

<b><u>AGENDA PACKET</u></b>		
<b><u>NOVEMBER 20, 2018 MEETING</u></b>		
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**TOWN OF LEWISBORO**  
**Westchester County, New York**



**Planning Board**  
**79 Bouton Road**  
**South Salem, New York 10590**

**Tel: (914) 763-5592**  
**Fax: (914) 875-9148**  
**Email: [planning@lewisborogov.com](mailto:planning@lewisborogov.com)**

**AGENDA**

**Tuesday, November 20, 2018**

**79 Bouton Road, South Salem**  
**Lewisboro Justice Court**

Note: Meeting will start at 7:30 p.m. and end at or before 11:00 p.m.

**I. PUBLIC HEARINGS**

**Cal #08-17PB, 16-17SW**

**Oakridge Commons, 450 Oakridge Common, South Salem, NY 10590, Sheet 49D, Block 9829, Lot 10 (Smith Ridge Associates, owner of record) - Application for Site Plan Review for installation of a car wash.**

**Cal #06-18PB**

**King Lumber, Meadow Street, Goldens Bridge, NY 10526, Sheet 4A, Block 11111, Lot 2, Sheet 4A, Block 11113, Lots 7 & 9, Sheet 4A, Block 12035, Lot 5 (King Lumber Realty and King Meadow Street Realty – owners of record) - Application for Site Plan Review for lumber yard and U-Haul rental facility.**

**II. DISCUSSIONS OF TOWN BOARD PROPOSALS TO AMEND LEWISBORO TOWN CODE**

**Town Board to amend Sections 220-2, 220-23(A), 220-32(B) and to enact Section 220-43.6 - in order to allow accessory winery as a Special Use in residential districts.**

**Town Board to amend Section 220-2 to enact Section 220-25.1 - in order to allow “Inclusionary Affirmatively Furthering Fair Housing (AFFH) Dwelling Units.”**

**III. SITE DEVELOPMENT PLAN**

**Cal #10-15 PB, Cal #20-17WP, Cal #5-17SW**

**Wilder Balter Partners, NY State Route 22, Goldens Bridge, NY 10526, Sheet 5, Block 10776, Lots 19, 20 & 21 (Property Group Partners, LLC, owner of record) – Application for a 42 unit MF development on a ±35.4 acre parcel.**

**IV. EXTENSION OF TIME REQUEST**

**Cal # 1-14PB, Cal# 7-14WP, Cal# 1-14SW**

**Pinheiro Subdivision, 930 Old Post Road (Route 35), Cross River, NY, Sheet 20, Block 10801, Lot 13 – Applications for Preliminary Subdivision Plat Approval, Final Subdivision Plat Approval, Wetland Activity Permit Approval and Stormwater Permit Approval**

**V. CORRESPONDENCE**


Correspondence from JMC Site Development Consultants, on behalf of Mercedes-Benz of Goldens Bridge, for retention of an outside traffic consultant.

**VI. MINUTES OF January 16, 2018; MINUTES OF February 27, 2018; MINUTES OF March 20, 2018; MINUTES OF March 27, 2018; MINUTES OF April 17, 2018, MINUTES OF June 19, 2018, MINUTES OF July 21, 2018 MINUTES OF August 14, 2018; MINUTES OF August 21, 2018; MINUTES OF September 11, 2018 and MINUTES OF October 16, 2018.**

## MEMORANDUM

TO: Chairman Jerome Kerner, AIA and  
Members of Lewisboro Planning Board

CC: Ciorsdan Conran  
Judson Siebert, Esq.  
Joseph Angiello

FROM: Jan K. Johannessen, AICP   
Joseph M. Cermele, P.E., CFM  
Town Consulting Professionals

DATE: November 14, 2018

RE: Oakridge Commons Shopping Center – Car Wash  
450 Oakridge Commons  
Sheet 49, Block 9829, Lot 10

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### PROJECT DESCRIPTION

The applicant is proposing improvements to the Oakridge Commons Shopping Center to occur in four (4) phases; Phases 1, 2 and 4 have been previously approved by the Planning Board. This memorandum relates to Phase 3 only, which includes the construction of a 17.3' x 36' car wash to adjoin the existing gas station building, along with an expansion and reconfiguration of the parking lot and related signage.

### SEQRA

The proposed action is an Unlisted Action under the State Environmental Quality Review Act (SEQRA) and a coordinated review is not required. The Planning Board issued a Negative Declaration on February 27, 2018 in connection with Phases 3 and 4.

**PHASE 3: CAR WASH**

1. As previously stated, it is our opinion that the applicant has adequately demonstrated that there is adequate water/sewer capacity to serve the proposed use; this has been confirmed by the Westchester County Department of Health (WCDH), the applicant's Design Engineer, and VRI Environmental Services, the system operator.
2. During the public hearing, the applicant was asked to evaluate any impacts to the sewer plant from the effluent that would be discharged from the proposed car wash. This includes the plant's ability to process any chemicals that may be introduced from detergents and other cleaning products, impact on plant equipment and operation of the system, and impact on water quality at the sewer plants' discharge location. It does not appear that the most recent submission addresses this concern.
3. This office agrees with the sight distance improvements recommended by Tim Miller Associates, Inc., which have been incorporated into the site plan.
4. During the public hearing, the Planning Board requested that the site plan for the car wash be referred to the Vista Fire Department; the Planning Board Secretary should coordinate this referral.

In order to expedite the review of subsequent submissions, the applicant should provide annotated responses to each of the comments outlined herein.

**PLANS REVIEWED, PREPARED BY CROSS RIVER ARCHITECTS, LLC, DATED JUNE 27, 2018:**

- Site Plan Phase 3 – Car Wash (SP/1C)
- Enlarged Car Wash Site & Landscape Plans (SP/2C)
- Signage (SP/3C)
- Site Details (SP/4C)
- Car Wash Lighting Plan and Details (SP/5C)
- Car Wash Existing Floor Plan and Elevations (C/1), dated February 3, 2018
- Car Wash Proposed Floor Plan (C/2), dated February 3, 2018
- Car Wash Proposed Floor Plan and Elevations (C/3), dated February 3, 2018

**PLANS REVIEWED, PREPARED BY REDNISS & MEAD, DATED JUNE 27, 2018:**

- Site Development Plan (SE-1C)
- Notes and Details (SE-2C)
- Details (SE-3C)

Chairman Jerome Kerner, AIA  
November 14, 2018  
Page 3 of 3

**DOCUMENTS REVIEWED:**

- Letter, prepared by Cross River Architects, LLC, dated October 31, 2018
- Sunday Parking for Grace Church, prepared by Tim Miller Associates, Inc., dated October 30, 2018
- Car Wash Sight Distance, prepared by Tim Miller Associates, Inc., dated October 31, 2018
- 2015-2018 Oakridge Water and Sewer Daily Volumes, prepared by Redniss & Mead, dated October 31, 2018
- NYS Department of Health Water System Operation Report, dated January 2018
- Map and Plan 202(b) Report, prepared by Delaware Engineering, P.C., dated August 2018
- Annual Drinking Water Quality Report for 2017

JKJ/JMC/dc

T:\Lewisboro\Correspondence\2018-11-14\_LWPB-OakridgeCarWash&DayCare-Review-Memo.docx

**TO:** Town of Lewisboro Planning Board

**FROM:** Lewisboro Conservation Advisory Council

**SUBJECT:** Oakridge Commons,  
450 Oakridge Common  
South Salem, NY 10290

**DATE:** November 8, 2018

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The Conservation Advisory Council (CAC) reviewed the applicant's submission documents for building a car wash.

One of the missions of the CAC is to raise issues when wetlands or water assets in the town may be threatened. The presentation for the Oakridge Commons Car wash at the October 16 Planning Board public hearing did not adequately address the CAC's two main concerns from previous memos. First, the efficiency of the car wash's filtration system was not addressed. At the October 16 Planning Board meeting, it was stated that 80 percent of the water would be reused with twenty percent leaving the system. The filtration system was described as three holding tanks and the resubmission describes the tank cleaning process. However, the presentation did not include any specification of the effectiveness of the filtration system for removing chemicals employed in the washing process. The effectiveness has two impacts on the water. The first impact is the amount of chemicals in the non-recycled water (20 %) that escapes the system into the Oakridge water environment. The second is the increased concentration of chemicals in the eighty percent that is recycled. The CAC feels that both these impacts are important for understanding the effect of the car wash on Oakridge's water quality.

Second, the CAC has concerns about the outflow capacity calculations. At the October 16 Planning Board meeting, there was no discussion of an outflow calculation that would include both the day care center and the car wash. The previous calculation only addressed the day care center. The following excerpt from the January CAC minutes summarizes the CAC's concern: *"The document titled 'Site Engineering Report' prepared by Redniss & Mead, Inc only addresses the waste water management for the addition of the day care center and does not address the impact of adding a car wash. Even so, this report indicates that with the addition of the day care center, the waste water system would be in the 80% + range of capacity using average daily out flow. If the calculation used maximum average out flow for the calculation, the waste water system would be over 90% of capacity, again without the addition of the car wash. The CAC would like the site engineering to include the impact of the car wash and use maximum average sewage out flow and the water demand."* The CAC would like to see this calculation presented at the continuation of the public hearing at the November Planning Board meeting.

## AFFIDAVIT OF SIGN POSTING

In the matter of the application of the OAKRIDGE CARWASH, Oakridge Commons, Lewisboro, NY by Smith Ridge Associates, LLC before the Town of Lewisboro Planning Board, I, Robert J Eberts of Cross River Architects, LLC, being duly sworn, says: I am over 18 years of age and reside at 110 Pinesbridge Rd. Katonah, NY. I posted the Planning Board Meeting Notifications Sign at Oakridge Commons on Thursday, October 4, 2018 in accordance with the sign posting requirements set forth in Town of Lewisboro Zoning Ordinance.

Signed



OCT 12, 2018  
Date





*Distributed at  
10/16/18 PB mtg.  
by Phil Pine & Bob  
Ebert*

## OAKRIDGE CARWASH

### ANTICIPATED CARWASH WATER USE CALCULATIONS

(BASED ON 20 CAR WASHES PER DAY)

February 7, 2018

SERVICE LEVEL	PHASE	RECLAIM WATER(gal)	FRESH WATER (gal)	% OF WASHES	WASHES PER DAY
1	PRESOAK (1 PASS)		2.1		
	HI PRESSURE RINSE	32			
	R.O. RINSE (2 PASS)		7.5		
	CLEAR COAT (2 PASS)		4.2		
	DRY				
	<b>TOTAL</b>	<b>32</b>	<b>13.8</b>	<b>30%</b>	<b>6</b>
2	PRESOAK (2 PASS)		4.2		
	HI PRESSURE RINSE	32			
	R.O. RINSE (2 PASS)		7.5		
	UNDERCARRIAGE	3.6			
	TIRE	33.8			
	CLEAR COAT (2 PASS)		4.2		
	DRY				
	<b>TOTAL</b>	<b>69.4</b>	<b>15.9</b>	<b>10%</b>	<b>2</b>
3	PRESOAK (2 PASS)		4.2		
	HI PRESSURE RINSE	32			
	R.O. RINSE (2 PASS)		7.5		
	UNDERCARRIAGE	3.6			
	TIRE	33.8			
	TRI-FOAM		0.8		
	HI RINSE AFTER TRI-FOAM	28.9			
	CLEAR COAT (2 PASS)		4.2		
	DRY				
	<b>TOTAL</b>	<b>98.3</b>	<b>16.7</b>	<b>10%</b>	<b>2</b>
4	PRESOAK (2 PASS)		4.2		
	HI PRESSURE RINSE	32			
	R.O. RINSE (2 PASS)		7.5		
	UNDERCARRIAGE	3.6			
	TIRE	33.8			
	TRI-FOAM		0.8		
	HI RINSE AFTER TRI-FOAM	28.9			
	CLEAR COAT (2 PASS)		4.2		
	RAINSHEILD		3.2		
	DRY				
	<b>TOTAL</b>	<b>98.3</b>	<b>19.9</b>	<b>50%</b>	<b>10</b>
<b>TOTAL WATER USE PER</b>		<b>1510.4</b>	<b>347</b>	<b>100%</b>	<b>20</b>
TOTAL WATER USE		1857.4			
<b>% RECLAIMED WATER</b>		<b>82.90%</b>			

Average Water Consumption (gallons per vehicle) by Car Wash Type			
Car Washing Type	International Car Wash Association <sup>1</sup>	Mid-Atlantic Carwash Association <sup>2</sup>	WaterWiser <sup>3</sup>
Home wash (with automatic shut-off nozzle)	--	--	30
Home wash <sup>4</sup> (without automatic shutoff nozzle)	--	--	100
Self Serve	15	15	--
In-Bay	50-60	35	65-100
Conveyor	66-85	60	30-50



## Analysis of Water & Sewer Capacity for Oakridge Shopping Center Carwash

<b>GIVEN:</b> NYSDEC Water Taking Permit for Oakridge Water District	80,000 gpd
Existing SPDES Permit discharge from the Oakridge Sewer Treatment System	80,000 gpd

### Adequacy of Muni Water Supply from Redniss Engineering Study 2/7/18

Average water usage per 8/22/16 study by VRI Environmental Services. 49,750 gpd

Reserved for Laurel Ridge Development based on Lewisboro Planning Bd Approval 16,500 gpd

Reserved for Oakridge Daycare based on Lewisboro Planning Bd Approval 1,300 gpd

Estimated Water Usage by Carwash per Redniss Engineering Study 2/7/18  
Assume 20 car washes per day 350 gpd

Total Estimated Water Usage 67900 gpd

Remaining Capacity 12,100 gpd

*NOTE: The excess or available supply volume is prior to the addition of Well #3 to the system*

### Adequacy of Muni Water Supply 10/12/18

Average water usage July-Sept 2018 (67% LR Townhomes Occupied) 53,758 gpd  
From Oakridge Water Dept Water System Operations Reports for July, August and September 2018

Reserved for Laurel Ridge Development based on Lewisboro Planning Bd Approval  
15 Remaining Townhomes x 450 gpd 6,750 gpd

Reserved for Oakridge Daycare based on Lewisboro Planning Bd Approval 1,300 gpd

Estimated Water Usage by Car Wash per Redniss Engineering Study 2/7/18  
Assume 20 car washes per day 350 gpd

Total Estimated Water Usage 62,058 gpd

Remaining Capacity 17,942 gpd

*NOTE: The excess or available supply volume is prior to the addition of Well #3 to the system*

**WATER USAGE 9% LESS THAN ANTICIPATED SAVING 5,842 gpd**

Public Water System Name: Oakridge Water District Public Water System ID: NY 5918395

County: Westchester Town, Village or City: Lewisboro Source Water Type(s): ☐ Surface ☒ Ground ☐ SHUD ☐ Purchase with subsequent chlorination ☐ Purchase w/out subsequent chlorination ☐ No treatment required

Reporting Month/Year: July-2018 Date Report Submitted: 8/7/2018  
MM/YYYY MM/YYYY

