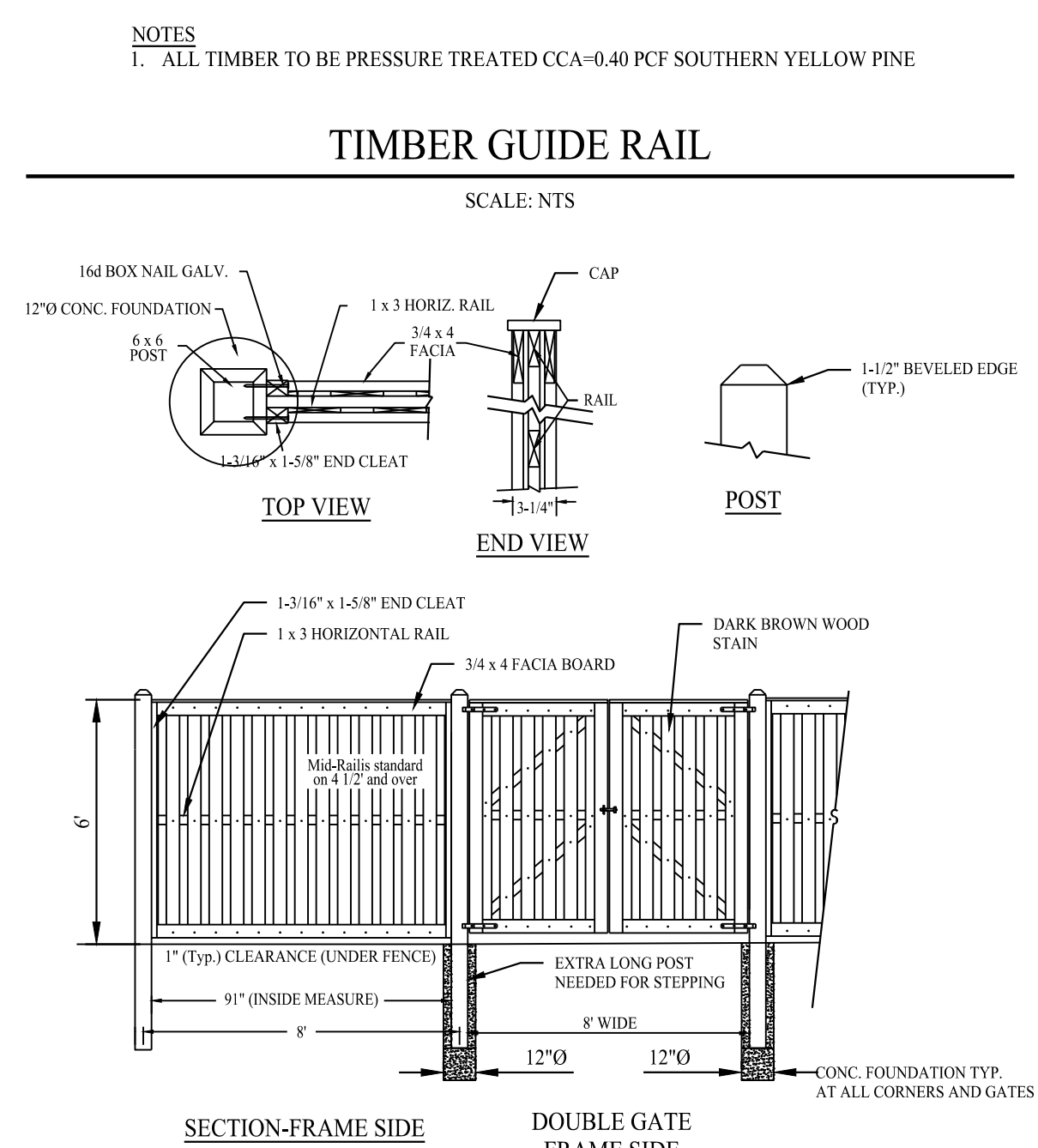
**SIDEWALK RAMP**

SCALE: NTS



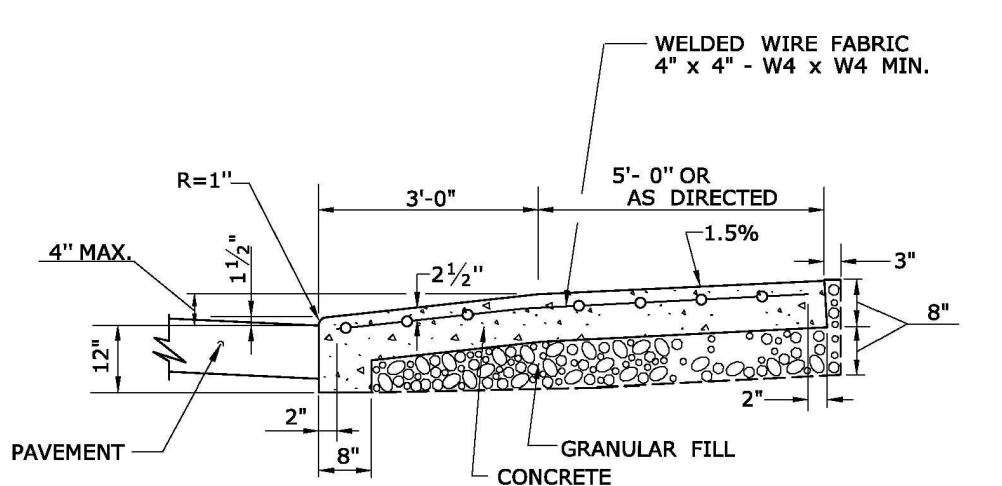
**TYPICAL METAL SIGN POSTS**

SCALE: NTS



**DUMPSTER PAD ENCLOSURE - BOARD ON BOARD FENCE**

SCALE: NTS

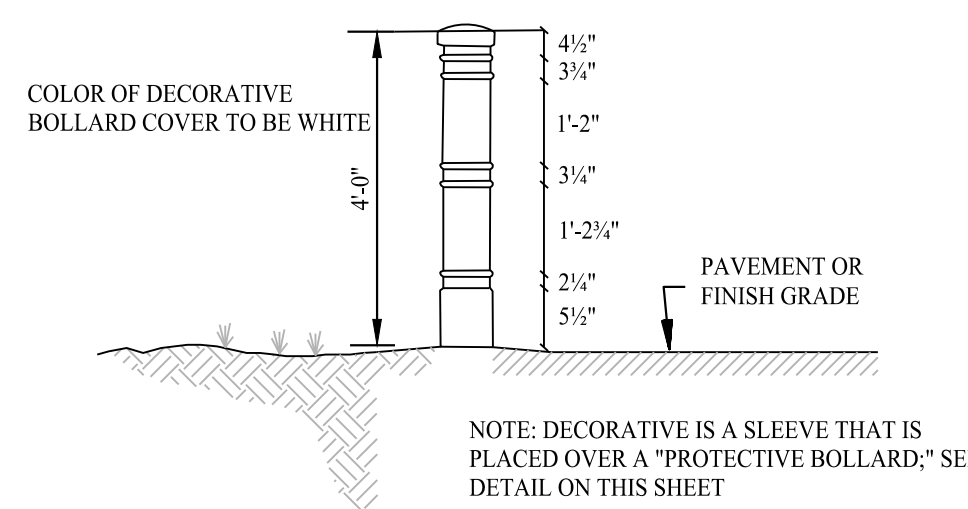


**CONCRETE DRIVEWAY APRON STANDARD DETAIL**

SCALE: NTS

DETAIL PROVIDED CONNECTICUT DEPARTMENT OF TRANSPORTATION

- GENERAL NOTES:**
- DRIVEWAY ENTRANCE SHALL BE A MINIMUM OF 12' WIDE, EXCLUDING CURBING WHEN PRESENT.
  - WELDED WIRE FABRIC MATS WITH REINFORCING AT CLOSER SPACING MAY BE USED.
  - SURFACE HMA S0.375 TO BE PLACED IN TWO EQUAL LIFTS FOR BOTH RESIDENTIAL AND COMMERCIAL DRIVEWAYS.



**DECORATIVE BOLLARD COVER DETAIL**

SCALE: NTS

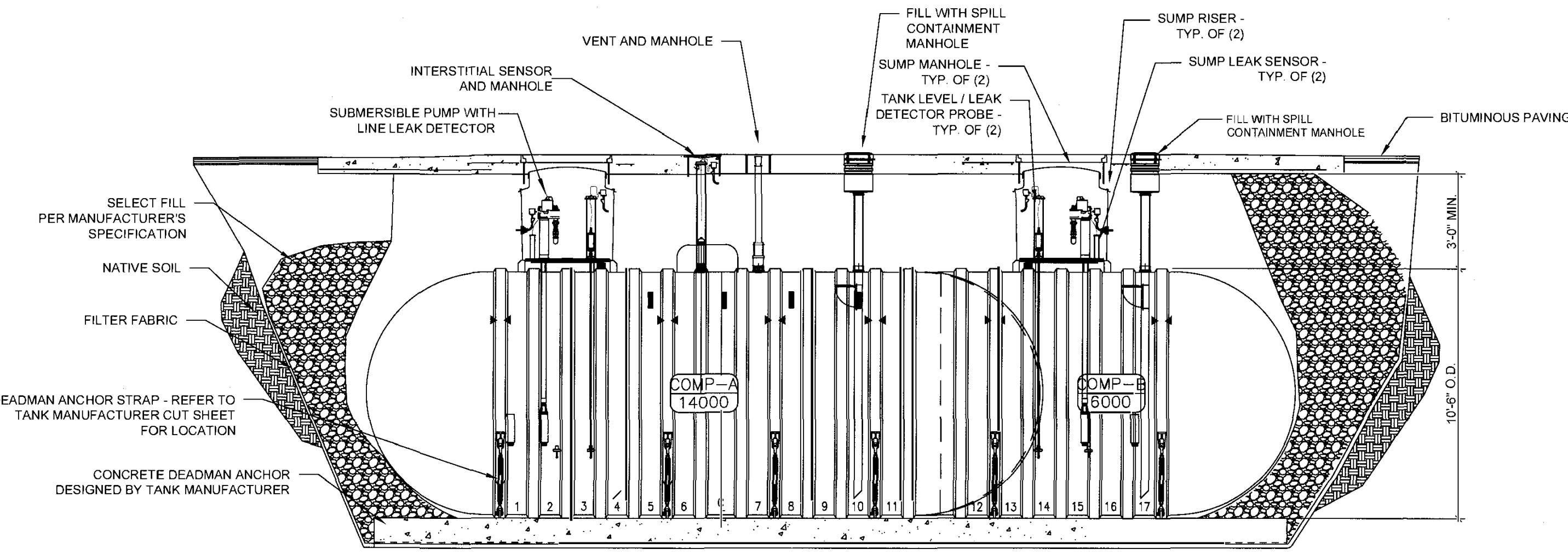
Rev. #:	Date	Description

**SOLLI ENGINEERING**  
 501 Main Street, Monroe, CT 06468 | T: (203) 880-5455 | F: (203) 880-9695

Drawn By:	CJP
Checked By:	MSL
Approved By:	KMS
Project #:	1904501
Plan Date:	08/11/20
Scale:	NTS
Project:	Kevin Solli, P.E. CT 25759

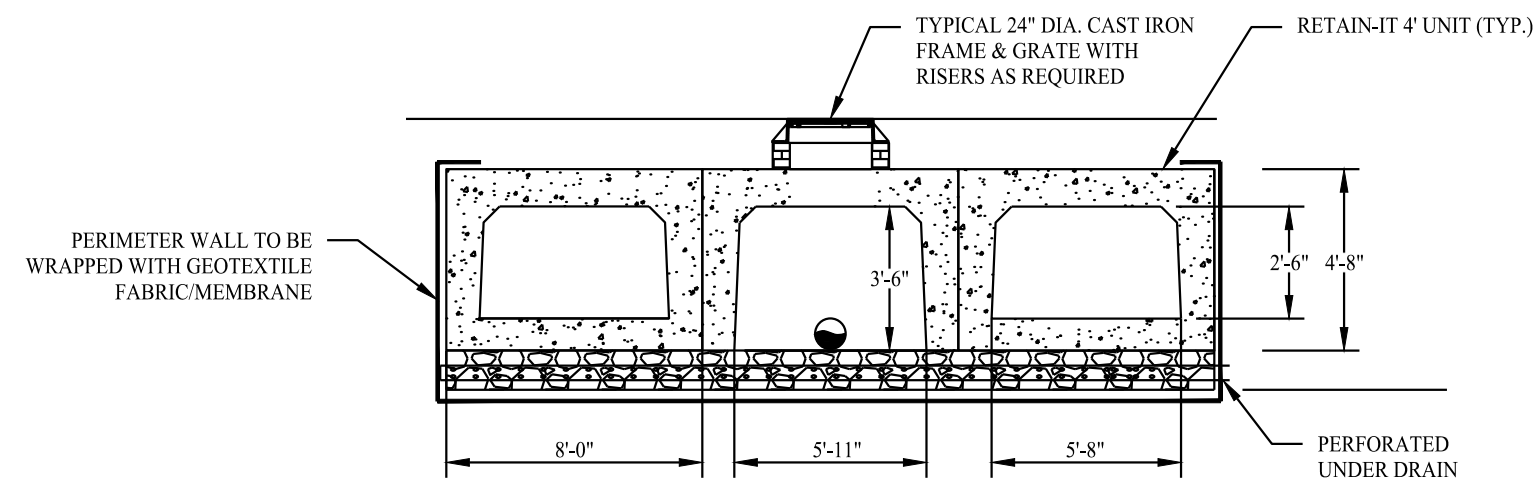
**9-15 ALBANY TURNPIKE**  
 SIMSBURY & CANTON, CONNECTICUT

Sheet Title:	Sheet #:
<b>DETAIL SHEET</b>	<b>3.02</b>



20,000 GAL SPLIT TANK CROSS SECTION

SCALE: NTS



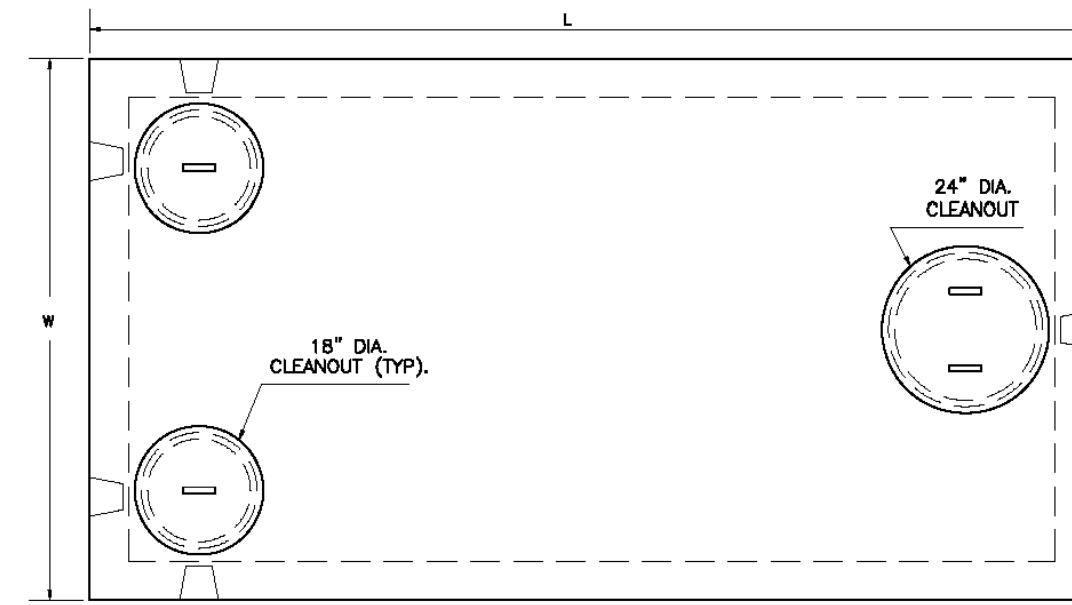
TYPICAL RETAIN-IT SYSTEM SECTION

SCALE: NTS

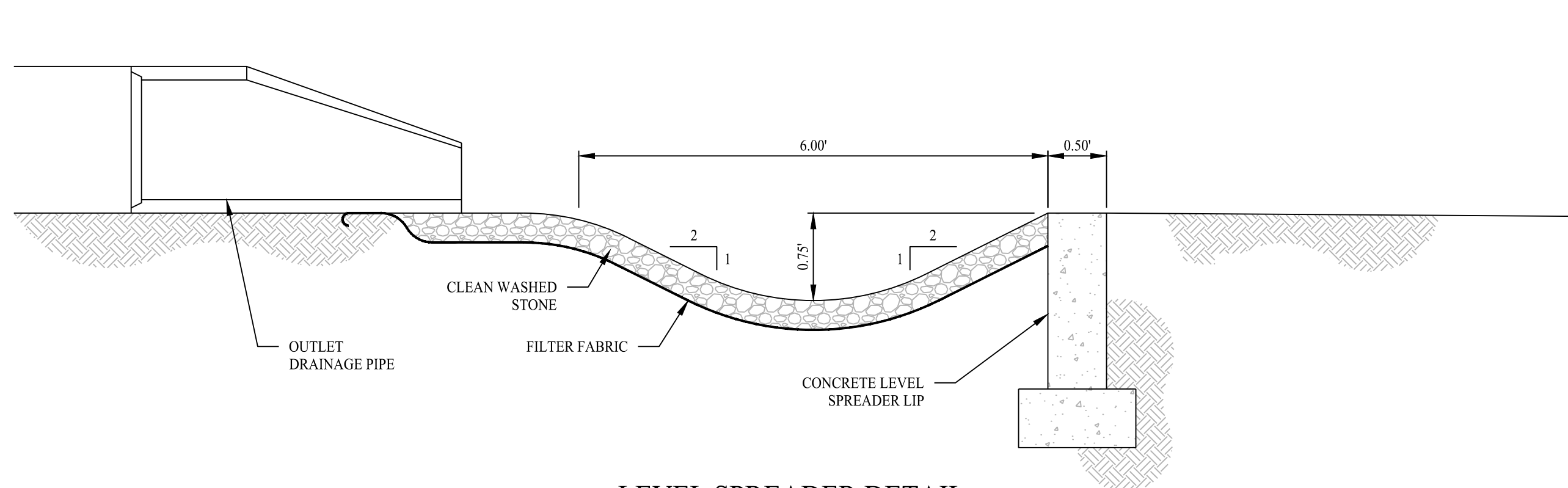
MODEL NO.	LIQUID CAPACITY	LENGTH L	WIDTH W	INVERT I	HEIGHT H	WEIGHT (LBS.)
GT2500(6X12)	2500	13'-0"	7'-0"	See Below	7'-1"	32400

Invert for #4" PVC is 5'-6".  
Invert for #6" PVC is 5'-5".

PRECAST CONCRETE  
2500 Gallon Capacity  
6'-0" X 12'-0" (H2O Loading)

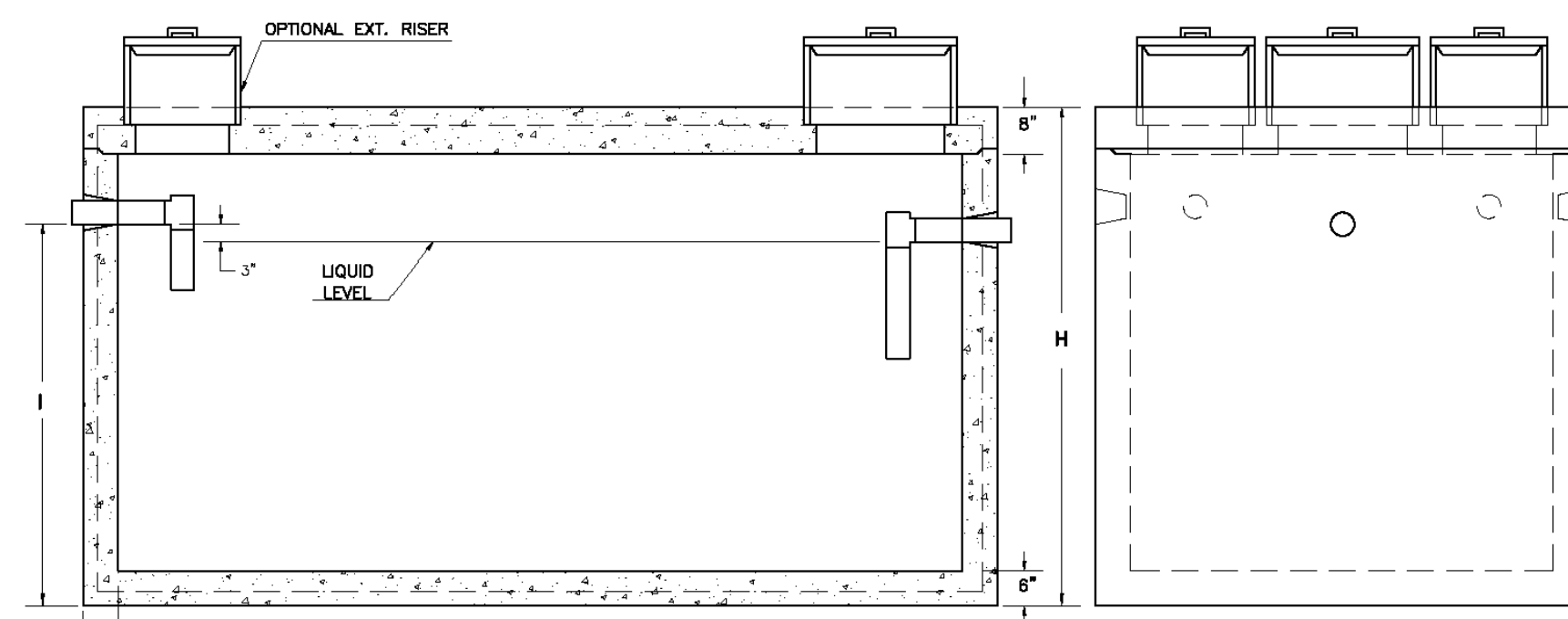


- NOTES:
- Concrete - 4,000 PSI @ 28 DAYS.
  - Meets or exceeds state and local requirements.
  - All shiplap joints sealed with Butyl Rubber.
  - Design loading: AASHTO HS-20.
  - Single compartment chamber.
  - Side inlet pipes shall extend to cleanout cover thru cast in pipe support.
  - Maximum fill over top of chamber - 3 feet.
  - Chamber shall be supplied with tees.
  - Chamber shall be marked with manufacturer name, and phone no., tank capacity, date of manufacture, and ASTM C1227 conformance.



LEVEL SPREADER DETAIL

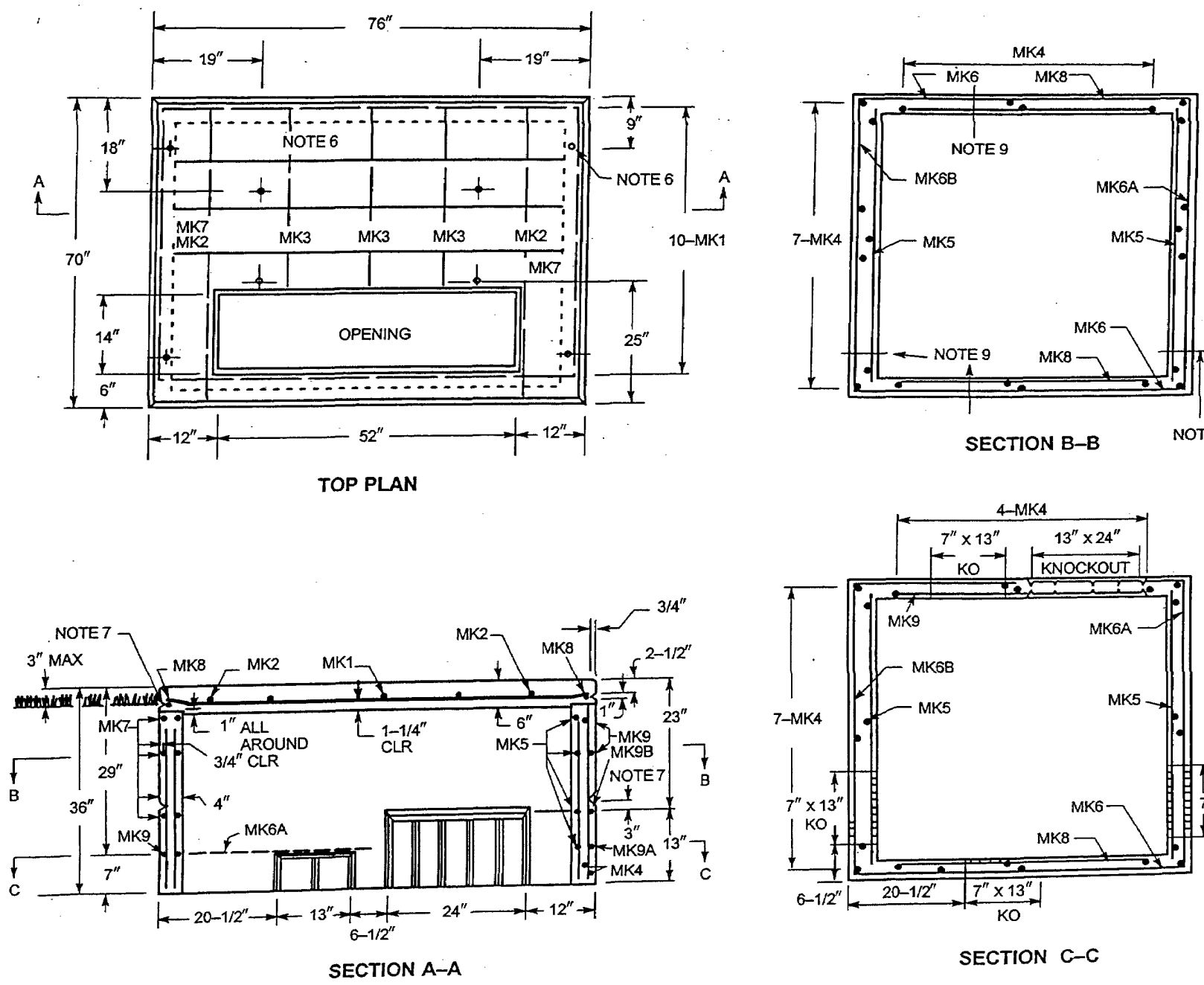
SCALE: NTS



PRECAST CONCRETE 2,500 GALLON GREASE TRAP (H-20)

SCALE: NTS

DETAIL PROVIDED BY CT PRECAST CORPORATION



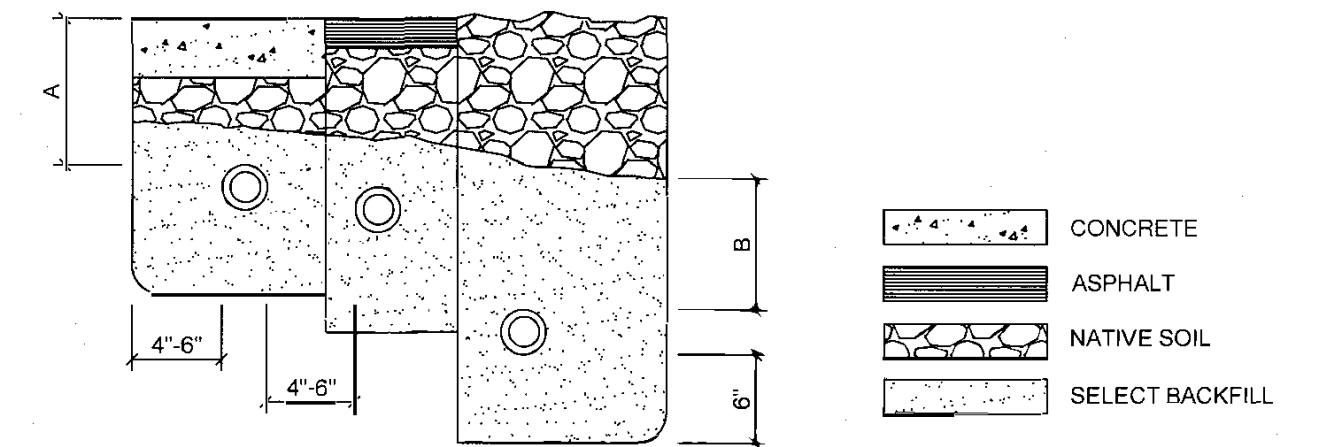
PAD - PRECAST CONCRETE - THREE-PHASE TRANSFORMER

SCALE: NTS

DETAIL PER EVERSOURCE

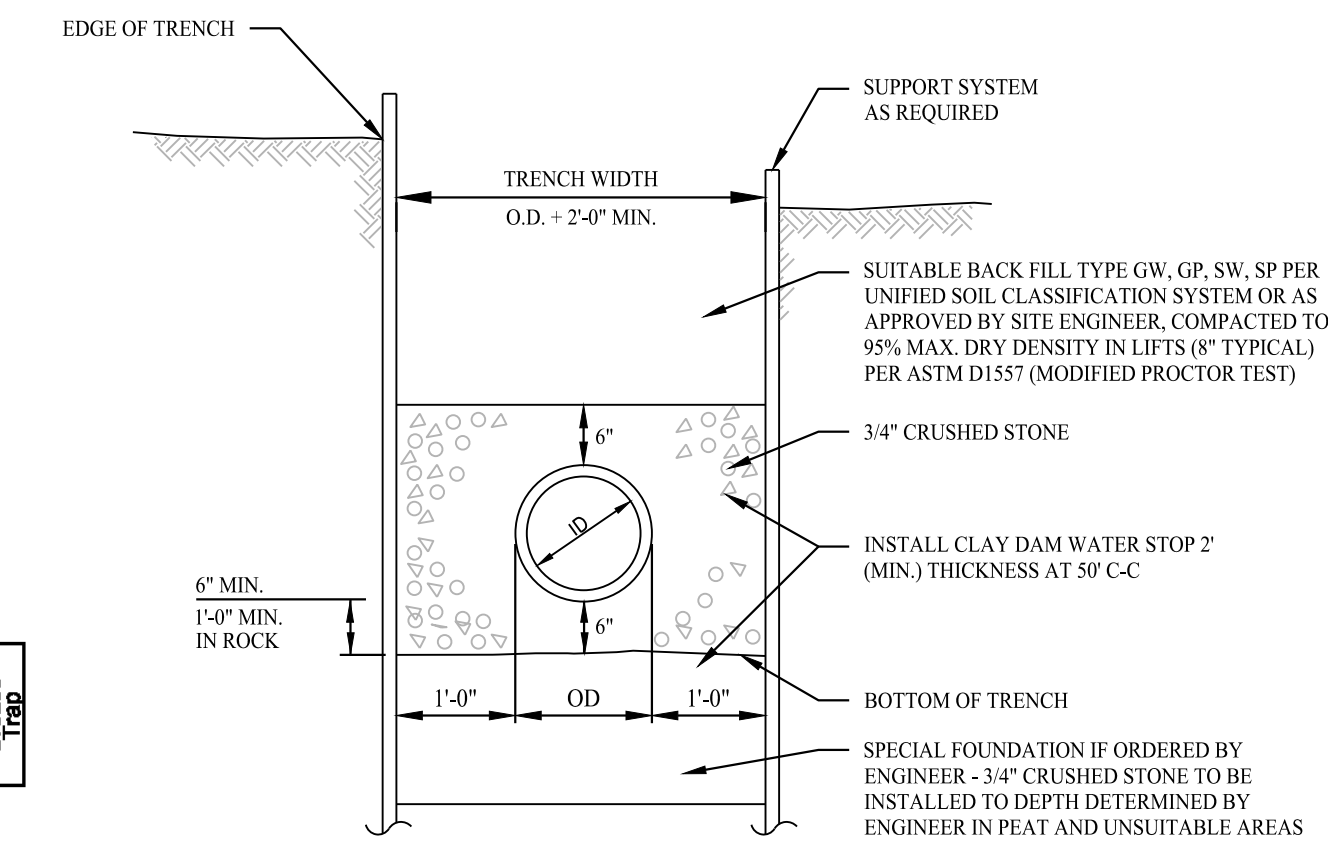
PIPE SIZE	SURFACE CONDITION	MIN. BURIAL DEPTH		MIN. SELECT BACKFILL	
		A	B	A	B
2	UNPAVED PAVED, MIN. 4" (100 MM) ASPHALT PAVED MIN. 4" (100 MM) CONCRETE PAVED MIN. 4" (100 MM) CONCRETE	18	432	12	305
		12	305	8	203
		9	229	5	127
3	UNPAVED PAVED, MIN. 4" (100 MM) ASPHALT PAVED MIN. 4" (100 MM) CONCRETE PAVED MIN. 4" (100 MM) CONCRETE	20	508	14	256
		13	330	9	229
		11	279	7	178
		10	254	4	102

REFERENCE  
RED THREAD 11A, DUALOY 3000/L, DUALOY 3000/LCX PIPING SYSTEM  
INSTALLATION INSTRUCTIONS



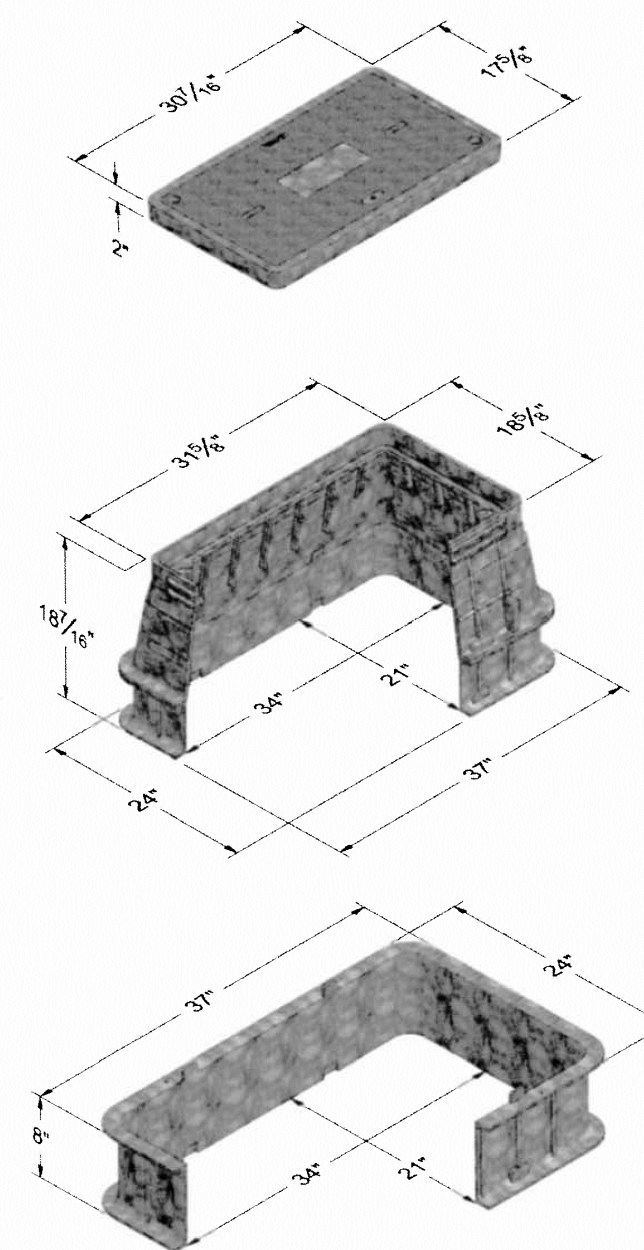
VENT PIPING TRENCH DETAIL

SCALE: NTS



TYPICAL SANITARY SEWER TRENCH SECTION

SCALE: NTS



TELEPHONE HANDHOLE

SCALE: NTS

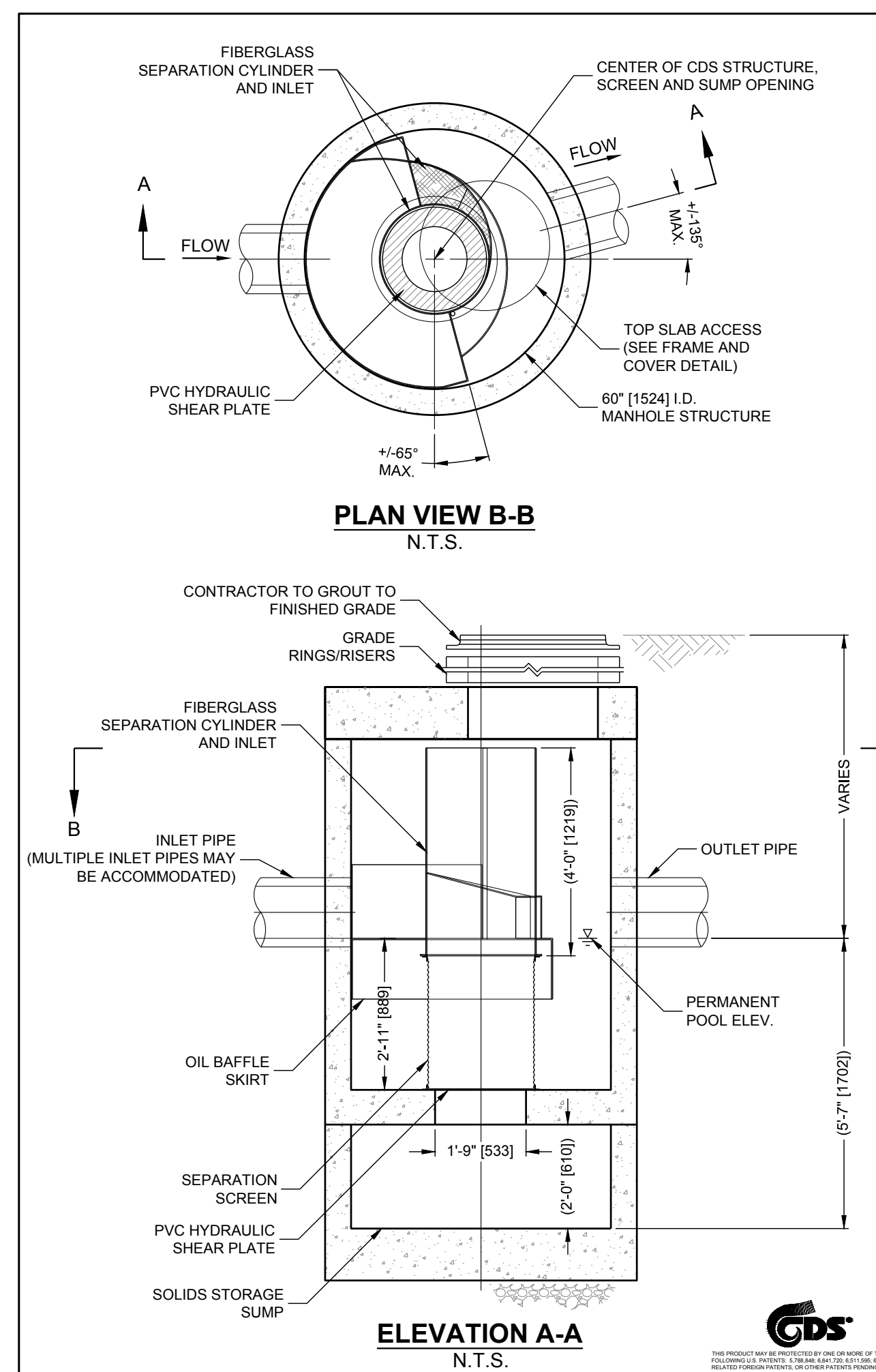
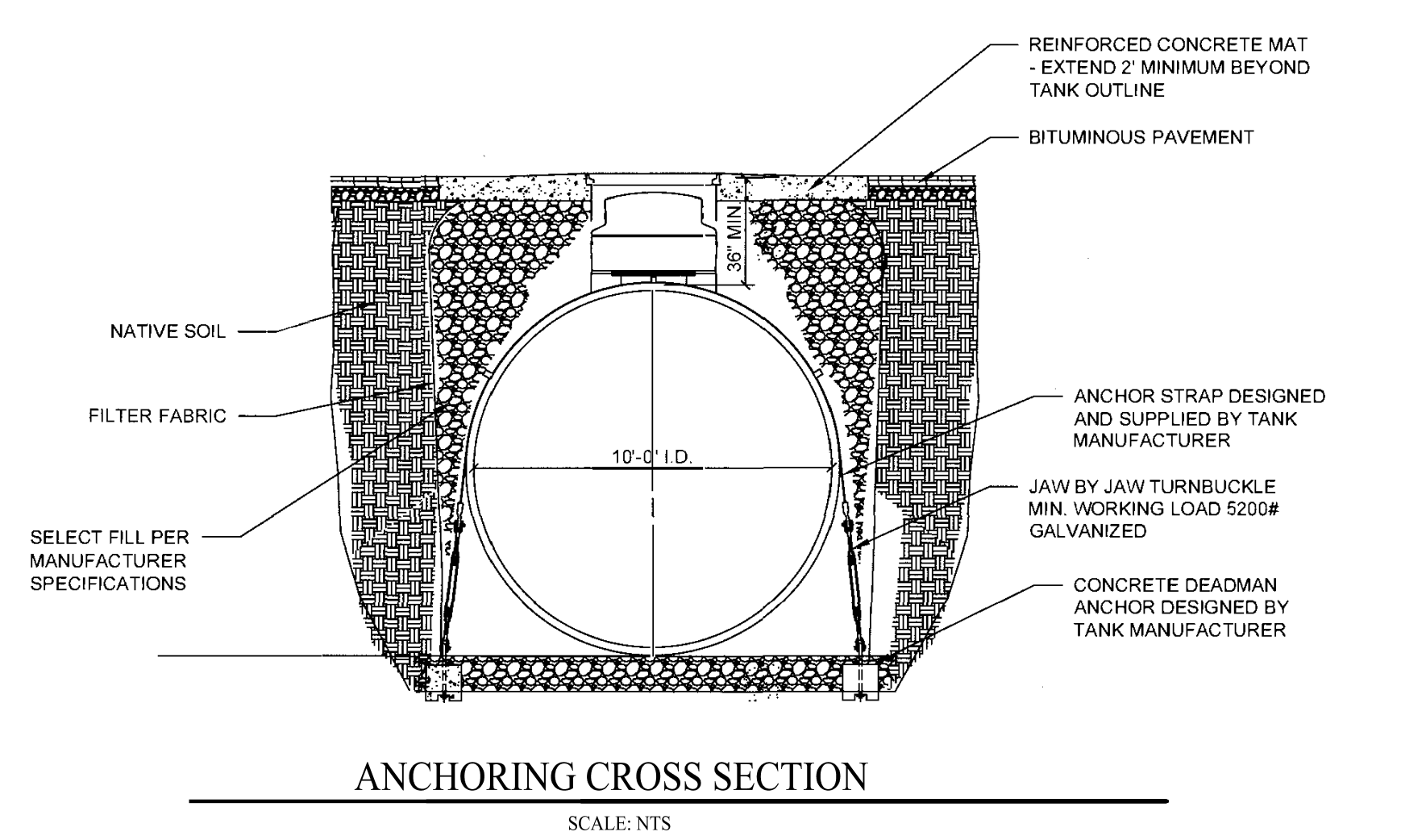
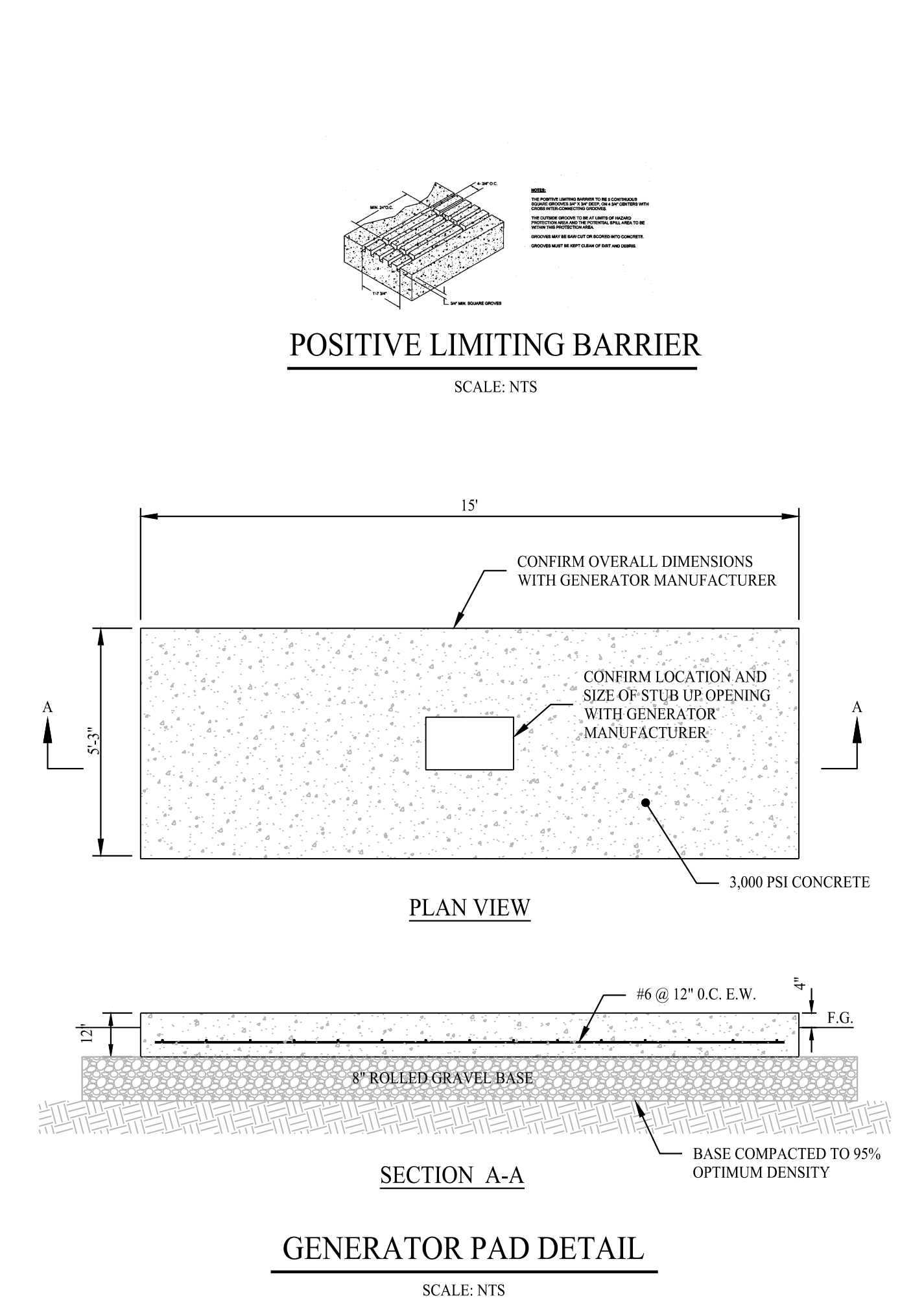
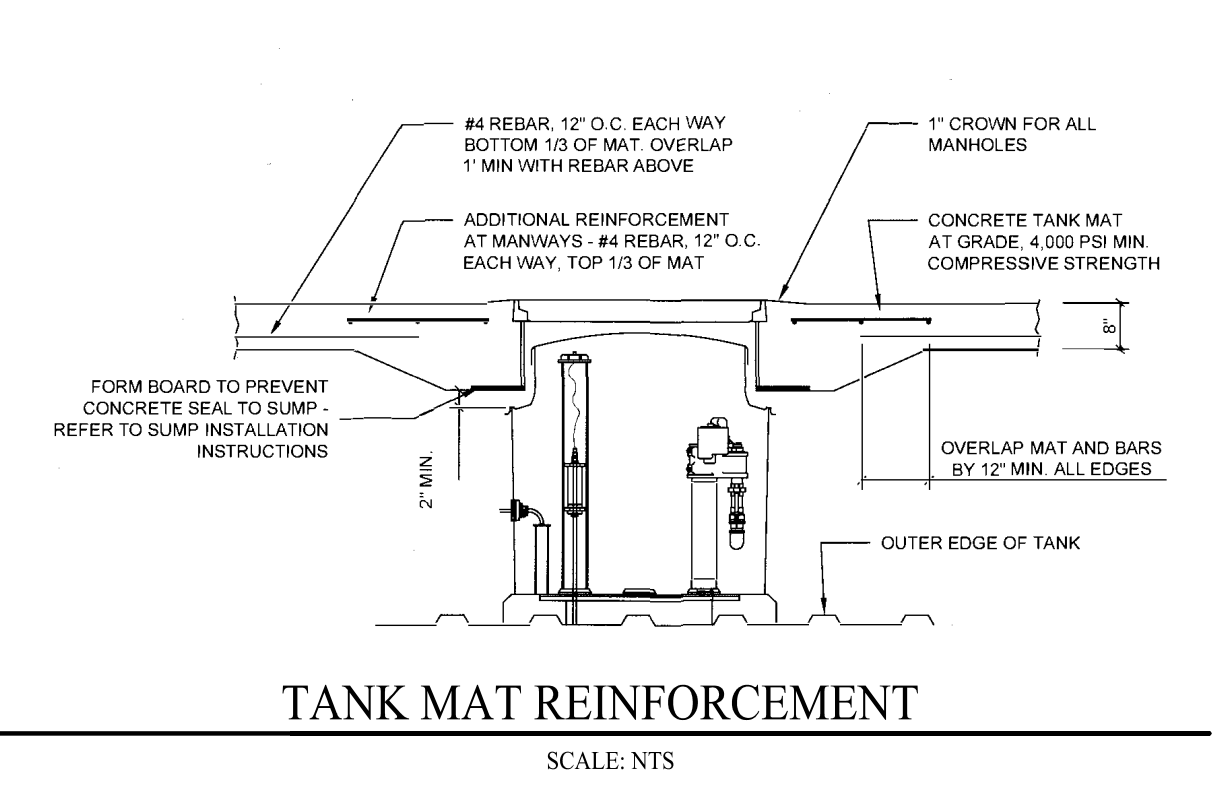
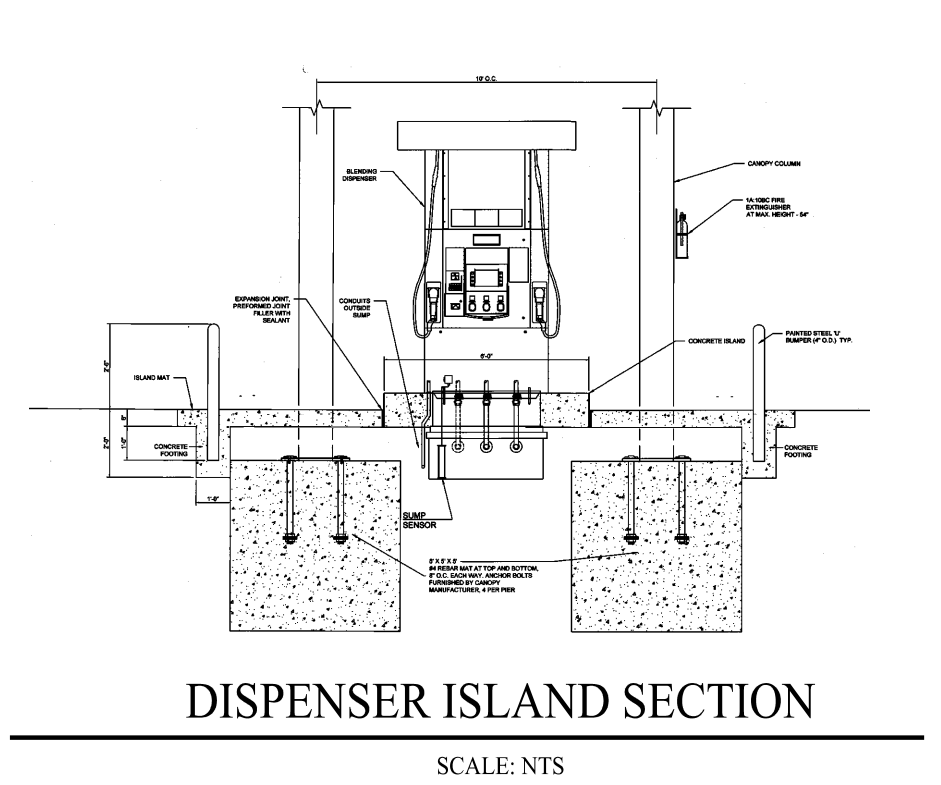
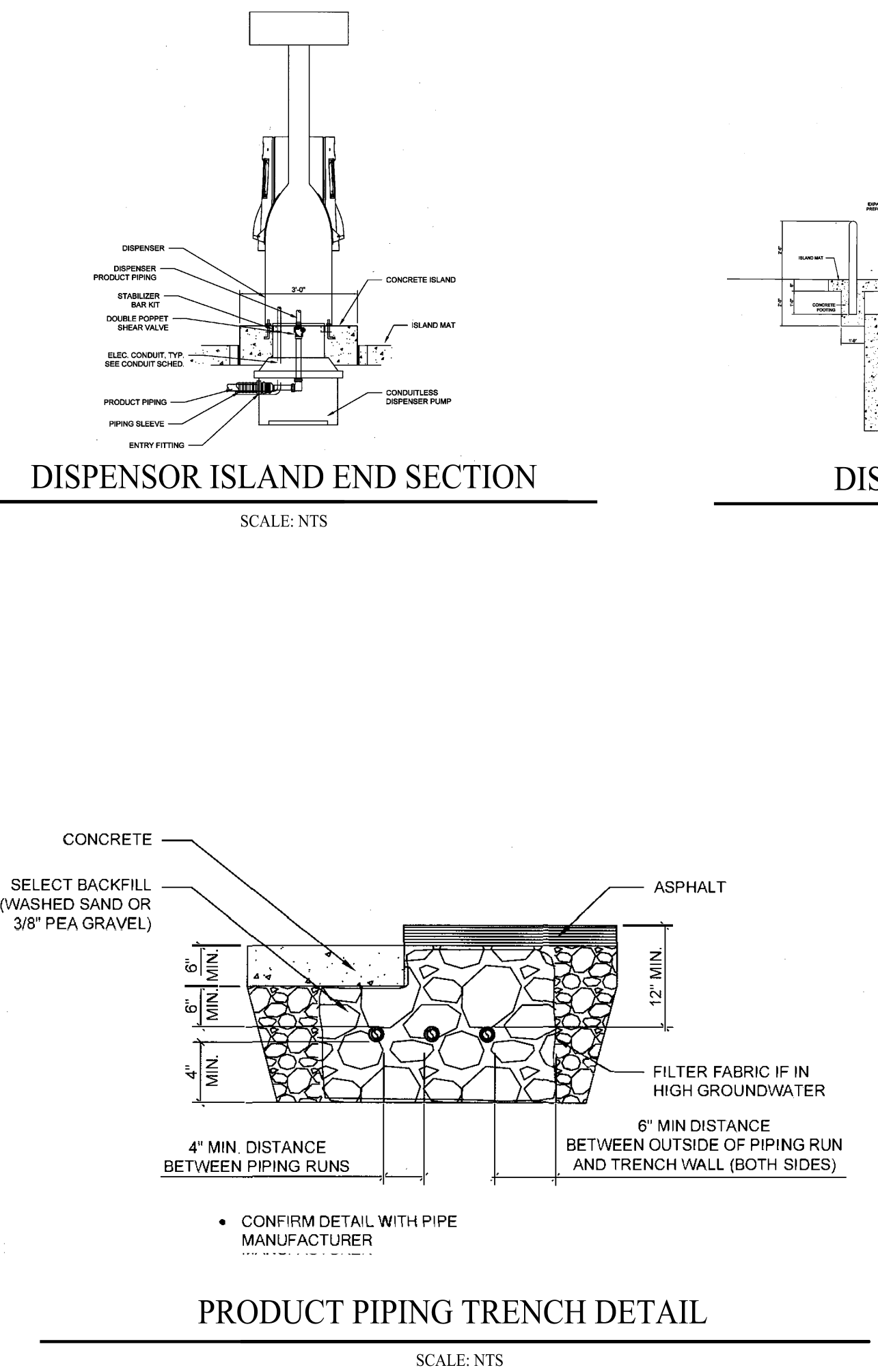
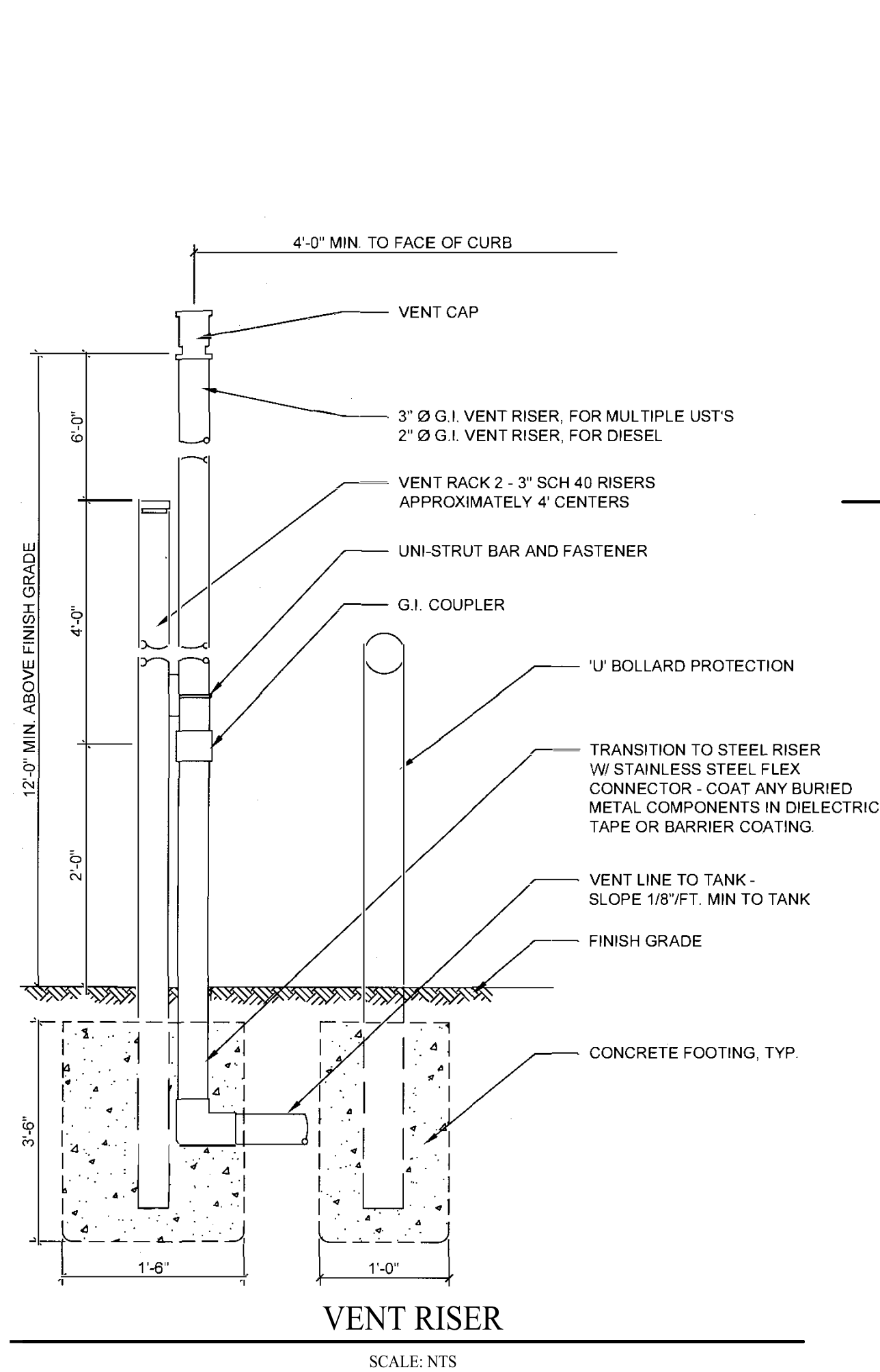
Rev. #:	Date	Description
---------	------	-------------



Drawn By: CJP	Kevin Solli, P.E. CT 25759
Checked By: MSL	
Approved By: KMS	
Project #: 1904501	
Plan Date: 08/11/20	
Scale: NTS	

9-15 ALBANY  
TURNPIKE  
SIMSBURY & CANTON, CONNECTICUT

Sheet Title:	Sheet #:
DETAIL SHEET	3.03



**CDS2025-5-C DESIGN NOTES**

THE STANDARD CDS2025-5-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

**CONFIGURATION DESCRIPTION**

GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES
SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)
SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS

**SITE SPECIFIC DATA REQUIREMENTS**

STRUCTURE ID	*
WATER QUALITY FLOW RATE (CFS OR L/s)	*
PEAK FLOW RATE (CFS OR L/s)	*
RETURN PERIOD OF PEAK FLOW (YRS)	*
SCREEN APERTURE (2400 OR 4700)	*

PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	*	*	*
INLET PIPE 2	*	*	*
OUTLET PIPE	*	*	*

**FRAME AND COVER (DIAMETER VARIES) N.T.S.**

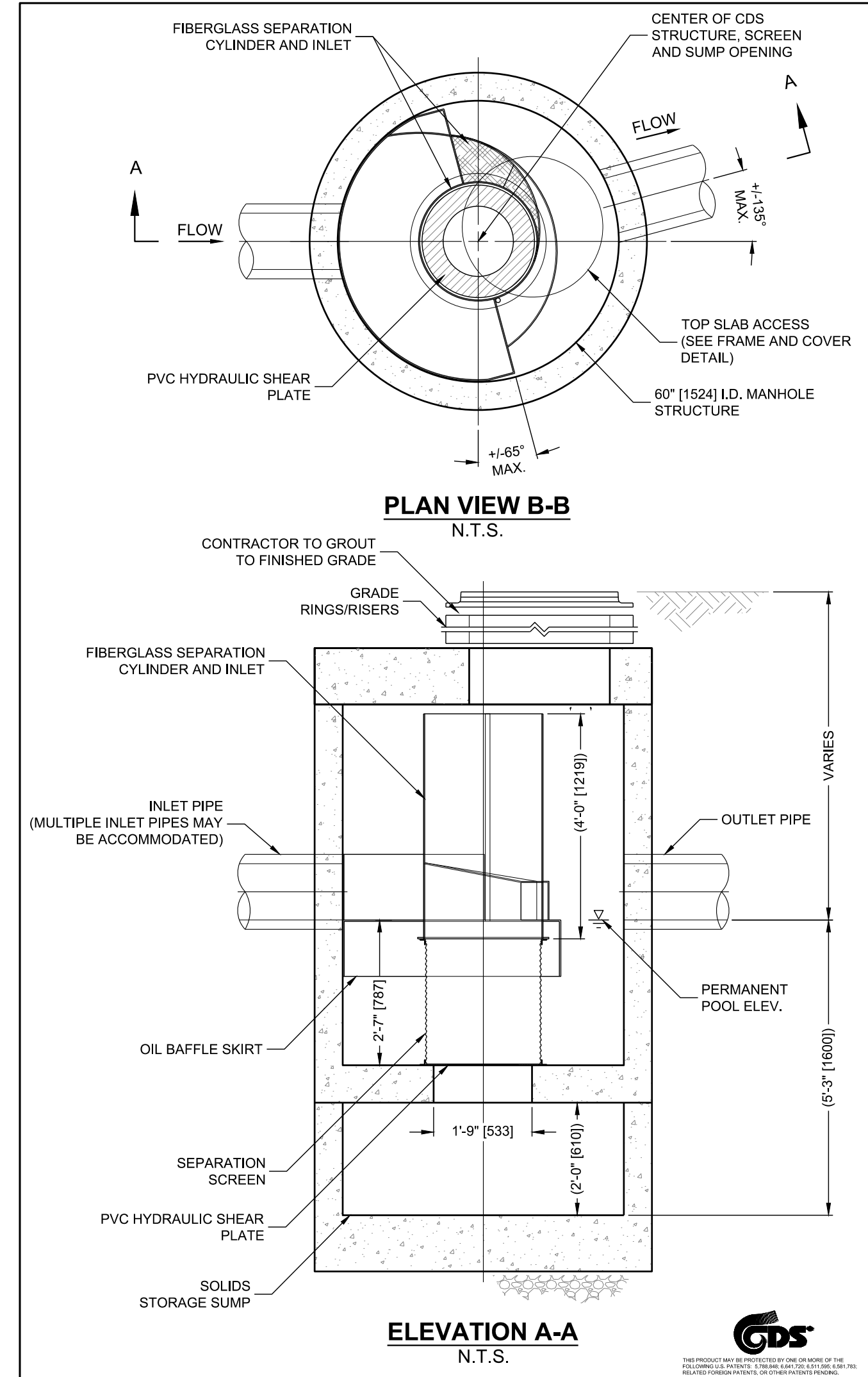
ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
*	*	*

**GENERAL NOTES**

- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
- DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
- FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. [www.contechES.com](http://www.contechES.com)
- CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
- STRUCTURE SHALL MEET AASHTO H20 AND CASTINGS SHALL MEET H20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
- PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

**INSTALLATION NOTES**

- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
- CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
- CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
- CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.



**CDS2020-5-C DESIGN NOTES**

THE STANDARD CDS2020-5-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

**CONFIGURATION DESCRIPTION**

GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES
SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)
SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS

**SITE SPECIFIC DATA REQUIREMENTS**

STRUCTURE ID	*
WATER QUALITY FLOW RATE (CFS OR L/s)	*
PEAK FLOW RATE (CFS OR L/s)	*
RETURN PERIOD OF PEAK FLOW (YRS)	*
SCREEN APERTURE (2400 OR 4700)	*

PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	*	*	*
INLET PIPE 2	*	*	*
OUTLET PIPE	*	*	*

**FRAME AND COVER (DIAMETER VARIES) N.T.S.**

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
*	*	*

**GENERAL NOTES**

- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
- DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
- FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. [www.contechES.com](http://www.contechES.com)
- CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
- STRUCTURE SHALL MEET AASHTO H20 AND CASTINGS SHALL MEET H20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
- PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

**INSTALLATION NOTES**

- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
- CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
- CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
- CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

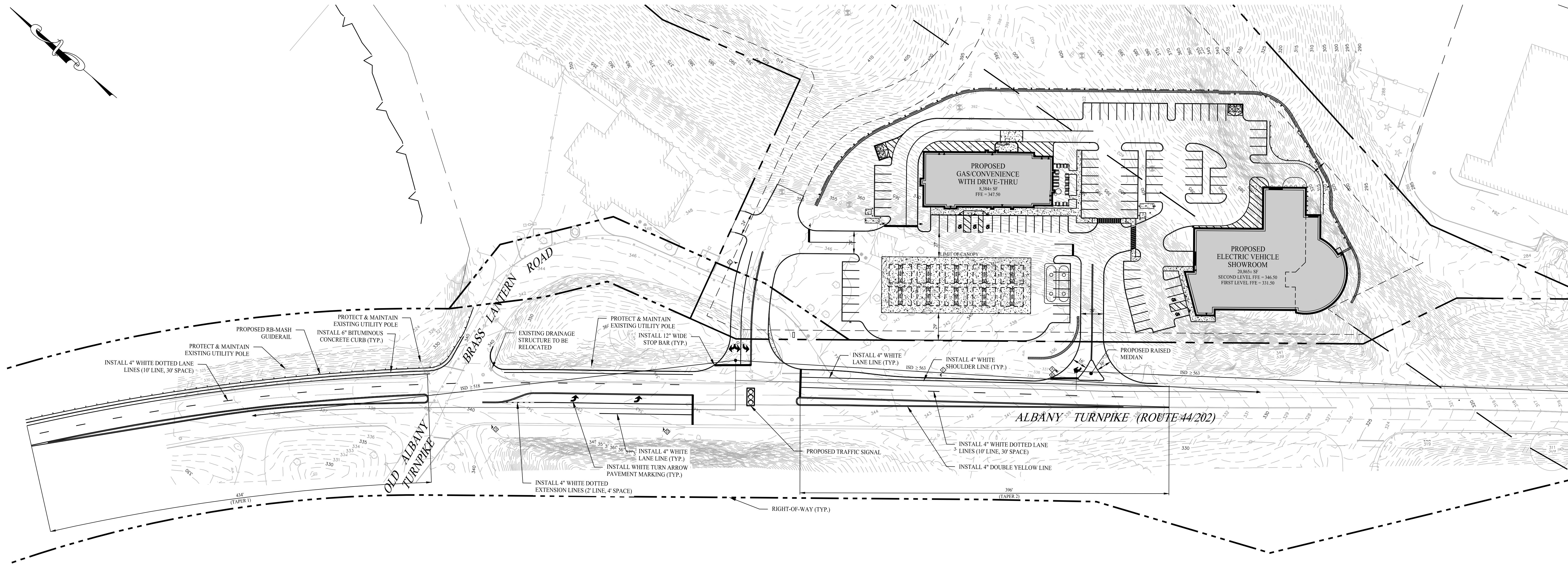
Rev. #:      Date      Description

Drawn By: CJP  
Checked By: MSL  
Approved By: KMS  
Project #: 1904501  
Plan Date: 08/11/20  
Scale: NTS  
Project: 9-15 ALBANY TURNPIKE SIMSBURY & CANTON, CONNECTICUT

Kevin Solli, P.E.  
CT 25759

**SOLLI ENGINEERING**  
501 Main Street, Monroe, CT 06468 | T: (203) 880-5455 | F: (203) 880-9695

Sheet Title: **DETAIL SHEET**      Sheet #: **3.04**



**SIGN LEGEND**

SIZES (IN) 36"	SIZES (IN) 30"x30"
CONN DOT # 31-0553	CONN DOT # 31-1119
SUPPORTS 1	SUPPORTS 1

SIZES (IN) 42"x30"	SIZES (IN) 42"x30"
CONN DOT # 31-0268	CONN DOT # 31-0370
SUPPORTS 2	SUPPORTS 2

SIZES (IN) 36"x30"
CONN DOT # 31-0219
SUPPORTS 1

**GENERAL NOTES**

- EXISTING BOUNDARY INFORMATION TAKEN FROM A PLAN ENTITLED "PROPERTY SURVEY OF 9-15 ALBANY TURNPIKE, CANTON, CT" DATED 12/10/19, SCALE: 1"=60', BY ACCURATE LAND SURVEYING, LLC.
- THE SUBJECT PARCELS CONSISTS OF A TOTAL AREA OF APPROXIMATELY 26.0 ACRES, LOCATED IN THE B DISTRICT OF CANTON, CONNECTICUT AND THE B-3 ZONE OF SIMSBURY, CONNECTICUT.
- THESE PLANS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT FOR CONSTRUCTION. NO CONSTRUCTION OR DEMOLITION SHALL BEGIN UNTIL APPROVAL OF THE FINAL PLANS IS GRANTED BY ALL GOVERNING AND REGULATORY AGENCIES AND ISSUANCE OF A DULY AUTHORIZED CERTIFIED OF ZONING COMPLIANCE AND BUILDING PERMIT FROM THE TOWNS OF CANTON AND SIMSBURY.
- OFF-SITE IMPROVEMENT WITHIN THE STATE RIGHT-OF-WAY ARE SUBJECT TO REVIEW AND APPROVAL BY THE CONNECTICUT DEPARTMENT OF TRANSPORTATION.

**GENERAL TRAFFIC NOTES**

- DURING THE PROGRESS OF WORK, ALL ROADS SHALL REMAIN OPEN FOR THE PASSAGE OF TRAFFIC AND PEDESTRIANS AND SHALL NOT BE UNNECESSARILY OBSTRUCTED UNLESS AUTHORIZED BY THE AUTHORITY HAVING JURISDICTION OVER SAME. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF TRANSPORTATION (D.O.T.), TOWN PUBLIC WORKS DEPARTMENT, LOCAL POLICE AND STATE POLICE AS REQUIRED.
- WARNING SIGNS SHALL BE PROVIDED ALONG ALL ROADS WHERE WORK IS IN PROGRESS. THE CONTRACTOR SHALL NOTIFY AND MAKE ALL ARRANGEMENTS WITH THE D.O.T., TOWN PUBLIC WORKS DEPARTMENT, LOCAL POLICE AND STATE POLICE FOR DIRECTION OF TRAFFIC PAST THE EQUIPMENT, MACHINERY, OR CONSTRUCTION OPERATIONS, BARRICADES AND LIGHTS SHALL BE PROVIDED TO PROTECT TRAFFIC. WHERE TRENCHES HAVE BEEN CUT IN ROAD SHOULDERS, WARNING SIGNS SHALL BE PLACED AT FREQUENT INTERVALS AND MAINTAINED UNTIL THE SHOULDER IS SAFE TO TRAVEL. ALL SUCH WORK AND OPERATIONS SHALL BE IN ACCORDANCE WITH THE REQUIREMENT OF THE D.O.T., PUBLIC WORKS DEPARTMENT, LOCAL POLICE AND STATE POLICE.

**LEGEND**

	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJOINING LOT LINE
	BITUMINOUS CONCRETE CURB
	METAL BEAM GUIDE RAIL
	PAVEMENT STRIPING AND MARKINGS
	SITE DISTANCE
	SIGN
	PAVEMENT ARROW MARKINGS

**TAPER DESIGN TABLE**

TAPER #	FORMULA	W (ft)	S (mph)	L (ft)
TAPER 1	$L = \frac{WS^2}{100}$	10.0	51.0	434
TAPER 2	$L = WS$	9.0	44.0	396

\* DESIGN SPEED TAKEN FROM COLLECTED SPEED DATA.

Rev. #:		Date		Description	
1	09/04/20	Revised Submission Materials			

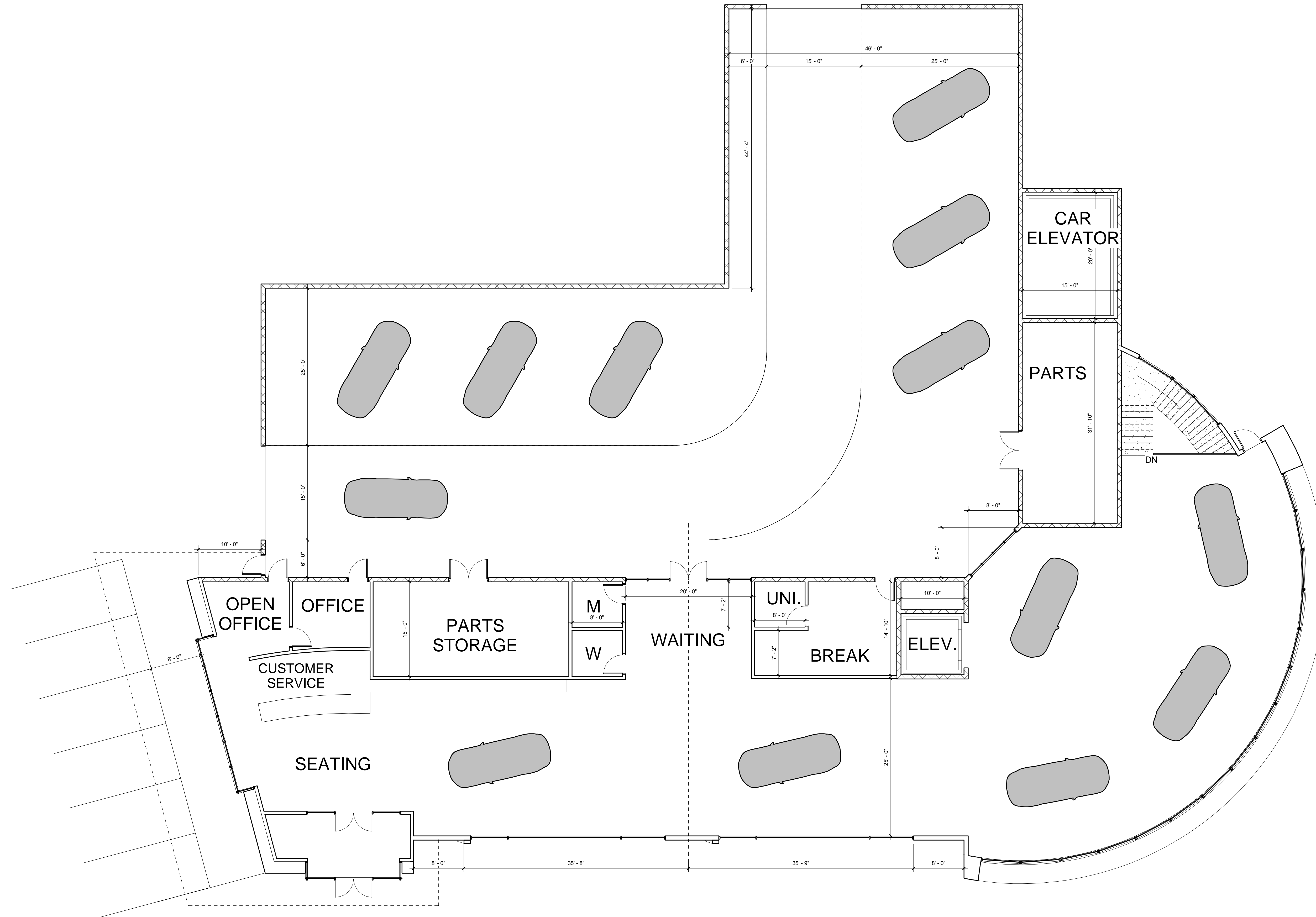
Graphic Scale:

**SOLLI ENGINEERING**  
 501 Main Street, Monroe, CT 06468 | T: (203) 880-5455 | F: (203) 880-9695

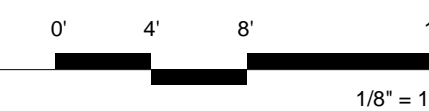
Drawn By:	MB
Checked By:	CAB
Approved By:	KMS
Project #:	1904501
Plan Date:	08/11/20
Scale:	1" = 50'
Project:	Kevin Solli, P.E. CT 25759

**9-15 ALBANY TURNPIKE**  
SIMSBURY & CANTON, CONNECTICUT

Sheet Title:	PRELIMINARY OFFSITE IMPROVEMENT PLAN	Sheet #:	4.11
--------------	--------------------------------------	----------	------



① FIRST FLOOR PLAN  
1/8" = 1'-0"



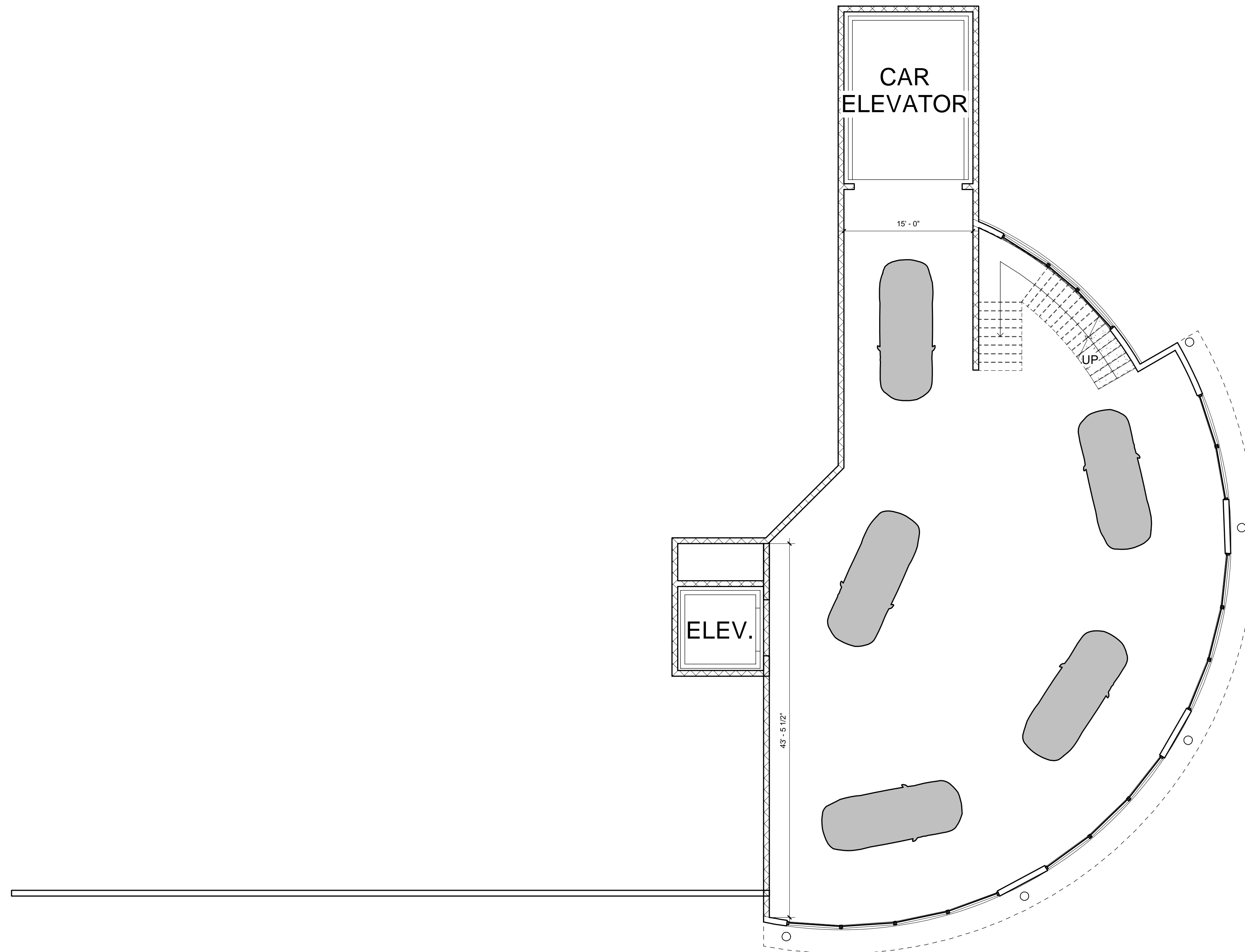
# CAR SALES AND MAINTENANCE BUILDING

CANTON

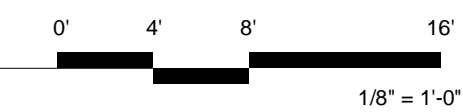
8.11.2020

MAIN LEVEL FLOOR PLAN

9-15 ALBANY TURNPIKE  
SIMSBURY & CANTON, CT



① LOWER FLOOR PLAN  
1/8" = 1'-0"



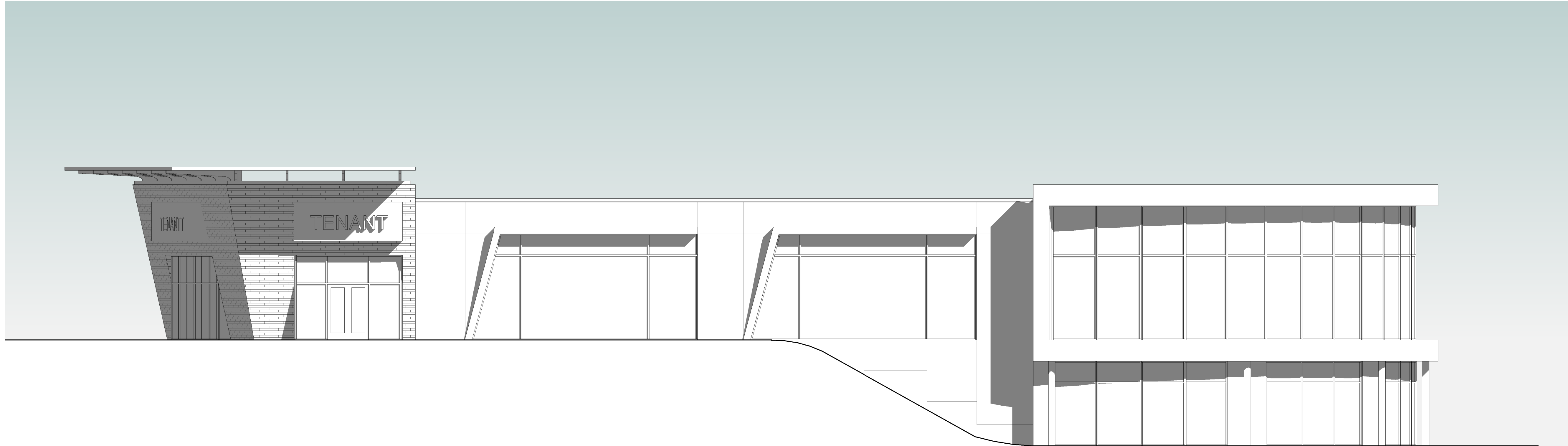
# CAR SALES AND MAINTENANCE BUILDING

CANTON

8.11.2020

LOWER LEVEL FLOOR PLAN

9-15 ALBANY TURNPIKE  
SIMSBURY & CANTON, CT



① ALBANY TURNPIKE  
1/8" = 1'-0"



# CAR SALES AND MAINTENANCE BUILDING

CANTON

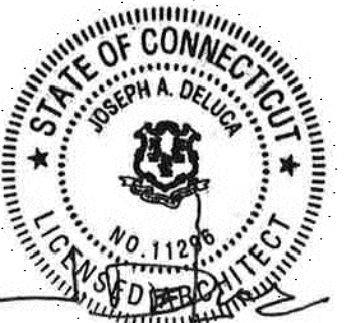
8.11.2020

EXTERIOR ELEVATIONS I

9-15 ALBANY TURNPIKE  
SIMSBURY & CANTON, CT



PROJECT NO: SOL-1433

SEAL:  
  
 DATE:

CONSULTANT:  
**SOLLI ENGINEERING**  
 501 MAIN STREET  
 MONROE, CT  
 06468

CLIENT:

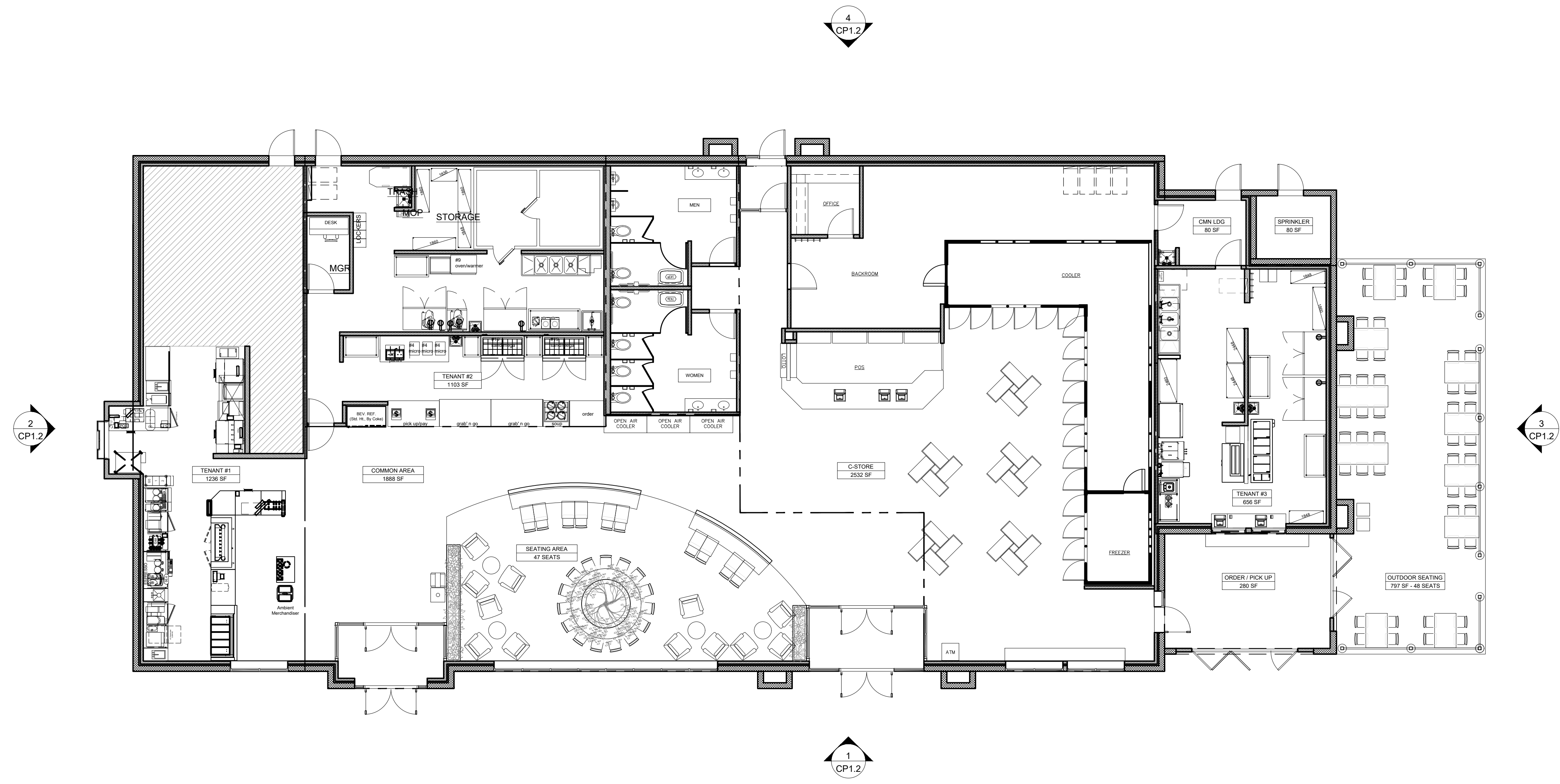
KEY PLAN:

PROJECT LOCATION:  
**9-15 ALBANY TPKE**  
**SIMSBURY &**  
**CANTON, CT**

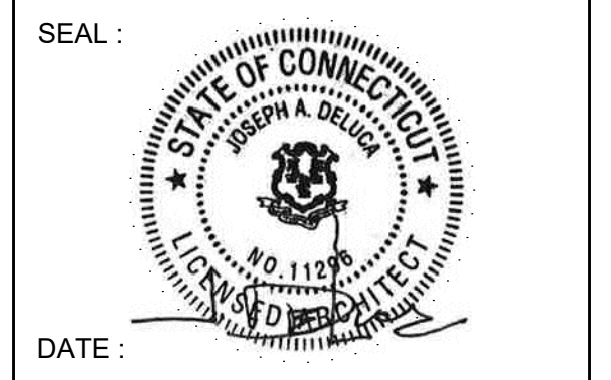
ORIGINAL ISSUE	DATE
ZONING SUBMISSION	08.11.20
REVISIONS & SUBMISSIONS	DATE
1	
2	
3	
4	
5	
6	
7	
8	

DRAWING NAME:  
**CONCEPTUAL PLAN**

DRAWING NO:  
**CP-1.1**



PROJECT NO: SOL-1433



CONSULTANT:  
**SOLLI ENGINEERING**  
 501 MAIN STREET  
 MONROE, CT  
 06468

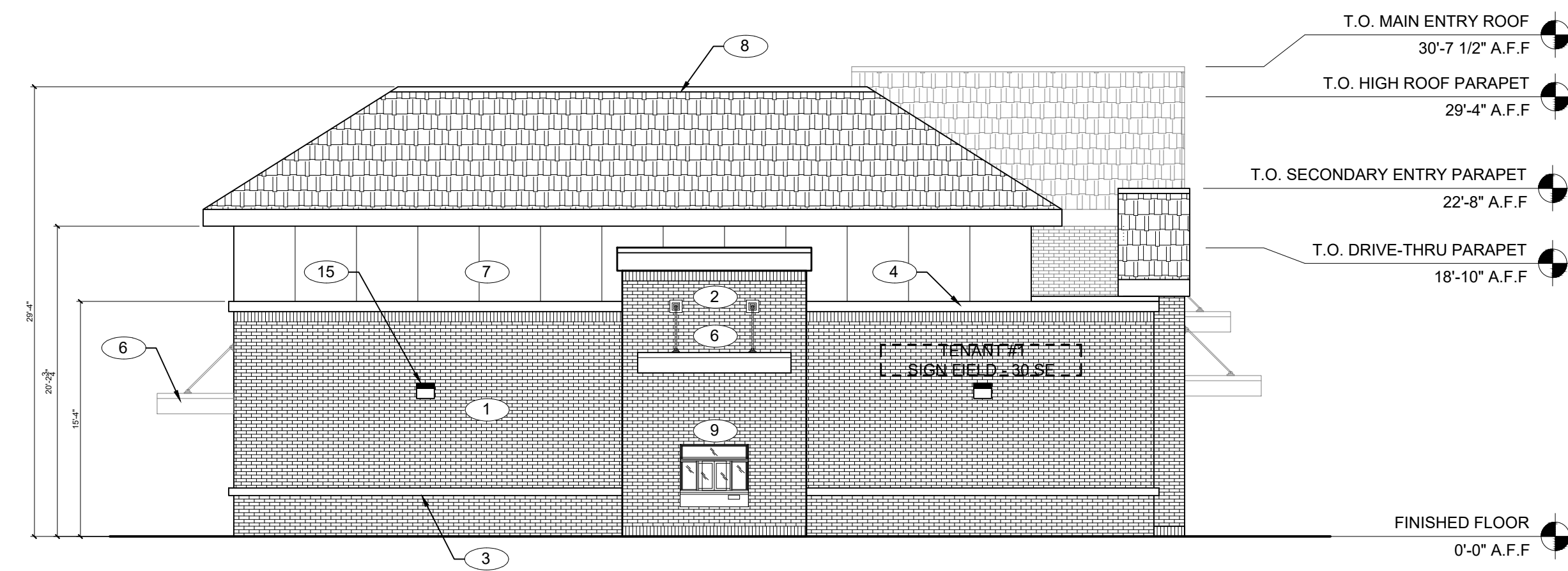
CLIENT:

KEY PLAN:

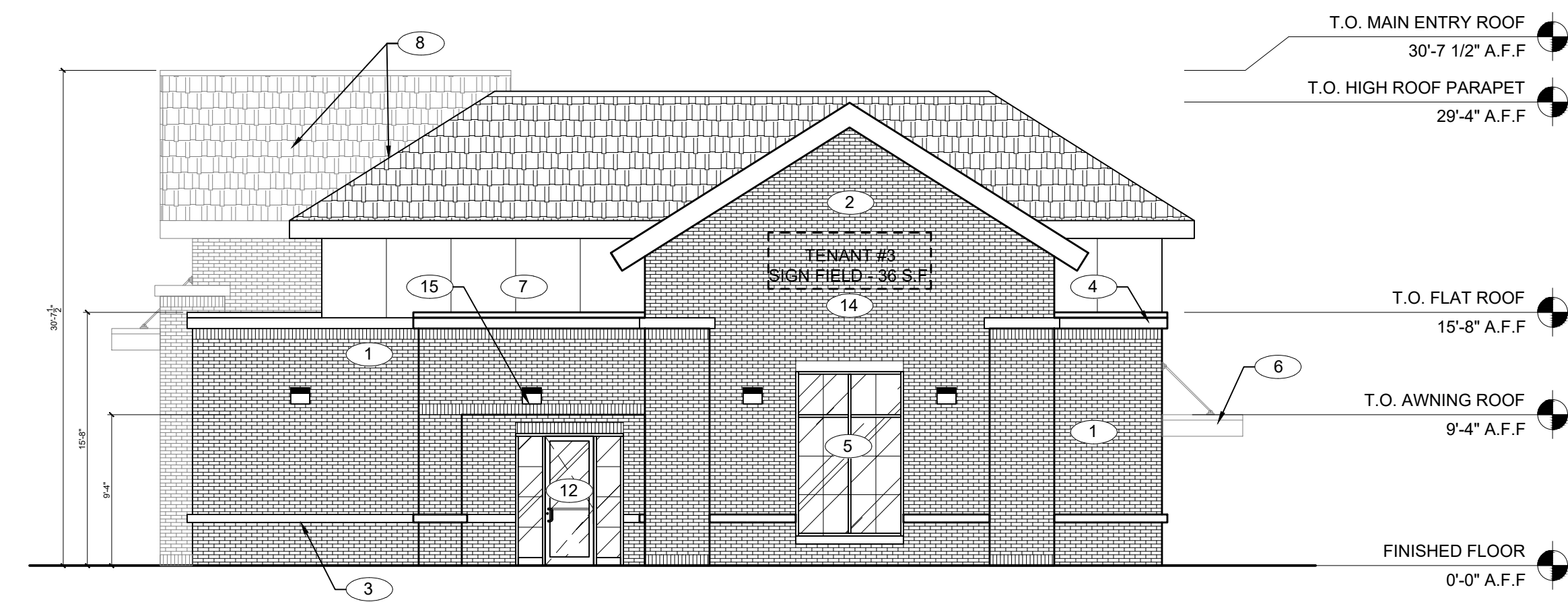
PROJECT LOCATION:  
**9-15 ALBANY TPKE**  
**SIMSBURY &**  
**CANTON, CT**



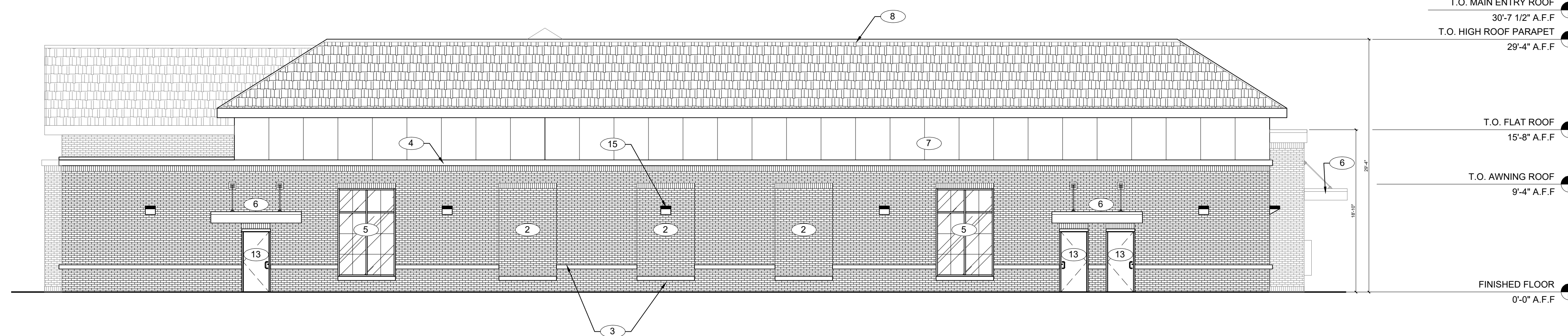
**FRONT ELEVATION** 1/8"=1'-0" **1**



**LEFT ELEVATION** 1/8"=1'-0" **2**



**RIGHT ELEVATION** 1/8"=1'-0" **3**



**REAR ELEVATION** 1/8"=1'-0" **4**


- KEY NOTES**
1. BRICK VENEER - STANDARD SIZE, RUNNING BOND, COLOR: LIGHT TAN, USED ON THE MAIN BODY OF THE BUILDING.
  2. BRICK VENEER - STANDARD SIZE, RUNNING BOND, COLOR: MEDIUM TAN, USED ON THE BUILDING ENTRANCE AND DRIVE THROUGH PROJECTIONS.
  3. PRECAST CONCRETE WATER TABLE / SILL - COLOR: MEDIUM TAN.
  4. ALUMINUM PARAPET CAP - COLOR: DARK TAN
  5. ALUMINUM STOREFRONT SYSTEM WITH CLEAR GLAZING. COLOR: DARK BRONZE
  6. PREFABRICATED STEEL SUSPENDED AWNING SYSTEM WITH INTERNAL ROOF DRAINS AND RECESSED LED DOWN LIGHTS. COLOR: WHITE.
  7. ALUMINUM FASCIA PANEL. COLOR: MEDIUM GREEN.
  8. MANSARD ROOF WITH ARCHITECTURAL SHINGLES AND MATCHING FASCIA TRIM. COLOR: FOX HOLLOW GRAY. NOTE MECHANICAL UNITS SHALL BE FULLY SCREENED FROM VIEW BY THE MANSARD ROOF.
  9. DRIVE-THRU WINDOW. COLOR: DARK BRONZE.
  10. WALK-UP TAKE OUT WINDOW. COLOR: DARK BRONZE.
  11. PRIMARY PUBLIC ENTRANCE.
  12. SECONDARY ENTRANCE.
  13. SERVICE DOORS. COLOR: DARK BRONZE
  14. WALL MOUNTED TENANT SIGNAGE TBD - INDIVIDUALLY INTERNALLY ILLUMINATED CHANNEL LETTERS WITH CONCEALED LED LIGHT SOURCE
  15. WALL MOUNTED ARCHITECTURAL LIGHTING. LIGHT SOURCE SHALL BE DIRECTED UP AND DOWN AND SHIELDED FROM HORIZONTAL EXPOSURE. FIXTURE COLOR: DARK BRONZE.