☐ log treatment required

			CHLORINATION			ULTRAVIOLET RADIATION/OTHER TREATMENTS						
Date	Source(s) in use	Treated water volume (GALLONS/DAY)	Gaseous		Liquid	Free Chlorine residual at entry point (mg/l)	UV Unit Active (YES/NO)	Intensity meter > 70%	Quartz sleeve cleaned (YES/NO)	Sodium Hydroxide	HMKMN04	PCH-180
			Cylinder weight (LBS.)	Chlorine used/Day (LBS.)	Hypochlorite added to crock (GALLONS OR QUARTS)							
1	Wells 2,4,5,6,7	41,000	N/A	N/A		0.7	N/A	N/A	N/A			
2	Wells 2,4,5,6,7	59,000	N/A	N/A		0.8	N/A	N/A	N/A			2
3	Wells 2,4,5,6,7	69,000	N/A	N/A		0.8	N/A	N/A	N/A			
4	Wells 2,4,5,6,7	50,000	N/A	N/A		0.8	N/A	N/A	N/A			
5	Wells 2,4,5,6,7	61,000	N/A	N/A	3	0.7	N/A	N/A	N/A		5	5
6	Wells 2,4,5,6,7	66,000	N/A	N/A		1.1	N/A	N/A	N/A			
7	Wells 2,4,5,6,7	51,000	N/A	N/A		0.8	N/A	N/A	N/A			
8	Wells 2,4,5,6,7	71,000	N/A	N/A		0.7	N/A	N/A	N/A			
9	Wells 2,4,5,6,7	62,000	N/A	N/A	3	0.7	N/A	N/A	N/A			7
10	Wells 2,4,5,6,7	74,000	N/A	N/A		1.4	N/A	N/A	N/A	30		
11	Wells 2,4,5,6,7	77,000	N/A	N/A		1.2	N/A	N/A	N/A		11	
12	Wells 2,4,5,6,7	50,000	N/A	N/A		1.3	N/A	N/A	N/A			
13	Wells 2,4,5,6,7	89,000	N/A	N/A		0.7	N/A	N/A	N/A			
14	Wells 2,4,5,6,7	54,000	N/A	N/A		0.8	N/A	N/A	N/A			
15	Wells 2,4,5,6,7	46,000	N/A	N/A		0.7	N/A	N/A	N/A			
16	Wells 2,4,5,6,7	60,000	N/A	N/A	5	0.8	N/A	N/A	N/A		3	
17	Wells 2,4,5,6,7	46,000	N/A	N/A		1.3	N/A	N/A	N/A			
18	Wells 2,4,5,6,7	53,000	N/A	N/A		0.9	N/A	N/A	N/A			
19	Wells 2,4,5,6,7	49,000	N/A	N/A		0.8	N/A	N/A	N/A			
20	Wells 2,4,5,6,7	61,000	N/A	N/A		1.3	N/A	N/A	N/A			
21	Wells 2,4,5,6,7	67,000	N/A	N/A		1.8	N/A	N/A	N/A			
22	Wells 2,4,5,6,7	43,000	N/A	N/A		1.6	N/A	N/A	N/A			
23	Wells 2,4,5,6,7	36,000	N/A	N/A		0.8	N/A	N/A	N/A		4	
24	Wells 2,4,5,6,7	46,000	N/A	N/A	10	0.8	N/A	N/A	N/A			
25	Wells 2,4,5,6,7	44,000	N/A	N/A		0.7	N/A	N/A	N/A	51		15
26	Wells 2,4,5,6,7	51,000	N/A	N/A		0.8	N/A	N/A	N/A			
27	Wells 2,4,5,6,7	49,000	N/A	N/A		0.8	N/A	N/A	N/A			
28	Wells 2,4,5,6,7	45,000	N/A	N/A		0.8	N/A	N/A	N/A		5	
29	Wells 2,4,5,6,7	48,000	N/A	N/A		0.8	N/A	N/A	N/A			
30	Wells 2,4,5,6,7	53,000	N/A	N/A		0.8	N/A	N/A	N/A			
31	2,4,5,6,7	53,000	N/A	N/A		0.7	N/A	NA	NA			
Total		1,724,000			21					81		
AVG.		55,613			5.3	0.9				40.5	5.6	7.25

Chlorine Mix Ratio = 55.0 quarts/Gallons of 12.5 % chlorine added to 0 gallons of water in crock

Date UV quartz sleeve last cleaned: N/A Date UV lamp replaced: N/A  
MM/DD/YY MM/DD/YY

Alarm activation: ☒ No ☐ Yes If "Yes," date of activation: N/A Required Treatment Residual Level: 0.7 mg/l  
MM/DD/YY

Reported by: Matt Kroog Title: Regional Manager NYSDOH Operator Certification Number: NY0034619

Signature: [Signature] Date: 8/7/2018 Operator Grade Level: IIA,C,D  
MM/YYYY

**NEW YORK STATE DEPARTMENT OF HEALTH**  
Bureau of Water Supply Protection

**Water System Operation Report**  
For Systems that Treat with Chlorine and/or Ultraviolet Radiation

Public Water System Name:

Oakridge Water District

Public Water System ID: NY

5918395

County:

Westchester

Town, Village or City:

Lewisboro

Source Water Type(s):

- ☐ Surface  
☐ Ground  
☐ GWD  
☐ Purchase with subsequent chlorination  
☐ Purchase w/out subsequent chlorination  
☐ Is log treatment required

Reporting Month/Year:

August-2018  
MM/YYYY

Date Report Submitted:

9/8/2018  
MM/YYYY

Date	Source(s) in use	Treated water volume (GALLONS/DAY)	CHLORINATION			Free Chlorine residual at entry point (mg/l)	UV Unit Active (YES/NO)	ULTRAVIOLET RADIATION/OTHER TREATMENTS				
			Gaseous	Liquid				Intensity meter > 70%	Quartz sleeve cleaned (YES/NO)	Sodium Hydroxide	HMKMN04	PCH-180
1	Wells 2,4,5,6,7	60,000	N/A	N/A		0.8	N/A	N/A	N/A			
2	Wells 2,4,5,6,7	47,000	N/A	N/A	10	0.8	N/A	N/A	N/A	54		
3	Wells 2,4,5,6,7	66,000	N/A	N/A		1.7	N/A	N/A	N/A			
4	Wells 2,4,5,6,7	34,000	N/A	N/A		1.8	N/A	N/A	N/A			
5	Wells 2,4,5,6,7	48,000	N/A	N/A		1.1	N/A	N/A	N/A			
6	Wells 2,4,5,6,7	56,000	N/A	N/A		1.2	N/A	N/A	N/A			
7	Wells 2,4,5,6,7	48,000	N/A	N/A		0.7	N/A	N/A	N/A		4	
8	Wells 2,4,5,6,7	63,000	N/A	N/A		0.8	N/A	N/A	N/A			
9	Wells 2,4,5,6,7	59,000	N/A	N/A		0.9	N/A	N/A	N/A			
10	Wells 2,4,5,6,7	43,000	N/A	N/A		0.7	N/A	N/A	N/A			
11	Wells 2,4,5,6,7	53,000	N/A	N/A		0.9	N/A	N/A	N/A		4	
12	Wells 2,4,5,6,7	52,000	N/A	N/A		0.7	N/A	N/A	N/A			
13	Wells 2,4,5,6,7	49,000	N/A	N/A		0.8	N/A	N/A	N/A			
14	Wells 2,4,5,6,7	46,000	N/A	N/A	4	0.8	N/A	N/A	N/A		5	
15	Wells 2,4,5,6,7	52,000	N/A	N/A		0.8	N/A	N/A	N/A			
16	Wells 2,4,5,6,7	58,000	N/A	N/A		1.3	N/A	N/A	N/A	55		
17	Wells 2,4,5,6,7	48,000	N/A	N/A		1.7	N/A	N/A	N/A		3	
18	Wells 2,4,5,6,7	59,000	N/A	N/A		1.1	N/A	N/A	N/A			
19	Wells 2,4,5,6,7	78,000	N/A	N/A		0.8	N/A	N/A	N/A			
20	Wells 2,4,5,6,7	62,000	N/A	N/A	2	0.9	N/A	N/A	N/A			
21	Wells 2,4,5,6,7	33,000	N/A	N/A		0.8	N/A	N/A	N/A	56		
22	Wells 2,4,5,6,7	56,000	N/A	N/A		0.9	N/A	N/A	N/A			
23	Wells 2,4,5,6,7	59,000	N/A	N/A		0.7	N/A	N/A	N/A			
24	Wells 2,4,5,6,7	49,000	N/A	N/A	2	0.7	N/A	N/A	N/A			
25	Wells 2,4,5,6,7	44,000	N/A	N/A		0.8	N/A	N/A	N/A			
26	Wells 2,4,5,6,7	52,000	N/A	N/A		0.7	N/A	N/A	N/A			
27	Wells 2,4,5,6,7	71,000	N/A	N/A	3	0.8	N/A	N/A	N/A			
28	Wells 2,4,5,6,7	70,000	N/A	N/A		0.9	N/A	N/A	N/A			
29	Wells 2,4,5,6,7	58,000	N/A	N/A		1.1	N/A	N/A	N/A	55	5	
30	Wells 2,4,5,6,7	54,000	N/A	N/A		0.9	N/A	N/A	N/A			
31	Wells 2,4,5,6,7	53,000	N/A	N/A		0.7	N/A	N/A	N/A			
Total		1,680,000			21							
AVG.		54,194			4.2	0.9				220		
									55.0	4.2		

Chlorine Mix Ratio =

55.0

quarts/gallons of

15

% chlorine added to

0

gallons of water in crock

Date UV quartz sleeve last cleaned:

N/A  
MM/DD/YY

Date UV lamp replaced:

N/A  
MM/DD/YY

Alarm activation:

☒ No

☐ Yes

If "Yes," date of activation:

N/A  
MM/DD/YY

Required Treatment Residual Level:

0.7 mg/l

Reported by:

Matt Kroog

Title:

Regional Manager

NYSDOH Operator

Certification Number:

NY0034619

Signature:

Date:

9/8/2018  
MM/YYYY

Operator Grade Level:

IIA,C,D

**NEW YORK STATE DEPARTMENT OF HEALTH**  
Bureau of Water Supply Protection

**Water System Operation Report**  
For Systems that Treat with Chlorine and/or Ultraviolet Radiation

Public Water System Name: Oakridge Water District Public Water System ID: NY 5918395

County: Westchester Town, Village or City: Lewisboro

Reporting Month/Year: September-2018 Date Report Submitted: 10/4/2018  
MM/YYYY MM/YYYY

Source Water Type(s):  
☐ Surface  
☒ Ground  
☐ Snow  
☐ Purchase with subsequent chlorination  
☐ Purchase w/out subsequent chlorination  
☐ log treatment required

Date	Source(s) in use	Treated water volume (GALLONS/DAY)	CHLORINATION			Free Chlorine residual at entry point (mg/l)	UV Unit Active (YES/NO)	ULTRAVIOLET RADIATION/OTHER TREATMENTS				
			Gaseous	Liquid				Intensity meter > 70%	Quartz sleeve cleaned (YES/NO)	Sodium Hydroxide	HMKMN04	PCH-180
1	Well(s) 4,6,7	54,000	N/A	N/A		0.7	N/A	N/A	N/A			
2	Well(s) 4,6,7	82,000	N/A	N/A		1.0	N/A	N/A	N/A			
3	Well(s) 4,6,7	49,000	N/A	N/A		0.8	N/A	N/A	N/A			
4	Well(s) 4,6,7	53,000	N/A	N/A	2	0.7	N/A	N/A	N/A		7	25
5	Well(s) 4,6,7	48,000	N/A	N/A		0.8	N/A	N/A	N/A			
6	Well(s) 4,6,7	56,000	N/A	N/A		0.8	N/A	N/A	N/A			
7	Well(s) 4,6,7	59,000	N/A	N/A		0.7	N/A	N/A	N/A			
8	Well(s) 4,6,7	27,000	N/A	N/A		0.9	N/A	N/A	N/A			
9	Well(s) 4,6,7	52,000	N/A	N/A		1.0	N/A	N/A	N/A			
10	Well(s) 4,6,7	56,000	N/A	N/A	3	1.0	N/A	N/A	N/A		4	9
11	Well(s) 4,6,7	45,000	N/A	N/A		1.2	N/A	N/A	N/A			
12	Well(s) 4,6,7	39,000	N/A	N/A		0.7	N/A	N/A	N/A	51		13
13	Well(s) 4,6,7	54,000	N/A	N/A		0.8	N/A	N/A	N/A			
14	Well(s) 4,6,7	53,000	N/A	N/A		0.8	N/A	N/A	N/A			
15	Well(s) 4,6,7	65,000	N/A	N/A		0.7	N/A	N/A	N/A			
16	Well(s) 4,6,7	55,000	N/A	N/A		0.8	N/A	N/A	N/A			
17	Well(s) 4,6,7	52,000	N/A	N/A	5	0.7	N/A	N/A	N/A		6	
18	Well(s) 4,6,7	47,000	N/A	N/A		0.9	N/A	N/A	N/A			17
19	Well(s) 4,6,7	62,000	N/A	N/A		0.7	N/A	N/A	N/A			
20	Well(s) 4,6,7	54,000	N/A	N/A		0.7	N/A	N/A	N/A		5	
21	Well(s) 4,6,7	50,000	N/A	N/A		1.4	N/A	N/A	N/A			
22	Well(s) 4,6,7	58,000	N/A	N/A		1.9	N/A	N/A	N/A			
23	Well(s) 4,6,7	41,000	N/A	N/A		0.8	N/A	N/A	N/A			
24	Well(s) 4,6,7	52,000	N/A	N/A		0.9	N/A	N/A	N/A			
25	Well(s) 4,6,7	47,000	N/A	N/A		1.0	N/A	N/A	N/A	50	5	
26	Well(s) 4,6,7	43,000	N/A	N/A		0.7	N/A	N/A	N/A			17
27	Well(s) 4,6,7	49,000	N/A	N/A		0.8	N/A	N/A	N/A			
28	Well(s) 4,6,7	43,000	N/A	N/A		0.9	N/A	N/A	N/A			
29	Well(s) 4,6,7	44,000	N/A	N/A		0.8	N/A	N/A	N/A		5	
30	Well(s) 4,6,7	55,000	N/A	N/A		0.7	N/A	N/A	N/A			
Total		1,544,000			10							
AVG.		51,467			3.3	0.9				101	5.3333333	16.20

Chlorine Mix Ratio = 55.0 quarts/gallons of 15 % chlorine added to 0 gallons of water in crock

Date UV quartz sleeve last cleaned: N/A Date UV lamp replaced: N/A  
MM/DD/YY MM/DD/YY

Alarm activation: ☒ No ☐ Yes If "Yes," date of activation: N/A Required Treatment Residual Level: 0.7 mg/l  
MM/DD/YY

Reported by: Matt Kroog Title: Regional Manager NYSDOH Operator Certification Number: NY0034619  
Signature: [Signature] Date: 10/4/2018 Operator Grade Level: IIA,C,D  
MM/YYYY

## Bob Eberts

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**From:** Schneider, Wayne <wts1@westchestergov.com>  
**Sent:** Monday, October 15, 2018 3:58 PM  
**To:** Bob Eberts; Fernando Dongo; jsmith@lewisborogov.com  
**Subject:** RE: Oakridge Carwash

Gentlemen,

This department received correspondence from Cross River Architects, LLC dated 10/2/18, referencing a Site Engineering report prepared by Redniss & Mead dated 2/7/2018, regarding the water usage for the proposed car wash. Based on projected usage of 347 gallons per day and the letter from VRI Environmental Services indicating adequate water and sewer capacity for the projected usage, this department does not object contingent on the following:

1. A dedicated water meter is installed to monitor water usage for the car wash.
2. Provide this Department with one year of water usage data indicating that the car wash usage does not exceed projected usage.
3. Provide documentation that the existing backflow prevention device is approved by the water supply and this Department, and provide testing records.

Please contact me with any questions or concerns

Wayne Schneider  
Assistant Engineer  
Westchester County Department of Health  
Bureau of Environmental Quality  
25 Moore Ave, Mt Kisco, NY 10549  
Ph: 914-864-7358, Fax: 914-864-7341  
[wts1@westchestergov.com](mailto:wts1@westchestergov.com)

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**From:** Schneider, Wayne  
**Sent:** Friday, July 27, 2018 3:22 PM  
**To:** 'jcermele@kelses.com'  
**Subject:** Oakridge Carwash

Mr. Cermele,

Per our conversation today, the following, at minimum, must be provided to this department:

1. Engineering report including Analysis of water necessary for the operation of the car wash, recycle rate, and waste water produced and details of the treatment system for the waste water prior to discharge.
2. Letter from the owner of the public water supply and sewage facility stating that such facilities are available and adequate with sufficient capacities (and in the case of water supplies, there is also adequate pressure) and the utility is willing and able to serve.
3. Application for Approval of a Backflow Prevention Device(forms and instruction links below)  
[http://health.westchestergov.com/images/stories/pdfs/crossconnecton\\_doh347.pdf](http://health.westchestergov.com/images/stories/pdfs/crossconnecton_doh347.pdf)  
<http://health.westchestergov.com/images/stories/pdfs/BackflowPreventionInstall2017.pdf>

Please contact me with any questions.  
Wayne

Wayne Schneider



Assistant Engineer  
Westchester County Department of Health  
Bureau of Environmental Quality  
25 Moore Ave, Mt Kisco, NY 10549  
Ph: 914-864-7358, Fax: 914-864-7341  
[wt1@westchestergov.com](mailto:wt1@westchestergov.com)

**Kevin E. F. O'Sullivan**  
**234 Lakeside Drive**  
**South Salem, NY 10590**

October 9, 2018

Planning Board  
Town of Lewisboro  
79 Bouton Road  
South Salem, NY 10590

**Attn:** Mr. J. Kerner, Chair

**Re:** Application For Amended  
Site Development Plan  
Cal #8-17 PB

Dear Chairman Kerner:

In connection with the above-cited proposal to erect a car wash on Route 123 in Vista, NY, I would like to present the following objections to the Planning Board for its consideration regarding this issue:

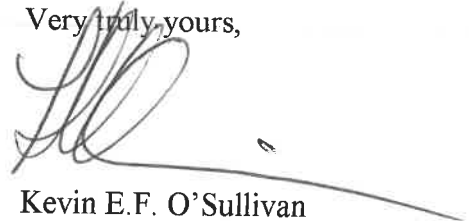
1. **Water Usage** – concern that the proposed car wash will place an additional, unnecessary strain on the water table in the area.
2. **Runoff** – where will the runoff from the car wash go?
3. **Contamination** – what chemicals and residual by-products of the carwash (liquid wax, detergent, Armor-All wipes, etc,) will infiltrate into the ground? How will they be treated and disposed of? Where will they be disposed of?
4. **Traffic Considerations** – The proposed car wash is .1 mile north of the crest of the hill on Route 123. There is already signage designating this as a limited sight area, especially for northbound traffic. Moreover, the entrance of the proposed carwash is less than 300 yards from the south entrance to Oakridge Commons, Oakridge Condos and the Laurel Hill condos. The congestion issues caused by entering and leaving the carwash will only compound the safety issues presented by the commercial establishments in the immediate

area such as Ring's End, public storage and the delicatessen, to say nothing of the Vista firehouse

5. **Space Adequacy** – It is unclear that the space itself is adequate for the proposed enterprise. The proposal makes it difficult to imagine the ability of the facility to handle anything like the necessary volume to male the business viable without backlog overflowing onto Route 123.

For the above reasons, I urge the Planning Board to deny the proposed application. Thank you for the opportunity to be heard.

Very truly yours,

A handwritten signature in dark ink, appearing to read "K.E.F. O'Sullivan", with a long horizontal flourish extending to the right.

Kevin E.F. O'Sullivan



## Ciorsdan Conran

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**From:** hpnathe@optonline.net  
**Sent:** Thursday, October 11, 2018 11:37 AM  
**To:** planning@lewisborogov.com  
**Subject:** Car Wash

Dear Planning Committee,

I write to oppose the proposed carwash on Route 123. I live less than ¼ mile of the proposed site, yet I have not received any formal notification of your proposed hearing.

While the area may be zoned as commercial, Vista is primarily a residential area and I cannot see the need or even the reason to place a commercial car wash in the area.

Oakridge Condominiums has enough problems with our water and sewer system to impose a new load on this facility.

Route 123 has become a mini-highway and the last thing we need is more traffic potentially backing up onto the road.

The site is directly across from a Firehouse and emergency operations could be negatively impacted.

A car wash could change the character of the area. It is bad enough that you have allowed a storage facility to be built in this scenic area.

Bottom line, there are car washes in properly commercially designated areas within a 15 minute drive and there is absolutely no need for one in our area.

Thank you,

Hilary P Nathe  
276 Maplewood Drive  
South Salem, NY 10590

**Paul R. Martin  
122 Stone Meadow Drive  
South Salem, NY 10590  
914-533-7530**

October 12, 2018

Planning Board,  
Town of Lewisboro,  
79 Bouton Road,  
South Salem, NY 10590

**NOTICE OF OBJECTION**

Dear Board Members:

My wife and I are owners in the Oakridge Condominium Association which is adjacent to the existing gas station where a plan has been submitted to construct a car wash to adjoin said gas station.

We object to the construction of this car wash for the following reasons:

- 1.) As you are well aware, we have our own issues with water here at Oakridge. Even though, the proposed plan is for the car wash to recycle 80 pct of its' water usage, the fact remains it will be a needless addition to the water supply and runoff in our area especially considering the recent addition of more condominium units (Laurel Ridge Townhomes) and the newly constructed Community Day Care Center. Our water issues should be rectified before adding more users to the system. We already pay a high proportion of our property taxes toward the water system here at Oakridge and do not need an additional high water user which could needlessly add further issues and expense to us in the future.
- 2.) We do not need the additional traffic which will occur on Route 123 due to the construction of this car wash which will add to safety concerns for pedestrians and other cars – especially being located directly across from the Vista Fire Department which will also compromise the egress of emergency vehicles in times of need.

3.) We are concerned about the additional noise and possible loitering which may occur due to the presence of this car wash in what is currently a rural and relatively peaceful and quiet area – a significant reason why many people have moved to this area in the first place.

4.) There is simply no need for a car wash in this area. There are car washes in New Canaan and Norwalk which are both short drives to the south which people can easily access down Route 123.

Thank you for the opportunity to file this objection.

Sincerely,

A handwritten signature in cursive script that reads "Paul Martin".

Paul and Linda Martin

A handwritten signature in cursive script that reads "Linda Martin".

## Ciorsdan Conran

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**From:** Francesca Moscatelli <francesca.moscatelli@gmail.com>  
**Sent:** Monday, October 15, 2018 11:35 AM  
**To:** Planning@lewisborogov.com  
**Subject:** No to Car Wash on 123/Vista

Hi Planning Board:

I disagree with the new Car Wash proposal because of expected increased traffic in the area.  
Thank you.

- *Francesca*

Francesca Moscatelli, MS  
mobile (914) 629-2162

6 Hemlock Rd.  
St. Salem

## Ciorsdan Conran

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**From:** Andrea Florian <dreafl5@gmail.com>  
**Sent:** Monday, October 15, 2018 3:11 PM  
**To:** Planning@lewisborogov.com  
**Subject:** Proposed Car Wash

Greetings,

I am writing to voice my objection to the proposed car wash on Rt 123.

I have been a resident since 2002 and am all too aware of the water issues we have experienced. We are a growing community with several new residents and businesses. We do not yet even know the impact of The Children's Center and final phase of townhomes will have on an already unstable water supply. The water treatment plant is currently faced with poor raw water and limited options in keeping down production of TTHM's. With a proposal for upgrading the treatment plant pending it seems irresponsible to allow a car wash further tip a fragile system.

Kind Regards,  
Andrea Florian  
250 Deer Hill  
South Salem, NY 10590

**Ciorsdan Conran**

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**From:** Gwynne Pfeifer <gwynnepfeifer@gmail.com>  
**Sent:** Monday, October 15, 2018 9:21 PM  
**To:** planning@lewisborogov.com  
**Subject:** Proposed Car Wash Rt. 123, Vista, NY

Dear Planning Board Members,

I would like to go on record as opposing this car wash.

There are many reasons, but water usage is the primary one. Followed by a car wash is not needed, being one in New Canaan, Ridgefield and Norwalk and Cross River. And, I worry about the visual impact of a car wash on this little area.

I hope to be at the meeting tomorrow

Thank you,

Gwynne Pfeifer

12 Stone Meadow Dr.

S. Salem, NY 10590

## Ciorsdan Conran

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**From:** Constance Khan <cbkhan59@gmail.com>  
**Sent:** Tuesday, October 16, 2018 9:08 AM  
**To:** Planning@lewisborogov.com  
**Subject:** Planning Board meeting- CAR WASH?!?!

ATT: Ciorsdan Comran

I am a 20+year resident of 3 Split Rock Road in the Conant Valley homes.

I want to go on record in opposition to the operation of a car wash at the Oakridge Commons.

First of all the usage of water, which is costing us dearly in actual fees and loss of value to our homes is excessive and adding any burden to that is unacceptable.

Secondly it is not in keeping with the nature of the community to have such a business- it will give an unwanted "commercial" feel to the area and have an unwelcome environmental impact.

I want to know the fees being charged the new residential development buyers- are they added to the bond? If so why have our costs remained the same?

What is the burden being paid by the Oakridge Center - owned by the man who shafted us and left us all holding the bag and responsible for his mismanagement- how is he allowed to just walk away AND continue to do business here?????

I look forward to hearing from you,  
Constance Khan

## Ciorsdan Conran

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**From:** pamelashea2@aol.com  
**Sent:** Tuesday, October 16, 2018 12:26 PM  
**To:** planning@lewisborogov.com  
**Subject:** Proposed Oakridge Car Wash

Dear Mr. Chairman and Board Members,

We are writing to voice our opposition to the proposed car wash at Oak Ridge Condominium Complex. We are homeowners here and oppose the addition of a car wash for the following reasons:

- A car wash along with the traffic congestion on this portion of Route 123 does not belong in Vista, a quiet country hamlet.
- Oakridge Condominiums have struggled with water quality and availability for years. The estimates of the future water use for the Oakridge Condominiums, Laurel Ridge, Oakridge Shopping Center, newly added daycare center, veterinarian offices, and now a proposed car wash are based on an average not actual and maximum water usage and tax the wells.
- The estimate of 20 car washes per day sounds too low. A more reasonable estimate will increase the amount of water used.
- Lastly and yet most importantly Oakridge has been struggling with the quality of their water supply and while the car wash proposes to recycle much of the water that it uses this does not address the chemicals that will be put back into the system. Please explain how this will not compromise the health of all the residents and the children in the day care center.

Please do not permit this additional strain on the already difficult water situation at Oak Ridge. Thank you.

Sincerely,  
Richard and Patricia White  
242 Deer Hill Rd.



## Ciorsdan Conran

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**From:** Flora Viale <floraviale@gmail.com>  
**Sent:** Tuesday, October 16, 2018 5:14 PM  
**To:** planning@lewisborogov.com  
**Subject:** Car Wash- NO

Hi Planning Board:

I would like you to know that I oppose the proposed Car Wash at the Oakridge Condos on Route 123. I live in the condo complex at 192 Laurel Ridge Road.

Here are my reasons:

- Plaza Realty management has not yet resolved our drinking water problem even though we are required to pay for the water consumption.
- When my condo was built, in approximate 1984, it was not up to code. That included no vent to the outside on my dryer that put me at risk of fire. The construction company and Mr. Pine, who was involved in the building of my unit, didn't follow the rules back then. I therefore do not trust him and his companies to do the right thing by following the local laws regarding the water used, and the waste water. Some of the walls aren't even 90 degree angles! I've also had issue with a small pipe in my toilet system that backs up because it's too small. My garage has been flooding since I moved in because of poor grading. It's an ongoing issue that hasn't been resolved.
- Traffic will undoubtedly increase in the area. Has this been studied? We have all sorts of options to wash our cars efficiently in New Canaan, Cross River and Ridgefield.
- In terms of the construction process, we will all have to deal with the noise and construction issues on Route 123 for as long as it takes to construct.
- I imagine the car wash would have a loud generator that will run when we lose electricity in the area, which occurs approximately 10-20 per year.
- Noise and light will increase.
- In terms of the proposed sign, I'd like to know how big and what type it will be because I don't agree with a neon moving sign in this area, like McDonald's or others.
- As for employment at the car wash, I understand that people can be paid LESS THAN MINIMUM WAGE, so these jobs aren't a living wage in this area.
- Finally, we want to continue to live peacefully in the Oakridge Condos.

I plan to be at the Planning Board meeting tonight.

- Flora

Flora Viale  
914-533-6505  
[floraviale@gmail.com](mailto:floraviale@gmail.com)

## Ciorsdan Conran

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**From:** Marina <aniram1950@aim.com>  
**Sent:** Friday, October 19, 2018 11:04 AM  
**To:** planning@lewisborogov.com  
**Subject:** Objection to proposed car wash on Route 123

Members of the Planning Board,

I submitted a petition at the Planning Board meeting on Oct 16, 2018. At that time I was not able to provide the following information:

151 residents were requested to sign the petition opposing the car wash

133 or 87.5% signed the petition

11 or 7% had not reached a decision and were waiting for info to be provided at meeting

8 or 5.5% said no

I feel that 87.5% is a large percentage and indicates that the residents of South Salem do not want a car wash in their neighborhood for a variety of reasons. I would hope that the taxpayers opinions should be taken into consideration in making your decision.

Thank you,  
Marina Ekholm

270 Maplewood Dr.  
So - Salem, NY

## Ciorsdan Conran

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**From:** Holbrook, Jeffrey S <Jeffrey.Holbrook@bnymellon.com>  
**Sent:** Friday, October 19, 2018 4:26 PM  
**To:** [planning@lewisborogov.com](mailto:planning@lewisborogov.com)  
**Subject:** Follow Up to Oct 16 meeting  
**Attachments:** Oakridge Sewer District Analysis 2018.xlsx; Oakridge Water District Analysis 2018.xlsx

Planning Board,

I wanted to sincerely thank you for the time and attention your provided towards the objections around the proposal for a new car wash at Oakridge. It was obvious that you had read our emails and had done some of your own research ahead of the discussion.