ORIGINAL ISSUE	DATE
ZONING SUBMISSION	08.11.20
REVISIONS & SUBMISSIONS	DATE
1	
2	
3	
4	
5	
6	
7	
8	

DRAWING NAME:  
**CONCEPTUAL ELEVATIONS**

DRAWING NO:  
**CP-1.2**

PROJECT NO : SOL-1433

SEAL :  
  
 DATE :

CONSULTANT :  
**SOLLI ENGINEERING**  
 501 MAIN STREET  
 MONROE, CT  
 06468

CLIENT :

KEY PLAN :

PROJECT LOCATION :  
 9-15 ALBANY TPKE  
 SIMSBURY &  
 CANTON, CT



**FRONT ELEVATION - ALBANY TPK** 1/8"=1'-0" **1**



**LEFT ELEVATION** 1/8"=1'-0" **2**



**RIGHT ELEVATION** 1/8"=1'-0" **3**



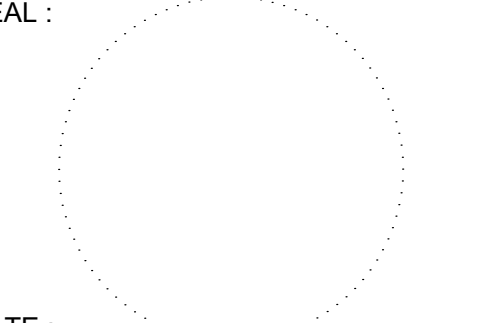
**REAR ELEVATION** 1/8"=1'-0" **4**

ORIGINAL ISSUE	DATE
ZONING SUBMISSION	08.11.20
REVISIONS & SUBMISSIONS	DATE
1	
2	
3	
4	
5	
6	
7	
8	

DRAWING NAME :  
**CONCEPTUAL ELEVATIONS - COLORED**

DRAWING NO :  
**CP-1.3**

PROJECT NO : SOL-1433

SEAL :  
  
 DATE :

CONSULTANT :  
**SOLLI ENGINEERING**  
 501 MAIN STREET  
 MONROE, CT  
 06468

CLIENT :

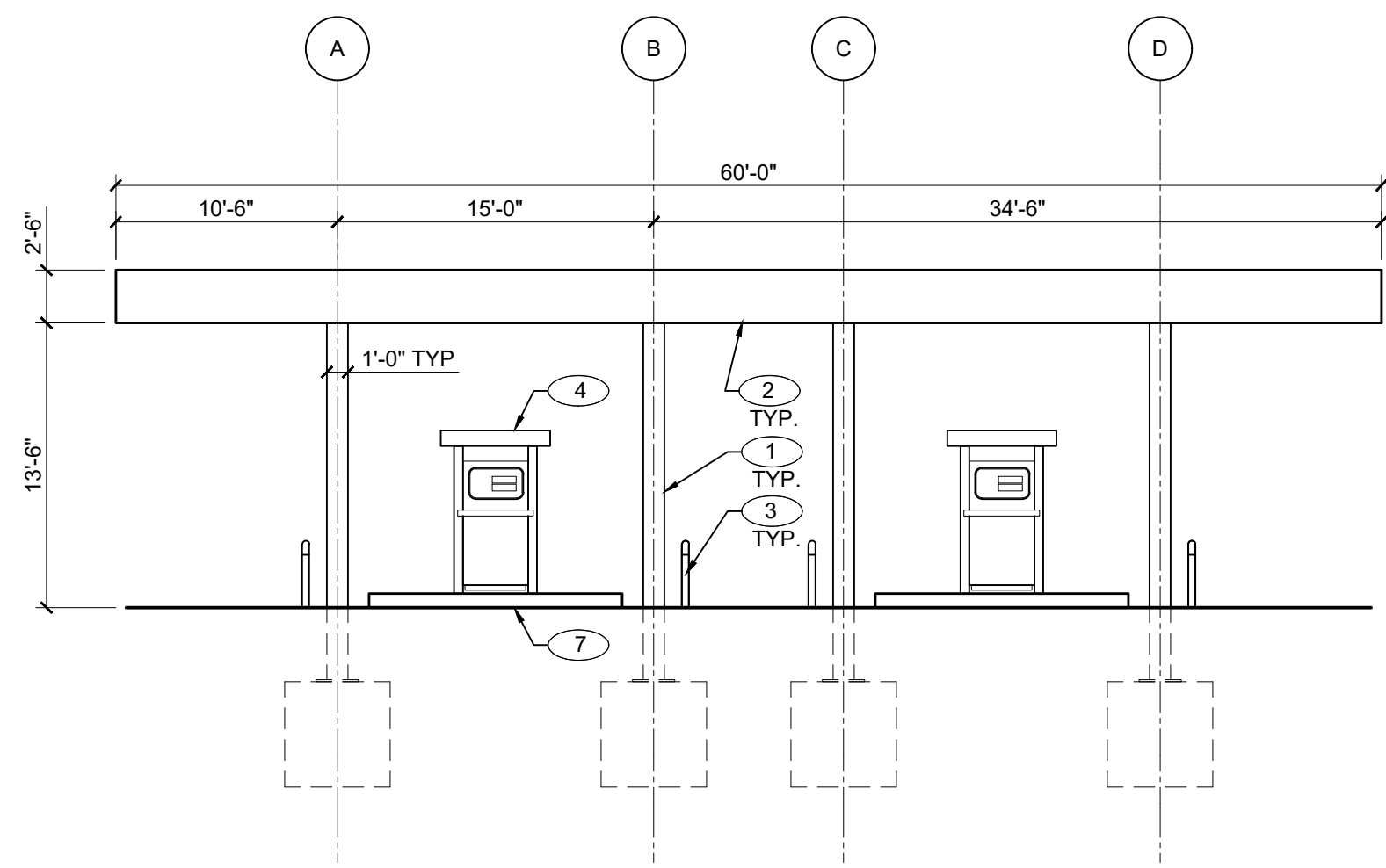
KEY PLAN :

PROJECT LOCATION :  
**9-15 ALBANY TPKE**  
**SIMSBURY &**  
**CANTON, CT**

ORIGINAL ISSUE	DATE
ZONING SUBMISSION	08.11.20
REVISIONS & SUBMISSIONS	DATE
1	
2	
3	
4	
5	
6	
7	
8	

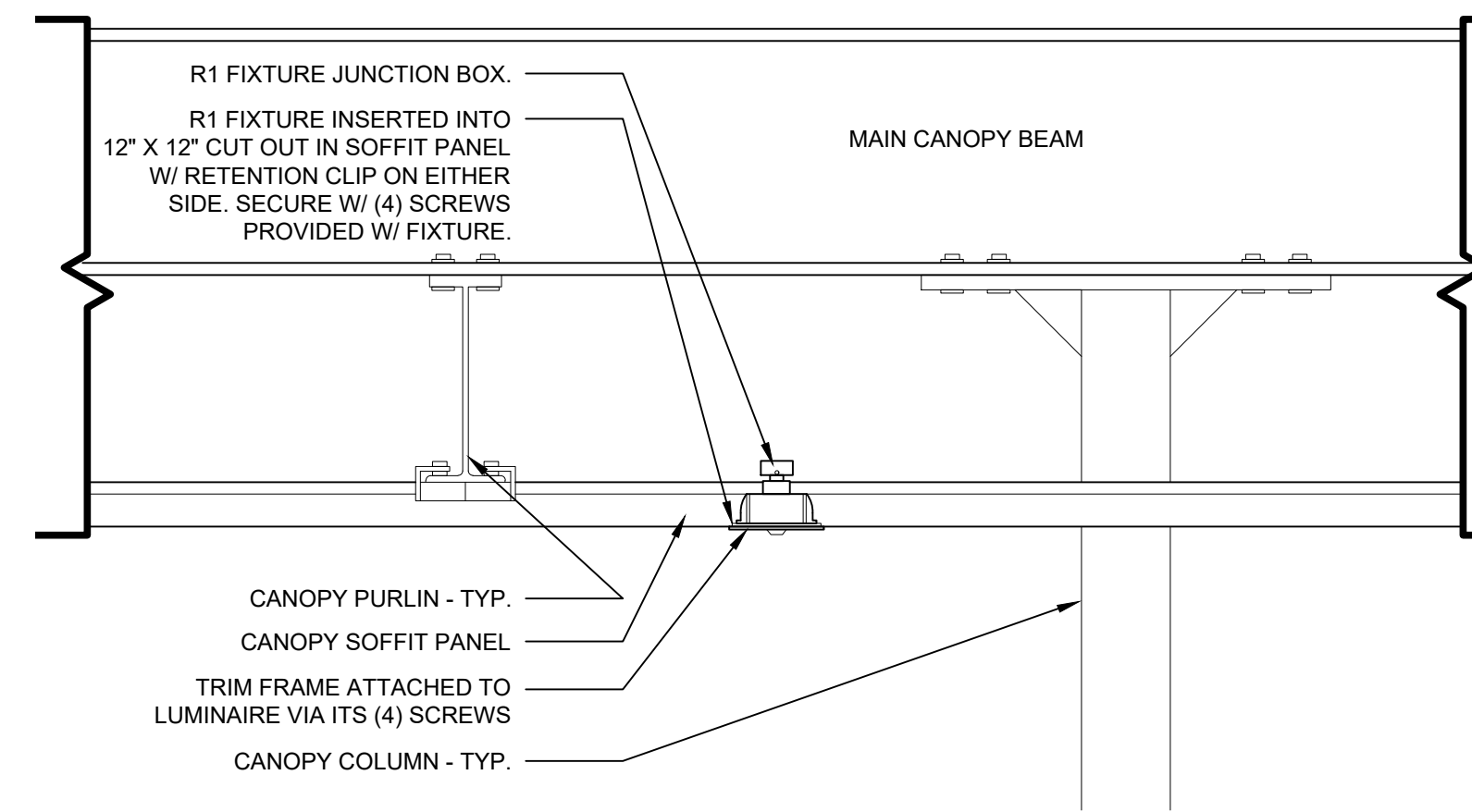
DRAWING NAME :  
**FUEL DISPENSER**  
**CANOPY PLAN**  
**& ELEVATIONS**

DRAWING NO :  
**CP-1.4**

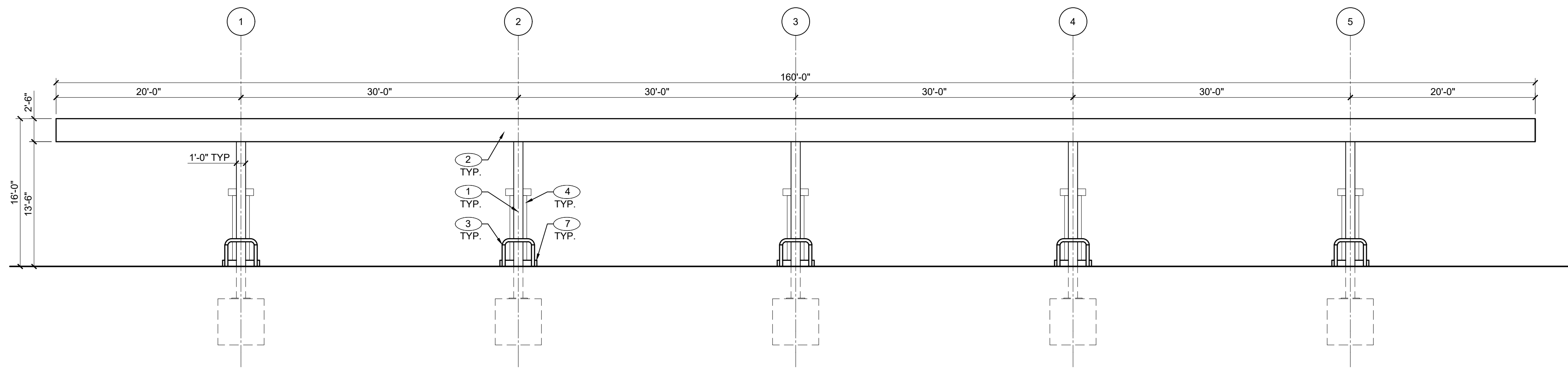


NOTE: BOTH SIDE ELEVATIONS OF CANOPY ARE IDENTICAL.

**SIDE CANOPY ELEVATION** 1/8" = 1'-0" **1**

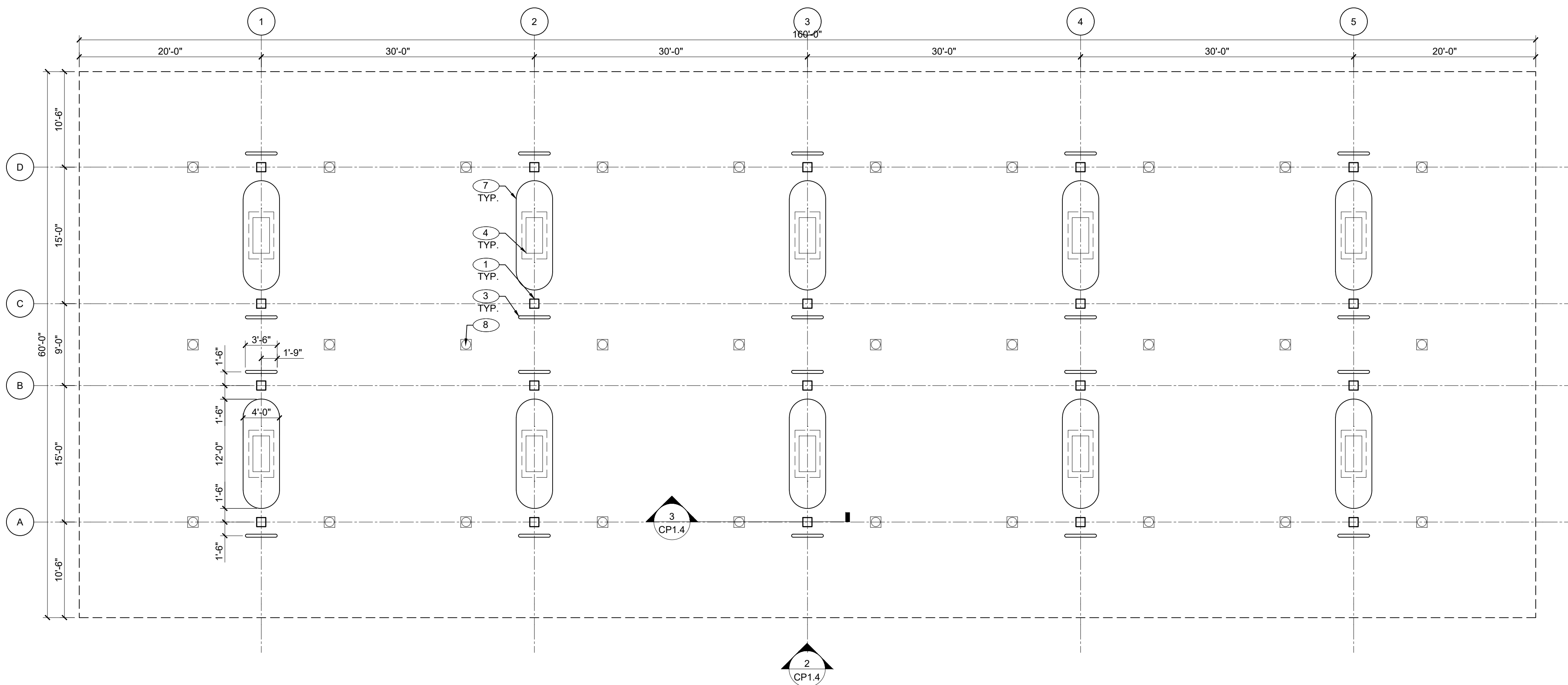


**R1 - RECESSED CANOPY FIXTURE DETAIL** NTS **3**



NOTE: FRONT AND BACK ELEVATIONS OF CANOPY ARE IDENTICAL

**FRONT CANOPY ELEVATION** 1/8" = 1'-0" **2**



**CANOPY PLAN** 1/8" = 1'-0" **A**

NOTE :

THE CANOPY DESIGN CONTAINED HEREIN IS SCHEMATIC AND IS PROVIDED FOR DESIGN INTENT AND FOUNDATION DESIGN ONLY.

CANOPY SHALL BE A FREE STANDING PRE ENGINEERED STEEL STRUCTURE DESIGNED AND FABRICATED BY THE OWNER'S CANOPY VENDOR AND INSTALLED ON FOOTINGS PROVIDED BY THE OWNER'S GC.

FOUNDATION HAS BEEN DESIGNED SPECIFICALLY FOR THE CANOPY SIZE AND CONFIGURATION INDICATED, ANY DEVIATION IN CANOPY SIZE AND CONFIGURATION MUST BE CONFIRMED BY A STRUCTURAL ENGINEER TO BE COMPATIBLE WITH THE BEARING CAPACITY, FOOTING AND ANCHOR BOLT DESIGN PROVIDED HEREIN.

FOOTINGS SHALL BE INSTALLED PRIOR TO CANOPY VENDOR BEING SELECTED. CANOPY COMPANY SHALL BE RESPONSIBLE FOR VERIFICATION AND COORDINATION TO ASSURE THE CANOPY, COLUMN AND BASE PLATE DESIGN IS COMPATIBLE WITH THE FOOTING, ANCHOR BOLT SIZE AND SPACING PROVIDED.

STRUCTURALLY ENGINEERED CANOPY DRAWINGS SHALL BE SUBMITTED BY THE CANOPY VENDOR DIRECTLY TO THE TOWN FOR APPROVAL PRIOR TO FABRICATION.

OWNER SHALL BE RESPONSIBLE FOR ANY AND ALL SPECIAL AND THIRD PARTY INSPECTIONS RELATED TO THE FOOTINGS, CANOPY AND/OR FIRE SUPPRESSION SYSTEMS.

**GENERAL CANOPY NOTES**

- 12" SQUARE STEEL CANOPY COLUMN WITH INTERNAL ROOF DRAINS ROUTED TO STORM WATER MANAGEMENT SYSTEM, PAINTED WHITE, SEMI-GLOSS FINISH.
- 30" HIGH ALUMINUM CLAD PRE-ENGINEERED STEEL FRAMED CANOPY, PAINTED WHITE.
- 36" HIGH X 4" DIA. PIPE BOLLARDS PAINTED SAFETY YELLOW.
- FUEL DISPENSERS - FINAL TYPE, SIZE AND SIGNAGE T.B.D.
- STEEL PANEL CANOPY CEILING SYSTEM, COLOR WHITE.
- RECESSED LED CANOPY FIXTURES, LIGHT COLOR AND FOOTCANDLE OUTPUT SHALL BE IN CONFORMANCE WITH APPLICABLE ZONING / LIGHTING REGULATIONS.
- 8" HIGH CONCRETE FUEL DISPENSER ISLAND.
- RECESSED CANOPY FIXTURE IN SOFFIT PANEL SYSTEM ABOVE.

**KEY NOTES**

## **Deltenre, Renee**

---

**From:** Pade, Neil  
**Sent:** Thursday, September 10, 2020 1:19 PM  
**To:** Deltenre, Renee  
**Cc:** Kyle, Emily  
**Subject:** FW: Proposed development Canton /Simsbury town line

Please add to the file record.

- Neil

-----Original Message-----

From: Patricia Hamilton [<mailto:ph8496@icloud.com>]  
Sent: Thursday, September 10, 2020 1:09 PM  
To: Pade, Neil  
Subject: Proposed development Canton /Simsbury town line

CAUTION: This email came from outside the organization. Do not click links or open attachments if you are unsure the message is safe.

As a 15 year resident of Canton I would like to express my concern and disapprove if this proposed construction of a new shopping center. What drew me to move here was the small town. We are loosing that feel. We have enough empty buildings that should be utilized instead of destroying land and adding more traffic to an already congested area.

Especially the old IGA, Mikado and McDonald's. Across from McDonald's is an old restaurant that has been vacant for years. Next to McDonald's the old gas station. Utilize and improve these areas first.

Don't let new business dictate. We should dictate them!!

Patricia Hamilton  
Concerned resident

Sent from my iPhone

**Archived:** Friday, September 11, 2020 8:50:01 AM  
**From:** [Pade, Neil](#)  
**Sent:** Thu, 10 Sep 2020 11:54:50  
**To:** [Deltenre, Renee](#)  
**Cc:** [Kyle, Emily](#)  
**Subject:** FW: EV showroom, convenience store with eateries, outdoor seating proposed on Canton/Simsbury Line  
**Importance:** Normal

---

Please add to the file record.

- Neil

---

**From:** CAROLYN WOODARD [mailto:carolynwoodard@comcast.net]  
**Sent:** Thursday, September 10, 2020 11:52 AM  
**To:** Pade, Neil  
**Subject:** EV showroom, convenience store with eateries, outdoor seating proposed on Canton/Simsbury Line

**CAUTION:** This email came from outside the organization. Do not click links or open attachments if you are unsure the message is safe.

As a long-time resident of Canton, I am strongly against this proposed development. Canton does not need another gas station, convenience store, ice cream shop, drive-through, and certainly not another car dealership. How about focusing on some of the empty existing buildings like IGA and Mikado's?

So many beautiful historic structures have been torn down in the name of progress, like the 1776 House, the Mills House, Canton Golf Course, and many others. Isn't it enough we have to have Aldi's soon to open, along with whatever additional businesses are in that complex, now you're considering yet another.

I live on Dowd Avenue and listen to the sirens on Rt. 44 racing to the multiple accidents that occur every day. How much I would rather listen to the band playing on the Green instead, which by the way, was one of the reasons I bought a home by the Green in the first place.

I passionately believe in preserving the history of our town, along with thoughtful development that can coexist with this history, and I know I am not alone in my feelings.

Thank you for allowing my feelings to be considered when making your decision.

Carolyn Woodard

860-693-9415

**Archived:** Friday, September 11, 2020 8:50:21 AM  
**From:** [Pade, Neil](#)  
**Sent:** Thu, 10 Sep 2020 11:45:56  
**To:** [Deltenre, Renee](#)  
**Cc:** [Kyle, Emily](#)  
**Subject:** FW: 9-15 Albany Turnpike  
**Importance:** Normal

---

Please add to the file record.

- Neil

---

**From:** Tim Kendzia [mailto:[tkendzia@gmail.com](mailto:tkendzia@gmail.com)]  
**Sent:** Thursday, September 10, 2020 11:43 AM  
**To:** Pade, Neil  
**Subject:** 9-15 Albany Turnpike

**CAUTION:** This email came from outside the organization. Do not click links or open attachments if you are unsure the message is safe.

Hi Neil,

I just read about the proposed development at this site on the edge of town. While I understand that commercial development is good for the town, I think it should be focused through infill and redevelopment.

This site is currently a big component of the town's character for me. Driving past the mall of Simsbury, and all the shops of Avon, this site is a natural break dividing the towns. The rock ledge, over 100,000 cubic yards, is a significant barrier. Combined with the vegetation here, it buffers road noise and serves as a great visual divide, highlighting the town's rural character. Removing this ridge and developing the land would irreversibly impact our town's character, and for that reason I oppose this development.

Sincerely,  
Tim Kendzia  
6 Sugar Camp Rd





**Archived:** Friday, September 11, 2020 9:04:07 AM

**From:** [Robidoux, Evan](#)

**Sent:** Wed, 2 Sep 2020 16:14:25

**To:** Bessel, Robert

**Cc:** Pade, Neil; CSC-DL Siting Council

**Subject:** Council Letter to the Town of Canton for TS-VER-023-200902 (East Hill Road [f/k/a Hoffman Road])

**Importance:** Normal

**Attachments:**

[ts-ver-023-200902\\_twnltr\\_EastHillRd.pdf](#) 

---

**CAUTION:** This email came from outside the organization. Do not click links or open attachments if you are unsure the message is safe.

Please see the attached correspondence.



STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: [siting.council@ct.gov](mailto:siting.council@ct.gov)

Web Site: [portal.ct.gov/csc](http://portal.ct.gov/csc)

**VIA ELECTRONIC MAIL**

September 2, 2020

The Honorable Robert Bessel  
First Selectman  
Town of Canton  
4 Market Street  
P. O. Box 168  
Collinsville, CT 06022-0168  
[rbessel@townofcantonct.org](mailto:rbessel@townofcantonct.org)

RE: **TS-VER-023-200902** – Cellco Partnership d/b/a Verizon Wireless notice of intent to modify an existing telecommunications facility located at 309 East Hill Road (f/k/a Hoffman Road), Canton, Connecticut.

Dear First Selectman Bessel:

Pursuant to Connecticut General Statutes § 16-50aa, the Connecticut Siting Council (Council) is in receipt of a request to share an existing telecommunications facility in the Town of Canton.

In accordance with Section 16-50j-89 of the Regulations of Connecticut State Agencies, on September 2, 2020, written notice of the request to share the existing telecommunications facility was provided to the Council, the property owner of record and the chief elected official of the municipality in which the existing telecommunications facility is located.

The Council will consider this request at a future public meeting. A copy of the meeting agenda will be sent to you.

Should you have any questions or comments regarding the above-referenced request, please feel free to call me at 860-827-2951 or submit written comments to the Council by September 16, 2020.

Thank you for your cooperation and consideration.


Sincerely,

*s/ Melanie A. Bachman*

Melanie Bachman  
Executive Director

MB/IN/emr

Neil Pade, Director of Planning and Community Development ([npade@townofcantonct.org](mailto:npade@townofcantonct.org))

**Archived:** Friday, September 11, 2020 9:04:20 AM  
**From:** [Alex Murshteyn](#)  
**Sent:** Wed, 2 Sep 2020 09:27:20  
**To:** [CSC-DL Siting Council](#)  
**Cc:** Bessel, Robert; Pade, Neil; Blake Paynter; Peter Fales  
**Subject:** VZW Tower Share Request filing / Canton 3 CT (302488) / Canton  
**Importance:** Normal  
**Attachments:**  
[302488.ZAP-CSC-TowerShare.090220.Canton\\_3\\_CT.pdf](#) 

---

**CAUTION:** This email came from outside the organization. Do not click links or open attachments if you are unsure the message is safe.

Ladies & Gentlemen,

Please find attached the electronic copy of filing submitted hereby for Verizon Wireless' Tower Share Request for colocation at the 309 E. Hill Rd (aka 4/off Hoffman Rd) monopole tower.

Copies of same filing are being submitted electronically to the chief elected official, P&Z officials, as well as tower owner (excluding 1 hardcopy via UPS to property owner and a reference copy with check to CSC), pursuant to the electronic filings directive in place in order to prevent the spread of Coronavirus.

Please forward the Siting Council decision after your review to the address below and in the Tower Share Brief. Should you have any questions, please do not hesitate to contact me directly.

Respectfully,



**Alex Murshteyn | Site Acquisition Consultant**  
750 W Center St, Floor 3 | W Bridgewater, MA 02379  
Mobile: 508.821.0159 | Fax: 508.819.3017  
[amurshteyn@clinellc.com](mailto:amurshteyn@clinellc.com) | [CenterlineCommunications.com](http://CenterlineCommunications.com)

Connecticut Sitting Council

Check: 21626  
Date: 8/19/2020  
Vendor: 0

Invoice	P.O. Num.	Invoice Amt	Prior Balance	Retention	Discount	Amt. Paid
20531-067	302488 / 13201406 aka Canton 3	625.00	625.00	0.00	0.00	625.00
		<u>625.00</u>	<u>625.00</u>	<u>0.00</u>	<u>0.00</u>	<u>625.00</u>

**Centerline Communications LLC**

750 W. Center Street  
Suite 301  
W. Bridgewater, MA 02379  
(781) 713-4725

ROCKLAND TRUST COMPANY  
MEDFIELD, MA 02052

53-447/113

021626

PAY  
TO THE  
ORDER  
OF

THE SUM OF SIX HUNDRED TWENTY FIVE DOLLARS AND NO CENTS

8/19/2020

DATE

21626  
AMOUNT

\*\*\*\*\*625.00

\*\*\*\*\*

Connecticut Sitting Council

VOID AFTER 90 DAYS

AUTHORIZED SIGNATURE

Security features. Details on back

⑈021626⑈

⑈

⑈

Centerline Communications LLC

021626

Connecticut Sitting Council

Check: 21626  
Date: 8/19/2020  
Vendor: 0

Invoice	P.O. Num.	Invoice Amt	Prior Balance	Retention	Discount	Amt. Paid
20531-067	302488 / 13201406 aka Canton 3	625.00	625.00	0.00	0.00	625.00
		<u>625.00</u>	<u>625.00</u>	<u>0.00</u>	<u>0.00</u>	<u>625.00</u>



**Cellco Partnership d/b/a  
Verizon Wireless**

**Alex Murshteyn**  
Real Estate Consultant  
750 W. Center St, Suite 301  
W. Bridgewater, MA 02379  
Phone: (508) 821-0159  
amurshteyn@clinellc.com

September 2, 2020

Members of the Connecticut Siting Council  
Connecticut Siting Council  
10 Franklin Square  
New Britain, Connecticut 06051

**Re: Request for Tower Share  
Cellco Partnership d/b/a Verizon Wireless (“Verizon”) Request for Approval of the  
Shared Use of an Existing Tower at 309 East Hill Rd (aka 4 Hoffman Road, aka Off  
Hoffmann Road; 200’ east of Hoffmann Road at East Hill Road), Canton, CT 06019  
Verizon site: Southington 3 CT (ATC: 302475)**

Dear Members of the Council:

Verizon proposes to share an existing telecommunications tower located at 309 East Hill Road (aka 4 Hoffmann Road) in Canton, CT (the facility). The subject parcel is identified by the Town of Canton as Map 19, Block 243, Lot 0309. The property is owned by James H Hart & Katherine E Hart c/o American Tower Corp. The tower is owned by American Tower Corp. The property is roughly 2.01± acres and accommodates an existing telecommunication compound with two shelters and two concrete pads with telecommunications carriers’ cabinets and a generator, as well as the monopole tower within the fenced compound. The facility is and will continue to be owned and operated by American Tower.

Pursuant to Connecticut General Statutes Section 16-50aa (the Statute), Verizon requests a finding from the Connecticut Siting Council that the shared use of this facility is technically, legally, environmentally and economically feasible, will meet safety concerns, will avoid the unnecessary proliferation of towers and is in the public interest. It further requests an order approving the shared use of this facility.

The purpose of this request is to use an existing tower to develop Verizon’s wireless network to provide high speed wireless data and wireless service within the State of Connecticut and in this part of Canton: avoiding the need for an additional tower in Canton, CT.

Verizon is licensed by the Federal Communications Commission (“FCC”) to provide multiple technologies, including PCS, as well as long-term evolution (“LTE”) services and AWS

(700/850/1900/2100 MHz) in Hartford County. Verizon is building and enhancing its network to take advantage of its licensed spectrum, and improve its broadband high speed wireless voice and data services.

### **Existing Facility & Proposed Modification**

The existing facility is and will continue to be a 150' monopole tower located at 309 East Hill Road (aka 4 Hoffmann Road) in Canton. Site coordinates (NAD83) are N41° 51' 19.08" and W72° 53' 33.00" (or 41.8553, -72.8925). Currently there are two other major commercial wireless carriers located on this tower, as well as two other sets of minor antenna users, whereby Verizon now intends to use the vacant space on the lowest part of the tower, beneath T-Mobile and the Town of Canton. The site plan of the facility is included in the proposed Modifications drawings and Construction drawings, prepared by A.T. Engineering Service, PLLC dated July 8, 2020 and August 5, 2020, respectively, and enclosed herewith.

Verizon intends to install six (6) NHH-65B-R4 Commscope panel antennas and six (6) Samsung RRUs and one (1) OVP on an antenna platform mount with sector frames, as shown in the construction drawing, to be attached to the monopole tower at the 118' mount level. Verizon will also install two (2) 1-5/8" hybrid fiber cable on the tower. In order to enable this installation, the tower will be reinforced per the Modifications drawings. Down below, inside the existing fenced compound, it will add a 12' x 30' lease area with two (2) concrete pads and one (1) H-frame.

Verizon intends to enter into a new agreement, at this tower height, in order to license the portion of space within the existing and proposed compound for the new 4'-0" x 4'-0" concrete pad with one (1) new cabinet, H-frame with one (1) ILC cabinet, one (1) meter and disconnect, one (1) junction box, one (1) GPS antenna and one (1) work lamp, on concrete piers. The second pad will be 3'-6" x 8'-0" and will contain one (1) 30 KW diesel generator. A new ice bridge will also be installed in order to connect the equipment with the tower, along with power and telco conduits on the other side of the H-frame.

Consistent with the requirements of the Statute, it is feasible for Verizon to collocate at this facility. Verizon is proposing to collocate on the existing monopole tower that will continue to remain in the ownership of American Tower Corp. Included with this application is a Post-Modification Structural Analysis Report from A.T. Engineering Service PLLC dated August 13, 2020 that shows that the existing tower can support Verizon's proposed equipment once modified. Additionally, an Antenna Mount Analysis Report from A.T. Engineering Service PLLC dated April 8, 2020 is also enclosed and it shows that the mounting system can support the proposed equipment.

### **The Proposal is Legally Feasible.**

The Council has authority, pursuant to statute, to issue an order approving of the shared use of this tower. By issuing an order approving Verizon's shared use of this tower, Verizon will be able to proceed with obtaining a building permit for the proposed installation. American Tower Corp has executed a Letter of Authorization that approved Verizon's Request for Tower Share filing, which approval is included with this application. Verizon's proposal is legally feasible.

Verizon is a telecommunication provider licensed by the FCC to provide service in the State of Connecticut, including but not limited to Hartford County. Verizon will enter into an agreement with the owner of this facility, American Tower Corp, for the location of this proposed equipment on the existing tower so that it may provide telecommunications services to the surrounding community. Consequently, the proposal is legally feasible.

**The Proposal is Environmentally Feasible.**

Pursuant to the Statute, the proposal will be environmentally feasible for the following reasons:

- The overall impact on the Town of Canton will be decreased with the sharing of a single tower versus the proliferation of multiple towers.
- There will be no material increase in the visibility of the tower with the addition of the antennas and associated equipment on the tower.
- There will be no increased impact on air quality because no air pollutants will be generated during normal operation of the facility.
- There will only be a brief, slight increase in noise pollution while the site is under construction.
- During construction, the proposed project will generate a small amount of traffic as construction takes place. Upon completion, traffic will be limited to an average of one trip per month for maintenance and inspections.
- There will be no adverse impact to the health and safety of the surrounding community or workers at the facility due to the addition of Verizon's new antennas to the tower. Verizon has performed an analysis of the radio frequency field emanating from the transmitting antennas on the tower to ensure compliance with the National Council on Radiation Protection and measurements (NCRP) standard for maximum permissible exposure (MPE) adopted by the FCC. The analysis indicates that Verizon and other antennas on the tower will cumulatively emit 59.36% of the NCRP standard for maximum permissible exposure. The report indicates that maximum level of exposure will be well below the FCC's mandated radio frequency exposure limits. The report is enclosed herewith.
- Verizon expects to enhance safety in this portion of Canton by improving wireless telecommunications for local residents and travelers. Verizon is currently developing its network to provide its customers with quality and reliable coverage to comply with their FCC license, the site is a necessary part of Verizon's network development.
- Specifically, this proposal is designed to provide reliable wireless coverage for this section of Canton, CT.

---

**Conclusions:**

For the reasons stated above, the attachment of Verizon's antennas and associated equipment to the tower would meet all the requirements set forth in the Statute. The proposal is legally, technically, economically and environmentally feasible and meets all public safety concerns. Therefore, Verizon respectfully requests that the Council approve this request for the shared use of this tower located at 309 East Hill Road (aka 4 Hoffmann Road), Canton, CT.

Respectfully yours,



---

Alex Murshteyn  
Real Estate Consultant – Site Acquisition  
c/o Cellco Partnership d/b/a Verizon Wireless  
Centerline Communications, LLC  
750 West Center Street, Floor 3 / Suite 301  
West Bridgewater, MA 02379  
Mobile: (508) 821-0159  
[AMurshteyn@centerlinecommunications.com](mailto:AMurshteyn@centerlinecommunications.com)

Enclosures (9)

cc: Robert Bessel, First Selectman, Town of Canton - chief elected official  
Neil Pade, AICP, Director of Planning and Community Development - P&Z official  
James H and Katharine E Hart - property owners  
American Tower Corp - tower owner  
Verizon Wireless





**LETTER OF AUTHORIZATION**

**SITE NO: 302488 SITE NAME: Cntn - Canton**

**PROJECT: 13201406**

**ADDRESS: 4 Hoffmann Road, Canton, CT 06019-2123**

I, Margaret Robinson, Senior Counsel, US Tower Division on behalf of American Tower\*, owner of the tower facility located at the address identified above (the "Tower Facility"), do hereby authorize Verizon Wireless, its successors and assigns, to act as American Tower's non-exclusive agent for the purpose of filing and securing any zoning, land-use, building permit and/or electrical permit application(s) and approvals of the applicable jurisdiction for and to conduct the construction of the installation of antennas and related telecommunications equipment on the Tower Facility located at the above address. This installation shall not affect adjoining lands and will occur only within the area leased by American Tower.

American Tower understands that the application may be denied, modified, or approved with conditions. The above authorization is limited to the acceptance by American Tower of conditions related to American Tower's installation. Any such conditions of approval or modifications will not be effective unless approved in writing by American Tower.

The above authorization does not permit Verizon Wireless to modify or alter any existing permit(s) and/or zoning or land-use conditions or impose any additional conditions unrelated to American Tower's installation of telecommunications equipment without the prior written approval of American Tower.

Signature: \_\_\_\_\_

Margaret Robinson, Senior Counsel  
US Tower Division

**NOTARY BLOCK**

COMMONWEALTH OF MASSACHUSETTS  
County of Middlesex

This instrument was acknowledged before me by Margaret Robinson, Senior Counsel of American Tower (Tower Facility owner and/or operator), personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same.

WITNESS my hand and official seal, this 1st day of September, 2020.

NOTARY SEAL



**GERARD T. HEFFRON**  
Notary Public  
Commonwealth of Massachusetts  
My Commission Expires  
August 9, 2024

Notary Public   
My Commission Expires: August 9<sup>th</sup>, 2024

\* American Tower as used herein is defined as American Tower Corporation and any of its affiliates or subsidiaries.

**UPS CampusShip: View/Print Label**

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.
2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.
3. **GETTING YOUR SHIPMENT TO UPS**  
**Customers with a Daily Pickup**  
Your driver will pickup your shipment(s) as usual.

**Customers without a Daily Pickup**

Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.

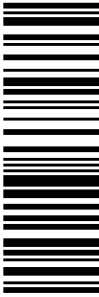

Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.  
Hand the package to any UPS driver in your area.

UPS Access Point™  
CVS STORE # 972  
555 WASHINGTON ST  
SOUTH EASTON ,MA 02375

UPS Access Point™  
CVS STORE # 7232  
689 DEPOT ST  
NORTH EASTON ,MA 02356

UPS Access Point™  
TOWN LINE GENERAL STORE  
450 E CENTER ST  
WEST BRIDGEWATER ,MA 02379

FOLD HERE

<p>ALEX MURSHTEYN 5088210159 CENTERLINE COMMUNICATIONS, LLC 750 WEST CENTER STREET WEST BRIDGEWATER MA 02379</p> <p><b>SHIP TO:</b> JAMES H AND KATHARINE E HART 90 PARK ROAD <b>BARKHAMSTED CT 06063-4113</b></p>	<p><b>CT 067 9-02</b></p> 	<p><b>UPS GROUND</b></p> <p>TRACKING #: 1Z 9Y4 503 03 1122 3234</p> 	<p><b>BILLING: P/P</b></p> <p>Reference # 1: 302488 / 13201406 aka Canton 3 CT Reference # 2: CSC IS - PO CS 22.0.11. WINTNV50 31.0A 07/2020*</p> 
--	---	---	---



**LETTER OF AUTHORIZATION**

**SITE NO: 302488    SITE NAME: Cntn - Canton**

**PROJECT: 13201406**

**ADDRESS: 4 Hoffmann Road, Canton, CT 06019-2123**

I, Margaret Robinson, Senior Counsel, US Tower Division on behalf of American Tower\*, owner of the tower facility located at the address identified above (the "Tower Facility"), do hereby authorize Centerline Communications, LLC, its successors and assigns, to act as American Tower's non-exclusive agent for the purpose of filing and securing any zoning, land-use, building permit and/or electrical permit application(s) and approvals of the applicable jurisdiction for and to conduct the construction of the installation of antennas and related telecommunications equipment on the Tower Facility located at the above address. This installation shall not affect adjoining lands and will occur only within the area leased by American Tower.

American Tower understands that the application may be denied, modified, or approved with conditions. The above authorization is limited to the acceptance by American Tower of conditions related to American Tower's installation. Any such conditions of approval or modifications will not be effective unless approved in writing by American Tower.

The above authorization does not permit Centerline Communications, LLC to modify or alter any existing permit(s) and/or zoning or land-use conditions or impose any additional conditions unrelated to American Tower's installation of telecommunications equipment without the prior written approval of American Tower.

Signature: \_\_\_\_\_

Margaret Robinson, Senior Counsel  
US Tower Division

**NOTARY BLOCK**

COMMONWEALTH OF MASSACHUSETTS  
County of Middlesex

This instrument was acknowledged before me by Margaret Robinson, Senior Counsel of American Tower (Tower Facility owner and/or operator), personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same.

WITNESS my hand and official seal, this 31st day of July, 2020.

NOTARY SEAL



**GERARD T. HEFFRON**  
Notary Public  
Commonwealth of Massachusetts  
My Commission Expires  
August 9, 2024

Notary Public \_\_\_\_\_

My Commission Expires: August 9<sup>th</sup>, 2024

\* American Tower as used herein is defined as American Tower Corporation and any of its affiliates or subsidiaries.



**AMERICAN TOWER®**  
CORPORATION

---

## Post Modification Structural Analysis Report

**Structure** : 150 ft Monopole  
**ATC Site Name** : Cntn - Canton, CT  
**ATC Asset Number** : 302488  
**Engineering Number** : 13201406\_C4\_06  
**Proposed Carrier** : VERIZON WIRELESS  
**Carrier Site Name** : CANTON 3 CT  
**Carrier Site Number** : 467157  
**Site Location** : 4 Hoffmann Road  
Canton, CT 06019-2122  
41.855300, -72.892500  
**County** : Hartford  
**Date** : August 13, 2020  
**Max Usage** : 98%  
**Result** : Pass

Prepared By:  
Isaac P. Dodson  
Structural Engineer III

Reviewed By:

**COA: PEC.0001553**



**Table of Contents**

Introduction .....	1
Supporting Documents .....	1
Analysis .....	1
Conclusion.....	1
Existing and Reserved Equipment.....	2
Equipment to be Removed.....	2
Proposed Equipment .....	2
Structure Usages .....	3
Foundations .....	3
Deflection, Twist, and Sway.....	3
Standard Conditions .....	4
Calculations .....	Attached



## Introduction

The purpose of this report is to summarize results of a post modification structural analysis performed on the 150 ft monopole to reflect the change in loading by VERIZON WIRELESS.

## Supporting Documents

<b>Tower Drawings</b>	ITT Meyer, AT&T Spec. AT-8935 B, dated April 13, 1984
<b>Foundation Drawing</b>	Girard & Co. Drawing dated April 22, 1986 Mapping by ETS Job #201898, dated April 28, 2020
<b>Geotechnical Report</b>	GEOServices Project #21-07254, dated September 12, 2008
<b>Modifications</b>	ATC Project #51822034, dated March 14, 2013 ATC Project #OAA694941_C6_06, dated May 11, 2017 ATC Project #13201406_C6_05, dated July 8, 2020 (Pending)

## Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

<b>Basic Wind Speed:</b>	93 mph (3-Second Gust, Vasd) / 120 mph (3-Second Gust, Vult)
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-Second Gust) w/ 1" radial ice concurrent
<b>Code:</b>	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
<b>Structure Class:</b>	II
<b>Exposure Category:</b>	B
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Spectral Response:</b>	$S_s = 0.18$ , $S_1 = 0.06$
<b>Site Class:</b>	D - Stiff Soil

## Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report. If the pending modifications cited in the supporting documents table are not completed, the results of this analysis are no longer valid, and VERIZON WIRELESS should contact American Tower's Site Manager for further direction on how to proceed.

If you have any questions or require additional information, please contact American Tower via email at [Engineering@americantower.com](mailto:Engineering@americantower.com). Please include the American Tower site name, site number, and engineering number in the subject line for any questions.



**Existing and Reserved Equipment**

Elev. <sup>1</sup> (ft)	Qty	Antenna	Mount Type	Lines	Carrier
163.0	1	Generic 12' Omni	Platform with Handrails	(1) 1 5/8" Coax	SPOK HOLDINGS, INC.
161.0	1	Generic 12' Dipole		(1) 7/8" Coax	TOWN OF CANTON
155.5	1	Generic 6' Yagi		(1) 1/2" Coax	SPOK HOLDINGS, INC.
152.0	3	CCI HPA-65R-BUU-H8		(2) 0.39" Fiber Trunk (4) 0.78" 8 AWG 6 (12) 1 1/4" Coax (2) 3" conduit	AT&T MOBILITY
150.0	3	Ericsson RRUS 11 (Band 12)			
	3	Generic Round Stand-Off			
	6	Powerwave Allgon 7770.00A			
	1	Raycap DC6-48-60-18-8F(32.8 lbs)			
	6	Powerwave Allgon TT19-08BP111-001			
	6	Powerwave Allgon 7020.00 Dual Band RET			
	3	Andrew ABT-D MDF-ADBH			
3	Ericsson RRUS 32 B2				
140.0	3	RFS ATMPP1412D-1CWA	Platform with Handrails	(1) 1 1/4" Hybriflex Cable (12) 1 5/8" Coax	T-MOBILE
	6	Ericsson AIR 21 B4A B2P			
	3	Andrew LNX-6515DS-A1M			
	3	RFS ATMAA1412D-1A20			
123.0	1	Generic 75" x 16.8" Panel	Stand-Off	(1) 7/8" Coax	TOWN OF CANTON
10.0	1	Channel Master Type 120	Flush	(1) 0.28" RG-6	SPOK HOLDINGS, INC.

**Equipment to be Removed**

Elev. <sup>1</sup> (ft)	Qty	Antenna	Mount Type	Lines	Carrier
No loading was considered as removed as part of this analysis.					

**Proposed Equipment**

Elev. <sup>1</sup> (ft)	Qty	Antenna	Mount Type	Lines	Carrier
118.0	3	Samsung B2/B66A RRH-BR049	SITEPRO RMQP-496-HK Platform with Handrails	(2) 1 5/8" Hybriflex	VERIZON WIRELESS
	3	Samsung B5/B13 RRH-BR04C			
	1	Raycap RCMDC-6627-PF-48			
	6	Commscope NHH-65B-R2B			

<sup>1</sup> Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed coax inside the pole shaft.



**Structure Usages**

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	90%	Pass
Shaft	89%	Pass
Base Plate	64%	Pass
Flange	86%	Pass
Reinforcement	98%	Pass

**Foundations**

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	2,784.1	56%
Axial (Kips)	46.2	14%
Shear (Kips)	27.2	24%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

**Deflection and Sway\***

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
118.0	Samsung B2/B66A RRH-BR049	VERIZON WIRELESS	1.636	1.423
	Samsung B5/B13 RRH-BR04C			
	Raycap RCMDC-6627-PF-48			
	Commscope NHH-65B-R2B			
10.0	Channel Master Type 120	SPOK HOLDINGS, INC.	0.012	0.140

\*Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G





## Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

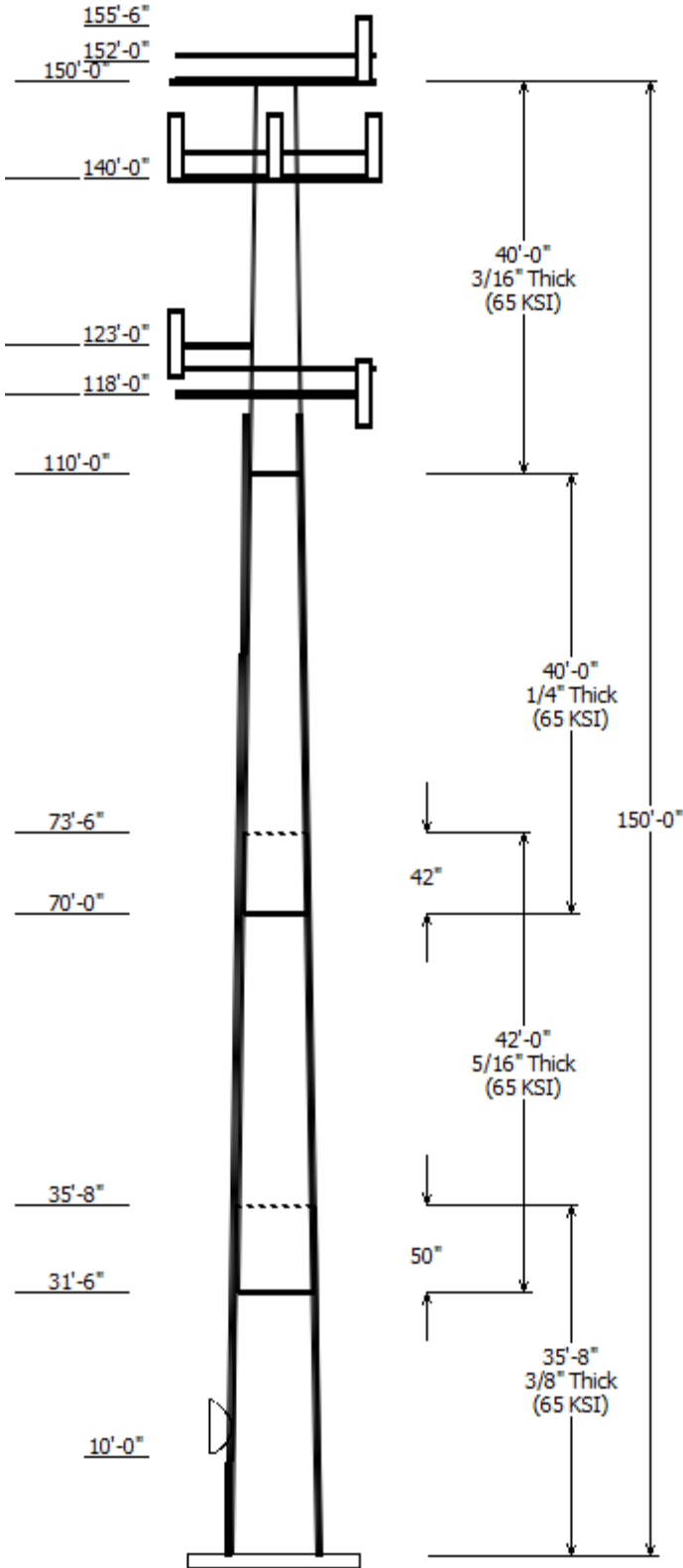
It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

© 2007 - 2020 by ATC IP LLC. All rights reserved.

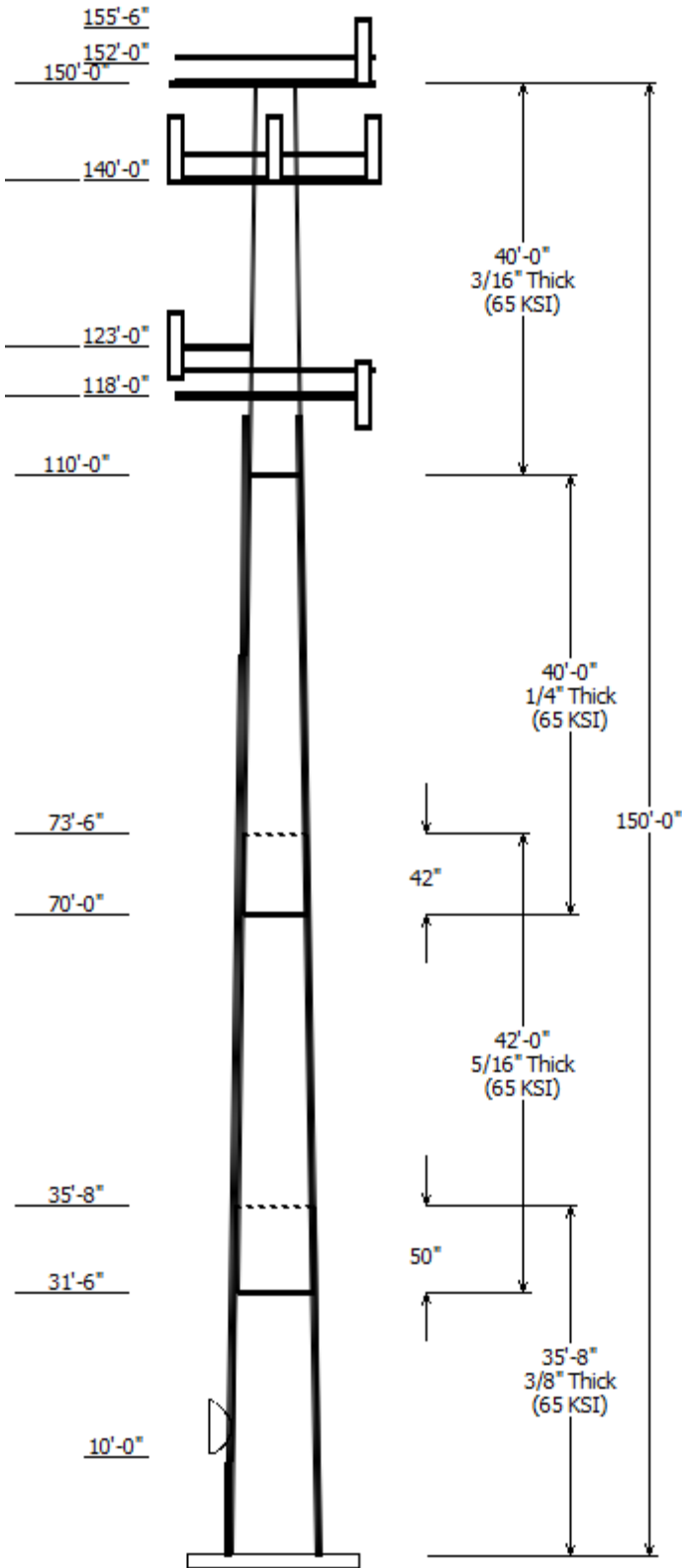


Job Information	
Client : VERIZON WIRELESS	Code: ANSI/TIA-222-G
Pole : 302488	
Location : Cntn - Canton, CT	
Description : 150 ft ITT Meyer Type "B" Tower	Struct. Class : II
Shape : 12 Sides	Exposure : B
Height : 150.00 (ft)	Topo : 1
Base Elev (ft): 0.00	
Taper: 0.156707(in/ft)	

Sections Properties							
Shaft Section	Length (ft)	Diameter (in)		Thick (in)	Joint Type	Overlap Length (in)	Steel Grade
		Across Top	Across Bottom				
1	35.666	31.79	37.38	0.375		0.000	12 Sides 65
2	42.000	26.48	33.06	0.313	Slip Joint	50.000	12 Sides 65
3	40.000	21.26	27.53	0.250	Slip Joint	42.000	12 Sides 65
4	40.001	14.99	21.26	0.188	Butt Joint	0.000	12 Sides 65

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
163.000	163.000	1	Generic 12' Omni
161.000	161.000	1	Generic 12' Dipole
155.500	155.500	1	Generic 6' Yagi
152.000	153.000	3	CCI HPA-65R-BUU-H8
150.000	150.000	3	Stand-Off
150.000	150.000	1	Round Platform w/ Handrails
150.000	153.000	6	Powerwave Allgon 7770.00A
150.000	153.000	3	Ericsson RRUS 32 B2
150.000	153.000	3	Ericsson RRUS 11 (Band 12)
150.000	153.000	1	Raycap DC6-48-60-18-8F(32.8 lb
150.000	153.000	6	Powerwave Allgon TT19-
150.000	150.000	6	Powerwave Allgon 7020.00
150.000	150.000	3	Andrew ABT-DMDF-ADBH
140.000	140.000	1	Round Platform w/ Handrails
140.000	141.000	3	Andrew LNX-6515DS-A1M
140.000	141.000	6	Ericsson AIR 21 B4A B2P
140.000	140.000	3	RFS ATMPP1412D-1CWA
140.000	140.000	3	RFS ATMAA1412D-1A20
123.000	123.000	1	Stand-Off
123.000	123.000	1	Generic 75" x 16.8" Panel
118.000	118.000	1	Generic Round Platform with
118.000	118.000	6	Commscope NHH-65B-R2B
118.000	118.000	1	Raycap RCMD-6627-PF-48
118.000	118.000	3	Samsung B5/B13 RRH-BR04C
118.000	118.000	3	Samsung B2/B66A RRH-BR049
10.000	11.000	1	Channel Master Type 120

Linear Appurtenance			
Elev (ft) From	To	Description	Exposed To Wind
84.920	120.5	reinforcement	Yes
84.920	120.5	reinforcement	Yes
84.920	120.5	reinforcement	Yes
84.920	120.5	reinforcement	Yes
84.920	120.5	reinforcement	Yes
84.920	120.5	reinforcement	Yes
15.500	95.500	reinforcement	Yes
15.500	95.500	reinforcement	Yes
15.500	95.500	reinforcement	Yes
15.500	95.500	reinforcement	Yes



0.000	118.0	1 5/8" Hybriflex	No
0.000	10.000	0.28" (7mm) RG-6	No
0.000	15.500	reinforcement	Yes
0.000	15.500	reinforcement	Yes
0.000	15.500	reinforcement	Yes
0.000	15.500	reinforcement	Yes
0.000	123.0	7/8" Coax	No
0.000	140.0	1 1/4" Hybriflex	Yes
0.000	140.0	1 5/8" Coax	Yes
0.000	140.0	1 5/8" Coax	No
0.000	150.0	0.39" (10mm)	No
0.000	150.0	0.78" (19.7mm) 8	No
0.000	150.0	1 1/4" Coax	No
0.000	150.0	3" conduit	No
0.000	155.5	1/2" Coax	No
0.000	161.0	7/8" Coax	No
0.000	163.0	1 5/8" Coax	No

### Load Cases

1.2D + 1.6W	93 mph with No Ice
0.9D + 1.6W	93 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

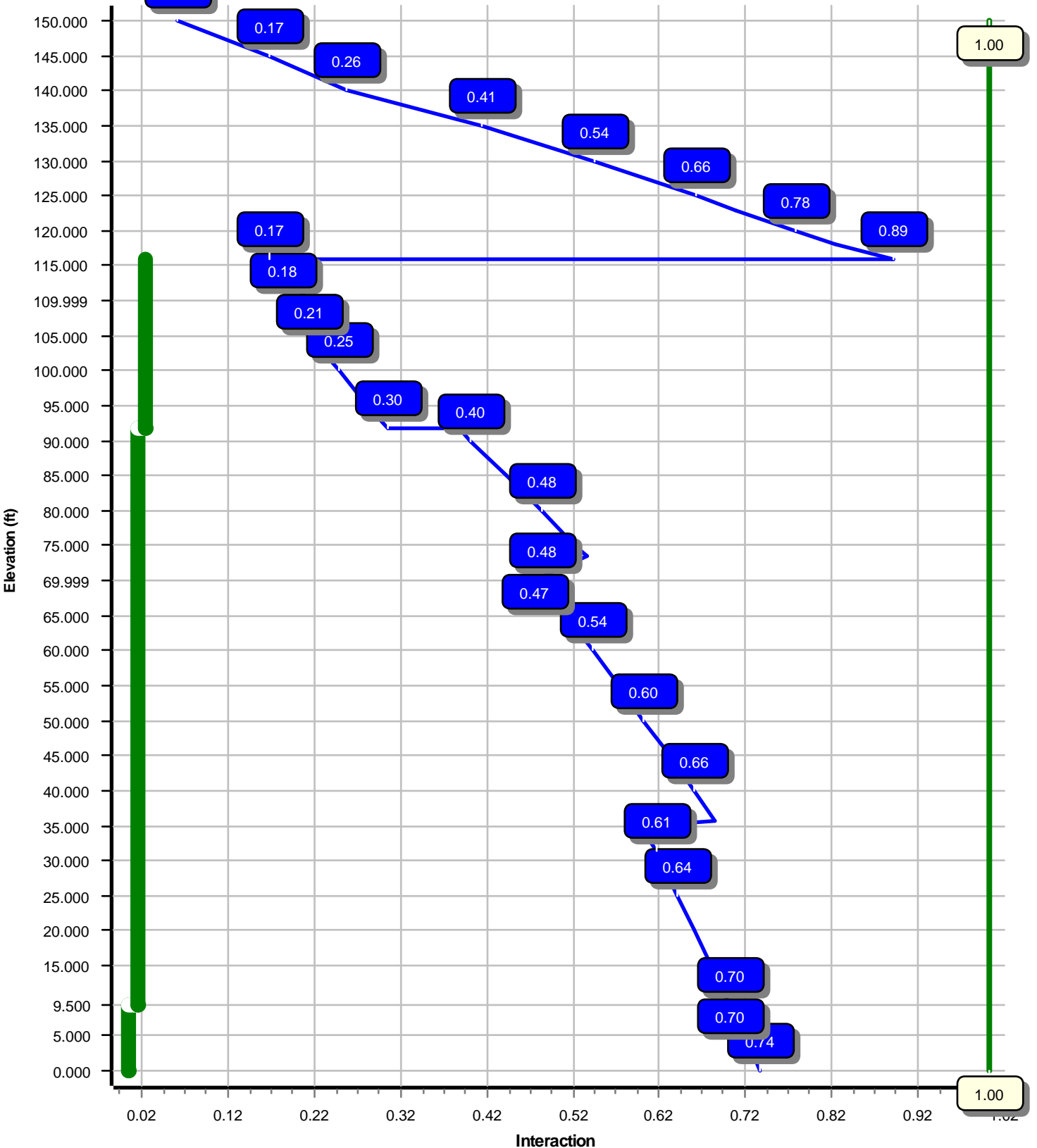
### Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	2784.13	27.16	46.15
0.9D + 1.6W	2702.19	26.93	34.60
1.2D + 1.0Di + 1.0Wi	1226.38	11.42	77.41
(1.2 + 0.2Sds) * DL + E ELFM	193.61	1.51	45.98
(1.2 + 0.2Sds) * DL + E EMAM	291.10	2.33	45.98
(0.9 - 0.2Sds) * DL + E ELFM	188.80	1.51	32.00
(0.9 - 0.2Sds) * DL + E EMAM	283.21	2.32	32.00
1.0D + 1.0W	634.58	6.27	38.51

### Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	10.00	0.148	0.140

Load Case : 1.2D + 1.6W  
Max Ratio 88.93% at 115.9 ft



Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:01 AM

Customer: VERIZON WIRELESS

### Analysis Parameters

Location :	Hartford County, CT	Height (ft) :	150
Code :	ANSI/TIA-222-G	Base Diameter (in) :	37.38
Shape :	12 Sides	Top Diameter (in) :	15.00
Pole Type :	Taper	Taper (in/ft) :	0.157
Pole Manufacturer :	ITT Meyer	Rotation (deg) :	0.00

### Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	93 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0 ft	Design Ice Thickness:	1.00 in

### Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	3.04		
$T_L$ (sec):	6	$p$ :	1.3
$S_s$ :	0.179	$S_1$ :	0.065
$F_a$ :	1.600	$F_v$ :	2.400
$S_{ds}$ :	0.191	$S_{d1}$ :	0.104
		$C_s$ :	0.030
		$C_s$ Max:	0.030
		$C_s$ Min:	0.030

### Load Cases

1.2D + 1.6W	93 mph with No Ice
0.9D + 1.6W	93 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntrn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:01 AM

Customer: VERIZON WIRELESS

**Shaft Section Properties**

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Joint Len (in)	Weight (lb)	Bottom						Top						
							Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Taper (in/ft)
1-12	35.666	0.3750	65		0.00	5,013	37.38	0.00	44.68	7810.1	24.03	99.68	31.79	35.67	37.93	4778.8	20.04	84.78	0.156707
2-12	42.000	0.3125	65	Slip	50.00	4,237	33.06	31.50	32.96	4514.2	25.67	105.82	26.48	73.50	26.34	2303.2	20.03	84.76	0.156707
3-12	40.000	0.2500	65	Slip	42.00	2,646	27.53	70.00	21.96	2087.3	26.83	110.14	21.26	110.00	16.92	953.9	20.11	85.07	0.156707
4-12	40.001	0.1875	65	Butt	0.00	1,475	21.26	110.00	12.73	721.8	27.71	113.43	14.99	150.00	8.94	250.4	18.75	79.99	0.156707
Shaft Weight						13,372													

**Discrete Appurtenance Properties**

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor	Weight (lb)	Ice EPAa (sf)	Orientation Factor
163.00	Generic 12' Omni	1	1.00	0.000	40.00	3.600	1.00	161.10	9.330	1.00
161.00	Generic 12' Dipole	1	1.00	0.000	40.00	4.510	1.00	217.85	14.057	1.00
155.50	Generic 6' Yagi	1	1.00	0.000	25.00	8.950	1.00	364.40	40.769	1.00
152.00	CCI HPA-65R-BUU-H8	3	0.75	1.000	68.00	12.976	0.67	410.73	17.751	0.67
150.00	Andrew ABT-DMDF-ADBH	3	0.75	0.000	1.10	0.045	0.50	4.07	0.276	0.50
150.00	Powerwave Allgon 7020.00 Dual	6	0.75	0.000	2.20	0.339	0.50	15.83	0.885	0.50
150.00	Powerwave Allgon TT19-	6	0.75	3.000	16.00	0.553	0.50	42.94	1.235	0.50
150.00	Raycap DC6-48-60-18-8F(32.8	1	0.75	3.000	32.80	1.470	0.50	115.09	2.402	0.50
150.00	Ericsson RRUS 11 (Band 12)	3	0.75	3.000	50.00	2.566	0.50	140.92	3.963	0.50
150.00	Ericsson RRUS 32 B2	3	0.75	3.000	53.00	2.743	0.50	151.10	4.303	0.50
150.00	Stand-Off	3	1.00	0.000	100.00	3.000	1.00	165.05	5.091	1.00
150.00	Powerwave Allgon 7770.00A	6	0.75	3.000	27.00	5.555	0.65	179.14	8.404	0.65
150.00	Round Platform w/ Handrails	1	1.00	0.000	2,000.00	27.200	1.00	3,728.35	59.804	1.00
140.00	RFS ATMAA1412D-1A20	3	0.75	0.000	13.00	1.000	0.50	48.13	1.884	0.50
140.00	RFS ATMPP1412D-1CWA	3	0.75	0.000	12.50	1.001	0.50	44.85	1.905	0.50
140.00	Ericsson AIR 21 B4A B2P	6	0.75	1.000	90.00	5.800	0.71	277.02	8.567	0.71
140.00	Andrew LNX-6515DS-A1M	3	0.75	1.000	49.80	11.410	0.70	353.22	15.706	0.70
140.00	Round Platform w/ Handrails	1	1.00	0.000	2,000.00	27.200	1.00	3,716.26	59.576	1.00
123.00	Stand-Off	1	1.00	0.000	100.00	3.000	0.67	163.80	5.051	0.67
123.00	Generic 75" x 16.8" Panel	1	1.00	0.000	31.20	11.264	1.00	333.75	15.042	1.00
118.00	Samsung B2/B66A RRH-BR049	3	0.75	0.000	84.40	1.875	0.50	167.54	3.051	0.50
118.00	Samsung B5/B13 RRH-BR04C	3	0.75	0.000	70.30	1.875	0.50	144.85	3.051	0.50
118.00	Raycap RCMDC-6627-PF-48	1	0.75	0.000	32.00	4.056	0.50	197.63	5.835	0.50
118.00	Commscope NHH-65B-R2B	6	0.75	0.000	43.70	8.079	0.69	270.92	11.710	0.69
118.00	Generic Round Platform with	1	1.00	0.000	2,500.00	27.200	1.00	4,610.90	59.057	1.00
10.00	Channel Master Type 120	1	1.00	1.000	126.00	20.190	1.00	335.07	23.250	1.00
Totals	Num Loadings:26	71			9,506.70			23,550.64		

**Linear Appurtenance Properties** Load Case Azimuth (deg) :

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Max Coax / Row	Dist Between Rows (in)	Dist Between Cols (in)	Dist Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	163.00	1	1 5/8" Coax	1.98	0.82	N	1	0.00	0.00	0	N	SPOK HOLDINGS,
0.00	161.00	1	7/8" Coax	1.09	0.33	N	1	0.00	0.00	0	N	TOWN OF CANTON
0.00	155.50	1	1/2" Coax	0.63	0.15	N	1	0.00	0.00	0	N	SPOK HOLDINGS,
0.00	150.00	2	0.39" (10mm) Fiber	0.39	0.06	N	2	0.00	0.00	0	N	AT&T MOBILITY
0.00	150.00	4	0.78" (19.7mm) 8 AWG	0.78	0.59	N	4	0.00	0.00	0	N	AT&T MOBILITY
0.00	150.00	12	1 1/4" Coax	1.55	0.63	N	6	0.00	0.00	0	N	AT&T MOBILITY
0.00	150.00	2	3" conduit	3.50	7.58	N	2	0.00	0.00	0	N	AT&T MOBILITY
0.00	140.00	1	1 1/4" Hybriflex Cable	1.54	1.00	N	1	0.00	0.00	300	Y	T-MOBILE
0.00	140.00	6	1 5/8" Coax	1.98	0.82	N	3	0.00	0.00	300	Y	T-MOBILE

Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:02 AM

Customer: VERIZON WIRELESS

0.00	140.00	6	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	T-MOBILE
0.00	123.00	1	7/8" Coax	1.09	0.33	N	1	0.00	0.00	0	0.00	N	TOWN OF CANTON
84.92	120.50	1	reinforcement	4.00	0.00	N	1	0.00	0.00	0	8.28	Y	--
84.92	120.50	1	reinforcement	4.00	0.00	N	1	0.00	0.00	120	8.28	Y	--
84.92	120.50	1	reinforcement	4.00	0.00	N	1	0.00	0.00	240	8.28	Y	--
84.92	120.50	1	reinforcement	2.49	6.30	N	1	0.00	0.00	0	2.90	Y	--
84.92	120.50	1	reinforcement	2.49	6.30	N	1	0.00	0.00	120	2.90	Y	--
84.92	120.50	1	reinforcement	2.49	6.30	N	1	0.00	0.00	240	2.90	Y	--
0.00	118.00	2	1 5/8" Hybriflex	1.98	1.30	N	2	0.00	0.00	0	0.00	N	VERIZON WIRELESS
15.50	95.50	1	reinforcement	4.00	4.68	N	1	0.00	0.00	90	0.00	Y	--
15.50	95.50	1	reinforcement	4.00	4.68	N	1	0.00	0.00	180	0.00	Y	--
15.50	95.50	1	reinforcement	4.00	4.68	N	1	0.00	0.00	270	0.00	Y	--
15.50	95.50	1	reinforcement	4.00	4.68	N	1	0.00	0.00	0	0.00	Y	--
0.00	15.50	1	reinforcement	4.00	4.68	N	1	0.00	0.00	90	0.00	Y	--
0.00	15.50	1	reinforcement	4.00	4.68	N	1	0.00	0.00	180	0.00	Y	--
0.00	15.50	1	reinforcement	4.00	4.68	N	1	0.00	0.00	270	0.00	Y	--
0.00	15.50	1	reinforcement	4.00	4.68	N	1	0.00	0.00	0	0.00	Y	--
0.00	10.00	1	0.28" (7mm) RG-6	0.28	0.03	N	1	0.00	0.00	0	0.00	N	SPOK HOLDINGS,

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Intermediate Connections		Connectors	Continuation?	
					Description	Spacing (in)	Len (in)			
0.00	9.50	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	40.0	3.31	5/8" A36 U-Bolt	No
9.50	91.67	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	30.0	3.31	5/8" A36 U-Bolt	Yes
91.67	115.9	3	SOL #20 All Thread	80	8.25	6" T Bracket	30.0	3.31	5/8" A36 U-Bolt	No

**Segment Properties** (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	F'y (ksi)	S (in <sup>3</sup> )	Z (in <sup>3</sup> )	Weight (lb)	Additional Reinforcing		
												Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	Weight (lb)
0.00		0.3750	37.380	44.684	7,810.1	24.03	99.68	78.5	403.6	0.0	0.0	19.64	4,816	0.0
5.00		0.3750	36.596	43.737	7,324.4	23.47	97.59	79.1	386.6	0.0	752.2	19.64	4,648	334.0
9.50	Reinf. Top Reinf	0.3750	35.891	42.886	6,904.9	22.97	95.71	79.7	371.7	0.0	663.2	19.64	4,498	300.6
10.00		0.3750	35.813	42.791	6,859.3	22.91	95.50	79.7	370.0	0.0	72.9	19.64	4,482	33.4
15.00		0.3750	35.029	41.845	6,414.3	22.35	93.41	80.3	353.7	0.0	720.0	19.64	4,319	334.0
20.00		0.3750	34.246	40.899	5,989.0	21.79	91.32	80.9	337.8	0.0	703.9	19.64	4,159	334.0
25.00		0.3750	33.462	39.953	5,582.9	21.23	89.23	81.6	322.3	0.0	687.8	19.64	4,003	334.0
30.00		0.3750	32.679	39.007	5,195.6	20.67	87.14	81.9	307.1	0.0	671.7	19.64	3,849	334.0
31.50	Bot - Section 2	0.3750	32.444	38.723	5,083.0	20.50	86.52	81.9	302.7	0.0	198.3	19.64	3,804	100.2
35.00		0.3750	31.895	38.061	4,826.6	20.11	85.05	81.9	292.3	0.0	846.7	19.64	3,818	233.8
35.67	Top - Section 1	0.3125	32.416	32.304	4,249.6	25.12	103.73	77.3	253.3	0.0	159.4	19.64	3,798	44.5
40.00		0.3125	31.737	31.621	3,985.5	24.53	101.56	78.0	242.6	0.0	471.4	19.64	3,668	289.5
45.00		0.3125	30.953	30.832	3,694.8	23.86	99.05	78.7	230.6	0.0	531.3	19.64	3,521	334.0
50.00		0.3125	30.170	30.044	3,418.5	23.19	96.54	79.4	218.9	0.0	517.9	19.64	3,377	334.0
55.00		0.3125	29.386	29.255	3,156.4	22.52	94.04	80.2	207.5	0.0	504.5	19.64	3,236	334.0
60.00		0.3125	28.603	28.467	2,908.0	21.85	91.53	80.9	196.4	0.0	491.0	19.64	3,098	334.0
65.00		0.3125	27.819	27.678	2,673.0	21.17	89.02	81.6	185.6	0.0	477.6	19.64	2,963	334.0
70.00	Bot - Section 3	0.3125	27.036	26.890	2,451.1	20.50	86.51	81.9	175.1	0.0	464.2	19.64	2,831	334.0
70.00		0.3125	27.035	26.890	2,451.0	20.50	86.51	81.9	175.1	0.0	0.1	19.64	2,915	0.0
73.50	Top - Section 2	0.2500	26.987	21.523	1,963.9	26.25	107.95	76.1	140.6	0.0	575.8	19.64	2,823	233.8
75.00		0.2500	26.752	21.334	1,912.6	25.99	107.01	76.4	138.1	0.0	109.4	19.64	2,784	100.2
80.00		0.2500	25.968	20.703	1,747.9	25.15	103.87	77.3	130.0	0.0	357.6	19.64	2,656	334.0
85.00		0.2500	25.185	20.073	1,593.0	24.31	100.74	78.2	122.2	0.0	346.9	19.64	2,531	334.0
90.00		0.2500	24.401	19.442	1,447.5	23.47	97.61	79.1	114.6	0.0	336.1	19.64	2,409	334.0
91.67	Reinf. Top Reinf	0.2500	24.140	19.232	1,401.0	23.19	96.56	79.4	112.1	0.0	109.7	19.64	2,370	111.3
95.00		0.2500	23.618	18.811	1,311.1	22.63	94.47	80.0	107.2	0.0	215.8	14.73	3,350	167.0
100.0		0.2500	22.834	18.180	1,183.6	21.79	91.34	80.9	100.1	0.0	314.7	14.73	3,228	250.5
105.0		0.2500	22.051	17.550	1,064.6	20.95	88.20	81.9	93.3	0.0	304.0	14.73	3,108	250.5
110.0	Top - Section 3	0.2500	21.267	16.919	953.9	20.11	85.07	81.9	86.7	0.0	293.2	14.73	2,991	250.5
110.0	Bot - Section 4	0.1875	21.267	12.727	721.8	27.71	113.43	74.5	65.6	0.0	0.0	14.73	2,991	0.0
110.0		0.1875	21.267	12.727	721.8	27.71	113.43	74.5	65.6	0.0	0.0	14.73	2,991	0.0
115.0		0.1875	20.484	12.254	644.3	26.59	109.25	75.7	60.8	0.0	212.5	14.73	2,876	250.5
115.9	Reinf. Top	0.1875	20.337	12.165	630.4	26.38	108.46	75.9	59.9	0.0	38.9	14.73	2,854	47.0
118.0		0.1875	20.014	11.970	600.6	25.92	106.74	76.4	58.0	0.0	84.7			
120.0		0.1875	19.700	11.781	572.5	25.47	105.07	76.9	56.1	0.0	80.8			
123.0		0.1875	19.230	11.497	532.1	24.80	102.56	77.7	53.5	0.0	118.8			
125.0		0.1875	18.917	11.308	506.3	24.35	100.89	78.2	51.7	0.0	77.6			
130.0		0.1875	18.133	10.835	445.4	23.23	96.71	79.4	47.4	0.0	188.4			
135.0		0.1875	17.350	10.362	389.5	22.11	92.53	80.6	43.4	0.0	180.3			
140.0		0.1875	16.566	9.889	338.6	20.99	88.35	81.8	39.5	0.0	172.3			
145.0		0.1875	15.782	9.415	292.3	19.87	84.17	81.9	35.8	0.0	164.2			
150.0		0.1875	14.999	8.942	250.4	18.75	79.99	81.9	32.3	0.0	156.2			
											13,371.8			7,339.3



<b>Load Case:</b> 1.2D + 1.6W	93 mph with No Ice	27 Iterations
Gust Response Factor :1.10		Wind Importance Factor :1.00
Dead Load Factor :1.20		
Wind Load Factor :1.60		

### Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		248.1	0.0					0.0	0.0	248.1	0.0	0.0	0.0
5.00		466.9	902.6					103.7	754.9	570.5	1,657.5	0.0	0.0
9.50	Reinf. Top Reinf	242.8	795.9					93.3	679.4	336.1	1,475.3	0.0	0.0
10.00	Appurtenance(s)	261.6	87.5	523.2	0.0	523.2	151.2	8.7	75.5	793.6	314.2	0.0	0.0
15.00		469.9	864.0					88.6	754.7	558.4	1,618.7	0.0	0.0
20.00		459.4	844.7					90.6	754.7	550.0	1,599.4	0.0	0.0
25.00		448.9	825.4					92.7	754.7	541.6	1,580.1	0.0	0.0
30.00		287.8	806.0					94.8	754.7	382.6	1,560.8	0.0	0.0
31.50	Bot - Section 2	224.7	237.9					29.1	226.3	253.8	464.3	0.0	0.0
35.00		189.1	1,016.0					70.2	528.4	259.3	1,544.4	0.0	0.0
35.67	Top - Section 1	229.9	191.3					13.7	100.5	243.6	291.9	0.0	0.0
40.00		431.9	565.6					90.4	654.2	522.2	1,219.8	0.0	0.0
45.00		466.4	637.5					109.9	754.7	576.3	1,392.3	0.0	0.0
50.00		468.5	621.4					115.8	754.7	584.3	1,376.2	0.0	0.0
55.00		468.9	605.3					121.7	754.7	590.6	1,360.1	0.0	0.0
60.00		467.9	589.2					127.4	754.7	595.3	1,344.0	0.0	0.0
65.00		465.6	573.2					133.0	754.7	598.7	1,327.9	0.0	0.0
70.00	Bot - Section 3	232.1	557.0					138.6	754.6	370.7	1,311.6	0.0	0.0
70.00		164.3	0.1					0.0	0.1	164.4	0.2	0.0	0.0
73.50	Top - Section 2	234.4	691.0					100.3	528.2	334.7	1,219.2	0.0	0.0
75.00		302.2	131.3					43.3	226.5	345.5	357.8	0.0	0.0
80.00		461.3	429.1					147.9	754.7	609.2	1,183.9	0.0	0.0
85.00		455.2	416.3					291.9	756.6	747.1	1,172.8	0.0	0.0
90.00		300.5	403.4					299.6	868.1	600.1	1,271.5	0.0	0.0
91.67	Reinf. Top Reinf	222.3	131.6					101.6	289.4	323.9	421.0	0.0	0.0
95.00		366.1	258.9					205.7	512.0	571.8	770.9	0.0	0.0
100.00		432.3	377.6					314.8	666.9	747.2	1,044.5	0.0	0.0
105.00		423.3	364.7					259.1	655.6	682.5	1,020.4	0.0	0.0
110.00	Top - Section 3	209.4	351.8					263.6	655.5	473.0	1,007.4	0.0	0.0
110.00		204.5	0.0					0.0	0.1	204.5	0.1	0.0	0.0
115.00		242.2	255.0					268.1	655.6	510.3	910.6	0.0	0.0
115.94	Reinf. Top	120.2	46.7					50.8	122.9	170.9	169.7	0.0	0.0
118.00	Appurtenance(s)	161.5	101.6	2,225.6	0.0	0.0	3,910.0	112.2	146.4	2,499.3	4,158.0	0.0	0.0
120.00		196.0	97.0					109.5	135.8	305.5	232.8	0.0	0.0
123.00	Appurtenance(s)	196.2	142.6	515.2	0.0	0.0	157.4	165.6	147.0	877.0	447.0	0.0	0.0
125.00		276.7	93.1					0.0	89.6	276.7	182.7	0.0	0.0
130.00		393.8	226.0					0.0	224.0	393.8	450.1	0.0	0.0
135.00		372.2	216.4					0.0	224.0	372.2	440.4	0.0	0.0
140.00	Appurtenance(s)	317.1	206.7	2,659.3	0.0	1,473.2	3,319.1	79.2	224.0	3,055.7	3,749.8	0.0	0.0
145.00		276.9	197.1					0.0	159.0	276.9	356.1	0.0	0.0
150.00	Appurtenance(s)	135.7	187.4	2,512.6	0.0	2,976.5	3,499.6	0.0	159.0	2,648.3	3,846.0	0.0	0.0
<b>Totals:</b>										25,766.3	45,851.1	0.00	0.00

Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:06 AM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.6W