I was glad to hear that you were questioning the daily projections for number of car washes. What they have put forward is either a purposefully low projection (which throws off all of the estimates for water, traffic, etc), or would suggest that the business isn't economically viable. Either way, this makes me question whether or not any of the facts in the proposal are accurate or genuine.

Also, it is critical that, as mentioned by Mr. O'Donnell, an independent consultant evaluate all of the data and projections in the proposal.

I hope all of the residents in attendance made it crystal clear that we would have registered the same strong objections to the expansion of Laurel Ridge Condos and the day care center had we been aware that they were under consideration. The water/sewer financial obligations that each of us bear continues to depress home values. It just isn't fair. Throw in the water quality issues and we have an untenable situation. No further expansion at Oakridge should be permitted until a solution is implemented to normalize the cost of water/sewer costs. Should any individual home owner have to pay 7-8K per year for water and sewer? This is Mr. Pine's problem to solve before any further development occurs.

Finally, I've attached 2 documents that were provided to us by Peter Parsons. Both would suggest that the costs for Oakridge Water and Sewer (and thus our tax and usage payments) will continue to rise - not decrease as was suggested by Mr. Pine.

Thanks again for your service to our town and consideration of our position. Please reject this misguided proposal.

Thanks, Jeff Holbrook  
17 Split Rock Rd.  
Pond Ridge NY

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**From:** Holbrook, Jeffrey S  
**Sent:** Tuesday, October 09, 2018 9:16 AM  
**To:** [planning@lewisborogov.com](mailto:planning@lewisborogov.com)  
**Cc:** Jo-Ellen Holbrook; [jholb1@gmail.com](mailto:jholb1@gmail.com)  
**Subject:** FW: Final letter to town

Planning Board:

We urge you to reject the proposal for a new car wash at Oakridge Commons. As you should be aware, Oakridge Commons is reliant on the beleaguered Oakridge Water and Sewer districts. While this district is maintained by the Town of Lewisboro, it is supported financially by the homeowners who live on Split Rock Rd, Laurel Hollow Rd and the

RECEIVED  
LEWISBORO

OCT 29 2018

PLANNING  
BOARD

envelope  
contained  
letters between  
Ms. Viale &  
Mr. Lombardi  
dated  
10/15/18  
&  
10/24/18

Ciorsidan

to give to Planning Board  
before meeting re; lack of  
care to condo's

\_\_\_\_\_

Please can you call

Florea Viale

914-533-6505

has many questions

Thank you

October 24, 2018

Mr. Michael Lombardo  
President  
Plaza Realty & Management Corp

RE: Response to respond from email October 11, 2018

Dear Mr. Michael Lombardo, the Board of Directors and the Superintendent,

I understand that garages weren't built to stop moisture.

My garage floods! It isn't moisture, its puddles of water, as per my previous and multiple complaints. In the winter, these puddles freeze and obviously ice is slippery. I hate to think what might happen if I fall on the ice in my own garage!

There are clearly walls of the garage that do not meet the asphalt, where the water enters. The lovely grate that was installed in front of the garage does absolutely nothing to solve this water problem. Again, it's not about "moisture", it floods.

Please let me know what you propose to do to solve this issue.

Sincerely,

Flora Viale  
192 Laurel Ridge Road

A handwritten signature in dark ink, appearing to read 'Flora Viale', written in a cursive style.

PLAZA REALTY & MANAGEMENT CORPORATION

October 15, 2018

Ms. Flora Viale  
192 Laurel Ridge  
South Salem, NY 10590



Re: Response to the email of October 11, 2018

Dear Ms. Flora Viale,

In response to your e-mail of October 11, 2018, I would like to inform you that the garages were not built to stop moisture from emanating into these structures. Therefore, there is nothing the Association can do to prevent the moisture in your garage.

Very truly yours,

A handwritten signature in blue ink, appearing to read 'Michael G. Lombardo', written over a horizontal line.

Michael G. Lombardo  
President

cc: Board of Directors  
Superintendent



Distributed at PB  
meeting 10/16/19

Marina Ekholm

O: Town of Lewisboro  
Planning Board

Page 1

SUBJECT: Notice of Objection of Site Development Plan for Car Wash on Route 123  
Cal.#8-17PB

of 16

We, the below signed residents of the Oakridge Condominiums, object to the approval of a car wash in the Oakridge Commons Shopping Center, 450 Oakridge Common, South Salem, NY

- 1 Name Donna Ruggiero  
Address 268 Maplewood Drive  
Signature [Signature] Date: 10/8/18
- 2 Name Jessica Aguilera  
Address 272 Maplewood Dr  
Signature [Signature] Date: 10/8/18
- 3 Name Robert Vialardi  
Address 269 Maplewood Drive  
Signature [Signature] Date: 10/10/18
- 4 Name Marina Ekholm  
Address 270 Maplewood Dr  
Signature [Signature] Date: 10/10/18
- 5 Name Michele Lish  
Address 267 Maplewood Drive  
Signature South Salem, NY 10590 Date: 10/10/18  
Michele Lish  
Date: 10/12/18
- 6 Name Kathie Minicis  
Address 170 Laurel Rdg Rd.  
Signature [Signature] Date: 10/12/18
- 7 Name RYAN RUGGIERO  
Address 268 MAPLEWOOD DR  
Signature [Signature] Date: 10/12/18

SUBJECT: Notice of Objection of Site Development Plan for Car Wash on Route 123

- 8 Name Rose Deville  
Address 274 Maplewood Dr.  
Signature Rose Date: 10/12/18
- 9 Name Fedner Hippolyte  
Address 274 Maplewood Drive  
Signature Fedner Date: 10/12/18
- 10 Name Robert Stewart  
Address 273 Maplewood Ave.  
Signature Robert Stewart Date: 10/12/18
- 11 Name Carol Matursch  
Address 273 Maplewood Ave  
Signature Carol Matursch Date: 10-12-18
- 12 Name Galina Sasimovich  
Address 271 Maplewood dr.  
Signature G. Sasimovich Date: 10/12/18.
- 13 Name Valentia Sasimovich  
Address 271 Maplewood DR.  
Signature Valentia Sasimovich Date: 10/12/18
- 14 Name Linda Luma  
Address 251 Deer Hill Rd.  
Signature Linda Luma Date: 10-12-18
- 15 Name Swidonovich Family  
Address 249 Deer Hill Rd.  
Signature [Signature] Date: 10-12-18
- 16 Name Juchas Swidonovich  
Address 249 Deer Hill Rd.  
Signature Juchas Swidonovich Date: 10-12-18



SUBJECT: Notice of Objection of Site Development Plan for Car Wash on Route 123

- 17 Name Charlie West  
Address 184 Laurel Ridge  
Signature Charlie West Date: 10/13/2018
- 18 Name Kathy Wood  
Address 184 Laurel Ridge  
Signature Kathleen Wood Date: 10/13/2018
- 19 Name Paul Geibel  
Address 183 Laurel Ridge  
Signature Paul Geibel Date: 10/13/2018
- 20 Name Nancy Geibel  
Address 183 Laurel Ridge  
Signature Nancy Geibel Date: 10/13/2018
- 21 Name Nancy Palmiotto  
Address 182 Laurel Ridge  
Signature Nancy Palmiotto Date: 10/13/18
- 22 Name FRANK VIOLE  
Address 192 LAUREL Ridge  
Signature Frank Viola Date: 10/13/18
- 23 Name Steve Nickles  
Address 173 Laurel Ridge  
Signature Steve Nickles Date: 10/13/18
- 24 Name Danielle Nickles  
Address 173 Laurel Ridge  
Signature Danielle Nickles Date: 10/13/18
- 25 Name FRANCIS FITZGERALD  
Address 175 LAUREL RIDGE  
Signature Francis Fitzgerald Date: 10/13/18

SUBJECT: Notice of Objection of Site Development Plan for Car Wash on Route 123

- 26 Name Ed Walsh  
Address 247 Deer Hill  
Signature Ed Walsh Date: 10/13/18
- 27 Name Patricia White  
Address 242 Deer Hill Rd  
Signature Patricia White Date: 10-13-18
- 28 Name Richard F. White  
Address 242 Deer Hill Rd  
Signature So. De. Salem Rd Date: 10/13-18
- 29 Name Joan Irish  
Address 204 Deer Hill  
Signature Joan Irish Date: 10/13/18
- 30 Name Kicky Marchione  
Address 260 Deer Hill Rd  
Signature Kicky Marchione Date: 10/13/18
- 31 Name NEIL KREMBERG  
Address 240 DEER HILL  
Signature Neil Kremberg Date: 10/13/18
- 32 Name Maureen Bischoff  
Address 271 Deer Hill Rd.  
Signature South Salem Date: 10/13/18
- 33 Name Andrea Florian  
Address 250 Deer Hill  
Signature Andrea Date: 10/13/18
- 34 Name Phil Brigante  
Address 148 Stoneweed Drive  
Signature Phil Brigante Date: 10/13/2018

SUBJECT: Notice of Objection of Site Development Plan for Car Wash on Route 123

- 35 Name Maria Cerna  
Address 180 Laurel Rdg South Salem N.Y.  
Signature Maria Cerna Date: 10/13/18
- 36 Name Jean Filacchione  
Address 161 Laurel Ridge Rd  
Signature Jean Filacchione Date: 10/13/18
- 37 Name Margaret Zanni  
Address 163 Laurel Ridge  
Signature Margaret Zanni Date: 10/13/18
- 38 Name Norm Rooney  
Address 193 Laurel Ridge  
Signature [Signature] Date: 10/13/18
- 39 Name Paul [Signature]  
Address 181 Laurel Ridge  
Signature [Signature] Date: 10/13/18
- 40 Name Rev. Pat Friss  
Address 169 LAUREL RIDGE  
Signature Pat Friss Date: 10/13/18
- 41 Name Anne Wennerstrand  
Address 171 Laurel Ridge Rd.  
Signature Anne Wennerstrand Date: 10/13/18
- 42 Name Christopher Wishnie  
Address 228 Lakeside Drive South Salem, NY 10550  
Signature [Signature] Date: 10/13/18
- 43 Name PAT CULHANE  
Address 185 LAUREL RIDGE  
Signature Pat Culhane Date: 10/13/18



SUBJECT: Notice of Objection of Site Development Plan for Car Wash on Route 123

- 44 Name Just Amy  
Address 292 Essex Drive  
Signature [Signature] Date: 10/13/18
- 45 Name Bob Ciri  
Address 8 Oakridge Dr.  
Signature So. Salem, 76.4 10590 Date: 10/14/18
- 46 Name MARGARET EYRING  
Address 29 OAKRIDGE DR SO. SALEM  
Signature Margaret Eyring Date: 10/14/18
- 47 Name Katherine Hor  
Address 25 Fox Run  
Signature [Signature] Date: 10/14/18
- 48 Name Dave Borgos  
Address 25 Fox Run  
Signature [Signature] Date: 10/14/18
- 49 Name Bob Lee  
Address 20 Fox Run  
Signature S. Salem, NY 10590 Date: 10/14/18
- 50 Name Cynthia Haupt  
Address 17 Fox Run  
Signature Cynthia Haupt Date: 10/14/18
- 51 Name Maria Viale  
Address 0 Oakridge Dr  
Signature Maria Viale Date: 10/14/18
- 52 Name Margaret Brophy  
Address 59 Fox Ridge  
Signature Margaret Brophy Date: 10/14/18

SUBJECT: Notice of Objection of Site Development Plan for Car Wash on Route 123

- 53 Name Tracy Carriera  
Address 67 Fox Run, S. Salem NY  
Signature [Signature] Date: 10/14/18
- 54 Name Gary Mihalj  
Address 64 Fox Run  
Signature [Signature] Date: 10.14.2018
- 55 Name Marci J Roca  
Address 100 Fox Run  
Signature [Signature] Date: 10.14.2018
- 56 Name Mindi Roca  
Address 72 Fox Run  
Signature [Signature] Date: 10/14/2018
- 57 Name Harold Horvath  
Address 99 Fox Run  
Signature [Signature] Date: 10/14/2018
- 58 Name Sandy Horvath  
Address 99 Fox Run  
Signature [Signature] Date: 10/14/2018
- 59 Name [Signature]  
Address 99 Fox Run  
Signature [Signature] Date: 10/14/2018
- 60 Name Erin Kote  
Address 91 Fox Run  
Signature [Signature] Date: 10/14/2018
- 61 Name Barbara Walters  
Address 263 Maplewood Dr.  
Signature [Signature] Date: 10/14/18

SUBJECT: Notice of Objection of Site Development Plan for Car Wash on Route 123

- 62 Name MAURY PITTMAN  
Address 250 Deer Hill Rd So Salem NY  
Signature Maury Pittman Date: 10/13/2018
- 63 Name Deborah Greenberg  
Address 82 Fox Rd Run South Salem NY  
Signature Deb Greenberg 10590 Date: 10/13/2018
- 64 Name Debra Ogden  
Address 256 Deer Hill Rd S. Salem NY 10590  
Signature Debra S. Ogden Date: 10/14/18
- 65 Name Brenda McCann  
Address 117 Elmwood Road S. Salem 10590  
Signature Brenda McCann Date: 10/14/18
- 66 Name Ada Boldrini  
Address 253 Deer Hill Rd  
Signature Ada Boldrini Date: 10/14/18
- 67 Name Mary Rose Clappitt  
Address 245 Deer Hill Rd South Salem, NY  
Signature Mary Rose Clappitt Date: 10/14/18
- 68 Name Lina Burren  
Address 243 Deer Hill Rd., S. Salem, NY  
Signature Lina Burren Date: 10/14/18
- 69 Name Anthony Burren  
Address 243 Deer Hill Rd, S. Salem, NY  
Signature Anthony Burren Date: 10/14/18
- 70 Name Sharon Victor  
Address 266 Deer Hill Rd  
Signature Sharon Victor Date: 10/15/18

SUBJECT: Notice of Objection of Site Development Plan for Car Wash on Route 123

- 71 Name John Walters  
Address 203 Maplewood Dr  
Signature John Walters Date: 10/14/18
- 72 Name Nirka Anson  
Address 246 Maplewood Drive South Salem N.C.  
Signature Nirka Anson Date: 10/15/2018
- 73 Name Donald ANSON  
Address 206 Maplewood Drive  
Signature [Signature] Date: 10/14/2018
- 74 Name JOHN RIVERA  
Address 103 BAKROBE DR.  
Signature John P.R. Date: 10/15/18
- 75 Name ROBERT SULLIVAN  
Address 156 STONE MEADOW DR.  
Signature [Signature] Date: 10/15/2018
- 76 Name KAZUKO Kobayashi  
Address 156 Stone meadow  
Signature 小林 和子 Date: 10/15/2018
- 77 Name Jeanne Cooney  
Address 154 Stonemeadow  
Signature Jeanne Cooney Date: 10/15/18
- 78 Name Evanka Wolff  
Address 216 Lakeside  
Signature Evanka Wolff Date: 10/16/18
- 79 Name Theresa Leahy  
Address 227 Lakeside Drive  
Signature Theresa Leahy Date: 10/16/18

SUBJECT: Notice of Objection of Site Development Plan for Car Wash on Route 123

80 Name Joseph Bologna  
Address 275 Maplewood Drive  
Signature [Signature]

Date: 10/14/18

81 Name Nora Bologna  
Address 275 Maplewood Drive  
Signature [Signature]

Date: 10/14/18

82 Name Isabelle PelVecchio  
Address 265 Maplewood Ave  
Signature [Signature]

Date: 10/14/18

83 Name Barbara Baltera  
Address 104 Oakridge Drive  
Signature [Signature]

Date: 10/14/2018

84 Name Miguel Morales  
Address 104 Oakridge Drive  
Signature [Signature]

Date: 10/14/2018

85 Name Barbara L Strong  
Address 117 Stone Meadow Rd.  
Signature [Signature]

Date: 10/16/2018

86 Name Kathie Munnies  
Address 170 Koppel Ridge Rd.  
Signature [Signature]

Date: 10/16/18

87 Name Amanda Moore  
Address 151 Stone Meadow  
Signature [Signature]

Date: 10/16/18

88 Name ELLEN DOUBRASKI  
Address 147 STONE MEADOW  
Signature [Signature]

Date: 10/16/18



TO: Town of Lewisboro  
TO: Planning Board

Page 11

SUBJECT: Notice of Objection of Site Development Plan for Car Wash on Route 123  
Cal.#8-17PB

We, the below signed, object to the approval of a car wash in the Oakridge  
Commons Shopping Center, 450 Oakridge Common, South Salem, NY

- 89 Name J. GOLDBERG  
Address 23 CONANT VALLEY ROAD  
Signature [Signature] Date: 10/16/18
- 90 Name L. Leary  
Address 25 Conant Valley Rd  
Signature [Signature] Date: 10/16/18
- 91 Name Jeffrey S. Holbrook  
Address 17 Split Rock Rd  
Signature [Signature] Date: 10/16/18
- 92 Name Eileen Scanlon  
Address 16 Split Rock Road  
Signature Eileen Scanlon Date: 10/16/18
- 93 Name James R. Williams  
Address 16 Split Rock Road, NY 10574  
Signature [Signature] Date: 10/16/18
- 94 Name Mike Miller  
Address 39 Split Rock Road  
Signature [Signature] Date: 10/16/18
- 95 Name [Signature]  
Address 236 Lakeside Drive South Salem, N.Y. 10590  
Signature [Signature] Date: 10/16/18

SUBJECT: Notice of Objection of Site Development Plan for Car Wash on Route 123

- 96 Name Cindy Weinstein  
Address 255 Deer Hill  
Signature Cindy Weinstein Date: 10-16-18
- 97 Name Alex T. Unruh  
Address 238 Deer Hill Rd  
Signature [Signature] Date: 10-16-18
- 98 Name Kyle Menece  
Address 18 Stonemeadow  
Signature Kyle Menece Date: 10-16-2018
- 99 Name Richard Stovrich  
Address 227 Bayside Dr  
Signature Richard Stovrich Date: 10/16/18
- 100 Name FRANCESCA MOSCATELLI  
Address 6 HENLOCK RD, S. SALEM, NY  
Signature [Signature] Date: 10/16/18
- 101 Name Maria Sue Viale MARIA S. VIALE  
Address 11 Oakridge drive, S. Salem, NY 10590  
Signature [Signature] Date: 10/16/18
- 102 Name Paul Aubry  
Address 244 Deer Hill Road S. Salem, NY  
Signature Paul E Aubry Date: 10-16-18
- 103 Name Frances Gambacorta  
Address 244 Deer Hill Road S. Salem NY  
Signature [Signature] Date: 10-16-18
- 104 Name Don Stadelman  
Address 257 Deer Hill S. Salem NY  
Signature [Signature] Date: 10/16/18

SUBJECT: Notice of Objection of Site Development Plan for Car Wash on Route 123

- 105 Name Bob Markiewicz  
Address 35 Bittersweet Ln.  
Signature Robert Markiewicz Date: 10/16/18
- 106 Name Susan Valente  
Address 51 Bittersweet  
Signature Susan Valente Date: 10/16/18
- 107 Name Diane Miritello  
Address 44 Bittersweet Ln  
Signature South Salem NY 10590 Date: 10/16/18
- 108 Name Matthew Miritello  
Address 44 Bittersweet Lane  
Signature South Salem n.y. 10590 Date: 10/16/18
- 109 Name Ati Ahn  
Address 78 Fox Run  
Signature Ati Ahn Date: 10/16/18
- 110 Name Lucille Duke  
Address 224 Lakeside Dr.  
Signature Lucille Duke Date: 10/16/18
- 111 Name Cleo Wilson  
Address 204 Lakeside Drive  
Signature Cleo Wilson Date: 10/16-18
- 112 Name Maria Arpaio  
Address 270 Maplewood Dr  
Signature Maria Arpaio Date: 10/16/18
- ~~113 Name \_\_\_\_\_~~  
~~Address \_\_\_\_\_~~  
~~Signature \_\_\_\_\_~~ Date: \_\_\_\_\_

TO: Town of Lewisboro  
TO: Planning Board

Page 4

SUBJECT: Notice of Objection of Site Development Plan for Car Wash on Route 123  
Cal.#8-17PB

We, the below signed residents of the Laurel Ridge Townhomes, object to the approval of a car wash in the Oakridge Commons Shopping Center, 450 Oakridge Common, South Salem, NY

113 Name Alan Egan  
Address 279 Boulder Ridge Rd.  
Signature Alan Egan Date: 10/12/18

114 Name Ronald J. Egan  
Address 279 - Boulder Ridge RD  
Signature Ronald J. Egan Date: 10/12/18

115 Name Nyrita Crawford  
Address 290 Boulder Ridge  
Signature N. Crawford Date: 12 Oct 2018

116 Name Mary Martin  
Address 350 Boulder Ridge Rd.  
Signature Mary Martin Date: 10-12-18

Name \_\_\_\_\_  
Address \_\_\_\_\_  
Signature \_\_\_\_\_ Date: \_\_\_\_\_

Name \_\_\_\_\_  
Address \_\_\_\_\_  
Signature \_\_\_\_\_ Date: \_\_\_\_\_

Name \_\_\_\_\_  
Address \_\_\_\_\_  
Signature \_\_\_\_\_ Date: \_\_\_\_\_

SUBJECT: Notice of Objection of Site Development Plan for Car Wash on Route 123

117 Name NANCY O'SULLIVAN  
Address 234 Lakeside DR South Salem  
Signature Nancy O'Sullivan Date: 10/16/18

118 Name Kevin O'Sullivan  
Address 234 Lakeside Drive S. Salem 10590  
Signature [Signature] Date: 10/16/18

119 Name Richard Alora  
Address 178 Laurel Ridge S. Salem NY  
Signature Richard Alora Date: 10/16/18

120 Name Steven Klapow + Paul Taylor  
Address 181 Laurel Ridge  
Signature Steven Klapow Date: 10/16/18

121 Name Robin Gersten  
Address 36 Bittersweet  
Signature [Signature] Date: 10/16/18

122 Name Pamela Neithe  
Address 246 Maplewood Dr.  
Signature [Signature] Date: 10/16/18

123 Name Marilyn Feil  
Address 11 Laurel Hollow Rd  
Signature [Signature] Date: 10/16/18

124 Name Elizabeth Shaban  
Address 167 Laurel Ridge Rd  
Signature Elizabeth Shaban Date: 10/16/18

125 Name Mon Khasnam  
Address 165 Laurel Ridge  
Signature Mon Khasnam Date: 10/16/18



SUBJECT: Notice of Objection of Site Development Plan for Car Wash on Route 123

126 Name NICK GUTHRIE  
Address 209 LAKESIDE  
Signature Nicholas D Guthrie Date: 10/16/18

127 Name Gigi Guthrie  
Address 209 Lakeside Dr., S. Salem  
Signature Gigi Guthrie Date: 10/16/18

128 Name Charlotte Young  
Address 127 South Salem (Stone Meadow Rd)  
Signature Charlotte Young Date: 10/16/18

129 Name Michael Beeman  
Address 15 Laurel Hollow Road Pound Ridge NY  
Signature Mike Be Date: 10/16/18

130 Name Gale Beeman  
Address 15 Laurel Hollow Road Pound Ridge NY  
Signature Gale Be Date: 10/16/18

131 Name RICHARD FEEL  
Address 15 LAUREL HOLLOW ROAD  
Signature Richard Feel Date: 10/16/18

132 Name Gwynne Pfeiffer  
Address 128 Stone Meadow S. Salem  
Signature Gwynne M. Pfeiffer Date: 10/16/18

Name \_\_\_\_\_  
Address \_\_\_\_\_  
Signature \_\_\_\_\_ Date: \_\_\_\_\_

Name \_\_\_\_\_  
Address \_\_\_\_\_  
Signature \_\_\_\_\_ Date: \_\_\_\_\_



## **Oakridge Residents: IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER**

### **Total Trihalomethanes (TTHM) MCL Violation at Oakridge Water District**

Our water system recently violated a drinking water standard. Although this incident was not an emergency, as our customers, you have a right to know what happened and what we are doing to correct this situation.

We routinely monitor for the presence of drinking water contaminants. Test results from November 9, 2016 through August 4, 2017, show that our system exceeded the standard, or maximum contaminant level (MCL), for Total Trihalomethanes (TTHM). The standard for TTHM is 80 ug/L. It is determined by averaging all the samples collected at each sampling location for the last four quarters. The level of TTHM averaged at one of our system's locations, 32 Split Rock Road, for the last four quarters was 86.1ug/L. The level of TTHM averaged at our other compliance location, 163 Laurel Ridge Road, for the last four quarters was 57.8 ug/L.

During the last two quarters, the TTHM levels have been below the maximum contaminant level. This is due in part to some operational changes made at the treatment system, including additional flushing throughout Oakridge and Conant Valley (drawing fresh water through the water mains to reduce water age and reduce the formation of TTHM's), and changing the primary oxidant utilized for iron and manganese removal from Sodium Hypochlorite (Chlorine) to Sodium Permanganate, while continuing to utilize Sodium Hypochlorite for disinfection.

#### **What should I do?**

- There is nothing you need to do. You do not need to boil your water or take other corrective action.
- If you have a severely compromised immune system, have an infant, are pregnant, or are elderly, you may be at increased risk and should consult your doctor about drinking the water.

#### **What are trihalomethanes?**

- Trihalomethanes are a group of chemicals that are formed in drinking water during disinfection when chlorine reacts with naturally occurring organic material (e.g., decomposing vegetation such as tree leaves, algae or other aquatic plants in water sources such as rivers and lakes. They are disinfection byproducts and include the individual chemicals chloroform, bromoform, bromodichloromethane, and chlorodibromomethane. The amount of trihalomethanes formed in drinking water during disinfection can change from day to day, depending on the temperature, the amount of organic material in the water, the amount of chlorine added, and a variety of other factors.



- Disinfection of drinking water by chlorination is beneficial to public health. Drinking water is disinfected by public water suppliers to kill bacteria and viruses that could cause serious illnesses, and chlorine is the most commonly used disinfectant in New York State. All public water systems that use chlorine as a disinfectant contain trihalomethanes to some degree.

#### **What are the health effects of trihalomethanes?**

- Some studies suggest that people who drank water containing trihalomethanes for long periods of time (e.g., 20 to 30 years) have an increased risk of certain health effects. These include an increased risk for cancer and for low birth weights, miscarriages and birth defects. The methods used by these studies could not rule out the role of other factors that could have resulted in the observed increased risks. In addition, other similar studies do not show an increased risk for these health effects. Therefore, the evidence from these studies is not strong enough to conclude that trihalomethanes were a major factor contributing to the observed increased risks for these health effects.
- Studies of laboratory animals show that some trihalomethanes can cause cancer and adverse reproductive and developmental effects, but at exposures much higher than exposures that could result through normal use of the water. The United States Environmental Protection Agency reviewed the information from the human and animal studies and concluded that while there is no causal link between disinfection byproducts (including trihalomethanes) and human health effects, the balance of the information warranted stronger regulations that limit the amount of trihalomethanes in drinking water, while still allowing for adequate disinfection. The risks for adverse health effects from trihalomethanes in drinking water are small compared to the risks for illness from drinking inadequately disinfected water.

#### **What does this mean?**

This is not an emergency. Had it been an emergency, you would have been notified within 24 hours. TTHM are four volatile organic chemicals which form when disinfectants react with natural organic matter in the water. People who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.

#### **What is being done?**

After extensive sampling and analysis, the Town of Lewisboro's engineers are researching options for additional process equipment, to help reduce the levels of TTHMs. These options include installing a storage tank aeration system, an in-line TTHM removal system (both known for removal of TTHMs and other Disinfection Byproducts), further investigation into the use of Granulated Activated Carbon Adsorption, and installing a water treatment system SCADA (Supervisory Control and Data Acquisition) system to help with water quality control. Preliminary design work and submissions for approvals to the Westchester County Department of Health should occur within the next 3-4 months.



For more information, please contact VRI Environmental Services, the operator of your water system, at 845-677-3839.

*\*Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.\**

This notice is being sent to you by the Town of Lewisboro's Oakridge Water District.

New York State Public Water Supply ID#: NY5918395.

Date distributed: \_\_\_\_\_.

9/21/17



## Playtime

Pound Ridge resident Betty Goodman captured a photo last week of two foxes "taking a break from playing tag" in her yard on Parkview Road.

BETTY GOODMAN PHOTO

RECORD REVIEW LAST WEEK

## Letters to the Editor

### Lewisboro Planning Board should deny permit for car wash

To the Editor:

The Town of Lewisboro Planning Board is considering issuing a permit to the owner of Oakridge Commons to allow for the construction of a car wash on that property. It is unfathomable that such a permit could be issued in the already heavily burdened water and sewer district of Oakridge Commons.

For those who are not aware, Oakridge Commons and the surrounding condos and homes are reliant on the Oakridge Water District for water and sewer services. This water/sewer district is maintained by the Town of Lewisboro and has been woefully mismanaged and inappropriately maintained over numerous years — in fact, since its inception. Specifically,

ly, the system is unable to offer clean and healthy water to the residents of the district and requires repeated upgrades and maintenance to support the failing system. The system recently failed to meet the New York state requirements for trihalomethanes. As a result of the ineffective system and poor maintenance of such system, the Water District requires annual payments in taxes and fees of as much as \$8,000 per year per family. This amount (which continues to increase over the years due to the need for continual upgrades and maintenance to the failing system) has dramatically impacted home values and is simply not sustainable.

Now, the proprietor of Oakridge Commons wants to add a car wash

to the property without providing any additional support to the failing infrastructure of the water/sewer system and without any provision for how the system would be able to handle this additional usage of water. The Town Planning Board should not permit this car wash to be constructed and this misguided proposal should be denied. Please join us at the Planning Board meeting Tuesday, Oct. 16, to oppose the proposed car wash at Oakridge Commons in Vista.