93 mph with No Ice

27 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Wind Load Factor : 1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-46.15	-27.16	0.00	-2,784.13	0.00	2,784.13	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.735
5.00	-44.36	-26.81	0.00	-2,648.31	0.00	2,648.31	3,114.35	1,557.18	4,645.51	2,294.24	0.16	-0.31	0.716
9.50	-42.81	-26.58	0.00	-2,527.64	0.00	2,527.64	3,074.93	1,537.47	4,496.49	2,220.65	0.59	-0.58	0.699
9.50	-42.81	-26.58	0.00	-2,527.64	0.00	2,527.64	3,074.93	1,537.47	4,496.49	2,220.65	0.59	-0.58	0.699
10.00	-42.43	-25.91	0.00	-2,513.83	0.00	2,513.83	3,070.50	1,535.25	4,480.00	2,212.50	0.65	-0.61	0.697
15.00	-40.68	-25.55	0.00	-2,384.28	0.00	2,384.28	3,025.61	1,512.80	4,315.88	2,131.45	1.46	-0.92	0.678
20.00	-38.96	-25.18	0.00	-2,256.53	0.00	2,256.53	2,979.67	1,489.84	4,153.23	2,051.12	2.59	-1.23	0.658
25.00	-37.26	-24.80	0.00	-2,130.64	0.00	2,130.64	2,932.70	1,466.35	3,992.16	1,971.58	4.04	-1.54	0.638
30.00	-35.63	-24.49	0.00	-2,006.64	0.00	2,006.64	2,875.19	1,437.60	3,820.15	1,886.63	5.81	-1.84	0.619
31.50	-35.10	-24.32	0.00	-1,969.92	0.00	1,969.92	2,854.28	1,427.14	3,764.46	1,859.13	6.41	-1.94	0.614
35.00	-33.52	-24.08	0.00	-1,884.78	0.00	1,884.78	2,805.45	1,402.73	3,636.04	1,795.70	7.91	-2.15	0.594
35.67	-33.17	-23.92	0.00	-1,868.74	0.00	1,868.74	2,248.06	1,124.03	2,973.88	1,468.69	8.21	-2.19	0.681
40.00	-31.85	-23.51	0.00	-1,765.09	0.00	1,765.09	2,218.58	1,109.29	2,872.19	1,418.47	10.32	-2.46	0.657
45.00	-30.36	-23.03	0.00	-1,647.56	0.00	1,647.56	2,183.59	1,091.79	2,755.72	1,360.95	13.07	-2.77	0.629
50.00	-28.90	-22.54	0.00	-1,532.40	0.00	1,532.40	2,147.56	1,073.78	2,640.25	1,303.92	16.14	-3.09	0.600
55.00	-27.46	-22.02	0.00	-1,419.71	0.00	1,419.71	2,110.50	1,055.25	2,525.88	1,247.44	19.53	-3.39	0.570
60.00	-26.04	-21.48	0.00	-1,309.62	0.00	1,309.62	2,072.39	1,036.20	2,412.72	1,191.55	23.25	-3.70	0.540
65.00	-24.65	-20.92	0.00	-1,202.24	0.00	1,202.24	2,033.25	1,016.62	2,300.87	1,136.31	27.28	-4.00	0.509
70.00	-23.31	-20.51	0.00	-1,097.67	0.00	1,097.67	1,982.07	991.04	2,178.36	1,075.81	31.62	-4.29	0.481
70.00	-23.29	-20.39	0.00	-1,097.65	0.00	1,097.65	1,982.06	991.03	2,178.34	1,075.80	31.62	-4.29	0.473
73.50	-22.05	-20.01	0.00	-1,026.31	0.00	1,026.31	1,473.95	736.98	1,624.53	802.30	34.83	-4.48	0.533
75.00	-21.66	-19.71	0.00	-996.27	0.00	996.27	1,466.26	733.13	1,601.72	791.03	36.25	-4.57	0.521
80.00	-20.44	-19.11	0.00	-897.71	0.00	897.71	1,439.98	719.99	1,526.06	753.66	41.19	-4.85	0.481
85.00	-19.25	-18.35	0.00	-802.17	0.00	802.17	1,412.66	706.33	1,451.06	716.62	46.42	-5.13	0.440
90.00	-17.98	-17.69	0.00	-710.40	0.00	710.40	1,384.29	692.15	1,376.80	679.95	51.92	-5.39	0.399
91.67	-17.56	-17.37	0.00	-680.92	0.00	680.92	1,374.61	687.30	1,352.23	667.81	53.82	-5.48	0.386
91.67	-17.56	-17.37	0.00	-680.92	0.00	680.92	1,374.61	687.30	1,352.23	667.81	53.82	-5.48	0.303
95.00	-16.79	-16.78	0.00	-623.02	0.00	623.02	1,354.89	677.44	1,303.39	643.69	57.69	-5.64	0.280
100.00	-15.78	-15.97	0.00	-539.15	0.00	539.15	1,324.45	662.22	1,230.93	607.91	63.69	-5.82	0.245
105.00	-14.80	-15.23	0.00	-459.28	0.00	459.28	1,292.96	646.48	1,159.52	572.64	69.86	-5.98	0.211
110.00	-13.83	-14.67	0.00	-383.14	0.00	383.14	1,247.09	623.55	1,077.74	532.25	76.18	-6.12	0.181
110.00	-13.83	-14.67	0.00	-383.14	0.00	383.14	853.22	426.61	741.75	366.32	76.18	-6.12	0.212
110.00	-13.83	-14.48	0.00	-383.13	0.00	383.13	853.22	426.61	741.74	366.32	76.19	-6.12	0.212
115.00	-12.96	-13.89	0.00	-310.72	0.00	310.72	834.98	417.49	698.66	345.04	82.66	-6.25	0.173
115.94	-12.80	-13.71	0.00	-297.69	0.00	297.69	831.44	415.72	690.62	341.07	83.89	-6.28	0.166
115.94	-12.80	-13.71	0.00	-297.69	0.00	297.69	831.44	415.72	690.62	341.07	83.89	-6.28	0.889
118.00	-8.92	-10.80	0.00	-269.40	0.00	269.40	823.53	411.76	672.98	332.36	86.61	-6.32	0.822
120.00	-8.67	-10.51	0.00	-247.81	0.00	247.81	815.69	407.84	655.93	323.94	89.30	-6.57	0.776
123.00	-8.28	-9.63	0.00	-216.28	0.00	216.28	803.62	401.81	630.51	311.38	93.53	-6.92	0.705
125.00	-8.07	-9.38	0.00	-197.02	0.00	197.02	795.36	397.68	613.66	303.06	96.47	-7.14	0.661
130.00	-7.61	-9.00	0.00	-150.10	0.00	150.10	774.00	387.00	571.95	282.46	104.19	-7.62	0.542
135.00	-7.17	-8.61	0.00	-105.13	0.00	105.13	751.59	375.80	530.89	262.19	112.38	-8.03	0.411
140.00	-3.87	-5.07	0.00	-60.60	0.00	60.60	728.15	364.07	490.59	242.29	120.94	-8.34	0.256

Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:06 AM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.6W

93 mph with No Ice

27 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Wind Load Factor : 1.60

145.00	-3.55	-4.75	0.00	-35.25	0.00	35.25	694.01	347.01	444.97	219.76	129.76	-8.54	0.166
150.00	0.00	-4.17	0.00	-11.49	0.00	11.49	659.14	329.57	401.13	198.10	138.73	-8.65	0.058

Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:06 AM

Customer: VERIZON WIRELESS

<b>Load Case:</b> 0.9D + 1.6W	93 mph with No Ice (Reduced DL)	26 Iterations
Gust Response Factor : 1.10		Wind Importance Factor : 1.00
Dead Load Factor : 0.90		
Wind Load Factor : 1.60		

**Applied Segment Forces Summary**

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		248.1	0.0					0.0	0.0	248.1	0.0	0.0	0.0
5.00		466.9	677.0					103.7	566.2	570.5	1,243.2	0.0	0.0
9.50	Reinf. Top Reinf	242.8	596.9					93.3	509.6	336.1	1,106.5	0.0	0.0
10.00	Appurtenance(s)	261.6	65.6	523.2	0.0	523.2	113.4	8.7	56.6	793.6	235.6	0.0	0.0
15.00		469.9	648.0					88.6	566.1	558.4	1,214.1	0.0	0.0
20.00		459.4	633.5					90.6	566.1	550.0	1,199.6	0.0	0.0
25.00		448.9	619.0					92.7	566.1	541.6	1,185.1	0.0	0.0
30.00		287.8	604.5					94.8	566.1	382.6	1,170.6	0.0	0.0
31.50	Bot - Section 2	224.7	178.5					29.1	169.7	253.8	348.2	0.0	0.0
35.00		189.1	762.0					70.2	396.3	259.3	1,158.3	0.0	0.0
35.67	Top - Section 1	229.9	143.5					13.7	75.4	243.6	218.9	0.0	0.0
40.00		431.9	424.2					90.4	490.7	522.2	914.9	0.0	0.0
45.00		466.4	478.2					109.9	566.1	576.3	1,044.2	0.0	0.0
50.00		468.5	466.1					115.8	566.1	584.3	1,032.1	0.0	0.0
55.00		468.9	454.0					121.7	566.1	590.6	1,020.1	0.0	0.0
60.00		467.9	441.9					127.4	566.1	595.3	1,008.0	0.0	0.0
65.00		465.6	429.9					133.0	566.1	598.7	995.9	0.0	0.0
70.00	Bot - Section 3	232.1	417.7					138.6	566.0	370.7	983.7	0.0	0.0
70.00		164.3	0.1					0.0	0.1	164.4	0.2	0.0	0.0
73.50	Top - Section 2	234.4	518.2					100.3	396.2	334.7	914.4	0.0	0.0
75.00		302.2	98.5					43.3	169.9	345.5	268.4	0.0	0.0
80.00		461.3	321.8					147.9	566.1	609.2	887.9	0.0	0.0
85.00		455.2	312.2					291.9	567.4	747.1	879.6	0.0	0.0
90.00		300.5	302.5					299.6	651.1	600.1	953.6	0.0	0.0
91.67	Reinf. Top Reinf	222.3	98.7					101.6	217.0	323.9	315.7	0.0	0.0
95.00		366.1	194.2					205.7	384.0	571.8	578.2	0.0	0.0
100.00		432.3	283.2					314.8	500.1	747.2	783.4	0.0	0.0
105.00		423.3	273.6					259.1	491.7	682.5	765.3	0.0	0.0
110.00	Top - Section 3	209.4	263.9					263.6	491.6	473.0	755.5	0.0	0.0
110.00		204.5	0.0					0.0	0.1	204.5	0.1	0.0	0.0
115.00		242.2	191.3					268.1	491.7	510.3	683.0	0.0	0.0
115.94	Reinf. Top	120.2	35.1					50.8	92.2	170.9	127.3	0.0	0.0
118.00	Appurtenance(s)	161.5	76.2	2,225.6	0.0	0.0	2,932.5	112.2	109.8	2,499.3	3,118.5	0.0	0.0
120.00		196.0	72.7					109.5	101.8	305.5	174.6	0.0	0.0
123.00	Appurtenance(s)	180.9	106.9	515.2	0.0	0.0	118.1	165.6	110.2	861.7	335.2	0.0	0.0
125.00		220.7	69.8					0.0	67.2	220.7	137.1	0.0	0.0
130.00		308.4	169.5					0.0	168.0	308.4	337.6	0.0	0.0
135.00		327.6	162.3					0.0	168.0	327.6	330.3	0.0	0.0
140.00	Appurtenance(s)	317.1	155.0	2,659.3	0.0	1,473.2	2,489.3	79.2	168.0	3,055.7	2,812.4	0.0	0.0
145.00		276.9	147.8					0.0	119.3	276.9	267.0	0.0	0.0
150.00	Appurtenance(s)	135.7	140.6	2,512.6	0.0	2,976.5	2,624.7	0.0	119.3	2,648.3	2,884.5	0.0	0.0
<b>Totals:</b>										25,565.1	34,388.3	0.00	0.00

Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:11 AM

Customer: VERIZON WIRELESS

Load Case: 0.9D + 1.6W

93 mph with No Ice (Reduced DL)

26 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 0.90

Wind Load Factor : 1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-34.60	-26.93	0.00	-2,702.19	0.00	2,702.19	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.711
5.00	-33.22	-26.52	0.00	-2,567.55	0.00	2,567.55	3,114.35	1,557.18	4,645.51	2,294.24	0.16	-0.30	0.692
9.50	-32.05	-26.26	0.00	-2,448.23	0.00	2,448.23	3,074.93	1,537.47	4,496.49	2,220.65	0.57	-0.57	0.675
9.50	-32.05	-26.26	0.00	-2,448.23	0.00	2,448.23	3,074.93	1,537.47	4,496.49	2,220.65	0.57	-0.57	0.675
10.00	-31.75	-25.55	0.00	-2,434.58	0.00	2,434.58	3,070.50	1,535.25	4,480.00	2,212.50	0.63	-0.60	0.673
15.00	-30.41	-25.14	0.00	-2,306.82	0.00	2,306.82	3,025.61	1,512.80	4,315.88	2,131.45	1.41	-0.89	0.654
20.00	-29.10	-24.72	0.00	-2,181.14	0.00	2,181.14	2,979.67	1,489.84	4,153.23	2,051.12	2.51	-1.19	0.634
25.00	-27.80	-24.29	0.00	-2,057.56	0.00	2,057.56	2,932.70	1,466.35	3,992.16	1,971.58	3.91	-1.49	0.614
30.00	-26.56	-23.96	0.00	-1,936.11	0.00	1,936.11	2,875.19	1,437.60	3,820.15	1,886.63	5.63	-1.78	0.596
31.50	-26.16	-23.77	0.00	-1,900.18	0.00	1,900.18	2,854.28	1,427.14	3,764.46	1,859.13	6.20	-1.87	0.591
35.00	-24.96	-23.52	0.00	-1,816.98	0.00	1,816.98	2,805.45	1,402.73	3,636.04	1,795.70	7.66	-2.08	0.571
35.67	-24.69	-23.33	0.00	-1,801.32	0.00	1,801.32	2,248.06	1,124.03	2,973.88	1,468.69	7.95	-2.12	0.655
40.00	-23.68	-22.89	0.00	-1,700.19	0.00	1,700.19	2,218.58	1,109.29	2,872.19	1,418.47	9.99	-2.37	0.631
45.00	-22.55	-22.39	0.00	-1,585.73	0.00	1,585.73	2,183.59	1,091.79	2,755.72	1,360.95	12.64	-2.68	0.603
50.00	-21.43	-21.87	0.00	-1,473.78	0.00	1,473.78	2,147.56	1,073.78	2,640.25	1,303.92	15.61	-2.98	0.575
55.00	-20.34	-21.33	0.00	-1,364.45	0.00	1,364.45	2,110.50	1,055.25	2,525.88	1,247.44	18.89	-3.28	0.546
60.00	-19.26	-20.77	0.00	-1,257.81	0.00	1,257.81	2,072.39	1,036.20	2,412.72	1,191.55	22.48	-3.57	0.517
65.00	-18.21	-20.20	0.00	-1,153.97	0.00	1,153.97	2,033.25	1,016.62	2,300.87	1,136.31	26.37	-3.85	0.487
70.00	-17.20	-19.80	0.00	-1,052.99	0.00	1,052.99	1,982.07	991.04	2,178.36	1,075.81	30.55	-4.13	0.460
70.00	-17.18	-19.67	0.00	-1,052.98	0.00	1,052.98	1,982.06	991.03	2,178.34	1,075.80	30.55	-4.13	0.452
73.50	-16.25	-19.30	0.00	-984.16	0.00	984.16	1,473.95	736.98	1,624.53	802.30	33.65	-4.32	0.510
75.00	-15.95	-18.99	0.00	-955.20	0.00	955.20	1,466.26	733.13	1,601.72	791.03	35.02	-4.40	0.498
80.00	-15.03	-18.38	0.00	-860.26	0.00	860.26	1,439.98	719.99	1,526.06	753.66	39.78	-4.68	0.459
85.00	-14.13	-17.63	0.00	-768.36	0.00	768.36	1,412.66	706.33	1,451.06	716.62	44.81	-4.94	0.420
90.00	-13.19	-16.98	0.00	-680.23	0.00	680.23	1,384.29	692.15	1,376.80	679.95	50.12	-5.19	0.381
91.67	-12.87	-16.66	0.00	-651.93	0.00	651.93	1,374.61	687.30	1,352.23	667.81	51.94	-5.27	0.368
91.67	-12.87	-16.66	0.00	-651.93	0.00	651.93	1,374.61	687.30	1,352.23	667.81	51.94	-5.27	0.289
95.00	-12.30	-16.07	0.00	-596.40	0.00	596.40	1,354.89	677.44	1,303.39	643.69	55.68	-5.43	0.266
100.00	-11.55	-15.28	0.00	-516.06	0.00	516.06	1,324.45	662.22	1,230.93	607.91	61.45	-5.60	0.233
105.00	-10.82	-14.56	0.00	-439.64	0.00	439.64	1,292.96	646.48	1,159.52	572.64	67.39	-5.75	0.201
110.00	-10.10	-14.02	0.00	-366.88	0.00	366.88	1,247.09	623.55	1,077.74	532.25	73.48	-5.89	0.172
110.00	-10.10	-14.02	0.00	-366.88	0.00	366.88	853.22	426.61	741.75	366.32	73.48	-5.89	0.201
110.00	-10.10	-13.83	0.00	-366.87	0.00	366.87	853.22	426.61	741.74	366.32	73.48	-5.89	0.201
115.00	-9.46	-13.26	0.00	-297.72	0.00	297.72	834.98	417.49	698.66	345.04	79.71	-6.02	0.164
115.94	-9.34	-13.08	0.00	-285.29	0.00	285.29	831.44	415.72	690.62	341.07	80.89	-6.04	0.157
115.94	-9.34	-13.08	0.00	-285.29	0.00	285.29	831.44	415.72	690.62	341.07	80.89	-6.04	0.849
118.00	-6.48	-10.29	0.00	-258.30	0.00	258.30	823.53	411.76	672.98	332.36	83.51	-6.09	0.786
120.00	-6.29	-9.99	0.00	-237.73	0.00	237.73	815.69	407.84	655.93	323.94	86.11	-6.32	0.742
123.00	-6.01	-9.13	0.00	-207.75	0.00	207.75	803.62	401.81	630.51	311.38	90.18	-6.65	0.675
125.00	-5.85	-8.93	0.00	-189.49	0.00	189.49	795.36	397.68	613.66	303.06	93.00	-6.87	0.633
130.00	-5.49	-8.62	0.00	-144.85	0.00	144.85	774.00	387.00	571.95	282.46	100.44	-7.34	0.520
135.00	-5.15	-8.29	0.00	-101.73	0.00	101.73	751.59	375.80	530.89	262.19	108.32	-7.73	0.395
140.00	-2.77	-4.89	0.00	-58.82	0.00	58.82	728.15	364.07	490.59	242.29	116.55	-8.02	0.247

Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:11 AM

Customer: VERIZON WIRELESS

Load Case: 0.9D + 1.6W

93 mph with No Ice (Reduced DL)

26 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 0.90

Wind Load Factor : 1.60

145.00	-2.53	-4.58	0.00	-34.39	0.00	34.39	694.01	347.01	444.97	219.76	125.04	-8.22	0.160
150.00	0.00	-4.17	0.00	-11.49	0.00	11.49	659.14	329.57	401.13	198.10	133.69	-8.33	0.058

<b>Load Case:</b> 1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice	27 Iterations
Gust Response Factor : 1.10	Ice Dead Load Factor : 1.00	Wind Importance Factor : 1.00
Dead Load Factor : 1.20		Ice Importance Factor : 1.00
Wind Load Factor : 1.00		

**Applied Segment Forces Summary**

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		48.4	0.0					0.0	0.0	48.4	0.0	0.0	0.0
5.00		91.6	1,284.1					164.6	934.9	256.2	2,219.0	0.0	0.0
9.50	Reinf. Top Reinf	47.9	1,172.4					148.3	862.9	196.2	2,035.3	0.0	0.0
10.00	Appurtenance(s)	51.9	130.5	108.8	0.0	108.8	330.7	16.4	96.6	177.2	557.9	0.0	0.0
15.00		93.5	1,296.7					163.8	972.3	257.3	2,269.0	0.0	0.0
20.00		91.9	1,283.4					162.4	981.3	254.3	2,264.7	0.0	0.0
25.00		90.2	1,266.1					160.8	988.3	251.0	2,254.3	0.0	0.0
30.00		58.0	1,246.2					159.2	994.0	217.2	2,240.2	0.0	0.0
31.50	Bot - Section 2	45.4	370.6					47.8	290.8	93.2	661.4	0.0	0.0
35.00		38.2	1,329.0					113.4	680.5	151.6	2,009.4	0.0	0.0
35.67	Top - Section 1	46.6	251.1					21.8	129.7	68.4	380.7	0.0	0.0
40.00		87.7	949.5					145.8	845.3	233.5	1,794.8	0.0	0.0
45.00		95.1	1,075.4					171.9	978.2	267.0	2,053.7	0.0	0.0
50.00		95.9	1,054.0					175.4	981.2	271.3	2,035.2	0.0	0.0
55.00		96.4	1,031.9					178.2	983.8	274.7	2,015.7	0.0	0.0
60.00		96.7	1,009.2					180.6	986.3	277.3	1,995.5	0.0	0.0
65.00		96.6	986.0					182.6	988.6	279.2	1,974.6	0.0	0.0
70.00	Bot - Section 3	48.3	962.3					184.1	990.6	232.4	1,952.9	0.0	0.0
70.00		34.2	0.2					0.0	0.1	34.3	0.3	0.0	0.0
73.50	Top - Section 2	48.9	976.1					129.7	694.6	178.5	1,670.7	0.0	0.0
75.00		63.3	253.0					56.3	298.2	119.6	551.2	0.0	0.0
80.00		96.9	825.5					188.2	994.6	285.1	1,820.1	0.0	0.0
85.00		96.1	804.2					190.3	1,003.4	286.4	1,807.5	0.0	0.0
90.00		63.7	782.6					276.8	1,434.8	340.5	2,217.4	0.0	0.0
91.67	Reinf. Top Reinf	47.3	257.2					92.8	479.2	140.1	736.4	0.0	0.0
95.00		78.3	506.0					186.3	892.9	264.5	1,398.8	0.0	0.0
100.00		92.9	738.6					244.3	1,116.1	337.1	1,854.7	0.0	0.0
105.00		91.5	716.3					241.3	1,093.8	332.8	1,810.1	0.0	0.0
110.00	Top - Section 3	45.4	693.8					242.1	1,096.3	287.6	1,790.1	0.0	0.0
110.00		44.7	0.1					0.0	0.1	44.7	0.2	0.0	0.0
115.00		52.9	587.2					242.9	1,099.1	295.8	1,686.3	0.0	0.0
115.94	Reinf. Top	26.4	108.8					45.6	206.4	72.0	315.2	0.0	0.0
118.00	Appurtenance(s)	35.6	236.4	723.9	0.0	0.0	7,569.9	100.4	330.3	859.9	8,136.6	0.0	0.0
120.00		43.3	226.1					97.4	314.5	140.8	540.5	0.0	0.0
123.00	Appurtenance(s)	43.0	332.5	129.2	0.0	0.0	483.6	96.2	246.8	268.4	1,062.8	0.0	0.0
125.00		59.2	218.2					57.2	133.7	116.3	351.9	0.0	0.0
130.00		83.2	528.0					141.9	334.7	225.1	862.7	0.0	0.0
135.00		81.2	507.9					140.3	335.2	221.5	843.1	0.0	0.0
140.00	Appurtenance(s)	79.2	487.7	844.4	0.0	379.9	6,627.9	138.5	335.7	1,062.2	7,451.4	0.0	0.0
145.00		77.1	467.5					0.0	159.0	77.1	626.5	0.0	0.0
150.00	Appurtenance(s)	38.0	447.0	854.6	0.0	841.0	6,706.3	0.0	159.0	892.5	7,312.3	0.0	0.0
<b>Totals:</b>										10,689.0	75,561.3	0.00	0.00

Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:16 AM

Customer: VERIZON WIRELESS

<b>Load Case:</b> 1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice	27 Iterations
Gust Response Factor : 1.10	Ice Dead Load Factor : 1.00	Wind Importance Factor : 1.00
Dead Load Factor : 1.20		Ice Importance Factor : 1.00
Wind Load Factor : 1.00		

**Calculated Forces**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-77.41	-11.42	0.00	-1,226.38	0.00	1,226.38	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.336
5.00	-75.16	-11.33	0.00	-1,169.30	0.00	1,169.30	3,114.35	1,557.18	4,645.51	2,294.24	0.07	-0.13	0.329
9.50	-73.11	-11.21	0.00	-1,118.34	0.00	1,118.34	3,074.93	1,537.47	4,496.49	2,220.65	0.26	-0.26	0.321
9.50	-73.11	-11.21	0.00	-1,118.34	0.00	1,118.34	3,074.93	1,537.47	4,496.49	2,220.65	0.26	-0.26	0.321
10.00	-72.54	-11.13	0.00	-1,112.63	0.00	1,112.63	3,070.50	1,535.25	4,480.00	2,212.50	0.29	-0.27	0.320
15.00	-70.25	-11.02	0.00	-1,057.00	0.00	1,057.00	3,025.61	1,512.80	4,315.88	2,131.45	0.64	-0.41	0.312
20.00	-67.96	-10.91	0.00	-1,001.90	0.00	1,001.90	2,979.67	1,489.84	4,153.23	2,051.12	1.14	-0.54	0.304
25.00	-65.68	-10.79	0.00	-947.35	0.00	947.35	2,932.70	1,466.35	3,992.16	1,971.58	1.79	-0.68	0.295
30.00	-63.43	-10.64	0.00	-893.39	0.00	893.39	2,875.19	1,437.60	3,820.15	1,886.63	2.57	-0.82	0.287
31.50	-62.76	-10.62	0.00	-877.43	0.00	877.43	2,854.28	1,427.14	3,764.46	1,859.13	2.83	-0.86	0.285
35.00	-60.74	-10.49	0.00	-840.27	0.00	840.27	2,805.45	1,402.73	3,636.04	1,795.70	3.50	-0.95	0.276
35.67	-60.35	-10.49	0.00	-833.28	0.00	833.28	2,248.06	1,124.03	2,973.88	1,468.69	3.63	-0.97	0.316
40.00	-58.53	-10.36	0.00	-787.82	0.00	787.82	2,218.58	1,109.29	2,872.19	1,418.47	4.57	-1.09	0.306
45.00	-56.46	-10.19	0.00	-736.04	0.00	736.04	2,183.59	1,091.79	2,755.72	1,360.95	5.79	-1.23	0.293
50.00	-54.41	-10.00	0.00	-685.11	0.00	685.11	2,147.56	1,073.78	2,640.25	1,303.92	7.15	-1.37	0.280
55.00	-52.38	-9.80	0.00	-635.10	0.00	635.10	2,110.50	1,055.25	2,525.88	1,247.44	8.67	-1.51	0.266
60.00	-50.37	-9.59	0.00	-586.09	0.00	586.09	2,072.39	1,036.20	2,412.72	1,191.55	10.32	-1.65	0.253
65.00	-48.38	-9.36	0.00	-538.16	0.00	538.16	2,033.25	1,016.62	2,300.87	1,136.31	12.11	-1.78	0.239
70.00	-46.43	-9.12	0.00	-491.36	0.00	491.36	1,982.07	991.04	2,178.36	1,075.81	14.05	-1.91	0.226
70.00	-46.42	-9.12	0.00	-491.35	0.00	491.35	1,982.06	991.03	2,178.34	1,075.80	14.05	-1.91	0.222
73.50	-44.75	-8.93	0.00	-459.44	0.00	459.44	1,473.95	736.98	1,624.53	802.30	15.48	-2.00	0.251
75.00	-44.19	-8.86	0.00	-446.04	0.00	446.04	1,466.26	733.13	1,601.72	791.03	16.11	-2.03	0.245
80.00	-42.36	-8.60	0.00	-401.74	0.00	401.74	1,439.98	719.99	1,526.06	753.66	18.31	-2.16	0.227
85.00	-40.55	-8.33	0.00	-358.75	0.00	358.75	1,412.66	706.33	1,451.06	716.62	20.64	-2.29	0.208
90.00	-38.34	-7.95	0.00	-317.10	0.00	317.10	1,384.29	692.15	1,376.80	679.95	23.10	-2.40	0.189
91.67	-37.60	-7.81	0.00	-303.86	0.00	303.86	1,374.61	687.30	1,352.23	667.81	23.95	-2.44	0.183
91.67	-37.60	-7.81	0.00	-303.86	0.00	303.86	1,374.61	687.30	1,352.23	667.81	23.95	-2.44	0.148
95.00	-36.20	-7.54	0.00	-277.81	0.00	277.81	1,354.89	677.44	1,303.39	643.69	25.68	-2.51	0.137
100.00	-34.36	-7.16	0.00	-240.12	0.00	240.12	1,324.45	662.22	1,230.93	607.91	28.35	-2.59	0.120
105.00	-32.55	-6.79	0.00	-204.31	0.00	204.31	1,292.96	646.48	1,159.52	572.64	31.10	-2.66	0.105
110.00	-30.78	-6.43	0.00	-170.38	0.00	170.38	1,247.09	623.55	1,077.74	532.25	33.93	-2.73	0.091
110.00	-30.78	-6.43	0.00	-170.38	0.00	170.38	853.22	426.61	741.75	366.32	33.93	-2.73	0.107
110.00	-30.77	-6.40	0.00	-170.37	0.00	170.37	853.22	426.61	741.74	366.32	33.93	-2.73	0.107
115.00	-29.10	-6.04	0.00	-138.36	0.00	138.36	834.98	417.49	698.66	345.04	36.82	-2.79	0.089
115.94	-28.79	-5.96	0.00	-132.69	0.00	132.69	831.44	415.72	690.62	341.07	37.37	-2.80	0.086
115.94	-28.79	-5.96	0.00	-132.69	0.00	132.69	831.44	415.72	690.62	341.07	37.37	-2.80	0.424
118.00	-20.70	-4.73	0.00	-120.39	0.00	120.39	823.53	411.76	672.98	332.36	38.58	-2.82	0.387
120.00	-20.15	-4.61	0.00	-110.93	0.00	110.93	815.69	407.84	655.93	323.94	39.78	-2.93	0.367
123.00	-19.10	-4.33	0.00	-97.10	0.00	97.10	803.62	401.81	630.51	311.38	41.67	-3.08	0.336
125.00	-18.74	-4.25	0.00	-88.44	0.00	88.44	795.36	397.68	613.66	303.06	42.99	-3.18	0.316
130.00	-17.88	-4.03	0.00	-67.21	0.00	67.21	774.00	387.00	571.95	282.46	46.44	-3.40	0.261
135.00	-17.04	-3.81	0.00	-47.04	0.00	47.04	751.59	375.80	530.89	262.19	50.10	-3.58	0.202
140.00	-9.67	-2.29	0.00	-27.61	0.00	27.61	728.15	364.07	490.59	242.29	53.93	-3.72	0.127



Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:16 AM

Customer: VERIZON WIRELESS

**Load Case:** 1.2D + 1.0Di + 1.0Wi

50 mph with 1.00 in Radial Ice

27 Iterations

Gust Response Factor : 1.10

Ice Dead Load Factor : 1.00

Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Ice Importance Factor : 1.00

Wind Load Factor : 1.00

145.00	-9.04	-2.19	0.00	-16.15	0.00	16.15	694.01	347.01	444.97	219.76	57.88	-3.81	0.087
150.00	0.00	-1.58	0.00	-5.21	0.00	5.21	659.14	329.57	401.13	198.10	61.90	-3.86	0.026

Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:16 AM

Customer: VERIZON WIRELESS

Load Case: 1.0D + 1.0W

Serviceability 60 mph

25 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.00

Wind Load Factor : 1.00

### Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		57.7	0.0					0.0	0.0	57.7	0.0	0.0	0.0
5.00		108.7	752.2					24.1	629.1	132.8	1,381.3	0.0	0.0
9.50	Reinf. Top Reinf	56.5	663.2					21.7	566.2	78.2	1,229.4	0.0	0.0
10.00	Appurtenance(s)	60.9	72.9	121.8	0.0	121.8	126.0	2.0	62.9	184.7	261.8	0.0	0.0
15.00		109.4	720.0					20.6	628.9	130.0	1,348.9	0.0	0.0
20.00		106.9	703.9					21.1	628.9	128.0	1,332.8	0.0	0.0
25.00		104.5	687.8					21.6	628.9	126.1	1,316.8	0.0	0.0
30.00		67.0	671.7					22.1	628.9	89.1	1,300.7	0.0	0.0
31.50	Bot - Section 2	52.3	198.3					6.8	188.6	59.1	386.9	0.0	0.0
35.00		44.0	846.7					16.3	440.3	60.4	1,287.0	0.0	0.0
35.67	Top - Section 1	53.5	159.4					3.2	83.8	56.7	243.2	0.0	0.0
40.00		100.5	471.4					21.0	545.2	121.6	1,016.5	0.0	0.0
45.00		108.6	531.3					25.6	628.9	134.1	1,160.2	0.0	0.0
50.00		109.0	517.9					27.0	628.9	136.0	1,146.8	0.0	0.0
55.00		109.2	504.5					28.3	628.9	137.5	1,133.4	0.0	0.0
60.00		108.9	491.0					29.6	628.9	138.6	1,120.0	0.0	0.0
65.00		108.4	477.6					31.0	628.9	139.3	1,106.6	0.0	0.0
70.00	Bot - Section 3	54.0	464.2					32.3	628.9	86.3	1,093.0	0.0	0.0
70.00		38.3	0.1					0.0	0.1	38.3	0.2	0.0	0.0
73.50	Top - Section 2	54.6	575.8					23.3	440.2	77.9	1,016.0	0.0	0.0
75.00		70.3	109.4					10.1	188.8	80.4	298.2	0.0	0.0
80.00		107.4	357.6					34.4	628.9	141.8	986.6	0.0	0.0
85.00		106.0	346.9					67.9	630.5	173.9	977.3	0.0	0.0
90.00		69.9	336.1					69.7	723.4	139.7	1,059.6	0.0	0.0
91.67	Reinf. Top Reinf	51.7	109.7					23.6	241.1	75.4	350.8	0.0	0.0
95.00		85.2	215.8					47.9	426.6	133.1	642.4	0.0	0.0
100.00		100.6	314.7					73.3	555.7	173.9	870.4	0.0	0.0
105.00		98.5	304.0					60.3	546.3	158.8	850.3	0.0	0.0
110.00	Top - Section 3	48.7	293.2					61.4	546.3	110.1	839.5	0.0	0.0
110.00		47.6	0.0					0.0	0.1	47.6	0.1	0.0	0.0
115.00		56.4	212.5					62.4	546.3	118.8	758.9	0.0	0.0
115.94	Reinf. Top	28.0	38.9					11.8	102.4	39.8	141.4	0.0	0.0
118.00	Appurtenance(s)	37.6	84.7	518.0	0.0	0.0	3,258.3	26.1	122.0	581.7	3,465.0	0.0	0.0
120.00		45.6	80.8					25.5	113.1	71.1	194.0	0.0	0.0
123.00	Appurtenance(s)	42.1	118.8	119.9	0.0	0.0	131.2	38.5	122.5	200.6	372.5	0.0	0.0
125.00		51.4	77.6					0.0	74.7	51.4	152.3	0.0	0.0
130.00		71.8	188.4					0.0	186.7	71.8	375.1	0.0	0.0
135.00		76.2	180.3					0.0	186.7	76.2	367.0	0.0	0.0
140.00	Appurtenance(s)	73.8	172.3	619.0	0.0	342.9	2,765.9	18.4	186.7	711.2	3,124.9	0.0	0.0
145.00		64.5	164.2					0.0	132.5	64.5	296.7	0.0	0.0
150.00	Appurtenance(s)	31.6	156.2	584.8	0.0	692.8	2,916.3	0.0	132.5	616.4	3,205.0	0.0	0.0
Totals:										5,950.58	38,209.3	0.00	0.00

Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:21 AM

Customer: VERIZON WIRELESS

Load Case: 1.0D + 1.0W

Serviceability 60 mph

25 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-38.51	-6.27	0.00	-634.58	0.00	634.58	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.174
5.00	-37.13	-6.18	0.00	-603.23	0.00	603.23	3,114.35	1,557.18	4,645.51	2,294.24	0.04	-0.07	0.169
9.50	-35.89	-6.12	0.00	-575.43	0.00	575.43	3,074.93	1,537.47	4,496.49	2,220.65	0.13	-0.13	0.165
9.50	-35.89	-6.12	0.00	-575.43	0.00	575.43	3,074.93	1,537.47	4,496.49	2,220.65	0.13	-0.13	0.165
10.00	-35.63	-5.96	0.00	-572.25	0.00	572.25	3,070.50	1,535.25	4,480.00	2,212.50	0.15	-0.14	0.164
15.00	-34.27	-5.87	0.00	-542.45	0.00	542.45	3,025.61	1,512.80	4,315.88	2,131.45	0.33	-0.21	0.160
20.00	-32.93	-5.77	0.00	-513.12	0.00	513.12	2,979.67	1,489.84	4,153.23	2,051.12	0.59	-0.28	0.155
25.00	-31.61	-5.68	0.00	-484.25	0.00	484.25	2,932.70	1,466.35	3,992.16	1,971.58	0.92	-0.35	0.150
30.00	-30.31	-5.60	0.00	-455.86	0.00	455.86	2,875.19	1,437.60	3,820.15	1,886.63	1.32	-0.42	0.146
31.50	-29.92	-5.56	0.00	-447.45	0.00	447.45	2,854.28	1,427.14	3,764.46	1,859.13	1.46	-0.44	0.145
35.00	-28.63	-5.50	0.00	-427.98	0.00	427.98	2,805.45	1,402.73	3,636.04	1,795.70	1.80	-0.49	0.140
35.67	-28.38	-5.46	0.00	-424.32	0.00	424.32	2,248.06	1,124.03	2,973.88	1,468.69	1.87	-0.50	0.160
40.00	-27.36	-5.36	0.00	-400.64	0.00	400.64	2,218.58	1,109.29	2,872.19	1,418.47	2.35	-0.56	0.155
45.00	-26.19	-5.25	0.00	-373.82	0.00	373.82	2,183.59	1,091.79	2,755.72	1,360.95	2.97	-0.63	0.148
50.00	-25.04	-5.13	0.00	-347.57	0.00	347.57	2,147.56	1,073.78	2,640.25	1,303.92	3.67	-0.70	0.141
55.00	-23.90	-5.01	0.00	-321.91	0.00	321.91	2,110.50	1,055.25	2,525.88	1,247.44	4.44	-0.77	0.134
60.00	-22.78	-4.88	0.00	-296.87	0.00	296.87	2,072.39	1,036.20	2,412.72	1,191.55	5.29	-0.84	0.127
65.00	-21.67	-4.75	0.00	-272.46	0.00	272.46	2,033.25	1,016.62	2,300.87	1,136.31	6.21	-0.91	0.120
70.00	-20.58	-4.66	0.00	-248.71	0.00	248.71	1,982.07	991.04	2,178.36	1,075.81	7.19	-0.97	0.113
70.00	-20.58	-4.63	0.00	-248.71	0.00	248.71	1,982.06	991.03	2,178.34	1,075.80	7.19	-0.97	0.112
73.50	-19.56	-4.54	0.00	-232.51	0.00	232.51	1,473.95	736.98	1,624.53	802.30	7.92	-1.02	0.126
75.00	-19.26	-4.47	0.00	-225.70	0.00	225.70	1,466.26	733.13	1,601.72	791.03	8.25	-1.04	0.123
80.00	-18.27	-4.33	0.00	-203.34	0.00	203.34	1,439.98	719.99	1,526.06	753.66	9.37	-1.10	0.114
85.00	-17.29	-4.16	0.00	-181.68	0.00	181.68	1,412.66	706.33	1,451.06	716.62	10.56	-1.16	0.104
90.00	-16.23	-4.01	0.00	-160.90	0.00	160.90	1,384.29	692.15	1,376.80	679.95	11.81	-1.22	0.095
91.67	-15.88	-3.93	0.00	-154.22	0.00	154.22	1,374.61	687.30	1,352.23	667.81	12.24	-1.24	0.092
91.67	-15.88	-3.93	0.00	-154.22	0.00	154.22	1,374.61	687.30	1,352.23	667.81	12.24	-1.24	0.074
95.00	-15.24	-3.79	0.00	-141.12	0.00	141.12	1,354.89	677.44	1,303.39	643.69	13.12	-1.28	0.068
100.00	-14.37	-3.61	0.00	-122.15	0.00	122.15	1,324.45	662.22	1,230.93	607.91	14.48	-1.32	0.060
105.00	-13.52	-3.44	0.00	-104.10	0.00	104.10	1,292.96	646.48	1,159.52	572.64	15.88	-1.36	0.052
110.00	-12.69	-3.31	0.00	-86.90	0.00	86.90	1,247.09	623.55	1,077.74	532.25	17.32	-1.39	0.045
110.00	-12.69	-3.31	0.00	-86.90	0.00	86.90	853.22	426.61	741.75	366.32	17.32	-1.39	0.053
110.00	-12.69	-3.27	0.00	-86.90	0.00	86.90	853.22	426.61	741.74	366.32	17.32	-1.39	0.053
115.00	-11.93	-3.14	0.00	-70.55	0.00	70.55	834.98	417.49	698.66	345.04	18.80	-1.42	0.044
115.94	-11.79	-3.09	0.00	-67.61	0.00	67.61	831.44	415.72	690.62	341.07	19.07	-1.42	0.042
115.94	-11.79	-3.09	0.00	-67.61	0.00	67.61	831.44	415.72	690.62	341.07	19.07	-1.42	0.212
118.00	-8.34	-2.43	0.00	-61.23	0.00	61.23	823.53	411.76	672.98	332.36	19.69	-1.44	0.194
120.00	-8.14	-2.36	0.00	-56.37	0.00	56.37	815.69	407.84	655.93	323.94	20.31	-1.49	0.184
123.00	-7.77	-2.16	0.00	-49.28	0.00	49.28	803.62	401.81	630.51	311.38	21.27	-1.57	0.168
125.00	-7.62	-2.12	0.00	-44.96	0.00	44.96	795.36	397.68	613.66	303.06	21.94	-1.62	0.158
130.00	-7.24	-2.05	0.00	-34.37	0.00	34.37	774.00	387.00	571.95	282.46	23.70	-1.73	0.131
135.00	-6.88	-1.97	0.00	-24.13	0.00	24.13	751.59	375.80	530.89	262.19	25.56	-1.83	0.101
140.00	-3.77	-1.16	0.00	-13.93	0.00	13.93	728.15	364.07	490.59	242.29	27.51	-1.90	0.063

Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:21 AM

Customer: VERIZON WIRELESS

Load Case: 1.0D + 1.0W

Serviceability 60 mph

25 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.00

Wind Load Factor : 1.00

145.00	-3.48	-1.09	0.00	-8.12	0.00	8.12	694.01	347.01	444.97	219.76	29.52	-1.94	0.042
150.00	0.00	-0.97	0.00	-2.67	0.00	2.67	659.14	329.57	401.13	198.10	31.57	-1.97	0.014

Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:21 AM

Customer: VERIZON WIRELESS

### Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period ( $S_s$ ):	0.18
Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.06
Long-Period Transition Period ( $T_L$ ):	6
Importance Factor ( $I_E$ ):	1.00
Site Coefficient $F_a$ :	1.60
Site Coefficient $F_v$ :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):	0.19
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.10
Seismic Response Coefficient ( $C_s$ ):	0.03
Upper Limit $C_s$	0.03
Lower Limit $C_s$	0.03
Period based on Rayleigh Method (sec):	3.04
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	2.00
Total Unfactored Dead Load:	38.52 k
Seismic Base Shear (E):	1.50 k

#### Load Case (1.2 + 0.2Sds) \* DL + E ELFM

#### Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	$W_z$ (lb-ft)	$C_{vx}$	Horizontal Force (lb)	Vertical Force (lb)
40	147.50	289	6,280	0.020	30	357
39	142.50	297	6,025	0.019	28	367
38	137.50	359	6,787	0.021	32	444
37	132.50	367	6,443	0.020	30	454
36	127.50	375	6,097	0.019	29	464
35	124.00	152	2,341	0.007	11	189
34	121.50	241	3,562	0.011	17	299
33	119.00	194	2,747	0.009	13	240
32	116.97	207	2,828	0.009	13	256
31	115.47	141	1,885	0.006	9	175
30	112.50	759	9,604	0.030	45	940
29	110.00	0	1	0.000	0	0
28	107.50	839	9,701	0.030	46	1,039
27	102.50	850	8,933	0.028	42	1,053
26	97.50	870	8,274	0.026	39	1,078
25	93.33	642	5,596	0.018	26	795
24	90.83	351	2,894	0.009	14	434
23	87.50	1,060	8,113	0.025	38	1,312
22	82.50	977	6,652	0.021	31	1,210
21	77.50	987	5,926	0.019	28	1,222
20	74.25	298	1,644	0.005	8	369
19	71.75	1,016	5,230	0.016	25	1,258
18	70.00	0	1	0.000	0	0

Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:21 AM

Customer: VERIZON WIRELESS

17	67.50	1,093	4,980	0.016	23	1,353
16	62.50	1,107	4,323	0.014	20	1,370
15	57.50	1,120	3,703	0.012	17	1,387
14	52.50	1,133	3,124	0.010	15	1,403
13	47.50	1,147	2,588	0.008	12	1,420
12	42.50	1,160	2,096	0.007	10	1,437
11	37.83	1,017	1,455	0.005	7	1,259
10	35.33	243	304	0.001	1	301
9	33.25	1,287	1,423	0.004	7	1,594
8	30.75	387	366	0.001	2	479
7	27.50	1,301	984	0.003	5	1,610
6	22.50	1,317	667	0.002	3	1,630
5	17.50	1,333	408	0.001	2	1,650
4	12.50	1,349	211	0.001	1	1,670
3	9.75	136	13	0.000	0	168
2	7.25	1,229	65	0.000	0	1,522
1	2.50	1,381	9	0.000	0	1,710
Generic 12' Omni	150.00	40	900	0.003	4	50
Generic 12' Dipole	150.00	40	900	0.003	4	50
Generic 6' Yagi	150.00	25	563	0.002	3	31
CCI HPA-65R-BUU-H8	150.00	204	4,590	0.014	22	253
Andrew ABT-DMDF-ADBH	150.00	3	74	0.000	0	4
Powerwave Allgon 702	150.00	13	297	0.001	1	16
Powerwave Allgon TT1	150.00	96	2,160	0.007	10	119
Raycap DC6-48-60-18-	150.00	33	738	0.002	3	41
Ericsson RRUS 11 (Ba	150.00	150	3,375	0.011	16	186
Ericsson RRUS 32 B2	150.00	159	3,577	0.011	17	197
Stand-Off	150.00	300	6,750	0.021	32	371
Powerwave Allgon 777	150.00	162	3,645	0.011	17	201
Round Platform w/ Ha	150.00	2,000	45,000	0.141	212	2,476
RFS ATMAA1412D-1A20	140.00	39	764	0.002	4	48
RFS ATMPP1412D-1CWA	140.00	38	735	0.002	3	46
Ericsson AIR 21 B4A	140.00	540	10,584	0.033	50	669
Andrew LNX-6515DS-A1	140.00	149	2,928	0.009	14	185
Round Platform w/ Ha	140.00	2,000	39,200	0.123	185	2,476
Stand-Off	123.00	100	1,513	0.005	7	124
Generic 75" x 16.8"	123.00	31	472	0.001	2	39
Samsung B2/B66A RRH-	118.00	253	3,526	0.011	17	314
Samsung B5/B13 RRH-B	118.00	211	2,937	0.009	14	261
Raycap RCMDC-6627-PF	118.00	32	446	0.001	2	40
Commscope NHH-65B-R2	118.00	262	3,651	0.011	17	325
Generic Round Platfo	118.00	2,500	34,810	0.109	164	3,095
Channel Master Type	10.00	126	13	0.000	0	156
		38,518	318,428	1.000	1,502	47,693

Load Case (0.9 - 0.2Sds) \* DL + E ELFM

Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
40	147.50	289	6,280	0.020	30	249
39	142.50	297	6,025	0.019	28	256
38	137.50	359	6,787	0.021	32	309
37	132.50	367	6,443	0.020	30	316
36	127.50	375	6,097	0.019	29	323
35	124.00	152	2,341	0.007	11	131
34	121.50	241	3,562	0.011	17	208
33	119.00	194	2,747	0.009	13	167
32	116.97	207	2,828	0.009	13	178
31	115.47	141	1,885	0.006	9	122
30	112.50	759	9,604	0.030	45	654

Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:21 AM

Customer: VERIZON WIRELESS

29	110.00	0	1	0.000	0	0
28	107.50	839	9,701	0.030	46	723
27	102.50	850	8,933	0.028	42	733
26	97.50	870	8,274	0.026	39	750
25	93.33	642	5,596	0.018	26	554
24	90.83	351	2,894	0.009	14	302
23	87.50	1,060	8,113	0.025	38	913
22	82.50	977	6,652	0.021	31	842
21	77.50	987	5,926	0.019	28	850
20	74.25	298	1,644	0.005	8	257
19	71.75	1,016	5,230	0.016	25	876
18	70.00	0	1	0.000	0	0
17	67.50	1,093	4,980	0.016	23	942
16	62.50	1,107	4,323	0.014	20	954
15	57.50	1,120	3,703	0.012	17	965
14	52.50	1,133	3,124	0.010	15	977
13	47.50	1,147	2,588	0.008	12	988
12	42.50	1,160	2,096	0.007	10	1,000
11	37.83	1,017	1,455	0.005	7	876
10	35.33	243	304	0.001	1	210
9	33.25	1,287	1,423	0.004	7	1,109
8	30.75	387	366	0.001	2	333
7	27.50	1,301	984	0.003	5	1,121
6	22.50	1,317	667	0.002	3	1,135
5	17.50	1,333	408	0.001	2	1,149
4	12.50	1,349	211	0.001	1	1,163
3	9.75	136	13	0.000	0	117
2	7.25	1,229	65	0.000	0	1,060
1	2.50	1,381	9	0.000	0	1,190
Generic 12' Omni	150.00	40	900	0.003	4	34
Generic 12' Dipole	150.00	40	900	0.003	4	34
Generic 6' Yagi	150.00	25	563	0.002	3	22
CCI HPA-65R-BUU-H8	150.00	204	4,590	0.014	22	176
Andrew ABT-DMDF-ADBH	150.00	3	74	0.000	0	3
Powerwave Allgon 702	150.00	13	297	0.001	1	11
Powerwave Allgon TT1	150.00	96	2,160	0.007	10	83
Raycap DC6-48-60-18-	150.00	33	738	0.002	3	28
Ericsson RRUS 11 (Ba	150.00	150	3,375	0.011	16	129
Ericsson RRUS 32 B2	150.00	159	3,577	0.011	17	137
Stand-Off	150.00	300	6,750	0.021	32	259
Powerwave Allgon 777	150.00	162	3,645	0.011	17	140
Round Platform w/ Ha	150.00	2,000	45,000	0.141	212	1,724
RFS ATMAA1412D-1A20	140.00	39	764	0.002	4	34
RFS ATMPP1412D-1CWA	140.00	38	735	0.002	3	32
Ericsson AIR 21 B4A	140.00	540	10,584	0.033	50	465
Andrew LNX-6515DS-A1	140.00	149	2,928	0.009	14	129
Round Platform w/ Ha	140.00	2,000	39,200	0.123	185	1,724
Stand-Off	123.00	100	1,513	0.005	7	86
Generic 75" x 16.8"	123.00	31	472	0.001	2	27
Samsung B2/B66A RRH-	118.00	253	3,526	0.011	17	218
Samsung B5/B13 RRH-B	118.00	211	2,937	0.009	14	182
Raycap RCMD-6627-PF	118.00	32	446	0.001	2	28
Commscope NHH-65B-R2	118.00	262	3,651	0.011	17	226
Generic Round Platfo	118.00	2,500	34,810	0.109	164	2,155
Channel Master Type	10.00	126	13	0.000	0	109
		38,518	318,428	1.000	1,502	33,196

Load Case (1.2 + 0.2Sds) \* DL + E ELFM      Seismic Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-45.98	-1.51	0.00	-193.61	0.00	193.61	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.061
5.00	-44.46	-1.53	0.00	-186.06	0.00	186.06	3,114.35	1,557.18	4,645.51	2,294.24	0.01	-0.02	0.059
9.50	-44.29	-1.53	0.00	-179.19	0.00	179.19	3,074.93	1,537.47	4,496.49	2,220.65	0.04	-0.04	0.059
9.50	-44.29	-1.53	0.00	-179.19	0.00	179.19	3,074.93	1,537.47	4,496.49	2,220.65	0.04	-0.04	0.059
10.00	-42.46	-1.54	0.00	-178.43	0.00	178.43	3,070.50	1,535.25	4,480.00	2,212.50	0.05	-0.04	0.058
15.00	-40.81	-1.55	0.00	-170.73	0.00	170.73	3,025.61	1,512.80	4,315.88	2,131.45	0.10	-0.07	0.057
20.00	-39.18	-1.56	0.00	-162.97	0.00	162.97	2,979.67	1,489.84	4,153.23	2,051.12	0.18	-0.09	0.056
25.00	-37.57	-1.57	0.00	-155.16	0.00	155.16	2,932.70	1,466.35	3,992.16	1,971.58	0.29	-0.11	0.054
30.00	-37.09	-1.58	0.00	-147.31	0.00	147.31	2,875.19	1,437.60	3,820.15	1,886.63	0.41	-0.13	0.053
31.50	-35.50	-1.57	0.00	-144.95	0.00	144.95	2,854.28	1,427.14	3,764.46	1,859.13	0.45	-0.14	0.053
35.00	-35.20	-1.58	0.00	-139.44	0.00	139.44	2,805.45	1,402.73	3,636.04	1,795.70	0.56	-0.15	0.052
35.67	-33.94	-1.57	0.00	-138.39	0.00	138.39	2,248.06	1,124.03	2,973.88	1,468.69	0.58	-0.16	0.059
40.00	-32.50	-1.57	0.00	-131.58	0.00	131.58	2,218.58	1,109.29	2,872.19	1,418.47	0.74	-0.18	0.057
45.00	-31.08	-1.57	0.00	-123.72	0.00	123.72	2,183.59	1,091.79	2,755.72	1,360.95	0.93	-0.20	0.055
50.00	-29.68	-1.56	0.00	-115.89	0.00	115.89	2,147.56	1,073.78	2,640.25	1,303.92	1.16	-0.22	0.053
55.00	-28.29	-1.55	0.00	-108.09	0.00	108.09	2,110.50	1,055.25	2,525.88	1,247.44	1.41	-0.25	0.051
60.00	-26.92	-1.53	0.00	-100.36	0.00	100.36	2,072.39	1,036.20	2,412.72	1,191.55	1.68	-0.27	0.048
65.00	-25.56	-1.51	0.00	-92.70	0.00	92.70	2,033.25	1,016.62	2,300.87	1,136.31	1.97	-0.29	0.046
70.00	-25.56	-1.52	0.00	-85.14	0.00	85.14	1,982.07	991.04	2,178.36	1,075.81	2.29	-0.32	0.044
70.00	-24.31	-1.49	0.00	-85.14	0.00	85.14	1,982.06	991.03	2,178.34	1,075.80	2.29	-0.32	0.043
73.50	-23.94	-1.48	0.00	-79.93	0.00	79.93	1,473.95	736.98	1,624.53	802.30	2.53	-0.33	0.049
75.00	-22.71	-1.45	0.00	-77.71	0.00	77.71	1,466.26	733.13	1,601.72	791.03	2.64	-0.34	0.048
80.00	-21.50	-1.42	0.00	-70.44	0.00	70.44	1,439.98	719.99	1,526.06	753.66	3.00	-0.36	0.045
85.00	-20.19	-1.38	0.00	-63.32	0.00	63.32	1,412.66	706.33	1,451.06	716.62	3.39	-0.38	0.041
90.00	-19.76	-1.37	0.00	-56.40	0.00	56.40	1,384.29	692.15	1,376.80	679.95	3.80	-0.40	0.038
91.67	-18.96	-1.34	0.00	-54.12	0.00	54.12	1,374.61	687.30	1,352.23	667.81	3.95	-0.41	0.037
91.67	-18.96	-1.34	0.00	-54.12	0.00	54.12	1,374.61	687.30	1,352.23	667.81	3.95	-0.41	0.031
95.00	-17.88	-1.30	0.00	-49.64	0.00	49.64	1,354.89	677.44	1,303.39	643.69	4.24	-0.42	0.029
100.00	-16.83	-1.25	0.00	-43.14	0.00	43.14	1,324.45	662.22	1,230.93	607.91	4.69	-0.44	0.026
105.00	-15.79	-1.20	0.00	-36.86	0.00	36.86	1,292.96	646.48	1,159.52	572.64	5.15	-0.45	0.023
110.00	-15.79	-1.21	0.00	-30.84	0.00	30.84	1,247.09	623.55	1,077.74	532.25	5.63	-0.46	0.021
110.00	-15.79	-1.21	0.00	-30.84	0.00	30.84	853.22	426.61	741.75	366.32	5.63	-0.46	0.025
110.00	-14.85	-1.15	0.00	-30.84	0.00	30.84	853.22	426.61	741.74	366.32	5.63	-0.46	0.024
115.00	-14.68	-1.15	0.00	-25.07	0.00	25.07	834.98	417.49	698.66	345.04	6.12	-0.47	0.021
115.94	-14.42	-1.13	0.00	-24.00	0.00	24.00	831.44	415.72	690.62	341.07	6.21	-0.47	0.021
115.94	-14.42	-1.13	0.00	-24.00	0.00	24.00	831.44	415.72	690.62	341.07	6.21	-0.47	0.088
118.00	-10.15	-0.87	0.00	-21.67	0.00	21.67	823.53	411.76	672.98	332.36	6.42	-0.48	0.078
120.00	-9.85	-0.86	0.00	-19.92	0.00	19.92	815.69	407.84	655.93	323.94	6.62	-0.50	0.074
123.00	-9.50	-0.84	0.00	-17.36	0.00	17.36	803.62	401.81	630.51	311.38	6.94	-0.53	0.068
125.00	-9.03	-0.81	0.00	-15.69	0.00	15.69	795.36	397.68	613.66	303.06	7.17	-0.54	0.063
130.00	-8.58	-0.78	0.00	-11.65	0.00	11.65	774.00	387.00	571.95	282.46	7.76	-0.58	0.052
135.00	-8.14	-0.74	0.00	-7.76	0.00	7.76	751.59	375.80	530.89	262.19	8.39	-0.61	0.040
140.00	-4.35	-0.42	0.00	-4.04	0.00	4.04	728.15	364.07	490.59	242.29	9.04	-0.63	0.023
145.00	-3.99	-0.39	0.00	-1.94	0.00	1.94	694.01	347.01	444.97	219.76	9.71	-0.65	0.015
150.00	0.00	-0.34	0.00	0.00	0.00	0.00	659.14	329.57	401.13	198.10	10.39	-0.65	0.000



---

---

Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:21 AM

Customer: VERIZON WIRELESS

---

---

Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:21 AM

Customer: VERIZON WIRELESS

Load Case (0.9 - 0.2Sds) \* DL + E ELFM

Seismic (Reduced DL) Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-32.00	-1.51	0.00	-188.80	0.00	188.80	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.056
5.00	-30.94	-1.52	0.00	-181.26	0.00	181.26	3,114.35	1,557.18	4,645.51	2,294.24	0.01	-0.02	0.055
9.50	-30.83	-1.52	0.00	-174.43	0.00	174.43	3,074.93	1,537.47	4,496.49	2,220.65	0.04	-0.04	0.054
9.50	-30.83	-1.52	0.00	-174.43	0.00	174.43	3,074.93	1,537.47	4,496.49	2,220.65	0.04	-0.04	0.054
10.00	-29.56	-1.53	0.00	-173.67	0.00	173.67	3,070.50	1,535.25	4,480.00	2,212.50	0.04	-0.04	0.054
15.00	-28.41	-1.53	0.00	-166.04	0.00	166.04	3,025.61	1,512.80	4,315.88	2,131.45	0.10	-0.06	0.053
20.00	-27.27	-1.54	0.00	-158.36	0.00	158.36	2,979.67	1,489.84	4,153.23	2,051.12	0.18	-0.08	0.052
25.00	-26.15	-1.54	0.00	-150.66	0.00	150.66	2,932.70	1,466.35	3,992.16	1,971.58	0.28	-0.11	0.050
30.00	-25.82	-1.55	0.00	-142.94	0.00	142.94	2,875.19	1,437.60	3,820.15	1,886.63	0.40	-0.13	0.049
31.50	-24.71	-1.54	0.00	-140.62	0.00	140.62	2,854.28	1,427.14	3,764.46	1,859.13	0.44	-0.13	0.049
35.00	-24.50	-1.55	0.00	-135.22	0.00	135.22	2,805.45	1,402.73	3,636.04	1,795.70	0.55	-0.15	0.048
35.67	-23.62	-1.54	0.00	-134.19	0.00	134.19	2,248.06	1,124.03	2,973.88	1,468.69	0.57	-0.15	0.055
40.00	-22.62	-1.54	0.00	-127.51	0.00	127.51	2,218.58	1,109.29	2,872.19	1,418.47	0.72	-0.17	0.053
45.00	-21.63	-1.53	0.00	-119.83	0.00	119.83	2,183.59	1,091.79	2,755.72	1,360.95	0.91	-0.20	0.051
50.00	-20.65	-1.52	0.00	-112.18	0.00	112.18	2,147.56	1,073.78	2,640.25	1,303.92	1.13	-0.22	0.049
55.00	-19.69	-1.51	0.00	-104.59	0.00	104.59	2,110.50	1,055.25	2,525.88	1,247.44	1.37	-0.24	0.047
60.00	-18.73	-1.49	0.00	-97.06	0.00	97.06	2,072.39	1,036.20	2,412.72	1,191.55	1.63	-0.26	0.045
65.00	-17.79	-1.47	0.00	-89.61	0.00	89.61	2,033.25	1,016.62	2,300.87	1,136.31	1.92	-0.29	0.043
70.00	-17.79	-1.47	0.00	-82.28	0.00	82.28	1,982.07	991.04	2,178.36	1,075.81	2.23	-0.31	0.041
70.00	-16.92	-1.44	0.00	-82.28	0.00	82.28	1,982.06	991.03	2,178.34	1,075.80	2.23	-0.31	0.040
73.50	-16.66	-1.44	0.00	-77.22	0.00	77.22	1,473.95	736.98	1,624.53	802.30	2.46	-0.32	0.045
75.00	-15.81	-1.41	0.00	-75.07	0.00	75.07	1,466.26	733.13	1,601.72	791.03	2.56	-0.33	0.044
80.00	-14.97	-1.38	0.00	-68.02	0.00	68.02	1,439.98	719.99	1,526.06	753.66	2.92	-0.35	0.041
85.00	-14.05	-1.34	0.00	-61.13	0.00	61.13	1,412.66	706.33	1,451.06	716.62	3.29	-0.37	0.038
90.00	-13.75	-1.33	0.00	-54.44	0.00	54.44	1,384.29	692.15	1,376.80	679.95	3.69	-0.39	0.035
91.67	-13.20	-1.30	0.00	-52.23	0.00	52.23	1,374.61	687.30	1,352.23	667.81	3.83	-0.40	0.034
91.67	-13.20	-1.30	0.00	-52.23	0.00	52.23	1,374.61	687.30	1,352.23	667.81	3.83	-0.40	0.028
95.00	-12.45	-1.26	0.00	-47.90	0.00	47.90	1,354.89	677.44	1,303.39	643.69	4.11	-0.41	0.026
100.00	-11.71	-1.21	0.00	-41.62	0.00	41.62	1,324.45	662.22	1,230.93	607.91	4.55	-0.42	0.023
105.00	-10.99	-1.16	0.00	-35.56	0.00	35.56	1,292.96	646.48	1,159.52	572.64	5.00	-0.44	0.020
110.00	-10.99	-1.16	0.00	-29.74	0.00	29.74	1,247.09	623.55	1,077.74	532.25	5.46	-0.45	0.018
110.00	-10.99	-1.16	0.00	-29.74	0.00	29.74	853.22	426.61	741.75	366.32	5.46	-0.45	0.022
110.00	-10.34	-1.11	0.00	-29.74	0.00	29.74	853.22	426.61	741.74	366.32	5.46	-0.45	0.021
115.00	-10.21	-1.11	0.00	-24.16	0.00	24.16	834.98	417.49	698.66	345.04	5.94	-0.46	0.018
115.94	-10.04	-1.09	0.00	-23.13	0.00	23.13	831.44	415.72	690.62	341.07	6.03	-0.46	0.018
115.94	-10.04	-1.09	0.00	-23.13	0.00	23.13	831.44	415.72	690.62	341.07	6.03	-0.46	0.080
118.00	-7.06	-0.84	0.00	-20.88	0.00	20.88	823.53	411.76	672.98	332.36	6.23	-0.46	0.071
120.00	-6.85	-0.83	0.00	-19.19	0.00	19.19	815.69	407.84	655.93	323.94	6.42	-0.48	0.068
123.00	-6.61	-0.81	0.00	-16.71	0.00	16.71	803.62	401.81	630.51	311.38	6.73	-0.51	0.062
125.00	-6.29	-0.78	0.00	-15.10	0.00	15.10	795.36	397.68	613.66	303.06	6.95	-0.53	0.058
130.00	-5.97	-0.75	0.00	-11.21	0.00	11.21	774.00	387.00	571.95	282.46	7.52	-0.56	0.047
135.00	-5.66	-0.72	0.00	-7.47	0.00	7.47	751.59	375.80	530.89	262.19	8.13	-0.59	0.036
140.00	-3.02	-0.40	0.00	-3.89	0.00	3.89	728.15	364.07	490.59	242.29	8.76	-0.61	0.020
145.00	-2.78	-0.37	0.00	-1.86	0.00	1.86	694.01	347.01	444.97	219.76	9.41	-0.63	0.012
150.00	0.00	-0.34	0.00	0.00	0.00	0.00	659.14	329.57	401.13	198.10	10.07	-0.63	0.000

Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:21 AM

Customer: VERIZON WIRELESS

### Equivalent Modal Analysis Method

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period ( $S_s$ ):	0.18
Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):	0.06
Importance Factor ( $I_E$ ):	1.00
Site Coefficient $F_a$ :	1.60
Site Coefficient $F_v$ :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):	0.19
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.10
Period Based on Rayleigh Method (sec):	3.04
Redundancy Factor ( $\rho$ ):	1.30

### Load Case (1.2 + 0.2Sds) \* DL + E EMAM      Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
40	147.50	289	1.828	1.667	1.025	0.320	80	357
39	142.50	297	1.706	1.144	0.823	0.247	64	367
38	137.50	359	1.588	0.742	0.654	0.183	57	444
37	132.50	367	1.475	0.441	0.513	0.126	40	454
36	127.50	375	1.366	0.222	0.397	0.077	25	464
35	124.00	152	1.292	0.109	0.329	0.048	6	189
34	121.50	241	1.240	0.046	0.286	0.029	6	299
33	119.00	194	1.190	-0.005	0.247	0.012	2	240
32	116.97	207	1.149	-0.038	0.219	0.000	0	256
31	115.47	141	1.120	-0.058	0.199	-0.009	-1	175
30	112.50	759	1.063	-0.088	0.165	-0.023	-15	940
29	110.00	0	1.016	-0.105	0.140	-0.034	0	0
28	107.50	839	0.971	-0.116	0.117	-0.042	-30	1,039
27	102.50	850	0.883	-0.121	0.081	-0.053	-39	1,053
26	97.50	870	0.799	-0.112	0.053	-0.056	-42	1,078
25	93.33	642	0.732	-0.096	0.036	-0.053	-29	795
24	90.83	351	0.693	-0.085	0.029	-0.048	-15	434
23	87.50	1,060	0.643	-0.068	0.020	-0.040	-36	1,312
22	82.50	977	0.572	-0.043	0.012	-0.022	-19	1,210
21	77.50	987	0.505	-0.018	0.007	-0.001	-1	1,222
20	74.25	298	0.463	-0.003	0.006	0.012	3	369
19	71.75	1,016	0.432	0.008	0.006	0.021	18	1,258
18	70.00	0	0.412	0.014	0.006	0.027	0	0
17	67.50	1,093	0.383	0.023	0.007	0.034	33	1,353
16	62.50	1,107	0.328	0.039	0.010	0.046	44	1,370
15	57.50	1,120	0.278	0.050	0.014	0.052	51	1,387
14	52.50	1,133	0.232	0.058	0.019	0.055	54	1,403
13	47.50	1,147	0.190	0.064	0.025	0.056	56	1,420
12	42.50	1,160	0.152	0.068	0.030	0.056	56	1,437
11	37.83	1,017	0.120	0.070	0.034	0.055	48	1,259
10	35.33	243	0.105	0.071	0.037	0.054	11	301
9	33.25	1,287	0.093	0.071	0.038	0.053	60	1,594
8	30.75	387	0.079	0.072	0.040	0.053	18	479
7	27.50	1,301	0.064	0.072	0.041	0.052	59	1,610

Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:21 AM

Customer: VERIZON WIRELESS

6	22.50	1,317	0.043	0.070	0.042	0.050	58	1,630
5	17.50	1,333	0.026	0.067	0.040	0.048	56	1,650
4	12.50	1,349	0.013	0.059	0.034	0.044	51	1,670
3	9.75	136	0.008	0.052	0.030	0.040	5	168
2	7.25	1,229	0.004	0.043	0.024	0.035	37	1,522
1	2.50	1,381	0.001	0.018	0.010	0.017	20	1,710
Generic 12' Omni	150.00	40	1.890	1.980	1.140	0.360	12	50
Generic 12' Dipole	150.00	40	1.890	1.980	1.140	0.360	12	50
Generic 6' Yagi	150.00	25	1.890	1.980	1.140	0.360	8	31
CCI HPA-65R-BUU-H8	150.00	204	1.890	1.980	1.140	0.360	64	253
Andrew ABT-DMDF-	150.00	3	1.890	1.980	1.140	0.360	1	4
Powerwave Allgon 702	150.00	13	1.890	1.980	1.140	0.360	4	16
Powerwave Allgon TT1	150.00	96	1.890	1.980	1.140	0.360	30	119
Raycap DC6-48-60-18-	150.00	33	1.890	1.980	1.140	0.360	10	41
Ericsson RRUS 11 (Ba	150.00	150	1.890	1.980	1.140	0.360	47	186
Ericsson RRUS 32 B2	150.00	159	1.890	1.980	1.140	0.360	50	197
Stand-Off	150.00	300	1.890	1.980	1.140	0.360	94	371
Powerwave Allgon 777	150.00	162	1.890	1.980	1.140	0.360	51	201
Round Platform w/ Ha	150.00	2,000	1.890	1.980	1.140	0.360	624	2,476
RFS ATMAA1412D-1A20	140.00	39	1.646	0.929	0.735	0.214	7	48
RFS ATMPP1412D-1CWA	140.00	38	1.646	0.929	0.735	0.214	7	46
Ericsson AIR 21 B4A	140.00	540	1.646	0.929	0.735	0.214	100	669
Andrew LNX-6515DS-A1	140.00	149	1.646	0.929	0.735	0.214	28	185
Round Platform w/ Ha	140.00	2,000	1.646	0.929	0.735	0.214	371	2,476
Stand-Off	123.00	100	1.271	0.082	0.311	0.040	3	124
Generic 75" x 16.8"	123.00	31	1.271	0.082	0.311	0.040	1	39
Samsung B2/B66A RRH-	118.00	253	1.170	-0.022	0.233	0.006	1	314
Samsung B5/B13 RRH-B	118.00	211	1.170	-0.022	0.233	0.006	1	261
Raycap RCMDC-6627-PF	118.00	32	1.170	-0.022	0.233	0.006	0	40
Commscope NHH-65B-	118.00	262	1.170	-0.022	0.233	0.006	1	325
Generic Round Platfo	118.00	2,500	1.170	-0.022	0.233	0.006	13	3,095
Channel Master Type	10.00	126	0.008	0.052	0.030	0.040	4	156
		38,518	66.451	34.895	26.155	7.421	2,333	47,693

**Load Case (0.9 - 0.2Sds) \* DL + E EMAM**

**Seismic (Reduced DL) Equivalent Modal Analysis Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
40	147.50	289	1.828	1.667	1.025	0.320	80	249
39	142.50	297	1.706	1.144	0.823	0.247	64	256
38	137.50	359	1.588	0.742	0.654	0.183	57	309
37	132.50	367	1.475	0.441	0.513	0.126	40	316
36	127.50	375	1.366	0.222	0.397	0.077	25	323
35	124.00	152	1.292	0.109	0.329	0.048	6	131
34	121.50	241	1.240	0.046	0.286	0.029	6	208
33	119.00	194	1.190	-0.005	0.247	0.012	2	167
32	116.97	207	1.149	-0.038	0.219	0.000	0	178
31	115.47	141	1.120	-0.058	0.199	-0.009	-1	122
30	112.50	759	1.063	-0.088	0.165	-0.023	-15	654
29	110.00	0	1.016	-0.105	0.140	-0.034	0	0
28	107.50	839	0.971	-0.116	0.117	-0.042	-30	723
27	102.50	850	0.883	-0.121	0.081	-0.053	-39	733
26	97.50	870	0.799	-0.112	0.053	-0.056	-42	750
25	93.33	642	0.732	-0.096	0.036	-0.053	-29	554
24	90.83	351	0.693	-0.085	0.029	-0.048	-15	302
23	87.50	1,060	0.643	-0.068	0.020	-0.040	-36	913
22	82.50	977	0.572	-0.043	0.012	-0.022	-19	842
21	77.50	987	0.505	-0.018	0.007	-0.001	-1	850
20	74.25	298	0.463	-0.003	0.006	0.012	3	257

Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:21 AM

Customer: VERIZON WIRELESS

19	71.75	1,016	0.432	0.008	0.006	0.021	18	876
18	70.00	0	0.412	0.014	0.006	0.027	0	0
17	67.50	1,093	0.383	0.023	0.007	0.034	33	942
16	62.50	1,107	0.328	0.039	0.010	0.046	44	954
15	57.50	1,120	0.278	0.050	0.014	0.052	51	965
14	52.50	1,133	0.232	0.058	0.019	0.055	54	977
13	47.50	1,147	0.190	0.064	0.025	0.056	56	988
12	42.50	1,160	0.152	0.068	0.030	0.056	56	1,000
11	37.83	1,017	0.120	0.070	0.034	0.055	48	876
10	35.33	243	0.105	0.071	0.037	0.054	11	210
9	33.25	1,287	0.093	0.071	0.038	0.053	60	1,109
8	30.75	387	0.079	0.072	0.040	0.053	18	333
7	27.50	1,301	0.064	0.072	0.041	0.052	59	1,121
6	22.50	1,317	0.043	0.070	0.042	0.050	58	1,135
5	17.50	1,333	0.026	0.067	0.040	0.048	56	1,149
4	12.50	1,349	0.013	0.059	0.034	0.044	51	1,163
3	9.75	136	0.008	0.052	0.030	0.040	5	117
2	7.25	1,229	0.004	0.043	0.024	0.035	37	1,060
1	2.50	1,381	0.001	0.018	0.010	0.017	20	1,190
Generic 12' Omni	150.00	40	1.890	1.980	1.140	0.360	12	34
Generic 12' Dipole	150.00	40	1.890	1.980	1.140	0.360	12	34
Generic 6' Yagi	150.00	25	1.890	1.980	1.140	0.360	8	22
CCI HPA-65R-BUU-H8	150.00	204	1.890	1.980	1.140	0.360	64	176
Andrew ABT-DMDF-	150.00	3	1.890	1.980	1.140	0.360	1	3
Powerwave Allgon 702	150.00	13	1.890	1.980	1.140	0.360	4	11
Powerwave Allgon TT1	150.00	96	1.890	1.980	1.140	0.360	30	83
Raycap DC6-48-60-18-	150.00	33	1.890	1.980	1.140	0.360	10	28
Ericsson RRUS 11 (Ba	150.00	150	1.890	1.980	1.140	0.360	47	129
Ericsson RRUS 32 B2	150.00	159	1.890	1.980	1.140	0.360	50	137
Stand-Off	150.00	300	1.890	1.980	1.140	0.360	94	259
Powerwave Allgon 777	150.00	162	1.890	1.980	1.140	0.360	51	140
Round Platform w/ Ha	150.00	2,000	1.890	1.980	1.140	0.360	624	1,724
RFS ATMAA1412D-1A20	140.00	39	1.646	0.929	0.735	0.214	7	34
RFS ATMPP1412D-1CWA	140.00	38	1.646	0.929	0.735	0.214	7	32
Ericsson AIR 21 B4A	140.00	540	1.646	0.929	0.735	0.214	100	465
Andrew LNX-6515DS-A1	140.00	149	1.646	0.929	0.735	0.214	28	129
Round Platform w/ Ha	140.00	2,000	1.646	0.929	0.735	0.214	371	1,724
Stand-Off	123.00	100	1.271	0.082	0.311	0.040	3	86
Generic 75" x 16.8"	123.00	31	1.271	0.082	0.311	0.040	1	27
Samsung B2/B66A RRH-	118.00	253	1.170	-0.022	0.233	0.006	1	218
Samsung B5/B13 RRH-B	118.00	211	1.170	-0.022	0.233	0.006	1	182
Raycap RCMDC-6627-PF	118.00	32	1.170	-0.022	0.233	0.006	0	28
Commscope NHH-65B-	118.00	262	1.170	-0.022	0.233	0.006	1	226
Generic Round Platfo	118.00	2,500	1.170	-0.022	0.233	0.006	13	2,155
Channel Master Type	10.00	126	0.008	0.052	0.030	0.040	4	109
		38,518	66.451	34.895	26.155	7.421	2,333	33,196

Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:21 AM

Customer: VERIZON WIRELESS

Load Case (1.2 + 0.2Sds) \* DL + E EMAM Seismic Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-45.98	-2.33	0.00	-291.10	0.00	291.10	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.086
5.00	-44.46	-2.31	0.00	-279.47	0.00	279.47	3,114.35	1,557.18	4,645.51	2,294.24	0.02	-0.03	0.084
9.50	-44.29	-2.32	0.00	-269.07	0.00	269.07	3,074.93	1,537.47	4,496.49	2,220.65	0.06	-0.06	0.083
9.50	-44.29	-2.32	0.00	-269.07	0.00	269.07	3,074.93	1,537.47	4,496.49	2,220.65	0.06	-0.06	0.083
10.00	-42.46	-2.28	0.00	-267.91	0.00	267.91	3,070.50	1,535.25	4,480.00	2,212.50	0.07	-0.06	0.083
15.00	-40.81	-2.24	0.00	-256.54	0.00	256.54	3,025.61	1,512.80	4,315.88	2,131.45	0.15	-0.10	0.081
20.00	-39.18	-2.20	0.00	-245.33	0.00	245.33	2,979.67	1,489.84	4,153.23	2,051.12	0.27	-0.13	0.079
25.00	-37.57	-2.16	0.00	-234.32	0.00	234.32	2,932.70	1,466.35	3,992.16	1,971.58	0.43	-0.16	0.078
30.00	-37.09	-2.16	0.00	-223.50	0.00	223.50	2,875.19	1,437.60	3,820.15	1,886.63	0.62	-0.20	0.077
31.50	-35.49	-2.10	0.00	-220.27	0.00	220.27	2,854.28	1,427.14	3,764.46	1,859.13	0.68	-0.21	0.076
35.00	-35.19	-2.10	0.00	-212.91	0.00	212.91	2,805.45	1,402.73	3,636.04	1,795.70	0.85	-0.23	0.074
35.67	-33.93	-2.06	0.00	-211.51	0.00	211.51	2,248.06	1,124.03	2,973.88	1,468.69	0.88	-0.24	0.085
40.00	-32.50	-2.01	0.00	-202.60	0.00	202.60	2,218.58	1,109.29	2,872.19	1,418.47	1.11	-0.27	0.083
45.00	-31.08	-1.97	0.00	-192.54	0.00	192.54	2,183.59	1,091.79	2,755.72	1,360.95	1.41	-0.30	0.081
50.00	-29.67	-1.93	0.00	-182.69	0.00	182.69	2,147.56	1,073.78	2,640.25	1,303.92	1.75	-0.34	0.079
55.00	-28.28	-1.89	0.00	-173.05	0.00	173.05	2,110.50	1,055.25	2,525.88	1,247.44	2.12	-0.38	0.077
60.00	-26.91	-1.85	0.00	-163.63	0.00	163.63	2,072.39	1,036.20	2,412.72	1,191.55	2.54	-0.42	0.074
65.00	-25.56	-1.82	0.00	-154.38	0.00	154.38	2,033.25	1,016.62	2,300.87	1,136.31	3.00	-0.45	0.072
70.00	-25.56	-1.83	0.00	-145.26	0.00	145.26	1,982.07	991.04	2,178.36	1,075.81	3.49	-0.49	0.070
70.00	-24.30	-1.81	0.00	-145.26	0.00	145.26	1,982.06	991.03	2,178.34	1,075.80	3.49	-0.49	0.069
73.50	-23.93	-1.81	0.00	-138.93	0.00	138.93	1,473.95	736.98	1,624.53	802.30	3.86	-0.52	0.080
75.00	-22.71	-1.81	0.00	-136.21	0.00	136.21	1,466.26	733.13	1,601.72	791.03	4.03	-0.53	0.078
80.00	-21.50	-1.83	0.00	-127.16	0.00	127.16	1,439.98	719.99	1,526.06	753.66	4.60	-0.57	0.075
85.00	-20.18	-1.87	0.00	-117.99	0.00	117.99	1,412.66	706.33	1,451.06	716.62	5.22	-0.61	0.071
90.00	-19.75	-1.89	0.00	-108.65	0.00	108.65	1,384.29	692.15	1,376.80	679.95	5.88	-0.65	0.067
91.67	-18.95	-1.92	0.00	-105.50	0.00	105.50	1,374.61	687.30	1,352.23	667.81	6.11	-0.66	0.066
91.67	-18.95	-1.92	0.00	-105.50	0.00	105.50	1,374.61	687.30	1,352.23	667.81	6.11	-0.66	0.054
95.00	-17.87	-1.95	0.00	-99.12	0.00	99.12	1,354.89	677.44	1,303.39	643.69	6.58	-0.69	0.051
100.00	-16.82	-1.99	0.00	-89.35	0.00	89.35	1,324.45	662.22	1,230.93	607.91	7.31	-0.72	0.046
105.00	-15.78	-2.01	0.00	-79.41	0.00	79.41	1,292.96	646.48	1,159.52	572.64	8.08	-0.74	0.042
110.00	-15.78	-2.02	0.00	-69.35	0.00	69.35	1,247.09	623.55	1,077.74	532.25	8.87	-0.77	0.038
110.00	-15.78	-2.02	0.00	-69.35	0.00	69.35	853.22	426.61	741.75	366.32	8.87	-0.77	0.045
110.00	-14.84	-2.02	0.00	-69.35	0.00	69.35	853.22	426.61	741.74	366.32	8.87	-0.77	0.045
115.00	-14.66	-2.02	0.00	-59.24	0.00	59.24	834.98	417.49	698.66	345.04	9.69	-0.79	0.039
115.94	-14.40	-2.02	0.00	-57.34	0.00	57.34	831.44	415.72	690.62	341.07	9.84	-0.80	0.038
115.94	-14.40	-2.02	0.00	-57.34	0.00	57.34	831.44	415.72	690.62	341.07	9.84	-0.80	0.185
118.00	-10.13	-1.95	0.00	-53.17	0.00	53.17	823.53	411.76	672.98	332.36	10.19	-0.81	0.172
120.00	-9.83	-1.95	0.00	-49.27	0.00	49.27	815.69	407.84	655.93	323.94	10.54	-0.86	0.164
123.00	-9.48	-1.94	0.00	-43.43	0.00	43.43	803.62	401.81	630.51	311.38	11.10	-0.92	0.151
125.00	-9.01	-1.92	0.00	-39.54	0.00	39.54	795.36	397.68	613.66	303.06	11.50	-0.97	0.142
130.00	-8.55	-1.89	0.00	-29.94	0.00	29.94	774.00	387.00	571.95	282.46	12.56	-1.07	0.117
135.00	-8.11	-1.83	0.00	-20.51	0.00	20.51	751.59	375.80	530.89	262.19	13.73	-1.15	0.089
140.00	-4.33	-1.18	0.00	-11.36	0.00	11.36	728.15	364.07	490.59	242.29	14.96	-1.20	0.053
145.00	-3.97	-1.09	0.00	-5.46	0.00	5.46	694.01	347.01	444.97	219.76	16.24	-1.24	0.031
150.00	0.00	-1.01	0.00	0.00	0.00	0.00	659.14	329.57	401.13	198.10	17.55	-1.25	0.000

---

---

Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:21 AM

Customer: VERIZON WIRELESS

---

---

Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:21 AM

Customer: VERIZON WIRELESS

Load Case (0.9 - 0.2Sds) \* DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-32.00	-2.32	0.00	-283.21	0.00	283.21	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.081
5.00	-30.94	-2.30	0.00	-271.61	0.00	271.61	3,114.35	1,557.18	4,645.51	2,294.24	0.02	-0.03	0.079
9.50	-30.83	-2.30	0.00	-261.26	0.00	261.26	3,074.93	1,537.47	4,496.49	2,220.65	0.06	-0.06	0.078
9.50	-30.83	-2.30	0.00	-261.26	0.00	261.26	3,074.93	1,537.47	4,496.49	2,220.65	0.06	-0.06	0.078
10.00	-29.55	-2.26	0.00	-260.11	0.00	260.11	3,070.50	1,535.25	4,480.00	2,212.50	0.07	-0.06	0.078
15.00	-28.40	-2.21	0.00	-248.84	0.00	248.84	3,025.61	1,512.80	4,315.88	2,131.45	0.15	-0.09	0.076
20.00	-27.27	-2.17	0.00	-237.77	0.00	237.77	2,979.67	1,489.84	4,153.23	2,051.12	0.27	-0.13	0.075
25.00	-26.15	-2.12	0.00	-226.92	0.00	226.92	2,932.70	1,466.35	3,992.16	1,971.58	0.42	-0.16	0.073
30.00	-25.81	-2.11	0.00	-216.31	0.00	216.31	2,875.19	1,437.60	3,820.15	1,886.63	0.60	-0.19	0.072
31.50	-24.70	-2.06	0.00	-213.14	0.00	213.14	2,854.28	1,427.14	3,764.46	1,859.13	0.66	-0.20	0.071
35.00	-24.49	-2.05	0.00	-205.94	0.00	205.94	2,805.45	1,402.73	3,636.04	1,795.70	0.82	-0.23	0.070
35.67	-23.62	-2.01	0.00	-204.57	0.00	204.57	2,248.06	1,124.03	2,973.88	1,468.69	0.85	-0.23	0.080
40.00	-22.62	-1.96	0.00	-195.87	0.00	195.87	2,218.58	1,109.29	2,872.19	1,418.47	1.08	-0.26	0.078
45.00	-21.63	-1.91	0.00	-186.08	0.00	186.08	2,183.59	1,091.79	2,755.72	1,360.95	1.37	-0.29	0.076
50.00	-20.65	-1.87	0.00	-176.52	0.00	176.52	2,147.56	1,073.78	2,640.25	1,303.92	1.69	-0.33	0.074
55.00	-19.68	-1.82	0.00	-167.19	0.00	167.19	2,110.50	1,055.25	2,525.88	1,247.44	2.06	-0.37	0.072
60.00	-18.73	-1.78	0.00	-158.09	0.00	158.09	2,072.39	1,036.20	2,412.72	1,191.55	2.46	-0.40	0.070
65.00	-17.79	-1.75	0.00	-149.18	0.00	149.18	2,033.25	1,016.62	2,300.87	1,136.31	2.90	-0.44	0.067
70.00	-17.78	-1.76	0.00	-140.41	0.00	140.41	1,982.07	991.04	2,178.36	1,075.81	3.38	-0.48	0.066
70.00	-16.91	-1.74	0.00	-140.41	0.00	140.41	1,982.06	991.03	2,178.34	1,075.80	3.38	-0.48	0.065
73.50	-16.65	-1.74	0.00	-134.32	0.00	134.32	1,473.95	736.98	1,624.53	802.30	3.74	-0.50	0.075
75.00	-15.80	-1.74	0.00	-131.72	0.00	131.72	1,466.26	733.13	1,601.72	791.03	3.90	-0.51	0.073
80.00	-14.96	-1.76	0.00	-123.02	0.00	123.02	1,439.98	719.99	1,526.06	753.66	4.46	-0.55	0.070
85.00	-14.04	-1.80	0.00	-114.22	0.00	114.22	1,412.66	706.33	1,451.06	716.62	5.06	-0.59	0.067
90.00	-13.74	-1.81	0.00	-105.24	0.00	105.24	1,384.29	692.15	1,376.80	679.95	5.69	-0.63	0.063
91.67	-13.18	-1.84	0.00	-102.22	0.00	102.22	1,374.61	687.30	1,352.23	667.81	5.92	-0.64	0.062
91.67	-13.18	-1.84	0.00	-102.22	0.00	102.22	1,374.61	687.30	1,352.23	667.81	5.92	-0.64	0.050
95.00	-12.43	-1.88	0.00	-96.08	0.00	96.08	1,354.89	677.44	1,303.39	643.69	6.37	-0.66	0.047
100.00	-11.70	-1.92	0.00	-86.67	0.00	86.67	1,324.45	662.22	1,230.93	607.91	7.08	-0.69	0.043
105.00	-10.97	-1.94	0.00	-77.08	0.00	77.08	1,292.96	646.48	1,159.52	572.64	7.82	-0.72	0.039
110.00	-10.97	-1.95	0.00	-67.37	0.00	67.37	1,247.09	623.55	1,077.74	532.25	8.59	-0.74	0.035
110.00	-10.97	-1.95	0.00	-67.37	0.00	67.37	853.22	426.61	741.75	366.32	8.59	-0.74	0.042
110.00	-10.32	-1.96	0.00	-67.37	0.00	67.37	853.22	426.61	741.74	366.32	8.59	-0.74	0.041
115.00	-10.20	-1.96	0.00	-57.59	0.00	57.59	834.98	417.49	698.66	345.04	9.38	-0.77	0.036
115.94	-10.02	-1.96	0.00	-55.75	0.00	55.75	831.44	415.72	690.62	341.07	9.53	-0.77	0.035
115.94	-10.02	-1.96	0.00	-55.75	0.00	55.75	831.44	415.72	690.62	341.07	9.53	-0.77	0.176
118.00	-7.04	-1.90	0.00	-51.72	0.00	51.72	823.53	411.76	672.98	332.36	9.87	-0.78	0.164
120.00	-6.83	-1.90	0.00	-47.92	0.00	47.92	815.69	407.84	655.93	323.94	10.21	-0.83	0.156
123.00	-6.59	-1.89	0.00	-42.22	0.00	42.22	803.62	401.81	630.51	311.38	10.75	-0.90	0.144
125.00	-6.26	-1.87	0.00	-38.44	0.00	38.44	795.36	397.68	613.66	303.06	11.13	-0.94	0.135
130.00	-5.94	-1.83	0.00	-29.10	0.00	29.10	774.00	387.00	571.95	282.46	12.17	-1.03	0.111
135.00	-5.63	-1.78	0.00	-19.94	0.00	19.94	751.59	375.80	530.89	262.19	13.29	-1.11	0.084
140.00	-3.01	-1.15	0.00	-11.06	0.00	11.06	728.15	364.07	490.59	242.29	14.49	-1.17	0.050
145.00	-2.76	-1.06	0.00	-5.32	0.00	5.32	694.01	347.01	444.97	219.76	15.74	-1.20	0.028
150.00	0.00	-1.01	0.00	0.00	0.00	0.00	659.14	329.57	401.13	198.10	17.00	-1.22	0.000



Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:21 AM

Customer: VERIZON WIRELESS

### Analysis Summary

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	27.16	0.00	46.15	0.00	0.00	2784.13	115.94	0.89
0.9D + 1.6W	26.93	0.00	34.60	0.00	0.00	2702.19	115.94	0.85
1.2D + 1.0Di + 1.0Wi	11.42	0.00	77.41	0.00	0.00	1226.38	115.94	0.42
(1.2 + 0.2Sds) * DL + E ELFM	1.51	0.00	45.98	0.00	0.00	193.61	115.94	0.09
(1.2 + 0.2Sds) * DL + E EMAM	2.33	0.00	45.98	0.00	0.00	291.10	115.94	0.19
(0.9 - 0.2Sds) * DL + E ELFM	1.51	0.00	32.00	0.00	0.00	188.80	115.94	0.08
(0.9 - 0.2Sds) * DL + E EMAM	2.32	0.00	32.00	0.00	0.00	283.21	115.94	0.18
1.0D + 1.0W	6.27	0.00	38.51	0.00	0.00	634.58	115.94	0.21

Site Number: 302488

Code: ANSI/TIA-222-G

© 2007 - 2020 by ATC IP LLC. All rights reserved.

Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:21 AM

Customer: VERIZON WIRELESS

Additional Steel Summary

			Intermediate Connectors				Max Member		
Elev From (ft)	Elev To (ft)	Member	VQ/I (lb/in)	Shear Applied (kips)	Shear phiVn (kips)	Ratio	Pu (kip)	phiPn (kip)	Ratio
0.00	9.50	(4) SOL-#20 All Thread Bar	244.8	9.8	16.8	0.582	291.0	313.6	0.928
9.50	91.67	(4) SOL-#20 All Thread Bar	352.2	10.6	16.8	0.629	282.7	330.5	0.855
91.67	115.94	(3) SOL-#20 All Thread Bar	385.6	11.6	16.8	0.688	181.6	330.5	0.549

			Upper Termination Connectors				Lower Termination Connectors					
Elev From (ft)	Elev To (ft)	Member	MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Ratio	MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Ratio
0.00	9.50	(4) SOL-#20 All Thread Bar	0.0	12.0	0	0	0.000	0.0	12.0	0	0	0.000
9.50	91.67	(4) SOL-#20 All Thread Bar	165.0	12.0	14	14	0.982	0.0	12.0	0	0	0.000
91.67	115.94	(3) SOL-#20 All Thread Bar	99.0	12.0	9	12	0.687	179.0	12.0	15	16	0.932



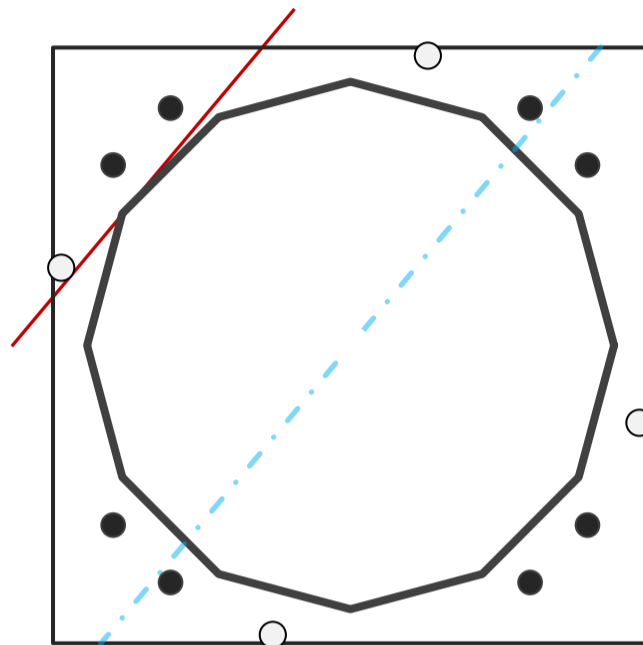
## Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	12	-
Diameter	37.38	in
Thickness	3/8	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	2784.1	k-ft
Axial, Pu	46.2	k
Shear, Vu	27.2	k
Neutral Axis	50	°

Report Capacities		
Component	Capacity	Result
Base Plate	64%	Pass
Anchor Rods	90%	Pass
Dwyidag	70%	Pass

Base Plate		
Shape	Square	-
Width	44	in
Thickness	2 1/2	in
Grade	A572-60	
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	0	in
Orientation Offset	0	°
Anchor Rod Detail	c	$\eta=0.55$
Clear Distance	N/A	in
Applied Moment, Mu	1334.3	k
Bending Stress, $\phi Mn$	2075.2	k



Dwyidag Reinforcement		
Quantity	4	-
Bar Size	#20	in
Diameter, $\phi$	2.5	in
Bracket Type	Angle	-
Circle	44.26	in
Orientation Offset	-15	°
Applied Force, Pu	274.3	k
Dwyidag Bar, $\phi Pn$	392.7	k

Original Anchor Rods		
Arrangement	Cluster	-
Quantity	8	-
Diameter, $\phi$	2 1/4	in
Bolt Circle	44	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset	0	°
Applied Force, Pu	232.7	k
Anchor Rods, $\phi Pn$	259.8	k

# Calculations for Monopole Base Plate & Anchor Rod Analysis

## Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	27.2	1684.7	0.61
Anchor Rod Forces	27.2	1684.7	0.61
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	1099.4	0.39
Stiffener Forces	0.0	0.0	0.00

## Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in <sup>2</sup>	in <sup>2</sup>	in <sup>4</sup>	#	in <sup>4</sup>
Pole	43.0992	3.5916	0.1692		7379.37
Bolt	3.9761	3.2477	0.8393	4.5	6294.24
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	4.9087	4.9087	1.9175		4815.65
Stiffener	0.0000	0.0000	0.0000		0.00

### Base Plate

Shape	Square	-
Width, W	44	in
Thickness, t	2.5	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Base Plate Chord	23.211	in
Detail Type	c	-
Detail Factor	0.55	-
Clear Distance	N/A	-

### Anchor Rods

Anchor Rod Quantity, N	8	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	44	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	232.7	k
Applied Shear, Vu	0.3	k
Compressive Capacity, $\phi P_n$	259.8	k
Tensile Capacity, $\phi R_n$	0.896	OK
Interaction Capacity	0.898	OK

### External Base Plate

Chord Length AA	24.595	in
Additional AA	0.000	in
Section Modulus, Z	38.430	in <sup>3</sup>
Applied Moment, Mu	1334.3	k-ft
Bending Capacity, $\phi M_n$	2075.2	k-ft
Capacity, Mu/ $\phi M_n$	0.643	OK
Chord Length AB	23.268	in
Additional AB	0.000	in
Section Modulus, Z	36.356	in <sup>3</sup>
Applied Moment, Mu	1029.0	k-ft
Bending Capacity, $\phi M_n$	1963.2	k-ft
Capacity, Mu/ $\phi M_n$	0.524	OK
Bend Line Length	0.000	in
Additional Bend Line	0.000	in
Section Modulus, Z	0.000	in <sup>3</sup>
Applied Moment, Mu	0.0	k-ft
Bending Capacity, $\phi M_n$	0.0	k-ft
Capacity, Mu/ $\phi M_n$		

### Internal Base Plate

Arc Length	0.000	in
Section Modulus, Z	0.000	in <sup>3</sup>
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, $\phi M_n$	0.0	k-ft
Capacity, Mu/ $\phi M_n$		

### Dywidag Reinforcement

Dywidag Quantity, N	4	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	44.26	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	274.3	k
Compressive Capacity, $\phi P_n$	392.7	k
Capacity, Pu/ $\phi P_n$	0.698	OK

# Flange Plate Analysis

<b>Flange Plate</b>	Plate Type	<b>Flange</b>	<b>@ 110 ft</b>
	Pole Diameter	21.25	in
	Pole Thickness	3/16	in
	Plate Diameter	28 1/2	in
	Plate Thickness	1	in
	Plate Fy	60	ksi
	Weld Length	1/4	in
	f <sub>s</sub> Resistance	148.00	k-in
	Applied	83.85	k-in

Code Rev.	<b>G</b>
Moment	383.1 k-ft
Axial	13.8 k

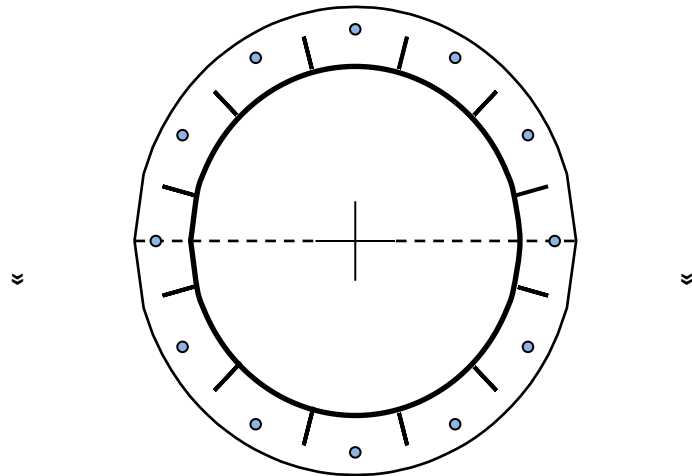
Date	8/14/2020
Engineer	I. Dodson
Site #	302488
Carrier	Verizon Wireless

<b>Stiffeners</b>	#	<b>12</b>	<b>Show</b>
	Thickness	1/4	in
	Length	3	in
	Height	6	in
	Chamfer	3/4	in
	Offset Angle	0	°
	Fy	36	ksi

<b>Bolts</b>	#	<b>12</b>	
	Bolt Circle	25.75	in
	(R)adial / (S)quare	R	
	Diameter	1	in
	Hole Diameter	1 1/8	in
	Type	A490	
	Fy	130	ksi
	Fu	150	ksi
	f <sub>s</sub> Resistance	68.15	k
Applied	58.33	k	

<b>Reinforcement</b>	#	<b>0</b>	
----------------------	---	----------	--

<b>Extra Bolts</b>	#	<b>0</b>	
--------------------	---	----------	--



**Plate Stress Ratio:**  
57% Pass

**Bolt Stress Ratio:**  
86% Pass

**Site Name:** Cntn - Canton, CT  
**Site Number:** 302488  
**Tower Type:** MP  
**Design Loads (Factored) - Analysis per TIA-222-G Standards**

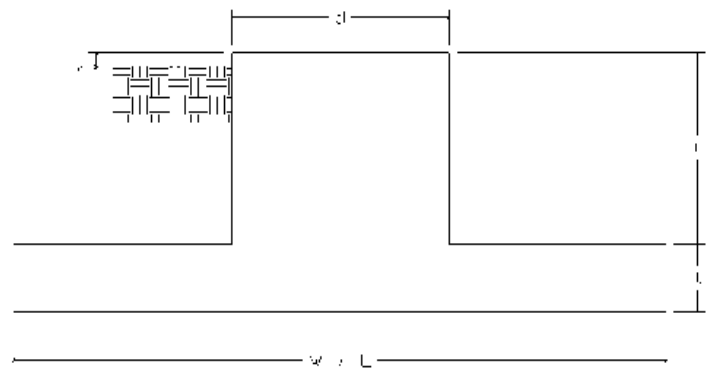
## Monolithic Mat & Pier Foundation Analysis

Foundation Analysis Parameters		
Design / Analysis / Mapping:	Mapping	-
Compression/Leg:	46.2	k
Uplift/Leg:		k
Total Shear:	27.2	k
Moment:	2,784.1	k-ft
Tower + Appurtenance Weight:	46.2	k
Depth to Base of Foundation (l + t - h):	5.375	ft
Diameter of Pier (d):	4.958333	ft
Length of Pier (l):	4.125	ft
Height of Pier above Ground (h):	0.75	ft
Width of Pad (W):	26	ft
Length of Pad (L):	26	ft
Thickness of Pad (t):	2	ft
Tower Leg Center to Center:	0	ft
Number of Tower Legs:	1	-
Tower Center from Mat Center:	0	ft
Depth Below Ground Surface to Water Table:	3.5	ft
Unit Weight of Concrete:	150	pcf
Unit Weight of Soil Above Water Table:	115	pcf
Unit Weight of Water:	62.4	pcf
Unit Weight of Soil Below Water Table:	52.6	pcf
Friction Angle of Uplift:	15	°
Coefficient of Shear Friction:	0.35	-
Ultimate Compressive Bearing Pressure:	12,000	psf
Ultimate Passive Pressure on Pad Face:	0	psf
$f_{\text{Soil and Concrete Weight}}$ :	0.9	-
$f_{\text{Soil}}$ :	0.75	-

Overturning Moment Usage		
Design OTM:	2950.5	k-ft
OTM Resistance:	5276.8	k-ft
Design OTM / OTM Resistance:	56%	Pass

Soil Bearing Pressure Usage		
Net Bearing Pressure:	1217	psf
Factored Nominal Bearing Pressure:	9000	psf
Factored Nominal (Net) Bearing Pressure:	14%	Pass
Load Direction Controlling Design Bearing Pressure:	<i>Diagonal to Pad Edge</i>	

Sliding Factor of Safety		
Ultimate Friction Resistance:	150.1	k
Ultimate Passive Pressure Resistance:	0.0	k
Total Factored Sliding Resistance:	112.6	k
Sliding Design / Sliding Resistance:	24%	Pass





**AMERICAN TOWER®**  
CORPORATION

---

## Antenna Mount Analysis Report

**ATC Site Name** : Cntn - Canton, CT  
**ATC Site Number** : 302488  
**Engineering Number** : 13201406\_C8\_03  
**Mount Elevation** : 118 ft  
**Carrier** : Verizon Wireless  
**Carrier Site Name** : CANTON 3 CT  
**Carrier Site Number** : 467157  
**Site Location** : 4 Hoffmann Road  
Canton, CT 06019-2122  
41.85527778 , -72.8925  
**County** : Hartford  
**Date** : April 8, 2020  
**Max Usage** : 38%  
**Result** : Pass

Prepared By:  
Michael Ellis  
Structural Engineer

Reviewed By:



**COA: PEC.0001553**



**Table of Contents**

Introduction ..... 1

Supporting Documents..... 1

Analysis..... 1

Conclusion..... 1

Antenna Loading..... 2

Structure Usages..... 2

Mount Layout ..... 3

Equipment Layout ..... 4

Standard Conditions .....7

Calculations ..... Attached





## Introduction

The purpose of this report is to summarize results of the antenna mount analysis performed for Verizon Wireless at 118 ft.

## Supporting Documents

<b>Specifications Sheet</b>	Pite Pro RMQP-496-HK, dated July 14, 2014
<b>Radio Frequency Data Sheet</b>	RFDS ID #467157, dated February 4, 2020

## Analysis

This antenna mount was analyzed using American Tower Corporation's Mount Analysis Program and RISA-3D

<b>Basic Wind Speed:</b>	93 mph (3-Second Gust, Vasd) / 119 mph (3-Second Gust, Vult)
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-Second Gust) w/ 1" radial ice concurrent
<b>Codes:</b>	ANSI/TIA-222-G/2015 IBC/2018 Connecticut State Building Code
<b>Structure Class:</b>	II
<b>Exposure Category:</b>	B
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Spectral Response:</b>	Ss = 0.179, S1 = 0.065
<b>Site Class:</b>	D - Stiff Soil
<b>Live Loads:</b>	Lm = 500 lbs

## Conclusion

Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above. The mount can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at [Engineering@americantower.com](mailto:Engineering@americantower.com). Please include the American Tower site name, site number, and engineering number in the subject line for any questions.



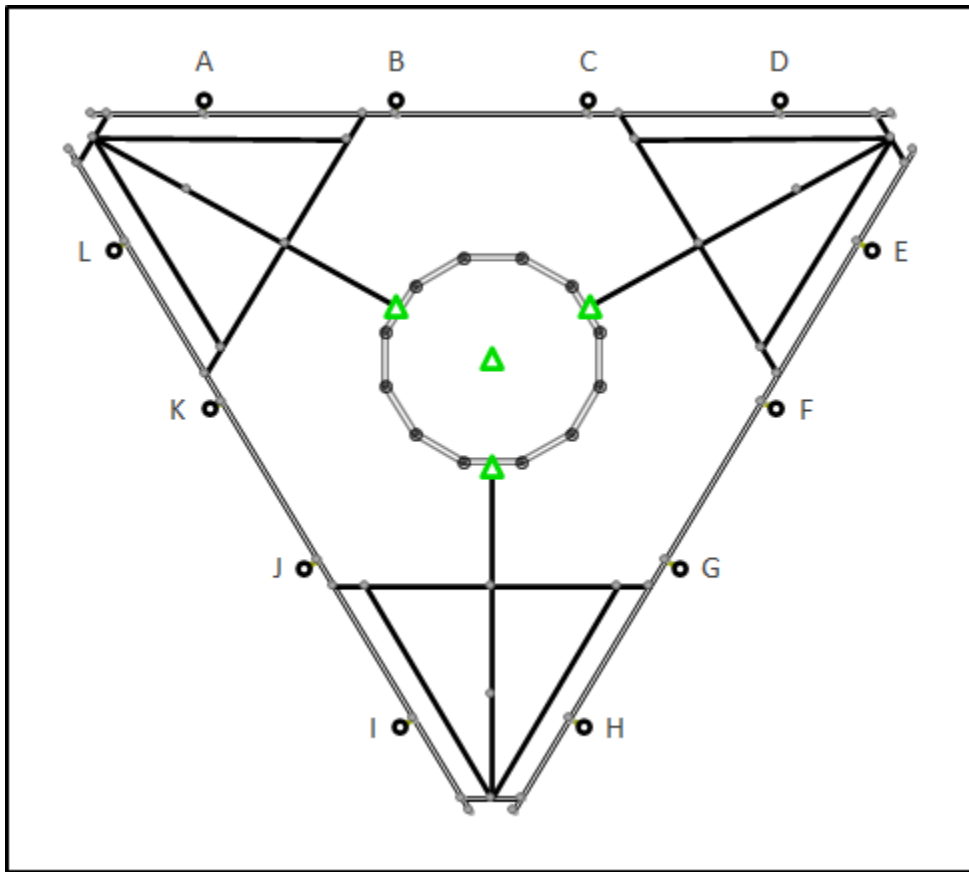
**Application Loading**

Mount Centerline (ft)	Antenna Centerline (ft)	Qty	Antenna Model
118.0	118.0	6	Commscope NHH-65B-R2B
		1	Raycap RCMDC-6627-PF-48
		3	Samsung B5/B13 RRH-BR04C
		3	Samsung B2/B66A RRH-BR049

**Structure Usages**

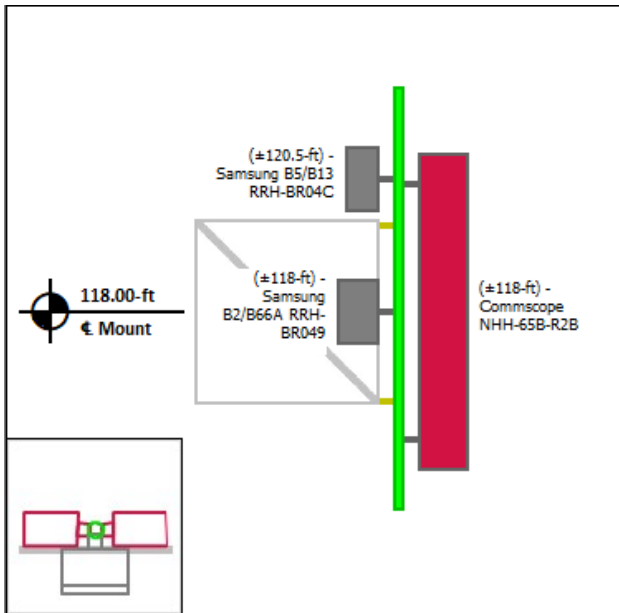
Structural Component	Controlling Usage	Pass/Fail
Horizontals	28%	Pass
Diagonals	11%	Pass
Mount Pipes	38%	Pass
Handrail	7%	Pass

**Mount Layout**

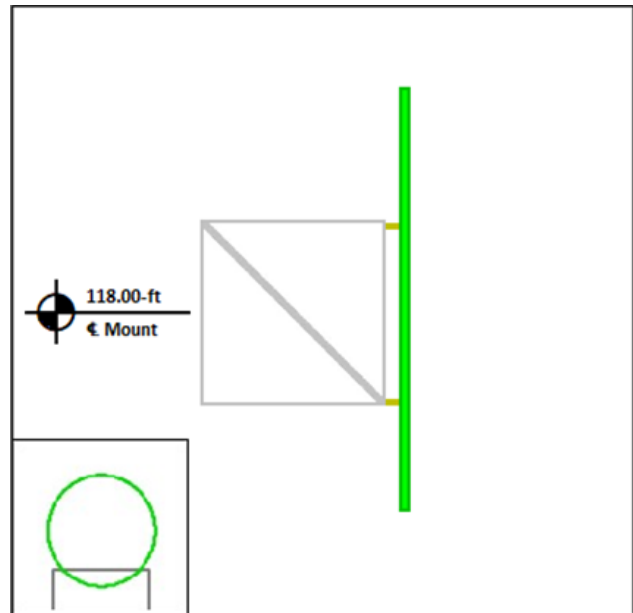


**Equipment Layout**

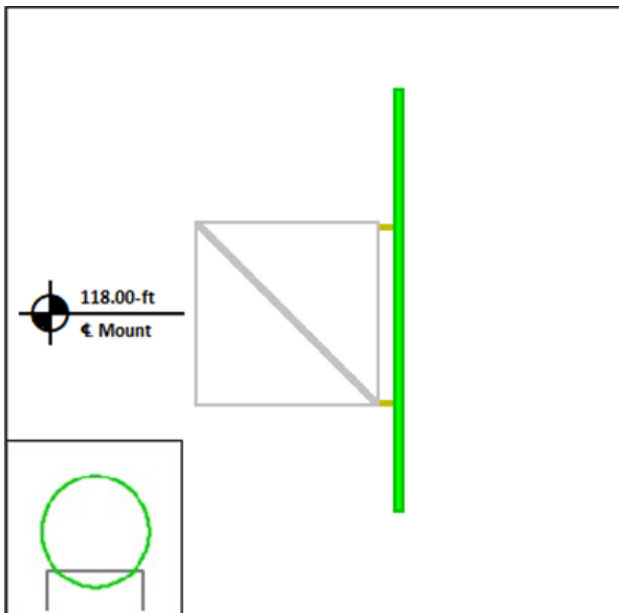
**Mount Pipe A**



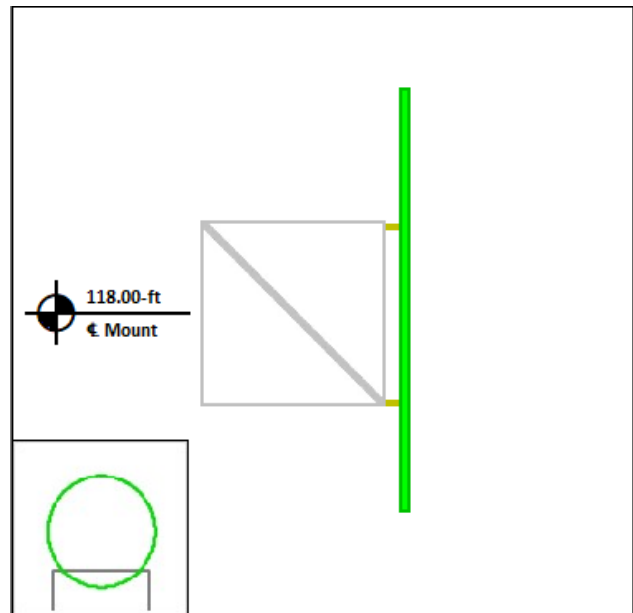
**Mount Pipe B**



**Mount Pipe C**

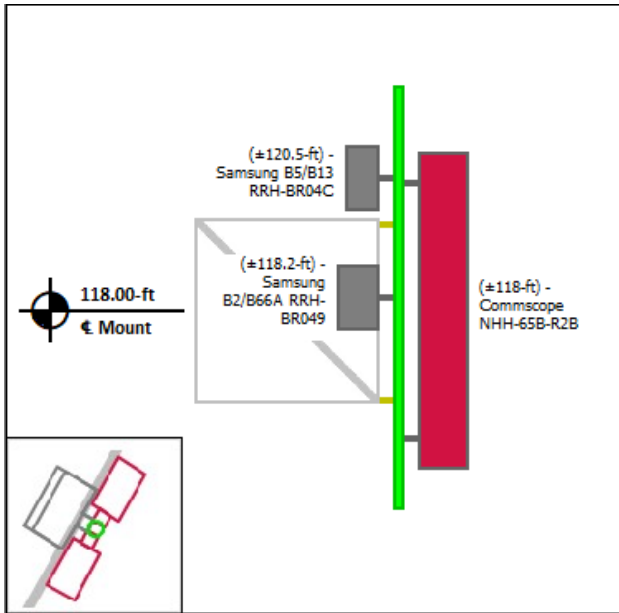


**Mount Pipe D**

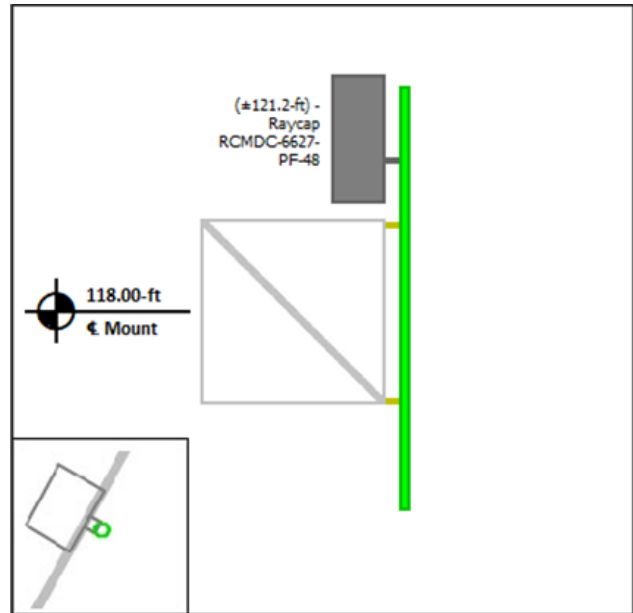


**Equipment Layout Cont'd.**

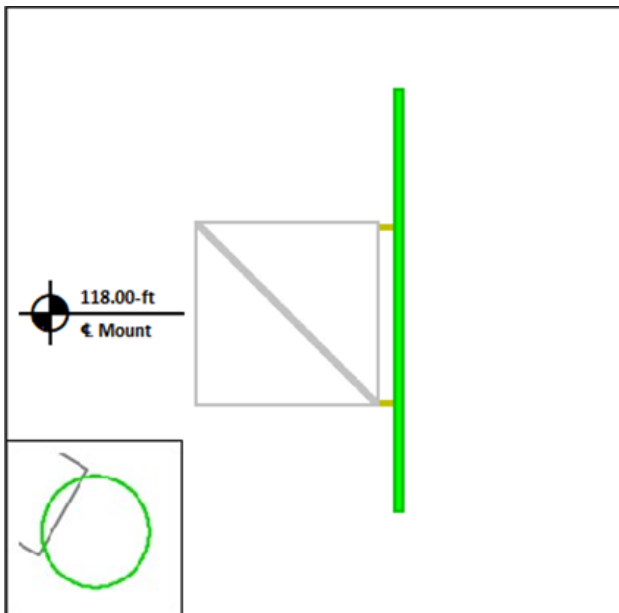
**Mount Pipe E**



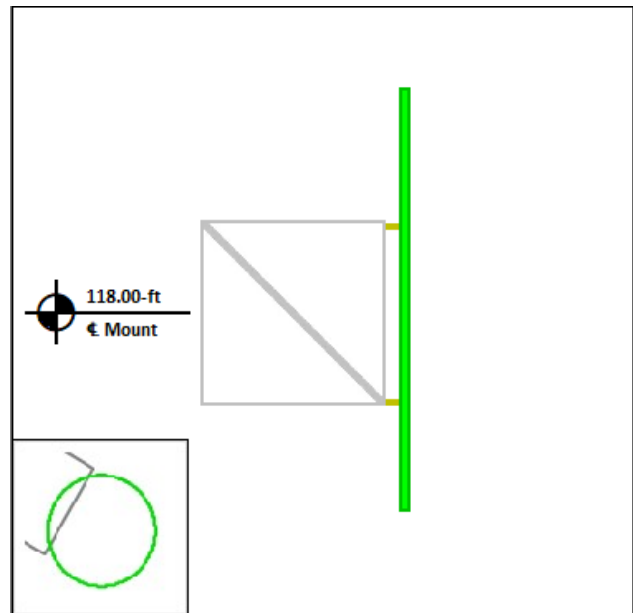
**Mount Pipe F**



**Mount Pipe G**

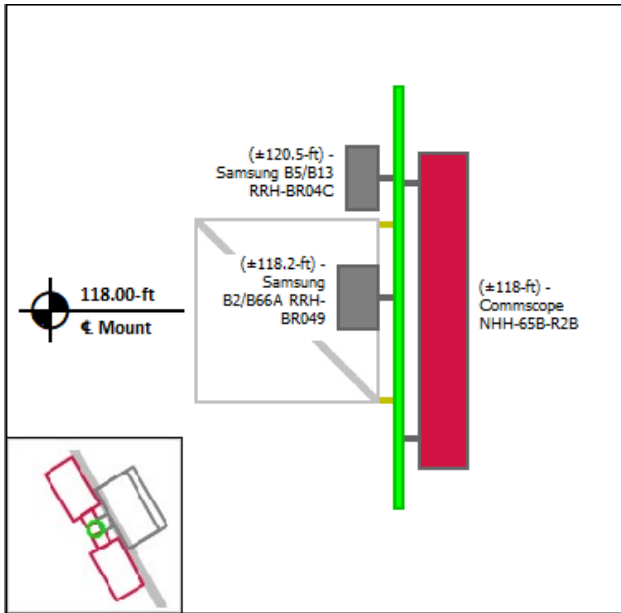


**Mount Pipe H**

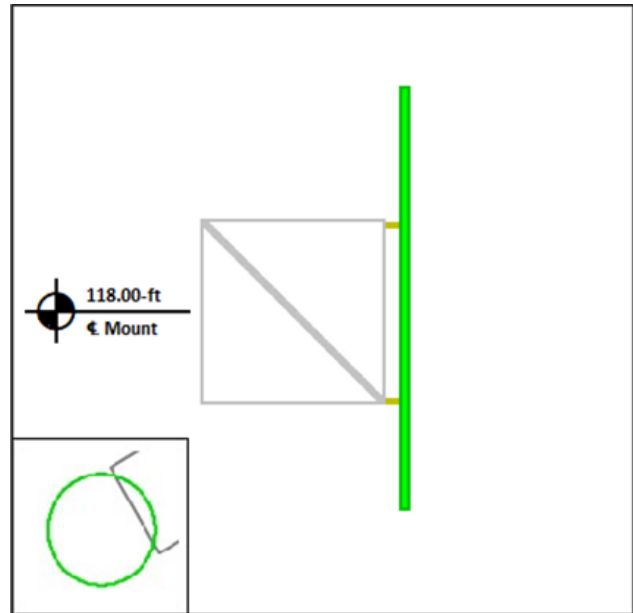


**Equipment Layout Cont'd.**

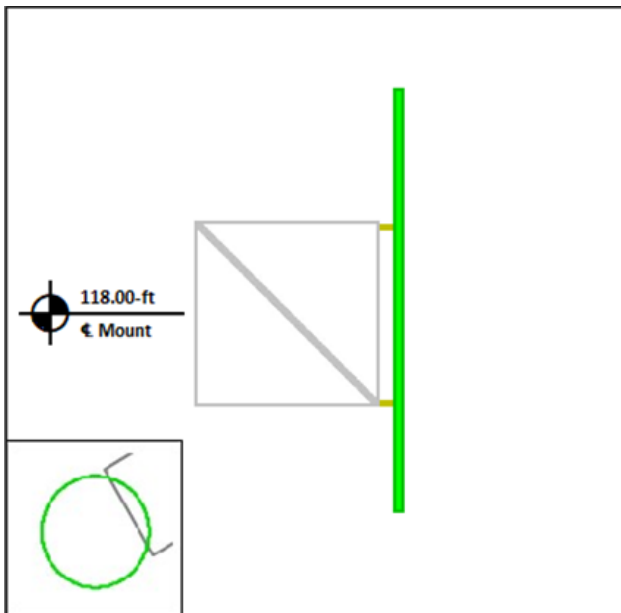
**Mount Pipe I**



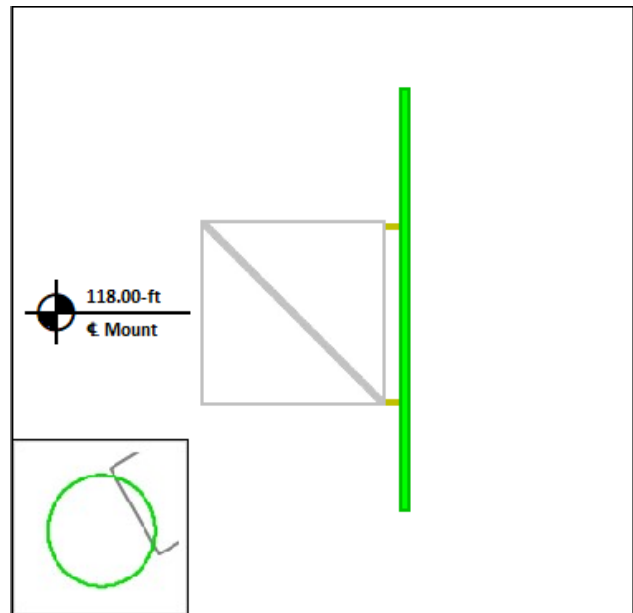
**Mount Pipe J**



**Mount Pipe K**



**Mount Pipe L**





### **Standard Conditions**

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

All connections are to be verified for condition and tightness by the installation contractor preceding any changes to the appurtenance mounting system and/or equipment attached to it.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.



**Site Number:** 302488  
**Project Number:** 13201406\_C8\_03  
**Carrier:** Verizon Wireless  
**Mount Elevation:** 118 ft  
**Date:** 4/8/2020

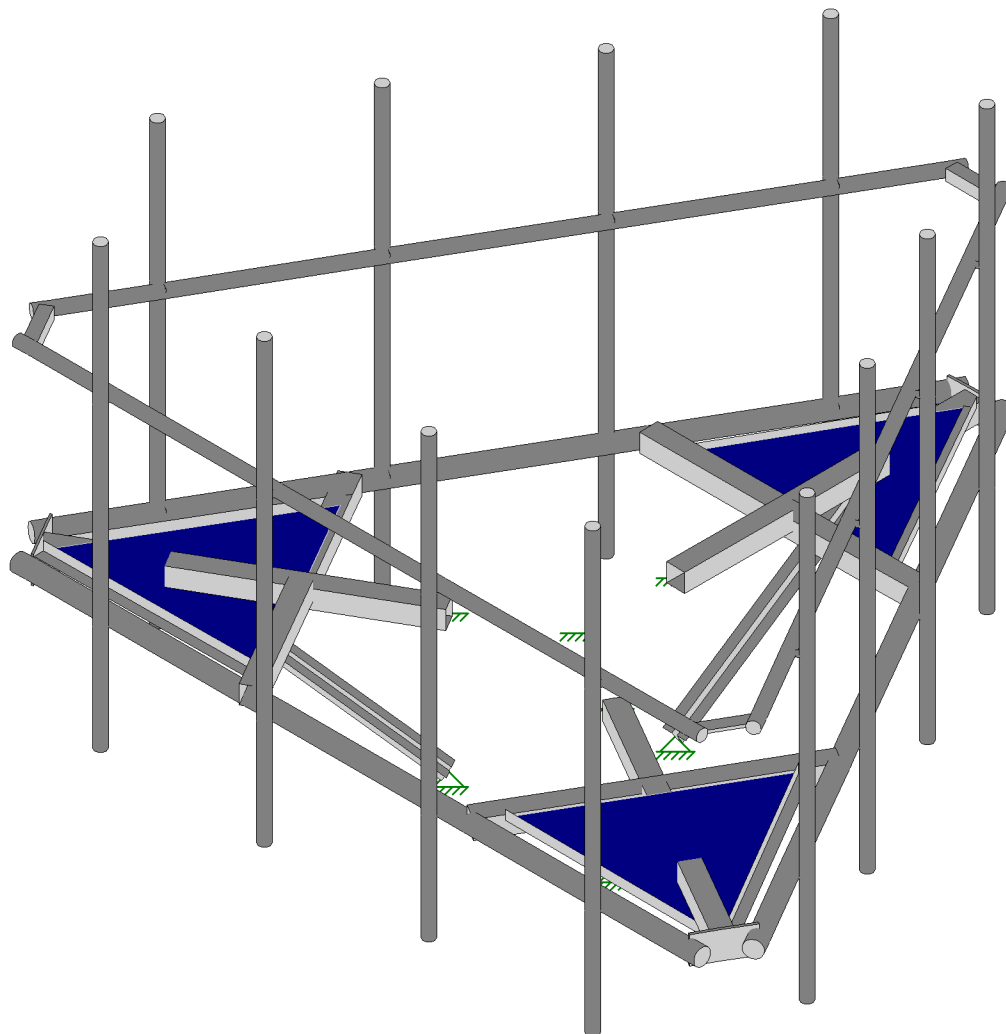
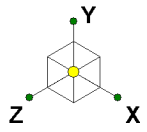
## Mount Analysis Force Calculations

Wind & Ice Load Calculations			
Velocity Pressure Coefficient	$K_z$	1.04	
Topographic Factor	$K_{zt}$	1.00	
Rooftop Wind Speed-up Factor	$K_s$	1.00	
Shielding Factor	$K_a$	0.90	
Ground Elevation Factor	$K_e$	1.00	
Wind Direction Probability Factor	$K_d$	0.95	
Basic Wind Speed	$V$	93	mph
Velocity Pressure	$q_z$	21.8	psf
Height Escalation Factor	$K_{iz}$	1.14	
Thickness of Radial Glaze Ice	$T_{iz}$	2.27	in

Seismic Load Calculations			
Short Period DSRAP	$S_{DS}$	0.191	
1 Second DSRAP	$S_{D1}$	0.104	
Importance Factor	$I$	1.0	
Response Modification Coefficient	$R$	2.0	
Seismic Response Coefficient	$C_s$	0.095	
Amplification Factor	$A$	1.0	
Total Weight	$W$	980.9	lbs
Total Shear Force	$V_s$	93.6	lbs
Horizontal Seismic Load	$E_h$	93.6	lbs
Vertical Seismic Load	$E_v$	37.5	lbs

Antenna Calculations								
Equipment	Height	Width	Depth	Weight	$EPA_N$	$EPA_T$	$EPA_{Ni}$	$EPA_{Ti}$
Model #	in	in	in	lbs	sqft	sqft	sqft	sqft
Commscope NHH-65B-R2B	72.0	11.9	7.1	43.7	8.08	2.54	11.87	4.42
Raycap RCMDC-6627-PF-48	29.5	16.5	12.6	32.0	4.06	3.10	5.97	4.86
Samsung B5/B13 RRH-BR04C	15.0	15.0	8.1	70.3	1.88	1.01	3.18	2.06
Samsung B2/B66A RRH-BR049	15.0	15.0	10.0	84.4	1.88	1.25	3.18	2.37





American Tower Corp.

Michael.Ellis

13201406\_C8\_03

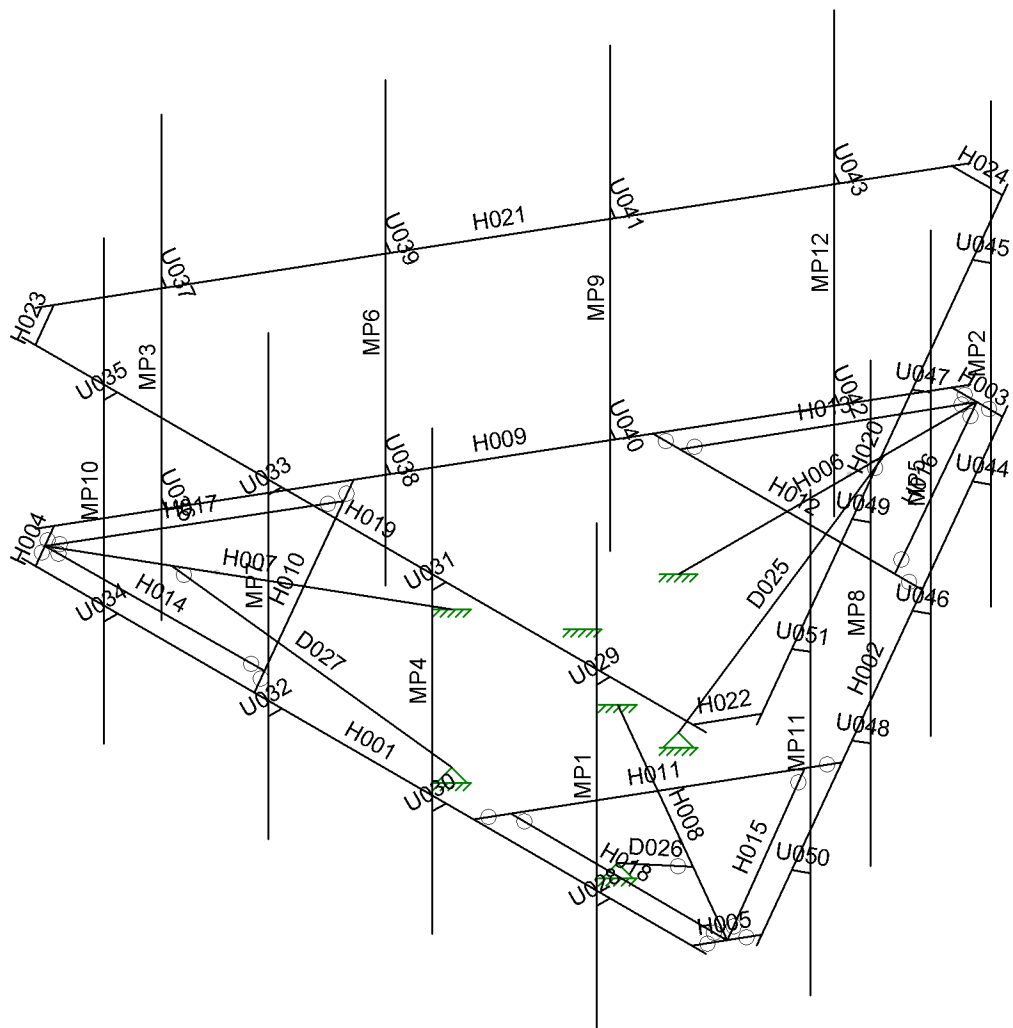
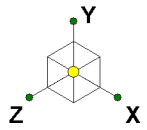
302488, Cntn - Canton

3D Rendering

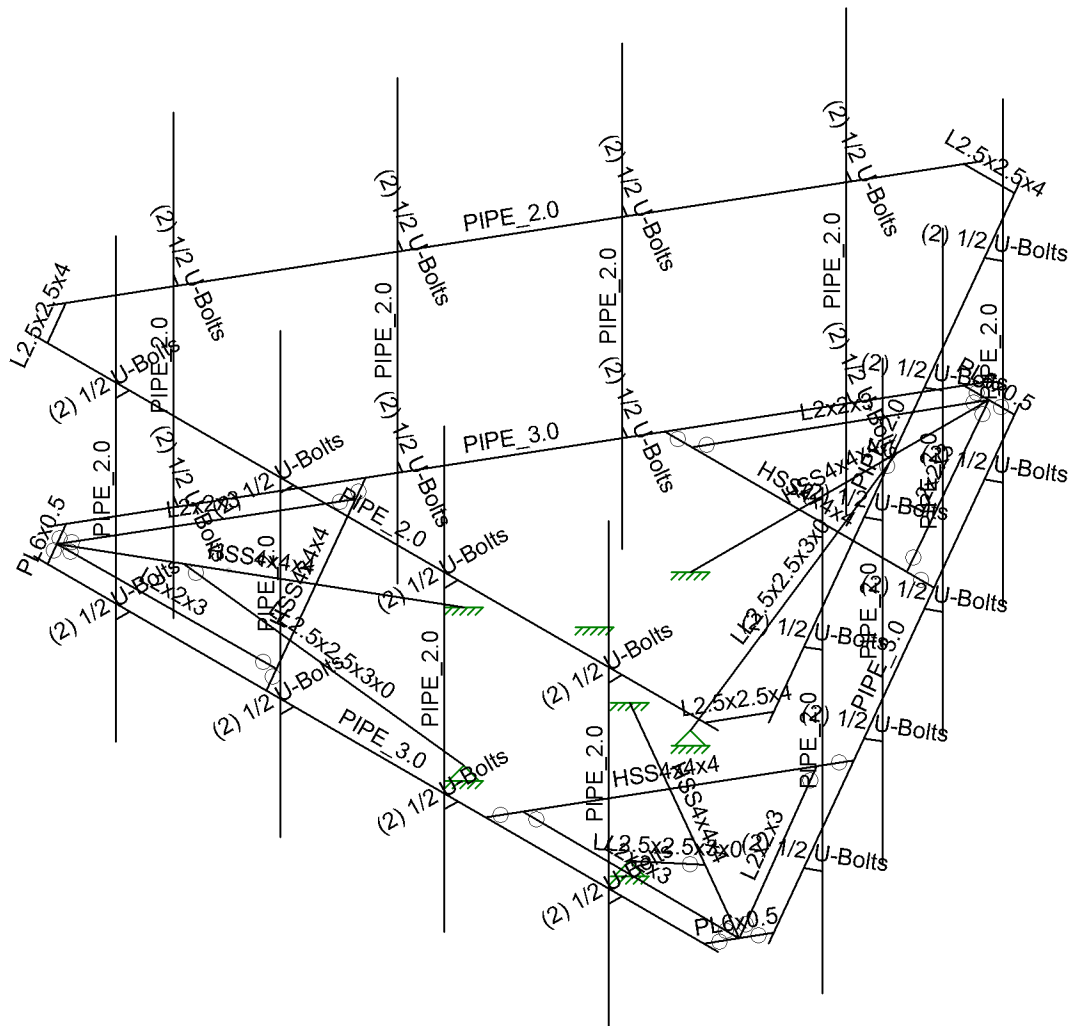
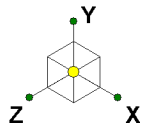
SK - 1

Apr 8, 2020 at 10:14 AM

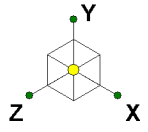
R3D. VERIZON WIRELESS @ 302...



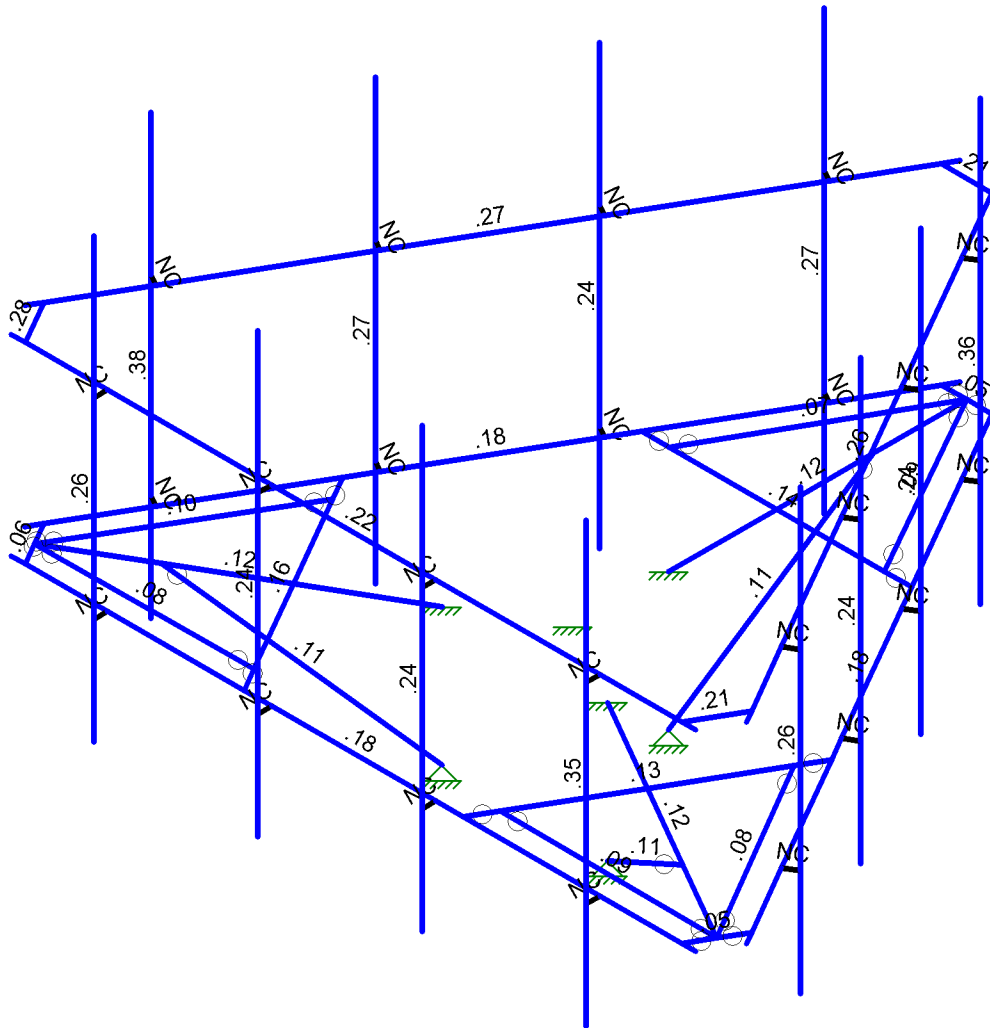
American Tower Corp.	302488, Cntn - Canton Member Labels	SK - 2
Michael.Ellis		Apr 8, 2020 at 10:14 AM
13201406_C8_03		R3D. VERIZON WIRELESS @ 302...



American Tower Corp.	302488, Cntn - Canton Member Shapes	SK - 3
Michael.Ellis		Apr 8, 2020 at 10:14 AM
13201406_C8_03		R3D. VERIZON WIRELESS @ 302...

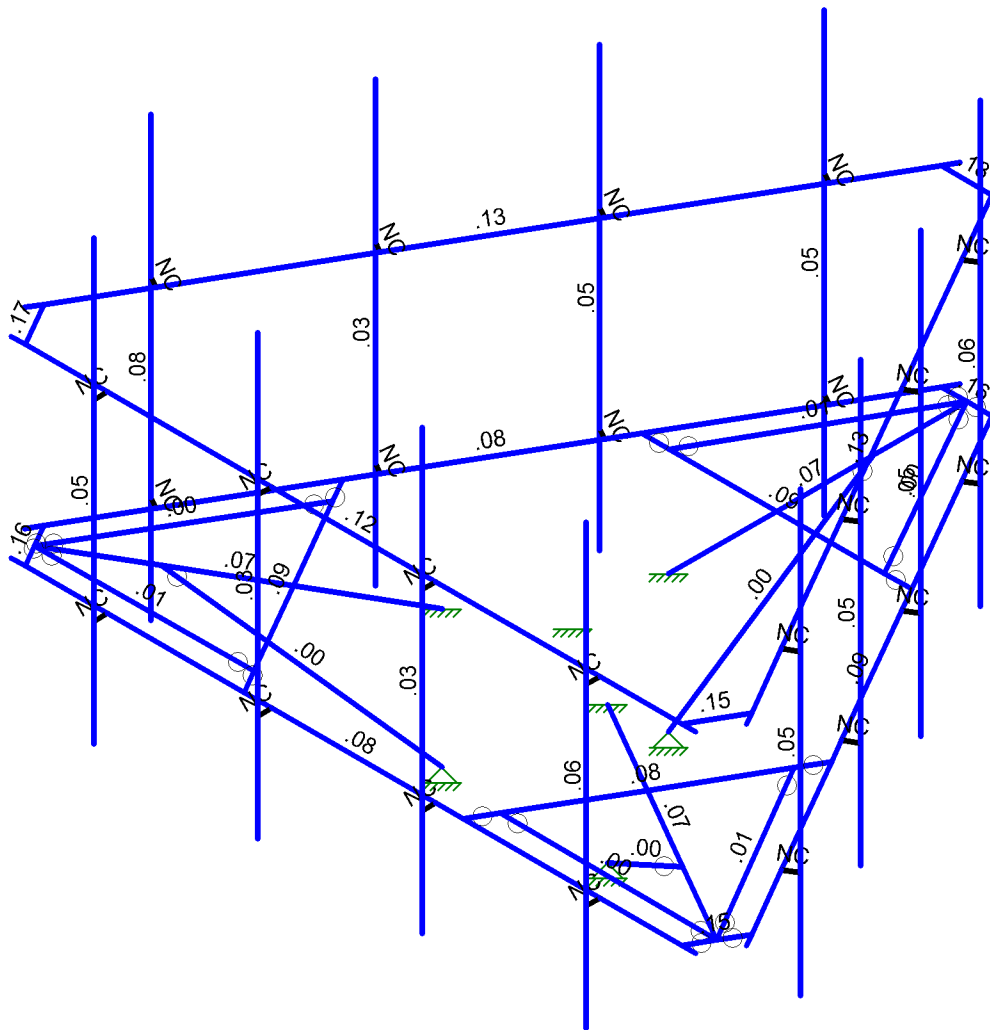
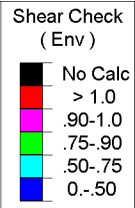
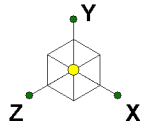


Code Check (Env)	
Black	No Calc
Red	> 1.0
Magenta	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50



Member Code Checks Displayed (Enveloped)  
Results for LC 1, 1.4D

American Tower Corp.	302488, Cntn - Canton Unity Bending Checks	SK - 4
Michael.Ellis		Apr 8, 2020 at 10:15 AM
13201406_C8_03		R3D. VERIZON WIRELESS @ 302...



Member Shear Checks Displayed (Enveloped)  
Results for LC 1, 1.4D

American Tower Corp.	302488, Cntn - Canton	SK - 5
Michael.Ellis		Apr 8, 2020 at 10:15 AM
13201406_C8_03	Shear Checks	R3D. VERIZON WIRELESS @ 302...



Ó[ { | aþ ^ K OÆ s[ aæ A[ , ^ ÁÓ[ ] É  
 Ô^ a } ^ K T & @ | D | a  
 R[ a ^ ^ { a ^ K FHGEF é ' Ói ' eH  
 T[ a ^ A p æ ^ K HEG i i EÓ; q AZOæ d }

O[ : Á É O E E  
 F e K í Á O F  
 Ô @ & ^ a Á Ó ^ K E

**>c]bh7ccfX]bUhYg'UbX'HYa dYfUi fyG**

	Saa^	YÁá	YÁá	ZÁá	V^ ] ÁOá	Ôca&@  { ÁOá E
F	p e e F	F é	F é	F é	€	
G	p e e G	F é	F é	i i	€	
H	p e e H	i j E F H i i	F é	F F i E	€	
I	p e e I	F G E i i i H H	F é	F F i E	€	
Í	p e e Í	F i H	F é	F i i	€	
Î	p e e Î	F F G E i J G F J	F é	F J E i e j	€	
Ï	p e e Ï	G E H E i F	F é	F i i B i F j e	€	
Ì	p e e Ì	H H	F é	F i i	€	
J	p e e J	F i i E i J G F J	F é	F i i B i F j e	€	
F€	p e e F€	F e H E i F	F é	F J E i e j	€	
FF	p e e FF	F i e	F é	F i i	€	
FG	p e e FG	F F H E i J G F J	F é	G F E i i F i F	€	
FH	p e e FH	H E H E i F	F é	F i i E i H G J	€	
FI	p e e FI	H i	F é	F i i	€	
FÍ	p e e FÍ	F i i E i J G F J	F é	F i i E i H G J	€	
FÏ	p e e FÏ	F e G E H E i F	F é	G F E i i F i F	€	
FÌ	p e e FÌ	F e	F é	G F E i i F i F	€	
Fİ	p e e Fİ	H E G F i H J	F é	F i F E i i J F i	€	
FJ	p e e FJ	F i G E i i F	F é	F i F E i i J F i	€	
G€	p e e G€	F H E i J G F J	F é	i H G F i H J	€	
GF	p e e GF	i i E H E i F	F é	F e E i i F	€	
GG	p e e GG	F H G	F é	F i i	€	
GH	p e e GH	i i E H E i F	F é	i H G F i H J	€	
G	p e e G	i i E	F é	F i i	€	
G	p e e G	F i F E i J G F J	F é	F e E i i F	€	
G	p e e G	F e	F é	i H G F i H J	€	
G	p e e G	i J G F i H J	F é	F H E i U G H e	€	
G	p e e G	F i i E i i F	F é	F H E i U G H e	€	
GJ	p e e GJ	i i E H E i F	F é	i H G F i H J	€	
H€	p e e H€	i F E	F é	F i e e H i i	€	
HF	p e e HF	F i i E i J G F J	F é	F e j B i e i G	€	
HG	p e e HG	F H E i J G F J	F é	i H G F i H J	€	
HH	p e e HH	i i E H E i F	F é	F e j B i e i G	€	
HI	p e e HI	F H	F é	F i e e H i i	€	
HÍ	p e e HÍ	F i H	F i e	F i i	€	
HÏ	p e e HÏ	F F G E i J G F J	F i e	F J E i e j	€	
HÌ	p e e HÌ	H H	F i e	F i i	€	
Hİ	p e e Hİ	F i i E i J G F J	F i e	F i i B i F j e	€	
HJ	p e e HJ	G E H E i F	F i e	F i i B i F j e	€	
I€	p e e I€	F e H E i F	F i e	F J E i e j	€	
IF	p e e IF	F i e	F i e	F i i	€	
IG	p e e IG	F F H E i J G F J	F i e	G F E i i F i F	€	
IH	p e e IH	H E H E i F	F i e	F i i E i H G J	€	
II	p e e II	H i	F i e	F i i	€	
IÍ	p e e IÍ	F i i E i J G F J	F i e	F i i E i H G J	€	
IÏ	p e e IÏ	F e G E H E i F	F i e	G F E i i F i F	€	



0[ { ] a ^ K Q E A a a A [ , A / O [ ] E  
 O ^ a } A K T a a a [ ] a  
 P a A ^ { a ^ K F H G E F I e ' O i ' e H  
 T [ a ^ / p a e ^ K H E G i i E O } q A Z O a q }

O q : A E a G E E  
 F e K i A O F  
 O @ & ^ a A O ' K E

**>c]bh7ccfX]bUHyg'UbX'HYa dYUhi fYg'f7 cb]bi YXL**

	Saa\	YAá	YAá	ZAAá	V\ ] Aza	O^ca&O[ { / Oaa] E
I	b e i	F e	i	i	e	
I	b e i	i J e F H i i	i	F F i e	e	
I J	b e J	F G e i i H	i	F F i e	e	
I e	b e e	F e	F e	I G	e	
I F	b e F	i e i G H	F e	F I F	e	
I G	b e G	F i i e i i i	F e	F I F	e	
I H	b e H	F i G	F e	F i J	e	
I i	b e i	F G e i i G i	F e	H i e H i G	e	
I i	b e i	H i e H e i	F e	F G i e i H G	e	
I i	b e i	F G	F e	F i J	e	
I i	b e i	F i H e i i G i	F e	i i e F F i H	e	
I i	b e i	i i e H e i	F e	J i e i i i	e	
I J	b e J	J e	F e	F i J	e	
I e	b e e	F i F e i i G i	F e	J i e i i i	e	
I F	b e F	i e H e i	F e	i i e F F i H	e	
I G	b e G	i	F e	F i J	e	
I H	b e H	F i J e i i G i	F e	F G i e i H G	e	
I i	b e i	J e H e i	F e	H i e H i G	e	
I i	b e i	F i G	F e	F i i	e	
I i	b e i	F i G	F i e	F i J	e	
I i	b e i	F i G	F i e	F i i	e	
I i	b e i	F G	F e	F i i	e	
I J	b e J	F G	F i e	F i J	e	
I e	b e e	F G	F i e	F i i	e	
I F	b e F	J e	F e	F i i	e	
I G	b e G	J e	F i e	F i J	e	
I H	b e H	J e	F i e	F i i	e	
I i	b e i	i	F e	F i i	e	
I i	b e i	i	F i e	F i J	e	
I i	b e i	i	F i e	F i i	e	
I i	b e i	H i e H e i F	F e	F H e i i H G	e	
I i	b e i	H i e H e i	F i e	F G i e i H G	e	
I J	b e J	H i e H e i F	F i e	F H e i i H G	e	
I e	b e e	i i e H e i F	F e	J J e i i i	e	
I F	b e F	i i e H e i	F i e	J i e i i i	e	
I G	b e G	i i e H e i F	F i e	J J e i i i	e	
I H	b e H	i i e H e i F	F e	i i e F F i H	e	
I i	b e i	i e H e i	F i e	i i e F F i H	e	
I i	b e i	i i e H e i F	F i e	i i e F F i H	e	
I i	b e i	J H e H e i F	F e	H i e H i G	e	
I i	b e i	J e H e i	F i e	H i e H i G	e	
I i	b e i	J H e H e i F	F i e	H i e H i G	e	
I J	b e J	F G e i J G F J	F e	H i e H i G	e	
J e	b e e	F G e i i G i	F i e	H i e H i G	e	
J F	b e F	F G e i J G F J	F i e	H i e H i G	e	
J G	b e G	F i e i J G F J	F e	i i e F F i H	e	
J H	b e H	F i H e i i G i	F i e	i i e F F i H	e	
J i	b e i	F i e i J G F J	F i e	i i e F F i H	e	
J i	b e i	F i i e i J G F J	F e	J J e i i i	e	
J i	b e i	F i F e i i G i	F i e	J i e i i i	e	
J i	b e i	F i i e i J G F J	F i e	J J e i i i	e	
J i	b e i	F i i e i J G F J	F e	F H e i i H G	e	







0[ { ] a } ^ K Q E A i a a A [ , A i A O [ ] E  
 O a } A K T a a a i i j a  
 R a A } { a i K F H G E F i e i O i e H  
 T [ a i / p a e ^ K H E G i i E O } q A O a q }

Q i A E G E G E  
 F e K i A O F  
 O e & a a A O i K E

**A Ya Vyf Dfja Ufm8 UUf7 cbh7bi YXL**

	Saa^	Qr a c	Rr a c	SAr a c	U[ cae Q^* D U^& q ] DU ca^	V ] ^	O a } A c	Tae i a e	O a } AU ] ^	
I	P E E	P E F F	P E F I			U S I c e E	O a e	P [ ] ^	O E i G E E	V ] a e e
I	P E E	P E E G	P E F I			P U U I c i c i	O a e	P [ ] ^	O E e O i E E E	V ] a e e
I	P E E	P E E H	P E F I			P U U I c i c i	O a e	P [ ] ^	O E e O i E E E	V ] a e e
I	P E E	P E E I	P E F J			P U U I c i c i	O a e	P [ ] ^	O E e O i E E E	V ] a e e
J	P E E J	P E F E	P E E I			U Q J O H E E	O a e	P [ ] ^	O E H A O i E O	V ] a e e
F E	P E F E	P E G F	P E G I			P U U I c i c i	O a e	P [ ] ^	O E e O i E E E	V ] a e e
F F	P E F F	P E G G	P E G I			P U U I c i c i	O a e	P [ ] ^	O E e O i E E E	V ] a e e
F G	P E F G	P E G E	P E G H			P U U I c i c i	O a e	P [ ] ^	O E e O i E E E	V ] a e e
F H	P E F H	P E F I	P E G J			S G c G c H	O a e	P [ ] ^	O E I	V ] a e e
F I	P E F I	P E F I	P E H E			S G c G c H	O a e	P [ ] ^	O E I	V ] a e e
F I	P E F I	P E F J	P E H F			S G c G c H	O a e	P [ ] ^	O E I	V ] a e e
F I	P E F I	P E F I	P E H G			S G c G c H	O a e	P [ ] ^	O E I	V ] a e e
F I	P E F I	P E F I	P E H H			S G c G c H	O a e	P [ ] ^	O E I	V ] a e e
F I	P E F I	P E F J	P E H I			S G c G c H	O a e	P [ ] ^	O E I	V ] a e e
F J	P E F J	P E H I	P E H I			U Q J O G E E	O a e	P [ ] ^	O E H A O i E O	V ] a e e
G E	P E G E	P E H I	P E H I			U Q J O G E E	O a e	P [ ] ^	O E H A O i E O	V ] a e e
G F	P E G F	P E H E	P E H U			U Q J O G E E	O a e	P [ ] ^	O E H A O i E O	V ] a e e
G G	P E G G	P E H I	P E H F	F i E		S G E c G E c i	O a e	P [ ] ^	O E I	V ] a e e
G H	P E G H	P E H I	P E H H	F i E		S G E c G E c i	O a e	P [ ] ^	O E I	V ] a e e
G	P E G	P E H I	P E H G	F i E		S G E c G E c i	O a e	P [ ] ^	O E I	V ] a e e
G	O E G	P E H E	P E H I			S S G E c G E c H E	O i ] { }	P [ ] ^	O E I	V ] a e e
G	O E G	P E H G	P E H J			S S G E c G E c H E	O i ] { }	P [ ] ^	O E I	V ] a e e
G	O E G	P E H F	P E H I			S S G E c G E c H E	O i ] { }	P [ ] ^	O E I	V ] a e e
G	W E G	P E H H	P E H I			G O F B A V E Q i o	O a e	P [ ] ^	U O D A R i G A E E	V ] a e e
G J	W E G J	P E H I	P E H I			G O F B A V E Q i o	O a e	P [ ] ^	U O D A R i G A E E	V ] a e e
H E	W E H E	P E H I	P E H I			G O F B A V E Q i o	O a e	P [ ] ^	U O D A R i G A E E	V ] a e e
H F	W E H F	P E H J	P E H E			G O F B A V E Q i o	O a e	P [ ] ^	U O D A R i G A E E	V ] a e e
H G	W E H G	P E H J	P E H F			G O F B A V E Q i o	O a e	P [ ] ^	U O D A R i G A E E	V ] a e e
H H	W E H H	P E H G	P E H H			G O F B A V E Q i o	O a e	P [ ] ^	U O D A R i G A E E	V ] a e e
H I	W E H I	P E H G	P E H I			G O F B A V E Q i o	O a e	P [ ] ^	U O D A R i G A E E	V ] a e e
H I	W E H I	P E H I	P E H I			G O F B A V E Q i o	O a e	P [ ] ^	U O D A R i G A E E	V ] a e e
H I	W E H I	P E H I	P E H I			G O F B A V E Q i o	O a e	P [ ] ^	U O D A R i G A E E	V ] a e e
H I	W E H I	P E H I	P E H J			G O F B A V E Q i o	O a e	P [ ] ^	U O D A R i G A E E	V ] a e e
H I	W E H I	P E H I	P E H E			G O F B A V E Q i o	O a e	P [ ] ^	U O D A R i G A E E	V ] a e e
H U	W E H U	P E H F	P E H G			G O F B A V E Q i o	O a e	P [ ] ^	U O D A R i G A E E	V ] a e e
I E	W E E	P E H F	P E H H			G O F B A V E Q i o	O a e	P [ ] ^	U O D A R i G A E E	V ] a e e
I F	W E F	P E H I	P E H I			G O F B A V E Q i o	O a e	P [ ] ^	U O D A R i G A E E	V ] a e e
I G	W E G	P E H I	P E H I			G O F B A V E Q i o	O a e	P [ ] ^	U O D A R i G A E E	V ] a e e
I H	W E H	P E H I	P E H I			G O F B A V E Q i o	O a e	P [ ] ^	U O D A R i G A E E	V ] a e e
I I	W E I	P E H I	P E H J			G O F B A V E Q i o	O a e	P [ ] ^	U O D A R i G A E E	V ] a e e
I I	W E I	P E H E	P E H F			G O F B A V E Q i o	O a e	P [ ] ^	U O D A R i G A E E	V ] a e e
I I	W E I	P E H I	P E H G			G O F B A V E Q i o	O a e	P [ ] ^	U O D A R i G A E E	V ] a e e
I I	W E I	P E H H	P E H I			G O F B A V E Q i o	O a e	P [ ] ^	U O D A R i G A E E	V ] a e e
I I	W E I	P E H E	P E H I			G O F B A V E Q i o	O a e	P [ ] ^	U O D A R i G A E E	V ] a e e
I J	W E J	P E H I	P E H I			G O F B A V E Q i o	O a e	P [ ] ^	U O D A R i G A E E	V ] a e e
I E	W E E	P E H H	P E H I			G O F B A V E Q i o	O a e	P [ ] ^	U O D A R i G A E E	V ] a e e
I F	W E F	P E H J	P E E E			G O F B A V E Q i o	O a e	P [ ] ^	U O D A R i G A E E	V ] a e e
I G	T U F	T U F c	T U F a			U Q J O G E E	O i ] { }	P [ ] ^	O E H A O i E O	V ] a e e
I H	T U G	T U G c	T U G a			U Q J O G E E	O i ] { }	P [ ] ^	O E H A O i E O	V ] a e e
I I	T U H	T U H c	T U H a			U Q J O G E E	O i ] { }	P [ ] ^	O E H A O i E O	V ] a e e
I I	T U I	T U I c	T U I a			U Q J O G E E	O i ] { }	P [ ] ^	O E H A O i E O	V ] a e e
I I	T U I	T U I c	T U I a			U Q J O G E E	O i ] { }	P [ ] ^	O E H A O i E O	V ] a e e









O[ { ] a ^ K O E A[ , A[ O[ ] E
O a } A K T & @ | D | a
R a A ~ { a ! K F H G E F i ' O i ' e H
T [ a ] A a ^ K H E G i i E O , d A O a d }

O ; A E G E G E
F e K i A O F
O & A a O K E

<chF C`YX'GhYY'DfcdYfHjYg'fI' cbhji YXL

Table with 10 columns containing various alphanumeric characters and symbols like J, UODAR, GJAO, EG, GA^EI, FEFI^EI, EH, EI, IJE, II€€€, FIE, II€€€, FIE.

>c]bh'@UXg'UbX'9bzfWYX'8]gd'UMWa YbHj'f6 @ %&.' @'fHLL

Table with 4 columns: F, T U F c, S, Y, E €€.

>c]bh'@UXg'UbX'9bzfWYX'8]gd'UMWa YbHj'f6 @ %.' @'fHLL

Table with 4 columns: F, T U G c, S, Y, E €€.

>c]bh'@UXg'UbX'9bzfWYX'8]gd'UMWa YbHj'f6 @ %.' @'fHLL

Table with 4 columns: F, T U H c, S, Y, E €€.

>c]bh'@UXg'UbX'9bzfWYX'8]gd'UMWa YbHj'f6 @ %) .' @'fHLL

Table with 4 columns: F, T U i c, S, Y, E €€.

>c]bh'@UXg'UbX'9bzfWYX'8]gd'UMWa YbHj'f6 @ %.' @'fHLL

Table with 4 columns: F, T U i c, S, Y, E €€.

>c]bh'@UXg'UbX'9bzfWYX'8]gd'UMWa YbHj'f6 @ %) .' @'fHLL

Table with 4 columns: F, T U i c, S, Y, E €€.

>c]bh'@UXg'UbX'9bzfWYX'8]gd'UMWa YbHj'f6 @ %.' @'fHLL

Table with 4 columns: F, T U i c, S, Y, E €€.

>c]bh'@UXg'UbX'9bzfWYX'8]gd'UMWa YbHj'f6 @ %.' @'fHLL

Table with 4 columns: F, T U i c, S, Y, E €€.

>c]bh'@UXg'UbX'9bzfWYX'8]gd'UMWa YbHj'f6 @ %\$ .' @'fHLL

Table with 4 columns: F, T U J c, S, Y, E €€.

>c]bh'@UXg'UbX'9bzfWYX'8]gd'UMWa YbHj'f6 @ %&.' @'fHLL

Table with 4 columns: F, T U F € c, S, Y, E €€.

>c]bh'@UXg'UbX'9bzfWYX'8]gd'UMWa YbHj'f6 @ %&.' @'fHLL

Table with 4 columns: F, T U F F c, S, Y, E €€.



0{ } a^ ^ K Q^ a^ a^ A[ , ^ / O[ ] E  
 O^ a} a K T a @ @ | | a  
 R a A^ { a^ K F H G E F I e ' O i ' e H  
 T [ a^ / a^ a^ K H E G I i E O } q / A O a^ d }

Q; ! A E G E G E  
 F e K f I A O F  
 O @ & ^ a A O^ k E

**>c]bh@UXg'UbX'9bZfWYX'8]gd'UWwA Yb]g'f6 @ ' & ' : ' @ ' f' & L**

	R a o S a^	S O E t	O a^ & q }	T a e } a e a^ Z a f a E e a
F	T U F G c	S	Y	E E

**A Ya Vyf'Dc]bh@UXg'f6 @ '% ' 8 YUKL**

	T ^ ( a^ / S a^	O a^ & q }	T a e } a e a^ Z a f a E e a	S } S a^ } Z a E a
F	T U F	Y	E F E I	G F E I
G	T U F	Y	E F E I	I J E E
H	T U F	Y	E F E I	G F E I
I	T U F	Y	E F E I	I J E E
I	T U F	Y	E I E	I E G
I	T U F	Y	E E H	G E G
I	T U G	Y	E F E I	G F E I
I	T U G	Y	E F E I	I J E E
J	T U G	Y	E F E I	G F E I
F€	T U G	Y	E F E I	I J E E
FF	T U G	Y	E I E	I I E G
FG	T U G	Y	E E H	G E G
FH	T U H	Y	E F E I	G F E I
FI	T U H	Y	E F E I	I J E E
FÍ	T U H	Y	E F E I	G F E I
FĪ	T U H	Y	E F E I	I J E E
Fİ	T U H	Y	E I E	I I E G
Fİ	T U H	Y	E E H	G E G
FJ	T U I	Y	E H G	F I E G

**A Ya Vyf'Dc]bh@UXg'f6 @ ' & ' : ' WYL**

	T ^ ( a^ / S a^	O a^ & q }	T a e } a e a^ Z a f a E e a	S } S a^ } Z a E a
F	T U F	Y	E F I F E I H	G F E I
G	T U F	Y	E F I F E I H	I J E E
H	T U F	Y	E F I F E I H	G F E I
I	T U F	Y	E F I F E I H	I J E E
I	T U F	Y	E E J E U J	I E G
I	T U F	Y	E J E G	G E G
I	T U G	Y	E F I F E I H	G F E I
I	T U G	Y	E F I F E I H	I J E E
J	T U G	Y	E F I F E I H	G F E I
F€	T U G	Y	E F I F E I H	I J E E
FF	T U G	Y	E E J E U J	I I E G
FG	T U G	Y	E J E G	G E G
FH	T U H	Y	E F I F E I H	G F E I
FI	T U H	Y	E F I F E I H	I J E E
FÍ	T U H	Y	E F I F E I H	G F E I
FĪ	T U H	Y	E F I F E I H	I J E E
Fİ	T U H	Y	E E J E U J	I I E G
Fİ	T U H	Y	E J E G	G E G
FJ	T U I	Y	E G E H E G J	F I E G

**A Ya Vyf'Dc]bh@UXg'f6 @ ' : ' K ] b X ' ! N L**

	T ^ ( a^ / S a^	O a^ & q }	T a e } a e a^ Z a f a E e a	S } S a^ } Z a E a
F	T U F	Z	E E E G	G F E I



0{ } a^ ^ K Q^ ^ a a^ A[ , ^ / O[ ] E  
 O^ a } ^ K T & @ | | a  
 R^ a b^ { a^ K F H G E F | e^ O i : e H  
 T [ a^ / a a^ ^ K H E G i i E O } q / A O a q }

Q : A E G E E  
 F e F i A O F  
 O @ & ^ a A O ^ k E

**A Ya Vyf'Dc]bhi@UXg'f6 @ ' : 'K ]bX'!N:f7 cb]bi YXL**

	T ^ { a^ / a a^ ^ }	O a ^ & a }	T a e } a a ^ Z a F a E a	S } & a } Z a E a
G	T U F	Z	E E E G	I J E
H	T U F	Z	E E E G	G F I
I	T U F	Z	E E E G	I J E
Í	T U F	Z	E I E I	I E G
Î	T U F	Z	E H E J	G E G
İ	T U G	Z	E H I I	G F I
Ï	T U G	Z	E H I I	I J E
J	T U G	Z	E I E F I	G F I
F€	T U G	Z	E I E F I	I J E
FF	T U G	Z	E I E E J	I I E
FG	T U G	Z	E F E H H	G E G
FH	T U H	Z	E H I I	G F I
FI	T U H	Z	E H I I	I J E
FÍ	T U H	Z	E I E F I	G F I
FÎ	T U H	Z	E I E F I	I J E
Fİ	T U H	Z	E I E E J	I I E
FÏ	T U H	Z	E F E H H	G E G
FJ	T U I	Z	E G E G J	F I E
GE	T U I	T ^	H I E G	F I E

**A Ya Vyf'Dc]bhi@UXg'f6 @ ( : 'K ]bX'!L**

	T ^ { a^ / a a^ ^ }	O a ^ & a }	T a e } a a ^ Z a F a E a	S } & a } Z a E a
F	T U F	Y	E G E F F	G F I
G	T U F	Y	E G E F F	I J E
H	T U F	Y	E G E F F	G F I
I	T U F	Y	E G E F F	I J E
Í	T U F	Y	E G E G G	I E G
Î	T U F	Y	E G E I I	G E G
İ	T U G	Y	E E E H U	G F I
Ï	T U G	Y	E E E H U	I J E
J	T U G	Y	E J E I J	G F I
F€	T U G	Y	E J E I J	I J E
FF	T U G	Y	E J E E J	I I E
FG	T U G	Y	E I E G F	G E G
FH	T U H	Y	E E E H U	G F I
FI	T U H	Y	E E E H U	I J E
FÍ	T U H	Y	E J E I J	G F I
FÎ	T U H	Y	E J E I J	I J E
Fİ	T U H	Y	E J E E J	I I E
FÏ	T U H	Y	E I E G F	G E G
FJ	T U I	T :	I I E I G	F I E

**A Ya Vyf'Dc]bhi@UXg'f6 @ ) : 'K ]bX'!N#M**

	T ^ { a^ / a a^ ^ }	O a ^ & a }	T a e } a a ^ Z a F a E a	S } & a } Z a E a
F	T U F	Z	E H E F H	G F I
G	T U F	Z	E H E F H	I J E
H	T U F	Z	E H E F H	G F I
I	T U F	Z	E H E F H	I J E
Í	T U F	Z	E F E E G	I E G
Î	T U F	Z	E G E E H	G E G
İ	T U G	Z	E H E I I	G F I



0 { | ] a ^    K O E ^ i a a A [ , ^ i O [ | ] E  
 O ^ a } ^ i    K T & @ | 0 | a  
 R a A ^ { a ^ i    K F H G E F I e ' O i ' e H  
 T [ a ^ / p a ^ ^    K H E G i i 0 } q / 0 a q }

O i : A E G E G E  
 F e K i A O F  
 O @ & ^ a A O ^ K E

**A Ya Vyf'Dc]bhi@UXg'f6 @ ' ) : 'K ]pX'!N'f#WtL'f7 cb]jbi YXL**

	T ^ ( a ^ i a a ^ i	O a ^ & c a }	T a e } a a ^ a i a E c a	S t & e a } a i a a
I	T U G	Z	E H E H I	I J E E
J	T U G	Z	E F E J I	G F E I
F€	T U G	Z	E F E J I	I J E E
FF	T U G	Z	E I E I I	I I E G
FG	T U G	Z	E G E G I	G E E G
FH	T U H	Z	E H E H I	G F E I
FI	T U H	Z	E H E H I	I J E E
FÍ	T U H	Z	E F E J I	G F E I
FÌ	T U H	Z	E F E J I	I J E E
Fï	T U H	Z	E I E I I	I I E G
Fì	T U H	Z	E G E G I	G E E G
FJ	T U I	T ^	F I E E G	F I E E

**A Ya Vyf'Dc]bhi@UXg'f6 @ \* : 'K ]pX'!L'f#WtL**

	T ^ ( a ^ i a a ^ i	O a ^ & c a }	T a e } a a ^ a i a E c a	S t & e a } a i a a
F	T U F	Y	E F E G I	G F E I
G	T U F	Y	E F E G I	I J E E
H	T U F	Y	E F E G I	G F E I
I	T U F	Y	E F E G I	I J E E
Í	T U F	Y	E G E H I	I E E G
Ì	T U F	Y	E G G I F F	G E E G
ï	T U G	Y	E I E E	G F E I
ì	T U G	Y	E I E E	I J E E
J	T U G	Y	E I E I	G F E I
F€	T U G	Y	E I E I	I J E E
FF	T U G	Y	E I E I I	I I E G
FG	T U G	Y	E I E U F	G E E G
FH	T U H	Y	E I E E	G F E I
FI	T U H	Y	E I E E	I J E E
FÍ	T U H	Y	E I E I	G F E I
FÌ	T U H	Y	E I E I	I J E E
Fï	T U H	Y	E I E I I	I I E G
Fì	T U H	Y	E I E U F	G E E G
FJ	T U I	T :	G E E I	F I E E

**A Ya Vyf'Dc]bhi@UXg'f6 @ + : 'K ]pX'!N'fK cf ]bj #**

	T ^ ( a ^ i a a ^ i	O a ^ & c a }	T a e } a a ^ a i a E c a	S t & e a } a i a a
F	T U F	Z	E E H I	G F E I
G	T U F	Z	E E H I	I J E E
H	T U F	Z	E E H I	G F E I
I	T U F	Z	E E H I	I J E E
Í	T U F	Z	E E E E	I E E G
Ì	T U F	Z	E E E G	G E E G
ï	T U G	Z	E E I I	G F E I
ì	T U G	Z	E E I I	I J E E
J	T U G	Z	E E I I	G F E I
F€	T U G	Z	E E I I	I J E E
FF	T U G	Z	E E H G	I I E G
FG	T U G	Z	E E G J G	G E E G
FH	T U H	Z	E E I I	G F E I
FI	T U H	Z	E E I I	I J E E







0{ } a^ K Q A a A[ , A/O{ } E  
 O a } A K T & @ | O } a  
 P a A { a^ K F H G E F I ' O i ' e H  
 T { a^ / P a e ^ K H E G I i E O } q A O a q }

Q : A E G E E  
 F e F I A O F  
 O @ & ^ a A O ' K E

**A Ya Vyf'8 jgfv]vi hyx' @ Uxg'f6 @ ' & : =WYLF7 cb]bi YXL**

	T { a^ / A a ^ }	O a ^ & q }	U c a o A e } a ^ a ^ z a D o f f i O } a A e } a ^ a ^ z a D o f f i E U c a o S } & e a }	z a E a a	O } a A S } & e a }	z a E a a
GF	P EGF	Y	E F H E G G	E F H E G G	€	A F E E
GG	P EGG	Y	E E H F	E E H F	€	A F E E
GH	P EGH	Y	E E H F	E E H F	€	A F E E
G	P EG	Y	E E H F	E E H F	€	A F E E
G	O EG	Y	E E I I	E E I I	€	A F E E
G	O EG	Y	E E I I	E E I I	€	A F E E
G	O EG	Y	E E I I	E E I I	€	A F E E
G	T U F	Y	E F H E G G	E F H E G G	€	A F E E
GJ	T U G	Y	E F H E G G	E F H E G G	€	A F E E
HE	T U H	Y	E F H E G G	E F H E G G	€	A F E E
HF	T U I	Y	E F H E G G	E F H E G G	€	A F E E
HG	T U I	Y	E F H E G G	E F H E G G	€	A F E E
HH	T U I	Y	E F H E G G	E F H E G G	€	A F E E
HI	T U I	Y	E F H E G G	E F H E G G	€	A F E E
H I	T U I	Y	E F H E G G	E F H E G G	€	A F E E
H I	T U J	Y	E F H E G G	E F H E G G	€	A F E E
H I	T U F E	Y	E F H E G G	E F H E G G	€	A F E E
H I	T U F F	Y	E F H E G G	E F H E G G	€	A F E E
HU	T U F G	Y	E F H E G G	E F H E G G	€	A F E E

**A Ya Vyf'8 jgfv]vi hyx' @ Uxg'f6 @ ' ) : K ]bX'IN fH WYLF**

	T { a^ / A a ^ }	O a ^ & q }	U c a o A e } a ^ a ^ z a D o f f i O } a A e } a ^ a ^ z a D o f f i E U c a o S } & e a }	z a E a a	O } a A S } & e a }	z a E a a
F	P E F F	Z	E G I G	E G I G	€	A F E E
G	P E G G	Z	E G I G	E G I G	€	A F E E
H	P E H H	Z	E G I G	E G I G	€	A F E E
I	P E I I	Z	E G I G	E G I G	€	A F E E
I	P E I	Z	E G I G	E G I G	€	A F E E
I	P E I	Z	E G I G	E G I G	€	A F E E
I	P E I	Z	E G I G	E G I G	€	A F E E
I	P E I	Z	E G I G	E G I G	€	A F E E
J	P E J	Z	E G I G	E G I G	€	A F E E
F E	P E F E	Z	E G I G	E G I G	€	A F E E
FF	P E F F	Z	E G I G	E G I G	€	A F E E
FG	P E F G	Z	E G I G	E G I G	€	A F E E
FH	P E F H	Z	E G I G	E G I G	€	A F E E
FI	P E F I	Z	E G I G	E G I G	€	A F E E
F I	P E F I	Z	E G I G	E G I G	€	A F E E
F I	P E F I	Z	E G I G	E G I G	€	A F E E
F I	P E F I	Z	E G I G	E G I G	€	A F E E
F I	P E F I	Z	E G I G	E G I G	€	A F E E
FJ	P E F J	Z	E G I G	E G I G	€	A F E E
G E	P E G E	Z	E G I G	E G I G	€	A F E E
GF	P E G F	Z	E G I G	E G I G	€	A F E E
GG	P E G G	Z	E G I G	E G I G	€	A F E E
GH	P E G H	Z	E G I G	E G I G	€	A F E E
G	P E G	Z	E G I G	E G I G	€	A F E E
G	O E G	Z	E G I G	E G I G	€	A F E E
G	O E G	Z	E G I G	E G I G	€	A F E E
G	O E G	Z	E G I G	E G I G	€	A F E E
G	O E G	Z	E G I G	E G I G	€	A F E E
G	T U F	Z	E G I G	E G I G	€	A F E E
GJ	T U G	Z	E G I G	E G I G	€	A F E E







0{ } a^ ^ K Oe ^ i a a A[ , ^ i A[ ] E  
 O^ a } ^ K T & @ | | a  
 F a A^ { a^ K FHGEF e ' O i ' eH  
 T [ a^ / a e ^ K HEG i i E O } q A O a q }

Oj : A E O E E  
 F e K i A O F  
 O @ & ^ a A O k E

**A Ya Vyf'8 jgffjVi hyX' @ UXg'f6 @ '%\$. '9\ 'N'fGY]ga jWLF'f7 cbjbi YXL**

	T^{ a^ / a e ^ }	O a ^ & a }	U c e o A e } a ^ a D e f i i O } a A e } a ^ a D e f i i U c e o S } & e a }	Z a E a	O } a S } & e a }	Z a E a
I	P e e i	Z	E i i	E i i	€	A F e e
I	P e e i	Z	E i i	E i i	€	A F e e
I	P e e i	Z	E i i	E i i	€	A F e e
J	P e e j	Z	E i i	E i i	€	A F e e
F€	P e f e	Z	E i i	E i i	€	A F e e
FF	P e f f	Z	E i i	E i i	€	A F e e
FG	P e f g	Z	E i i	E i i	€	A F e e
FH	P e f h	Z	E i i	E i i	€	A F e e
FI	P e f i	Z	E i i	E i i	€	A F e e
Fí	P e f i	Z	E i i	E i i	€	A F e e
Fî	P e f i	Z	E i i	E i i	€	A F e e
Fï	P e f i	Z	E i i	E i i	€	A F e e
Fj	P e f j	Z	E i i	E i i	€	A F e e
G€	P e g e	Z	E i i	E i i	€	A F e e
GF	P e g f	Z	E i i	E i i	€	A F e e
GG	P e g g	Z	E i i	E i i	€	A F e e
GH	P e g h	Z	E i i	E i i	€	A F e e
G	P e g	Z	E i i	E i i	€	A F e e
G	O e g	Z	E i i	E i i	€	A F e e
G	O e g	Z	E i i	E i i	€	A F e e
G	O e g	Z	E i i	E i i	€	A F e e
G	T u f	Z	E i i	E i i	€	A F e e
Gj	T u g	Z	E i i	E i i	€	A F e e
H€	T u h	Z	E i i	E i i	€	A F e e
HF	T u f	Z	E i i	E i i	€	A F e e
HG	T u g	Z	E i i	E i i	€	A F e e
HH	T u h	Z	E i i	E i i	€	A F e e
HI	T u i	Z	E i i	E i i	€	A F e e
Hí	T u i	Z	E i i	E i i	€	A F e e
Hî	T u i	Z	E i i	E i i	€	A F e e
Hï	T u i	Z	E i i	E i i	€	A F e e
Hj	T u j	Z	E i i	E i i	€	A F e e
H	T u f e	Z	E i i	E i i	€	A F e e
H	T u f f	Z	E i i	E i i	€	A F e e
Hj	T u f g	Z	E i i	E i i	€	A F e e

**A Ya Vyf'8 jgffjVi hyX' @ UXg'f6 @ '%. '9\ 'L'fGY]ga jWLF**

	T^{ a^ / a e ^ }	O a ^ & a }	U c e o A e } a ^ a D e f i i O } a A e } a ^ a D e f i i U c e o S } & e a }	Z a E a	O } a S } & e a }	Z a E a
F	P e e f	Y	E i i	E i i	€	A F e e
G	P e e g	Y	E i i	E i i	€	A F e e
H	P e e h	Y	E i i	E i i	€	A F e e
I	P e e i	Y	E i i	E i i	€	A F e e
Í	P e e i	Y	E i i	E i i	€	A F e e
Î	P e e i	Y	E i i	E i i	€	A F e e
Ï	P e e i	Y	E i i	E i i	€	A F e e
J	P e e j	Y	E i i	E i i	€	A F e e
F€	P e f e	Y	E i i	E i i	€	A F e e
FF	P e f f	Y	E i i	E i i	€	A F e e
FG	P e f g	Y	E i i	E i i	€	A F e e
FH	P e f h	Y	E i i	E i i	€	A F e e
FI	P e f i	Y	E i i	E i i	€	A F e e



0{ } a^ ^ K Q^ A^ a^ A[ , A^ A[ ] E  
 O^ a} A K T & @ | | a  
 P^ A^ { a^ K F H G E F E O i ' e H  
 T{ a^ A^ a^ ^ K H E G i i E O } q A^ O a^ d }

Q : A E G E G E  
 F e K i A O F  
 O @ & ^ a^ A^ K E

**A Ya Vyf 8 jgfv Vi hYX @ UXg f6 @ '%. 9 \ 'IL fGY]ga jVLE f7 cbjbi YXL**

	T{ a^ A^ a^ ^	O a^ & a }	U c a o A a e } a^ a^ Z a D e f f i O } a A T a e } a^ a^ Z a D e f f i U c a o A a e } a^ a^	U c a o A a e } a^ a^ Z a D e f f i O } a A T a e } a^ a^ Z a D e f f i U c a o A a e } a^ a^	U c a o A a e } a^ a^ Z a D e f f i O } a A T a e } a^ a^ Z a D e f f i U c a o A a e } a^ a^	U c a o A a e } a^ a^ Z a D e f f i O } a A T a e } a^ a^ Z a D e f f i U c a o A a e } a^ a^	U c a o A a e } a^ a^ Z a D e f f i O } a A T a e } a^ a^ Z a D e f f i U c a o A a e } a^ a^
Fí	P F í	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	
FÌ	P F Ì	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	
FĪ	P F Ī	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	
FĬ	P F Ĭ	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	
FJ	P F J	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	
G€	P G €	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	
GF	P G F	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	
GG	P G G	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	
GH	P G H	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	
G	P G	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	
Ġ	Ö E Ġ	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	
G̈	Ö E G̈	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	
G̉	Ö E G̉	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	
G̊	T Ú F	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	
GJ	T Ú G	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	
H€	T Ú H	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	
HF	T Ú I	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	
HG	T Ú I	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	
HH	T Ú I	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	
HĪ	T Ú I	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	
HĬ	T Ú I	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	
HĪ	T Ú I	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	
HĪ	T Ú F €	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	
HĪ	T Ú F F	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	
HJ	T Ú F G	Y	Ë Ì Ì	Ë Ì Ì	€	À F E E	

**A Ya Vyf 8 jgfv Vi hYX @ UXg f6 @ '& . 6 @ ' " HfUbg]Ybh5 f YU @ UXg L**

	T{ a^ A^ a^ ^	O a^ & a }	U c a o A a e } a^ a^ Z a D e f f i O } a A T a e } a^ a^ Z a D e f f i U c a o A a e } a^ a^	U c a o A a e } a^ a^ Z a D e f f i O } a A T a e } a^ a^ Z a D e f f i U c a o A a e } a^ a^	U c a o A a e } a^ a^ Z a D e f f i O } a A T a e } a^ a^ Z a D e f f i U c a o A a e } a^ a^	U c a o A a e } a^ a^ Z a D e f f i O } a A T a e } a^ a^ Z a D e f f i U c a o A a e } a^ a^	U c a o A a e } a^ a^ Z a D e f f i O } a A T a e } a^ a^ Z a D e f f i U c a o A a e } a^ a^
F	P E F	Z	Ë Ë Ì Ì	Ë Ë Ì Ì	€	F Í €	
G	P E G	Z	Ë Ë H G	Ë Ë H G	€	F Í €	
H	P E H	Z	Ë F F Ì Ì	Ë F F Ì Ì	€	F F Ë H	
I	P E I	Z	Ë Ë Ì Ì	Ë Ë Ì Ì	€	F F Ë H	
Í	P E Í	Z	Ë Ë Ì Ì	Ë Ë Ì Ì	€	F F Ë H	
Ī	P E Ī	Z	Ë Ë J I	Ë Ë J I	€	Í Í Ë Í	
Ĭ	P E Ĭ	Z	Ë Ë J I	Ë Ë J I	€	Í Í Ë Í	
Ī	P E Ī	Z	Ë Ë H G	Ë Ë H G	€	F Í €	
J	P F €	Z	Ë Ë G H	Ë Ë G H	€	Í J Ë H	
F€	P F F	Z	Ë Ë G H	Ë Ë G H	€	Í J Ë H	
FF	P F G	Z	Ë Ë Ì Ì	Ë Ë Ì Ì	€	Í J Ë H	
FG	P F H	Z	Ë Ë H	Ë Ë H	€	Í Í Ë Ì	
FH	P F I	Z	Ë Ë G H	Ë Ë G H	€	Í Í Ë Ì	
FI	P F Í	Z	Ë Ë Ì Ì	Ë Ë Ì Ì	€	Í Í Ë Ì	
FĪ	P F Ī	Z	Ë Ë H	Ë Ë H	€	Í Í Ë Ì	
FĬ	P F Ĭ	Z	Ë Ë Ì Ì	Ë Ë Ì Ì	€	Í Í Ë Ì	
FĪ	P F Ī	Z	Ë Ë G H	Ë Ë G H	€	Í Í Ë Ì	
FĪ	P F J	Z	Ë Ë Ì Ì	Ë Ë Ì Ì	€	F Í €	
FJ	P G €	Z	Ë G H G	Ë G H G	€	F Í €	
G€	P G F	Z	Ë G H G	Ë G H G	€	F Í €	
GF	P G G	Z	Ë G Í G	Ë G Í G	€	F F Ë H	
GG	P G H	Z	Ë G Í G	Ë G Í G	€	F F Ë H	
GH	P G	Z	Ë Ë E H	Ë Ë E H	€	F F Ë H	



0[ ( ] a^ ^ K Oe ^ i a a A[ , ^ i / O[ ] E  
 O^ a } ^ K T & @ | O | a  
 F a A b ^ { a ^ K F H G E F i ^ O i ^ e H  
 T [ a ^ / a a ^ K H E G i i E O } q A Z O a q }