Jo-Ellen and Jeff Holbrook  
Pound Ridge

Editor's note: The authors of the letter live in the Katonah-Lewisboro School District and pay taxes to the Town of Lewisboro.

operator who worked for "The Phone Company." Not the Verizon or AT&T of today, but a composite Bell System of yesteryear, whose tag line was, "We don't have to care: we're the Phone Company." It's not that attitude that we have all assumed, but rather her opening gambit, whereby she dialed a number, then counted off, "One ringey-dingey. Two ringey-dingeys."

We count because it's no longer as to talk to you or they're not. In each of those negatives, all the ringing in the world won't get you answered.

However, if your call is going to a mobile phone, it's somewhat gender and

*Voicemail used to  
seem like such  
a great idea.*

age specific. If it's a teenage girl who has it in her hand, one ring is all it takes. If it's a male or female who keeps the phone in their pocket, a two-count is sufficient. In both cases, they have the phone at the ready, and are ready for you. Or not. But it's a quick decision and reaction. However, if it's a woman who keeps it in her pocketbook, you have to add a few more for the fish-it-out factor.

'Just one project?



CROSS  
RIVER  
ARCHITECTS,  
LLC

ROBERT J. EBERTS, R.A.  
PRINCIPAL

# TRANSMITTAL

DATE: 10/31/2018  
TO: Jerome Kerner, Chairman  
Lewisboro Planning Board  
FROM: Bob Eberts  
Cross River Architects, LLC  
RE: Oakridge Commons  
Car Wash

## COMMENTS:

Attached please find revised resubmission for the Oakridge Commons Daycare and Carwash. These documents reflect the following changes per Kellard Sessions comment letter dated 08/8/2018 from Jan Johannessen, et al.

- 1) The Sand trap will be emptied weekly. The cover will be removed and it will be shoveled out and the debris will be emptied into the garbage dumpster. The water reclamation tanks must be emptied every 6 months. The effluent will be pumped out by Vogler Brothers, Inc. of Katonah, NY. It will get dumped into the Hawthorne Sewer Dump. A proposal from Vogler Brothers is attached.
- 2) Per the Kellard Sessions memo, we have been in touch with Wayne Schneider, assistant engineer with the Westchester County Health Dept. After receiving his memo, we forwarded to him the submission documents. He responded on 10/15/18 via email that with three conditions, he has no objection to the proposal. His memo and printed copy of the email is attached. The three conditions are:

- 1) A dedicated water meter is installed to monitor water usage for the car wash.
- 2) His Dept be provided with one year of water usage data indicating that the car wash usage does not exceed projected usage, and
- 3) the existing backflow preventer is approved by the water supply and WCHD and testing records be provided.

We now show the existing backflow preventer and meter on drawing C-1. The current backflow preventer is tested annually and the results submitted to WCHD and the Water and Sewer.

At the Public Hearing on Oct 16, 2018 we received a number of comments from the Planning Board and the public. We wish to respond to many of these in writing at this time.

- 1) There was a question about the Grace Church using the Oakridge parking lot on Sunday mornings and why this was not included in the Daycare parking study by Tim Miller Associates. This was not included because the Daycare Center will not be open on Sundays. We have asked Tim Miller Associates to address the church use of the parking lot and he has responded with the attached letter. Please note that the Owners of Oakridge Common do not charge for allowing Grace Church to park in their lot. Also, they do not, and will not park in the gas station / carwash lot.
- 2) There was a question about sight distance at the existing gas station entrance. We have included the response letter from Tim Miller Associates dated 10/31/18. The letter includes the recommendation to remove the existing overgrown vegetation within 5' of the road, which is shown on drawing SP2C. Otherwise, there is no site distance issue.
- 3) There were comments regarding water quality. The applicant has absolutely no control over the water quality available. We are aware that there were some issues with the level of TTHM's, a byproduct of chlorination, exceeding the WCHD maximum of 80 ug/l. This was addressed by the water dept in two ways. First, the system was flushed to reduce the time the water was

PO Box 384  
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CROSS RIVER, NY 10518  
914.763.5887  
Email RJE@CRARCH.com

standing. Second, the primary oxidant was changed from Chloride to Sodium Permanganate. Since these changes, the TTHM's have remained at acceptable levels. In addition, a decision to add the filters designed to remove free chlorine residue has been made. This project is expected to begin next year. We have attached copies of a letter distributed on 9/21/17 by the Oakridge Water District, a copy of the annual drinking water quality report for 2017 regarding the Oakridge Water System and a Map and Plan Report for Oakridge Water District Improvements dated August of 2018. The water company has developed a sampling and flushing schedule. New sampling schedules insure the samplings are representative of the water being delivered to homes.

- 4) The quantity of water was also discussed. It should be noted that the Lewisboro Town Board considered the water requirements proposed for the carwash and passed a resolution dated April 23, 2018 authorizing connection to the water and sewer district. Also, we previously submitted documentation from VRI Environmental stating there was sufficient capacity in the water and Redniss and Mead has issued a supplement to their Site Engineering Report updating two pages to include some new information. These pages are included in this submission. When the Daycare was approved it showed a total estimated water requirement of 67,550 gpd. With the 350 gpd required for the Carwash, the total requirement would be 67,900 gpd.

However, we found the average water use in 2018 was 50,505 gpd. When you add in 450 gpd per condo unit in Laurel Ridge yet to be occupied and the 1,300 gpd for the Daycare and 350 gpd for the Carwash the total is 57,605 gpd. This is **10,295 gpd less** than previously approved and **22,295 gpd less** than the SPEDS Permit of 80,000 gpd. We are including in this submission the Oakridge Water System Operations Reports from Jan – Sept 2018 listing the monthly average water use.

- 5) There was a question about not only average water use, but maximum water use. The highest use month was July of 2018 when 55,613 gpd was used. Again, factoring in the unoccupied condos, the Daycare and Carwash, the total use would be 64,013 gpd, **3,887 gpd less** than previously approved, and **15,987 gpd less** than the SPEDS Permit limits. This is also reflected in the supplemental pages dated 10/31/18 from Redniss and Mead.
- 6) A question about noise was brought up. The carwash system is designed to be operated with the bay doors down. The noise levels will be within the Town standards.
- 7) A question about wipes was brought up. The proposed Carwash is a completely touchless system. There will be no wipes used.
- 8) There was an issue of quality of construction at the Oakridge Condos brought up at the meeting. The contractor that is anticipated to construct the Carwash addition is the same contractor that is currently constructing the Laurel Ridge Condos and the Daycare Center, on which the Building Inspector has repeatedly commented positively.
- 9) A generator is not proposed. If power goes out, no carwashes will be run.
- 10) The hours of operation will be the same as the current gas station, 6 AM to 9 PM, seven days per week.
- 11) There were comments that the carwash would cause too much traffic. Our analysis is that people rarely travel more than 5 miles out of their way to get their car washed. This would mean that most of the patrons of the carwash would either be local neighbors or people passing through the area. We simply do not anticipate that the patrons will come in from New Canaan, Ridgefield or Cross River when they have a more local car wash.
- 12) There were comments about too many cars backing up. We spoke with Mike Demon of Cross River Shell and he said that he rarely sees more than two or three cars in line at his carwash. This matches the manufacturer's information. There is sufficient space for 4 cars in the loop leading to the entrance of the carwash.
- 13) There were also comments about the economic viability of the carwash assuming an average of 20 cars per day. The Cross River Shell carwash gets about 20 cars per day on average according to the Owner, Mike Demon. The

car wash will be part of the Gas Station. It will help subsidize the gas station's costs. Based on our estimates and discussions with Cross River Shell the car wash should subsidize about 50% of the rent.

- 14) There were comments regarding the carwash changing the image of the area. As stated in the Public Hearing and indicated on the drawings, the addition to the existing building will be constructed with brick to match existing, doors to match existing, roofing to match existing, trim and fascia to match existing, eave height and roof slope to match existing. Also, the design received approval from the Lewisboro Architectural and Community Review Council. (ACARC).
- 15) There was a question about how the carwash would affect the existing pond. The carwash operation does not drain into the pond or the stormwater system. Instead the effluent flows into the sewer. However, the proposal includes addition of impervious surfaces which will increase stormwater runoff. The increased stormwater will be handled by 21 Cultec recharges located under the parking lot. The system is designed for a 25-year storm per Town of Lewisboro requirements. Should the stormwater exceed the levels of a 25-year storm and the proposed stormwater system, the overflow will drain into the Oakridge Commons storm drainage system, pass through the various existing chambers and water quality filters prior to draining into the pond.

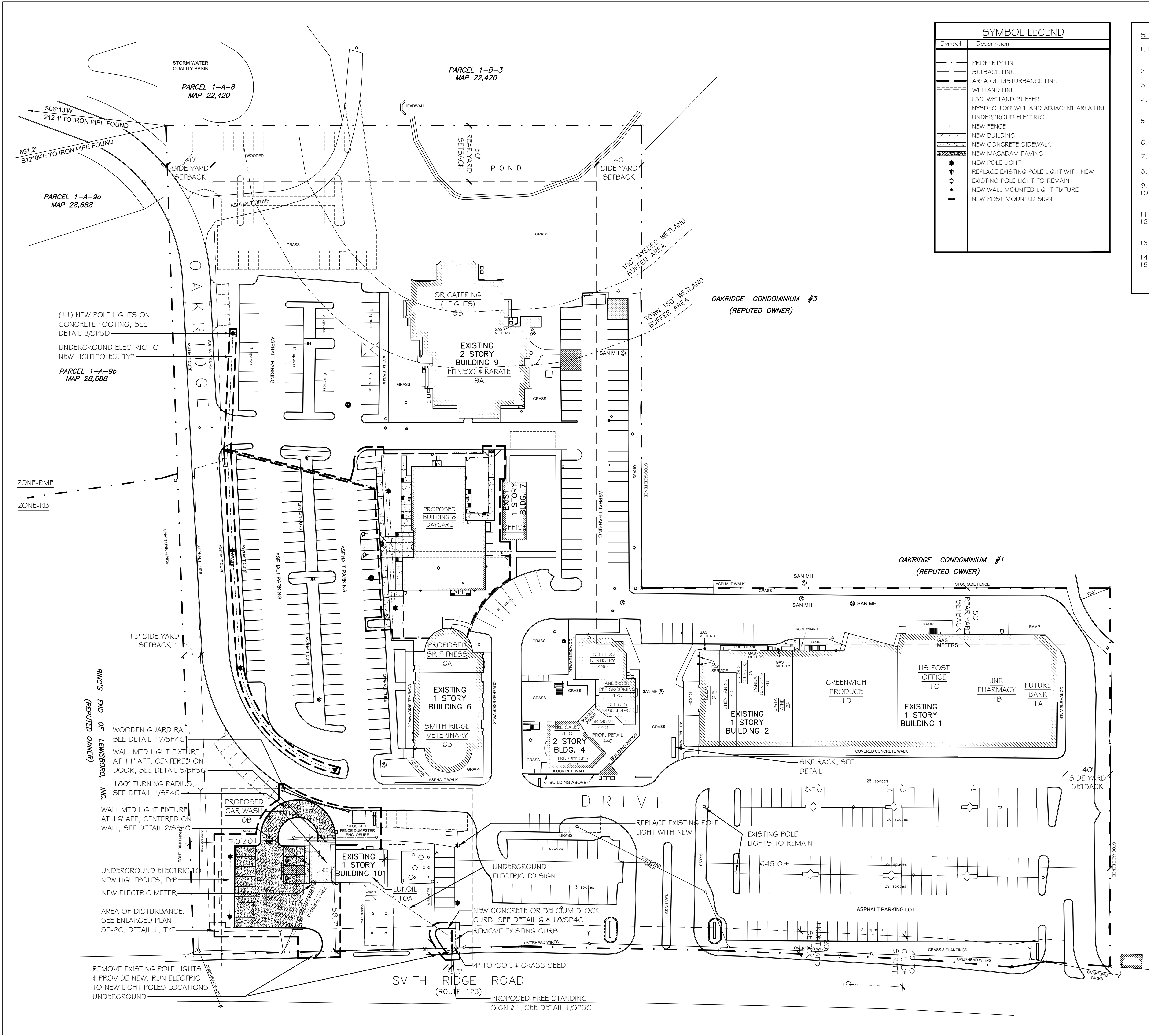
Submission includes the following drawings:

SP1 – Site Plan  
SP1C – Site Plan Phase 3 Carwash  
SP2C - Enlarged Carwash Site Plan  
SP4C – Carwash Site Details  
SP5C – Carwash Site Lighting Plan  
SE1C – Site Grading, Erosion Control and Utilities Plan  
SE2C – Notes and Soil Data  
SE3C - Details  
C1 - Carwash Existing Floor Plan and Elevations  
C2 - Carwash Proposed Floor Plan  
C3 – Carwash Proposed Elevations

Other submissions include:

Supplement to Redniss and Mead Site Engineering Report  
4/23/18 Resolution from the Town Board of the Town of Lewisboro  
Printed email from Wayne Schneider WCHD  
9/21/17 letter from Oakridge Water District,  
Copy of the Annual Drinking Water Quality Report for 2017 regarding the Oakridge Water System  
Map and Plan Report for Oakridge Water District Improvements dated August of 2018.  
10/30/18 letter from Tim Miller Associates regarding Grace Church parking  
10/31/18 letter from Tim Miller Associates regarding Sight Distance.  
Proposal from Vogler Brothers, Inc.