Oq : A E O E E  
 F e K i A O F  
 O @ & ^ a A O ^ K E

**A Ya Vyf'8 jgfh]Vi hYX' @ UXg'f6 @ ' & : '6 @ ' ' HfUbg]Ybh5 f YU' @ UXgk'f7 c bh]bi YXL**

	T { a ^ / a a ^ }	O a ^ & a }	U c a O A e } a ^ a ^ Z a D e i i O ) a A r a e } a ^ a ^ Z a D e i i E U c a O S i & a a } Z a E a a	O ) a A S i & a a } Z a E a a		
G	OEG	Z	E E I	E E I	€	I I E H
G	OEG	Z	E E E	E E E	€	I I E H
G	OEG	Z	E E E	E E E	€	I I E H
G	WEI	Z	E E JJ	E E JJ	€	H
G	WEI	Z	E E JJ	E E JJ	€	H
GJ	WEI	Z	E E JJ	E E JJ	€	H
HE	WEU	Z	E E JJ	E E JJ	€	H
HF	WE E	Z	E E JJ	E E JJ	€	H
HG	WE F	Z	E E JJ	E E JJ	€	H
HH	WE G	Z	E E JJ	E E JJ	€	H
HI	WE H	Z	E E JJ	E E JJ	€	H
HI	WE I	Z	E E JJ	E E JJ	€	H
HI	WE I	Z	E E JJ	E E JJ	€	H
HI	WE I	Z	E E JJ	E E JJ	€	H
HI	WE I	Z	E E JJ	E E JJ	€	H
HU	WE I	Z	E E JJ	E E JJ	€	H
I E	WE J	Z	E E JJ	E E JJ	€	H
IF	WE E	Z	E E JJ	E E JJ	€	H
IG	WE F	Z	E E JJ	E E JJ	€	H
I H	T U F	Z	E E I I	E E I I	€	J I
I I	T U G	Z	E E I I	E E I I	€	J I
I I	T U H	Z	E E I I	E E I I	€	J I
I I	T U I	Z	E E I I	E E I I	€	J I
I I	T U I	Z	E E I I	E E I I	€	J I
I I	T U I	Z	E E I I	E E I I	€	J I
I J	T U I	Z	E E I I	E E I I	€	J I
I E	T U I	Z	E E I I	E E I I	€	J I
I F	T U J	Z	E E I I	E E I I	€	J I
I G	T U F E	Z	E E I I	E E I I	€	J I
I H	T U F F	Z	E E I I	E E I I	€	J I
I I	T U F G	Z	E E I I	E E I I	€	J I

**A Ya Vyf'8 jgfh]Vi hYX' @ UXg'f6 @ ' & : '6 @ ' ( HfUbg]Ybh5 f YU' @ UXgk**

	T { a ^ / a a ^ }	O a ^ & a }	U c a O A e } a ^ a ^ Z a D e i i O ) a A r a e } a ^ a ^ Z a D e i i E U c a O S i & a a } Z a E a a	O ) a A S i & a a } Z a E a a		
F	PEEG	Y	E E I I	E E I I	€	F I E
G	PEE	Y	E E F J G	E E F J G	€	F F E H
H	PEE	Y	E E F J G	E E F J G	€	F F E H
I	PEE	Y	E E I I	E E I I	€	I I E H
I	PEE	Y	E E G H	E E G H	€	I I E H
I	PEE	Y	E E G H	E E G H	€	I I E H
I	PEE	Y	E E I I	E E I I	€	F I E
I	PEE	Y	E E J I	E E J I	€	I J E H
J	PEF	Y	E E J I	E E J I	€	I J E H
FE	PEH	Y	E E F G	E E F G	€	I I E I I
FF	PEI	Y	E E F	E E F	€	I I E I I
FG	PEI	Y	E E I G	E E I G	€	I I E I I
FH	PEI	Y	E E F G	E E F G	€	I I E I I
FI	PEI	Y	E E I G	E E I G	€	I I E I I
FI	PEI	Y	E E F	E E F	€	I I E I I
FI	PEE	Y	E E H	E E H	€	F I E
FI	PEF	Y	E E H	E E H	€	F I E



0{ } a^ ^ K Q^ A^ a^ A[ , A^ A^ ] E  
 O^ a^ ^ K T a^ a^ ] a  
 F a^ ^ { a^ K F H G E F e^ O i^ e H  
 T { a^ / a^ ^ K H E G i i e O } q / a^ a^ q }

Q : A e e e e  
 F e k f A e f  
 O e & a^ a^ k e

**A Ya Vyf 8 jgfhjvi hyx @ UXg f6 @ ' & ' : 6 @ ( ' HfUbgjYbh5 f YU @ UXgk f7 c bhjbi YXL**

	T { a^ / a^ ^ }	O a^ & a^ }	U c a^ A e } a^ a^ Z a^ D e e O ) a^ A e } a^ a^ Z a^ D e e U c a^ O e } a^ a^ }	U c a^ O e } a^ a^ }	U c a^ O e } a^ a^ }	U c a^ O e } a^ a^ }	U c a^ O e } a^ a^ }
FI	P EGG	Y	E E I	E E I	€	FF E H	
FJ	P EGH	Y	E E I	E E I	€	FF E H	
GE	O E G	Y	E E H	E E H	€	I I E H	
GF	O E G	Y	E E E	E E E	€	I I E H	
GG	O E G	Y	E E E	E E E	€	I I E H	
GH	W E G	Y	E E I F	E E I F	€	H	
G	W E G	Y	E E I F	E E I F	€	H	
G	W E H	Y	E E I F	E E I F	€	H	
G	W E F	Y	E E I F	E E I F	€	H	
G	W E G	Y	E E I F	E E I F	€	H	
G	W E H	Y	E E I F	E E I F	€	H	
GJ	W E H	Y	E E I F	E E I F	€	H	
H E	W E I	Y	E E I F	E E I F	€	H	
H F	W E I	Y	E E I F	E E I F	€	H	
H G	W E I	Y	E E I F	E E I F	€	H	
H H	W E I	Y	E E I F	E E I F	€	H	
H I	W E U	Y	E E I F	E E I F	€	H	
H	W E €	Y	E E I F	E E I F	€	H	
H	W E F	Y	E E I F	E E I F	€	H	
H	W E G	Y	E E I F	E E I F	€	H	
H	W E H	Y	E E I F	E E I F	€	H	
HJ	W E I	Y	E E I F	E E I F	€	H	
I €	W E I	Y	E E I F	E E I F	€	H	
I F	W E I	Y	E E I F	E E I F	€	H	
I G	W E I	Y	E E I F	E E I F	€	H	
I H	W E I	Y	E E I F	E E I F	€	H	
I I	W E J	Y	E E I F	E E I F	€	H	
I I	W E €	Y	E E I F	E E I F	€	H	
I I	W E F	Y	E E I F	E E I F	€	H	
I I	T U F	Y	E E I I	E E I I	€	J I	
I I	T U G	Y	E E I I	E E I I	€	J I	
I J	T U H	Y	E E I I	E E I I	€	J I	
I €	T U I	Y	E E I I	E E I I	€	J I	
I F	T U I	Y	E E I I	E E I I	€	J I	
I G	T U I	Y	E E I I	E E I I	€	J I	
I H	T U I	Y	E E I I	E E I I	€	J I	
I I	T U I	Y	E E I I	E E I I	€	J I	
I I	T U J	Y	E E I I	E E I I	€	J I	
I I	T U F €	Y	E E I I	E E I I	€	J I	
I I	T U F F	Y	E E I I	E E I I	€	J I	
I I	T U F G	Y	E E I I	E E I I	€	J I	

**A Ya Vyf 8 jgfhjvi hyx @ UXg f6 @ ' & ' : 6 @ ( ' HfUbgjYbh5 f YU @ UXgk**

	T { a^ / a^ ^ }	O a^ & a^ }	U c a^ A e } a^ a^ Z a^ D e e O ) a^ A e } a^ a^ Z a^ D e e U c a^ O e } a^ a^ }	U c a^ O e } a^ a^ }	U c a^ O e } a^ a^ }	U c a^ O e } a^ a^ }	U c a^ O e } a^ a^ }
F	P E E F	Z	E E I I	E E I I	€	F I €	
G	P E E G	Z	E E J G	E E J G	€	F I €	
H	P E E H	Z	E E E F	E E E F	€	FF E H	
I	P E E I	Z	E E E F	E E E F	€	FF E H	
I	P E E I	Z	E E E F	E E E F	€	FF E H	
I	P E E I	Z	E E I I	E E I I	€	I I E I	
I	P E E I	Z	E E I I	E E I I	€	I I E I	





0[ { ] a } ^ K O E ^ i a a A [ , ^ i / O [ ] E  
 O ^ a } ^ K T & @ e | O | a  
 F a A b ^ { a ^ K F H G E F i ' O i ' e H  
 T [ a ^ / a a ^ K H E G i i E O } q A Z O a q }

O q : A E O E E  
 F e K i A O F  
 O @ & ^ a A O ^ K E

**A Ya Vyf'8 jgfh]Vi hYX' @ UXg'f6 @ ' & ' : 6 @ ' ) 'HfUbg]Ybh5 f YU' @ UXgk'f7 c bh]bi YXL**

	T ^ { a ^ / a a ^ }	O a ^ & q }	U c a O A e } a ^ a ^ Z a D e ( i ) a A e } a ^ a ^ Z a D e ( i ) U c a O S } & a }	Z a E a a	O ) a A S } & a }	Z a E a a
I	P E E J	Z	E E J G	E E J G	€	F I €
J	P E F E	Z	E E H	E E H	€	I J E H
F E	P E F F	Z	E E H	E E H	€	I J E H
FF	P E F G	Z	E E I	E E I	€	I J E H
FG	P E F H	Z	E E J	E E J	€	I I E I I
FH	P E F I	Z	E E H	E E H	€	I I E I I
FI	P E F I	Z	E E I	E E I	€	I I E I I
F I	P E F I	Z	E E J	E E J	€	I I E I I
F I	P E F I	Z	E E I	E E I	€	I I E I I
F i	P E F i	Z	E E H	E E H	€	I I E I I
F i	P E F j	Z	E E i	E E i	€	F I €
FJ	P E G E	Z	E E H	E E H	€	F I €
G E	P E G F	Z	E E H	E E H	€	F I €
GF	P E G G	Z	E E J	E E J	€	F F E H
GG	P E G H	Z	E E J	E E J	€	F F E H
GH	P E G	Z	E E F	E E F	€	F F E H
G	O E G	Z	E E I G	E E I G	€	I I E H
G	O E G	Z	E E G	E E G	€	I I E H
G	O E G	Z	E E G	E E G	€	I I E H
G	W E i	Z	E E J F	E E J F	€	H
G	W E i	Z	E E J F	E E J F	€	H
GJ	W E i	Z	E E J F	E E J F	€	H
H E	W E U	Z	E E J F	E E J F	€	H
HF	W E €	Z	E E J F	E E J F	€	H
HG	W E F	Z	E E J F	E E J F	€	H
HH	W E G	Z	E E J F	E E J F	€	H
HI	W E H	Z	E E J F	E E J F	€	H
H i	W E I	Z	E E J F	E E J F	€	H
H i	W E I	Z	E E J F	E E J F	€	H
H i	W E I	Z	E E J F	E E J F	€	H
H i	W E i	Z	E E J F	E E J F	€	H
HJ	W E i	Z	E E J F	E E J F	€	H
I €	W E J	Z	E E J F	E E J F	€	H
I F	W E €	Z	E E J F	E E J F	€	H
I G	W E F	Z	E E J F	E E J F	€	H
I H	T U F	Z	E E i	E E i	€	J I
I I	T U G	Z	E E i	E E i	€	J I
I I	T U H	Z	E E i	E E i	€	J I
I I	T U i	Z	E E i	E E i	€	J I
I i	T U i	Z	E E i	E E i	€	J I
I i	T U i	Z	E E i	E E i	€	J I
I J	T U i	Z	E E i	E E i	€	J I
I €	T U i	Z	E E i	E E i	€	J I
I F	T U j	Z	E E i	E E i	€	J I
I G	T U F E	Z	E E i	E E i	€	J I
I H	T U F F	Z	E E i	E E i	€	J I
I I	T U F G	Z	E E i	E E i	€	J I

**A Ya Vyf'8 jgfh]Vi hYX' @ UXg'f6 @ ' & + ' : 6 @ ' \* 'HfUbg]Ybh5 f YU' @ UXgk'**

	T ^ { a ^ / a a ^ }	O a ^ & q }	U c a O A e } a ^ a ^ Z a D e ( i ) a A e } a ^ a ^ Z a D e ( i ) U c a O S } & a }	Z a E a a	O ) a A S } & a }	Z a E a a
F	P E E G	Y	E E F	E E F	€	F I €



0{ } a^ ^ K Oe ^i a a A[ , ^i A[ ] E  
 O^ a } ^ K T a @ @ | | a  
 F a A^ ^ { a^ K FHGEF e ' O i ' eH  
 T [ a^ / a a ^ K HEG i i E O } q A O a q }

Oq : A E a G E  
 F e K i A O F  
 O @ & ^ a A O K E

**A Ya Vyf'8 jgflVi hYX' @ UXg'f6 @ ' &+ : ' 6 @ ' \* 'HfUbgjYbh5 f YU @ UXgk'f7 c bhbi YXL**

	T ^ { a^ / a a ^ }	O a ^ & a }	U c a o A a e } a ^ a ^ Z a D e ( E O ) a A T a e } a ^ a ^ Z a D e ( E U c a o A e } & a a }	Z a E a a	O ) a A e } & a a }	Z a E a a
G	P e e i	Y	E G i i	E G i i	e	F F e H i
H	P e e i	Y	E G i i	E G i i	e	F F e H i
I	P e e i	Y	E G i i	E G i i	e	i i e H i
i	P e e i	Y	E e H	E e H	e	i i e H i
I	P e e i	Y	E e H	E e H	e	i i e H i
i	P e e j	Y	E e f i	E e f i	e	f i e
i	P e f e	Y	E e O i	E e O i	e	i j e H i
J	P e f f	Y	E e O i	E e O i	e	i j e H i
F e	P e f h	Y	E e i i	E e i i	e	i i e i i
FF	P e f i	Y	E e e j	E e e j	e	i i e i i
FG	P e f i	Y	E e i i	E e i i	e	i i e i i
FH	P e f i	Y	E e i i	E e i i	e	i i e i i
FI	P e f i	Y	E e i i	E e i i	e	i i e i i
F i	P e f i	Y	E e e j	E e e j	e	i i e i i
F i	P e e e	Y	E e e i i	E e e i i	e	f i e
F i	P e e f	Y	E e e i i	E e e i i	e	f i e
F i	P e e g	Y	E e e g	E e e g	e	F F e H i
FJ	P e e h	Y	E e e g	E e e g	e	F F e H i
G e	O e g	Y	E e e f i	E e e f i	e	i i e H
G f	O e g	Y	E e e j	E e e j	e	i i e H
G g	O e g	Y	E e e j	E e e j	e	i i e H
G h	w e g	Y	E e i i	E e i i	e	H
G	w e g j	Y	E e i i	E e i i	e	H
G	w e h e	Y	E e i i	E e i i	e	H
G	w e h f	Y	E e i i	E e i i	e	H
G	w e h g	Y	E e i i	E e i i	e	H
G	w e h h	Y	E e i i	E e i i	e	H
GJ	w e h i	Y	E e i i	E e i i	e	H
H e	w e h i	Y	E e i i	E e i i	e	H
H f	w e h i	Y	E e H	E e H	e	H
H g	w e h i	Y	E e H	E e H	e	H
H h	w e h i	Y	E e H	E e H	e	H
H i	w e j	Y	E e H	E e H	e	H
H i	w e e	Y	E e H	E e H	e	H
H i	w e f	Y	E e H	E e H	e	H
H i	w e g	Y	E e H	E e H	e	H
H i	w e h	Y	E e H	E e H	e	H
HJ	w e i	Y	E e H	E e H	e	H
I e	w e i	Y	E e H	E e H	e	H
I f	w e i	Y	E e H	E e H	e	H
I g	w e i	Y	E e H	E e H	e	H
I h	w e i	Y	E e H	E e H	e	H
I i	w e j	Y	E e H	E e H	e	H
I i	w e e	Y	E e H	E e H	e	H
I i	w e f	Y	E e H	E e H	e	H
I i	T u f	Y	E e i i	E e i i	e	J i
I i	T u g	Y	E e i i	E e i i	e	J i
I j	T u h	Y	E e i i	E e i i	e	J i
I e	T u i	Y	E e i i	E e i i	e	J i
I f	T u i	Y	E e i i	E e i i	e	J i
I g	T u i	Y	E e i i	E e i i	e	J i
I h	T u i	Y	E e i i	E e i i	e	J i



0{ } a^ ^ K Q^ A^ a^ A[ , A^ A[ ] E  
 O^ a^ A^ K T & @ | | a  
 F a^ A^ { a^ K F H G E F e^ O i^ e H  
 T [ a^ A^ a^ A^ K H E G i i e O i^ q A^ O a^ q }

Q i^ A^ E G E E  
 F e K i^ A^ E  
 O @ & a^ A^ K E

**A Ya VYf'8 jgIfjVi hYX' @ UXg'f6 @ ' &+ : '6 @ ' \* HfUbgjYbh5 f YU @ UXgk'f7 c bhjbi YXL**

	T \ { a^ A^ a^ A^ }	O a^ & a^ }	U c a^ A^ a^ } a^ a^ Z a^ D ( F H E ) a^ A^ a^ } a^ a^ Z a^ D ( F H E ) U c a^ O i^ } a^ a^ }	U c a^ O i^ } a^ a^ }	U c a^ O i^ } a^ a^ }	U c a^ O i^ } a^ a^ }	U c a^ O i^ } a^ a^ }
í	T Ú	Ý	Ê Ê	Ê Ê	€	Ê Ê	J
í	T Ú	Ý	Ê Ê	Ê Ê	€	Ê Ê	J
í	T Ú F €	Ý	Ê Ê	Ê Ê	€	Ê Ê	J
í	T Ú F F	Ý	Ê Ê	Ê Ê	€	Ê Ê	J
í	T Ú F G	Ý	Ê Ê	Ê Ê	€	Ê Ê	J

**A Ya VYf'8 jgIfjVi hYX' @ UXg'f6 @ ' & : '6 @ ' + HfUbgjYbh5 f YU @ UXgk'**

	T \ { a^ A^ a^ A^ }	O a^ & a^ }	U c a^ A^ a^ } a^ a^ Z a^ D ( F H E ) a^ A^ a^ } a^ a^ Z a^ D ( F H E ) U c a^ O i^ } a^ a^ }	U c a^ O i^ } a^ a^ }	U c a^ O i^ } a^ a^ }	U c a^ O i^ } a^ a^ }	U c a^ O i^ } a^ a^ }
F	P € € F	Z	Ê Ê     F	Ê Ê     F	€	Ê Ê     F	F   €
G	P € € G	Z	Ê Ê     G	Ê Ê     G	€	Ê Ê     G	F   €
H	P € € H	Z	Ê Ê     H	Ê Ê     H	€	Ê Ê     H	F F Ê Ê
I	P € € I	Z	Ê Ê     F G	Ê Ê     F G	€	Ê Ê     F G	F F Ê Ê
Í	P € € Í	Z	Ê Ê     F G	Ê Ê     F G	€	Ê Ê     F G	F F Ê Ê
Î	P € € Î	Z	Ê Ê     e	Ê Ê     e	€	Ê Ê     e	Ê Ê     Ê Ê
Ï	P € € Ï	Z	Ê Ê     e	Ê Ê     e	€	Ê Ê     e	Ê Ê     Ê Ê
Ì	P € € J	Z	Ê Ê     I	Ê Ê     I	€	Ê Ê     I	F   €
J	P € € J	Z	Ê Ê     e	Ê Ê     e	€	Ê Ê     e	Ê Ê     Ê Ê
F €	P € € F	Z	Ê Ê     e	Ê Ê     e	€	Ê Ê     e	Ê Ê     Ê Ê
FF	P € € F G	Z	Ê Ê     F	Ê Ê     F	€	Ê Ê     F	Ê Ê     Ê Ê
FG	P € € F H	Z	Ê Ê     F H	Ê Ê     F H	€	Ê Ê     F H	Ê Ê     Ê Ê
FH	P € € F I	Z	Ê Ê     e	Ê Ê     e	€	Ê Ê     e	Ê Ê     Ê Ê
FI	P € € F I	Z	Ê Ê     e	Ê Ê     e	€	Ê Ê     e	Ê Ê     Ê Ê
FÍ	P € € F Í	Z	Ê Ê     F H	Ê Ê     F H	€	Ê Ê     F H	Ê Ê     Ê Ê
FÎ	P € € F Î	Z	Ê Ê     e	Ê Ê     e	€	Ê Ê     e	Ê Ê     Ê Ê
FÏ	P € € F J	Z	Ê Ê     I	Ê Ê     I	€	Ê Ê     I	F   €
FJ	P € € G	Z	Ê Ê     G	Ê Ê     G	€	Ê Ê     G	F   €
G €	P € € G	Z	Ê Ê     G	Ê Ê     G	€	Ê Ê     G	F   €
GF	P € € G G	Z	Ê Ê     I	Ê Ê     I	€	Ê Ê     I	F F Ê Ê
GG	P € € G H	Z	Ê Ê     I	Ê Ê     I	€	Ê Ê     I	F F Ê Ê
GH	P € € G	Z	Ê Ê     F	Ê Ê     F	€	Ê Ê     F	F F Ê Ê
G	O € € G	Z	Ê Ê     I	Ê Ê     I	€	Ê Ê     I	Ê Ê     Ê Ê     H
G	O € € G	Z	Ê Ê     H	Ê Ê     H	€	Ê Ê     H	Ê Ê     Ê Ê     H
G	O € € G	Z	Ê Ê     H	Ê Ê     H	€	Ê Ê     H	Ê Ê     Ê Ê     H
G	W € € I	Z	Ê Ê     I	Ê Ê     I	€	Ê Ê     I	H
G	W € € I	Z	Ê Ê     I	Ê Ê     I	€	Ê Ê     I	H
GJ	W € € I	Z	Ê Ê     I	Ê Ê     I	€	Ê Ê     I	H
H €	W € € U	Z	Ê Ê     I	Ê Ê     I	€	Ê Ê     I	H
HF	W € € €	Z	Ê Ê     I	Ê Ê     I	€	Ê Ê     I	H
HG	W € € F	Z	Ê Ê     I	Ê Ê     I	€	Ê Ê     I	H
HH	W € € G	Z	Ê Ê     I	Ê Ê     I	€	Ê Ê     I	H
HI	W € € H	Z	Ê Ê     I	Ê Ê     I	€	Ê Ê     I	H
HÍ	W € € I	Z	Ê Ê     I	Ê Ê     I	€	Ê Ê     I	H
HÎ	W € € Í	Z	Ê Ê     I	Ê Ê     I	€	Ê Ê     I	H
HÏ	W € € Î	Z	Ê Ê     I	Ê Ê     I	€	Ê Ê     I	H
HJ	W € € I	Z	Ê Ê     I	Ê Ê     I	€	Ê Ê     I	H
I €	W € € J	Z	Ê Ê     I	Ê Ê     I	€	Ê Ê     I	H
IF	W € € €	Z	Ê Ê     I	Ê Ê     I	€	Ê Ê     I	H
IG	W € € F	Z	Ê Ê     I	Ê Ê     I	€	Ê Ê     I	H
I H	T Ú F	Z	Ê Ê     I	Ê Ê     I	€	Ê Ê     I	J



0{ } a^ ^ K Oe ^ a a A[ , ^ A[O{ ] E  
 O^ a } ^ K T & @ | O | a  
 F a A^ ^ { a^ K FHGEF e ' O i ' eH  
 T [ a^ / a a ^ K HEG i i E O } q A O a q }

Oq : A E O E E  
 F e K i A O F  
 O @ & ^ a A O ^ K E

**A Ya Vyf'8 jgfvI hYX' @ UXg'f6 @ '& : '6 @ ' +HfUbgjYbh5 f YU @ UXgk'f7 c bhbi YXL**

	T \ { a^ / A a ^ }	O a ^ & a }	U c a o A a e } a ^ a ^ Z a D e ( H E O ) a A T a e } a ^ a ^ Z a D e ( H E O ) U c a o S i } & a a } Z a E a a	O ) a A S i } & a a } Z a E a a		
II	T UG	Z	U U I	U U I	€	J I
I I	T UH	Z	U U I	U U I	€	J I
I I	T U I	Z	U U I	U U I	€	J I
I I	T U j	Z	U U I	U U I	€	J I
I I	T U i	Z	U U I	U U I	€	J I
I J	T U i	Z	U U I	U U I	€	J I
I €	T U i	Z	U U I	U U I	€	J I
I F	T U j	Z	U U I	U U I	€	J I
I G	T U f €	Z	U U I	U U I	€	J I
I H	T U f f	Z	U U I	U U I	€	J I
I I	T U f g	Z	U U I	U U I	€	J I

**A Ya Vyf'8 jgfvI hYX' @ UXg'f6 @ '& : '6 @ ' , HfUbgjYbh5 f YU @ UXgk**

	T \ { a^ / A a ^ }	O a ^ & a }	U c a o A a e } a ^ a ^ Z a D e ( H E O ) a A T a e } a ^ a ^ Z a D e ( H E O ) U c a o S i } & a a } Z a E a a	O ) a A S i } & a a } Z a E a a		
F	P E E G	Y	U U F J	U U F J	€	F I €
G	P E E j	Y	U U F F	U U F F	€	F F F H i
H	P E E i	Y	U U F F	U U F F	€	F F F H i
I	P E E j	Y	U U F i	U U F i	€	i i F H i
I	P E E i	Y	U U e i	U U e i	€	i i F H i
I	P E E i	Y	U U e i	U U e i	€	i i F H i
I	P E E j	Y	U U F j	U U F j	€	F I €
I	P e f €	Y	U U e i	U U e i	€	i j F H i
J	P e f f	Y	U U e i	U U e i	€	i j F H i
F €	P e f H	Y	U U i i	U U i i	€	i i F i i
FF	P e f i	Y	U U e H	U U e H	€	i i F i i
FG	P e f i	Y	U U i G	U U i G	€	i i F i i
FH	P e f i	Y	U U i i	U U i i	€	i i F i i
FI	P e f i	Y	U U i G	U U i G	€	i i F i i
F i	P e f i	Y	U U e H	U U e H	€	i i F i i
F i	P e e e	Y	U U G	U U G	€	F I €
F i	P e e f	Y	U U G	U U G	€	F I €
F i	P e e g	Y	U U i G	U U i G	€	F F F H i
F j	P e e H	Y	U U i G	U U i G	€	F F F H i
G €	O e g	Y	U U F	U U F	€	i i F H
G f	O e g	Y	U U	U U	€	i i F H
G g	O e g	Y	U U	U U	€	i i F H
G H	w e g	Y	U U e i	U U e i	€	H
G j	w e g j	Y	U U e i	U U e i	€	H
G i	w e H e	Y	U U e i	U U e i	€	H
G i	w e H f	Y	U U e i	U U e i	€	H
G i	w e H g	Y	U U e i	U U e i	€	H
G i	w e H H	Y	U U e i	U U e i	€	H
G j	w e H i	Y	U U e i	U U e i	€	H
H €	w e i	Y	U U e i	U U e i	€	H
H f	w e i	Y	U U e G	U U e G	€	H
H g	w e i	Y	U U e G	U U e G	€	H
H H	w e i	Y	U U e G	U U e G	€	H
H i	w e j	Y	U U e G	U U e G	€	H
H i	w e e	Y	U U e G	U U e G	€	H
H i	w e f	Y	U U e G	U U e G	€	H
H i	w e g	Y	U U e G	U U e G	€	H

















0[ { ] a ^ K Q E ^ i a a A [ , ^ i A O [ ] E  
 O ^ a } ^ K T & @ | | a  
 R a A ^ { a ^ K F H G E F i ^ O i ^ e H  
 T [ a ^ / p a ^ K H E G i i E O } q A O a q }

Q : A E G E E  
 F e K i A O F  
 O @ & ^ a A O k E

**9bj YcdY>c]bhFYUM]cbgf77 cbljbi YXL**

R a c	Y A a	S O	Y A a	S O	Z A a	S O	T Y A a E a	S O	T Y A a E a	S O	T Z A a E a	S O
F i	{ a	H G J E	F F	F J E i B i i	F i	H G F i E G	i					

**9bj YcdY5-G7 % H fl \* \$!% L ' Q : 8 ' G h Y ' 7 c X Y 7 \ Y W g**

T ^ { a ^	U a ^	O i a ^ A O @ &	S i & a S O	U @ a A i i & a O a	S O	J @ U ) & A i i @ U ) a i i @ E ) A i i @ E ) A i i	O a	O r							
F	P E F	U W O ' H E	E i i	E E E H	E i G	i E	H G	G G E i i	i i G e	i i i E i	i i i E i	H E G	P F E a		
G	P E G	U W O ' H E	E i i	E E E G	E i i	i E	H i	G G E i i	i i G e	i i i E i	i i i E i	H E i F	P F E a		
H	P E H	U S i c E i	E i i	i E i J	i	E i i	i E i J	^	H E	i i H E i U	F H E E	F i E i	F i i i	F E i F	P F E a
I	P E I	U S i c E i	E i i	i E i J	F F	E i i	i E i J	^	H i	i i H E i U	F H E E	F i E i	F i i i	F E i F	P F E a
I	P E I	U S i c E i	E i G	i E i J	G	E i i	i E i J	^	G	i i H E i U	F H E E	F i E i	F i i i	F E i H	P F E a
I	P E I	P U U i c i c i	E F J	i i E i	G	E i F	e	^	F F J	F G G F E i	F H i F	F i F E i	F i F E i	G E G J	P F E a
I	P E I	P U U i c i c i	E G	i i E i	H E	E i i	e	^	F G i	F G G F E i	F H i F	F i F E i	F i F E i	G E F i	P F E a
I	P E I	P U U i c i c i	E G F	i i E i	H i	E i F	e	^	F E i	F G G F E i	F H i F	F i F E i	F i F E i	G E G J	P F E a
J	P E J	U W O ' H E	E i i	F G J E	H E	E i F	J i E E		i	G G E i i	i i G e	i i i E i	i i i E i	H E F J	P F E a
F E	P E F E	P U U i c i c i	E i F	G E E	G J	E J H	i E i i	:	i	F G E H E i	F H i F	F i F E i	F i F E i	F E i i	P F E a
F F	P E F F	P U U i c i c i	E H G	G E E	H H	E i i	i E i i	:	i	F G E H E i	F H i F	F i F E i	F i F E i	F E i J	P F E a
F G	P E F G	P U U i c i c i	E i G	G E E	G	E i J	i E i i	:	F G	F G E H E i	F H i F	F i F E i	F i F E i	F E i G	P F E a
F H	P E F H	S G q Q H	E i e	G E E	F i	E E i	e	^	G	F e i J E i J	G H U G E	i i i E i	F e i E G F	F E i H	P G E
F I	P E F I	S G q Q H	E i i	G E E	F J	E E i	e	^	H G	F e i J E i J	G H U G E	i i i E i	F e i E G F	F E i H	P G E
F i	P E F i	S G q Q H	E i i	G E E	G H	E E i	i i E E	^	H i	F e i J E i J	G H U G E	i i i E i	F e i E G F	F E i H	P G E
F I	P E F I	S G q Q H	E J G	G E E	G	E E i	i i E E	^	H i	F e i J E i J	G H U G E	i i i E i	F e i E G F	F E i H	P G E
F i	P E F i	S G q Q H	E F	G E E	F i	E E i	i i E E	^	G	F e i J E i J	G H U G E	i i i E i	F e i E G F	F E i H	P G E
F i	P E F i	S G q Q H	E J i	G E E	G F	E E i	i i E E	^	H G	F e i J E i J	G H U G E	i i i E i	F e i E G F	F E i H	P G E
F J	P E F J	U W O ' G E	E G F	E E E	G	E F i	H E G		G	i G i E G	H G F H E	F i F E G	F i F E G	G E i G	P F E a
G E	P E G E	U W O ' G E	E i e	E E E	i	E H G	H E G		i	i G i E G	H G F H E	F i F E G	F i F E G	H E i G	P F E a
G F	P E G F	U W O ' G E	E i i	F G J E	i	E G	F i E E		F E	i G i E G	H G F H E	F i F E G	F i F E G	G E F	P F E a
G G	P E G G	S G e G e d	E E i	e	J	E i e	e	^	F H	H F e e i F	H i i i	F F H E i i	G H E i i	G E i i	P G E
G H	P E G H	S G e G e d	E E i	e	i	E i J	e	:	J	H F e e i F	H i i i	F F H E i i	G H E i i	G E i i	P G E
G	P E G	S G e G e d	E E i	e	F G	E i i	e	^	i	H F e e i F	H i i i	F F H E i i	G H E i i	G E i G	P G E
G	O E G	S S G e G e c H	E E i	i i E E	G	E E G	e	^	G	i i i J E i i	i i H G E	H E e E i	G i i E i	F E i H	P F E a E
G	O E G	S S G e G e c H	E E i	i i E E	H i	E E G	i i E E	^	H i	i i i J E i i	i i H G E	H E e E i	G i i E i	F E i H	P F E a E
G	O E G	S S G e G e c H	E F E	i i E E	H E	E E G	i i E E	^	H E	i i i J E i i	i i H G E	H E e E i	G i i E i	F E i H	P F E a E
G	T U F	U W O ' G E	E i H	i G	H i	E i J	i G		J	H i i E i J	H G F H E	F i F E G	F i F E G	G E i i	P F E a e
G J	T U G	U W O ' G E	E i G	i G	G	E i i	i G		F G	H i i E i J	H G F H E	F i F E G	F i F E G	F E i H	P F E a e
H E	T U H	U W O ' G E	E i i	i G	H F	E i i	i G		i	H i i E i J	H G F H E	F i F E G	F i F E G	F E i J	P F E a e
H F	T U i	U W O ' G E	E H i	i G	J i	E G J	i G		i	H i i E i J	H G F H E	F i F E G	F i F E G	G E H	P F E a e
H G	T U i	U W O ' G E	E H U	i G	F i	E i i	i G		F E	H i i E i J	H G F H E	F i F E G	F i F E G	F E e	P F E a e
H H	T U i	U W O ' G E	E i i	i G	F F	E H G	i G		F H	H i i E i J	H G F H E	F i F E G	F i F E G	F E F G	P F E a
H i	T U i	U W O ' G E	E i F	i G	F H	E H F	i G		i	H i i E i J	H G F H E	F i F E G	F i F E G	G E H	P F E a e
H i	T U i	U W O ' G E	E i e	i G	F i F	E i F	i G		F E	H i i E i J	H G F H E	F i F E G	F i F E G	F E i	P F E a e
H i	T U j	U W O ' G E	E i i	i G	F i i	E i J	i G		G	H i i E i J	H G F H E	F i F E G	F i F E G	F E i H	P F E a e
H i	T U F e	U W O ' G E	E i i	i G	F i H	E i H	i G		F E	H i i E i J	H G F H E	F i F E G	F i F E G	G E H	P F E a e
H i	T U F F	U W O ' G E	E i i	i G	F i J	E i i	i G		F H	H i i E i J	H G F H E	F i F E G	F i F E G	F E i H	P F E a e
H J	T U F G	U W O ' G E	E i i	i G	G e	E i J	i G		i	H i i E i J	H G F H E	F i F E G	F i F E G	G E F G	P F E a e

General Power Density

Site Name: Canton 3, CT  
 Cumulative Power Density

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissible Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm <sup>2</sup> )	(mW/cm <sup>2</sup> )	(%)
VZW PCS	1970	1	6685	6685	118	0.1727	1.0	17.27%
VZW Cellular LTE	869	1	2765	2765	118	0.0714	0.5793333333	12.33%
VZW AWS	2145	1	5985	5985	118	0.1546	1.0	15.46%
VZW 700	746	1	2755	2755	118	0.0712	0.4973333333	14.31%

**Total Percentage of Maximum Permissible Exposure** 59.36%

\*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Section 1.13101 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.

MHz = Megahertz

mW/cm<sup>2</sup> = milliwatts per square centimeter

ERP = Effective Radiated Power

Absolute worst case maximum values used, including the following assumptions:

1. closest accessible point is distance from antenna to base of pole;
2. continuous transmission from all available channels at full power for indefinite time period; and,
3. all RF energy is assumed to be directed solely to the base of the pole.

DOCKET NO. 62

AN APPLICATION OF THE SOUTHERN NEW ENGLAND : CONNECTICUT SITING  
TELEPHONE COMPANY FOR A CERTIFICATE OF  
ENVIRONMENTAL COMPATIBILITY AND PUBLIC :  
NEED FOR THE CONSTRUCTION, MAINTENANCE, : COUNCIL  
AND OPERATION OF FACILITIES TO PROVIDE  
CELLULAR SERVICE IN THE TOWN OF  
CANTON, CONNECTICUT. : August 4, 1986

DECISION AND ORDER

Pursuant to the foregoing Opinion, the Connecticut Siting Council (Council) hereby directs that a certificate of environmental compatibility and public need (certificate) as provided by section 16-50k of the General Statutes of Connecticut (CGS) be issued to the Southern New England Telephone Company (SNET) for the construction, maintenance, and operation of a cellular mobile telephone telecommunication tower and associated equipment in the Town of Canton, subject to the conditions below.

1. The tower shall be no taller than necessary to provide the proposed service, and in no event shall exceed 167', including antennas, at the Hoffmann Road site.
2. A fence not lower than eight feet shall surround the tower and associated equipment building.
3. The applicant or its successor shall notify the Council if and when directional antennas or any other equipment is added to these facilities.
4. The applicant or its successor shall permit, in accordance with representations made by it during the proceeding, public or private entities to share space on the tower, for due consideration received, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

5. Unless necessary to comply with condition number six, below, no lights shall be installed on this tower.
6. The facilities shall be constructed, operated, and maintained as specified in the Council's record on this matter, and shall be constructed in accordance with all applicable federal, state, and municipal laws and regulations.
7. The applicant shall submit a Development and Management Plan (D&M) for the tower site pursuant to sections 16-50j-75 through 16-50j-77 of the Regulations of State Agencies, except that irrelevant items in section 16-50j-76 need only be identified as such. In addition to the requirements of section 16-50j-76, the D&M plan shall provide a plan for evergreen screening around the fenced perimeter of the tower site. The D&M plan must be approved prior to facility construction. Any changes to specifications in the D&M plan must be approved by the Council prior to facility operation.
8. Construction activities shall take place during daylight working hours.
9. The certificate holder shall comply with any future radiofrequency (RF) standards promulgated by state or federal regulatory agencies. Upon the establishment of any new governmental RF standards, the facilities granted in this decision shall comply with such standards.
10. This decision and order shall be void and the towers and associated equipment shall be dismantled and removed, or reapplication for any new use shall be made to the Council before any such new use is made, if the tower does not provide or permanently ceases to provide cellular service following completion of construction.

11. This Decision and Order shall be void if all construction authorized herein is not completed within three years of the issuance of this decision, or within three years of the completion of any appeal if appeal of this decision is taken, unless otherwise approved by the Council.

Pursuant to CGS section 16-50p, we hereby direct that a copy of the Decision and Order shall be served on each person listed below. A notice of the issuance shall be published in the Hartford Courant and the Farmington Valley Herald.

The parties to the proceeding are:

Southern New England Telephone  
Company  
c/o Peter J. Tyrrell  
Senior Attorney  
Room 1021  
227 Church Street  
New Haven, Connecticut 06506  
(203) 771-7381

(Applicant)

The Hartford Cellular Company

represented by:

Howard L. Slater  
Byrne, Slater, Sandler,  
Shulman & Rouse, P.C.  
111 Pearl Street  
P.O. Box 3216  
Hartford, Connecticut 06103

Town of Simsbury

represented by:

Mr. Leonard D. Tolisano  
Town Planner  
Town of Simsbury  
P.O. Box 495  
Simsbury, Connecticut 06070

Town of Canton

represented by:

Mr. Marshall K. Berger, Jr.  
Attorney at Law  
Suite 308  
60 Washington Street  
Hartford, Connecticut 06106

Ms. Karen Berger

represented by:

Mr. Marshall K. Berger, Jr.  
Attorney at Law  
Suite 308  
60 Washington Street  
Hartford, Connecticut 06106  
(service waived)

Mr. Harvey Jassem  
243 East Hill Road  
Canton, Connecticut 06019

Ms. Judy Friedman  
101 Lawton Road  
Canton, Connecticut 06019

(service waived)

Mr. Gilbert Small  
315 East Hill Road  
Canton, Connecticut 06019

(service waived)

John G. Petrasch  
330 East Hill Road  
Canton, Connecticut 06019

(service waived)



CERTIFICATION

The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut, this 4th day of August, 1986.

<u>Council Members</u>	<u>Vote Cast</u>
<u>Gloria Dibble Pond</u> Gloria Dibble Pond Chairperson	Yes
<u>Edward Moehringa</u> Commissioner John Downey Designee: Edward Moehringa	Yes
<u>Brian Emerick</u> Commissioner Stanley Pac Designee: Brian Emerick	Abstain
<u>Owen L. Clark</u> Owen L. Clark	Yes
<u>Mortimer A. Gelston</u> Mortimer A. Gelston	Absent
<u>James G. Horsfall</u> James G. Horsfall	Absent
<u>Pamela B. Katz</u> Pamela B. Katz	No
<u>William H. Smith</u> William H. Smith	Absent
<u>Colin C. Tait</u> Colin C. Tait	Yes

STATE OF CONNECTICUT )  
                                  :  
COUNTY OF HARTFORD )

ss.           New Britain, August 4, 1986

I hereby certify that the foregoing is a true and correct copy of the decision and order issued by the Connecticut Siting Council, State of Connecticut.

ATTEST:

*Gloria Dibble Pond*  
\_\_\_\_\_  
Gloria Dibble Pond, Chairperson  
Connecticut Siting Council

# Town of Canton

Geographic Information System (GIS)



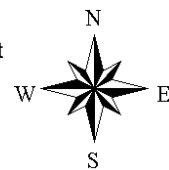
Date Printed: 7/28/2020

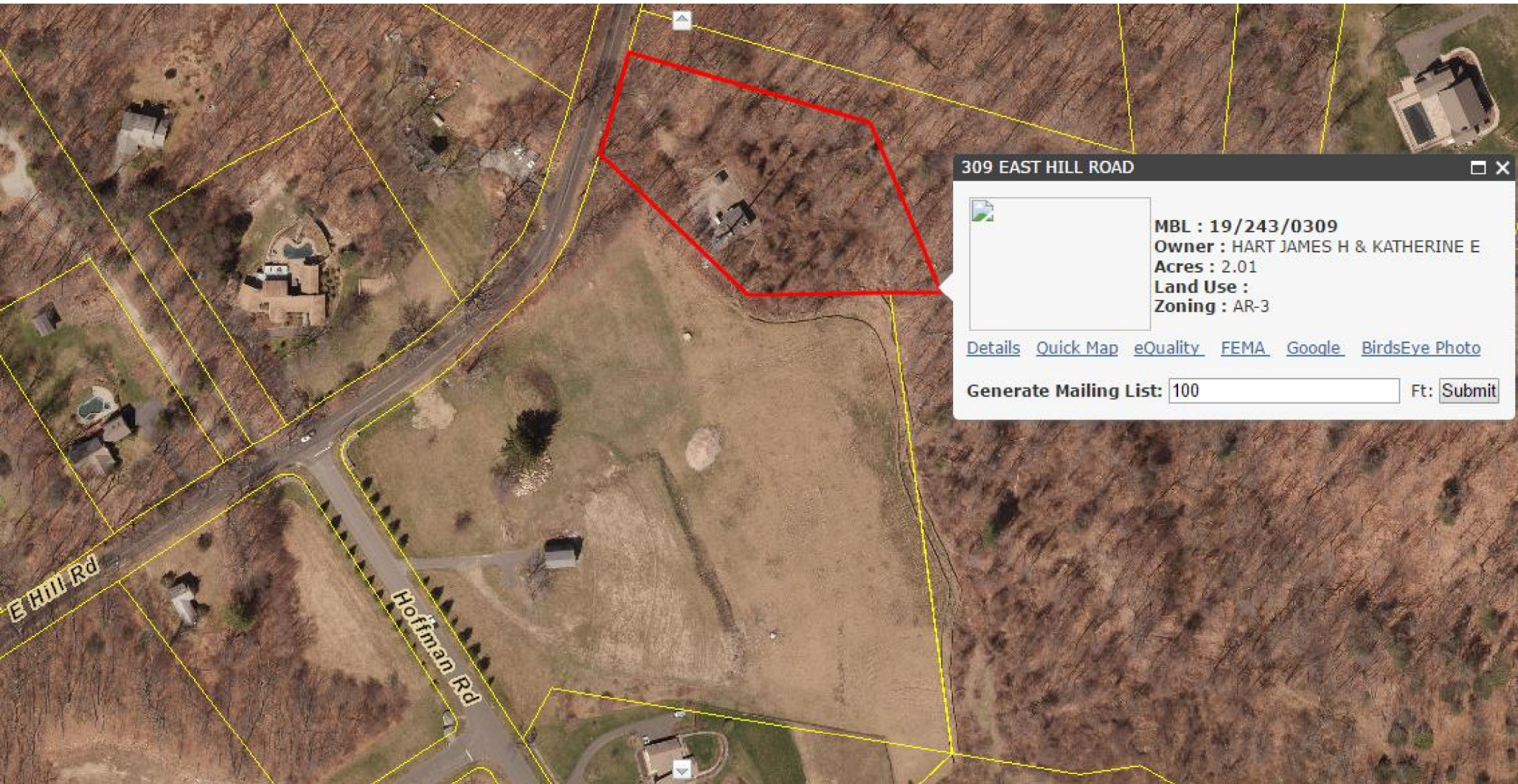


**MAP DISCLAIMER - NOTICE OF LIABILITY**

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The Town of Canton and its mapping contractors assume no legal responsibility for the information contained herein.

Approximate Scale: 1 inch = 150 feet





309 EAST HILL ROAD

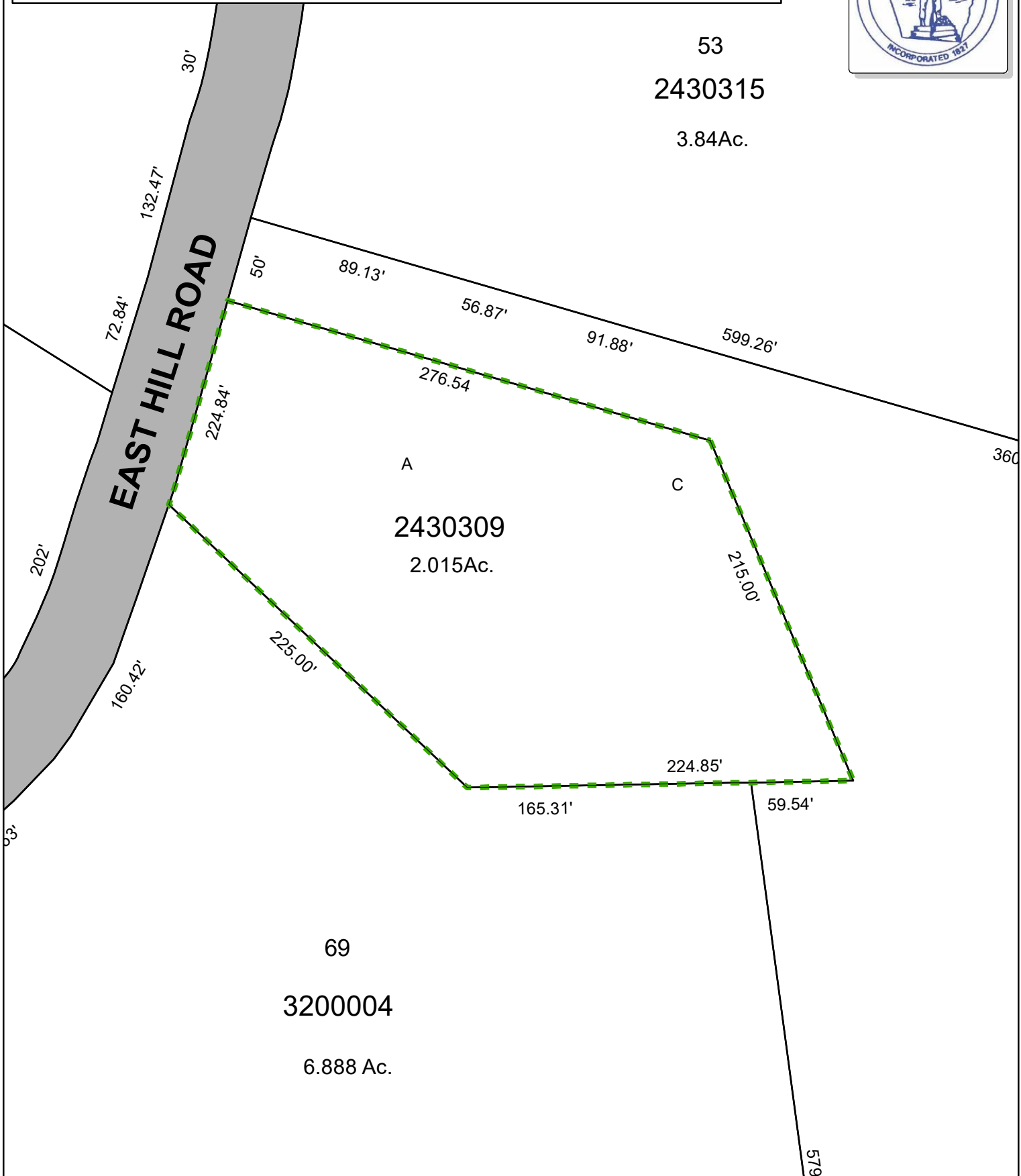


**MBL :** 19/243/0309  
**Owner :** HART JAMES H & KATHERINE E  
**Acres :** 2.01  
**Land Use :**  
**Zoning :** AR-3

[Details](#) [Quick Map](#) [eQuality](#) [FEMA](#) [Google](#) [BirdsEye Photo](#)

**Generate Mailing List:**  Ft:

**Town of Canton, Connecticut - Assessment Parcel Map**  
**Unique ID: 2430309    Address: 309 EAST HILL ROAD**



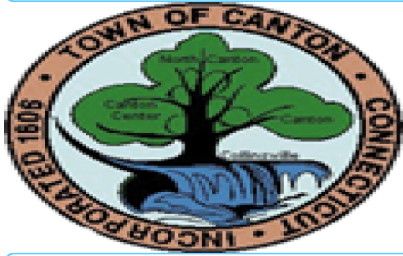
**Approximate Scale:**  
 1 inch = 75 feet

**Disclaimer:**  
 This map is for informational purposes only.  
 All information is subject to verification by any user.  
 The Town of Canton and its mapping contractors  
 assume no legal responsibility for the information contained herein.

**Map Produced**  
 June 2020

- - - Sublot
- - - Easement
- 4850007 Parcel ID
- 89' Dimension

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2018.



# TOWN OF CANTON<sub>CT</sub>

Information on the Property Records for the Municipality of Canton was last updated on 7/27/2020.

## Parcel Information

Location:	309 EAST HILL ROAD	Property Use:	Vacant Land	Primary Use:	Commercial Vacant Land
Unique ID:	2430309	Map Block Lot:	19/243/0309	Acres:	2.01
490 Acres:	0.00	Zone:	R-3	Volume / Page:	360/841
Developers Map / Lot:	B	Census:			

## Value Information

	Appraised Value	Assessed Value
Land	150,240	105,170
Buildings	0	0
Detached Outbuildings	0	0
Total	150,240	105,170

## Owner's Information

### Owner's Data

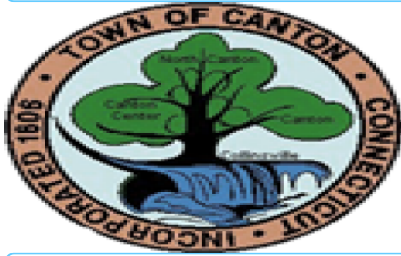
HART JAMES H & KATHERINE E  
90 PARK ROAD  
BARKHAMSTEAD, CT 06063

## Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Valid Sale	Sale Price
HART JAMES H & KATHERINE E	0360	0841			No	\$0
HOFFMANN HERMAN A &	0123	0628			No	\$0

Information Published With Permission From The Assessor

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2018.



# TOWN OF CANTON<sub>CT</sub>

Information on the Property Records for the Municipality of Canton was last updated on 7/27/2020.

## Property Summary Information

Parcel Data And Values

Sales

### Parcel Information

Location:	309 T EAST HILL ROAD	Property Use:	Vacant Land	Primary Use:	Commercial Vacant Land
Unique ID:	2439309T	Map Block Lot:	19/243/9309	Acres:	0.23
490 Acres:	0.00	Zone:	AR-3	Volume / Page:	403/ 796
Developers Map / Lot:		Census:			

### Value Information

	Appraised Value	Assessed Value
Land	400,000	280,000
Buildings	0	0



	Appraised Value	Assessed Value
Detached Outbuildings	0	0
Total	400,000	280,000

### Owner's Information

#### Owner's Data

SPRINGWICH CELLULAR TOWER HOLDINGS LLC  
ATTN: PROPERTY TAX DEPT  
1010 PINE ST, 9E-L-01  
ST LOUIS MO 63101

[Back To Search \(JavaScript:window.history.back\(1\);\)](#)

[Print View \(PrintPage.aspx?towncode=023&uniqueid=2439309T\)](#)

Information Published With Permission From The Assessor

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2018.



# TOWN OF CANTON<sub>CT</sub>

Information on the Property Records for the Municipality of Canton was last updated on 7/27/2020.

## Parcel Information

Location:	4 HOFFMANN ROAD	Property Use:	Vacant Land	Primary Use:	Residential
Unique ID:	3200004	Map Block Lot:	23/320/0004	Acres:	6.88
490 Acres:	0.00	Zone:	R-3	Volume / Page:	0421/1046
Developers Map / Lot:	A	Census:			

## Value Information

	Appraised Value	Assessed Value
Land	264,347	185,040
Buildings	0	0
Detached Outbuildings	12,499	8,750
Total	276,846	193,790

## Owner's Information

### Owner's Data

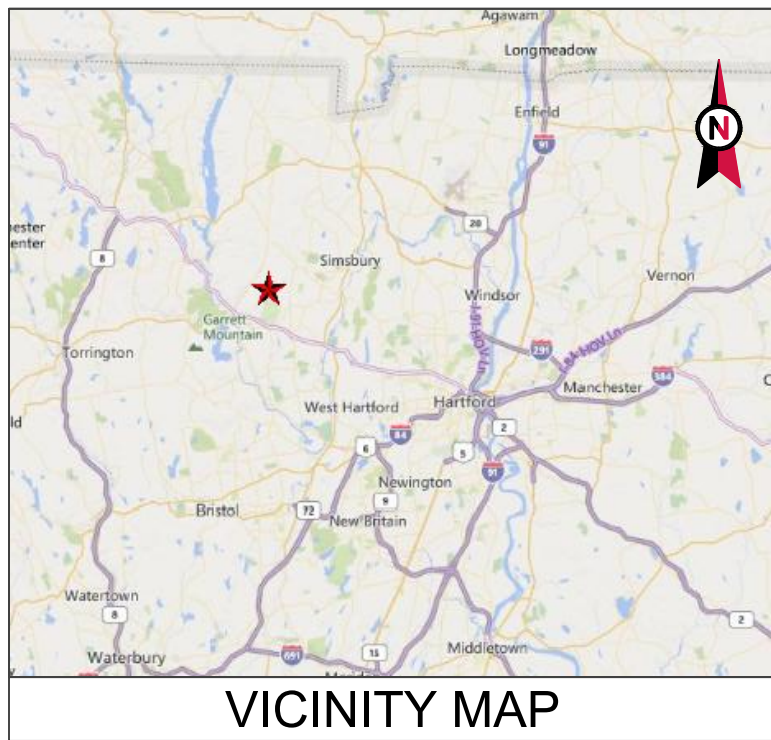
BISKUPIAK BRIAN &  
BISKUPIAK KELLEY  
14 CROWN POINT  
CANTON, CT 09019

## Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
Detatched Frame Garage	1985	31.00	24.00	744

## Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Valid Sale	Sale Price
BISKUPIAK BRIAN &	0421	1046	09/23/2015		Yes	\$300,000
MACK IV LLC	0403	1013	04/23/2013		Yes	\$260,000
HART JAMES H &	0360	0841			No	\$0
HOFFMANN EDITH L	0123	0628			No	\$0
HOFFMANN HERMAN A &	0123	0628			No	\$0
HOFFMANN HERMAN A - ESTATE OF &	0123	0628			No	\$0

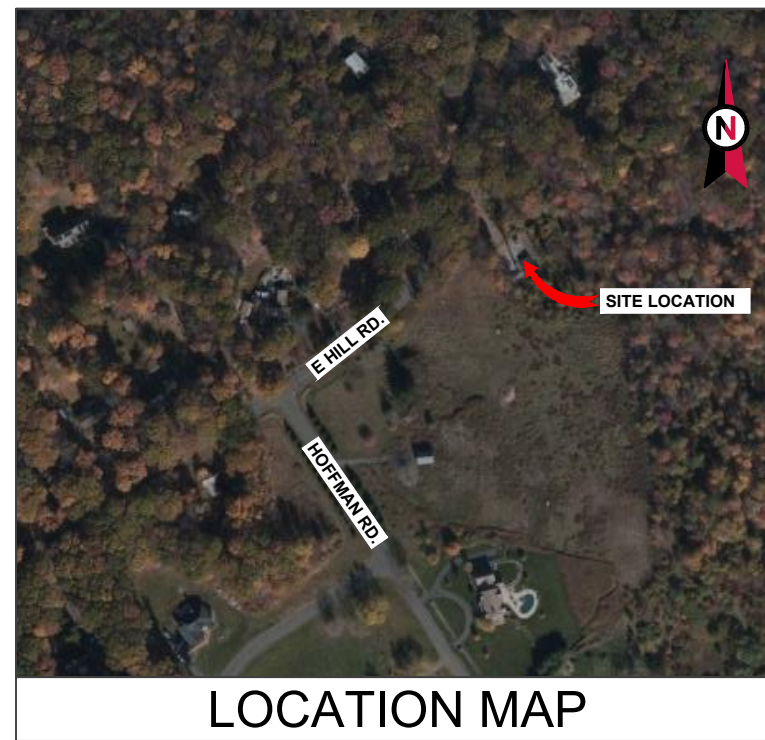


VICINITY MAP



**AMERICAN TOWER®**

SITE NAME: CNTN - CANTON  
 SITE NUMBER: 302488  
 ATC PROJECT NUMBER: 13201406\_C6\_05  
 SITE ADDRESS: 4 HOFFMANN ROAD  
 CANTON, CT 06019



LOCATION MAP

150 FT MONOPOLE MODIFICATIONS

**AMERICAN TOWER®**  
**A.T. ENGINEERING SERVICE, PLLC**  
 3500 REGENCY PARKWAY  
 SUITE 100  
 CARY, NC 27518  
 PHONE: (919) 468-0112  
 COA: PEC.0001553

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LPG	07/08/20

ATC SITE NUMBER:  
 302488

ATC SITE NAME:  
 CNTN - CANTON  
 CONNECTICUT

SITE ADDRESS:  
 4 HOFFMANN ROAD  
 CANTON, CT 06019




DRAWN BY:	LPG
APPROVED BY:	IPD
DATE DRAWN:	07/08/20
ATC JOB NO:	13201406_C6_05

COVER

SHEET NUMBER:  
**G-001**

REVISION:  
**0**

PROJECT TEAM	PROJECT DESCRIPTION	SHEET	SHEET TITLE	REV.
<p><b>TOWER OWNER</b>            AMERICAN TOWER            10 PRESIDENTIAL WAY            WOBURN, MA 01801</p> <p><b>ENGINEERED BY</b>            ATC TOWER SERVICES            3500 REGENCY PARKWAY, SUITE 100            CARY, NC 27518</p> <p><b>CARRIER INFORMATION</b>            CARRIER: VERIZON WIRELESS            CARRIER SITE NAME: CANTON 3 CT            CARRIER SITE NUMBER: 467157</p> 	<p>THE MODIFICATIONS PRESENTED ON THESE DRAWINGS ARE BASED ON THE RECOMMENDATIONS OUTLINED IN THE STRUCTURAL ANALYSIS COMPLETED UNDER ENGINEERING PROJECT NUMBER 13201406_C3_02 DATED 05/19/20. SATISFACTORY COMPLETION OF THE WORK INDICATED ON THESE DRAWINGS WILL RESULT IN THE STRUCTURE MEETING THE REQUIREMENTS OF THE SPECIFICATIONS UNDER WHICH THE STRUCTURAL WAS COMPLETED.</p> <p><b>COMPLIANCE CODE</b></p> <p>ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNMENT AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.</p> <p>1. ANSI/TIA/EIA: STRUCTURAL STANDARDS (222-G EDITION)            2. INTERNATIONAL BUILDING CODE (2015 IBC)            3. CONNECTICUT STATE BUILDING CODE (2018)</p> <p><b>PROJECT LOCATION</b></p> <p><b>GEOGRAPHIC COORDINATES</b>            LATITUDE: 41.85527778            LONGITUDE: -72.8925</p>	G-002	IBC GENERAL NOTES	0
		G-003	SPECIAL INSPECTION CHECKLIST	0
		G-004	BILL OF MATERIALS	0
		C-101	DETAILED SITE PLAN	0
		S-201	MODIFICATION PROFILE	0
		S-501	REINFORCEMENT INSTALLATION DETAILS	0
		S-502	REINFORCEMENT INSTALLATION DETAILS	0
		S-503	REINFORCEMENT INSTALLATION DETAILS (CONT'D)	0
		S-504	#20 STEP BOLT BRACKET INSTALLATION DETAILS	0
		Z-501	TRANSITION BRACKET WELDMENT FABRICATION DETAILS	0
		Z-502	#20 BEARING PLATE FABRICATION DETAILS	0

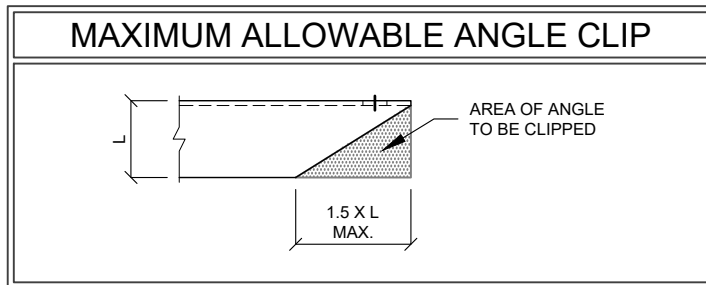
Copyright © 2020 ATC IP, LLC. All Rights Reserved.

**GENERAL**

- ALL WORK TO BE COMPLETED PER APPLICABLE LOCAL, STATE, FEDERAL CODES AND ORDINANCES AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS FOR WIRELESS TOWER SITES. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND ABIDING BY ALL REQUIRED PERMITS.
- ALL WORK INDICATED ON THESE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TOWER AND FOUNDATION CONSTRUCTION.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD IMMEDIATELY OF ANY INSTALLATION INTERFERENCES. ALL NEW WORK SHALL ACCOMMODATE EXISTING CONDITIONS. DETAILS NOT SPECIFICALLY SHOWN ON THE DRAWINGS SHALL FOLLOW SIMILAR DETAILS FOR THIS JOB.
- ANY SUBSTITUTIONS SHALL CONFORM TO THE REQUIREMENTS OF THESE NOTES AND SPECIFICATIONS, AND SHOULD BE SIMILAR TO THOSE SHOWN. ALL SUBSTITUTIONS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
- ANY MANUFACTURED DESIGN ELEMENTS SHALL CONFORM TO THE REQUIREMENTS OF THESE NOTES AND SPECIFICATIONS AND SHOULD BE SIMILAR TO THOSE SHOWN. THESE DESIGN ELEMENTS MUST BE STAMPED BY AN ENGINEER PROFESSIONALLY REGISTERED IN THE STATE OF THE PROJECT, AND SUBMITTED TO THE ENGINEER OF RECORD FOR APPROVAL PRIOR TO FABRICATION.
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH LOCAL CODES AND OSHA SAFETY REGULATIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND EXECUTION OF ALL MISCELLANEOUS SHORING, BRACING, TEMPORARY SUPPORTS, ETC. NECESSARY, PER ANSI/TIA-322 AND ANSI/ASSE A10.48, TO PROVIDE A COMPLETE AND STABLE STRUCTURE AS SHOWN ON THESE DRAWINGS.
- CONTRACTOR'S PROPOSED INSTALLATION SHALL NOT INTERFERE, NOR DENY ACCESS TO, ANY EXISTING OPERATIONAL AND SAFETY EQUIPMENT.

**STRUCTURAL STEEL**

- ALL DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AISC SPECIFICATIONS, LATEST EDITION.
- ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.
- ALL U-BOLTS SHALL BE ASTM A36 OR EQUIVALENT, WITH LOCKING DEVICE, UNLESS NOTED OTHERWISE.
- FIELD CUT EDGES, EXCEPT DRILLED HOLES, SHALL BE GROUND SMOOTH.
- ALL FIELD CUT SURFACES, FIELD DRILLED HOLES & GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.
- ALL STRUCTURAL STEEL EMBEDDED IN THE CONCRETE SHALL BE APPLIED WITH (2) BRUSHED COATS OF POLYGUARD CA-14 MASTIC OR EQUIVALENT. REFER TO THE MANUFACTURER SPECIFICATIONS FOR SURFACE PREPARATION AND APPLICATION. APPLICATION OF POLYGUARD 400 WRAP IS NOT ESSENTIAL.
- CONTRACTOR SHALL PERFORM WORK ON ONLY ONE (1) TOWER FACE AND REPLACE/REINFORCE ONE (1) BOLT/MEMBER AT A TIME.
- ALL FIELD DRILLED HOLES TO BE USED FOR FIELD BOLTING INSTALLATION SHALL BE STANDARD HOLES, AS DEFINED BY AISC, UNLESS NOTED OTHERWISE.



**PAINT**

- AS REQUIRED, CLEAN AND PAINT PROPOSED STEEL ACCORDING TO FAA ADVISORY CIRCULAR AC 70/7460-1L.

**WELDING**

- ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.
- ALL WELDS SHALL BE INSPECTED VISUALLY. IF DIRECTED BY ENGINEER OF RECORD, 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE (100% IF REJECTABLE DEFECTS ARE FOUND) TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.
- INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
- ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER AND/OR BASE METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.
- IN CASES WHERE BASE METAL GRADE IS UNKNOWN, ALL WELDING ON LATTICE TOWERS SHALL BE DONE WITH E70XX ELECTRODES; ALL WELDING ON POLE STRUCTURES SHALL BE DONE WITH E80XX ELECTRODES, UNLESS NOTED OTHERWISE.
- PRIOR TO FIELD WELDING GALVANIZED MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING 1/2" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.

**BOLT TIGHTENING PROCEDURE**

- STRUCTURAL CONNECTIONS TO BE ASSEMBLED AND INSPECTED IN ACCORDANCE WITH RCSC SPECIFICATIONS.
- FLANGE BOLTS SHALL BE INSTALLED AND TIGHTENED USING DIRECT TENSION INDICATING (DTI) SQUIRTER WASHERS. DTI SQUIRTER WASHERS ARE TO BE INSTALLED AND ORIENTED / TIGHTENED PER MANUFACTURER SPECIFICATIONS TO ACHIEVE DESIRED LEVEL OF BOLT PRE-TENSION.
- IN LIEU OF USING DTI SQUIRTER WASHERS, FLANGE BOLTS MAY BE TIGHTENED USING AISC / RCSC "TURN-OF-THE-NUT" METHOD, PENDING APPROVAL BY THE ENGINEER OF RECORD (EOR). TIGHTEN FLANGE BOLTS USING THE CHART BELOW:

**BOLT LENGTHS UP TO AND INCLUDING FOUR DIAMETERS**

1/2"	BOLTS UP TO AND INCLUDING 2.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
5/8"	BOLTS UP TO AND INCLUDING 2.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
3/4"	BOLTS UP TO AND INCLUDING 3.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
7/8"	BOLTS UP TO AND INCLUDING 3.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1"	BOLTS UP TO AND INCLUDING 4.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-1/8"	BOLTS UP TO AND INCLUDING 4.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-1/4"	BOLTS UP TO AND INCLUDING 5.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-3/8"	BOLTS UP TO AND INCLUDING 5.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-1/2"	BOLTS UP TO AND INCLUDING 6.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT

**BOLT LENGTHS OVER FOUR DIAMETERS BUT NOT EXCEEDING EIGHT DIAMETERS**

1/2"	BOLTS 2.25 TO 4.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
5/8"	BOLTS 2.75 TO 5.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
3/4"	BOLTS 3.25 TO 6.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
7/8"	BOLTS 3.75 TO 7.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1"	BOLTS 4.25 TO 8.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-1/8"	BOLTS 4.75 TO 9.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-1/4"	BOLTS 5.25 TO 10.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-3/8"	BOLTS 5.75 TO 11.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-1/2"	BOLTS 6.25 TO 12.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT

- SPLICE BOLTS SUBJECT TO DIRECT TENSION SHALL BE INSTALLED AND TIGHTENED AS PER SECTION 8.2.1 OF THE AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS", LOCATED IN THE AISC MANUAL OF STEEL CONSTRUCTION. THE INSTALLATION PROCEDURE IS PARAPHRASED AS FOLLOWS:

FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES AND TIGHTENED BY ONE OF THE METHODS DESCRIBED IN SUBSECTION 8.2.1 THROUGH 8.2.4.

**8.2.1 TURN-OF-NUT PRETENSIONING**

BOLTS SHALL BE INSTALLED IN ALL HOLES OF THE CONNECTION AND BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8.1, UNTIL ALL THE BOLTS ARE SIMULTANEOUSLY SNUG TIGHT AND THE CONNECTION IS FULLY COMPACTED. FOLLOWING THIS INITIAL OPERATION ALL BOLTS IN THE CONNECTION SHALL BE TIGHTENED FURTHER BY THE APPLICABLE AMOUNT OF ROTATION SPECIFIED ABOVE. DURING THE TIGHTENING OPERATION THERE SHALL BE NO ROTATION OF THE PART NOT TURNED BY THE WRENCH. TIGHTENING SHALL PROGRESS SYSTEMATICALLY.

- ALL OTHER BOLTED CONNECTIONS SHALL BE BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8.1 OF THE SPECIFICATION.

ALL BOLT HOLES SHALL BE ALIGNED TO PERMIT INSERTION OF THE BOLTS WITHOUT UNDUE DAMAGE TO THE THREADS. BOLTS SHALL BE PLACED IN ALL HOLES WITH WASHERS POSITIONED AS REQUIRED AND NUTS THREADED TO COMPLETE THE ASSEMBLY. COMPACTING THE JOINT TO THE SNUG-TIGHT CONDITION SHALL PROGRESS SYSTEMATICALLY FROM THE MOST RIGID PART OF THE JOINT. THE SNUG-TIGHTENED CONDITION IS THE TIGHTNESS THAT IS ATTAINED WITH A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER USING AN ORDINARY SPUD WRENCH TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.

**APPLICABLE CODES AND STANDARDS**

- ANSI/TIA: STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES, 222-G EDITION.
- 2015 INTERNATIONAL BUILDING CODE.
- 2018 CONNECTICUT STATE BUILDING CODE.
- ACI 318: AMERICAN CONCRETE INSTITUTE, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE. REFERENCE LATEST APPROPRIATE EDITION TO MATCH LOCAL AND/OR INTERNATIONAL BUILDING CODE(S) LISTED ABOVE.
- CRSI: CONCRETE REINFORCING STEEL INSTITUTE, MANUAL OF STANDARD PRACTICE, LATEST EDITION.
- AISC: AMERICAN INSTITUTE OF STEEL CONSTRUCTION, MANUAL OF STEEL CONSTRUCTION, LATEST EDITION.
- AWS: AMERICAN WELDING SOCIETY D1.1, STRUCTURAL WELDING CODE, LATEST EDITION.

**SPECIAL INSPECTION**

- A QUALIFIED INDEPENDENT TESTING LABORATORY, EMPLOYED BY THE OWNER, SHALL PERFORM INSPECTION AND TESTING IN ACCORDANCE WITH IBC 2015, SECTION 1704 AS REQUIRED BY PROJECT SPECIFICATIONS FOR THE FOLLOWING CONSTRUCTION WORK:
  - STRUCTURAL WELDING (CONTINUOUS INSPECTION OF FIELD WELD ONLY)
  - HIGH STRENGTH BOLTS (PERIODIC INSPECTION OF A325 EXTENSION FLANGE BOLTS TO BE TIGHTENED PER "TURN-OF-THE-NUT" METHOD)
- THE INSPECTION AGENCY SHALL SUBMIT INSPECTION AND TEST REPORTS TO THE BUILDING DEPARTMENT, THE ENGINEER OF RECORD, AND THE OWNER IN ACCORDANCE WITH IBC 2015, SECTION 1704, UNLESS THE FABRICATOR IS APPROVED BY THE BUILDING OFFICIAL TO PERFORM SUCH WORK WITHOUT THE SPECIAL INSPECTIONS.

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LPG	07/08/20

ATC SITE NUMBER:  
**302488**

ATC SITE NAME:  
**CNTN - CANTON  
CONNECTICUT**

SITE ADDRESS:  
4 HOFFMANN ROAD  
CANTON, CT 06019



DRAWN BY:	LPG
APPROVED BY:	IPD
DATE DRAWN:	07/08/20
ATC JOB NO:	13201406_C6_05

**IBC GENERAL NOTES**

SHEET NUMBER:	REVISION:
<b>G-002</b>	<b>0</b>

**MODIFICATION INSPECTION NOTES**

THE SPECIAL INSPECTION (SI) PROCEDURE IS INTENDED TO CONFIRM THAT CONSTRUCTION AND INSTALLATION MEETS ENGINEERING DESIGN, ATC PROCEDURES AND ATC STANDARD SPECIFICATIONS FOR WIRELESS TOWER SITES.

TO ENSURE THAT THE REQUIREMENTS OF THE SI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR AND THE INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PO IS RECEIVED FROM AMERICAN TOWER CORPORATION (ATC). IT IS EXPECTED THAT EACH PARTY WILL PROACTIVELY REACH OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN, CONTACT YOUR AMERICAN TOWER POINT OF CONTACT.

**SPECIAL INSPECTOR**

THE SPECIAL INSPECTOR IS REQUIRED TO CONTACT THE GENERAL CONTRACTOR AS SOON AS RECEIVING A PO FROM ATC. UPON RECEIVING A PO FROM ATC THE SPECIAL INSPECTOR AT A MINIMUM MUST:

- REVIEW THE REQUIREMENTS OF THE SI CHECKLIST.
- WORK WITH THE GENERAL CONTRACTOR TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS.
- ANY CONCERNS WITH THE SCOPE OF WORK OR PROJECT COMMITMENT MUST BE RELAYED TO THE ATC POINT OF CONTACT IMMEDIATELY.

THE SPECIAL INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GENERAL CONTRACTOR INSPECTION AND TEST REPORTS, REVIEWING THESE DOCUMENTS FOR ADHERENCE TO CONTRACT DOCUMENTS, CONDUCTING THE IN-FIELD INSPECTIONS, AND SUBMITTING THE SI REPORT TO AMERICAN TOWER CORPORATION.

**GENERAL CONTRACTOR**

THE GENERAL CONTRACTOR IS REQUIRED TO CONTACT THE SI INSPECTOR AS SOON AS RECEIVING A PO FOR THE MODIFICATION INSTALLATION OR TURNKEY PROJECT TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE SI CHECKLIST.
- WORK WITH THE SI TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS.
- BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS.

THE GENERAL CONTRACTOR SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE SI CHECKLIST.

**SPECIAL INSPECTION CHECKLIST**

INSPECTION DOCUMENT	DESCRIPTION	INSPECTION TESTING REQUIRED	RESPONSIBILITY	SI REVIEW REQUIRED			INSPECTION FREQUENCY	
				PRE CX	DURING CX	POST CX	PERIODIC	CONTINUOUS
SPECIAL INSPECTION FIELD WORK & REPORT	DOCUMENTATION AND SITE VISIT CONDUCTED BY AN ATC APPROVED SPECIAL INSPECTOR AS REQUIRED BY ATC AND OTHER AUTHORITIES HAVING JURISDICTION. INSPECTION PARAMETERS TO FOLLOW ATC'S STANDARD SPECIFICATION FOR WIRELESS TOWER SITES.	✓	SI			✓		
ENGINEERING ASSEMBLY DRAWINGS	GC SHALL SUBMIT DRAWINGS TO SI FOR INCLUSION IN SI REPORT	✓	GC	✓				
FABRICATED MATERIAL VERIFICATION & INSPECTION	MTR AND OR MILL CERTIFICATIONS FOR SUPPLIED MATERIALS GC SHALL SUPPLY SI WITH REPORTS TO BE INCLUDED IN SI REPORT WHEN REQUIRED BY ATC	✓	SI	✓				
CERTIFIED WELD INSPECTION	INSPECTION AND REPORT OF STRUCTURAL WELDING PERFORMED DURING PROJECT COMPLETED BY A CWI AND INCLUDED WITHIN SI REPORT		GC / TA					
FOUNDATION INSPECTION & VERIFICATION	VISUAL OBSERVATION AND APPROVAL OF FOUNDATION EXCAVATION, REBAR PLACEMENT, CASING/SHORING/FORMING PLACEMENT, AND ANCHOR TEMPLATE AND ANCHOR PLACEMENT - TO BE SI APPROVED PRIOR TO CONCRETE POUR AND DOCUMENTED IN THE SI REPORT		SI					
ANCHOR, ROCK ANCHOR OR HELICAL PULL-OUT TEST	PULL TESTING OF INSTALLED ANCHORS TO BE COMPLETED AND DOCUMENTED IN SI REPORT		GC / TA					
CONCRETE INSPECTION & VERIFICATION	CONCRETE MIX DESIGN, SLUMP TEST, COMPRESSIVE TESTING, AND SAMPLE GATHERING TECHNIQUES ARE TO BE PROVIDED FOR INCLUSION IN THE SI REPORT. SI SHALL VERIFY CONCRETE PLACEMENT AS REQUIRED BY THE DESIGN DOCUMENTS (INSPECTION FREQUENCY IS MARKED CONTINUOUS)		GC / TA					
DYWIDAG PLACEMENT/ANCHOR BOLT EMBEDMENT - EPOXY/GROUT INSTALL	ANCHOR/BAR EMBEDMENT, HOLE SIZE, EPOXY/GROUT TYPE, INSTALLATION TEMPERATURE AND INSTALLATION SHALL BE VERIFIED BY THE SI AND INCLUDED IN THE SI REPORT		GC / SI					
BASE PLATE GROUT INSPECTION & VERIFICATION	BASE PLATE GROUTING TYPE AND PLACEMENT SHALL BE CONFIRMED BY THE SI AND INCLUDED IN THE SI REPORT		GC / SI					
EARTHWORK INSPECTION & VERIFICATION	EXCAVATION, FILL, SLOPE, GRADE AND OTHER EARTHWORK REQUIREMENTS PER PLANS SHALL BE VERIFIED BY THE SI AND INCLUDED IN THE SI REPORT		GC / TA					
COMPACTION VERIFICATION	CONTRACTOR SHALL PROVIDE AN INDEPENDENT THIRD PARTY CERTIFIED INSPECTION WHICH PROVIDES TEST RESULTS FOR COMPACTION TEST OF SOILS IN PLACE TO ASTM STANDARDS.		GC / TA					
GROUND TESTING & VERIFICATION	GC SHALL PROVIDE DOCUMENTATION SHOWING THAT THE GROUNDING SYSTEM SHALL HAVE A MEASURED RESISTANCE TO THE GROUND OF NOT MORE THAN THE RECOMMENDED 10 OHMS. PER THE ATC CONSTRUCTION SPECIFICATION UNDER SECTION 2.15 THIS DOCUMENTATION MUST BE AN INDEPENDENT CERTIFICATION.		GC					
STEEL CONSTRUCTION INSPECTION & VERIFICATION	VISUAL OBSERVATION AND APPROVAL OF STEEL CONSTRUCTION TO BE PERFORMED BY THE SI. INSPECTION TO INCLUDE VERIFICATION OF NEW CONSTRUCTION OR MODIFICATION OF EXISTING CONSTRUCTION PER ENGINEERED PLANS. DETAILED VERIFICATION SHALL BE INCLUDED IN SI REPORT.	✓	SI			✓	✓	
ON-SITE COLD GALVANIZING VERIFICATION	SI SHALL VERIFY WITH GC ALL COLD GALVANIZATION TYPE AND APPLICATION AND INCLUDE SUMMARY IN SI REPORT	✓	GC			✓	✓	
GUY WIRE TENSIONING & TOWER ALIGNMENT REPORT	GC SHALL PROVIDE SI EVIDENCE OF PROPER GUY TENSIONING AND TOWER PLUMB PER PLANS. SI SHALL VERIFY AND INCLUDE PLUMB AND TENSION REPORTING IN SI REPORT.		GC					
GC AS-BUILT DRAWINGS WITH CONSTRUCTION RED-LINES	GC SHALL SUBMIT "AS-BUILT" DRAWINGS INDICATING ANY APPROVED CHANGES TO ENGINEERED PLANS TO SI FOR APPROVAL/REVIEW AND INCLUSION IN SI REPORT	✓	GC			✓		
SI AS-BUILT DRAWINGS WITH INSPECTION RED-LINES (AS REQUIRED)	SI SHALL SUBMIT "AS-BUILT" DRAWINGS INDICATING ANY APPROVED CHANGES TO ENGINEERED PLANS WITHIN SI REPORT	✓	SI			✓		
TIA INSPECTION	SI SHALL COMPLETE TIA INSPECTION AND PROVIDE SEPARATE TIA INSPECTION DOCUMENTATION TO ATC CM		SI					
PHOTOGRAPHS	PHOTOGRAPHIC EVIDENCE OF SPECIAL INSPECTION, ON SITE REMEDIATION, AND ITEMS FAILING INSPECTION & REQUIRING FOLLOW UP TO BE INCLUDED WITHIN THE SI REPORT. COMPLETE PHOTO LOG IS TO BE SUBMITTED WITHIN SI REPORT.	✓	GC / SI			✓		

NOTE: SPECIAL INSPECTIONS ARE INTENDED TO BE A COLLABORATIVE EFFORT BETWEEN GC AND SI. WHENEVER POSSIBLE GC IS TO PROVIDE SI WITH PHOTOGRAPHIC OR OTHER ACCEPTABLE EVIDENCE OF PROPER INSTALLATION IF PERIODIC INSPECTION FREQUENCY IS ACCEPTABLE. THE GC AND SI SHALL WORK TO COMPILE EVIDENCE OF PROPER CONSTRUCTION AND LIMIT THE NUMBER OF SI SITE VISITS REQUIRED.

TABLE KEY:  
 SI - ATC APPROVED SPECIAL INSPECTOR  
 GC - GENERAL CONTRACTOR  
 TA - 3RD PARTY TESTING AGENCY  
 CX - CONSTRUCTION  
 CM - CONSTRUCTION MANAGER  
 ATC - AMERICAN TOWER CORPORATION



**AMERICAN TOWER®**  
**A.T. ENGINEERING SERVICE, PLLC**  
 3500 REGENCY PARKWAY  
 SUITE 100  
 CARY, NC 27518  
 PHONE: (919) 468-0112  
 COA: PEC.0001553

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LPG	07/08/20

ATC SITE NUMBER:

302488

ATC SITE NAME:

CNTN - CANTON  
 CONNECTICUT

SITE ADDRESS:

4 HOFFMANN ROAD  
 CANTON, CT 06019



DRAWN BY:	LPG
APPROVED BY:	IPD
DATE DRAWN:	07/08/20
ATC JOB NO:	13201406_C6_05

**SPECIAL INSPECTION CHECKLIST**

SHEET NUMBER:

G-003

REVISION:

0

## BILL OF MATERIALS

QUANTITY REQUIRED	QUANTITY PROVIDED	PART NUMBER	DESCRIPTION	LENGTH	SHEET LIST	PART WEIGHT	WEIGHT (lb)	NOTES
<b>#20 DYWIDAG REINFORCEMENT MATERIAL &amp; HARDWARE</b>								
2	2	DYD-20-ATR-30	#20 ALL THREAD ROD 30'	30'-0"	S-501	501.0	1002	GALVANIZED
1	1	DYD-20-ATR-PF	#20 ALL THREAD ROD (PER FT)	14'-0"	S-501	233.8	234	GALVANIZED
1	1	DYD-20-ATR-PF	#20 ALL THREAD ROD (PER FT)	16'-6"	S-501	275.6	276	GALVANIZED
2	2	DYD-20-ATR-PF	#20 ALL THREAD ROD (PER FT)	5'-7"	S-501	93.2	186	GALVANIZED
3	3	DYD-20-COUP-00	#20 COUPLING HDG	----	----	----	----	GALVANIZED
10	10	DYD-20-HN-00	#20 HEX NUT HDG	----	----	----	----	GALVANIZED
4	4	BR-20C	L 6" X 3 1/2" X 3/8"	1'-0"	S-501	12.3	49	CONCENTRIC
22	22	W821-20	W8X21	1'-3"	S-501	27.6	607	#20 T-BRACKET
4	4	W821-8U-S	TERMINATION WELDMENT	2'-5 1/2"	S-501	61.2	245	#20 T-BRACKET
3	3	W821-12U-S	TERMINATION WELDMENT	3'-6 3/4"	S-501	89.1	267	#20 T-BRACKET
4	4	BP-20	PL 1 1/2" X 5"	0'-5"	S-501, Z-502	8.3	33	
1	1	302488-1	TRANSITION BRACKET WELDMENT	4'-8 1/2"	S-501, Z-501	313.0	306	
149	156	UB-580-3125	U-BOLT ASSEMBLIES FOR #20 ROD	----	----	----	----	GALVANIZED
109	114	NG-0625-0875-A490	NEXGEN2 BLIND BOLT ASSEMB., M20 W/ SPRING SLEEVE, A490	----	----	----	----	ALLFASTENERS - 2NG2060
29	34	#20SB	STEP BOLT WELDMENT	0'-7 1/4"	S-504	2.5	85	
						<b>TOTAL WEIGHT (lb)</b>	<b>3,290</b>	



**AMERICAN TOWER®**  
**A.T. ENGINEERING SERVICE, PLLC**  
 3500 REGENCY PARKWAY  
 SUITE 100  
 CARY, NC 27518  
 PHONE: (919) 468-0112  
 COA: PEC.0001553

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LPG	07/08/20

ATC SITE NUMBER:  
**302488**

ATC SITE NAME:  
**CNTN - CANTON**  
**CONNECTICUT**

SITE ADDRESS:  
 4 HOFFMANN ROAD  
 CANTON, CT 06019



DRAWN BY:	LPG
APPROVED BY:	IPD
DATE DRAWN:	07/08/20
ATC JOB NO:	13201406_C6_05

**BILL OF MATERIALS**

SHEET NUMBER: <b>G-004</b>	REVISION: <b>0</b>
-------------------------------	-----------------------

Copyright © 2020 ATC IP, LLC. All Rights Reserved.



THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LPG	07/08/20

ATC SITE NUMBER:  
**302488**  
 ATC SITE NAME:  
**CNTN - CANTON**  
**CONNECTICUT**  
 SITE ADDRESS:  
 4 HOFFMANN ROAD  
 CANTON, CT 06019



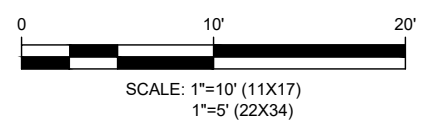
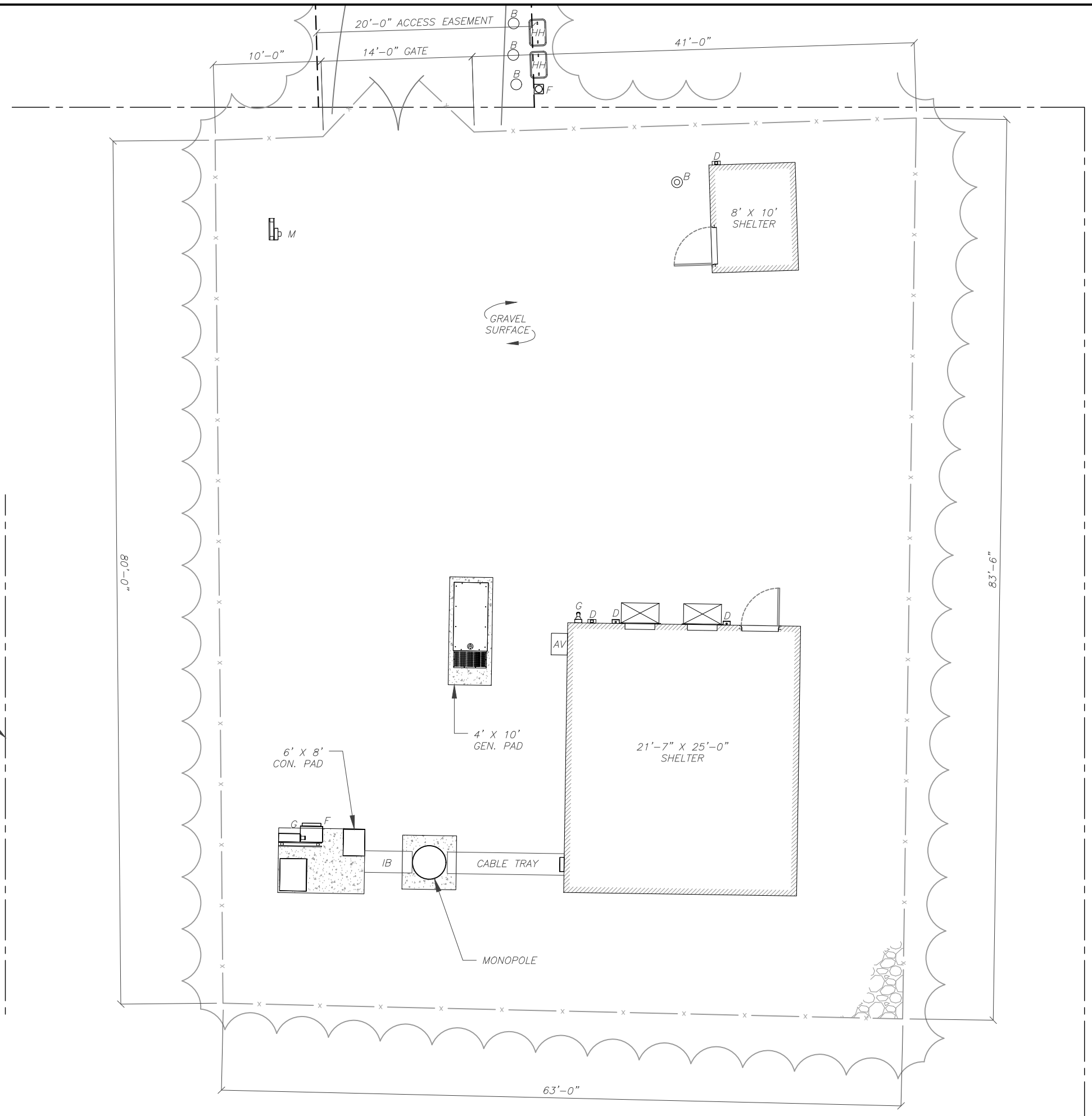
DRAWN BY:	LPG
APPROVED BY:	IPD
DATE DRAWN:	07/08/20
ATC JOB NO:	13201406_C6_05

**DETAILED SITE PLAN**

SHEET NUMBER:	REVISION:
<b>C-101</b>	<b>0</b>

**LEGEND**

⊗	GROUNDING TEST WELL
AV, A/V	AIR VENT
ATS	AUTOMATIC TRANSFER SWITCH
B	BOLLARD
C	CABINET
CS	COAX SHROUD
CSC	CELL SITE CABINET
D	DISCONNECT
E	ELECTRICAL
F	FIBER
GEN	GENERATOR
G	GENERATOR RECEPTACLE
HH, V	HAND HOLE, VAULT
HFC	HYDROGEN FUEL CELL
HSM	HYDROGEN STORAGE MATERIAL
IB	ICE BRIDGE
K	KENTROX BOX
LC	LIGHTING CONTROL
LPG	LIQUID PROPANE GAS
M	METER
OHW	OVERHEAD WIRE
P	POWER
PB	PULL BOX
PP	POWER POLE
T	TELCO
TRN	TRANSFORMER
---	PROPERTY LINE
- - -	ADJACENT PROPERTY LINE
- - - -	LEASE AREA
- - - - -	EASEMENT
○ ○ ○ ○	WOOD FENCE
— — — —	WIRE FENCE
□ □ □ □	METAL FENCE
— — — —	GUARD RAIL
x x x x	CHAINLINK FENCE
— — — —	ROAD (DIRT)
— — — —	ROAD (STONE)
— — — —	ROAD (PAVED)



LEASE AREA BOUNDARY LINE (TYP.)

Copyright © 2020 ATC IP LLC, All Rights Reserved.