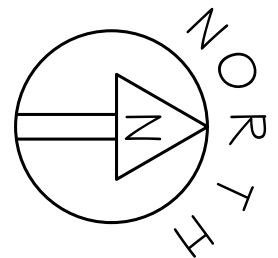


SYMBOL LEGEND	
Symbol	Description
---	PROPERTY LINE
---	SETBACK LINE
---	AREA OF DISTURBANCE LINE
---	WETLAND LINE
---	150' WETLAND BUFFER
---	NYSDEC 100' WETLAND ADJACENT AREA LINE
---	UNDERGROUD ELECTRIC
---	NEW FENCE
---	NEW BUILDING
---	NEW CONCRETE SIDEWALK
---	NEW MACADAM PAVING
---	NEW POLE LIGHT
---	REPLACE EXISTING POLE LIGHT WITH NEW
---	EXISTING POLE LIGHT TO REMAIN
---	NEW WALL MOUNTED LIGHT FIXTURE
---	NEW POST MOUNTED SIGN

- SEQUENCE OF CONSTRUCTION
1. NO WORK SHALL BEGIN ON SITE UNTIL A BUILDING PERMIT FROM THE TOWN OF LEWISBORO BUILDING DEPT. HAS BEEN ISSUED AND POSTERED ON SITE. CALL 811 BEFORE YOU DIG. MAP ALL UNDERGROUND UTILITIES IN AREA OF DISTURBANCE.
  2. EROSION CONTROL WORK AS DESCRIBED IN THE APPROVED PLANS SHALL BE IN PLACE PRIOR TO DISTURBANCE OF ANY EARTH.
  3. INSTALL ALL NECESSARY TEMPORARY BARRICADES AND FENCING FOR PROTECTION OF THE PUBLIC. PROTECT ALL LANDSCAPING TO REMAIN IN THE AREA OF DISTURBANCE.
  4. REMOVE TREES, SHRUBS AND OTHER PLANTINGS AS INDICATED IN THE DRAWINGS COMPLETELY FROM SITE IN ACCORDANCE WITH TOWN REGULATIONS. REMOVE PAVED SIDEWALKS AND OTHER PAVED AREAS AS REQUIRED.
  5. STRIP AND STOCKPILE ALL TOPSOIL FROM THE AREA OF DISTURBANCE. SURROUND THE STOCKPILE WITH HAY BALES. ROUGH GRADE THE SITE TO THE APPROXIMATE GRADES INDICATED ON THE DRAWINGS.
  6. LOCATE CONSTRUCTION DUMPSTER IN LOCATION APPROVED IN ADVANCE BY THE OWNER.
  7. EXCAVATE FOR THE FOUNDATION OF THE BUILDING TO LEVELS INDICATED. BACKFILL AFTER FOUNDATION HAS BEEN COMPLETED.
  8. EXCAVATE FOR AND INSTALL ALL STORM DRAINAGE BASINS, YARD DRAINS AND PIPING AS INDICATED ON THE DRAWINGS.
  9. EXCAVATE FOR AND INSTALL ALL UNDERGROUND UTILITIES.
  10. AFTER BUILDING EXTERIOR OF BUILDING HAS BEEN CONSTRUCTED, INSTALL SIDEWALKS AND OTHER SITE PAVING. INSTALL LIGHT POLES ON CONCRETE BASES. CONSTRUCT DUMPSTER ENCLOSURE.
  11. COMPLETE BUILDING CONSTRUCTION.
  12. SPREAD STOCKPILED TOPSOIL TO DEPTHS INDICATED ON DRAWINGS. AFTER SIDING AND ROOFING HAS BEEN COMPLETED, INSTALL LANDSCAPING AND OTHER PLANTINGS PER DRAWINGS. WATER DAILY FOR A MINIMUM OF 60 DAYS.
  13. PAVE NEW PORTION OF PARKING LOT AND RESURFACE EXISTING PORTION OF PARKING LOT. STRIPE AND INSTALL SIGNAGE.
  14. CLEAN ALL STORM DRAINAGE BASINS AND YARD DRAINS.
  15. BROOM CLEAN PARKING LOT AND REMOVE ALL TEMPORARY CONSTRUCTION BARRIERS. REMOVE DUMPSTER.

OAKRIDGE CONDOMINIUM #1  
(REPUTED OWNER)

1"=40'  
0 40 80  
SITE PLAN BASED ON SURVEY BY  
REDNISS AND MEAD  
JORGE P. PERIERO  
DATED 4/28/2016  
PARCEL 2 MAP 22,420 WCCO  
FOR SMITH RIDGE ASSOCIATES, LLC



APPROVED BY RESOLUTION OF THE LEWISBORO PLANNING BOARD	
Chairman	DATE
Secretary	DATE
TOWN ENGINEER'S CERTIFICATION Reviewed for compliance with the Planning Board Resolution dated _____	
Joseph M. Cermele, P.E.	Date
Kellard Sessions Consulting, P.C. Town Consulting Engineer	
OWNER'S CERTIFICATION The undersigned is the owner(s) of the property shown hereon, is familiar with this drawing and its contents, and hereby approves same for filing.	
Owners Name: Smith Ridge Associates, LLC - Philip Pine, Managing Partner Date Owners Address: 450 Oakridge Common, South Salem, NY 10590	

CROSS RIVER ARCHITECTS, LLC

ROBERT J. EBERT'S R.A., PRINCIPAL

PROJECT

OAKRIDGE COMMONS SHOPPING CENTER

SMITH RIDGE ROAD

LEWISBORO, NY

TITLE

SITE PLAN PHASE 3 - CAR WASH

DATE

JUNE 27, 2016

SCALE

1" = 40'-0"

PROJ. #

DRAWING

SP/IC

SEAL

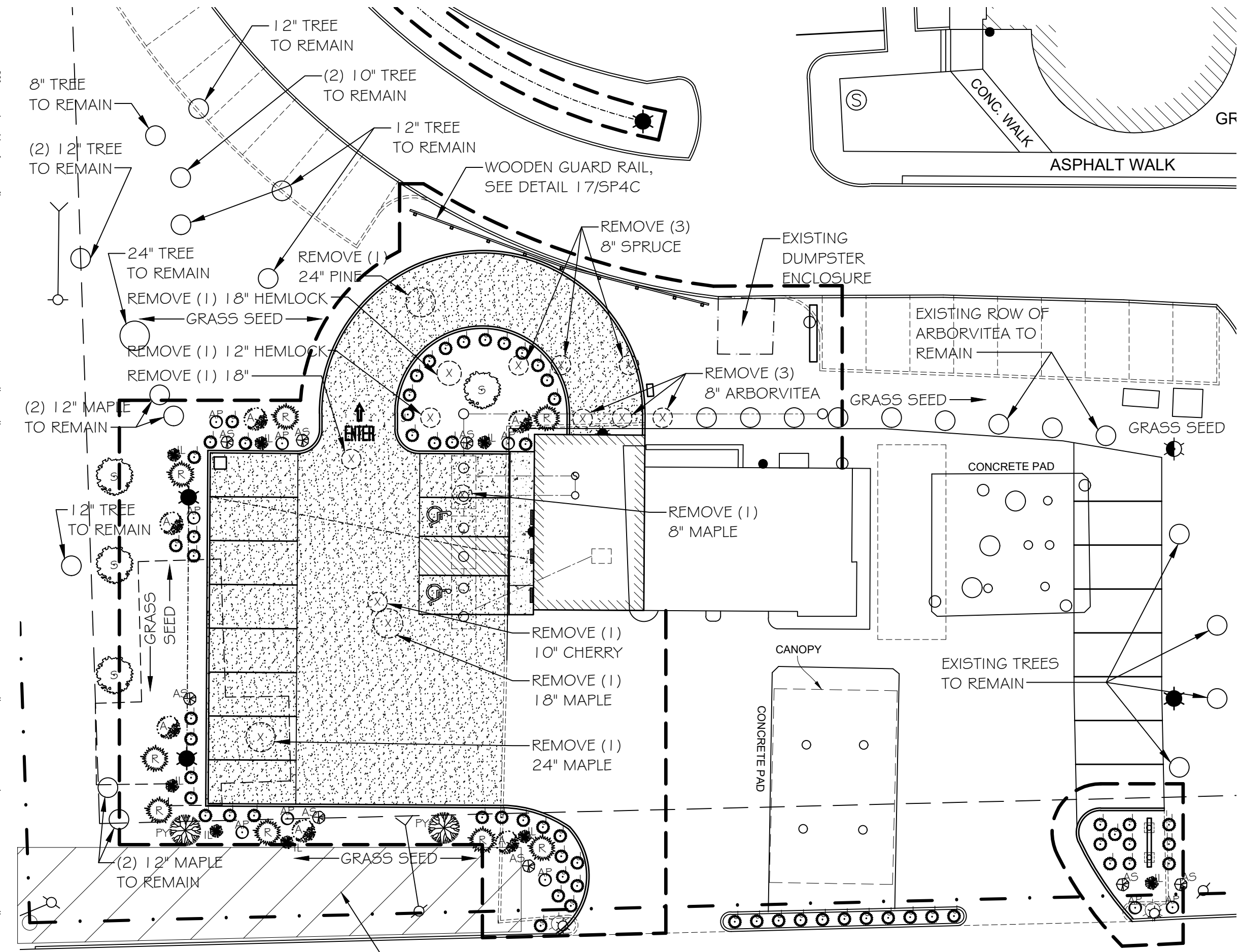
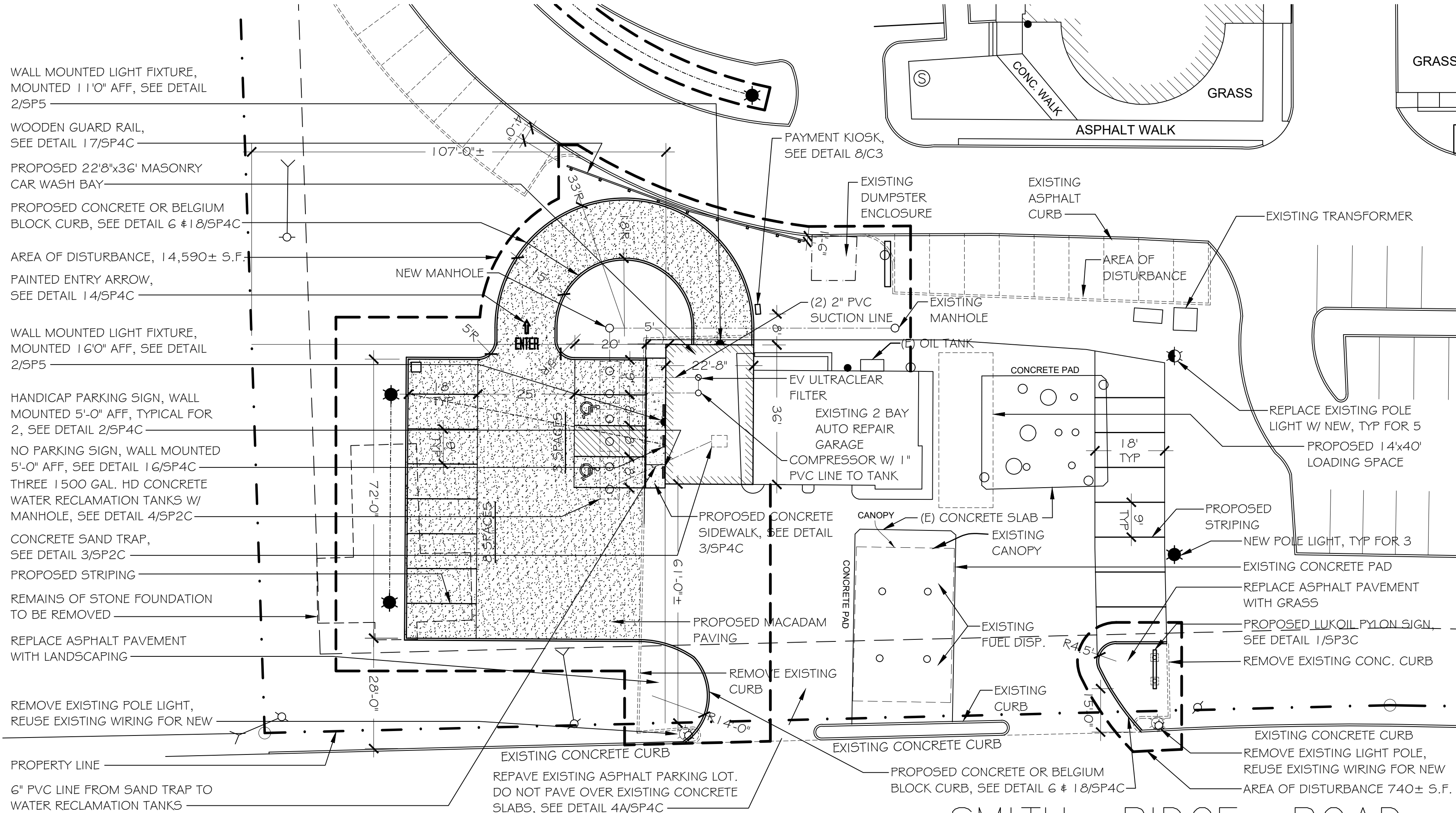
REVISIONS

No.	Date	Desc.

914.763.5887

FAX 914.763.8409





1 ENLARGED GAS STATION PLAN  
SCALE: 1"=20'-0"

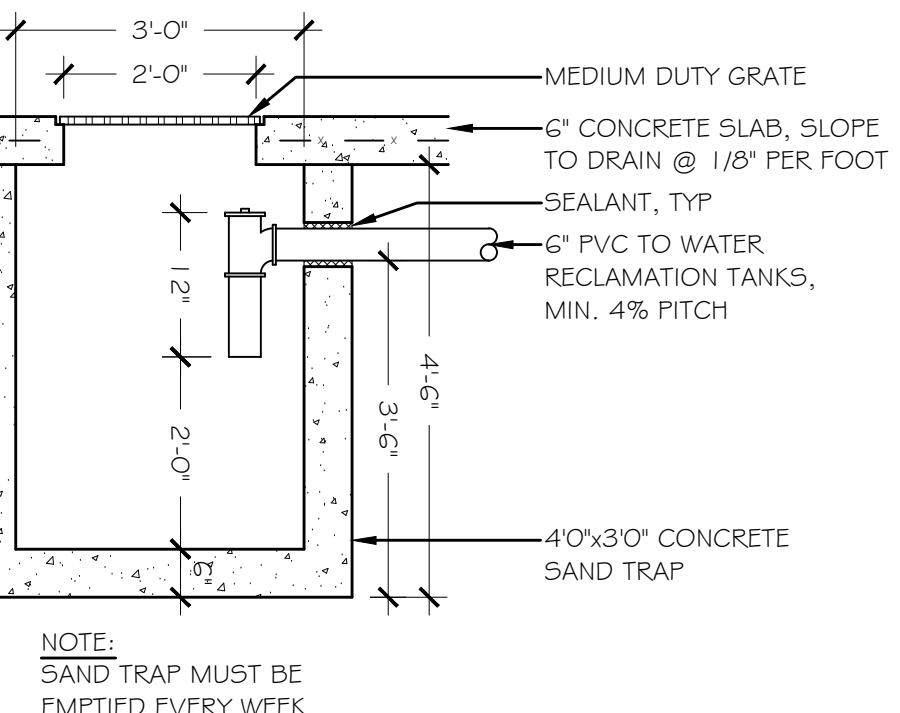
NOTE:  
PROVIDE NEW RECORDING WATER METER DEDICATED TO THE CAR WASH.  
APPLICANT SHALL SUBMIT A WATER USAGE REPORT TO THE TOWN OF LEWISBORO ON A BI-ANNUAL BASIS.