**AMERICAN TOWER®**  
**A.T. ENGINEERING SERVICE, PLLC**  
 3500 REGENCY PARKWAY  
 SUITE 100  
 CARY, NC 27518  
 PHONE: (919) 468-0112  
 COA: PEC.0001553

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LPG	07/08/20

ATC SITE NUMBER:  
302488

ATC SITE NAME:  
CNTN - CANTON  
CONNECTICUT

SITE ADDRESS:  
4 HOFFMANN ROAD  
CANTON, CT 06019



DRAWN BY:	LPG
APPROVED BY:	IPD
DATE DRAWN:	07/08/20
ATC JOB NO:	13201406_C6_05

**MODIFICATION PROFILE**

SHEET NUMBER:	REVISION:
<b>S-201</b>	<b>0</b>

EL: 150.0'  
[TOP OF STRUCTURE]

SECTION 4

EL: 110.0'

SECTION 3

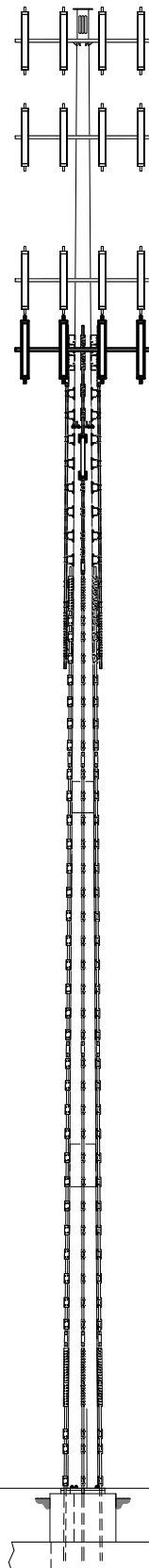
EL: 73.5'

SECTION 2

EL: 35.7'

SECTION 1

EL: 0.0'  
[BOTTOM OF STRUCTURE]



INSTALL (2) DYWIDAG  
#20 ALL THREAD RODS  
FROM EL: 84.9'± TO 120.5'± &  
INSTALL (1) DYWIDAG  
#20 ALL THREAD ROD  
FROM EL: 95.5'± TO 120.5'±.  
SEE SHEETS S-501 TO S-504  
FOR INSTALLATION DETAILS.

**VERIZON WIRELESS**  
EL: 118.0' [PROPOSED]

TOWER ELEVATION VIEW

**NOTES:**

1. PROPOSED VERIZON WIRELESS COAX TO BE INSTALLED INSIDE MONOPOLE.
2. BASE FLANGE WELD AND STIFFENER PLATE WELDS (WHEN PRESENT) ARE TO BE INSPECTED VISUALLY AND BY NDT METHODS BY A CERTIFIED WELD INSPECTOR WITH NDT LEVEL II CERTIFICATION. RESULTS ARE TO BE SENT TO [PMI@AMERICANTOWER.COM](mailto:PMI@AMERICANTOWER.COM).
3. CONTACT AMERICAN TOWER FIELD OPERATIONS WHEN EXISTING EQUIPMENT INTERFERES WITH INSTALLATION OF MODIFICATIONS. ONCE APPROVED, EXISTING EQUIPMENT MAY BE TEMPORARILY MOVED DURING INSTALLATION & REINSTALLED TO THE ORIGINAL HEIGHT & LOCATION BY CONTRACTOR POST COMPLETION OF MODIFICATIONS.



**AMERICAN TOWER®**  
**A.T. ENGINEERING SERVICE, PLLC**  
 3500 REGENCY PARKWAY  
 SUITE 100  
 CARY, NC 27518  
 PHONE: (919) 468-0112  
 COA: PEC.0001553

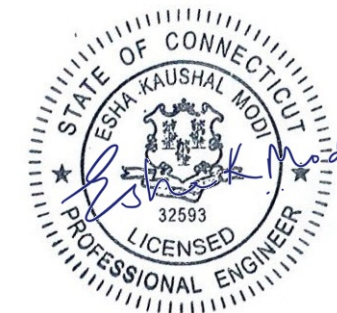
THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LPG	07/08/20

ATC SITE NUMBER:  
302488

ATC SITE NAME:  
CNTN - CANTON  
CONNECTICUT

SITE ADDRESS:  
4 HOFFMANN ROAD  
CANTON, CT 06019

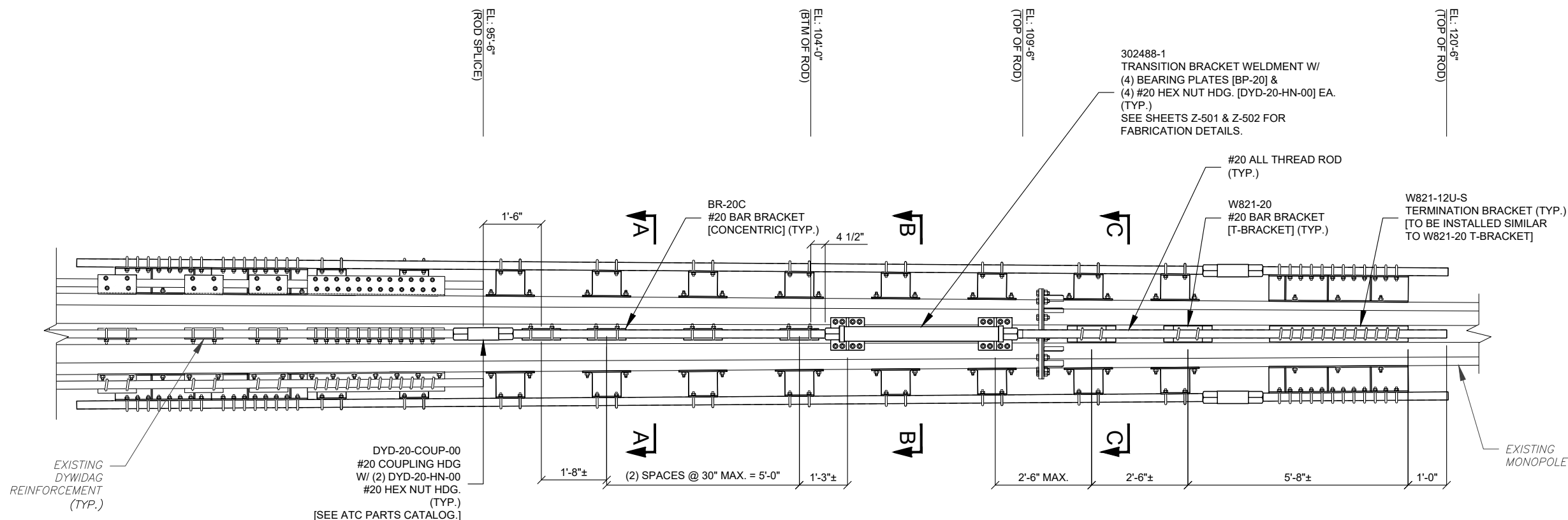


DRAWN BY:	LPG
APPROVED BY:	IPD
DATE DRAWN:	07/08/20
ATC JOB NO:	13201406_C6_05

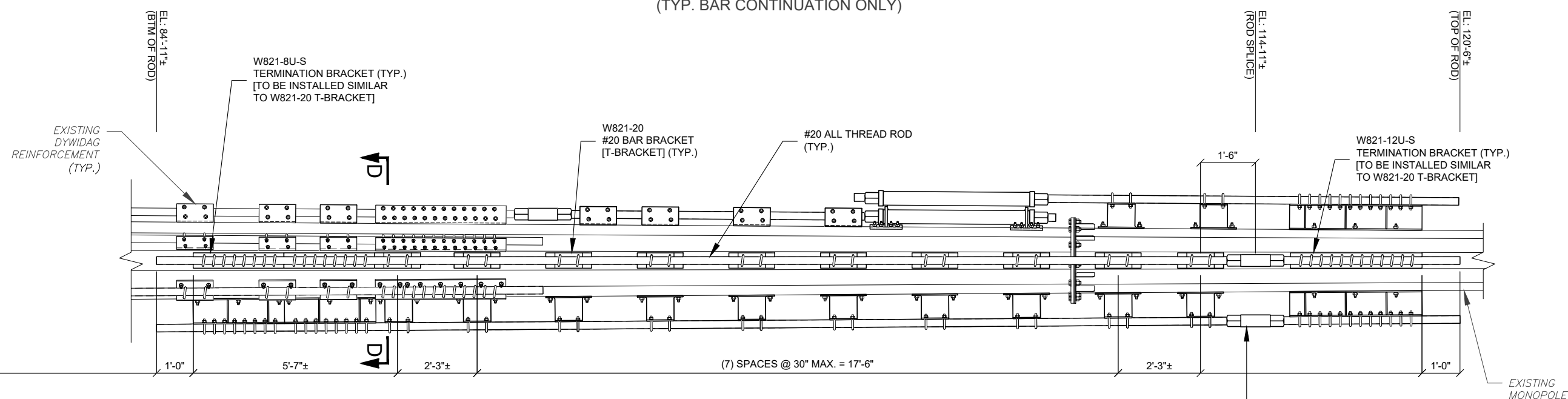
**REINFORCEMENT  
INSTALLATION DETAILS**

SHEET NUMBER:  
**S-501**

REVISION:  
**0**



**ELEVATION VIEW  
#20 BAR BRACKET SPACING DETAIL  
(TYP. BAR CONTINUATION ONLY)**



**ELEVATION VIEW  
#20 BAR BRACKET SPACING DETAIL  
(TYP. [2] STANDALONE BAR LOCATIONS)**

- NOTES:**
1. REPLACE ANY EXISTING STEP BOLTS THAT INTERFERE WITH THE NEW #20 ALL THREAD ROD REINFORCEMENTS. THE NEW STEP BOLTS SHALL BE ATTACHED TO THE #20 ALL THREAD RODS IN THE SAME APPROXIMATE LOCATION. SEE SHEET S-504 FOR INSTALLATION DETAILS.
  2. PLACE A BRACKET (W821-20 OR BR-20C) DIRECTLY ABOVE AND BELOW ANY EXISTING PORTHOLE AS REQUIRED.
  3. SEE SHEET S-503 FOR #20 ALL THREAD ROD BRACKET INSTALLATION DETAILS.
  4. NG-0938-1438-A490 NEXGEN2 BOLT KITS ARE SUPPLIED AS REQUIRED FOR BAR BRACKET CONNECTIONS THAT FALL WITHIN SLIP JOINT LOCATIONS.

DYD-20-COUP-00  
#20 COUPLING HDG  
W/ (2) DYD-20-HN-00  
#20 HEX NUT HDG.  
(TYP.)  
[SEE ATC PARTS CATALOG.]

Copyright © 2020 ATC IP LLC. All Rights Reserved.



**AMERICAN TOWER®**  
**A.T. ENGINEERING SERVICE, PLLC**  
 3500 REGENCY PARKWAY  
 SUITE 100  
 CARY, NC 27518  
 PHONE: (919) 468-0112  
 COA: PEC.0001553

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LPG	07/08/20

ATC SITE NUMBER:  
**302488**

ATC SITE NAME:  
**CNTN - CANTON  
 CONNECTICUT**

SITE ADDRESS:  
 4 HOFFMANN ROAD  
 CANTON, CT 06019

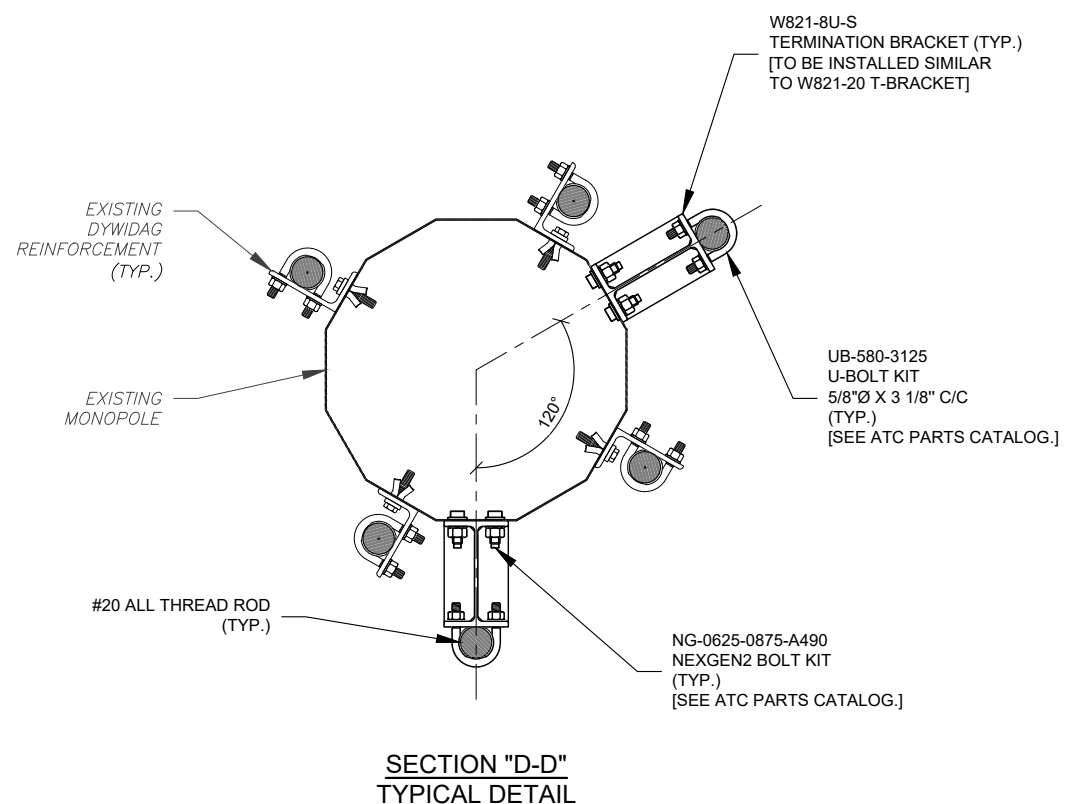
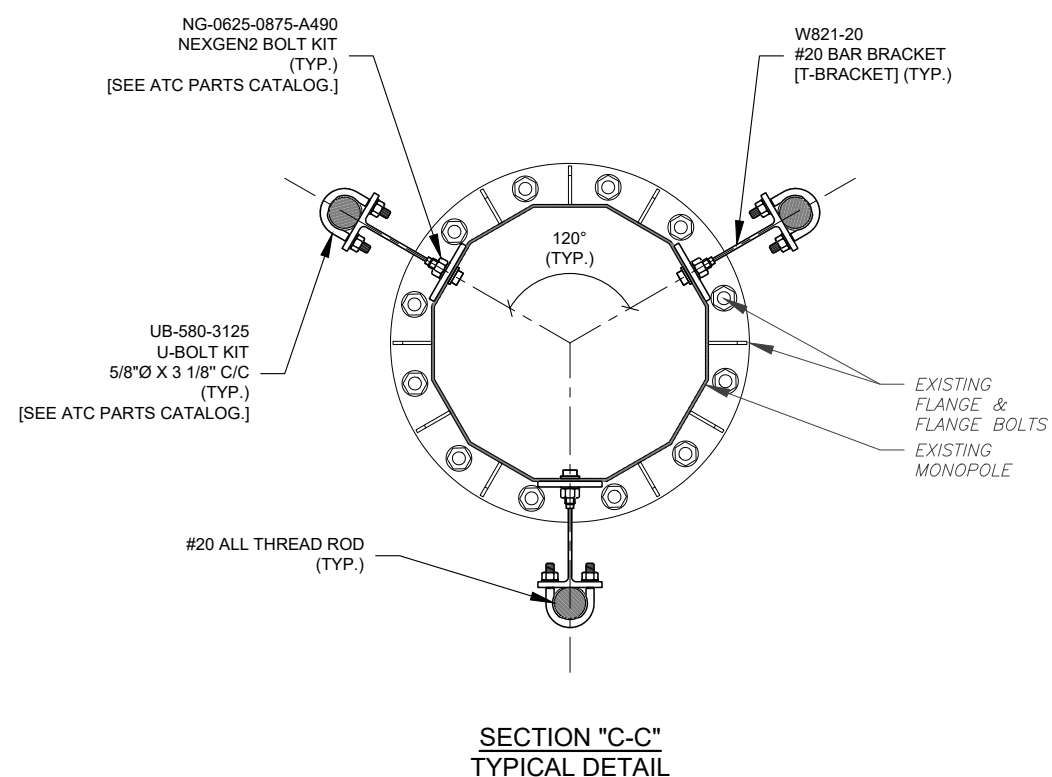
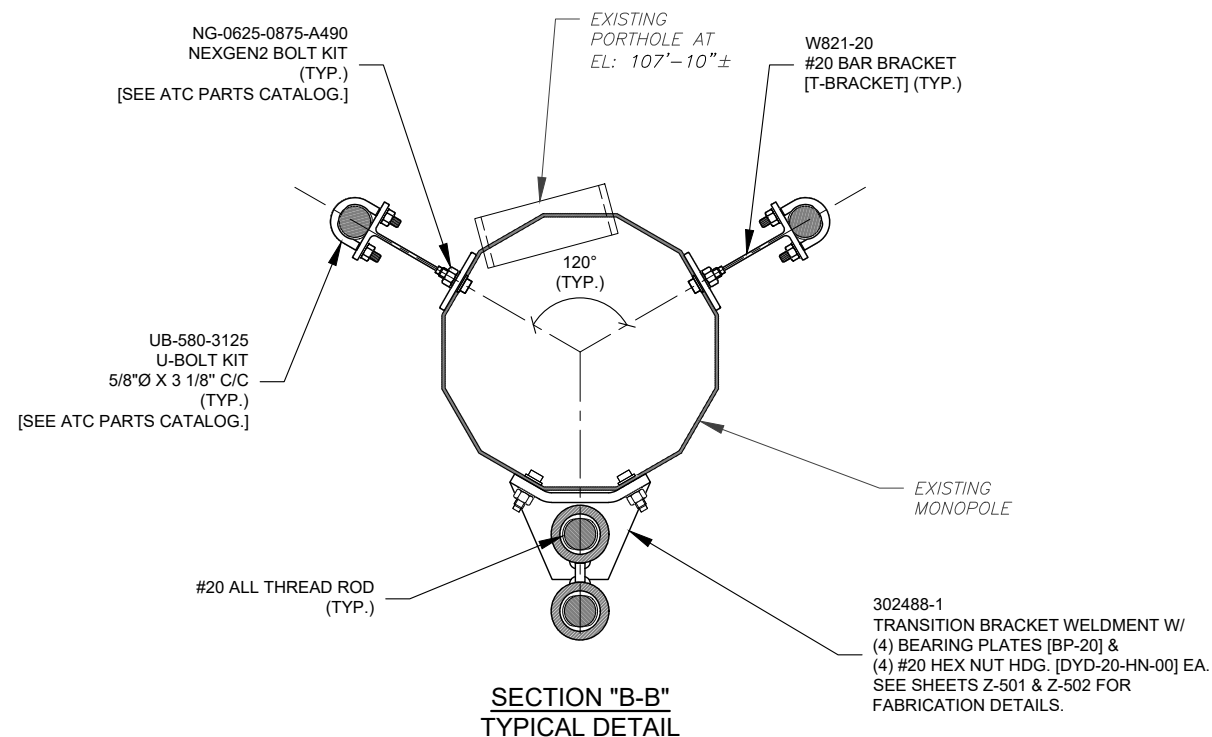
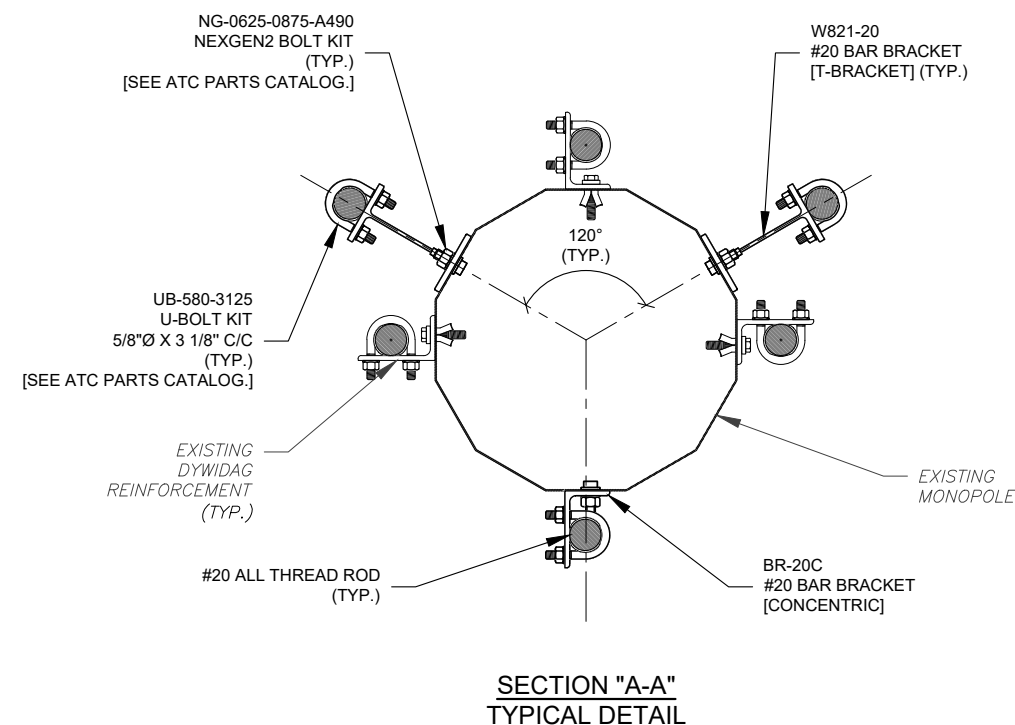


DRAWN BY:	LPG
APPROVED BY:	IPD
DATE DRAWN:	07/08/20
ATC JOB NO:	13201406_C6_05

**REINFORCEMENT  
 INSTALLATION DETAILS**

SHEET NUMBER:  
**S-502**

REVISION:  
**0**





**AMERICAN TOWER®**  
**A.T. ENGINEERING SERVICE, PLLC**  
 3500 REGENCY PARKWAY  
 SUITE 100  
 CARY, NC 27518  
 PHONE: (919) 468-0112  
 COA: PEC.0001553

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LPG	07/08/20

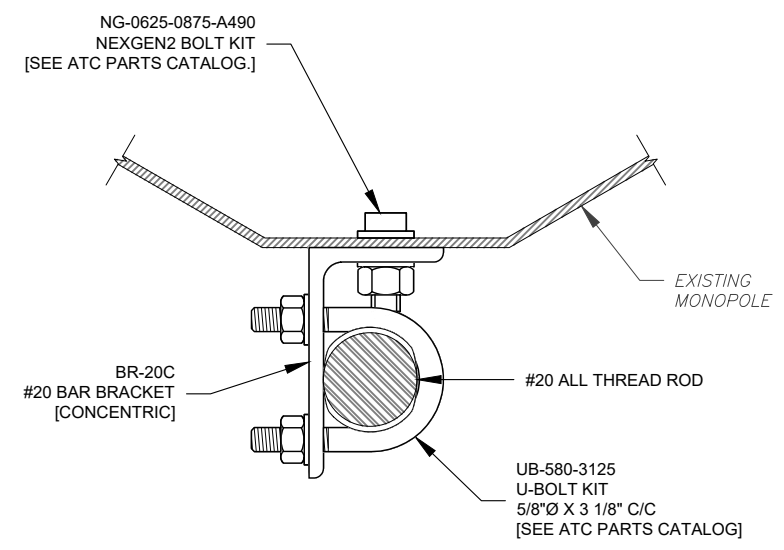
ATC SITE NUMBER:  
**302488**  
 ATC SITE NAME:  
**CNTN - CANTON**  
**CONNECTICUT**  
 SITE ADDRESS:  
 4 HOFFMANN ROAD  
 CANTON, CT 06019



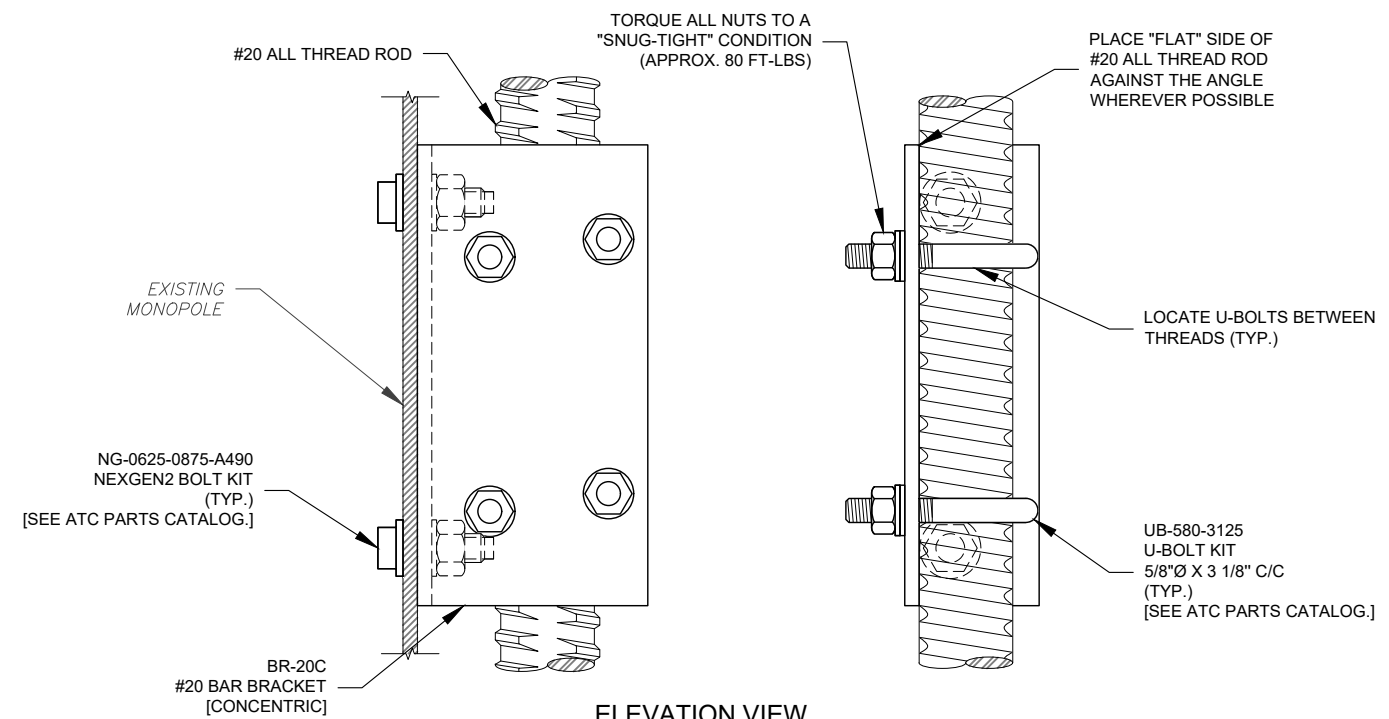
DRAWN BY:	LPG
APPROVED BY:	IPD
DATE DRAWN:	07/08/20
ATC JOB NO:	13201406_C6_05

**REINFORCEMENT  
 INSTALLATION DETAILS  
 (CONT'D)**

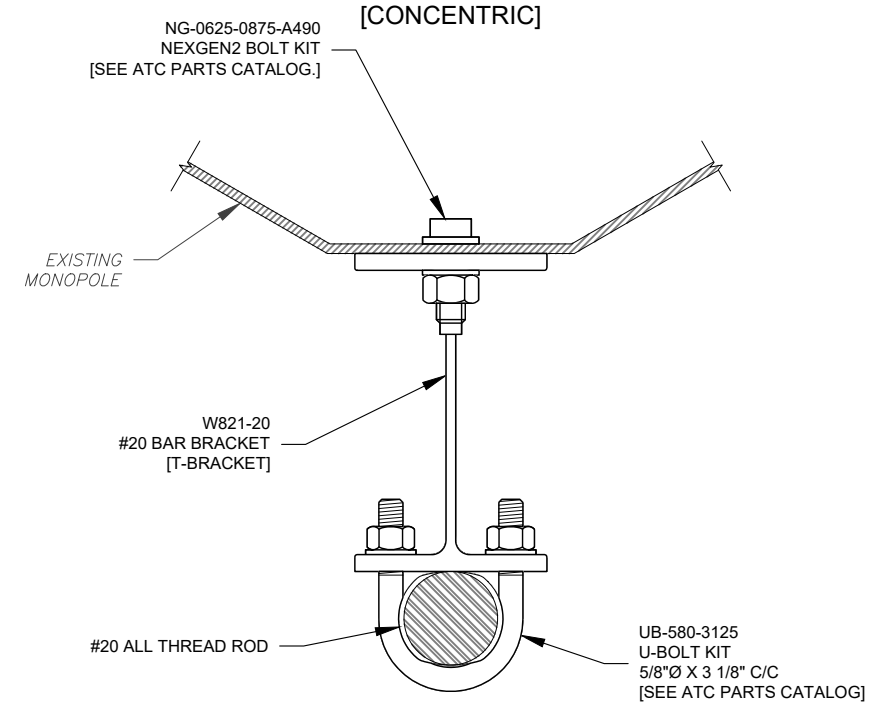
SHEET NUMBER:  
**S-503**  
 REVISION:  
**0**



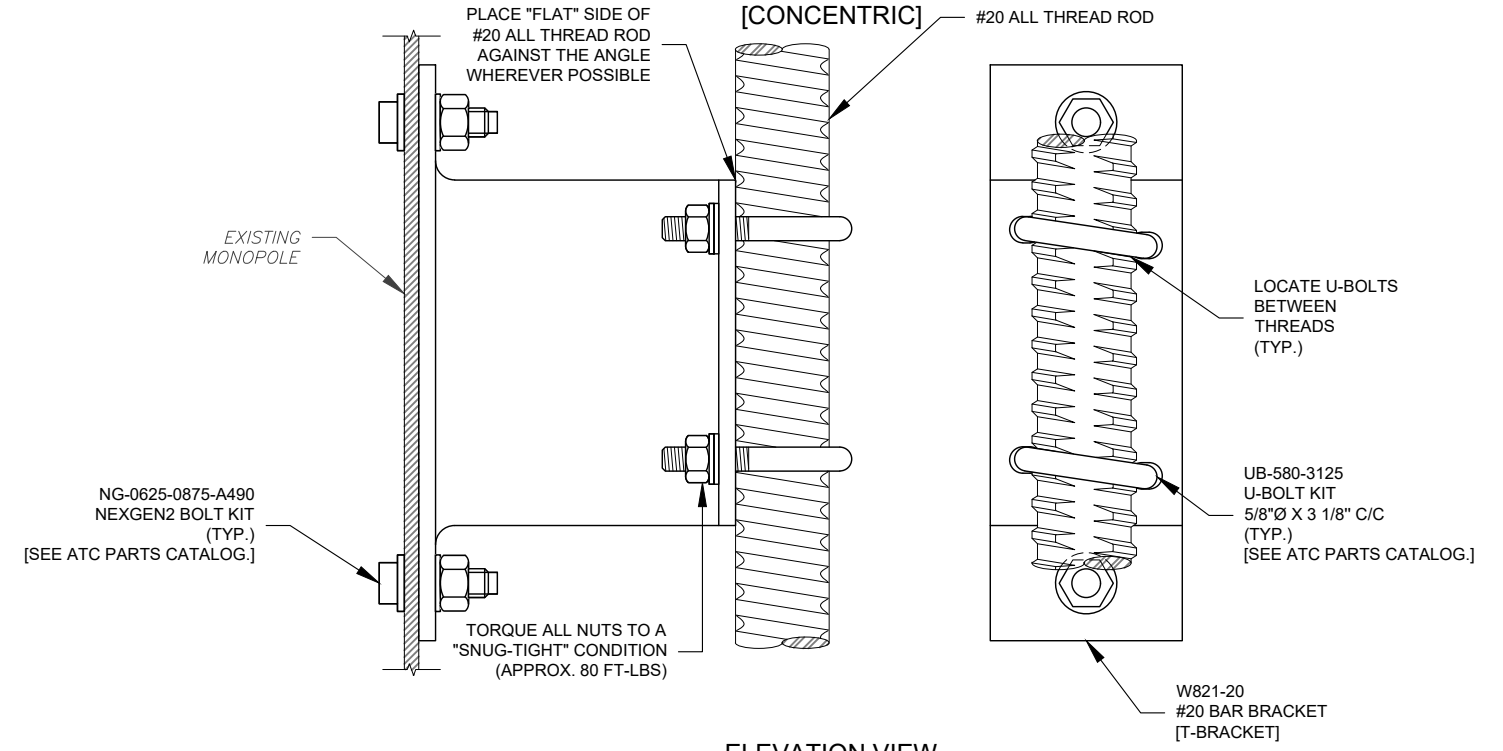
**PLAN VIEW  
 #20 BAR BRACKET ORIENTATION  
 [CONCENTRIC]**



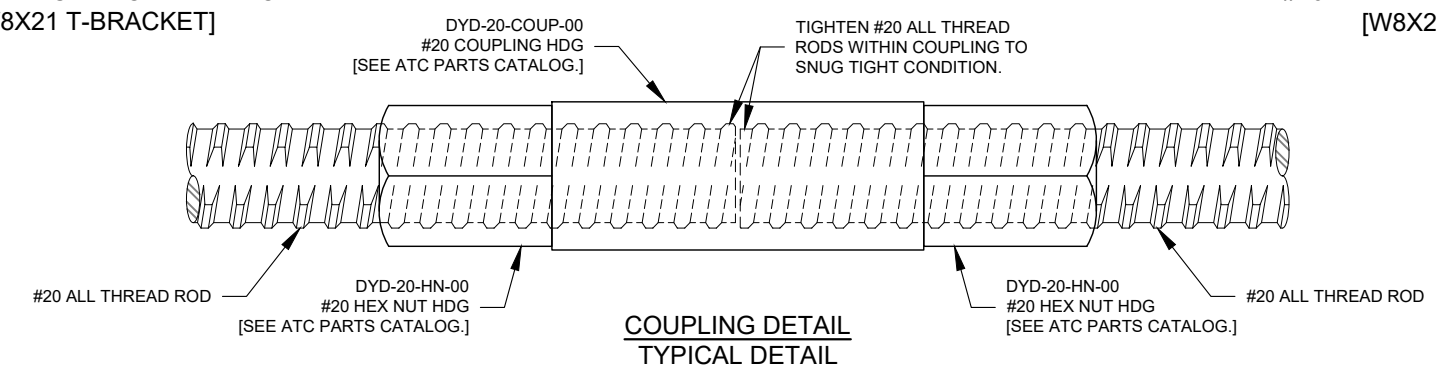
**ELEVATION VIEW  
 #20 BAR BRACKET ORIENTATION  
 [CONCENTRIC]**



**PLAN VIEW  
 #20 BAR BRACKET ORIENTATION  
 [W8X21 T-BRACKET]**



**ELEVATION VIEW  
 #20 BAR BRACKET ORIENTATION  
 [W8X21 T-BRACKET]**



Copyright © 2020 ATC IP, LLC. All Rights Reserved.

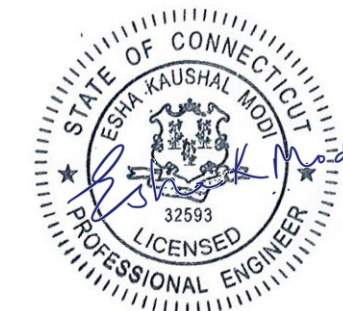


**AMERICAN TOWER®**  
**A.T. ENGINEERING SERVICE, PLLC**  
 3500 REGENCY PARKWAY  
 SUITE 100  
 CARY, NC 27518  
 PHONE: (919) 468-0112  
 COA: PEC.0001553

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LPG	07/08/20

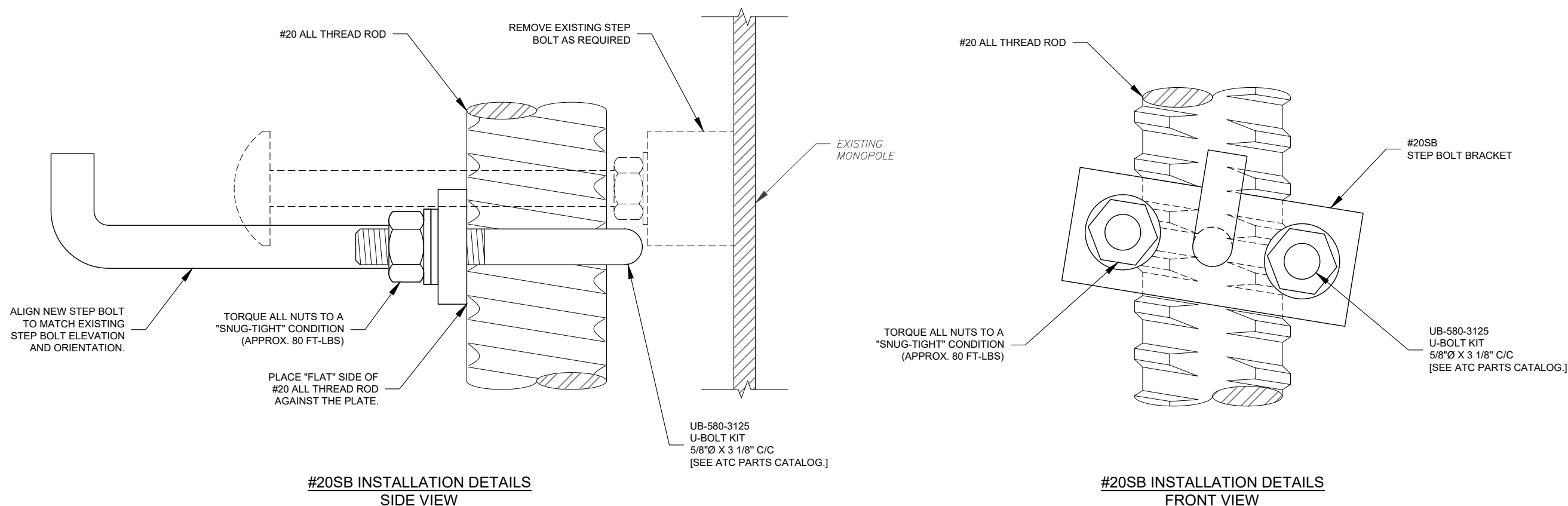
ATC SITE NUMBER:  
**302488**  
 ATC SITE NAME:  
**CNTN - CANTON**  
**CONNECTICUT**  
 SITE ADDRESS:  
 4 HOFFMANN ROAD  
 CANTON, CT 06019



DRAWN BY:	LPG
APPROVED BY:	IPD
DATE DRAWN:	07/08/20
ATC JOB NO:	13201406_C6_05

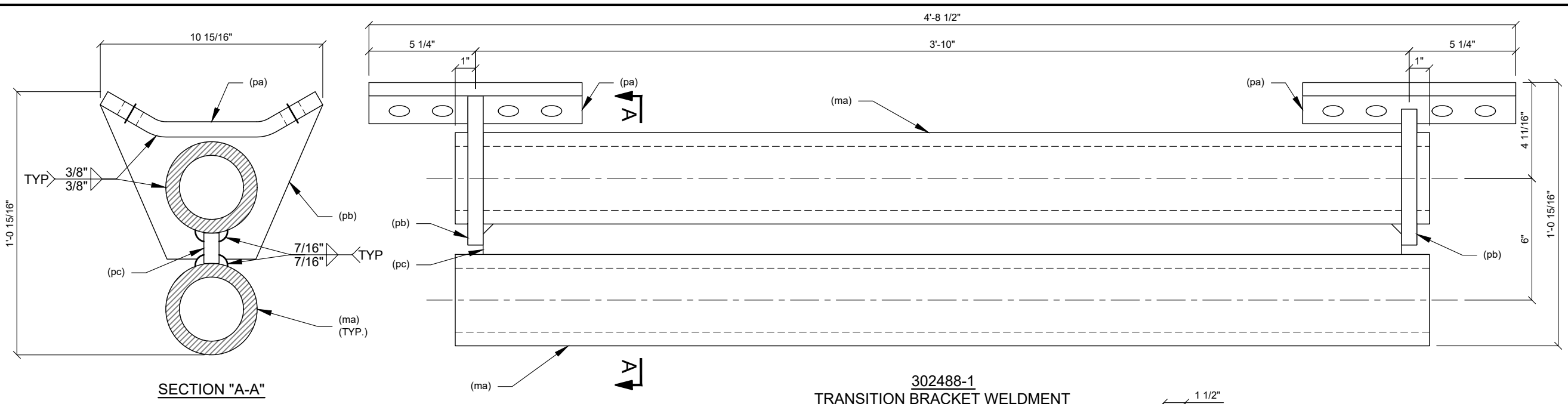
**#20 STEP BOLT BRACKET  
 INSTALLATION DETAILS**

SHEET NUMBER:  
**S-504**  
 REVISION:  
**0**



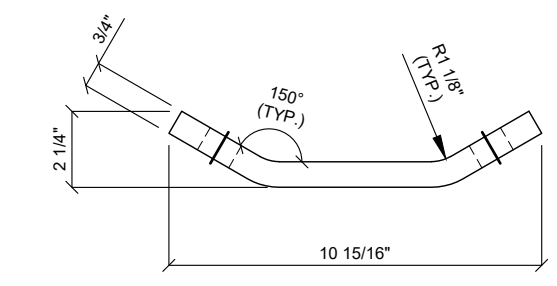
**NOTE:**  
 STEP PEG SPACING IS NOT TO EXCEED 15" MAX. STAGGERED OR 30" MAX. ON ANY SINGLE SIDE OF THE DYWIDAG BAR.

Copyright © 2020 ATC IP LLC. All Rights Reserved.

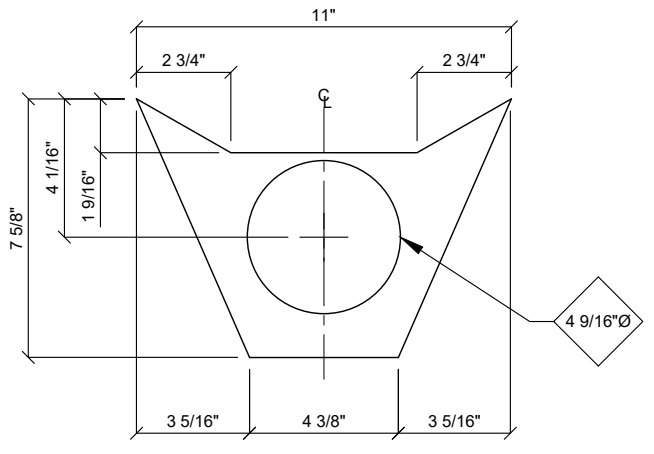


SECTION "A-A"

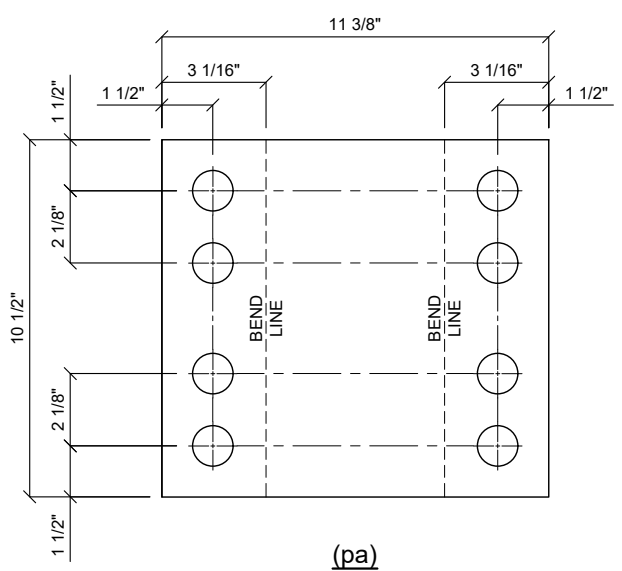
302488-1  
TRANSITION BRACKET WELDMENT



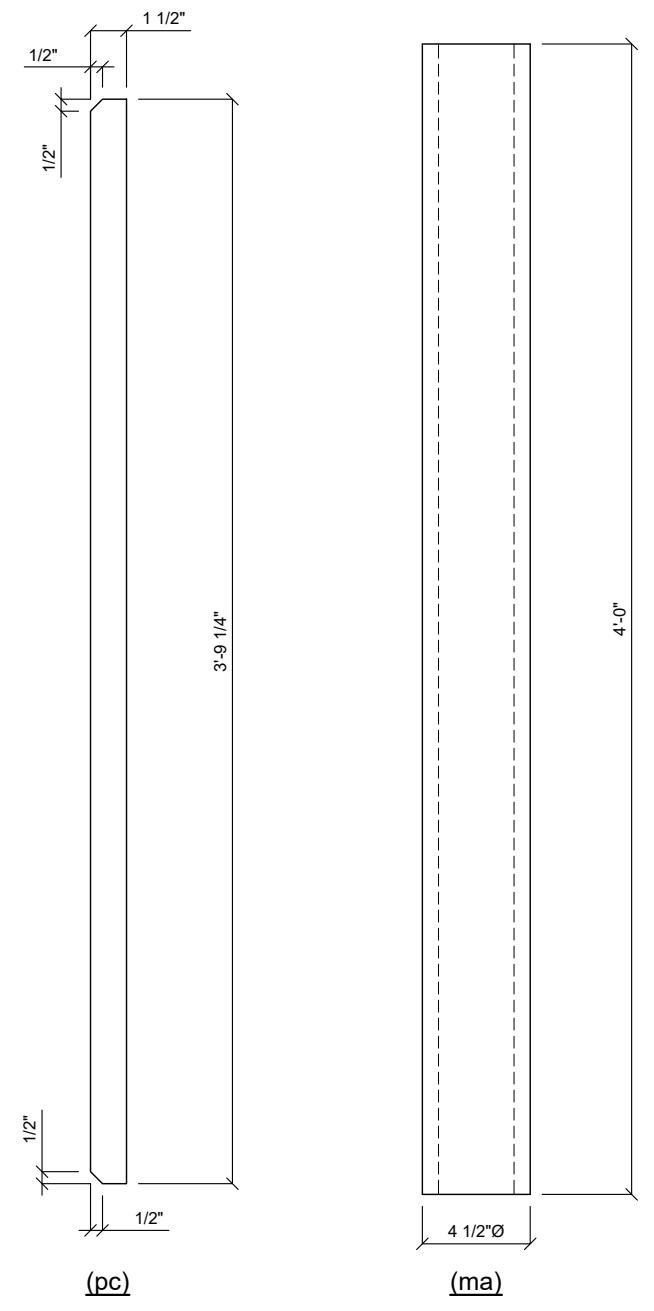
(pa)  
BENT VIEW



(pb)



(pa)  
FLAT PLAN VIEW



(pc)

(ma)

PART NO.	QTY	DESCRIPTION	LENGTH	NOTES	BLK WT
(ma)	2	PIPE 4.500" OD X 0.074"	4'-0"	A53 GR. B	220.3#
(pc)	1	PL 3/4" X 1 1/2"	3'-9 1/4"		14.4#
(pb)	2	PL 3/4" X 7 5/8"	0'-11"	SHAPE	12.6#
(pa)	2	PL 3/4" X 10 1/2"	0'-11 3/8"		50.8#
302488-1	1	TRANSITION BRACKET WELDMENT	4'-8 1/2"		298.1#
<b>MATERIAL:</b> A572 GR. 50 U.N.O.		<b>FINISH:</b> GALVANIZED	<b>HOLES:</b> 1 3/16"Ø U.N.O.	<b>GALV WT:</b>	313.0#

**AMERICAN TOWER®**  
**A.T. ENGINEERING SERVICE, PLLC**  
 3500 REGENCY PARKWAY  
 SUITE 100  
 CARY, NC 27518  
 PHONE: (919) 468-0112  
 COA: PEC.0001553

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LPG	07/08/20

ATC SITE NUMBER:  
**302488**

ATC SITE NAME:  
**CNTN - CANTON**

**CONNECTICUT**

SITE ADDRESS:  
 4 HOFFMANN ROAD  
 CANTON, CT 06019



DRAWN BY:	LPG
APPROVED BY:	IPD
DATE DRAWN:	07/08/20
ATC JOB NO:	13201406_C6_05

**TRANSITION BRACKET WELDMENT**  
**FABRICATION DETAILS**

SHEET NUMBER:	REVISION:
<b>Z-501</b>	<b>0</b>

Copyright © 2020 ATC IP, LLC. All Rights Reserved.



**AMERICAN TOWER®**  
**A.T. ENGINEERING SERVICE, PLLC**  
 3500 REGENCY PARKWAY  
 SUITE 100  
 CARY, NC 27518  
 PHONE: (919) 468-0112  
 COA: PEC.0001553

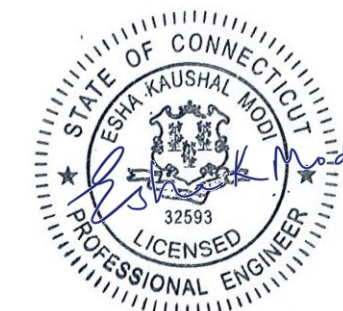
THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LPG	07/08/20

ATC SITE NUMBER:  
**302488**

ATC SITE NAME:  
**CNTN - CANTON**  
**CONNECTICUT**

SITE ADDRESS:  
 4 HOFFMANN ROAD  
 CANTON, CT 06019

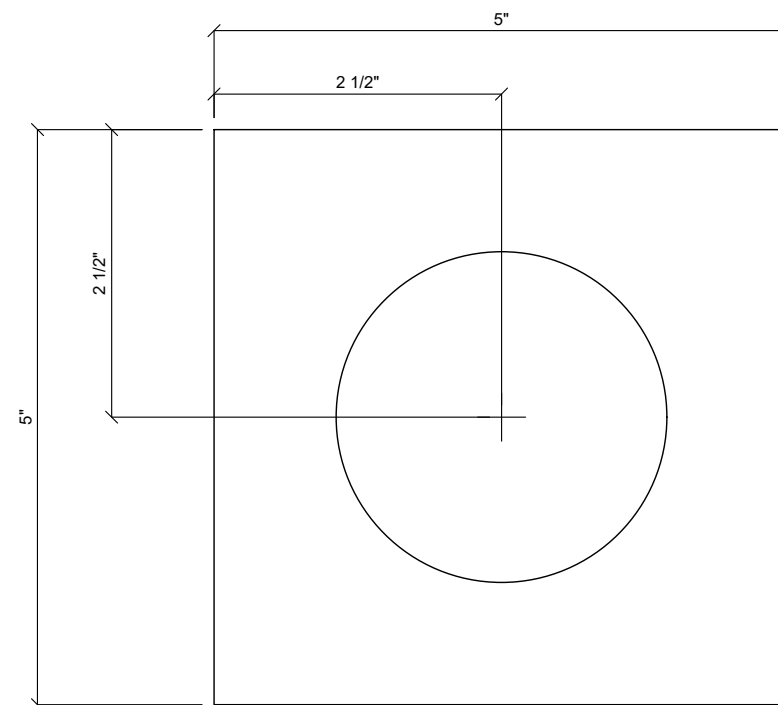


DRAWN BY:	LPG
APPROVED BY:	IPD
DATE DRAWN:	07/08/20
ATC JOB NO:	13201406_C6_05

**#20 BEARING PLATE  
 FABRICATION DETAILS**

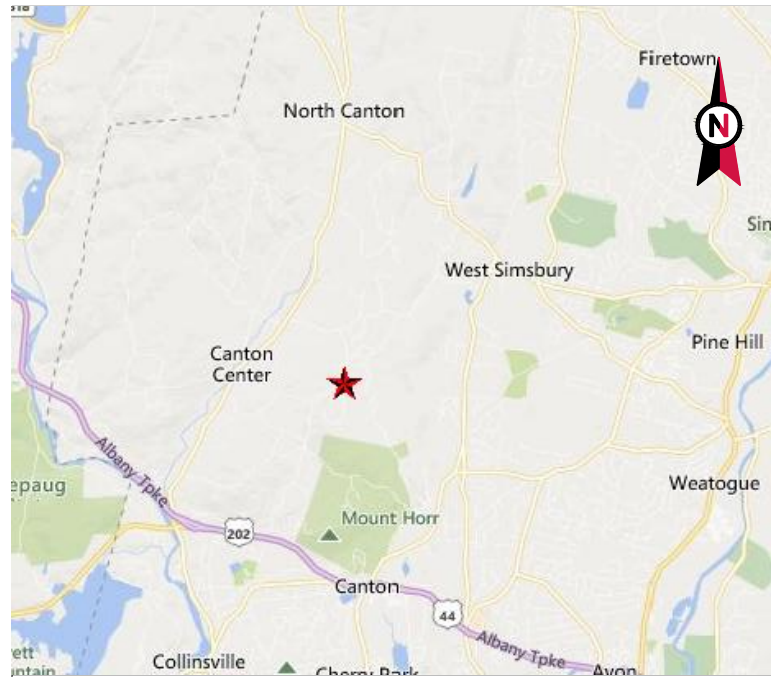
SHEET NUMBER:  
**Z-502**

REVISION:  
**0**



**BP-20**  
**BEARING PLATE**

PART NO.	DESCRIPTION	LENGTH	NOTES	BLK WT	GALV WT
BP-20	PL 1 1/2" X 5"	0'-5"		7.9#	8.3#
<b>MATERIAL: A572 GR. 50</b>		<b>FINISH: GALVANIZED</b>		<b>HOLES: 2 7/8"Ø</b>	



VICINITY MAP




**AMERICAN TOWER®**

ATC SITE NAME: CNTN - CANTON  
 ATC SITE NUMBER: 302488  
 VERIZON SITE NAME: CANTON 3 CT  
 VERIZON SITE NUMBER: 467157  
 SITE ADDRESS: 4 HOFFMANN ROAD  
 CANTON, CT 06019



LOCATION MAP

**VERIZON WIRELESS  
 COLLOCATION PLAN**

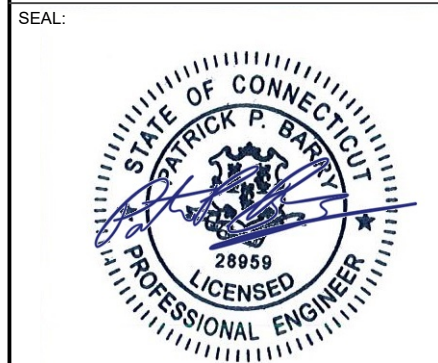


**AMERICAN TOWER®**  
**A.T. ENGINEERING SERVICE, PLLC**  
 3500 REGENCY PARKWAY  
 SUITE 100  
 CARY, NC 27518  
 PHONE: (919) 468-0112  
 COA: PEC.0001553

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED VERIZON IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	IC	05/06/20
1	MOUNT NAME	TR	08/05/20

ATC SITE NUMBER:  
**302488**  
 ATC SITE NAME:  
**CNTN - CANTON**  
 SITE ADDRESS:  
 4 HOFFMANN ROAD  
 CANTON, CT 06019



DRAWN BY:	IC
APPROVED BY:	PBB
DATE DRAWN:	05/06/20
ATC JOB NO:	13201406_G2
VERIZON ID:	CANTON 3 CT
VERIZON #:	467157

**TITLE SHEET**

SHEET NUMBER:  
**G-001**

REVISION:  
**1**

COMPLIANCE CODE	PROJECT SUMMARY	PROJECT DESCRIPTION	SHEET INDEX				
ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNMENT AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.  1. INTERNATIONAL BUILDING CODE (IBC) 2. NATIONAL ELECTRIC CODE (NEC) 3. LOCAL BUILDING CODE 4. CITY/COUNTY ORDINANCES	<u>SITE ADDRESS:</u>  4 HOFFMANN ROAD CANTON, CT 06019 COUNTY: HARTFORD  <u>GEOGRAPHIC COORDINATES:</u>  LATITUDE: 41.85527778 LONGITUDE: -72.8925 GROUND ELEVATION: 784' AMSL	THE PROPOSED PROJECT INCLUDES PLACING EQUIPMENT CABINETS ON A PROPOSED CONCRETE PAD INSIDE A 12' X 30' GROUND SPACE WITHIN THE EXISTING COMPOUND, AND PLACING NEW ANTENNAS ON A PROPOSED PLATFORM MOUNTED TO THE EXISTING TOWER.	SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
	<u>PROJECT TEAM</u>  <u>TOWER OWNER:</u> AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801  <u>ENGINEER:</u> ATC TOWER SERVICES, LLC 3500 REGENCY PKWY STE 100 CARY, NC 27518  <u>PROPERTY OWNER:</u> JAMES H HART & KATHERINE E HART 90 PARK RD BARKHAMSTED, CT 06063	<u>PROJECT NOTES</u>  1. THE FACILITY IS UNMANNED.  2. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE.  3. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE.  4. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED.  5. HANDICAP ACCESS IS NOT REQUIRED.	G-001 TITLE SHEET G-002 GENERAL NOTES V-101 EXISTING SURVEY V-102 EXISTING SURVEY C-101 DETAILED SITE PLAN C-102 TOWER ELEVATION C-501 ANTENNA INFORMATION & SCHEDULE C-502 CONSTRUCTION DETAILS C-503 CONSTRUCTION DETAILS C-504 CONSTRUCTION DETAILS C-505 CONSTRUCTION DETAILS E-101 GROUNDING PLAN AND SCHEMATIC E-102 ONE-LINE & PANEL SCHEDULE E-501 GROUNDING DETAILS E-502 GROUNDING DETAILS R-601 SUPPLEMENTAL				
<u>UTILITY COMPANIES</u>  POWER COMPANY: CONNECTICUT LIGHT & POWER PHONE: (800) 286-2000  TELEPHONE COMPANY: AT&T PHONE: (800) 288-2020	<u>PROJECT LOCATION DIRECTIONS</u>  I-84 TO RT 179 N. FOLLOW 179 TO CANTON CENTER. TURN RIGHT ON EAST HILL RD. FOLLOW FOR A COUPLE OF MILES. TOWER IS ON THE RIGHT.						





**GENERAL CONSTRUCTION NOTES:**

1. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH ATC MASTER SPECIFICATIONS.
2. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
4. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
5. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
6. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
7. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
8. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
9. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
10. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE VERIZON REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE VERIZON REP PRIOR TO PROCEEDING.
11. EACH CONTRACTOR SHALL COOPERATE WITH THE VERIZON REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
12. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE VERIZON CONSTRUCTION MANAGER.
13. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
14. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE VERIZON REP IMMEDIATELY.
15. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
16. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
17. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH LANDLORD AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
18. CONTRACTOR SHALL FURNISH VERIZON WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
19. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH VERIZON REP TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED. ALL ITEMS NOT PROVIDED SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED.
20. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH VERIZON REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY VERIZON MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
21. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH VERIZON SPECIFICATIONS AND REQUIREMENTS.
22. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO VERIZON FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
23. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO VERIZON SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
24. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
25. CONTRACTOR SHALL NOTIFY VERIZON REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.
26. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.
27. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY

THE ELEMENTS DUE TO NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.

28. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE VERIZON REP. ANY WORK FOUND BY THE VERIZON REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
29. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.

**CONCRETE AND REINFORCING STEEL NOTES:**

1. DESIGN AND CONSTRUCTION OF ALL CONCRETE ELEMENTS SHALL CONFORM TO THE LATEST EDITIONS OF ALL APPLICABLE CODES INCLUDING: ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS", ACI 117 "SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS", AND ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE."
2. MIX DESIGN SHALL BE APPROVED BY VERIZON REP PRIOR TO PLACING CONCRETE.
3. CONCRETE SHALL BE NORMAL WEIGHT, 6 % AIR ENTRAINED (+/- 1.5%) WITH A SLUMP RANGE OF 3-6" AND HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI UNLESS OTHERWISE NOTED.
4. THE FOLLOWING MATERIALS SHALL BE USED:  
 PORTLAND CEMENT: ASTM C 150, TYPE 2  
 REINFORCEMENT: ASTM A 185, PLAIN STEEL WELDED WIRE FABRIC  
 REINFORCEMENT BARS: ASTM A 615, GRADE 60, DEFORMED  
 NORMAL WEIGHT AGGREGATE: ASTM C 33  
 WATER: ASTM C 94/C 94M  
 ADMIXTURES:  
 -WATER-REDUCING AGENT: ASTM C 494/C 494M, TYPE A  
 -AIR-ENTERING AGENT: ASTM C 260/C 260M  
 -SUPERPLASTICIZER: ASTM C 494, TYPE F OR TYPE G  
 -RETARDING: ASTM C 494/C 494M, TYPE B
5. MINIMUM CONCRETE COVER FOR REINFORCING STEEL SHALL BE NO LESS THAN 3".
6. A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE IN ACCORDANCE WITH ACI 301 SECTION 4.2.4, UNLESS NOTED OTHERWISE.
7. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL, OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR VERIZON REP APPROVAL WHEN DRILLING HOLES IN CONCRETE.
8. ADMIXTURES SHALL CONFORM TO THE APPROPRIATE ASTM STANDARD AS REFERENCED IN "METHOD 1" OF ACI 301.
9. DO NOT WELD OR TACK WELD REINFORCING STEEL.
10. ALL DOWELS, ANCHOR BOLTS, EMBEDDED STEEL, ELECTRICAL CONDUITS, PIPE SLEEVES, GROUNDS AND ALL OTHER EMBEDDED ITEMS AND FORMED DETAILS SHALL BE IN PLACE BEFORE START OF CONCRETE PLACEMENT.
11. REINFORCEMENT SHALL BE COLD BENT WHENEVER BENDING IS REQUIRED.
12. DO NOT PLACE CONCRETE IN WATER, ICE, OR ON FROZEN GROUND.
13. DO NOT ALLOW REINFORCEMENT, CONCRETE OR SUBBASE TO FREEZE DURING CONCRETE CURING AND SETTING PERIOD, OR FOR A MINIMUM OF 3 DAYS AFTER PLACEMENT.
14. FOR COLD-WEATHER(ACI 306) AND HOT-WEATHER(ACI 301M) CONCRETE PLACEMENT, CONFORM TO APPLICABLE ACI CODES AND RECOMMENDATIONS. IN EITHER CASE, MATERIALS CONTAINING CHLORIDE, CALCIUM, SALTS, ETC. SHALL NOT BE USED. PROTECT FRESH CONCRETE FROM WEATHER FOR 7 DAYS, MINIMUM.
15. ALL CONCRETE SHALL HAVE A "SMOOTH FORM FINISH."
16. UNLESS OTHERWISE NOTED:  
 A. ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615/A 615M/A-996, GRADE 60.  
 B. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
17. SPLICING OF REINFORCEMENT IS PERMITTED ONLY AT LOCATIONS SHOWN IN THE CONTRACT DRAWINGS OR AS ACCEPTED BY THE ENGINEER. UNLESS OTHERWISE SHOWN OR NOTED REINFORCING STEEL SHALL BE SPLICED TO DEVELOP ITS FULL TENSILE CAPACITY (CLASS A) IN ACCORDANCE WITH ACI 318.
18. REINFORCING BAR DEVELOPMENT LENGTHS, AS COMPUTED IN ACCORDANCE WITH ACI 318, FORM THE BASIS FOR BAR EMBEDMENT LENGTHS AND BAR SPLICED LENGTHS SHOWN IN THE

DRAWINGS. APPLY APPROPRIATE MODIFICATION FACTORS FOR TOP STEEL, BAR SPACING, COVER AND THE LIKE.

19. DETAILING OF REINFORCING STEEL SHALL CONFORM TO "ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" (ACI 315).
20. ALL SLAB CONSTRUCTION SHALL BE CAST MONOLITHICALLY WITHOUT HORIZONTAL CONSTRUCTION JOINTS, UNLESS SHOWN IN THE CONTRACT DRAWINGS.
21. LOCATION OF ALL CONSTRUCTION JOINTS ARE SUBJECT TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, CONFORMANCE WITH ACI 318, AND ACCEPTANCE OF THE ENGINEER. DRAWINGS SHOWING LOCATION OF DETAILS OF THE PROPOSED CONSTRUCTION JOINTS SHALL BE SUBMITTED WITH REINFORCING STEEL PLACEMENT DRAWINGS.
22. SPLICES OF WWF, AT ALL SPLICED EDGES, SHALL BE SUCH THAT THE OVERLAP MEASURED BETWEEN OUTERMOST CROSS WIRES OF EACH FABRIC SHEET IS NOT LESS THAN THE SPACING OF THE CROSS WIRE PLUS 2 INCHES, NOR LESS THAN 6".
23. BAR SUPPORTS SHALL BE ALL-GALVANIZED METAL WITH PLASTIC TIPS.
24. ALL REINFORCEMENT SHALL BE SECURELY TIED IN PLACE TO PREVENT DISPLACEMENT BY CONSTRUCTION TRAFFIC OR CONCRETE. TIE WIRE SHALL BE OF SUFFICIENT STRENGTH FOR INTENDED PURPOSE, BUT NOT LESS THAN NO. 18 GAUGE.
25. SLAB ON GROUND:  
 A. COMPACT STRUCTURAL FILL TO 95% DENSITY AND THEN PLACE 6" GRAVEL BENEATH SLAB.  
 B. PROVIDE VAPOR BARRIER BENEATH SLAB ON GROUND.

**STRUCTURAL STEEL NOTES:**

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
2. STRUCTURAL STEEL ROLLED SHAPES, PLATES AND BARS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:  
 A. ASTM A-572, GRADE 50 - ALL W SHAPES, UNLESS NOTED OR A992 OTHERWISE  
 B. ASTM A-36 - ALL OTHER ROLLED SHAPES, PLATES AND BARS UNLESS NOTED OTHERWISE.  
 C. ASTM A-500, GRADE B - HSS SECTION (SQUARE, RECTANGULAR, AND ROUND)  
 D. ASTM A-325, TYPE SC OR N - ALL BOLTS FOR CONNECTING STRUCTURAL MEMBERS  
 E. ASTM F-1554 07 - ALL ANCHOR BOLTS, UNLESS NOTED OTHERWISE
3. ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.
4. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.
5. DO NOT DRILL HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
6. CONNECTIONS:  
 A. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.  
 B. ALL WELDS SHALL BE INSPECTED VISUALLY. 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.  
 C. INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.  
 D. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE BURNING/WELDING PERMITS AS REQUIRED BY LOCAL GOVERNING AUTHORITY AND IF REQUIRED SHALL HAVE FIRE DEPARTMENT DETAIL FOR ANY WELDING ACTIVITY.  
 E. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.  
 F. MINIMUM WELD SIZE TO BE 0.1875 INCH FILLET WELDS, UNLESS NOTED OTHERWISE.  
 G. PRIOR TO FIELD WELDING GALVANIZING MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING 1/2" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.



**AMERICAN TOWER®**  
**A.T. ENGINEERING SERVICE, PLLC**  
**3500 REGENCY PARKWAY**  
**SUITE 100**  
**CARY, NC 27518**  
**PHONE: (919) 468-0112**  
**COA: PEC.0001553**

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED VERIZON IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
△	FOR CONSTRUCTION	IC	05/06/20
△			
△			
△			
△			
△			

ATC SITE NUMBER:

**302488**

ATC SITE NAME:

**CNTN - CANTON**

SITE ADDRESS:

4 HOFFMANN ROAD  
 CANTON, CT 06019

SEAL:



DRAWN BY:	IC
APPROVED BY:	PBB
DATE DRAWN:	05/06/20
ATC JOB NO:	13201406_G2
VERIZON ID:	CANTON 3 CT
VERIZON #:	467157

**GENERAL NOTES**

SHEET NUMBER:

**G-002**

REVISION:

**0**

# CANTON CT - 0024



### ELEVATION DATUM

TOWER TYPE: MONOPOLE  
 ALL ELEVATIONS ARE BASED ON NAVD 1988 DATUM (+/-)  
 GROUND ELEVATION: 784'  
 STRUCTURE HEIGHT: 155.1' ABOVE GROUND LEVEL  
 ELEVATION OF TOP OF TOWER: 939.1'  
 ELEVATION OF HIGHEST POINT: 942.6'

### LATITUDE & LONGITUDE

LATITUDE AND LONGITUDE OF EXISTING TOWER IS BASED ON THE NAD 1983.

LATITUDE: 41° 51' 19.0"  
 LONGITUDE: 72° 53' 33.0"

BASIS OF BEARINGS:  
 NORTH AMERICAN DATUM (NAD83)

THIS IS TO CERTIFY THAT THE GEOGRAPHICAL LOCATION SHOWN ABOVE IS ACCURATE TO WITHIN PLUS OR MINUS 15' HORIZONTALLY AND PLUS OR MINUS 3' VERTICALLY.

### SURVEY LEGEND

- ⊕ BENCHMARK
- × 1000.0 SPOT ELEVATION
- P.O.B. POINT OF BEGINNING
- P.O.C. POINT OF COMMENCEMENT
- OHW OVERHEAD WIRES
- CP CONCRETE PAD

### FLOOD NOTE:

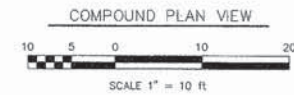
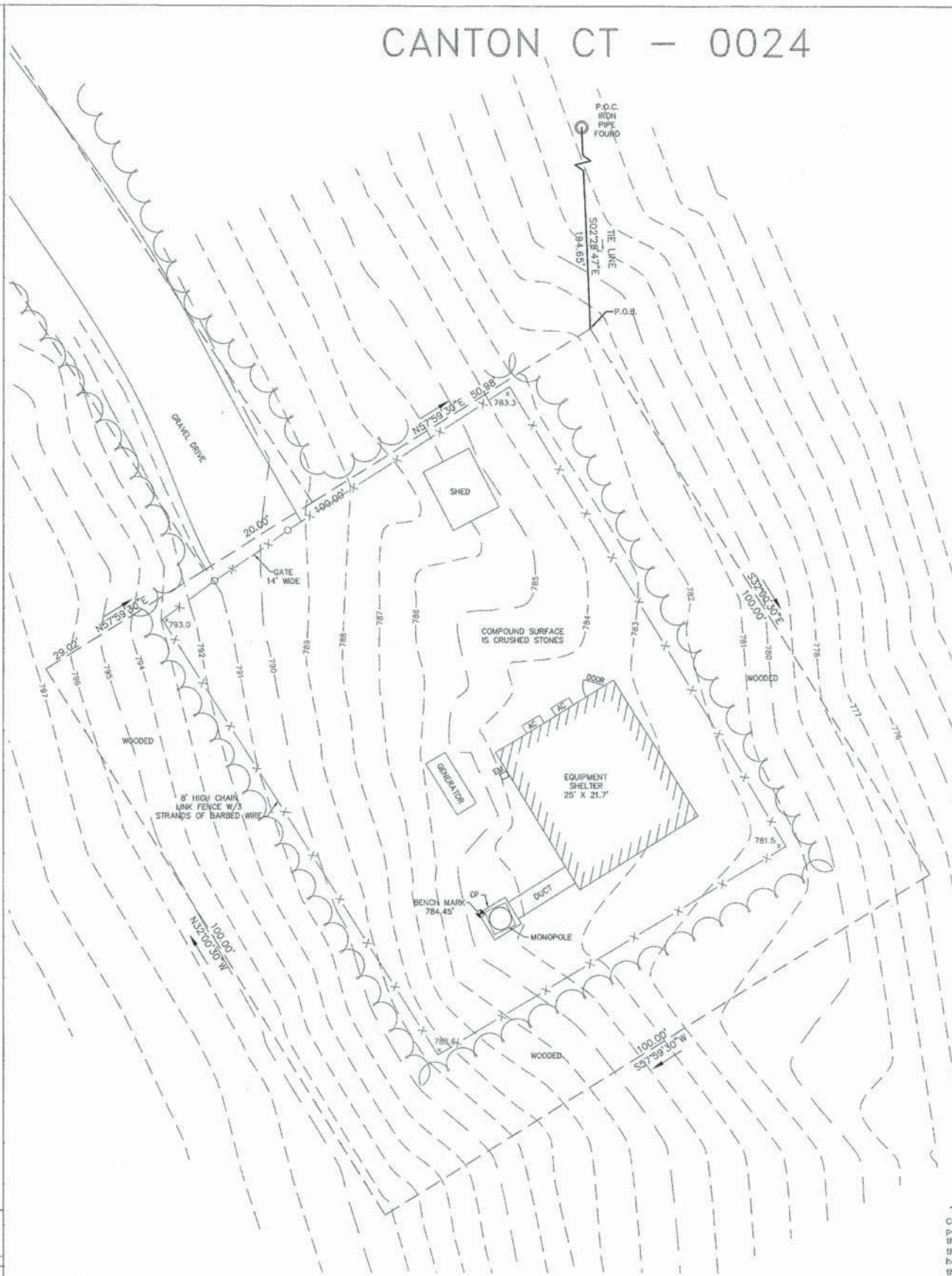
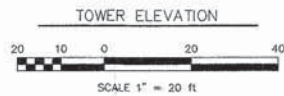
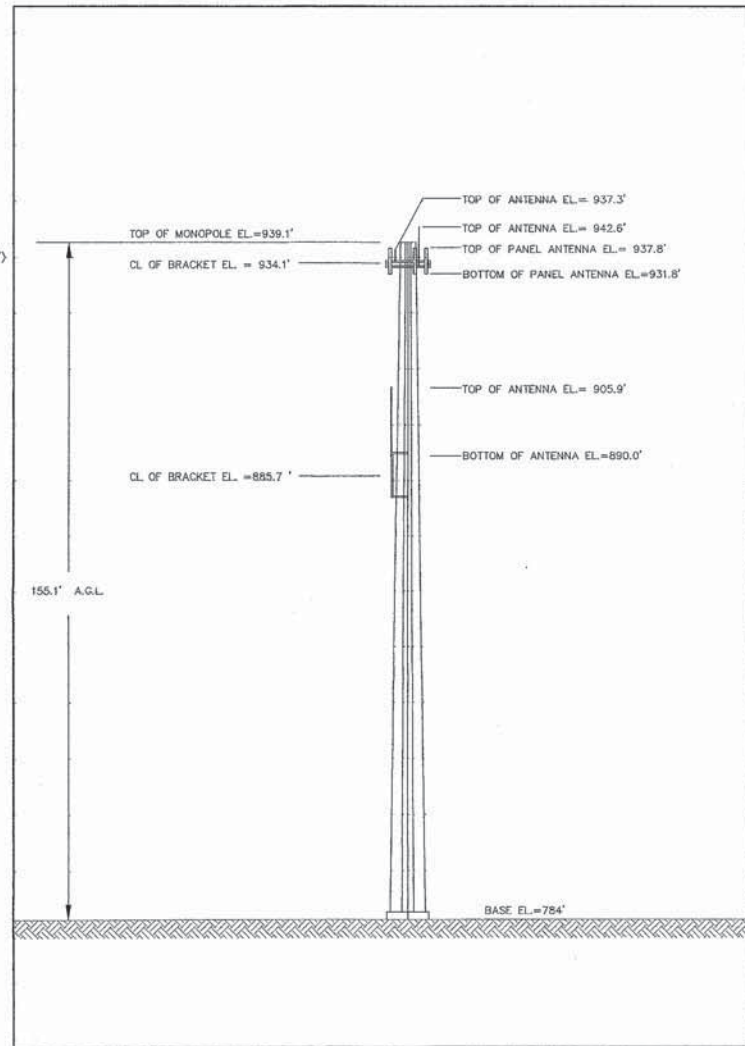
BY GRAPHIC PLOTTING ONLY, SUBJECT PREMISES ARE IN ZONE "X" OF THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 090135 0001 C, WHICH BEARS AN EFFECTIVE DATE OF 03/19/91 AND IS NOT IN A SPECIAL FLOOD HAZARD AREA.

### UTILITY NOTE:

THE UTILITIES AS SHOWN ON THIS DRAWING WERE DEVELOPED FROM THE INFORMATION AVAILABLE, THIS IS NOT IMPLIED NOR INTENDED TO BE THE COMPLETE INVENTORY OF UTILITIES IN THIS AREA. IT IS THE CLIENT'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL UTILITIES (WHETHER SHOWN OR NOT) AND PROTECT SAID UTILITIES FROM ANY DAMAGE.

### GENERAL NOTES:

1. ACCORDING TO THE TITLE COMMITMENT PROVIDED, THE OWNER OF THE PARENT PARCEL IS HERMAN A. AND EDITH L. HOFFMAN.
2. LINEAR MEASUREMENT OF CHAIN LINK FENCE AROUND COMPOUND IS 292', COMPRISING AN AREA OF 5,245 SQUARE FEET.
3. THE LEASE AREA LIES WHOLLY WITHIN THE PARENT PARCEL.



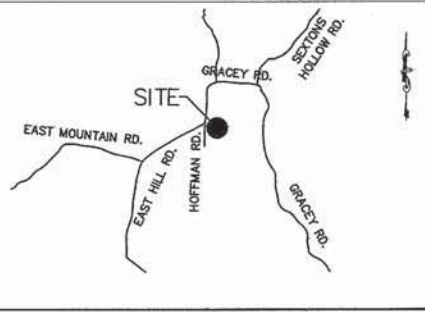
### LEASE AREA LEGAL DESCRIPTION-AS SURVEYED

Commencing at an iron pipe at an angle in the northerly line of the parent parcel, said point being 89.13 feet easterly of the northwest lot corner of the parent parcel;  
 thence, S 02° 28' 47" E, 194.65 feet to the point of beginning of the herein described lease area;  
 thence, S 32° 00' 30" E, 100.00 feet to a point;  
 thence, S 32° 59' 30" W, 100.00 feet to a point;  
 thence, N 57° 59' 30" E, 100.00 feet to the point of beginning.  
 Containing 10,000 square feet.



Work Coordinated by:  1254 MAIN STREET WALTHAM, MA 02451 TELEPHONE 781.853.6477 FAX 781.853.7061	Surveyor:  PREPARED BY <b>CONECO</b> Engineers, Scientists & Land Surveyors 4 First Street - Bridgewater, Massachusetts 02324 Telephone: (508) 697-3191 Toll free: (800) 548-3355 Facsimile: (508) 697-5998	SHEET 1 of 2 Date 12/11/01 Dwn. By TSB Apprd. By CTC Dwg. No. 1409 Proj. No. 1409 REVISIONS DESCRIPTION: DATE:
Prepared For:  100 REGENCY FOREST DRIVE, SUITE 400 CARY, NC 27511	Project Location CANTON, CT Project Address 4 HOFFMAN RD. Site Name CNTN-CANTON SpectraSite Number CT-0024	

# CANTON CT - 0024



VICINITY MAP  
NOT TO SCALE



### ACCESS EASEMENT LEGAL DESCRIPTION-AS SURVEYED

Commencing at an iron pipe at an angle in the northerly line of the parent parcel, said point being 89.13 feet easterly of the northwest lot corner of the parent parcel;  
 thence, S 08° 55' 50" W, 224.21 feet to the point of beginning of the herein described 20 foot wide access easement;  
 thence, S 57° 59' 30" W, 20.00 feet to a point;  
 thence, N 33° 42' 23" W, 138.80 feet to a point on the easterly line of East Hill Road;  
 thence, N 17° 07' 07" E, along said easterly line, 25.80 feet to a point;  
 thence, S 33° 42' 23" E, 155.69 feet to the point of beginning.

### ZONING DATA

ZONE: AR-3 (AGRICULTURAL RESIDENTIAL)  
 SETBACKS:  
 FRONT: 40'  
 REAR: 20'  
 SIDE: 20'

### PARENT PARCEL LEGAL DESCRIPTION-AS PROVIDED

A certain piece or parcel of land, containing 10.022 acres, more or less, with the buildings and improvements thereon, situated in the Town of Canton, County of Hartford and State of Connecticut, and being shown as Parcels A, B and C on a map entitled "Map of Land Owned By Herman & Edith L. Hoffman Hoffman Road & East Hill Road Canton, Conn. Scale: 1" = 40' Oct. 1983" which map is certified substantially correct by B. Nascimben and Robert E. Johns, Surveyors and a copy of which map is to be filed in the Canton Town Clerk's office; said premises are more particularly bounded and described as follows:

Commencing at a point on the southeast highway line of East Hill Road, which point marks a northerly corner of the premises herein described and a westerly corner of land now or formerly of Ruth G. Small, thence running S 58° 13' 30" E, 89.13 feet; thence running south 54° 04' 40" E, 56.87 feet; thence running S 53° 15' 46" E, 91.88 feet, said first three courses being along land now or formerly of Ruth G. Small, being the center line of a stone wall; thence running S 1° 40' 16" E, 912.92 feet; thence running S 88° 19' 44" W, 72.0 feet; thence running N 59° 28' 58" W, 624.33 feet, the last three courses being along other land of the Grants; thence running N 4° 05' 36" E, along the easterly highway line of Hoffman Road, 374.16 feet; thence on a curve to the right having a radius of 37.76 feet and marking the intersection of Hoffman Road and East Hill Road, 44.17 feet; thence running N 71° 06' 37" E, 44.52 feet; thence on a curve to the left having a radius of 269.62 feet for a distance of 160.42 feet; thence running N 37° 01' 09" E, 274.84 feet, to the point or place of beginning, the last three courses being along the southeasterly highway line of East Hill Road; and being bounded:

- Northeasterly by land now or formerly of Ruth G. Small;
- Easterly and Southwesterly by other land of the Grants herein;
- Westerly by Hoffman Road; and
- Northwesterly by East Hill Road.

And being a portion of the premises conveyed to the Grants herein by Quit Claim Deed of Ernest A. Hoffmann dated April 30, 1942 and recorded in Volume 38 at Page 44 of the Canton Land Records; Bessie L. Hoffmann hereby releasing her life use of the herein-described premises which was reserved in said deed of Ernest A. Hoffmann.

Parcel A, which lies within the herein-described premises, was previously conveyed by the following Quit Claim Deeds recorded in the Canton Land Records; James C. Hoffmann, et al, to Herman A. Hoffmann dated June 13, 1946 and recorded in Volume 41 at Page 85; James C. Hoffmann, et al, to Herman A. Hoffmann dated September 19, 1958 and recorded in Volume 55 at Page 217; Herman A. Hoffmann to Helen S. Kilburn dated September 19, 1958 and recorded in Volume 55 at Page 218; and Helen S. Kilburn to Herman A. Hoffmann and Edith L. Hoffmann dated September 19, 1958 and recorded in Volume 55 at Page 219.

### ACCESS NOTE

Access to the site is gained by turning southeasterly onto a gravel drive off of East Hill Road which is a public way. The narrowest width of the gravel access drive is 12.2 feet.

### NOTES CORRESPONDING TO SCHEDULE B:

THE COMMITMENT FOR TITLE INSURANCE ISSUED BY FIRST AMERICAN TITLE INSURANCE COMPANY DATED DECEMBER 21, 2000 CONTAINS THE FOLLOWING EXCEPTIONS WHICH ARE SURVEY MATTERS:  
 There are no schedule B items that affect the lease area or the access easement.

### SURVEYOR'S CERTIFICATE:

I, **CHARLES T. CAMP** DO HEREBY CERTIFY TO SPECTRASITE COMMUNICATIONS, INC., **FIRST AMERICAN TITLE INSURANCE COMPANY**, THAT THIS SURVEY WAS MADE ON THE GROUND UNDER MY PERSONAL SUPERVISION AND THAT THIS IS A TRUE, CORRECT REPRESENTATION OF THE FACTS AS FOUND AT THIS TIME OF THE SURVEY, AND MORE SPECIFICALLY, I SO HEREBY CERTIFY THAT THE SURVEY CONFORMS TO THE CONDITIONS AND STIPULATIONS AS CHECKED (X) BELOW (NOTE: ON LEASED PARCELS, "SUBJECT PROPERTY" IS DEFINED AS THE LEASED PREMISES AND ITS APPURTENANT EASEMENTS; AND THIS SURVEY SHALL NOT BE CONSTRUED AS A FULL BOUNDARY SURVEY OF THE PARENT TRACT):

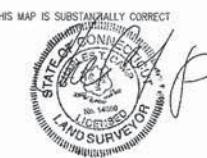
- (X) 1. CORRECTLY SHOWS THE LOCATION AND DIMENSION OF ALL ALLEYS, STREETS, ROADS, RIGHTS-OF-WAY, EASEMENTS AND OTHER MATTERS OF RECORD WHICH THE SURVEYOR HAS BEEN ADVISED AFFECTS THE SUBJECT PROPERTY (EACH HAS BEEN IDENTIFIED BY INSTRUMENT VOLUME AND PAGE NUMBER IF AVAILABLE).
- (X) 2. EXCEPT AS SHOWN THERE ARE NO VISIBLE EASEMENTS, RIGHTS-OF-WAY, PARTY WALLS OR CONFLICTS.
- (X) 3. ACCESS IS CONTIGUOUS BETWEEN THE SUBJECT PROPERTY AND A PUBLIC RIGHT-OF-WAY, AS SHOWN.
- (X) 4. THE LEGAL DESCRIPTION DEPICTED HEREON IS THE SAME DEMISED IN THE TITLE COMMITMENT OR CURRENT LEASE REFERENCED HEREON.
- (X) 5. SURVEY MEETS OR EXCEEDS THE MINIMUM TECHNICAL STANDARDS FOR AS-BUILT LAND SURVEYS SET FORTH BY CONNECTICUT STATE LAW.

**CHARLES T. CAMP** DATE: 12/11/01  
 CT LICENSED LAND SURVEYOR #14650  
 NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL SEAL OF A CONNECTICUT LICENSED SURVEYOR.

THIS MAP AND SURVEY WERE PREPARED IN ACCORDANCE WITH SECTIONS THROUGH 20-300B-20, OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES - "MINIMUM STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT", PREPARED AND ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996. IT IS A "COMPILATION PLAN" AND CONFORMS TO HORIZONTAL ACCURACY "CLASS D". THIS PLAN WAS PREPARED FROM RECORD RESEARCH, OTHER MAPS, LIMITED FIELD MEASUREMENTS AND OTHER SOURCES. IT IS NOT TO BE CONSTRUED AS A PROPERTY/BOUNDARY OR LIMITED PROPERTY/BOUNDARY SURVEY AND IS SUBJECT TO SUCH FACTS AS SURVEYS MAY DISCLOSE. THE TOPOGRAPHIC INFORMATION SHOWN HEREON HAS BEEN FIELD LOCATED AND INTERPOLATED AND CONFORMS TO "CLASS 1-2" ACCURACY. ELEVATIONS ARE BASED ON NAVD83 DATUM.

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

CHARLES T. CAMP, L.S. #14650



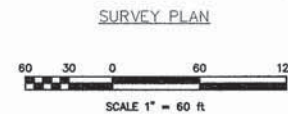
SHEET 2 of 2

Date	12/11/01
Drawn By	TSP
Acquired By	CTC
Drawn No.	1409
Proj. No.	1409

REVISIONS

DESCRIPTION	DATE

Work Coordinated by:  134 MAIN STREET WALTHAM, MASSACHUSETTS TELEPHONE: (781) 861-6777 FAX: (781) 861-1961	Surveyor:  PREPARED BY <b>CONECO</b> Engineers, Scientists & Land Surveyors 4 First Street - Bridgewater, Massachusetts 02324 Telephone: (508) 697-3191 Toll free: (800) 548-3355 Facsimile: (508) 697-9406	SPECTRASITE CONSTRUCTION AS-BUILT LAND SURVEY SCOPE REVISION 1
Prepared For:  100 REGENCY FOREST DRIVE, SUITE 400 CARY, NC. 27511	Project Location: CANTON, CT Project Address: 4 HOFFMAN RD. Site Name: CNTN-CANTON SpectraSite Number: CT-0024	SHEET 2 of 2

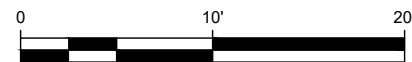


**SITE PLAN NOTES:**

1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE T-MOBILE REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.

LEGEND	
⊗	GROUNDING TEST WELL
ATS	AUTOMATIC TRANSFER SWITCH
B	BOLLARD
CSC	CELL SITE CABINET
D	DISCONNECT
E	ELECTRICAL
F	FIBER
GEN	GENERATOR
G	GENERATOR RECEPTACAL
HH, V	HAND HOLE, VAULT
IB	ICE BRIDGE
K	KENTROX BOX
LC	LIGHTING CONTROL
M	METER
PB	PULL BOX
PP	POWER POLE
T	TELCO
TRN	TRANSFORMER
x	CHAINLINK FENCE

**1 DETAILED SITE PLAN**

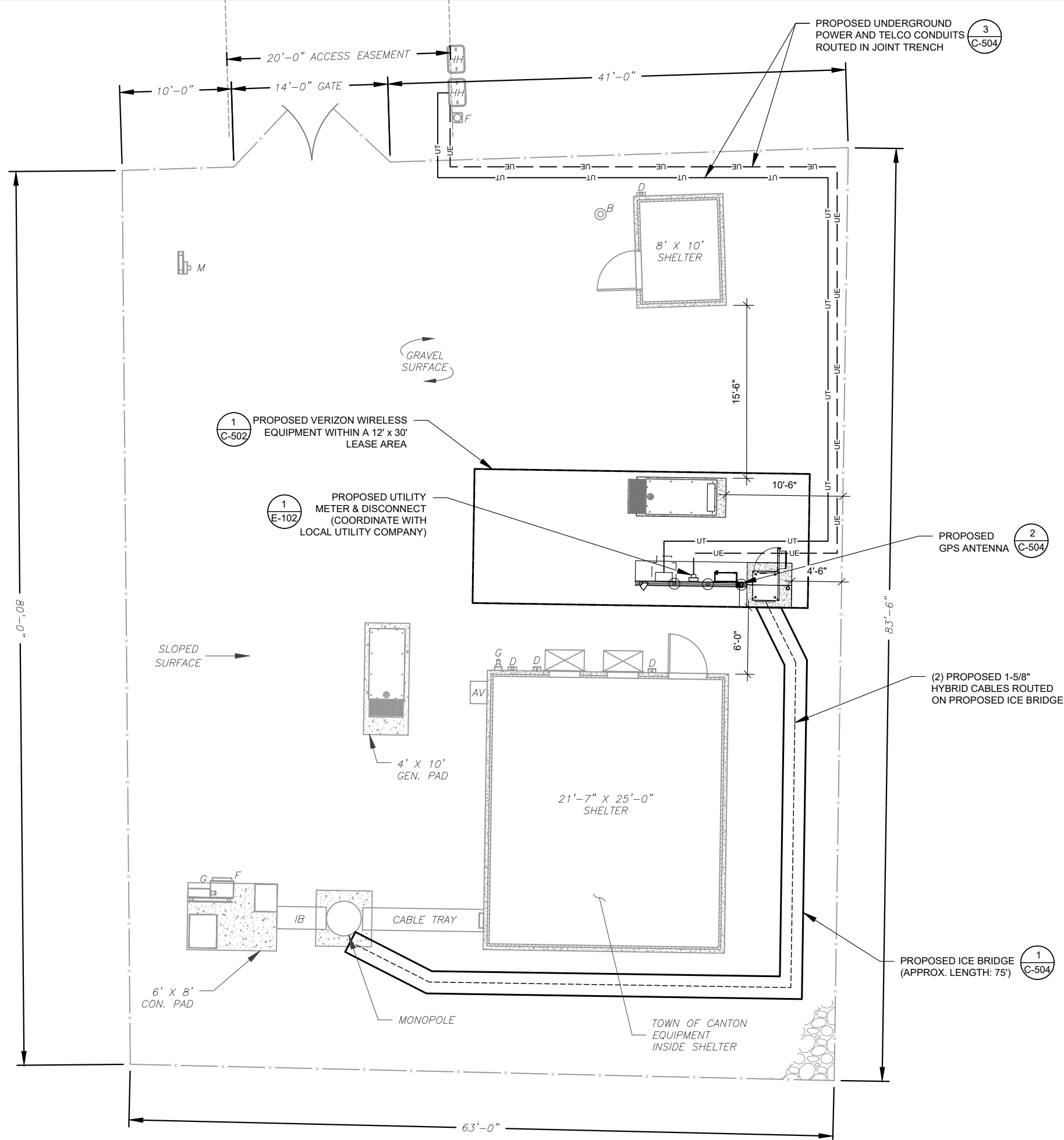


SCALE: 1"=10' (11X17)  
1"=5' (22X34)



**PROPOSED CABLE LENGTH:**

1. ESTIMATED LENGTH OF PROPOSED CABLE IS 220'. ESTIMATED LENGTH OF CABLE WAS PROVIDED BY CUSTOMER OR CALCULATED BY ADDING THE RAD CENTER AND THE DISTANCE FROM THE SHELTER ENTRY PLATE TO THE TOWER (ALONG THE ICE BRIDGE) AND A SAFETY FACTOR MEASUREMENT OF 15% (OF THE TWO PREVIOUS VALUES). CDS DEFER TO GREATEST CABLE LENGTH.
2. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.



**AMERICAN TOWER®**  
**A.T. ENGINEERING SERVICE, PLLC**  
 3500 REGENCY PARKWAY  
 SUITE 100  
 CARY, NC 27518  
 PHONE: (919) 468-0112  
 COA: PEC.0001553

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED VERIZON IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	IC	05/06/20
1			
2			
3			

ATC SITE NUMBER:  
**302488**  
 ATC SITE NAME:  
**CNTN - CANTON**  
 SITE ADDRESS:  
 4 HOFFMANN ROAD  
 CANTON, CT 06019



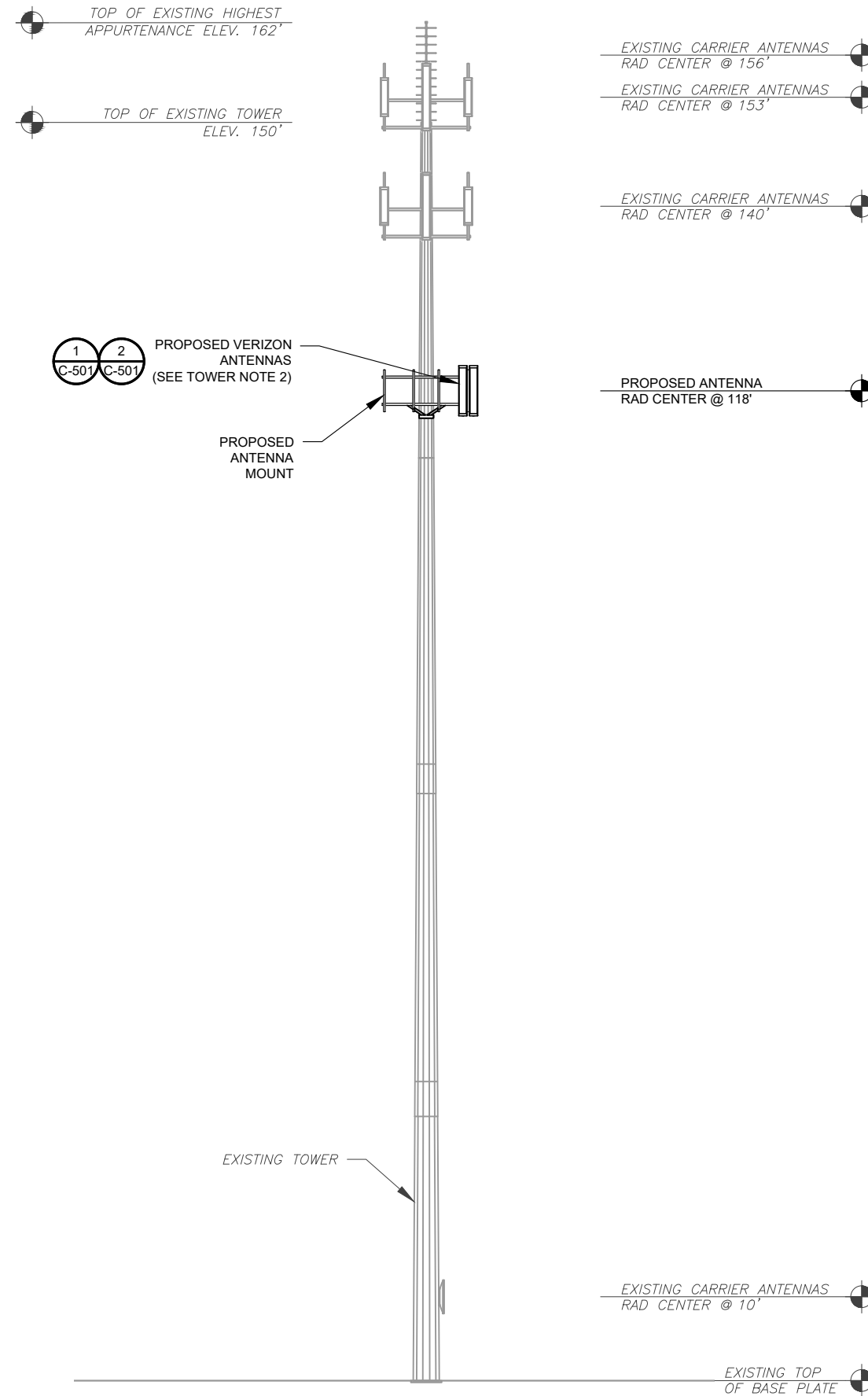
DRAWN BY:	IC
APPROVED BY:	PBB
DATE DRAWN:	05/06/20
ATC JOB NO:	13201406_G2
VERIZON ID:	CANTON 3 CT
VERIZON #:	467157

**DETAILED SITE PLAN**

SHEET NUMBER:	REVISION:
<b>C-101</b>	<b>0</b>

Copyright © 2020 ATC IP LLC. All Rights Reserved.

PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION, DATED 04/08/2020, THE PROPOSED MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING



**TOWER NOTE:**

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE AMERICAN TOWER CONSTRUCTION MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS.
- THE PROPOSED PROJECT INCLUDES INSTALLING TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW:
  - INSTALL (6) PANELS, (6) RRUs, (1) OVP, AND (2) 1-5/8" HYBRID CABLES ON A PROPOSED PLATFORM

**2 TOWER ELEVATION**  
SCALE: NOT TO SCALE



**AMERICAN TOWER®**  
**A.T. ENGINEERING SERVICE, PLLC**  
 3500 REGENCY PARKWAY  
 SUITE 100  
 CARY, NC 27518  
 PHONE: (919) 468-0112  
 COA: PEC.0001553

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED VERIZON IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	IC	05/06/20

ATC SITE NUMBER:

**302488**

ATC SITE NAME:

**CNTN - CANTON**

SITE ADDRESS:

4 HOFFMANN ROAD  
 CANTON, CT 06019

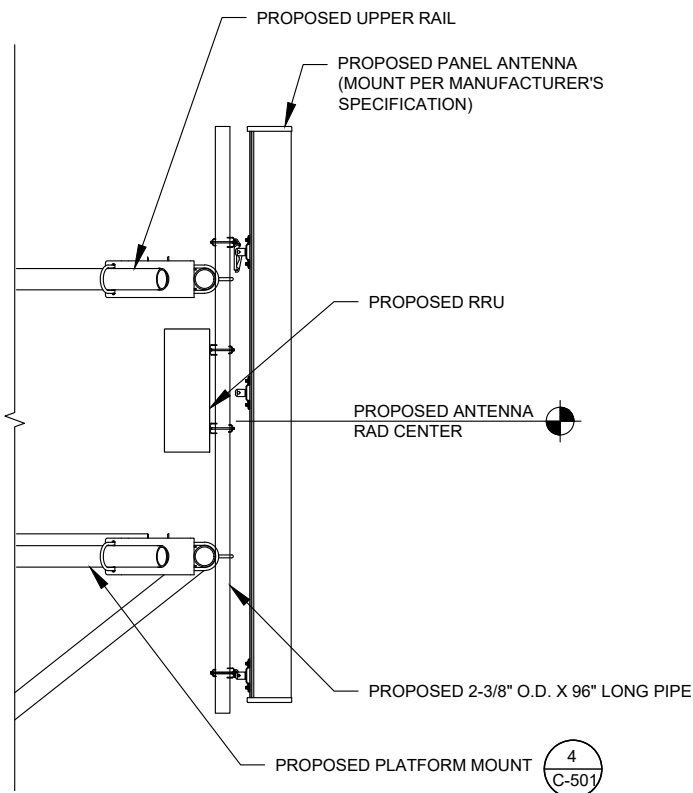
SEAL:



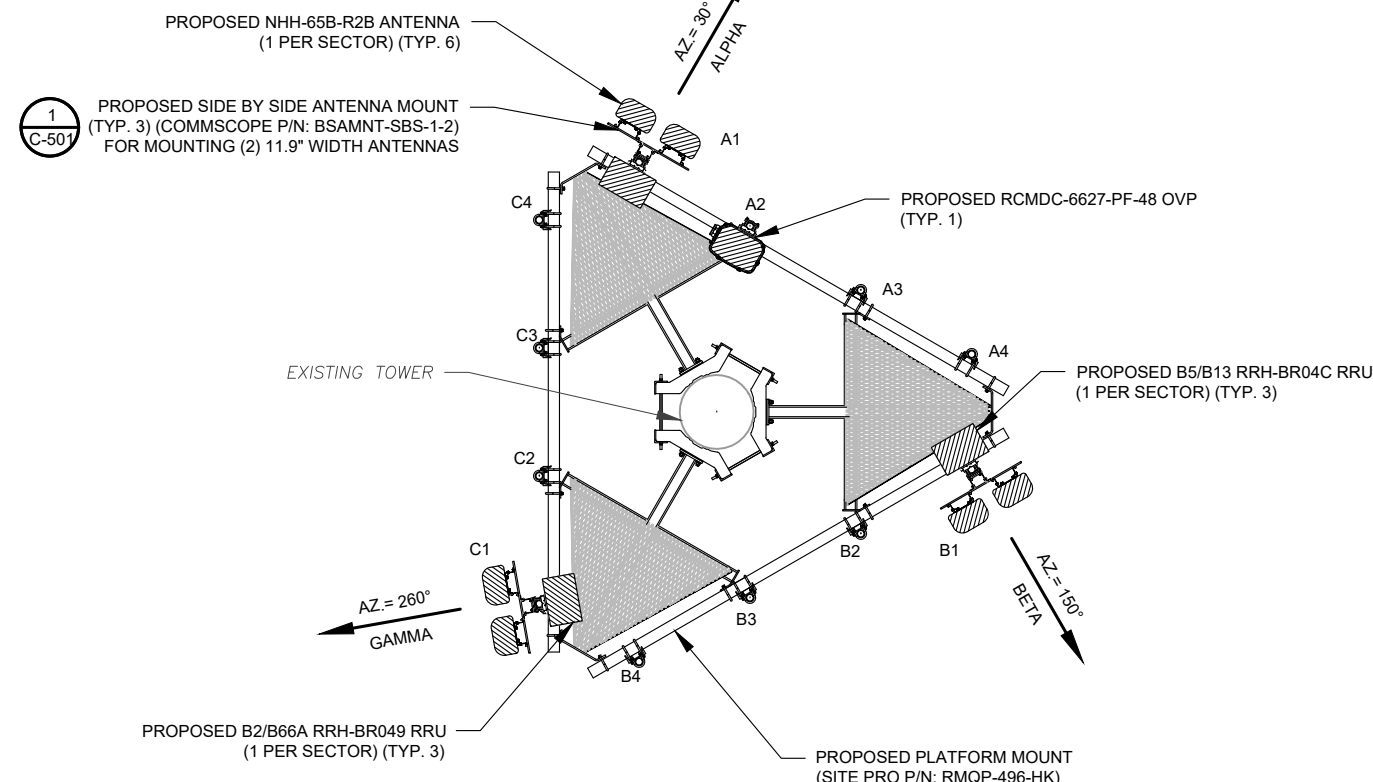
DRAWN BY:	IC
APPROVED BY:	PBB
DATE DRAWN:	05/06/20
ATC JOB NO:	13201406_G2
VERIZON ID:	CANTON 3 CT
VERIZON #:	467157

**TOWER ELEVATION**

SHEET NUMBER:	REVISION:
<b>C-102</b>	<b>0</b>



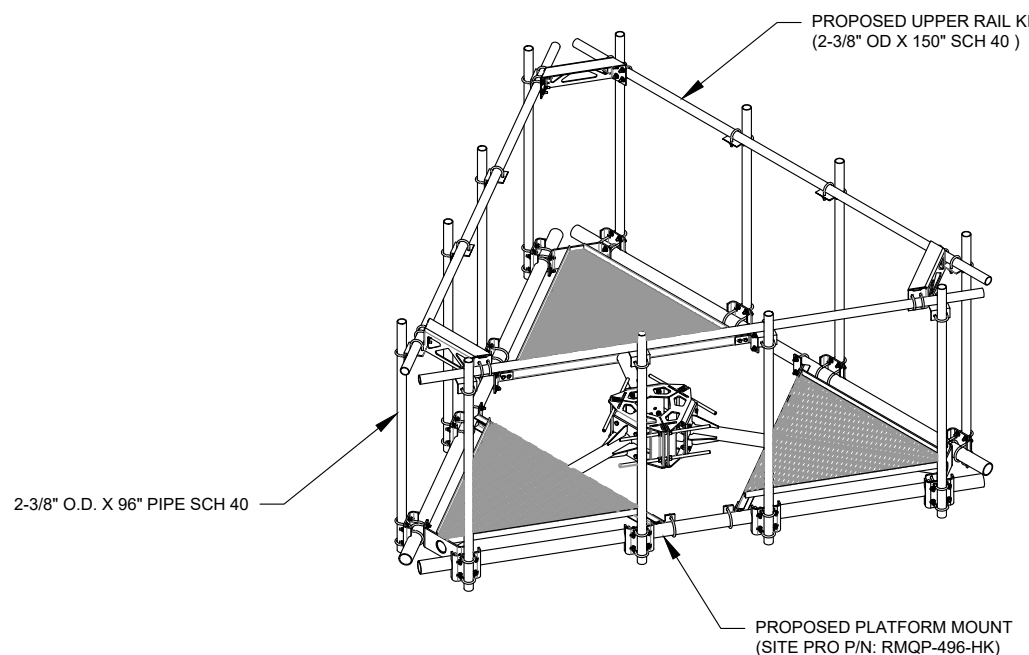
**1 PROPOSED ANTENNA MOUNTING DETAIL (ELEVATION)**  
SCALE: NOT TO SCALE



**2 PROPOSED ANTENNA PLAN**

**NOTES:**

- ALL PROPOSED EQUIPMENT INCLUDING ANTENNAS, COAX, ETC. SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS ON FILE WITH THE ATC CM.
- SPACING OF PROPOSED EQUIPMENT SHALL BE CONFIRMED FOR TOWER CONFLICTS AND PROPOSED MOUNTS SHALL NOT IMPEDE TOWER CLIMBING PEGS.



**4 ISOMETRIC PLATFORM DETAIL**  
SCALE: N.T.S.

FINAL ANTENNA/ COAX SCHEDULE								
SECTOR	ANT.	PANEL MODEL #	RAD CENTER	AZIMUTH (TN)	MECH. D-TILT	ELEC. D-TILT	ADDITIONAL TOWER MOUNTED EQUIPMENT	ANTENNA COAX DESCRIPTION
ALPHA	A1	(2) NHH-65B-R2B	118'-0"	30°	0°	2°	B5/B13 RRH-BR04C B2/B66A RRH-BR049	(2) 1-5/8" HYBRID CABLES (LENGTH: 220')
ALPHA	A2	-	118'-0"	30°	-	-	RCMDC-6627-PF-48	
ALPHA	A3	-	118'-0"	30°	-	-	-	
ALPHA	A4	-	118'-0"	30°	-	-	-	
BETA	B1	(2) NHH-65B-R2B	118'-0"	150°	2°	4°	B5/B13 RRH-BR04C B2/B66A RRH-BR049	
BETA	B2	-	118'-0"	150°	-	-	-	
BETA	B3	-	118'-0"	150°	-	-	-	
BETA	B4	-	118'-0"	150°	-	-	-	
GAMMA	C1	(2) NHH-65B-R2B	118'-0"	260°	0°	2°	B5/B13 RRH-BR04C B2/B66A RRH-BR049	
GAMMA	C2	-	118'-0"	260°	-	-	-	
GAMMA	C3	-	118'-0"	260°	-	-	-	
GAMMA	C4	-	118'-0"	260°	-	-	-	

**3 ANTENNA SCHEDULE**

1. BASED ON APPROVED ATC APPLICATION 13201406, DATED 03-26-2020. CONFIRM WITH VERIZON REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS.

PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION, DATED 04/08/2020, THE PROPOSED MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING



**AMERICAN TOWER®**  
A.T. ENGINEERING SERVICE, PLLC  
3500 REGENCY PARKWAY  
SUITE 100  
CARY, NC 27518  
PHONE: (919) 468-0112  
COA: PEC.0001553

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED VERIZON IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	IC	05/06/20
1	MOUNT NAME	TR	08/05/20

ATC SITE NUMBER:  
**302488**

ATC SITE NAME:  
**CNTN - CANTON**

SITE ADDRESS:  
4 HOFFMANN ROAD  
CANTON, CT 06019

SEAL:



DRAWN BY:	IC
APPROVED BY:	PBB
DATE DRAWN:	05/06/20
ATC JOB NO:	13201406_G2
VERIZON ID:	CANTON 3 CT
VERIZON #:	467157

**ANTENNA INFORMATION & SCHEDULE**

SHEET NUMBER:  
**C-501**

REVISION:  
**1**

Copyright © 2020 ATC IP, LLC. All Rights Reserved.



**AMERICAN TOWER®**  
**A.T. ENGINEERING SERVICE, PLLC**  
 3500 REGENCY PARKWAY  
 SUITE 100  
 CARY, NC 27518  
 PHONE: (919) 468-0112  
 COA: PEC.0001553

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED VERIZON IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	IC	05/06/20

ATC SITE NUMBER:

**302488**

ATC SITE NAME:

**CNTN - CANTON**

SITE ADDRESS:

4 HOFFMANN ROAD  
 CANTON, CT 06019

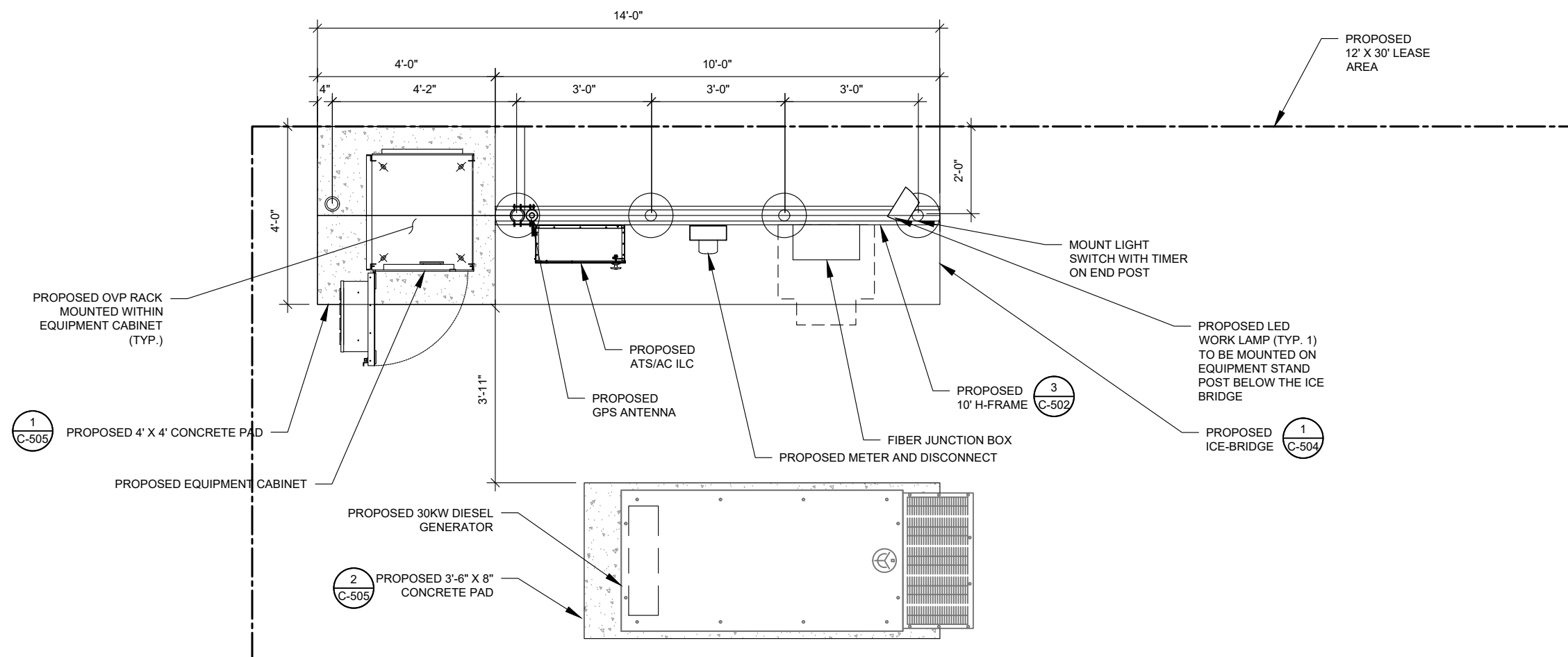
SEAL:



DRAWN BY:	IC
APPROVED BY:	PBB
DATE DRAWN:	05/06/20
ATC JOB NO:	13201406_G2
VERIZON ID:	CANTON 3 CT
VERIZON #:	467157

**CONSTRUCTION DETAILS**

SHEET NUMBER:	REVISION:
<b>C-502</b>	<b>0</b>



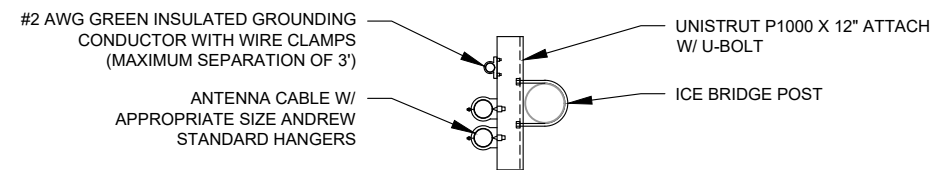
**1 DETAILED EQUIPMENT LAYOUT**  
 SCALE: NOT TO SCALE

**VERIZON WIRELESS PROVIDED EQUIPMENT**

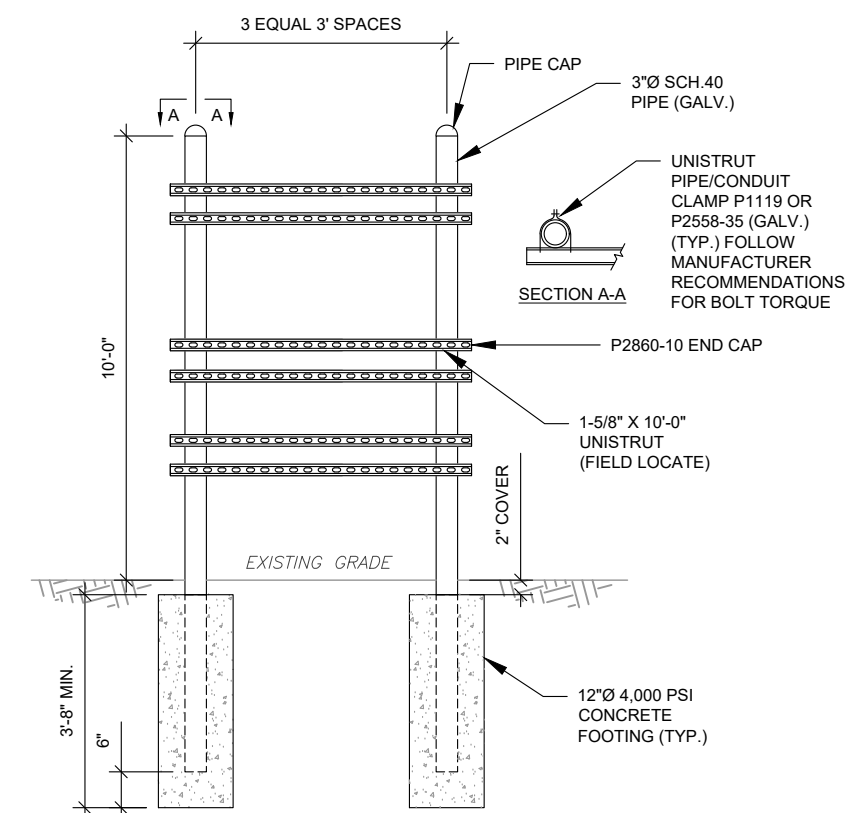
- CHARLES INDUSTRIES CUBE-SS4B231PX2 EQUIPMENT WITH BATTERY CHARGER
- RAYCAP OVP-12 (RCMDC-6627-PF-48)

**CONTRACTOR PROVIDED EQUIPMENT**

- \* THIS IS NOT A COMPREHENSIVE LIST. IT SHOULD BE ASSUMED BY THE CONTRACTOR THAT ALL OTHER ITEMS DETAILED IN THIS SET OF DRAWINGS SHALL BE PROVIDED BY THE CONTRACTOR.
- 18"X18" FIBER JUNCTION BOX, NEMA 3R CABINET ENCLOSURE WITH WOODEN BACKBOARD, PADLOCK LATCH, AND COMBINATION LOCK (USE FOR DARK FIBER)
- 26.2" WIDE X 78" TALL X 12.3" DEEP ASCO D300L SERIES POWER TRANSFER LOAD CENTER MODEL AA300G-1PH-N-3R INTEGRATED LOAD CENTER "ILC" WITH COMBINATION PAD LOCK.
- 22" WIDE X 26" TALL X 20" DEEP CHARLES INDUSTRIES CUBE-RL1003C-1 WITH HEAT EXCHANGER (120V) WITH TRIPP-LITE UPS PART #SM1200RML2UTAA INSIDE (ONLY REQUIRED WHEN VZT PROVIDES LIT FIBER. UTILITY COORDINATOR MUST VERIFY IF NEEDED)
- COORDINATE ADDITIONAL ENTRY GATE LOCK(S) WITH CONSTRUCTION MANAGER

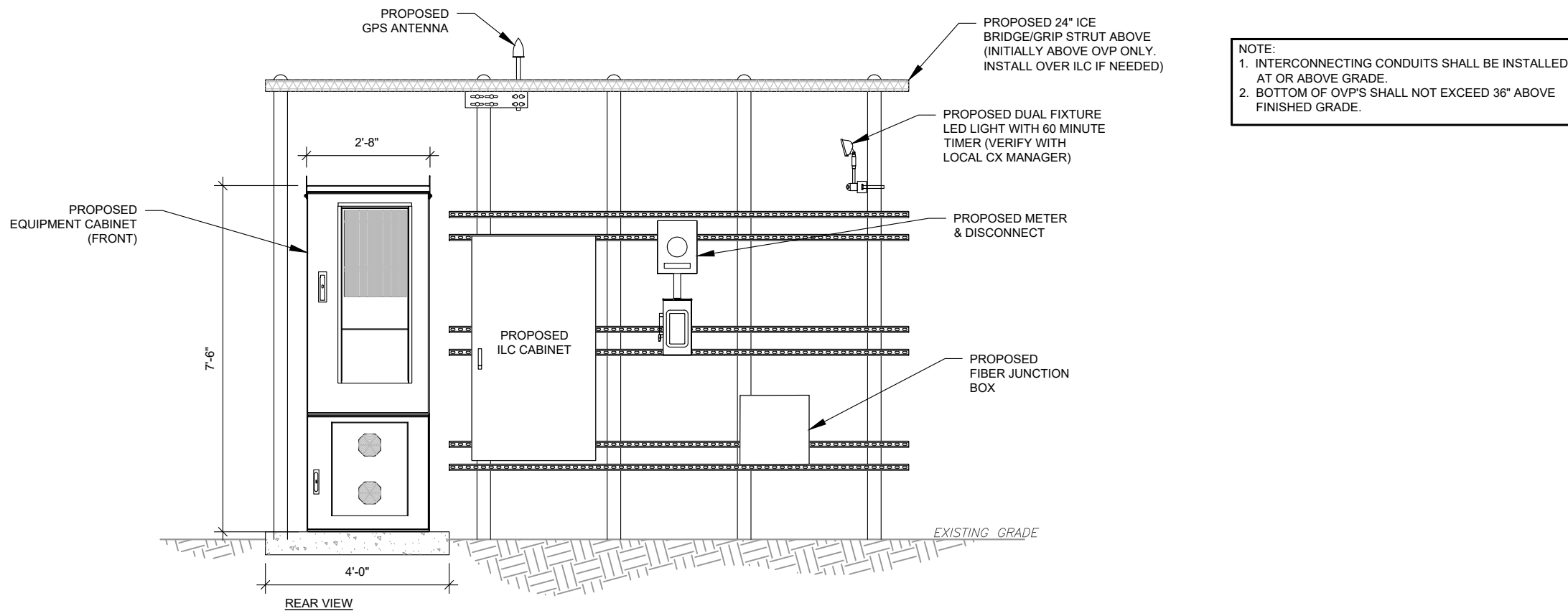
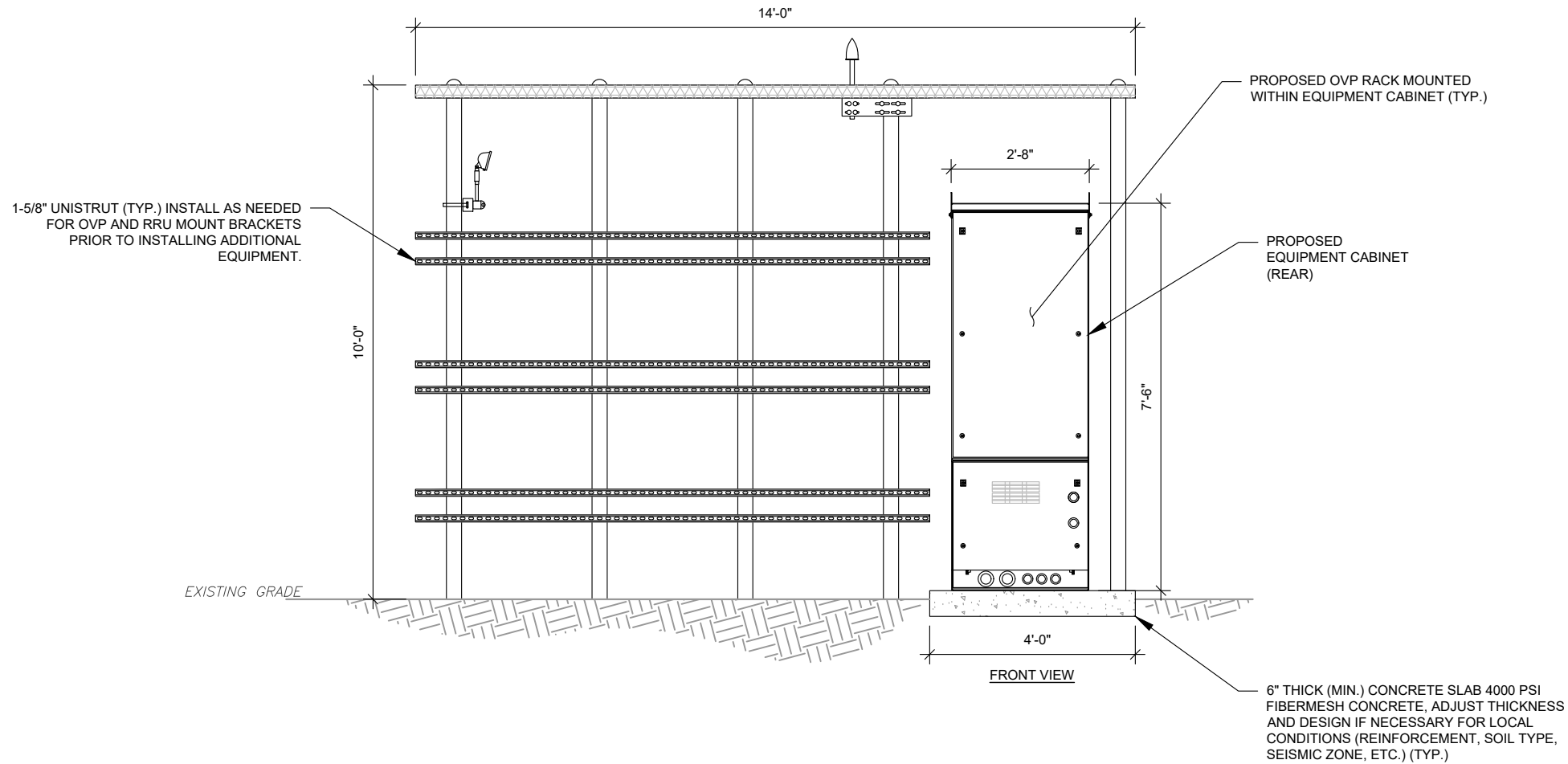


**2 WAVEGUIDE UNISTRUT**  
 SCALE: NOT TO SCALE



**3 TYPICAL H-FRAME AND ICE BRIDGE POST DETAIL**  
 SCALE: NOT TO SCALE

Copyright © 2020 ATC IP LLC. All Rights Reserved.



1 DETAILED H-FRAME LAYOUT  
 SCALE: NOT TO SCALE



**AMERICAN TOWER®**  
 A.T. ENGINEERING SERVICE, PLLC  
 3500 REGENCY PARKWAY  
 SUITE 100  
 CARY, NC 27518  
 PHONE: (919) 468-0112  
 COA: PEC.0001553

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED VERIZON IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	IC	05/06/20

ATC SITE NUMBER:  
**302488**  
 ATC SITE NAME:  
**CNTN - CANTON**

SITE ADDRESS:  
 4 HOFFMANN ROAD  
 CANTON, CT 06019

SEAL:



DRAWN BY:	IC
APPROVED BY:	PBB
DATE DRAWN:	05/06/20
ATC JOB NO:	13201406_G2
VERIZON ID:	CANTON 3 CT
VERIZON #:	467157

**CONSTRUCTION  
 DETAILS**

SHEET NUMBER:  
**C-503**

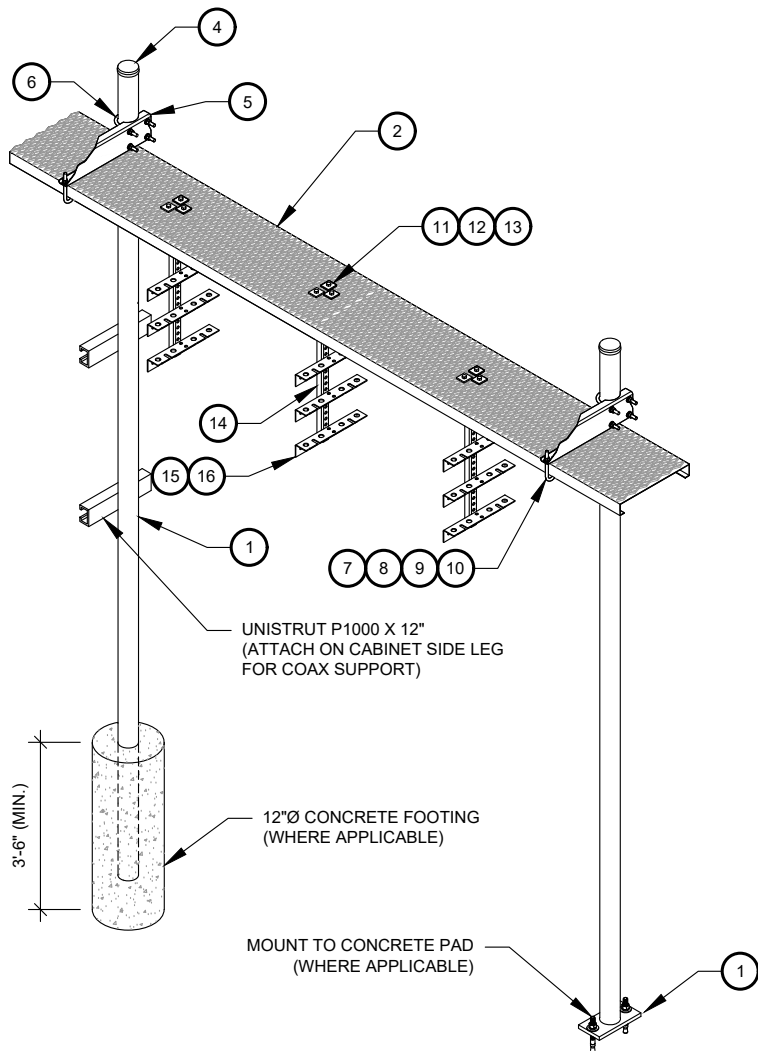
REVISION:  
**0**

Copyright © 2020 ATC IP LLC. All Rights Reserved.



**CONSTRUCTION NOTE:**

1. INSTALL ICE BRIDGE TO ALLOW 7 FEET CLEARANCE ABOVE GRADE TO LOWEST APPURTENANCE.

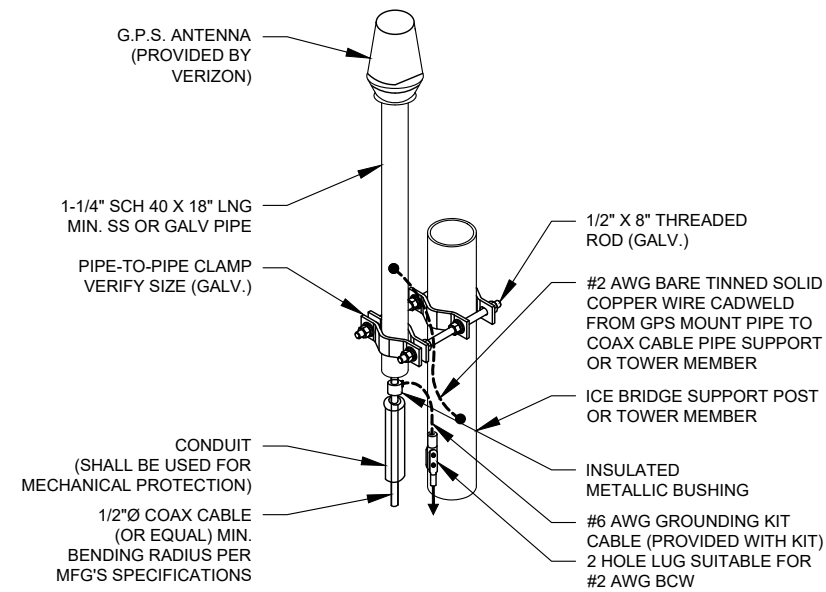


WB-K210-B WAVEGUIDE BRIDGE KIT - BILL OF MATERIALS (INCLUDED WITH KIT UNLESS NOTED OTHERWISE)

ITEM	PART NUMBER	DESCRIPTION	ITEM	PART NUMBER	DESCRIPTION
1	MF126.01 MF-130	10'-4" COLUMN & BASE SHOE* 13'-4" PIPE COLUMN	9	GWL-04	1/2" GALV LOCK WASHER
2	WB-CY210	SAFETY GRATING 24" X 10'	10	GN-04	1/2" GALV HEX NUT
3	WBK110BHK	HARDWARE KIT (ITEMS 4-16)	11	GB-03205	3/8" X 2" GALV BOLT KIT
4	PC-034	PIPE CAP 3-1/2"	12	MT-387	SQUARE WASHER, 1-1/2" X 1-1/2" W/ 7/16" HOLE
5	WBLB243.08	24" WAVEGUIDE BRIDGE SUPPORT BRACKET	13	GWF-03	3/8" GALV FLAT WASHER
6	GUB-4356	1/2" X 3-5/8" X 6" GALV U-BOLT	14	WBT243.01	VERTICAL TRAPEZE SECTION
7	WB-JB-6	1/2" J-BOLT	15	GB-03105	3/8" X 1" GALV BOLT KIT
8	GWF-04	1/2" GALV FLAT WASHER	16	WBT243.02	HORIZONTAL TRAPEZE SECTION

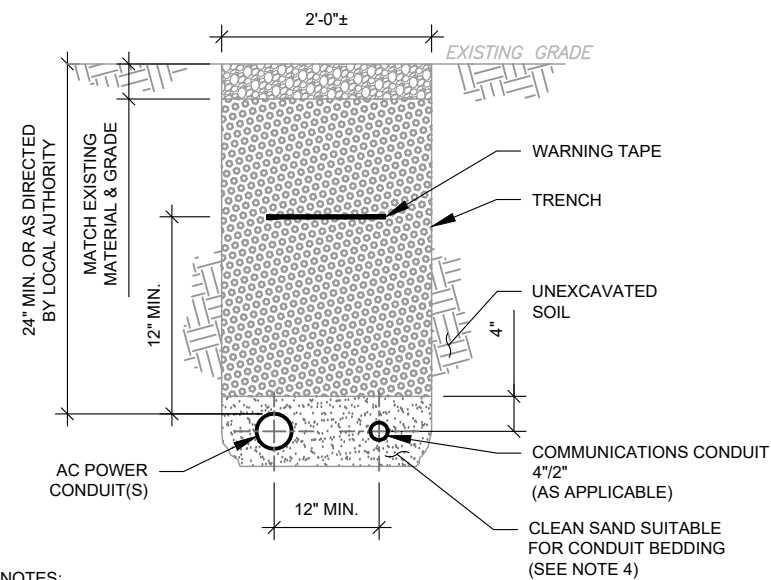
CONTRACTOR SHALL USE PARTS MANUFACTURED BY COMMSCOPE OR APPROVED EQUIVALENT.  
\*BASE SHOE NOT INCLUDED IN WB-K210-B KIT, ORDER COLUMN SEPARATELY OR KIT WB-K210-S.

**1 WAVEGUIDE BRIDGE KIT**  
SCALE: NOT TO SCALE



- NOTE:
1. GPS SHALL BE PLACED WITH CLEAR SIGHT LINE TO THE SOUTHERN SKY.
  2. CONTRACTOR TO SUPPLY COAX FOR GPS UNIT.

**2 GPS ANTENNA ATTACHMENT DETAIL**  
SCALE: NOT TO SCALE



**TRENCH NOTES:**

1. IF FREE OF ORGANIC OR OTHER DELETERIOUS MATERIAL, EXCAVATED MATERIAL MAY BE USED FOR BACKFILL. IF NOT, PROVIDE CLEAN, COMPACTIBLE MATERIAL.
2. COMPACT IN 8" LIFTS. REMOVE ANY LARGE ROCKS PRIOR TO BACKFILLING. CONTRACTOR TO VERIFY LOCATION OF EXISTING U/G UTILITIES PRIOR TO DIGGING.
3. IF CURRENT AS-BUILT DRAWINGS ARE NOT AVAILABLE CONTRACTOR SHALL HAND DIG U/G TRENCHING.
4. USE COMMUNICATIONS ONLY TRENCH FOR COMMUNICATIONS CONDUIT UNLESS TRAVELING UNDER PATH OF VEHICLE TRAVEL, THEN CONDUIT MUST BE 24" MIN. BELOW GRADE.
5. CONFIRM SPACING AND DEPTH WITH NEC OR LOCAL CODE REQUIREMENTS

**3 POWER/TELCO CONDUIT TRENCH DETAILS**  
SCALE: N.T.S.



**AMERICAN TOWER®**  
A.T. ENGINEERING SERVICE, PLLC  
3500 REGENCY PARKWAY  
SUITE 100  
CARY, NC 27518  
PHONE: (919) 468-0112  
COA: PEC.0001553

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED VERIZON IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	IC	05/06/20

ATC SITE NUMBER:

**302488**

ATC SITE NAME:

**CNTN - CANTON**

SITE ADDRESS:

4 HOFFMANN ROAD  
CANTON, CT 06019

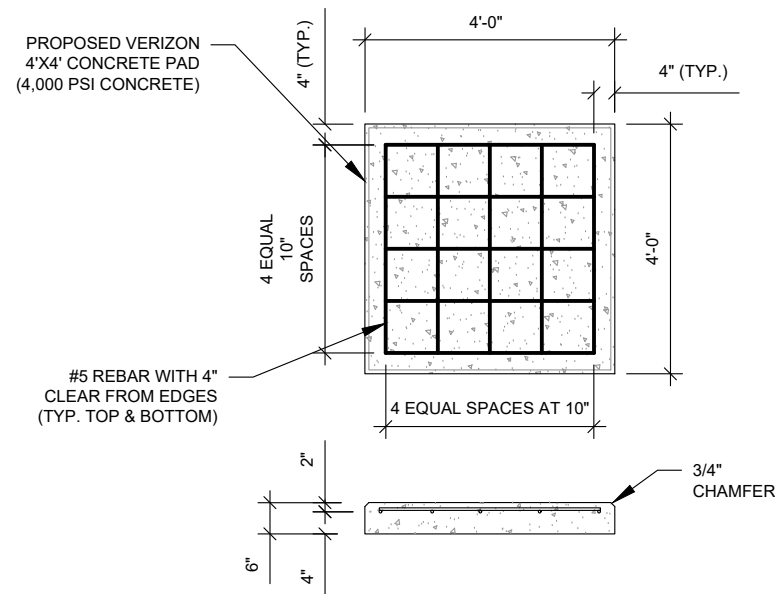
SEAL:



DRAWN BY:	IC
APPROVED BY:	PBB
DATE DRAWN:	05/06/20
ATC JOB NO:	13201406_G2
VERIZON ID:	CANTON 3 CT
VERIZON #:	467157

**CONSTRUCTION  
DETAILS**

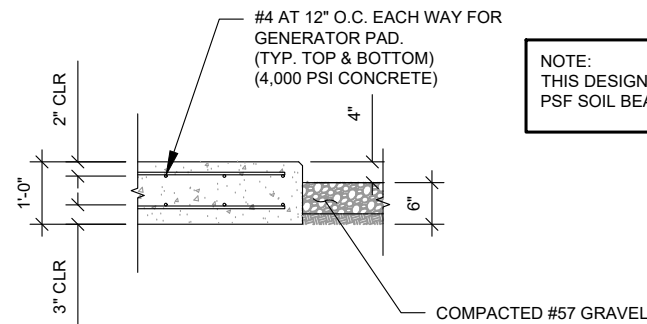
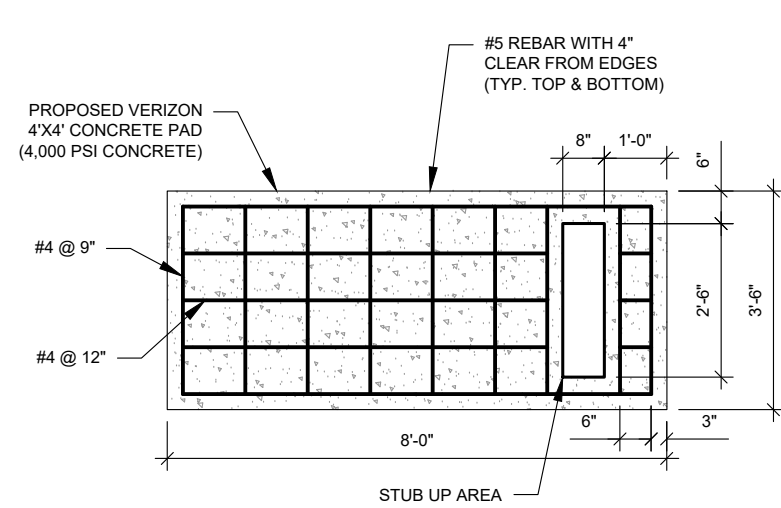
SHEET NUMBER:	REVISION:
<b>C-504</b>	<b>0</b>



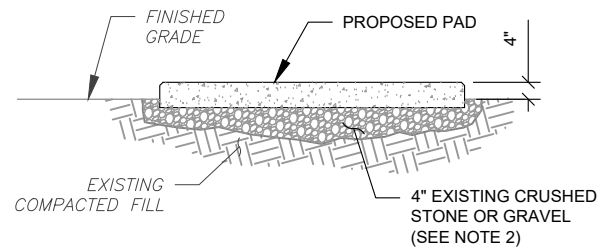
**PAD NOTES:**

1. PADS SHALL BE PRE-CAST MATCHING THIS DESIGN WHERE ALLOWED BY LOCAL JURISDICTION.
2. REFER TO CONCRETE & REINFORCED STEEL NOTES ON SHEET G-002 & ATC SPEC 033000 FOR CAST-IN-PLACE PADS.

**1 CONCRETE EQUIPMENT PAD DESIGN**  
SCALE: N.T.S.



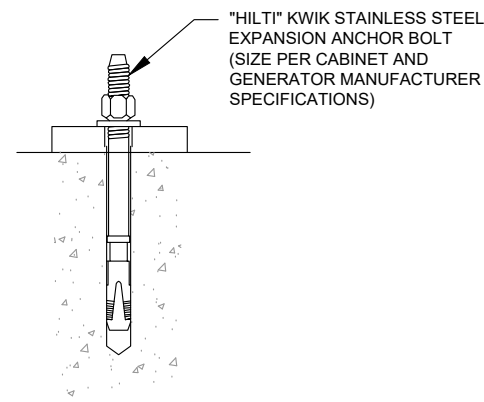
**2 CONCRETE GENERATOR PAD DESIGN**  
SCALE: N.T.S.



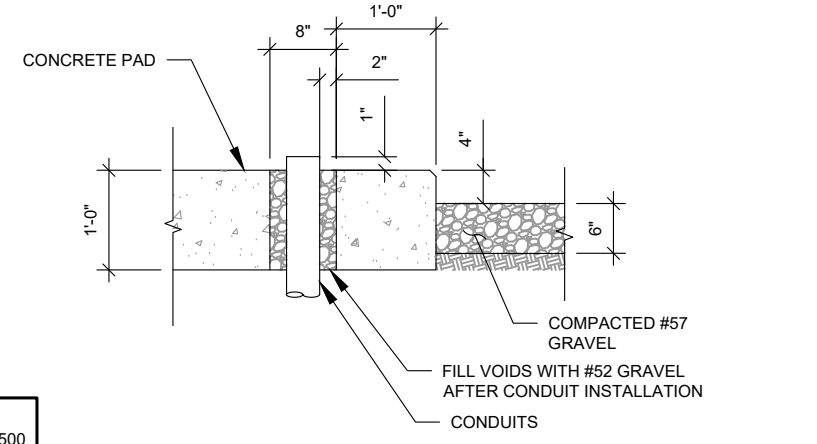
**PAD NOTES:**

1. SUBGRADE AND FILL SHALL CONSIST OF CLEAN SOIL. DELETERIOUS MATERIAL AND ORGANICS SHALL BE REMOVED.
2. MECHANICALLY COMPACT FOOTPRINT OF PAD PLUS 2' PERIMETER.
3. USE GALVANIZED HILTI EXPANSION ANCHORS OR, APPROVED EQUAL, FOR EQUIPMENT ANCHORAGE.
4. FOR SIZE AND LOCATION OF ANCHORS AND OTHER REQUIREMENT, SEE EQUIPMENT VENDOR DRAWINGS.

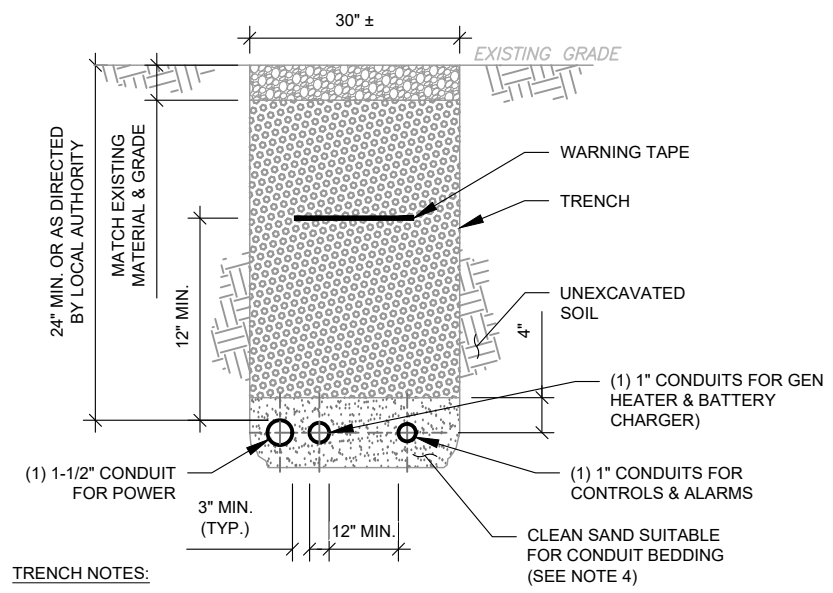
**4 GRAVEL PREPARATION**  
SCALE: NOT TO SCALE



**5 EXPANSION ANCHOR DETAIL**  
SCALE: N.T.S.



**3 GENERATOR CONDUIT STUB UP DETAIL**  
SCALE: N.T.S.



**TRENCH NOTES:**

1. IF FREE OF ORGANIC OR OTHER DELETERIOUS MATERIAL, EXCAVATED MATERIAL MAY BE USED FOR BACKFILL. IF NOT, PROVIDE CLEAN, COMPACTIBLE MATERIAL.
2. COMPACT IN 8" LIFTS. REMOVE ANY LARGE ROCKS PRIOR TO BACKFILLING. CONTRACTOR TO VERIFY LOCATION OF EXISTING U/G UTILITIES PRIOR TO DIGGING.
3. IF CURRENT AS-BUILT DRAWINGS ARE NOT AVAILABLE CONTRACTOR SHALL HAND DIG U/G TRENCHING.
4. USE COMMUNICATIONS ONLY TRENCH FOR COMMUNICATIONS CONDUIT UNLESS TRAVELING UNDER PATH OF VEHICLE TRAVEL, THEN CONDUIT MUST BE 24" MIN. BELOW GRADE.
5. CONFIRM SPACING AND DEPTH WITH NEC OR LOCAL CODE REQUIREMENTS

**6 GENERATOR CONDUIT TRENCH DETAILS**  
SCALE: N.T.S.



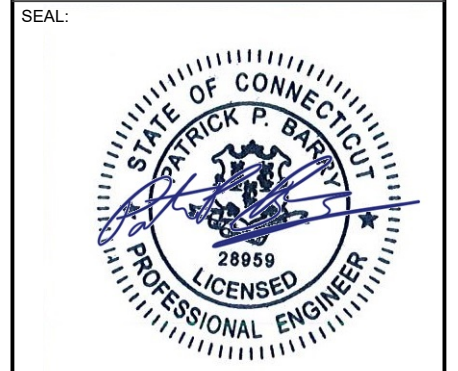
**AMERICAN TOWER®**  
A.T. ENGINEERING SERVICE, PLLC  
3500 REGENCY PARKWAY  
SUITE 100  
CARY, NC 27518  
PHONE: (919) 468-0112  
COA: PEC.0001553

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED VERIZON IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	IC	05/06/20

ATC SITE NUMBER:  
**302488**  
ATC SITE NAME:  
**CNTN - CANTON**

SITE ADDRESS:  
4 HOFFMANN ROAD  
CANTON, CT 06019



DRAWN BY:	IC
APPROVED BY:	PBB
DATE DRAWN:	05/06/20
ATC JOB NO:	13201406_G2
VERIZON ID:	CANTON 3 CT
VERIZON #:	467157

**CONSTRUCTION DETAILS**

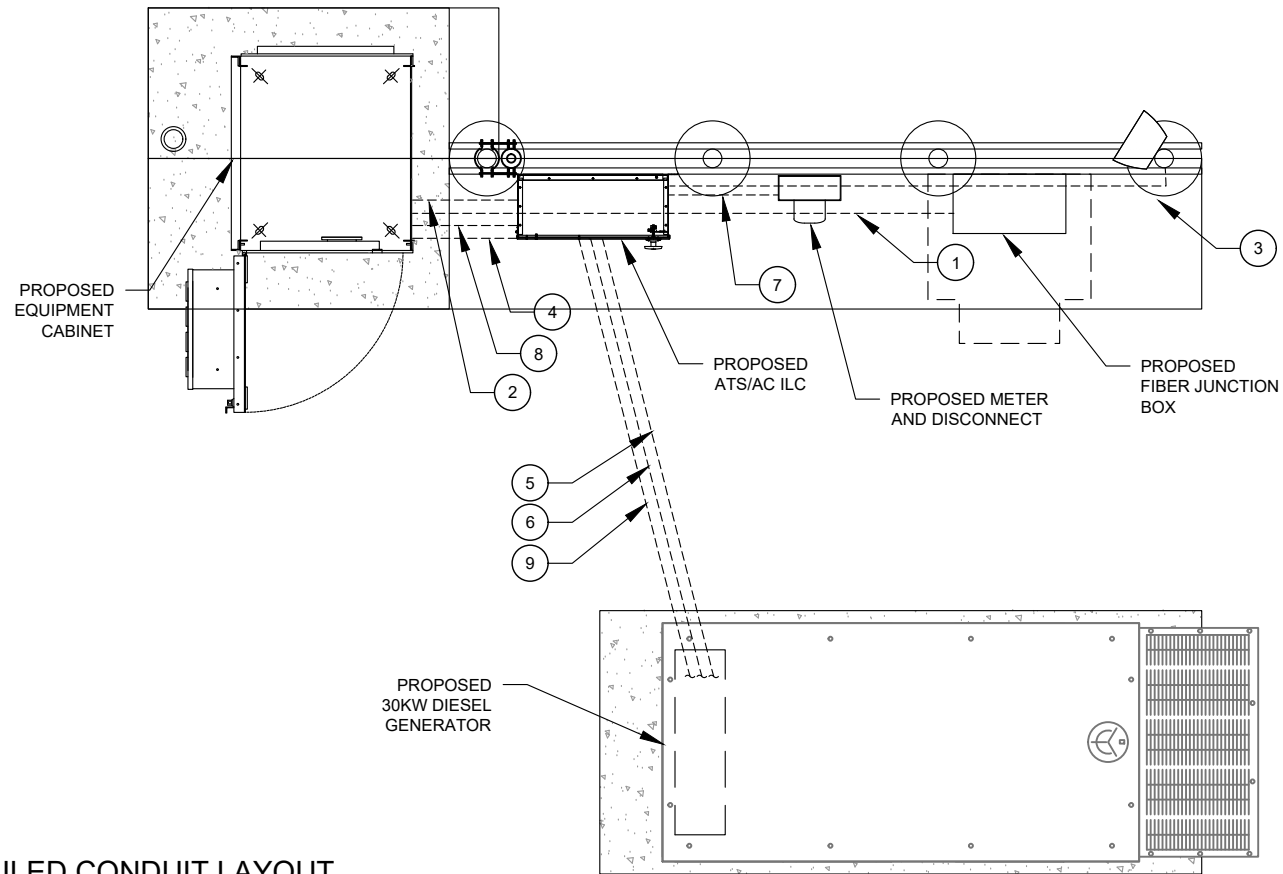
SHEET NUMBER:	REVISION:
<b>C-505</b>	<b>0</b>

Copyright © 2020 ATC IP, LLC. All Rights Reserved.

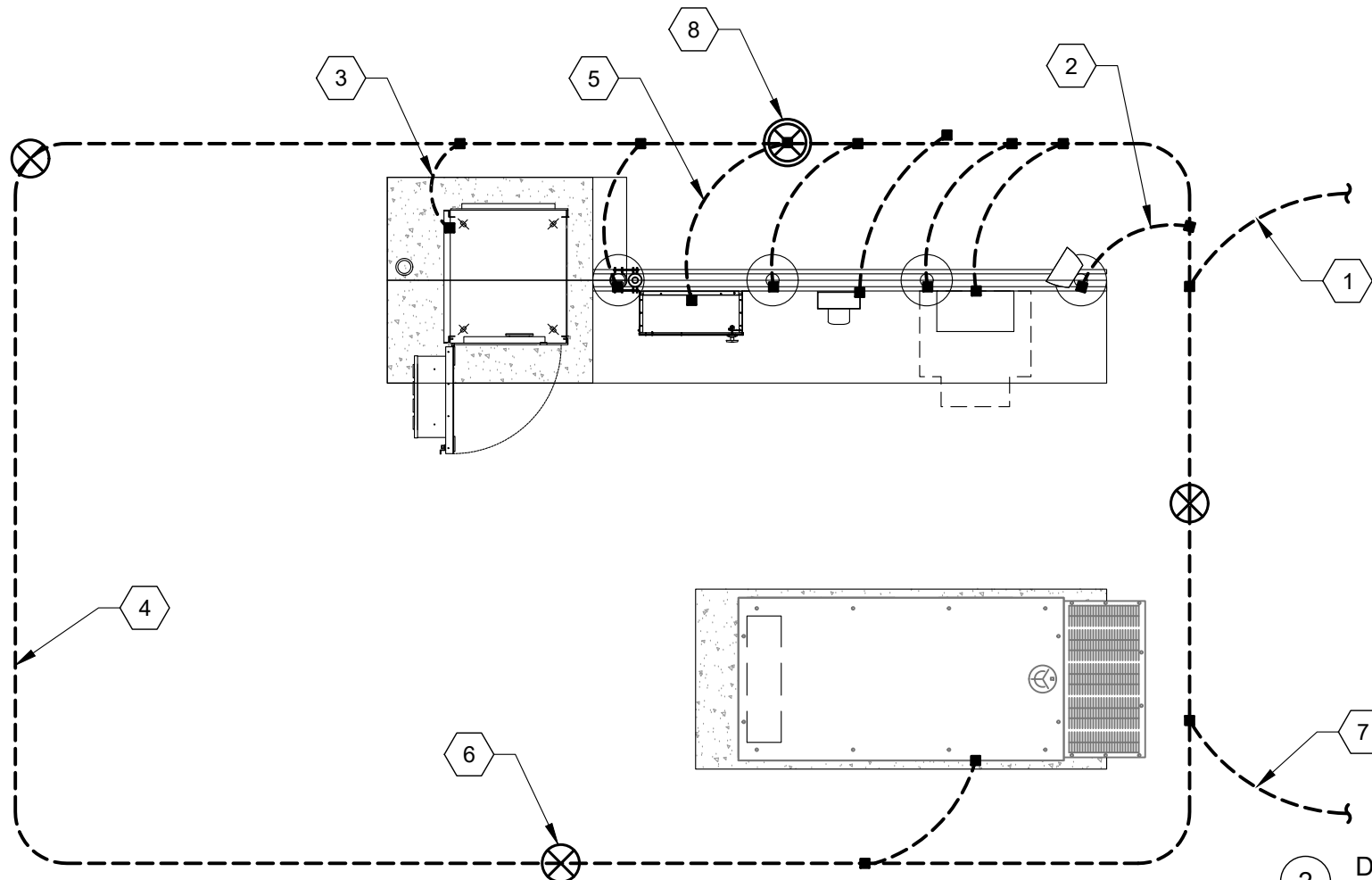
CONDUIT KEYED NOTES:

- ① **FIBER CONDUITS**  
(1) 2" SCH. 40 PVC CONDUIT WITH MULE TAPE FROM TELCO BOX TO THE EQUIPMENT CABINET.
- ② **AC POWER CONDUITS**  
(1) 1-1/2" CONDUIT WITH (8) #10 & (1) #10 G FROM THE ILC TO THE EQUIPMENT CABINET FOR (4) 30 AMP 2-POLE CIRCUITS.
- ③ (1) 1" CONDUIT WITH (2) #12 & (1) #12 G FROM ILC TO GFI RECEPTACLE/LIGHT.
- ④ (1) 1-1/2" CONDUIT WITH PULLSTRING FOR FUTURE RECTIFIER CIRCUITS FROM EQUIPMENT CABINET TO ILC.
- ⑤ (1) 1-1/2" CONDUIT WITH (3) #1/0 & (1) #6 G FROM THE ILC TO THE GENERATOR.
- ⑥ (1) 1" CONDUIT WITH (4) #12 & (1) #12 G FROM ILC TO GENERATOR. (GEN HEATER & BATTERY CHARGER)
- ⑦ (1) 2" CONDUIT WITH (3) #3/0 & (1) #6 G FROM ILC TO METER/DISCONNECT.
- ⑧ **ALARM/MISCELLANEOUS CONDUITS**  
(1) 1" CONDUIT FROM ILC TO EQUIPMENT CABINET FOR ILC ALARMS.
- ⑨ (1) 1" CONDUIT FROM ILC TO GENERATOR FOR GEN CONTROLS & ALARMS.

**NOTE:**  
BELOW GRADE CONDUIT SHALL BE SCHEDULE 80 PVC. ABOVE GRADE CONDUIT SHALL BE GALVANIZED RIGID CONDUIT. BELOW GRADE PVC CONDUIT SHALL TRANSITION TO GRC PRIOR TO RISING ABOVE GRADE. ALL BENDS SHALL HAVE MINIMUM 24" RADIUS. ALL FITTINGS SHALL BE SUITABLE FOR USE WITH THREADED RIGID CONDUIT. VERIFY CONDUIT TYPE WITH LOCAL CONSTRUCTION MANAGER AND ADJUST AS NECESSARY. ALL CONDUIT SHALL MEET NEC, STATE, AND LOCAL CODE REQUIREMENTS AS REQUIRED.



① **DETAILED CONDUIT LAYOUT**  
SCALE: NOT TO SCALE



GROUNDING KEYED NOTES:

- ① BOND TO TOWER GROUND RING
- ② #2 AWG BOND FROM VERTICAL H-FRAME AND ICE BRIDGE POST TO EXTERNAL GROUND RING (TYP. EVERY POST).
- ③ EQUIPMENT BOND TO GROUND RING (TYP.).
- ④ #2 GROUND RING
- ⑤ GROUNDING ELECTRODE CONDUCTOR PER NEC
- ⑥ GROUNDING ELECTRODE (TYP.)
- ⑦ BOND TO COMPOUND GROUND RING
- ⑧ GROUNDING ELECTRODE WITH TEST WELL

② **DETAILED GROUNDING LAYOUT**  
SCALE: NOT TO SCALE



**AMERICAN TOWER®**  
**A.T. ENGINEERING SERVICE, PLLC**  
3500 REGENCY PARKWAY  
SUITE 100  
CARY, NC 27518  
PHONE: (919) 468-0112  
COA: PEC.0001553

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED VERIZON IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
①	FOR CONSTRUCTION	IC	05/06/20

ATC SITE NUMBER:

**302488**

ATC SITE NAME:

**CNTN - CANTON**

SITE ADDRESS:

4 HOFFMANN ROAD  
CANTON, CT 06019

SEAL:



DRAWN BY:	IC
APPROVED BY:	PBB
DATE DRAWN:	05/06/20
ATC JOB NO:	13201406_G2
VERIZON ID:	CANTON 3 CT
VERIZON #:	467157

**GROUNDING PLAN AND SCHEMATIC**

SHEET NUMBER:

**E-101**

REVISION:

**0**

PANEL DESIGNATION:	<b>VZW</b>	TYPE:	LIGHTING & APPLIANCE	SYSTEM:	120/240V, 3W, 30 CKT	LOCATION:	VZW LEASE AREA
		MOUNTING:	SURFACE	MAIN BREAKER (MB):	MLO		
		ENCLOSURE:	NEMA 3R	MAIN BUS RATING:	200A	PANEL NOTES:	A SCO D300L SERIES
				MIN. A.I.C. RATING:	65K		

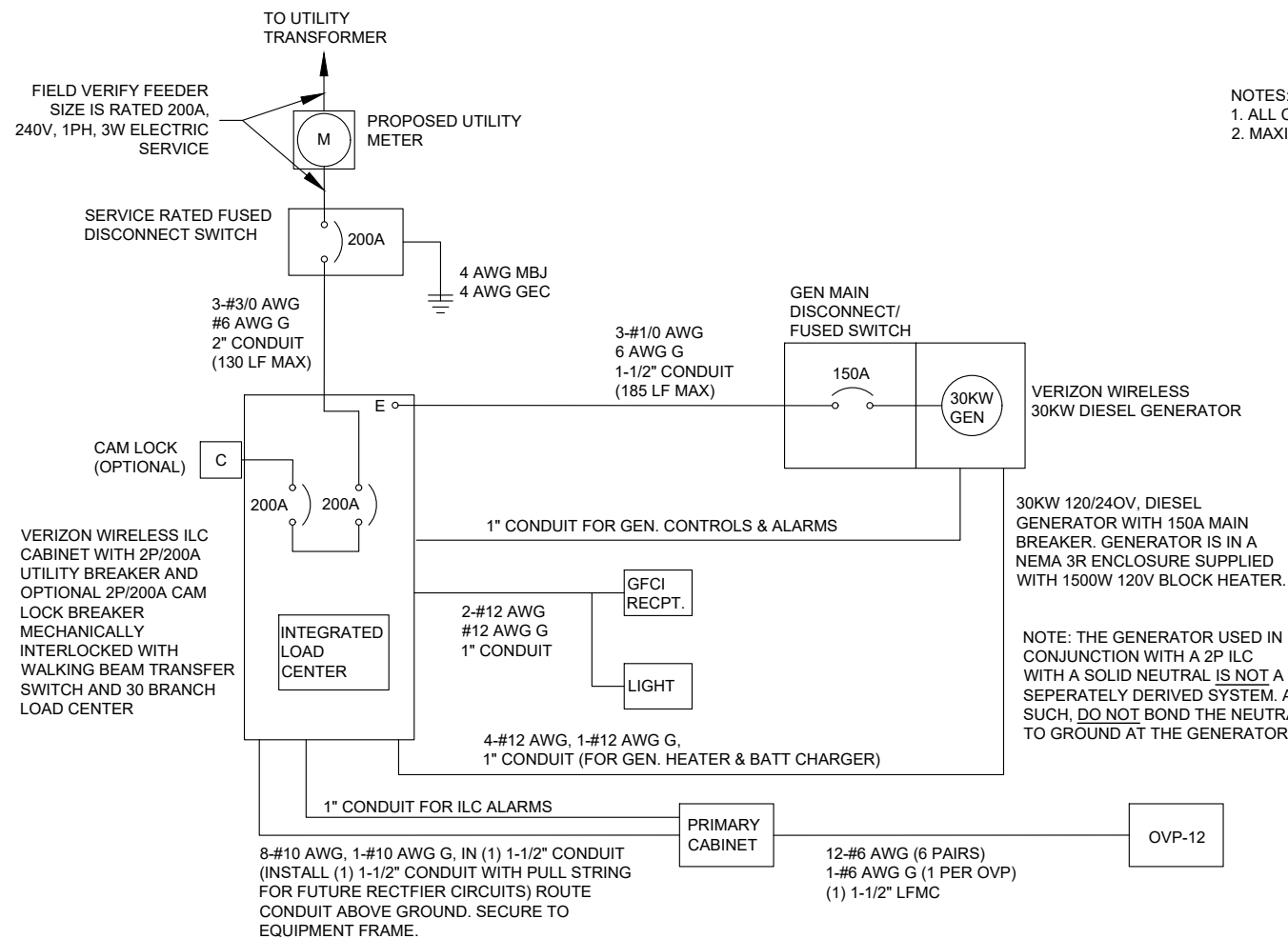
CONNECTED LOAD (kVA)		BRIEF DESCRIPTION	FEEDER OR BRANCH CIRCUIT				FEEDER OR BRANCH CIRCUIT				CONNECTED LOAD (kVA)	
A	B		BREAKER		POLE NO.	CIRCUIT NOTES	CIRCUIT NOTES	POLE NO.	BREAKER		A	B
			AMPS	POLES					AMPS	POLES		
2.88		RECTIFIER	30	2	1			2			0.00	0.00
	2.88				3			4				
2.88		RECTIFIER	30	2	5			6			0.00	0.00
	2.88				7			8				
2.88		RECTIFIER	30	2	9			10			0.00	0.00
	2.88				11			12				
2.88		RECTIFIER	30	2	13			14			0.00	0.00
	2.88				15			16				
0.68		GFI RECEPT / LIGHT	20	1	17			18			0.00	
	1.92	GEN BLOCK HEATER	20	1	19			20			0.00	
1.92		BATTERY CHARGER	20	1	21			22			0.00	
	0.00	SPACE			23			24			0.00	0.00
0.00		SPACE			25			26			0.00	
	0.00	SPACE			27			28			0.00	0.00
0.00		SPACE			29			30			0.00	0.00
14.1	13.4										0.0	0.0
						<b>A</b>	<b>B</b>	<b>TOTAL</b>				
						14.1	13.4	27.6	CONNECTED LOAD (kVA)			
						14.1	13.4	27.6	DEMAND LOAD (kVA)			

				DERATING FACTOR (80%)	
				DEMANDLOAD SIZING: 147 AMPS	

### PANEL SCHEDULE

- NOTES:
- ALL CONDUCTORS ARE TYPE THWN (75°C) COPPER.
  - MAXIMUM LENGTH OF RUN FOR RECTIFIER CIRCUITS IS 50 FT.



### ELECTRICAL SINGLE LINE DIAGRAM

- NOTES:
- ALL EQUIPMENT SHALL BE NEMA 3R RATED.
  - ALL EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH TIA-222-G AND VERIZON WIRELESS STANDARDS.
  - CONDUCTOR SIZES AND DISTANCES HAVE BEEN SIZED FOR 3% MAX VOLTAGE DROP. (TOTAL SYSTEM VOLTAGE DROP ON BOTH FEEDERS AND BRANCH CIRCUITS TO THE FARTHEST DEMAND SHALL NOT EXCEED 5%)
  - WIRE SIZING AND MAXIMUM DISTANCE FROM GENERATOR TO ILC ASSUMES POWER FACTOR OF 0.9.
  - BELOW GRADE PVC CONDUIT SHALL TRANSITION TO RMC PRIOR TO RISING ABOVE GRADE, ALL BENDS SHALL HAVE A MINIMUM 24" RADIUS. ALL FITTINGS SHALL BE SUITABLE FOR USE WITH THREADED RIGID CONDUIT. VERIFY CONDUIT TYPE WITH LOCAL CONSTRUCTION MANAGER AND ADJUST IF NECESSARY. ALL CONDUIT SHALL MEET NEC, STATE, AND LOCAL CODE REQUIREMENTS AS REQUIRED.



**AMERICAN TOWER®**  
**A.T. ENGINEERING SERVICE, PLLC**  
 3500 REGENCY PARKWAY  
 SUITE 100  
 CARY, NC 27518  
 PHONE: (919) 468-0112  
 COA: PEC.0001553

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED VERIZON IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	IC	05/06/20

ATC SITE NUMBER:

**302488**

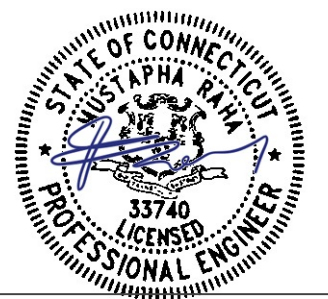
ATC SITE NAME:

**CNTN - CANTON**

SITE ADDRESS:

4 HOFFMANN ROAD  
 CANTON, CT 06019

SEAL:



DRAWN BY:	IC
APPROVED BY:	PBB
DATE DRAWN:	05/06/20
ATC JOB NO:	13201406_G2
VERIZON ID:	CANTON 3 CT
VERIZON #:	467157

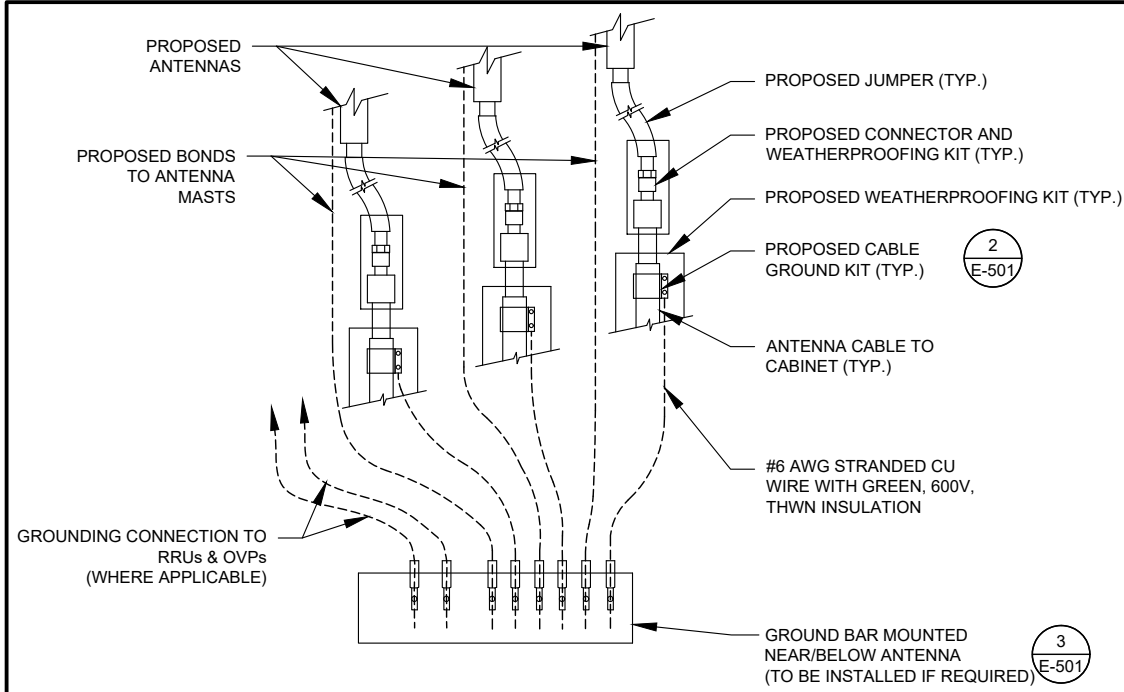
### ONE-LINE & PANEL SCHEDULE

SHEET NUMBER: REVISION:

**E-102**

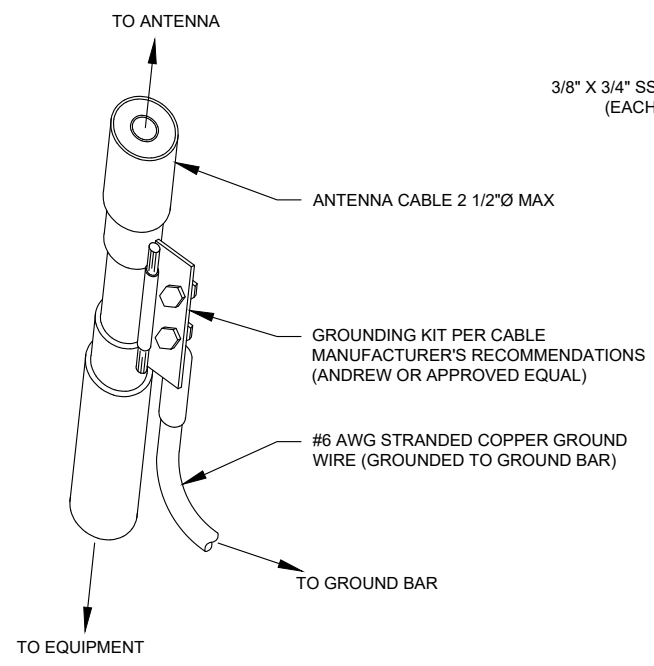
**0**

Copyright © 2020 ATC IP LLC. All Rights Reserved.



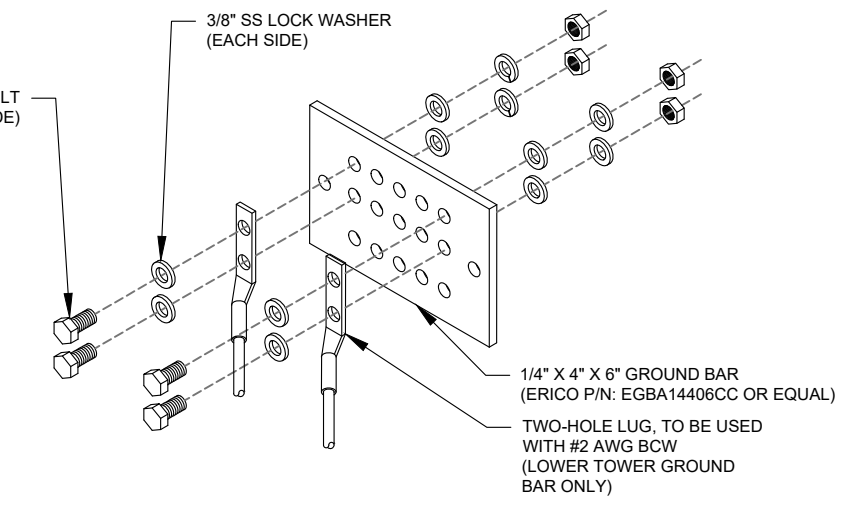
- NOTES:**
1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
  2. SITE GROUNDING SHALL COMPLY WITH VERIZONGROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH VERIZONGROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.

**1 TYPICAL ANTENNA GROUNDING DIAGRAM**  
SCALE: NOT TO SCALE



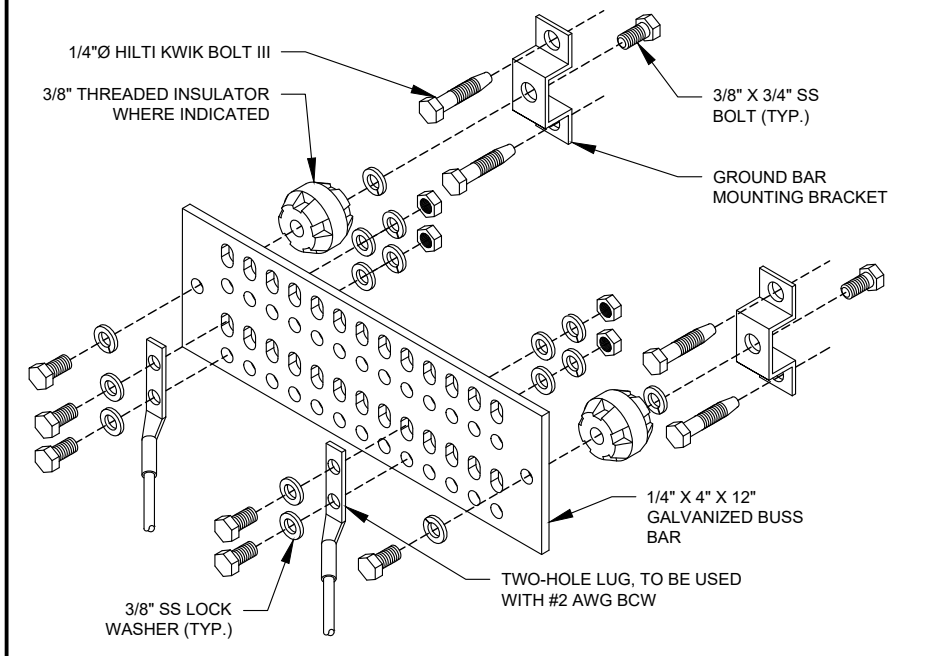
- GROUND KIT NOTES:**
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
  2. CONTRACTOR SHALL PROVIDE WEATHERPROOFING KIT (ANDREW PART NUMBER 221213) AND INSTALL/TAPE PER MANUFACTURER'S SPECIFICATIONS.

**2 CABLE GROUND KIT CONNECTION DETAIL**  
SCALE: NOT TO SCALE



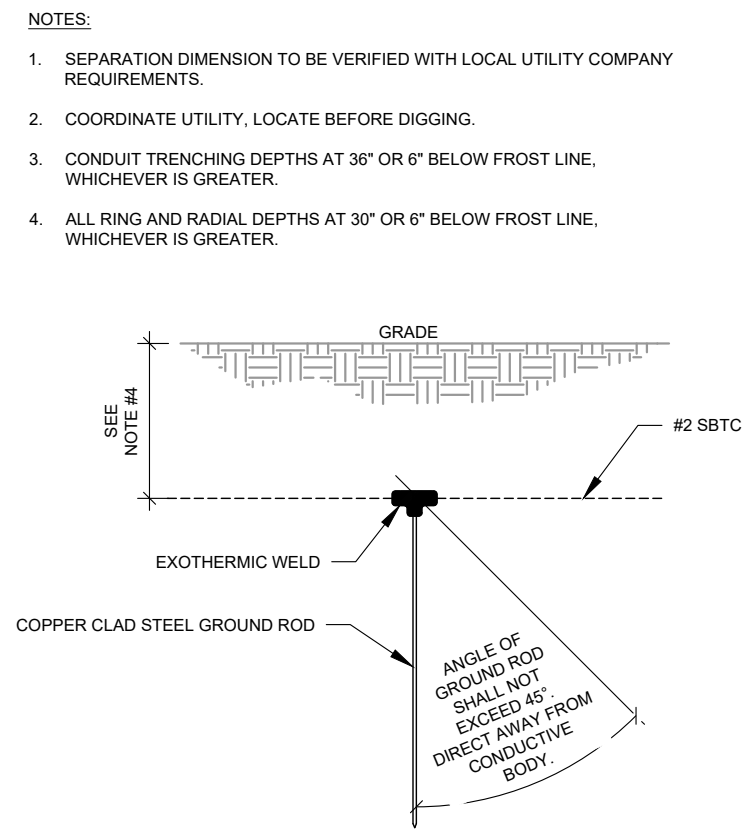
- GROUND BAR NOTES:**
1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
  2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

**3 TOWER GROUND BAR DETAIL**  
SCALE: NOT TO SCALE



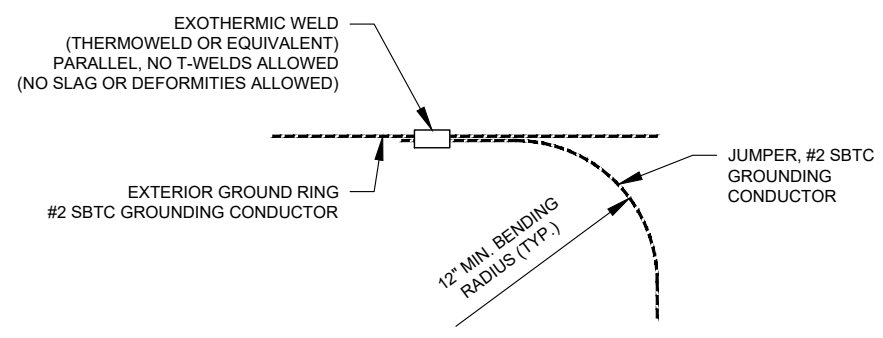
- GROUND BAR NOTES:**
1. GROUND KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
  2. GROUND BAR SHALL BE BOLTED TO STRUCTURAL MEMBER OR ANCHORED TO CONCRETE SLAB W/ HILTI KWIK BOLT III.

**4 MAIN GROUND BAR DETAIL**  
SCALE: NOT TO SCALE



- NOTES:**
1. SEPARATION DIMENSION TO BE VERIFIED WITH LOCAL UTILITY COMPANY REQUIREMENTS.
  2. COORDINATE UTILITY, LOCATE BEFORE DIGGING.
  3. CONDUIT TRENCHING DEPTHS AT 36" OR 6" BELOW FROST LINE, WHICHEVER IS GREATER.
  4. ALL RING AND RADIAL DEPTHS AT 30" OR 6" BELOW FROST LINE, WHICHEVER IS GREATER.

**5 GROUND ROD DETAIL**  
SCALE: NOT TO SCALE



**6 TIE CONNECTION DETAIL**  
SCALE: NOT TO SCALE

**AMERICAN TOWER®**  
A.T. ENGINEERING SERVICE, PLLC  
3500 REGENCY PARKWAY  
SUITE 100  
CARY, NC 27518  
PHONE: (919) 468-0112  
COA: PEC.0001553

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED VERIZON IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	IC	05/06/20

ATC SITE NUMBER:  
**302488**

ATC SITE NAME:  
**CNTN - CANTON**

SITE ADDRESS:  
4 HOFFMANN ROAD  
CANTON, CT 06019

SEAL:



DRAWN BY:	IC
APPROVED BY:	PBB
DATE DRAWN:	05/06/20
ATC JOB NO:	13201406_G2
VERIZON ID:	CANTON 3 CT
VERIZON #:	467157

<b>GROUNDING DETAILS</b>	
SHEET NUMBER: <b>E-501</b>	REVISION: <b>0</b>

Copyright © 2020 ATC IP, LLC. All Rights Reserved.



**AMERICAN TOWER®**  
**A.T. ENGINEERING SERVICE, PLLC**  
 3500 REGENCY PARKWAY  
 SUITE 100  
 CARY, NC 27518  
 PHONE: (919) 468-0112  
 COA: PEC.0001553

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED VERIZON IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	IC	05/06/20

ATC SITE NUMBER:

**302488**

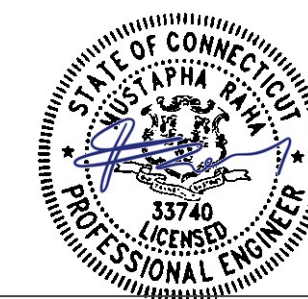
ATC SITE NAME:

**CNTN - CANTON**

SITE ADDRESS:

4 HOFFMANN ROAD  
 CANTON, CT 06019

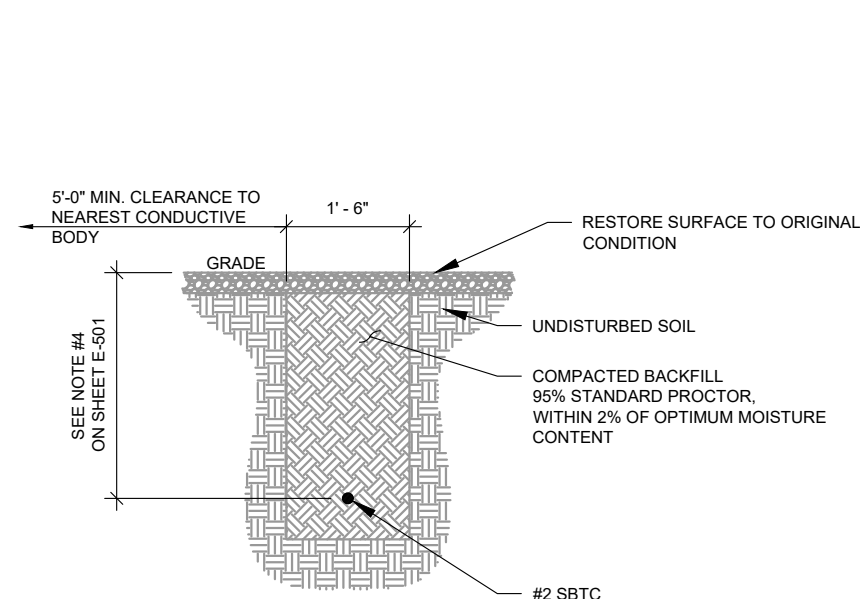
SEAL:



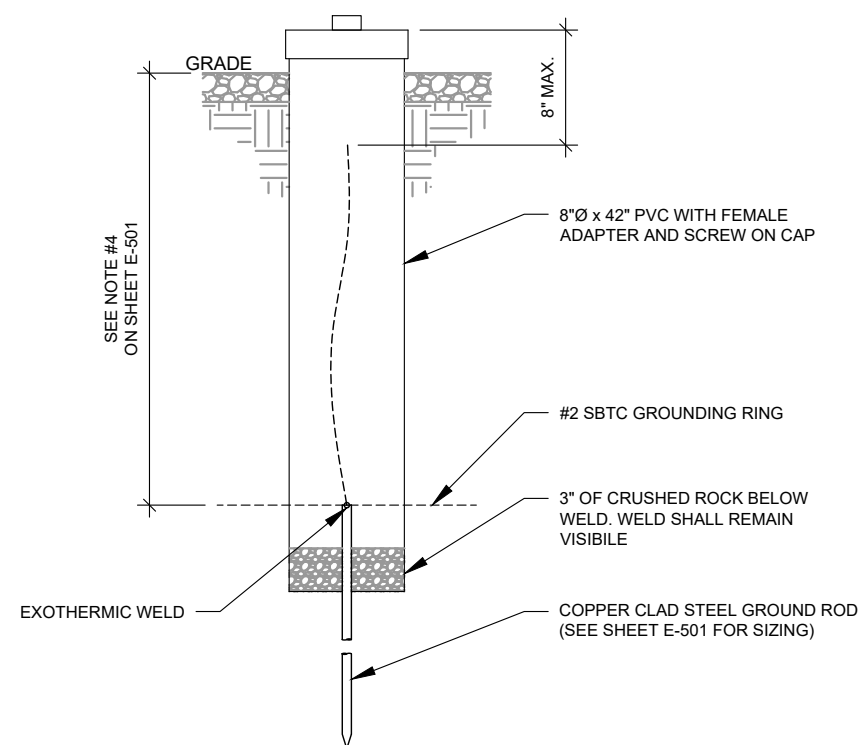
DRAWN BY:	IC
APPROVED BY:	PBB
DATE DRAWN:	05/06/20
ATC JOB NO:	13201406_G2
VERIZON ID:	CANTON 3 CT
VERIZON #:	467157

**GROUNDING DETAILS**

SHEET NUMBER:	REVISION:
<b>E-502</b>	<b>0</b>



**1** GROUND CONNECTION TRENCH DETAIL (STD.)  
 SCALE: NOT TO SCALE



**2** TEST WELL DETAIL  
 SCALE: NOT TO SCALE

Copyright © 2020 ATC IP LLC, All Rights Reserved.

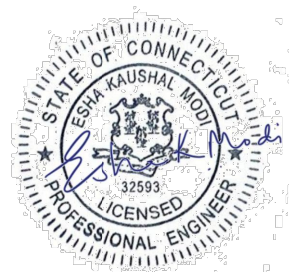


## Antenna Mount Analysis Report

**ATC Site Name** : Cntn - Canton, CT  
**ATC Site Number** : 302488  
**Engineering Number** : 13201406\_C8\_03  
**Mount Elevation** : 118 ft  
**Carrier** : Verizon Wireless  
**Carrier Site Name** : CANTON 3 CT  
**Carrier Site Number** : 467157  
**Site Location** : 4 Hoffmann Road  
 Canton, CT 06019-2122  
 41.85527778 , -72.8925  
**County** : Hartford  
**Date** : April 8, 2020  
**Max Usage** : 38%  
**Result** : Pass

Prepared By:  
 Michael Ellis  
 Structural Engineer

Reviewed By:



Authorized by "EOR"  
 08 Apr 2020 05:50:43 cosign

COA: PEC.0001553

A.T. Engineering Service, PLLC - 3500 Regency Parkway, Suite 100 - Cary, NC 27518 - 919.468.0112 Office - 919.466.5414 Fax - www.americantower.com



Eng. Number 13201406\_C8\_03  
 April 8, 2020  
 Page 1

### Introduction

The purpose of this report is to summarize results of the antenna mount analysis performed for Verizon Wireless at 118 ft.

### Supporting Documents

Specifications Sheet	Pite Pro RMQP-496-HK, dated July 14, 2014
Radio Frequency Data Sheet	RFDS ID #467157, dated February 4, 2020

### Analysis

This antenna mount was analyzed using American Tower Corporation's Mount Analysis Program and RISA-3D

Basic Wind Speed:	93 mph (3-Second Gust, Vasd) / 119 mph (3-Second Gust, Vult)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1" radial ice concurrent
Codes:	ANSI/TIA-222-G/2015 IBC/2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.179, S1 = 0.065
Site Class:	D - Stiff Soil
Live Loads:	Lm = 500 lbs

### Conclusion

Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above. The mount can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at [Engineering@americantower.com](mailto:Engineering@americantower.com). Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

A.T. Engineering Service, PLLC - 3500 Regency Parkway, Suite 100 - Cary, NC 27518 - 919.468.0112 Office - 919.466.5414 Fax - www.americantower.com

NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. PLEASE REFERENCE THE MOUNT ANALYSIS REPORT FOR COMPLETE MOUNT ANALYSIS CALCULATIONS AND DETAILS. SUPPLEMENTAL PAGES INCLUDED IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR IS TO VERIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONSTRUCTION.

SUPPLEMENTAL

SHEET NUMBER:  
**R-601**

REVISION:  
**0**

Copyright © 2020 ATC IP LLC, All Rights Reserved.

Connecticut Water Company  
93 West Main Street  
Clinton, CT 06413-1600  
Customer Service: 800.286.5700



September 15, 2020

VIA EMAIL

Neil Pade  
Planning and Zoning  
Canton Town Hall  
P.O. Box 168  
4 Market Street  
Collinsville, CT 06022

**Re: 9-15 Albany Turnpike Simsbury and Canton, Gas Station/Convenience Store, Electric Vehicle Showroom/Service Shop**

Mr. Pade,

The Connecticut Water Company (CWC) received the required notification for the proposed Gas Station/Convenience Store and Electric Vehicle Showroom/Service Shop located at 9-15 Albany Turnpike Simsbury and Canton. This property is partially located within the aquifer recharge area of our Well #5 Wellfield, as delineated by the Department of Energy and Environmental Protection's (DEEP) approved Level A aquifer protection map and therefore we are concerned with potential impacts to the water quality/quantity of this important drinking water supply source.

I have reviewed the plans entitled "9-15 Albany Turnpike Simsbury and Canton, Connecticut," dated 8/11/20, prepared by Solli Engineering. A close review of the aquifer protection area (APA) map indicates that the proposed improvements are just outside of the APA, which is shaded in the map below, therefore this land use activity is not regulated by Connecticut's APA Program (Connecticut General Statutes §22a-354a to §22a-354bb).





However, since the proposed improvements are immediately adjacent to the APA boundary, and since the APA boundary divides the subject parcel, we request that the applicant demonstrate that the proposed activity has protections in place to contain spills and stormwater, and manage hazardous materials according to the following the Connecticut Department of Energy and Environmental Protection's (DEEP) Best Management Practices (BMPs) guidance documents (attached):

- *Best Management Practices for Fueling Stations*
- *Best Management Practices for Controlling Stormwater in Parking Lots in Aquifer Protection Areas*
- *Best Management Practices for Temporary Construction and Reconstruction Operations in Aquifer Protection Areas*

We request the opportunity to review a spill response plan and any proposed BMPs to contain fuel and other hazardous materials, as well as assurances that stormwater is not being conveyed offsite to the APA. We also request that the APA boundary be shown on the plans for the entirety of the parcel so to better evaluate the movement of stormwater.

Because a portion of the subject parcel falls within the APA boundary and because the proposed development is immediately adjacent to the APA boundary, we recommend that any new business owners are aware of these site conditions and understand that actions and activities on the lands just outside the APA may potentially impact the aquifer/ground water/drinking water. New businesses should provide training to all employees to ensure they understand the potential risks of their activity/actions. The "What is an Aquifer?" video on DEEP's website is a readily available training tool.

Source protection is a vital concern of the Connecticut Water Company and we appreciate the opportunity to comment on proposals that may affect our sources of supply.

Sincerely,



Jessica Demar  
Environmental & Regulatory Compliance Coordinator

CC: Kim Czapl, Aquifer Protection Area Program, Dept. of Energy and Enviro. Protection  
Gerry McDermott, Developer Services Supervisor, CT Water Company  
Anthony Capuano, Design Engineer, Solli Engineering



**DRAFT MINUTES**  
Special Virtual Meeting  
Canton Planning and Zoning Commission  
Communications Facilities Sub-Committee  
Wednesday, August 26, 2020 at 7:00 pm  
**Call-In Number:** +1 (669) 224-3412  
**Access Code:** 784-572-549

*Application materials and meeting information can be found at the following location:*  
<http://www.townofcantonct.org/agendas-minutes-meetings>

**CALL TO ORDER:** The meeting was called to order at 7:05 PM.

**ROLL CALL:** Elizabeth Vinick, Thomas Blatchley and Michael Vogel  
**ALSO PRESENT:** Town Planner Neil Pade

**SPECIAL MEETING**

**OLD BUSINESS:**

1. Discussion on potential amendments to Section 8.4; Towers and Antennas, of the Canton Zoning Regulations

- a. Discussion with Emergency Responders, including input regarding a schedule for the safety study, and possible communication needs

Fire Chief Bruce Lockwood and Police Chief Christopher Arciero were present and discussed the role of communication in public safety and provided an update on the safety study project. From the perspective of emergency response the use of caution was expressed in making of any potential regulatory changes. The Committee expressed its desire to work out an improved regulation while not banning or prohibiting responders from operating under the current rules. It was acknowledged to be cautious of changes that could unnecessarily affect the ability to keep the public safe.

- b. Review of FCC Declaratory Ruling 18-133

The August 24, 2020 opinion of the Town Attorney on the above referenced ruling was discussed with the following take-away:

- Moratoriums are not allowed.
- Control of Aesthetics allowed but must be “reasonable”, and may be “no more burdensome than those applied to other types of infrastructure development”, and must be “objective and published in advance”.

- c. Discussion on potential the limits to place a moratorium and need for a moratorium

It was determined, based on the declaratory ruling that this discussion was no longer applicable.

- d. Discussion on possible scope of our work for potential revisions to the regulations whether or not we have a moratorium, inclusive of limits, time and schedule.

Committee members reviewed the enabling scope of work:

“MOTION: Mr. Thiesse moved that the Canton Planning and Zoning Commission establish a subcommittee consisting of Thomas Blatchley, Michael Vogel and Elizabeth Vinick for the purpose of developing a revised regulation for Section 8.4; Towers and Antennas, and report back to the Commission at the September 16, 2020 regular meeting, with the following considerations:

a. The actual approach as to where things stand at this time and whether or not they can move forward with developing a new regulation, is a Moratorium necessary due time concerns, and if they do feel that a Moratorium is appropriate, be able to identify thoughts on what parts of the existing regulations would require said action.

b. Receive input wherever deemed appropriate and invite (2) members of the Emergency Response Team for the Town (1 from the Police Department and 1 from the Fire/EMS Department); and reach out to include Daniel and Margaret Lynch”

The Committee discussed generally the type of changes, reformatting, and function of Section 8.4, inclusive of schedule, which are summarized below.

e. Review of Easton and Roxbury Regulations

Regulations of the Town of Easton and Roxbury were summarized and discussed.

f. Public input and interaction

Mrs. Lynch provided input through the Go-To-Meeting chat feature which was read allowed into the recording.

2. Formulating a recommendation to the Planning and Zoning Commission

The following recommendation was developed to be relayed to the Commission in the form of these minutes:

The Committee recommends rewriting Section 8.4 utilizing the New Cannan regulations as a base for form and process, and to evaluate the criteria of Roxbury as mechanisms and requirements to include or not include into Canton’s draft.

The New Cannan outline was also selected as base due to its formalization of the process by which the Commission may comment and respond to applications at PURA and Siting Council.

The Committee recommends rewriting of the section as follows:

- Purpose
- Applicability – Provide a list of towers and antenna that are eligible to be regulated by the Commission and reference a means by which the Commission may respond to applications filed with the state.
- Uses to be identified and listed that area regulated by the Town by right, Zoning Permit, and Special Permit. Uses regulated by the state to be identified and listed.
  - The following is understood by the Committee relative to jurisdiction:
    - PURA - exclusive jurisdiction of small cell facilities on existing electric or telephone poles in the public ROW (including a new replacement pole.
    - CSC jurisdiction–
      - brand new poles that do not hold other facilities (not used for distribution of electric or phone) in the public ROW.
      - macro cell towers
      - cell antenna’s on private property
    - Not clear –
      - attachments to light poles
      - attachments to functioning water tanks
- Process for participating in PURA/ CSC matters into regulations like New Cannan.
- Add Definitions and ensure consistency of use of terms.

- Standards –
  - Locational preferences to be included to allow the Town to be current per CGS 16-50x (a) (2)
  - Reasonable aesthetic standards to allow the Town to be current under FCC 2018 declaratory ruling
  - May not necessarily include blanket prohibition in the residential districts, but would consider separating distances to a reasonable extent but not so great to represent an indirect prohibition or to have a negative effect on community communication needs.
  - Environmental/ Health standards – PURA cannot deny the siting of an antenna if the Radio Frequency Emissions are within the prescribed range that the FCC allows. States are pre-empted from denying on basis of emissions if proposal is within the FCC range (presumed to be safe). Federal rule, cannot be changed by the state or municipality
  - Other criteria and process to be evaluated
  - Post approval monitoring/ compliance section – This was specifically considered and it was the consensus of the Committee that a post approval monitoring and compliance section (outside of our traditional process) would not be pursued.
- Schedule – With the possibility of the Committee meeting once per month, and focusing on a different section each month, a draft may be possible within 4-6 months.

3. Review of minutes from 07-22-20 Special Meeting  
Approved as submitted.

**ADJOURNMENT: The meeting was adjourned at 7:01 PM**

**DRAFT MINUTES**  
Special Virtual Meeting  
Canton Planning and Zoning Commission  
Communications Facilities Sub-Committee  
Wednesday, July 22, 2020 at 7:00 pm

**CALL TO ORDER:** The meeting was called to order at 7:03 p.m.

**PRESENT:** Elizabeth Vinick, Thomas Blatchley and Michael Vogel

**ALSO PRESENT:** Town Planner Neil Pade

**SPECIAL MEETING**

**NEW BUSINESS:**

1. **Discussion on potential amendments to Section 8.4; Towers and Antennas, of the Canton Zoning Regulations** – The organization of Committee was discussed, and there was a consensus of the committee for Commissioner Vinick to act as chair and Commissioner Vogel to act as vice chair for the duration of the committee or until it is decided otherwise. The Committee reviewed the enabling motion of the Committee and discussed potential limits of review and considerations of their charge.

The Town Planner provided a summary of a July 21, 2020 phone conversation with staff at PURA as follows:

- a. Small cell on existing electric or telephone pole in public ROW – PURA has exclusive jurisdiction. This includes a new replacement pole; municipalities do not have jurisdiction.
- b. Brand new pole that does not hold other facilities (not used for distribution of electric or phone) in the public ROW – the CSC has jurisdiction.
- c. Macro cell tower – the CSC has jurisdiction.
- d. CSC also claims jurisdiction of cell antenna's on private property.
- e. CSC does not have jurisdiction over light pole attachments, neither does PURA. Light pole, no wires, no communications or transmission – municipalities may have jurisdiction.
- f. If on a functioning water tank, CSC and PURA do not; municipalities may.
- g. Traditionally cellular operators like to put antennae on the electric and telephone poles as they already have power, cables, and transmission capabilities.
- h. Question regarding FCC decision/recent circuit court decision suggests they are exempt, everything including NEPA and other reviews. What it means is that they are exempt regarding use of existing phone poles from NEPA reviews. Exemption that was previously claimed was overly broad and not justified. Indicated that no court has overturned exemption to place antennas on utility poles.
- i. Unless it can be documented that a “substantial change” is occurring, hard to deny.
- j. Question regarding emissions and health effects:
  - i. PURA cannot deny the siting of an antenna if the Radio Frequency Emissions are within the prescribed range that FCC allows. States are pre-empted from denying on basis of emissions if proposal is within the FCC range (determined to be safe). Federal rule cannot be changed by the state.
  - ii. Cannot take into consideration health.
  - iii. Reference to two interesting cases based on arguments:  
<https://cite.case.law/conn-supp/50/443/>  
<https://cite.case.law/conn-supp/52/14/>
- k. Question regarding ADA considerations – have not seen medical diagnose that can make someone sensitive to RF emissions within the prescribed ranges. This issue has been raised previously in hearings before PURA, but evidence not provided. They may be taken into consideration if medical evidence is provided; however, FCC ranges are presumed to be safe.

- I. Certain locational placements can be regulated by municipalities but overwhelming are under PURA and CSC.

Commissioner Vogel referenced Page 63 of the meeting packet and reference to FCC Declaratory Ruling 18-133 and its relevance to the charges of the committee. Initial review indicates this ruling may prohibit any state or local moratoria and the ability to impose aesthetic requirements. It was requested that this be referred to the Town Attorney.

The Town Planner provided a walk-through summary of the Town of New Canaan regulations pertaining to towers and antennas as follows:

- a. Reviewing other regulations will develop a better understanding of deficiencies in our current regulations.
- b. Understanding New Canaan Regulations are professionally developed, most recent, and did get input and feedback from state make it a good starting point.
- c. Look at PURA presentation 101 and for small cell in packet. Can request a PURA 101 presentation? Presentation summary seems clear for initial purposes.
- d. See also Connecticut Siting Council (CSC) presentation to CAZEO in packet.

#### New Canaan Section 7.8

- a. Purpose – more detailed explanation
- b-e. Regulated Uses – VERY similar; however, more descriptive information and detail. Our regulations could be improved by a line by line comparison.
- f. Antenna Regulated by State Authorities – Other Than Section 8.4.B.1, we have nothing that represents these types of applications. We only recognize they are permitted and pretty much are absent from the remainder of the process. These suggest the Town/Commission will be active in the process of reviewing applications, even if they do not have regulatory jurisdiction. The Commission is making a statement that they will provide input and participate. If we were to adopt something similar and follow it, it would be a substantial change to the status quo in our practices.
- g. Standards – Much more detailed and precise in what is being considered. Note that standards under G do not address health other than FCC and Noise. (Canton does not currently have a noise ordinance.)
- h. Requirements – We do not have most of these, and our process does not look at PURA and CSC applications. We simply note them as being permitted and do not comment. Section 7.8.H.8 does include “emissions”.

The Committee discussed the process by which the town and abutters are notified of applications pending at PURA and the Connecticut Siting Council. Pages 61 and 62 of the meeting packet were reviewed and some initial discussion on how the Commission may consider participating in those in the future. Next steps were discussed, including scheduling a future meeting and the invitation of emergency responders. Commissioner Blatchley suggested that the committee look into regulations from the Town of Roxbury and actions by the Town of Easton, which issued a Cease and Desist against new facilities.

Commissioner Vogel raised a question regarding FCC 18-133, as summarized on Page 63 of the packet to have an effect on what the commission may consider as far as establishing regulations. The Town Attorney's guidance was sought to understand if this is an accurate summary that the Commission can rely on as a guide.

Commissioners summarized the following outline:

- a. Review of Town Attorney
- b. What are the limits to place a moratorium?
- c. What necessitates a need for a moratorium?

- d. What would the scope of our work be for potential revisions to the regulations whether or not we have a moratorium, inclusive of limits?
- e. Hear from emergency responders at the next meeting, including input regarding a schedule for the safety study
- f. How much time would we need to get to a substantive regulation?
- g. Research/review of Easton and Roxbury Regulations
- h. Public input and interaction

2. **Discussion on Meeting Schedule** – The Committee agreed to schedule a second meeting for Wednesday, August 26, 2020 at 7:00 p.m.

**ADJOURNMENT:** The meeting adjourned at 8:04 p.m.





## **Deltenre, Renee**

---

**From:** Pade, Neil  
**Sent:** Monday, September 14, 2020 4:09 PM  
**To:** Deltenre, Renee  
**Subject:** FW: 09-01-20 Canton Conservation Commission Meeting

Can this be added to the PZC meeting packet?

- Neil

---

**From:** Pade, Neil  
**Sent:** Friday, September 04, 2020 12:01 PM  
**To:** Jim Lyons  
**Cc:** Lewis Wise; Kyle, Emily  
**Subject:** RE: 09-01-20 Canton Conservation Commission Meeting

Hi Jim, I understand that you've hired an environmental professional and civil engineer to help resolve this matter. I think that will be very helpful. Perhaps they will be able to evaluate the standards of the regulations referenced below as part of their work to determine if there has been any impact or that proper permit can be issued.

From what we understand the following would constitute "Development" under Section 6.2 of the Canton Zoning Regulations - Activities, lot alterations, structures and improvements shown on the presentation provided by the entitled "powder mill v6.pdf", as identified in the July 7, 2020 NOV issued by the Canton Zoning Enforcement Officer, the July 27, 2020 correspondence with Mrs. Kyle that included the presentation, field observations taken at the June 18, 2020 Site Walk of the Canton Wetlands and Watercourses Agency, and as visible through comparisons between the 2009 and 2019 aerial photographs provided by the Town of Canton.

Such development is apparent within the mapped Special Flood Hazard Area, inclusive of the Floodway and Flood Fringe. As such, an application is required to the Town for a Site Development Plan and Special Permit application Sections 6.2.E.7, 6.2.F.3, 6.2.F.6, and 6.2.G, which will need supporting materials and information demonstrating compliance with the requirements of Section 6.2.

The site plan shall also include the mapped boundary of the Floodway, Flood Fringe, Special Flood Hazard Areas, and Farmington River Protection Overlay District.

Activities identified in the referenced materials above constitute "lot alterations" within the Farmington River Protection Overlay District under Section 6.3.C, requiring review and approval including 6.3.D.4 – Fish and Wildlife Management Practices, and Section 6.3.E.1, and 6.3.E.2 where applicable 6.3.F.2.a – removal of vegetation to create a filtered view of the river by selective pruning, and 6.3.F.c – cutting of timber for any purpose.

Following is a link to the application form. Let us know if you require any assistance in completing it. (There is a generic application for all zoning matters that will need to be completed, then two supplemental forms for matters specific to the Flood Plain)

[http://www.townofcantonct.org/filestorage/19342/19345/19617/45153/45254/45238/47137/Zoning\\_Development\\_Application.pdf](http://www.townofcantonct.org/filestorage/19342/19345/19617/45153/45254/45238/47137/Zoning_Development_Application.pdf)

[http://www.townofcantonct.org/filestorage/19342/19345/19617/45153/45254/45238/47137/Flood\\_Plain\\_District\\_Development\\_Permit.pdf](http://www.townofcantonct.org/filestorage/19342/19345/19617/45153/45254/45238/47137/Flood_Plain_District_Development_Permit.pdf)

[http://www.townofcantonct.org/filestorage/19342/19345/19617/45153/45254/45238/47137/Flood\\_Plain\\_District\\_Development\\_Application.pdf](http://www.townofcantonct.org/filestorage/19342/19345/19617/45153/45254/45238/47137/Flood_Plain_District_Development_Application.pdf)

Thanks,

Neil S. Pade AICP  
Director of Planning and Community Development  
Town of Canton, Connecticut  
4 Market Street  
PO Box 168  
Collinsville, CT 06022-0168  
860-693-7891 Phone  
860-693-7884 Fax  
[npade@townofcantonct.org](mailto:npade@townofcantonct.org)  
[www.townofcantonct.org](http://www.townofcantonct.org)

## **Deltenre, Renee**

---

**From:** Kyle, Emily  
**Sent:** Thursday, September 10, 2020 12:19 PM  
**To:** Pade, Neil; Deltenre, Renee  
**Subject:** FW: IWWA hearing  
**Attachments:** powder mill property maps.pptx

Emily

---

**From:** Jim Lyons [<mailto:lyonsjamesp@gmail.com>]  
**Sent:** Thursday, September 10, 2020 11:54 AM  
**To:** Kyle, Emily  
**Cc:** Astyliani; Lewis Wise  
**Subject:** Re: IWWA hearing

---

**CAUTION:** This email came from outside the organization. Do not click links or open attachments if you are unsure the message is safe.

---

Hi Emily,

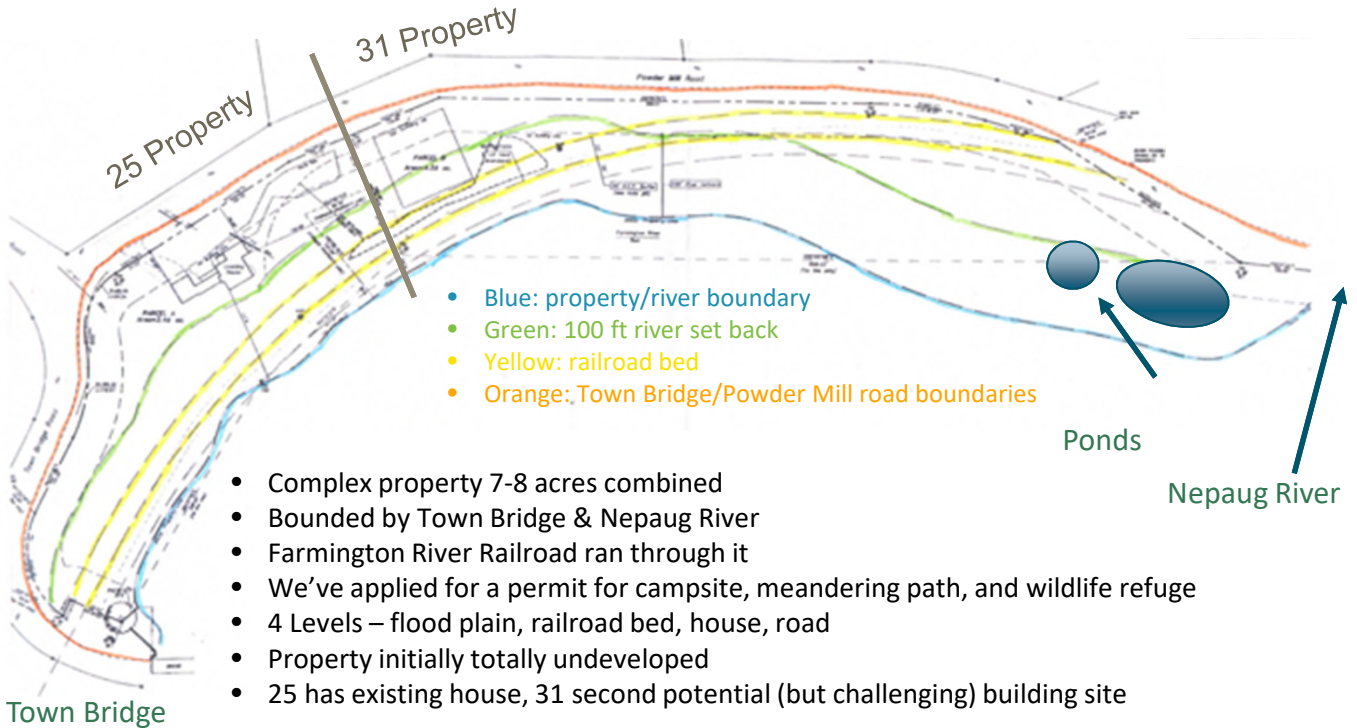
In addition to our lawyer Lewis Wise we have engaged two technical experts to help us out Edward Pawlek [CT Ecosystems LLC] and Andrew Quirk [Krazert, Jones, & Associates]. Ed is a Certified Professional Wetland Scientist and Andrew is a PE Civil Engineer. One important thing we've learned is that the ponds on the property are not vernal pools - they are water fed, healthy and support stable fish populations.

Attorney Wise and PE Quirk plan to attend this evening's hearing and are willing to speak. I would like the opportunity to present conclusions we've reached, with these experts help, before the public hearing begins. I assume this will proceed as per the last IWWA hearing.

Also attached is a series of maps that we've managed to locate on UCONN, FIRM, and Federal data bases of the two properties dating back to the 1950's.

Thanks, Jim

# 25 + 31 Powder Mill Properties



1950's



1970's



2019





# FIRMette



SEE PDF REPORT FOR DETAILED LEGEND AND INDEX MAP FOR THIS PANEL/JOINT

**SPECIAL FLOOD HAZARD AREAS**

- Without Base Flood Elevation (BFE) Zone A, X, AE
- With BFE or Depth Zone AE, XE, AH, VE, AP
- Regulatory Footway

**OTHER AREAS OF FLOOD HAZARD**

- 0.2% Annual Chance Flood Hazard, Areas of 1% Annual Chance Flood with average depth less than one foot or with drainage areas of less than one square mile Zone 1
- Future Conditions 1% Annual Chance Flood Hazard Zone 2
- Area with Reduced Flood Risk due to Levee, See Notes, Zone 1
- Area with Flood Risk due to Levee, Zone 2

**OTHER AREAS**

- Area of Minimal Flood Hazard Zone 1
- Effective LDMNs
- Area of Undetermined Flood Hazard Zone 2

**GENERAL STRUCTURES**

- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

**OTHER FEATURES**

- Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Tronsect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Tronsect Baseline
- Profile Baseline
- Hydrographic Feature

**MAP PANELS**

- Digital Data Available
- No Digital Data Available
- Unmapped

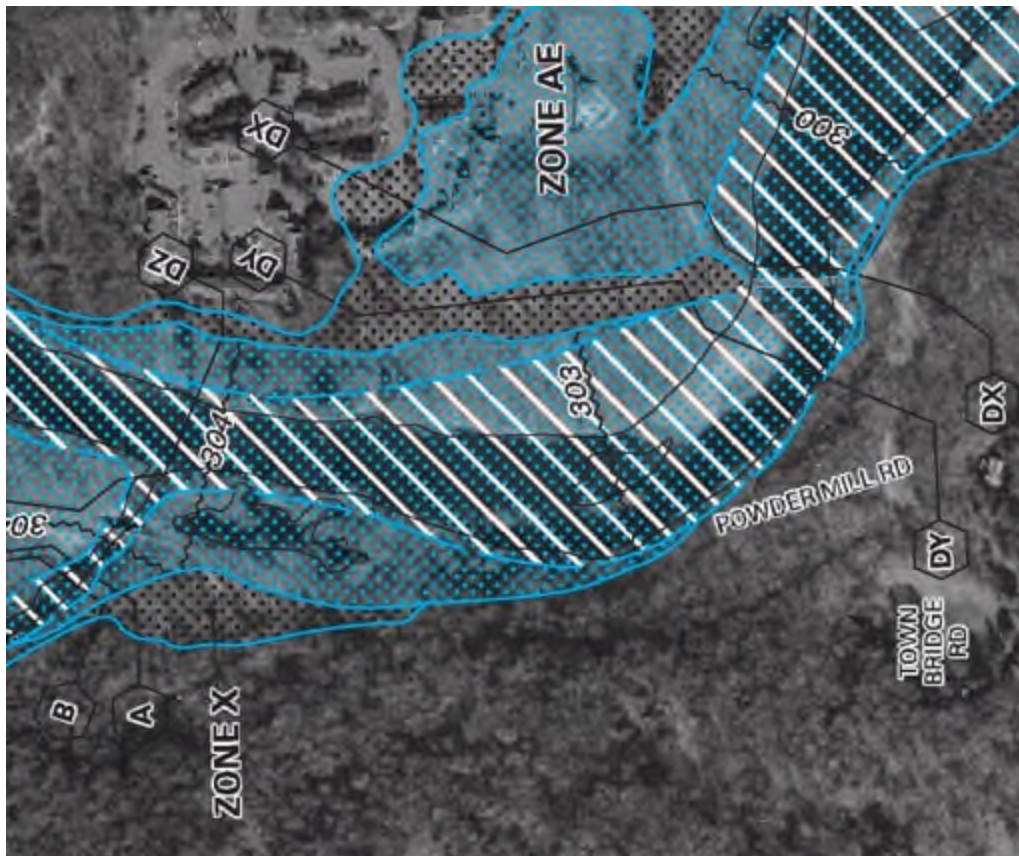
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The base map shown complies with FEMA's base map accuracy standards.

The flood hazard information is derived directly from the authoritative NFIC, web services provided by FEMA. This map was reported on 8/25/2023 at 8:24 AM, and does not reflect changes or amendments subsequent to this date and time. The NFIC, and effective information may change or become superseded by new data over time.

This map image is void if the use or more of the following map elements do not appear: base map imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and ungridded areas cannot be used for regulatory purposes.

# FIRMette



### LEGEND

**SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT**

The 1% annual chance flood (also known as the base flood) is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Areas (SFHAs) are shown on this map as follows:

- ZONE A** Areas of minimal flood damage potential.
- ZONE AE** Areas of moderate flood damage potential.
- ZONE AD** Areas of high flood damage potential.
- ZONE AN** Areas of special flood hazard (severe damage potential).
- ZONE ANB** Areas of special flood hazard (severe damage potential) that are also in a flood control system.
- ZONE V** Coastal flood zones with velocity-based (wave action) base flood elevations.
- ZONE VE** Coastal flood zones with velocity-based (wave action) base flood elevations.

**FLOODWAY AREAS IN ZONE AE**

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

**OTHER FLOOD AREAS**

- ZONE X** Areas of special flood hazard (severe damage potential) that are also in a flood control system.
- OTHER AREAS** Areas determined to be outside the 0.2% annual chance floodway.
- ZONE D** Areas in which flood hazards are undetermined, but possible.

**COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS**

**OTHERWISE PROTECTED AREAS (OPA)**

CBRS areas and OPAs are generally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone 2 boundary
- CBRS and OPA boundary
- Secondary dividing Special Flood Hazard Areas of different base flood elevations, flood depths or velocities
- Base Flood Elevation (ft) and velocity (mph) direction in 0"
- Base Flood Elevation (ft) and velocity (mph) within zone, direction in 0"

0.2% ANCH

Referenced to the North American Vertical Datum of 1988

- Green Bottom Line
- Toward Line
- Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 1000-meter Universal Transverse Mercator grid values, zone 18
- 5000-foot grid
- 5000-foot grid
- North-south line explanation in Note to Users section of this FIRMette
- North Arrow

NOAA BOSTON/TWY

# Federal Wetlands Map



August 17, 2020

## Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

## **Deltenre, Renee**

---

**From:** Kyle, Emily  
**Sent:** Tuesday, September 8, 2020 4:04 PM  
**To:** Deltenre, Renee  
**Cc:** Pade, Neil  
**Subject:** FW: Concerns About Riverfront Property at 31 Powder Mill Road

Please file

Emily

---

**From:** Wendy & Alasdair Baron/Hyndman [<mailto:wendyandalasdair@gmail.com>]  
**Sent:** Tuesday, September 08, 2020 4:02 PM  
**To:** Kyle, Emily  
**Cc:** Donna Miscikoski  
**Subject:** Concerns About Riverfront Property at 31 Powder Mill Road

**CAUTION:** This email came from outside the organization. Do not click links or open attachments if you are unsure the message is safe.

Hello,

I live at 19 Wickhams Fancy in Canton, CT, in the Rivers Edge Complex along the Farmington River, and am writing to notify you of concerns I have regarding the usage of property on the other side of the river, at 31 Powder Mill Road.

The owners at that property have installed semi-permanent camping structures including an outhouse, and there is increased usage of that property as people, including non-residents of the property, use it as an entry point for the river. I have strong concerns about the impact this activity is causing to the environment. In building this campsite, I believe they may have removed trees, and will continue to do so if they expand the campsites to potentially rent them out to the public. By inviting non-residents to use the property, the property owners have increased vehicle and foot traffic, which has likely already eroded, and will continue to erode, the landscape. My understanding is the area of the property is a flood plain, and with the outhouse they've built I am especially concerned about waste contaminating the area and the river.

Further expansion of this campsite area should be halted immediately. The property owners should be prohibited from renting the area to non-residents of the property. The property owners should also be required to remove the semi-permanent structures, and if they have in fact remove trees they should be required to plant replacements.

I am not able to attend the Wetlands committee meeting on 9/10 but please feel free to reach out to me if you have any further questions.

Thank you,

Wendy Baron

## **Deltenre, Renee**

---

**From:** Kyle, Emily  
**Sent:** Wednesday, September 9, 2020 1:27 PM  
**To:** Deltenre, Renee  
**Cc:** Pade, Neil  
**Subject:** FW: Land use along the Farmington River

This one is new from this morning- please file

Emily

---

**From:** Fran Hoffnagle [<mailto:fhoffnagle@cs.com>]  
**Sent:** Wednesday, September 09, 2020 12:17 AM  
**To:** Kyle, Emily  
**Subject:** Land use along the Farmington River

**CAUTION:** This email came from outside the organization. Do not click links or open attachments if you are unsure the message is safe.

**To:** The Canton Inland Wetlands Commission

**Re:** Campsites on the Farmington River

To Whom it May Concern;

A few months ago neighbors across the river began to clear a site to construct what has grown into a semi-permanent campsite right at the water's edge. It appears that people have at times been living there. Our condos have about a half mile of paths along waterfront where I walk regularly, and at times I've seen more activity at this site than at all our seventy-two units collectively.

I urgently ask that you enjoin the property owners to remove this encampment and make no further attempts to maintain a campground on the Farmington River.

When the Rivers Edge condominiums where I reside were issued permits, they were required to build all of the units far from the river and to maintain a deep swath of undisturbed woodlands as a buffer. The builders were not allowed to do much clearing or grading and were required to retain the lay of the land. I hope that as commissioners, entrusted with protecting our most precious asset, you will require the same of our neighbors.

Yours truly,

*Frances M Hoffnagle*

31 Wickhams Fancy  
Collinsville CT 06019  
860.906.6595  
[fhoffnagle@cs.com](mailto:fhoffnagle@cs.com)



**DRAFT MINUTES**  
Regular Virtual Meeting  
Town of Canton  
Planning and Zoning Commission  
Wednesday, August 19, 2020 at 7:00 pm

**CALLED TO ORDER:** Mr. Thiesse called the meeting to order at 7:02 p.m.

**PRESENT:** Mr. Jonathan Thiesse, Mr. John Huyghebaert, Mr. David Evens, Mr. Kevin Baldwin, Ms. Katie Villa, Alternate Mr. Michael Vogel, Alternate Ms. Elizabeth Vinick, and Alternate Mr. Tom Blatchley

**ABSENT:** Mr. Phil Pane and Mr. Lansford Perry

**ALSO PRESENT:** Town Planner Neil Pade and Recording Secretary Paul Dunahoo

*Mr. Blatchley joined the meeting at 7:03 p.m.*

**READING OF THE LEGAL NOTICE:** Read by Mr. Pade.

**PUBLIC HEARINGS**

1. **File 156; ApIn 1983; 2-21 Albany Turnpike; Assessor's Map 32 and 36; Parcels 1010002, 1010003, 1011005, 1012005, 1010009, 1010015, 1010018; 1010021; Zone B; and 15 Colonial Road; Assessor's Map 32; Parcel 1980015; Zone I; Zoning Map Amendments; zone change from existing designations to East Gateway Design Village District (EGDVD); Rose Realty, LLC; Newkell, LLC; Naomi and Dean Moulton Trustees; 9-15 Albany Turnpike, LLC; 609 West Main Street, LLC; Tomasz Sulewski; and Frank Zacchera; owners; Town of Canton Planning and Zoning Commission, applicant**

**Commissioners Seated:** Mr. Jonathan Thiesse, Mr. John Huyghebaert, Mr. David Evens, Mr. Kevin Baldwin, Ms. Katie Villa, Alternate Mr. Michael Vogel (seated for Mr. Lansford Perry), Alternate Ms. Elizabeth Vinick (seated for Mr. Phil Pane), and Alternate Mr. Tom Blatchley.

Mr. Pade said that he had received no new information. Mr. David Markowitz gave an overview of the current situation, informing the commission that an application had been filed.

**MOTION:** Mr. David Evens moved to close the public hearing for File 156; ApIn 1983; 2-21 Albany Turnpike; Assessor's Map 32 and 36. Ms. Katie Villa seconded the motion, and the motion passed unanimously.

2. **File 29; ApIn 1994; 290 Albany Turnpike; Assessor's Map 31; Parcel 1010290; Zone CVDVD; Type II Design Plan, Section 205.B.2, motor vehicle rental and leasing; and Special Permit, Section 7.10.B, outdoor display/outdoor dining/outdoor storage areas; request to establish a motor vehicle rental facility with outdoor display of automobiles; Mary Caserta; owner; Wolf Luxury Car Rental, LLC, applicant**

**Commissioners Seated:** Mr. Jonathan Thiesse, Mr. John Huyghebaert, Mr. David Evens, Mr. Kevin Baldwin, Ms. Katie Villa, Alternate Mr. Michael Vogel (seated for Mr. Lansford Perry), Alternate Ms. Elizabeth Vinick (seated for Mr. Phil Pane), and Alternate Mr. Tom Blatchley.

Mr. Wolf gave a brief introduction. Mr. Pade asked if twelve rental cars were what they were starting with. Mr. Wolf confirmed this. Mr. Wolf said no significant changes to the site are planned. Mr. Pade gave an overview of the map, noting that existing parking spots are being used, but there are concerns about access. Mr. Evens asked what the highlighted part of the building was for. Mr. Wolf said it was to note what part of the building they would be using of the building for the business. Ms. Vinick asked if the parking spots were planned to be illuminated. Mr. Wolf said there were no such plans at this time. Mr. Pade requested that the record reflect that the granting of the site approval in no way grants the owner access to the site in perpetuity.



**MOTION:** Mr. Evens moved to close the public hearing for File 29; ApIn 1994; 290 Albany Turnpike. Ms. Vinick seconded the motion, and the motion passed unanimously.

## REGULAR MEETING

### PUBLIC HEARING ACTIONS:

1. **File 156; ApIn 1983; 2-21 Albany Turnpike; Assessor's Map 32 and 36; Parcels 1010002, 1010003, 1011005, 1012005, 1010009, 1010015, 1010018; 1010021; Zone B; and 15 Colonial Road; Assessor's Map 32; Parcel 1980015; Zone I; Zoning Map Amendments; zone change from existing designations to East Gateway Design Village District (EGDVD); Rose Realty, LLC; Newkell, LLC; Naomi and Dean Moulton Trustees; 9-15 Albany Turnpike, LLC; 609 West Main Street, LLC; Tomasz Sulewski; and Frank Zacchera; owners; Town of Canton Planning and Zoning Commission, applicant.**

**MOTION:** Mr. Thiesse moved that the Canton Planning and Zoning Commission does hereby APPROVE File 156; ApIn 1983; 2-21 Albany Turnpike; Assessor's Map 32 and 36; Parcels 1010002, 1010003, 1011005, 1012005, 1010009, 1010015, 1010018; 1010021; Zone B; and 15 Colonial Road; Assessor's Map 32; Parcel 1980015; Zone I; Zoning Map Amendments; zone change from existing designations to East Gateway Design Village District (EGDVD); Rose Realty, LLC; Newkell, LLC; Naomi and Dean Moulton Trustees; 9-15 Albany Turnpike, LLC; 609 West Main Street, LLC; Tomasz Sulewski; and Frank Zacchera; owners; Town of Canton Planning and Zoning Commission, applicant/owner, as may be amended, stipulated or conditioned by this approval.

This approval is made, in part, on the basis of the Commission's review of and reliance upon testimony received at a Public Hearing commenced on August 12, 2020, continued to August 19, 2020 and closed on that date, and the following documentation submitted by the applicant or others during the course of the proceedings on the application:

#### Drawings:

1. East Gateway Design Village District Regulating Plan: dated 4/9/18
2. Town of Canton Zoning Map; dated 4/9/18
3. East Gateway Design Village District Regulating Plan: dated 4/9/18; *REVISED 8/5/20*
4. Town of Canton Zoning Map; dated 4/9/18; *REVISED 8/5/20*

#### Correspondence:

1. Town of Canton Zoning Map Amendment Application – File 156; ApIn 1983; 2-21 Albany Turnpike; Assessor's Map 32 and 36; Parcels 1010002, 1010003, 1011005, 1012005, 1010009, 1010015, 1010018; 1010021; Zone B; and 15 Colonial Road; Assessor's Map 32; Parcel 1980015; Zone I; Zoning Map Amendments; zone change from existing designations to East Gateway Design Village District (EGDVD); Rose Realty, LLC; Newkell, LLC; Naomi and Dean Moulton Trustees; 9-15 Albany Turnpike, LLC; 609 West Main Street, LLC; Tomasz Sulewski; and Frank Zacchera; owners; Town of Canton Planning and Zoning Commission, applicant
2. Parcel Information
3. Assessor Parcel Images (2 total)
4. Town Clerk public hearing notification; dated 7/22/20
5. CRCOG zoning referral notification; dated 7/22/20
6. Northwest Hills Council of Governments zoning referral notification; dated 7/22/20
7. Public Registry zoning map amendment notification; dated 7/22/20
8. Town of Canton legal notice; dated 7/22/20
9. Municipal abutter notification (2 total); dated 7/22/20
10. POCD Strategic Plan East Gateway District Narrative
11. Staff memorandum from Neil Pade to Commission; dated 7/29/20

This approval is granted because the Commission finds that the applications, as modified by this approval, would comply with the following:

1. That the regulations and map are reasonably related to CGS § 8-2 and through their adoption provides measures to ensure there will be no negative impacts to the public health and safety of the community;
2. That the proposed regulations and map amendments are in the public interest and good for the community as a whole. The proposed changes result in appropriate regulations that are appropriate with the Town's comprehensive plan and allows them to be administered efficiently with clear criteria;
3. That the proposed regulations and map, as documented by the July 29, 2020 staff report are consistent with, and furthers the implementation of, the 2014 Town Plan of Conservation and Development.
4. That the proposed regulations and map, as documented within the July 29, 2020 staff report are consistent with the Village District Stations of CGS § 8-2j.

This approval is effective August 24, 2020.

**SECONDED BY:** Ms. Vinick.

**VOTE:** Passed unanimously.

2. **File 29; ApIn 1994; 290 Albany Turnpike; Assessor's Map 31; Parcel 1010290; Zone CVDVD; Type II Design Plan, Section 205.B.2, motor vehicle rental and leasing; and Special Permit, Section 7.10.B, outdoor display/outdoor dining/outdoor storage areas; request to establish a motor vehicle rental facility with outdoor display of automobiles; Mary Caserta; owner; Wolf Luxury Car Rental, LLC, applicant**

**MOTION:** Mr. Thiesse moved that the Canton Planning and Zoning Commission does hereby APPROVE File 29; ApIn 1994; 290 Albany Turnpike; Assessor's Map 31; Parcel 1010290; Zone CVDVD; Type II Design Plan, Section 205.B.2, motor vehicle rental and leasing; and Special Permit, Section 7.10.B, outdoor display/outdoor dining/outdoor storage areas; request to establish a motor vehicle rental facility with outdoor display of automobiles; Mary Caserta; owner; Wolf Luxury Car Rental, LLC, applicant.

This approval is granted in part on the application submitted on July 15, 2020, received on August 19, 2020; testimony received at a public hearing commenced on August 19, 2020, and closed on that date; and upon the following documentation submitted by the applicant or others during the course of the proceedings on the application:

Drawings:

1. Proposed Site Plan Modification; 290 Albany Turnpike; Prepared for Mary Caserta; Prepared by Rotundo Engineering Associates, Inc.; dated 7/15/08

Correspondence:

1. Town of Canton Zoning Development Application – File 29; ApIn 1994; 290 Albany Turnpike; Assessor's Map 31; Parcel 1010290; Zone CVDVD; Type II Design Plan, Section 205.B.2, motor vehicle rental and leasing; and Special Permit, Section 7.10.B, outdoor display/outdoor dining/outdoor storage areas; request to establish a motor vehicle rental facility with outdoor display of automobiles; Mary Caserta; owner; Wolf Luxury Car Rental, LLC, applicant
2. Town of Canton GIS aerial image
3. Abutter list
4. Warranty deed
5. Assessor card

6. Site plan application checklist
7. Sketch of office layout
8. Business pamphlet
9. Residential lease agreement between tenant and property owner
10. August 12, 2020 Staff Report

This approval is granted because the Commission finds that the application, as conditioned, modified by, and inclusive of the stipulations of this approval, would comply with the following:

1. Section 9.1 – An approved site plan exists and is on file for this site and no additional changes are proposed to the approved site plan
2. Section 7.10 – Outdoor Display Areas
3. Section 9.2.E – Special Permit Criteria

This approval is effective September 4, 2020 (20 Days from approval date) and UPON THE RECORDING OF THE APPROVAL LETTER/CERTIFICATE OF ACTION WITH THE TOWN CLERK.

The Commission hereby grants this approval subject to the following conditions, modifications, restrictions, and safeguards:

1. No new lighting associated with the use is allowed. Any additional lighting shall require subsequent review and approval by the Commission.
2. Per Section 9.2.H.1, failure to record the special permits granted through this approval within twelve months (August 19, 2021) shall void the special permits;
3. Per Section 9.2.H.2, any special permit in which the approved use is not conducted on the site within eighteen months from the date of approval (February 19, 2021), shall expire unless the Commission shall provide for a longer period of time if requested under Section 9.2.H.3; and
4. This approval shall be binding upon the applicant/developer, heirs, assigns, and grantees;
5. The two parking spaces shown within the access easement to the adjacent property are subservient to that access easement.

**SECONDED BY:** Ms. Villa  
**VOTE:** Passed unanimously.

**OLD BUSINESS:** None

**NEW BUSINESS:**

1. **File 414; ApIn 1997; Pre-Application Review; 51 River Road; Assessor Map 34; Parcel 4490051; Zone: MCPF; New Fire Station; Bruce Lockwood, applicant; Town of Canton, owner** – Chief Lockwood gave a presentation on the plan for the new Collinsville fire station. He explained that the current station size is too small to properly fit the all department's vehicles, and that it is impossible for a firefighter in gear to walk in between the vehicles that are in the current fire station. The new station would have room to consolidate more of the department's vehicles into one building, while also leaving room for future growth. The new station is also designed so the Fire & EMS Department staff can have their offices together in one building.

Mr. Baldwin asked if there was an attempt to make the fire station similar to the police station. Chief Lockwood said that it was made to look like a fire station, with consistent branding to the fire station in North Canton. Ms. Vinick said that the structure appeared to be large and imposing. Chief Lockwood said that they had pared down the plan to what they believed was minimal and that further paring down would make it so that the department was not any better off than it is currently. Ms. Vinick asked how many additional vehicles could fit in the existing facility. Chief Lockwood said that they are not able to fit any more.

- File 216; ApIn 1998; Pre-Application Review; 91 and 95 Albany Turnpike; Assessor Map 32; Parcel 1010091 and 1010095; New Automotive Dealership; Mark Mitchell, applicant; 91 Albany Turnpike, LLC and Mitchell Farmington Valley, LLC, owners** – Mr. Todd Parsons, representing Mitchell Auto, gave an overview of the application. He said that years ago the lot was approved for a Volkswagen dealership on 91 Albany Turnpike, which was never built. Mr. Parsons wondered how the lot width regulation would be applied, since the form-based code limits the width to two hundred feet. Lot 91 is about three hundred seventeen feet when measured at the street line. Lot 95 is about a hundred seventy feet at the street line. They would like to construct a new Subaru dealership, and in the process take part of lot 95 and give it to lot 91. The lot frontage would remain the same. Mr. Parsons says that the Planning and Zoning Commission's regulations do not define lot width, but that a graphic implies that it is measured at the street line. Mr. Parson asked if it was acceptable given that the width when measured at the street line would not be changing.

Mr. Parson said that while dealerships are a permitted use, a carwash is not. Mr. Parson said it was their position that a carwash is a common accessory for customers who bought vehicles, and that they would like to wash cars on the property as accessory to the primary use. They are not proposing a separate, public carwash. Lastly, Mr. Parson said that part of the property is in the aquifer protection area, and the regulations prohibit repair or maintenance of internal combustion engines within that area. Mr. Parson said that in their view the building can extend into the aquifer protection area, as long as the maintenance portion does not go into that area. They would propose a division between the showroom and offices in the front and service area in the back, so all of the service would be outside of the aquifer protection area.

Mr. Pade said that it is the recommendation of the Department of Energy and Environmental Protection to move the entire building outside of the aquifer protection zone, but that it is not required. Mr. Pade agrees with Mr. Parson that a carwash would be acceptable as an accessory to the car dealership, though he could not say anything definitive without the guidance of the commission. Mr. Pade is concerned that lot 95 would largely be a parking lot and show area; though he thinks what Mr. Parson presented is logical.

Mr. Thiesse said the commission should figure out if the lot width code is focused on the build-to zone at the street or not. Ms. Thiesse asked if the consolidation would include the existing buildings. Mr. Parson said he did. Mr. Thiesse said that was an issue since none of the buildings reached the build-to zone. The commission deliberated on the plan and the regulations in question. Eventually the commission needed to move on to other topics, so it was decided that they would continue deliberating the lot width issue at a later time. Mr. Thiesse apologized to Mr. Parson that the commission was unable to provide him with an answer at this time.

- Referral 399; Bridge Replacements Project; Connecticut General Statute Section 8-24 Review and Report on the reconstruction of Washburn Road Bridge over Jim Brook, West Road Bridge over Cherry Brook, and Old Canton Road Bridge over Rattlesnake Brook; Town of Canton, applicant/owner** – Mr. Pade gave an overview of the referral to the commission.

**MOTION:** Mr. Thiesse moved that the Canton Planning and Zoning Commission give a positive response with respect to Referral 399. Mr. Evens seconded the motion, and the motion passed unanimously.

#### **OTHER BUSINESS:**

- Discussion with Property Owners regarding potential violation at 31 Powder Mill Road** – Mr. Pade gave an overview of the topic. Mr. Thiesse said that the focus needed to be on the improvements or activities that are in violation. Mr. Lyons said that he did not intend to give the full presentation. Mr. Lyons said that they had a tent up for about ten years for use by family. A shed and composting toilet was added, but there is no electricity at the site. The waterflow was changed by the town on their property. Drainage was added between the river and pond to enable flow. Mr. Lew Wise said that his clients are willing to comply; they just need to know what the issues are. Mr. Pade said

that one issue was that a permit was not requested for large event gatherings. Mr. Lew Wise said that they are willing to file permits retroactively; they just need to know for what activities they need to file permits for. Mr. Thiesse said they should file for permits retroactive, and work with staff to determine what activities a permit was needed for. With this Mr. Lew Wise said that he believed he and his clients had a path forward.

2. **Discussion on POCD Implementation** – Tabled
3. **Discussion of Form Based Code Concept of Site/Pad/Maximum Density Partial Approvals** – Tabled
4. **Discussion of Public Improvement Standards** – Tabled
5. **Review of Minutes:**
  - a. **July 15, 2020 Regular Meeting** – The minutes were accepted as submitted.
  - b. **August 12, 2020 Special Meeting** – The minutes were accepted as submitted.
6. **Staff Reports:**
  - a. **Town Planner's Report** – Mr. Pade gave an overview of the report to the commission, and informed the Commission of the bond release request from Rotundo Developers for 64 Maple Avenue.

**MOTION:** Mr. Thiesse moved that the Canton Planning and Zoning Commission release the bond that was being held for temporary zoning compliance at 64 Maple Avenue, as requested. Mr. Huyghebaert seconded the motion, and the motion passed unanimously.

- b. **ZEO Report** – This report was provided to the Commission electronically.

**MOTION:** *Mr. Evens moved to amend the agenda to discuss form-based code revision. Mr. Thiesse seconded the motion, and the motion passed unanimously.*

7. **Discussion of Form-Based Code Revision** – Ms. Villa asked for clarification regarding the issue. Mr. Thiesse said that there was a problem with the definition of primary street façade, since it says that the minimum size of “a proposed building”. At least 50% of the building must be at the build to line or within the build to zone. Mr. Pade added that lot width was not defined in the form-based code. Mr. Thiesse asked for Mr. Pade to confirm that what needed to happen next was that they would need to create new language for the form-based code to bring back to the commission for it to consider. Mr. Pade agreed. Ms. Vinick said that she thinks the commission should take other potential situations into consideration when coming up with the new language.

#### **ADJOURNMENT:**

**MOTION:** Mr. Thiesse moved to adjourn the meeting at 10:35 p.m. Ms. Vinick seconded the motion, and the motion passed unanimously.



# LADA, P.C.

## Land Planners

Land Development Consulting, Site Planning, Landscape Architects, Planners, Corridor Studies, Visual Assessment, Environmental Impact Statements, Erosion Control Specialists, Streetscapes, Recreation, and Master Planning

September 16, 2020

Mr. Neil S. Pade, AICP  
Director of Planning & Community Development  
Town Hall  
4 market Street  
Collinsville, CT. 06019

Re: 3 & 5 Cherry brook Road Conditions of Approval  
March 6, 2018 File 40 Application 1752 through 1754  
Request to Modify

Mr. Pade:


My client has been working diligently to obtain financing for the above referenced project and had hoped to be ready to begin construction earlier this year but, as with most people, was setback by the Covid-19 issue. At this point in time, he is prepared to begin site work for the construction of the residential portion of the development. The approved residential building is to set well back from Cherry Brook Road. A significant amount of earthwork and utilities must be established and a building pad shaped before a building permit will be sought and, this is why permission to begin site construction is sought. Per the above referenced conditions of approval, attached, condition # 3 requires the filing of building plans with the building official in order that site work begin. The client's architect is presently developing the building wall and foundation plans but, is not prepared to submit the plans for a Building Permit; months of site work are necessary to bring the building pad and the access drive to the point of being able to accept a foundation. You will recall, the site is to be excavated above (east of) the proposed building and filled (west of) the building; this work can not reasonably happen while the foundations are being placed or in place. Therefor, I am requesting a modification of the conditions to strike condition 3, requiring construction drawings for the building be submitted before any site work can begin. We discussed the need to strike or modify condition 10 because condition 10 references back to all the prior conditions; if condition 3 is eliminated, condition 10 might need to become condition 9.

All of the other conditions have been met or will be met prior to establishing the preconstruction meeting and the start of site work.

I attach the Conditions of Approval and a copy of the site plan.

If the matter is discussed at the Planning and Zoning Commission meeting tonight, I can be available to answer questions.

Sincerely,



Phil Doyle



**PLANNING & ZONING COMMISSION**  
**Canton, Connecticut Inc. 1806**  
**4 Market Street, Collinsville, Connecticut 06022**

**PLANNING & ZONING COMMISSION APPROVAL/CERTIFICATE OF ACTION**  
**FILE 40; APLN 1752, 1753, 1754; 3 AND 5 CHERRY BROOK ROAD**

Amended Approval per the February 21, 2018 Regular Meeting of the Planning and Zoning Commission

March 6, 2018

Certified Mail: 7017 0660 0000 2125 0861

Mr. Phil Doyle  
LADA, P.C.  
104 West Street  
Simsbury, CT 06070

**RE: File 40; APLN 1752, 1753, 1754;** 3 and 5 Cherry Brook Road; Assessor's Map 26; Parcels 1850003 and 1850005; Zone B; Design District Application (Section 5) consisting of: Zoning Regulation Amendment (Section 9.3) request to establish Section 5.9, Design District # 2, Hart's Corner Mixed-Use Zone; Zoning Map Amendment (Section 9.4), request from B to DD#2; and Detailed Site Development Plan Application (Section 9.1); request to construct a +/- 20,000 sq. ft. commercial building at 3 Cherry Brook Road and +/- 99,500 sq. ft. multi-story residential complex at 5 Cherry Brook Road; Phil Doyle, applicant; KWK Canton, LLC, owner

Dear Mr. Doyle:

Please be advised that at a special meeting on Tuesday, January 23, 2018, the Canton Planning and Zoning Commission voted on the above referenced item.

DESIGN MODIFICATIONS

**MOTION:** Mr. Thiesse moved that the Canton Planning and Zoning Commission hereby modifies the specific requirements under Section 7.1.H of the regulations for landscaping to be constructed or otherwise installed in accordance with the alternate planting plan as submitted, because the Commission finds that these regulations are consistent with the proposal of an integrated development on this particular site with the regulation modifications. Mr. Perry seconded the motion, which passed unanimously.

DECISION

**MOTION:** Mr. Thiesse moved that the Canton Planning and Zoning Commission does hereby APPROVE, WITH CONDITIONS AND MODIFICATIONS AS SET FORTH HEREIN, File 40; APLN 1752, 1753, 1754; 3 and 5 Cherry Brook Road; Assessor's Map 26; Parcels 1850003 and 1850005; Zone B; Design District Application (Section 5) consisting of: Zoning Regulation Amendment (Section 9.3) request to establish Section 5.9, Design District # 2, Hart's Corner Mixed-Use Zone; Zoning Map Amendment (Section 9.4), request from B to DD#2; and Detailed Site Development Plan Application (Section 9.1); request to construct a +/- 20,000 sq. ft. commercial building at 3 Cherry Brook Road and +/- 99,500 sq. ft. multi-story residential complex at 5 Cherry Brook Road; Phil Doyle, applicant; KWK Canton, LLC, owner.



This approval with conditions and modifications is made, in part, on the basis of, and the Commission's reliance upon, the application form dated October 18, 2017 and submitted on November 1, 2017, testimony received at a public hearing commenced on December 20, 2017 and continued to January 23, 2018 and closed on that date; and upon the following documentation submitted by the Applicant or others during the course of the proceedings on the application:

Drawings:

1. L-1; Cover; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17; revised 12/18/17
2. L-2; Letters of Approval; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17
3. L-3; Grading Plan; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17; revised 12/18/17
4. L-3.1; Road Profile; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17; revised 12/18/17
5. L-4; Erosion Control Plan; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17; revised 12/18/17
6. L-4.1; Erosion Control Notes; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17; revised 12/18/17
7. L-4.2; Erosion Control Details; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17; revised 12/18/17
8. L-4.3; Erosion Control Details; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17
9. L-5; Layout Plan; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17
10. L-6; Materials Plan; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17
11. L-7; Planting Plan; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17
12. L-8; Lighting Plan; 3 & 5 Cherry Brook Road; Prepared by RAB Lighting; Prepared for Holbrook Associated; dated 10/26/17; revised 12/13/17
13. L-8.1; Lighting Notes; 3 & 5 Cherry Brook Road; Prepared by RAB Lighting; Prepared for Holbrook Associated; dated 10/26/17; revised 12/13/17
14. L-9; Details; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17; revised 12/18/17
15. L-9.1; Details; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17; revised 12/18/17
16. L-9.2; Details; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17; revised 12/18/17
17. Topographic Plan; 3 & 5 Cherry Brook Road; Prepared by Denno Land Surveying & Consulting, LLC; Prepared for Bahre Etal.; dated 9/28/16
18. S-1; Site Utility Plan; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17
19. S-2; Sanitary Sewer Profile; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17
20. S-3; Site Civil Details; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17
21. S-4; Site Civil Details; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17
22. S-5; Site Civil Details; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17
23. A1.1; Lower Level / Patio Floor Plan (Lot 5 Residential); 3 & 5 Cherry Brook Road; Prepared by QA+M Architecture; Prepared for Proposed Canton Development; dated 10/20/17
24. A1.2; First Floor Plan (Lot 5 Residential); 3 & 5 Cherry Brook Road; Prepared by QA+M Architecture; Prepared for Proposed Canton Development; dated 10/20/17

25. A1.4; Typical Upper Floor Plan (Lot 5 Residential); 3 & 5 Cherry Brook Road; Prepared by QA+M Architecture; Prepared for Proposed Canton Development; dated 10/20/17
26. A1.5; Typical Unit Layouts (Lot 5 Residential); 3 & 5 Cherry Brook Road; Prepared by QA+M Architecture; Prepared for Proposed Canton Development; dated 10/20/17
27. A1.6; Exterior Elevations (Lot 5 Residential); 3 & 5 Cherry Brook Road; Prepared by QA+M Architecture; Prepared for Proposed Canton Development; dated 10/20/17
28. A2.0; Commercial Space (Lot 3 Commercial); 3 & 5 Cherry Brook Road; Prepared by QA+M Architecture; Prepared for Proposed Canton Development; dated 10/20/17
29. A2.1; Commercial Elevations (Lot 3 Commercial); 3 & 5 Cherry Brook Road; Prepared by QA+M Architecture; Prepared for Proposed Canton Development; dated 10/20/17
30. EX-1; Existing Zoning; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 10/19/17
31. EX-2; Proposed Zoning; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 10/19/17
32. EX-2; Flood Insurance Rate Map; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17
33. EX-3; Consistency with the Plan of Conservation and Development; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 9/28/17
34. EX-3; Site Lines; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 10/26/17
35. EX-4; Context Plan; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 9/11/17
36. EX-5; Site Plan Comparison; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 10/23/17
37. EX-6; Frontage Building Elevations and BFS for DD#2; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17
38. EX-7; Frontage Building BFS Plan for DD#2; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17
39. EX-8; Multifamily Residential Non-Frontage Building Elevations & BFS for DD#2; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17
40. EX-9; Multifamily Residential Building Views; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17
41. EX-10; Multifamily Residential Building Perspective; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17
42. EX-11; Survey; 3 & 5 Cherry Brook Road; Prepared by Denno Land Surveying & Consulting, LLC; Prepared for Bahre Etal.; dated 9/28/16
43. L-8.2; Lighting Fixture – Cut sheets; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 12/18/17
44. L-10.1; Fire Truck Turning 1; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 12/18/17
45. L-10.2; Fire Truck Turning 2; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 12/18/17
46. L-10.3; Fire Truck Turning 3; 3 & 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 12/18/17
47. Previously Approved Plan; 5 Cherry Brook Road; Prepared by LADA, P.C.; Prepared for KWK Canton, LLC; dated 11/01/17

#### Correspondence

1. Town of Canton Planning/Zoning Development Applications – File 40; Apln 1752, 1753, 1754; 3 and 5 Cherry Brook Road; Assessor's Map 26; Parcels 1850003 and 1850005; Zone B; Design District Application (Section 5) consisting of: Zoning Regulation Amendment (Section 9.3) request to establish Section 5.9, Design District # 2, Hart's Corner Mixed-Use Zone; Zoning Map Amendment (Section 9.4), request from B to DD#2; and Detailed Site Development Plan Application (Section 9.1); request to construct a +/- 20,000 sq. ft. commercial building at 3 Cherry Brook Road and +/- 99,500 sq. ft.

- multi-story residential complex at 5 Cherry Brook Road; Phil Doyle, applicant; KWK Canton, LLC, owner
2. Letter from Phil Doyle of LADA, P.C. to Town Planner Neil Pade regarding the Zone Change and Zoning Regulation Amendment application for 3 & 5 Cherry Brook Road; dated 10/30/17
  3. Letter from Ron Webber of KWK Canton, LLC, authorizing Phil Doyle of LADA, P.C. as the agent for his company in regard to the various land use applications; dated 10/17/17
  4. Regulation amendment checklist
  5. Zone Map amendment checklist
  6. Economic Impact Analysis; prepared by Goman + York Property Advisors, LLC; prepared for the Town of Canton
  7. Letter from Phil Doyle of LADA, P.C. to Town Planner Neil Pade regarding the Site Plan applications for 3 & 5 Cherry Brook Road; dated 10/30/17
  8. Statutory Warranty Deed for 3 Cherry Brook Road
  9. Quit-Claim Deed for 5 Cherry Brook Road
  10. Site Plan application checklist
  11. Email from Phil Doyle to CT DEEP regarding a Natural Diversity Data Base request; dated 9/15/17
  12. Request for a Natural Diversity Data Base review and corresponding materials
  13. Email from Dawn McKay of the CT DEEP to Phil Doyle regarding the NDDDB response; dated 9/21/17
  14. CT DEEP NDDP Response; dated 9/21/17
  15. Letter from Phil Doyle to Gerald McDermott of CT Water regarding capacity review; dated 9/18/17
  16. Letter from Gerald McDermott to Phil Doyle regarding water feasibility; dated 9/29/17
  17. Letter from Phil Doyle to Roger Ignazio of the Town of Canton WPCA regarding capacity review; dated 9/18/17
  18. Copy of the Town of Canton WPCA capacity review application
  19. Letter from Paul Dombrowski of Woodard & Curran, Inc. regarding available sewer capacity; dated 10/5/17
  20. Copy of the Zoning Commission approval for File #40; Apn #1167; dated 10/1/06
  21. Email from Renee Narducci to various members of staff requesting application review; dated 11/29/17
  22. Email from Chief Arciero regarding staff comments; dated 11/30/17
  23. Email from Roger Ignazio (WPCF Superintendent) regarding staff comments; dated 11/30/17
  24. Signed affidavit regarding the posting of the public hearing sign; dated 12/1/17
  25. Town of Canton legal notice proof from the Valley Press (12/7 & 12/14 Publication)
  26. Copy of payment; check #0551
  27. Draft minutes from the 11/15/17 PZC regular meeting
  28. Email from Phil Doyle to Renee Narducci regarding abutter notices; dated 12/4/17
  29. Certificates of mailing
  30. Verified abutter list
  31. Memo from Renee Narducci to Linda Smith (Town Clerk) regarding the public hearing for the proposed zoning regulation amendment and zoning map amendment; dated 12/5/17
  32. Email from Renee Narducci to Linda Smith (Town Clerk) regarding the public hearing; dated 12/5/17
  33. Email from Tim Tharau (Fire Marshal) regarding staff comments; dated 12/6/17
  34. Turning radius image for fire apparatus
  35. Copy of the abutter notice; received 12/11/17
  36. Staff memorandum from Neil Pade to the Planning and Zoning Commission regarding application completion review; dated 11/29/17; revised 12/11/17
  37. Storm Drainage Report; prepared by Clark Engineering; dated 12/7/17
  38. Traffic Impact Assessment; prepared by Solli Engineering, LLC; dated 12/6/17 (provided under separate cover)
  39. Letter to Neil Pade from Dana Mathes regarding proposed development; dated 12/13/17
  40. Draft motion prepared by Town Planner Neil Pade
  41. Email from George Wallace (Project Administrator) to Neil Pade regarding staff comments; dated 12/18/17
  42. Light fixture specifications
  43. Letter from Phil Doyle to Neil Pade regarding responses to staff review, includes 6 corresponding attachments; dated 12/15/17

44. Letter from Thomas Arcari of QA+M Architecture to Neil Pade regarding proposed development; dated 12/14/17
45. Intersection Site Distance Analysis; prepared by Solli Engineering, LLC; Prepared for Phil Doyle; dated 12/15/17
46. Email from Ken Delkescamp to Renee Narducci regarding proposed development; dated 12/19/17
47. Memorandum from Phil Doyle to Neil Pade regarding responses to George Wallace's 12/18/17 email; dated 12/20/17
48. Memorandum from George Wallace to Neil Pade regarding review of the 12-07-17 Storm Drainage Report, and corresponding email; dated 12/20/17
49. Email from George Wallace to Neil Pade regarding storm drainage; dated 12/20/17
50. Email from Phil Doyle to Neil Pade regarding an email from Mr. Delkescamp, and corresponding attachment; dated 12/20/17
51. Email from George Wallace to Neil Pade regarding drainage considerations; dated 12/20/17
52. Copy of the IWWA approval for File #11-17-926; dated 12/20/17
53. Revised Storm Drainage Report; prepared by Clark Engineering; dated 12/15/17(provided under separate cover)
54. Draft minutes from the 12/20/17 regular meeting of the PZC
55. Email from Project Administrator George Wallace to Neil Pade regarding application review; dated 1/15/18
56. Email from Phil Doyle to Neil Pade regarding slope information; dated 1/16/18
57. Email and corresponding photo from Ken Delkescamp to Renee Narducci regarding concerns with proposed use; dated 1/21/18
58. Email from Phil Doyle to Renee Narducci regarding review of staff comments; dated 1/22/18

This amendment to the Town of Canton Zoning Map and Regulations is granted because the Commission finds that the adoption the proposed Design District at the proposed location:

1. Is consistent with the adopted Plan of Conservation and Development (POCD) as set forth in the November 29, 2017 staff report, revised December 11, 2017 and its reasons for consistency.
2. Is consistent with the Comprehensive Plan as set forth in the November 29, 2017 staff report, revised December 11, 2017 and its reasons for consistency.
3. Is authorized under Connecticut General Standards Section 8-2 and the Commission finds that:
  - a. The uses permitted as of right within the approved district would not be hazardous, inconvenient or detrimental to the character of the neighborhood, nor impair its value; and would be compatible with surrounding sites and uses and would not hinder their future development;
  - b. As described elsewhere and throughout this motion, reasonable consideration has been given to the character of the proposed district and its peculiar suitability for particular uses, with a view to conserving the value of buildings and encouraging the most appropriate use of land throughout such municipality, and finds the proposed Design District, and uses permitted within them, to be appropriate given the unique context of the area in which it is proposed; and
  - c. The proposed map amendment is not in conflict with the Commission's authority under Connecticut General Statutes Section 8-2.
4. Corrects a mistake or error previously made in regards to the former zoning and current approved of the property of Active Adult Housing is no longer prevalent in the market and as currently proposed brings the properties zoning current with reasonable demands from the market while supporting the tax base without negatively affecting the character of the town.

The Commission hereby approves the amendment to the Zoning map, subject to the following requirements, conditions, modifications, restrictions, and safeguards:

1. The Zoning Map shall be amended to change the zoning designation of the properties at 3 and 5 Cherry Brook Road (Assessor's Map 26; Parcels 1850003 and 1850005) from Business District (B) to Design District #2 (DD#2) which shall govern the future development of this parcel;
2. This regulation and map amendment shall be effective **February 13, 2018**, provided that a notice of the decision of the Commission shall have been published in a newspaper having a substantial circulation in Canton before such effective date;

3. The Commission shall send, by certified mail, a copy of the decision on the Zone Change Application to the applicant within fifteen (15) days after such decision is rendered;
4. If for some reason notice is not published within the fifteen-day period after a decision has been rendered, the applicant may provide for the publication of such notice within ten (10) days thereafter;
5. The Commission shall cause the approved Zone Changes (map amendments and regulations) to be filed in the Office of the Town Clerk before the effective date;
6. The proposed regulations are hereby approved with the following modifications:
  - a. A summary sheet shall be provided and inserted into Section 5.9 consistent with Section 5.2-5.8.
  - b. The proposed regulations shall be renumbered for location in the Appendix Section 3.8.
  - c. Proposed Section 5.9.D shall be written to match the formatting and wording utilized in 4.1.C for administrative purposes.
  - d. Add to Section 5.9.E. a new sequentially numbered section that states: "except as otherwise provided in this section, properties within the approved Design District shall be subject to all applicable provisions of the Zoning Regulations of the Town of Canton".
  - e. Add to Section 5.8.E a new sequentially numbered section that states: "Properties within the approved Design District may be developed as a Unified Development Parcel in accordance with the provision of Section 5."
  - f. Dimensional standards and design guidelines for this district are as represented on the approved Master Plan/Site Plan.
  - g. Proposed Section 5.9.E.1 shall be rewritten to change the parking requirement for the commercial building to 1 space for 350 sq. ft. of gross floor area, plus or minus 15% rounded towards the original product;
  - h. To incorporate the list of uses for the commercial property as referenced in Exhibit #43, Page #5; a letter from LADA, P.C. to Neil Pade; dated 12/15/17.

The submitted Site Development Plan application is also approved, granted in part on the application submitted on November 1, 2017, testimony from a public hearing opened on December 20, 2017 and continued to January 23, 2018 and closed on that date, and upon the documentation referenced in the submitted List of Drawings (1-47) and Exhibits (1-58) documented above.

This approval is granted because the Planning & Zoning Commission finds that the application, as conditioned and modified by and inclusive of the stipulations of this approval, would comply with the following:

1. Section 9.1, Site Development Plans;
2. Section 9.2, Special Exceptions;
3. Section 8, Performance Standards;
4. Sections 7.1-7.13, Basic Standards as applicable;
5. Section 5, Design Districts;
6. The certification requirements of Section 7.6, Erosion and Sedimentation Control, which have been met and the Erosion Control Plan is hereby certified; and,
7. The Commission finds, based on the language proposed by the applicant and approved by the Commission that an Excavation and Grading Permit under Section 7.5 is not required.

This approval is effective **March 5, 2018** (40 Days from approval date) and UPON THE RECORDING OF AN APPROVAL LETTER AND/OR A CERTIFICATE OF ACTION AND MASTER PLAN WITH THE TOWN CLERK.

The Commission hereby grants this approval subject to the following conditions, modifications, restrictions, and safeguards:

1. Final Plans shall be modified and submitted to the ZEO for review prior to signature by the Chairman for filing to incorporate the following changes:
  - a. To show the striping of cross walks, provision of benches and sidewalk and other requirements not waived under Section 7.9.

- b. The final selection of lighting may be modified via consultation and agreement between the Design Landscape Architect and Town ZEO.
  - c. The substantial retention of existing vegetation on the site is sufficient to meet the requirements of Section 7.1 as allowed by 7.1.H
  - d. The existing vegetation to be preserved is to be protected during construction per Section 7.1.G.7
  - e. The DEEP report and NDDDB review comments dated 9/21/17 to be incorporated as of references
  - f. Fire Hydrants internal to the site to be provided subject to the approval of the Town Fire Marshal.
  - g. The sidewalk from the east side of the commercial building running on the south side to Cherry Brook Road, which is shown as bituminous on the submitted plan will be revised to be concrete.
2. The applicant shall submit the following bonds to the Zoning Enforcement Officer (ZEO):
    - a. Erosion and Sediment Control Bond in the amount of **\$70,500**, and the Commission will maintain an additional **\$10,000** bond for a period of one year for slope stabilization.
    - b. A site performance bond if required by the ZEO prior to the issuance of a Certificate of Zoning Compliance.
    - c. A site landscaping bond (up to \$47,895) if required by the ZEO prior to the issuance of a Certificate of Zoning Compliance.  
These bonds are subject to subsequent modification if additional plan review or site modifications dictate;
  3. Construction drawings shall be submitted to the Building Official prior to starting any site work;
  4. No site preparation work, including, but not limited to, grading, tree removal, on-site storage of materials and excavation work, may commence until the erosion control bond has been posted; erosion and sedimentation control measures have been installed and inspected; and a preconstruction meeting has been held with the site contractor, ZEO, or Wetlands Agency, Commission's Engineer, or their designees;
  5. The developer shall be responsible for erosion and sedimentation control in accordance with the approved plan; failure to adhere to the plans, or create any discharge of materials, shall be considered a violation. Remedial action may include the calling of the Erosion and Sedimentation Control Bond. No bond shall be released until any Erosion and Sedimentation Control Plan violations have been remediated;
  6. All necessary approvals and permits must be obtained from the Water Pollution Control Authority including the execution of a signed Sanitary Sewer Construction Agreement prior to the commencement of any site activities or issuance of any building permits.
  7. All necessary approvals and permits must be obtained from the Farmington Valley Health District/ CT Water Company;
  8. All necessary approvals and permits must be obtained from the Department of Energy & Environmental Protection before any construction activities may commence under this approval;
  9. All necessary approvals and permits must be obtained from the Department of Transportation, including but not limited to District 4 Encroachment review and Office of the State Traffic Administration Major Traffic Generator AD or Certificate, before any construction activities may commence under this approval.
  10. Building Permits (Zoning Permits to commence construction) may be issued only if stipulations # 1 - #9 are met.
  11. All work in connection with this site plan shall be completed within five years after the approval of the plan, or January 23, 2023;
  12. All work in connection with an approved site plan shall be completed within the time frame established by CGS Section 8-3. Failure to complete all work within such period shall result in automatic expiration of the approval of such site plan unless the Commission has granted an extension of the time to complete work in connection with such site plan.
  13. The Commission may grant one (1) or more extensions of the time to complete all or part of the work in connection with a site plan for good cause, upon written request from the applicant, provided the total extension or extensions shall not violate CGS Section 8-3, and upon on a determination of the adequacy of any bond.
  14. The Commission may withhold approval of any or all extensions if the applicant fails to provide adequate evidence that work is able to begin within an extended time period. Evidence includes but is not limited to the acquisition of any or all required government approvals and commitments for project financing.

15. Dumpsters shall be provided on-site during construction;
16. All existing refuse and debris shall be removed from the site;
17. There shall be no on-site burial of building materials or debris, and a statement to this effect shall be submitted to the ZEO prior to the release of bonds;
18. Any Town streets, roads, sidewalks, curbs or other public components damaged due to construction activities are to be repaired or replaced, if required in the opinion of the Commission's Engineer, Director of Public Works or their designee;
19. All site improvements shall be completed prior to release of bonds;
20. Complete improvement location survey (as-built) plans are to be submitted to the Town in accordance with Section 9.8.C.8.
21. The appropriate professional licensed by the State of Connecticut shall certify that all site development work and auxiliary facilities, sewer, parking areas, landscaping and plantings have been installed in accordance with the approved site plan prior to the issuance of Certificate of Occupancy or a certified bond posted with the Town of Canton in lieu thereof;
22. Final release of bonds or subsequent reductions shall require the approval of the Commission;
23. All necessary operation and maintenance of stormwater retention/ detention basins to be the responsibility of the property owner.
24. All required and approved landscaping shall be neatly maintained and dead vegetation replaced as soon as weather permits in accordance with the approved plans;
25. Litter, refuse, and debris generated from the site, or generated from the site and found in surrounding areas, shall be quickly removed;
26. The site shall be reasonably maintained in good order by the property owner and shall be inspected weekly for trash and surface debris to prevent refuse and pollution.

This approval is binding upon the applicant / developer, heirs, assigns, and grantees. This approval constitutes a contractual agreement between the Town of Canton and the applicant, heirs, assigns and grantees.

**SECONDED BY:** Mr. Pane.

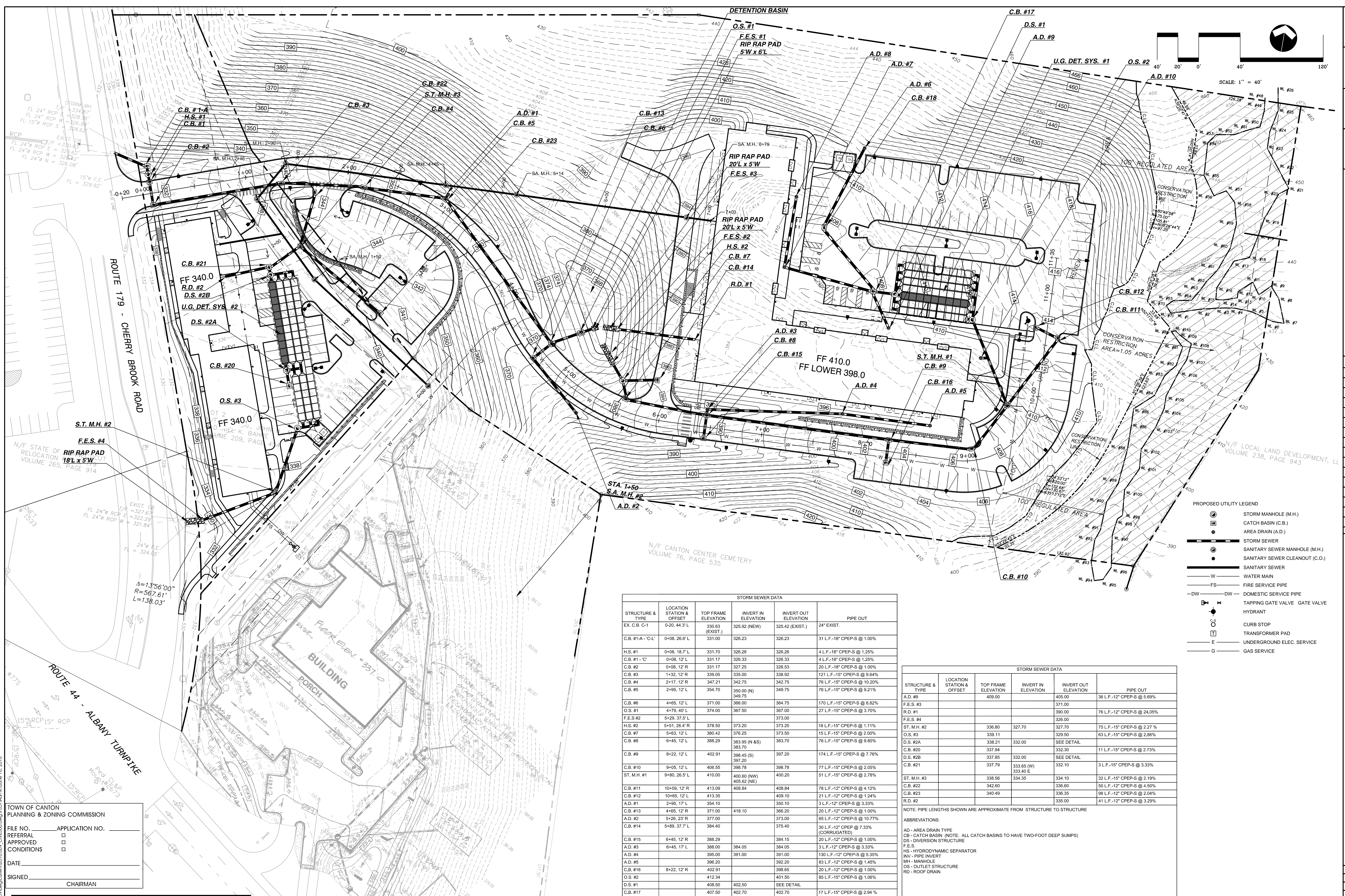
**VOTE:** Passed unanimously.

The Notice of Decision will appear in the Valley Press on Thursday, February 1, 2018. Should you have any questions, please feel free to contact this office at 860-693-7891.

Sincerely,

Neil Pade, AICP, Director of Planning and Community Development

CC: Mr. Jerry Waters, Building Official  
Ms. Emily Anyzeski, Assistant Town Planner  
Mr. Roger Ignazio, WPCF Superintendent  
KWK Canton, LLC, Owners  
Ms. Kerri Kazlauskas, Assessment Technician



**LADA, P.C.**  
Land Planners  
104 West Street  
Granby, CT 06033  
Tel: (860) 653-4332  
Fax: (860) 653-4332  
Cell: (860) 559-1902  
clarkengr@gmail.com

**CLARK ENGINEERING**  
CIVIL ENGINEERING  
P.O. Box 419  
Granby, CT 06033-0419  
Tel: (860) 653-4332  
Cell: (860) 559-1902  
clarkengr@gmail.com

**DENNO LAND SURVEYING & CONSULTING, LLC**  
2 TUNNIS RD STE. 210  
TARFVILLE, CT 06081

**QA-M**  
architect  
Quaternary Arcol Made  
110 South Main Street  
Farmington, CT 06032  
Phone: 860-677-8994

**Owner:** KWK Canton LLC  
PO Box 270691  
West Hartford, CT 06127

**Applicant:** KWK Canton LLC  
PO Box 270691  
West Hartford, CT 06127

Date	Description	No.
6/13/18	MISC. SITE REV.	
12/18/17	COMMENTS	
12/18/17	COMMENTS	

Canton, CT

**STORM SEWER PLAN**  
Harts Corner Area  
West Gateway Mixed Use Development  
3 & 5 Cherry Brook Road

Project: 1998  
Scale: 1/4" = 10'  
Date: 11/09/17  
Drawn by: KCC  
Checked by: KCC  
Drawing No. 5-1

- PROPOSED UTILITY LEGEND**
- STORM MANHOLE (M.H.)
  - CATCH BASIN (C.B.)
  - AREA DRAIN (A.D.)
  - STORM SEWER
  - STANTRY SEWER MANHOLE (M.H.)
  - STANTRY SEWER CLEANOUT (C.O.)
  - SANITARY SEWER
  - W WATER MAIN
  - FS FIRE SERVICE PIPE
  - DW DOMESTIC SERVICE PIPE
  - ⊕ TAPPING GATE VALVE GATE VALVE
  - HYDRANT
  - CURB STOP
  - ⊕ TRANSFORMER PAD
  - UNDERGROUND ELEC. SERVICE
  - G GAS SERVICE

STORM SEWER DATA					
STRUCTURE & TYPE	LOCATION STATION & OFFSET	TOP FRAME ELEVATION	INVERT IN ELEVATION	INVERT OUT ELEVATION	PIPE OUT
EX. C.B. C-1	0+00.44.3' L	330.63 (EXIST.)	325.92 (NEW)	325.42 (EXIST.)	24" EXIST.
C.B. #1-A - 'C-1'	0+08.26.6' L	331.00	326.23	326.23	31 L.F.-18" CPEP-S @ 1.00%
H.S. #1	0+08.18.7' L	331.70	326.28	326.28	4 L.F.-18" CPEP-S @ 1.25%
C.B. #1 - 'C'	0+08.12' L	331.17	326.33	326.33	4 L.F.-18" CPEP-S @ 1.25%
C.B. #2	0+08.12' R	331.17	327.25	328.53	20 L.F.-18" CPEP-S @ 1.00%
C.B. #3	1+32.12' R	339.05	335.00	338.92	121 L.F.-15" CPEP-S @ 9.64%
C.B. #4	2+17.12' R	347.21	342.75	342.75	76 L.F.-15" CPEP-S @ 10.20%
C.B. #5	2+95.12' L	354.70	350.00 (N)	349.75	76 L.F.-15" CPEP-S @ 9.21%
C.B. #6	4+65.12' L	371.00	366.00	364.75	170 L.F.-15" CPEP-S @ 8.82%
O.S. #1	4+79.40' L	374.00	367.50	367.00	27 L.F.-15" CPEP-S @ 3.70%
F.E.S. #2	5+29.37.5' L		373.00		
H.S. #2	5+51.26.4' R	378.50	373.20	373.20	18 L.F.-15" CPEP-S @ 1.11%
C.B. #7	5+63.12' L	380.42	376.25	373.50	15 L.F.-15" CPEP-S @ 2.00%
C.B. #8	6+45.12' L	388.29	383.95 (N & S)	383.70	76 L.F.-15" CPEP-S @ 9.80%
C.B. #9	8+22.12' L	402.91	398.45 (S)	397.20	174 L.F.-15" CPEP-S @ 7.76%
C.B. #10	9+05.12' L	406.55	398.78	398.78	77 L.F.-15" CPEP-S @ 2.05%
ST. M.H. #1	9+80.26.5' L	410.00	400.60 (NN)	400.20	51 L.F.-15" CPEP-S @ 2.78%
C.B. #11	10+59.12' R	413.09	408.84	408.84	78 L.F.-12" CPEP-S @ 4.12%
C.B. #12	10+65.12' L	413.35	409.10	409.10	21 L.F.-12" CPEP-S @ 1.24%
A.D. #1	2+95.17' L	354.10	350.10	350.10	3 L.F.-12" CPEP-S @ 3.33%
C.B. #13	4+65.12' R	371.00	418.10	366.20	20 L.F.-12" CPEP-S @ 1.00%
A.D. #2	5+26.23' R	377.00	373.00	373.00	65 L.F.-12" CPEP-S @ 10.77%
C.B. #14	5+89.37.7' L	384.40	375.40	375.40	30 L.F.-12" CPEP @ 7.33% (CORRUGATED)
C.B. #15	6+45.12' R	388.29	384.15	384.15	20 L.F.-12" CPEP-S @ 1.00%
A.D. #3	6+45.17' L	388.00	384.05	384.05	31 L.F.-12" CPEP-S @ 3.33%
A.D. #4		385.00	391.00	391.00	130 L.F.-12" CPEP-S @ 5.35%
A.D. #5		398.20	392.20	392.20	83 L.F.-12" CPEP-S @ 1.45%
C.B. #16	8+22.12' R	402.91	398.65	398.65	20 L.F.-12" CPEP-S @ 1.00%
O.S. #2		412.34	401.50	401.50	85 L.F.-15" CPEP-S @ 1.06%
D.S. #1		408.50	402.50	SEE DETAIL	
C.B. #17		407.50	402.70	402.70	17 L.F.-15" CPEP-S @ 2.94%
C.B. #18		407.50	403.95	403.45	75 L.F.-15" CPEP-S @ 1.00%
A.D. #6		410.10	406.10	406.10	82 L.F.-12" CPEP-S @ 2.62%
A.D. #7		409.00	404.30	404.30	87 L.F.-12" CPEP-S @ 1.55%
A.D. #8		409.00	405.00	405.00	67 L.F.-12" CPEP-S @ 1.04%

STORM SEWER DATA					
STRUCTURE & TYPE	LOCATION STATION & OFFSET	TOP FRAME ELEVATION	INVERT IN ELEVATION	INVERT OUT ELEVATION	PIPE OUT
A.D. #9		409.00	405.00	405.00	36 L.F.-12" CPEP-S @ 5.69%
F.E.S. #3			371.00	371.00	
R.D. #1			390.00	390.00	76 L.F.-12" CPEP-S @ 24.05%
F.E.S. #4			326.00	326.00	
ST. M.H. #2		336.80	327.70	327.70	75 L.F.-15" CPEP-S @ 2.27%
O.S. #3		339.11	329.50	329.50	63 L.F.-15" CPEP-S @ 2.86%
D.S. #2A		338.21	332.00	SEE DETAIL	
C.B. #20		337.94	332.30	332.30	11 L.F.-15" CPEP-S @ 2.73%
D.S. #2B		337.85	332.00	SEE DETAIL	
C.B. #21		337.79	333.65 (W)	332.10	31 L.F.-15" CPEP-S @ 3.33%
ST. M.H. #3		338.56	334.35	334.10	32 L.F.-15" CPEP-S @ 2.19%
C.B. #22		342.60	336.60	336.60	50 L.F.-12" CPEP-S @ 4.50%
C.B. #23		340.49	336.35	336.35	98 L.F.-12" CPEP-S @ 2.04%
R.D. #2			335.00	335.00	41 L.F.-12" CPEP-S @ 3.29%

NOTE: PIPE LENGTHS SHOWN ARE APPROXIMATE FROM STRUCTURE TO STRUCTURE

ABBREVIATIONS:  
 AD - AREA DRAIN TYPE  
 CB - CATCH BASIN (NOTE: ALL CATCH BASINS TO HAVE TWO-FOOT DEEP SUMPS)  
 DS - DIVERSION STRUCTURE  
 F.E.S. - HYDRODYNAMIC SEPARATOR  
 INV - PIPE INVERT  
 MH - MANHOLE  
 OS - OUTLET STRUCTURE  
 RD - ROOF DRAIN

TOWN OF CANTON  
PLANNING & ZONING COMMISSION

FILE NO. \_\_\_\_\_ APPLICATION NO. \_\_\_\_\_

REFERRAL

APPROVED

CONDITIONS

DATE \_\_\_\_\_

SIGNED \_\_\_\_\_ CHAIRMAN

**PRIOR TO START OF CONSTRUCTION  
CALL 1-800-922-4455 BEFORE YOU DIG!**

C:\DAD\2016\2016-0009\dwg\plan\2016-0009\_Civil\000.dwg PLOTDATE: 11/18/17 11:18:17 AM







# TOWN OF CANTON LAND USE OFFICE

4 Market Street, Collinsville, Connecticut 06022

ZEO Report, September 16, 2020  
Permits Granted since August 19, 2020

#	Street	Permit	Dated Issued	
75	Andrew Drive	ZONPERM	8/21/20	Zoning permit for deck extension
15	Bel Aire Lane	ZONPERM	8/21/20	Zoning permit for deck
24	Atwater Road	ZONPERM	8/25/20	Zoning permit for detached garage
121	Atwater Road	ZONPERM	8/27/20	Zoning permit for in-ground pool
74	Cherry Brook Road	ZONPERM	8/31/20	Zoning permit for two porches
110	Albany Turnpike	MSPM	9/2/20	Minor site plan modification for outdoor patio improvements
39	High Street	ZONPERM	9/3/20	Zoning permit for accessory structure
7	Uplands Drive	ZONPERM	9/14/20	Zoning permit for in-ground pool
67	Dyer Avenue	ZONPERM	9/14/20	Zoning permit for addition
40	Pheasant Hill Road	ZONPERM	9/15/20	Zoning permit for in-ground pool
136	Torrington Avenue	ZONPERM	9/15/20	Zoning permit for detached garage and site improvements

SFH – Single Family Home

ZONPERM – Zoning Permit

FBC1 – Form Based Code Type 1 App

SIGN – Sign

LIQUOR – Liquor

MSPM – Minor Site Plan Modification

SP – Special Permit

CERTCOM – Certificate of Compliance

## Inspections Since August 19, 2020

*\*\* Part of regular inspection route*

8/20/2020

- 101/107 Albany\*\* Ongoing Construction
- 70 Gracey – Wetlands Consult
- 43 Garrett\*\* Ongoing Construction
- Wind Mill Lane\*\* Ongoing Construction
- 550 Cherry Brook - Enforcement

- Wind Mill Lane\*\* Ongoing Construction
- 81 W Simsbury Road – Zoning Compliance
- 550 Cherry Brook - Zoning Enforcement

9/2/2020

- 101/107 Albany\*\* Ongoing Construction
- 43 Garrett\*\* Ongoing Construction
- Wind Mill Lane\*\* Ongoing Construction

8/25/2020

- 77 Indian Hill Road – Zoning Enforcement

9/10/2020

- 101/107 Albany\*\* - Pre-Final Inspection

8/27/2020

- 101/107 Albany\*\* Ongoing Construction
- 43 Garrett\*\* Ongoing Construction

## ZEO Action since August 19, 2020

Phone Calls – 41

Counter - 22

Emails – 148

## Building Permits Signed since August 19, 2020