SYMBOL LEGEND	
Symbol	Description
---	PROPERTY LINE
---	SETBACK LINE
---	AREA OF DISTURBANCE LINE
---	WETLAND LINE
---	150' WETLAND BUFFER
---	NYSDC 100' WETLAND ADJACENT AREA LINE
---	UNDERGROUND ELECTRIC
---	NEW FENCE
---	NEW BUILDING
---	NEW CONCRETE SIDEWALK
---	NEW MACADAM PAVING
---	NEW POLE LIGHT
---	REPLACE EXISTING POLE LIGHT WITH NEW
---	EXISTING POLE LIGHT TO REMAIN
---	NEW WALL MOUNTED LIGHT FIXTURE
---	NEW POST MOUNTED SIGN

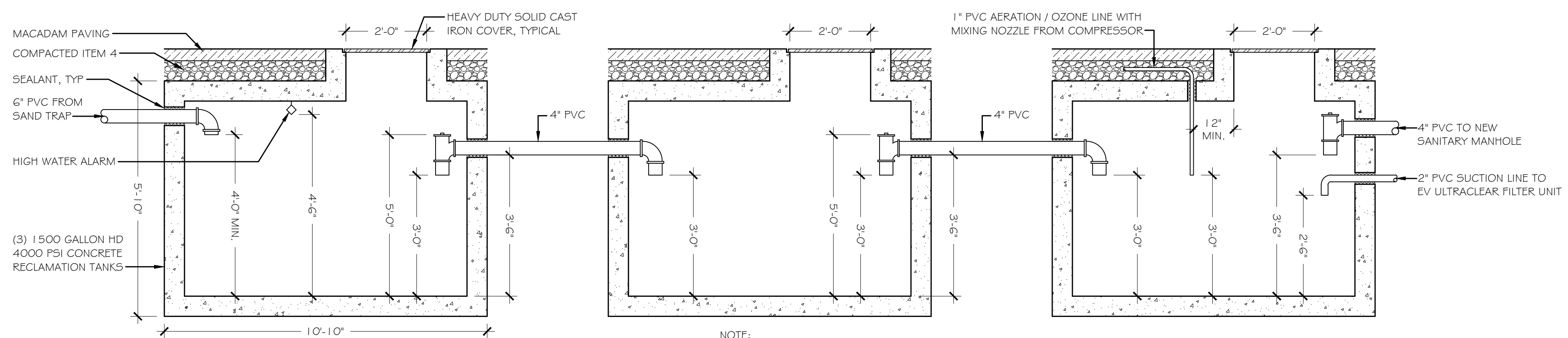
2 CAR WASH LANDSCAPE PLAN  
SCALE: 1"=20'-0"

LANDSCAPING SCHEDULE				
KEY	BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY
S	PICEA FUNGENS "HOOPSII"	COLORADO BLUE SPRUCE	4-5'	4
PY	PRUNUS YEDOENSIS	YOSHINO CHERRY	3" CAL, B&B	2
A	PIERIS JAPONICA	JAPANESE ANDROMEDA	3 GAL	7
R	RHODODENDRON PJM	RHODODENDRON PJM	3 GAL	9
IL	ILEX GLABRA COMPACTA	COMPACT INKBERRY	2 GAL	8
J	JUNIPERUS HORIZONTALIS	CREeping JUNIPER	2 GAL	62
AP	AZALEA PLEASANT WHITE	WHITE AZALEA	2 GAL	8
AS	RHODODENDRON BLUEWAVS	BLUEWAVS AZALEA, RED FLOWER	2 GAL	8
X	TREE OR SHRUB TO BE REMOVED			14

- NOTES:
- ALL BEDS SHALL RECEIVE 4" CEDAR MULCH.
  - PROVIDE 6" OF CLEAN, LOOSE TOPSOIL IN ALL AREAS TO RECEIVE TREES OR SHRUBS.
  - PROVIDE 3" OF CLEAN LOOSE TOPSOIL IN ALL AREAS BE SEEDDED WITH GRASS. GRASS SEED SHALL BE A MIX OF 50% BLUEGRASS, 25% RED FESCUE AND 25% RYE.
  - ALL PLANT SUBSTITUTIONS REQUIRE PRIOR APPROVAL BY THE LEWISBORO PLANNING BD. OR ITS AUTHORIZED AGENT.
  - BE AWARE OF ALL UNDERGROUND UTILITIES PRIOR TO PLANTING OPERATION. CONTACT \* CALL BEFORE YOU DIG\* PRIOR TO EXCAVATION.
  - ALL PLANTINGS SHALL BE OF NURSERY STOCK, VIGOROUS AND ROBUST WHEN PLANTED AND SHALL BE MAINTAINED IN A VIGOROUS GROWING CONDITION AND FREE OF DEBRIS.
  - ALL PLANT MATERIAL INCLUDING TREES AND SHRUBS SHALL BE GUARANTEED BY THE CONTRACTOR TO BE GOOD, HEALTHY, FLOURISHING CONDITION FOR 1 YEAR AFTER PLANTING. THE CONTRACTOR SHALL REPLACE ALL DEAD PLANTS AND THOSE IN POOR CONDITION AT NO COST TO THE OWNER, INCLUDING LABOR AND MATERIALS.
  - ALL SHRUBS AND TREES SHALL BE PLANTED TO MATCH DETAILS 3 AND 4 / SP2D.
  - ALL TREES AND SHRUBS OUTSIDE OF AREA OF DISTURBANCE SHALL REMAIN.
  - ALL WOODY DEBRIS AND INVASIVE PLANT MATERIAL SHALL BE REMOVED FROM THE AREA OF DISTURBANCE.



3 SAND TRAP DETAIL  
SCALE: 1/2"=1'-0"



4 WATER RECLAMATION TANK DETAIL  
SCALE: 1/2"=1'-0"

APPROVED BY RESOLUTION OF THE LEWISBORO PLANNING BOARD

Chairman \_\_\_\_\_ DATE \_\_\_\_\_

Secretary \_\_\_\_\_ DATE \_\_\_\_\_

TOWN ENGINEER'S CERTIFICATION  
Reviewed for compliance with the Planning Board Resolution dated \_\_\_\_\_

Joseph M. Cermele, P.E. \_\_\_\_\_ Date \_\_\_\_\_

Kellard Sessions Consulting, P.C.  
Town Consulting Engineer

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CROSS RIVER ARCHITECTS, LLC  
ROBERT J. EBERTS R.A., PRINCIPAL

914.763.5887  
FAX 914.763.8409

PROJECT  
OAKRIDGE COMMONS SHOPPING CENTER  
SMITH RIDGE ROAD  
LEWISBORO, NY

TITLE  
ENLARGED CAR WASH SITE & LANDSCAPE PLANS

DATE  
JUNE 27, 2018

SCALE  
1"=20'-0"

PROJ. #

SEAL

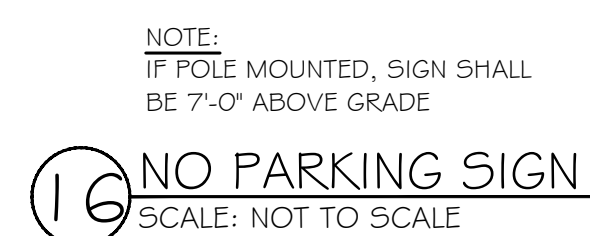
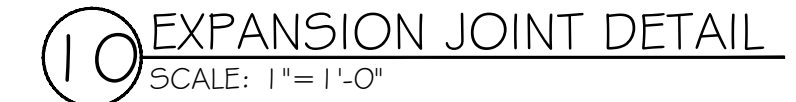
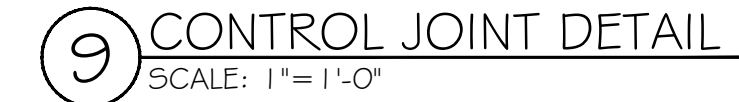
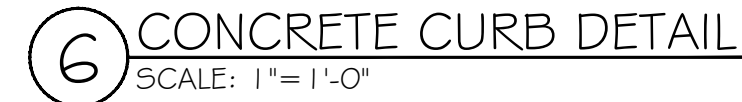
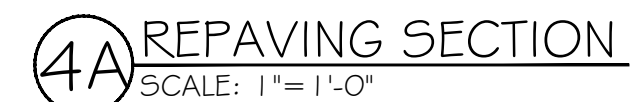
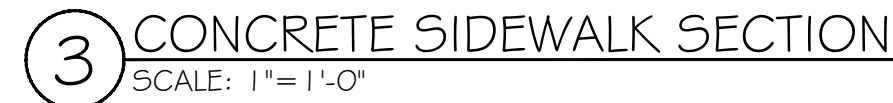
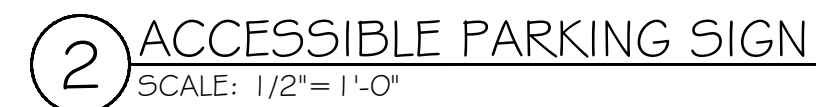
REVISIONS

SP/2C



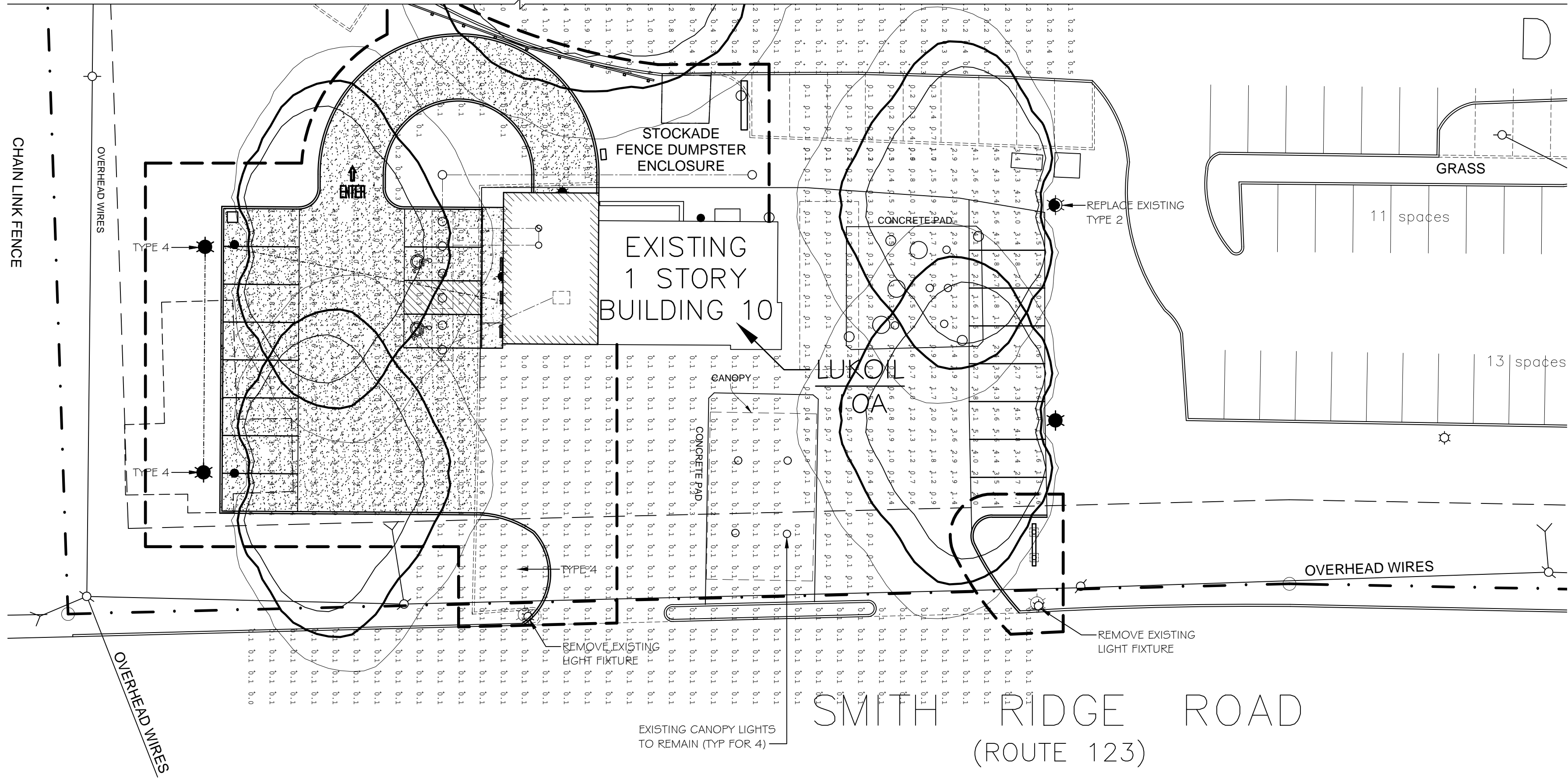






APPROVED BY RESOLUTION OF THE LEWISBORO BOARD	
Chairman	DATE
Secretary	DATE
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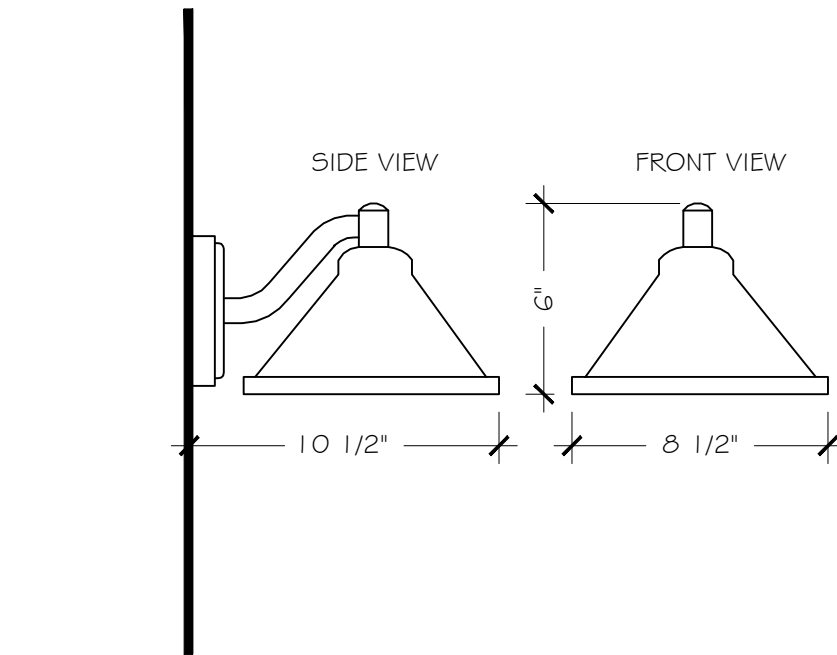




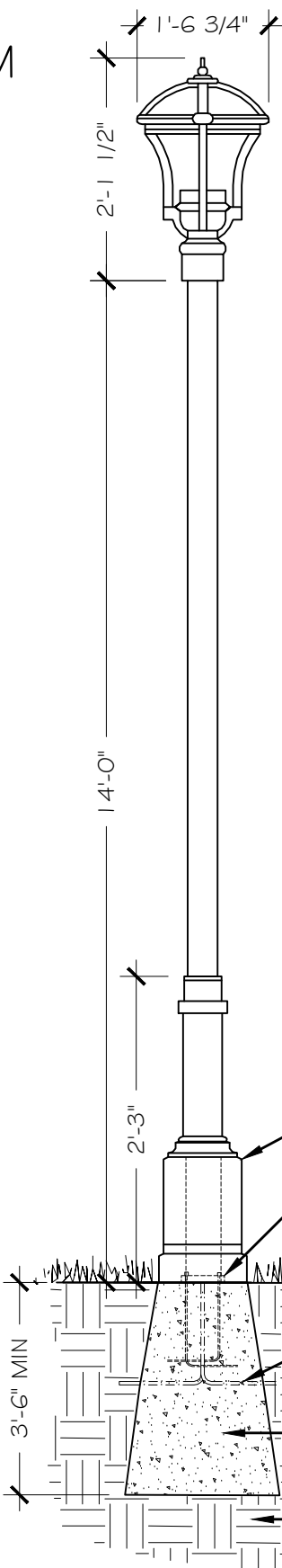
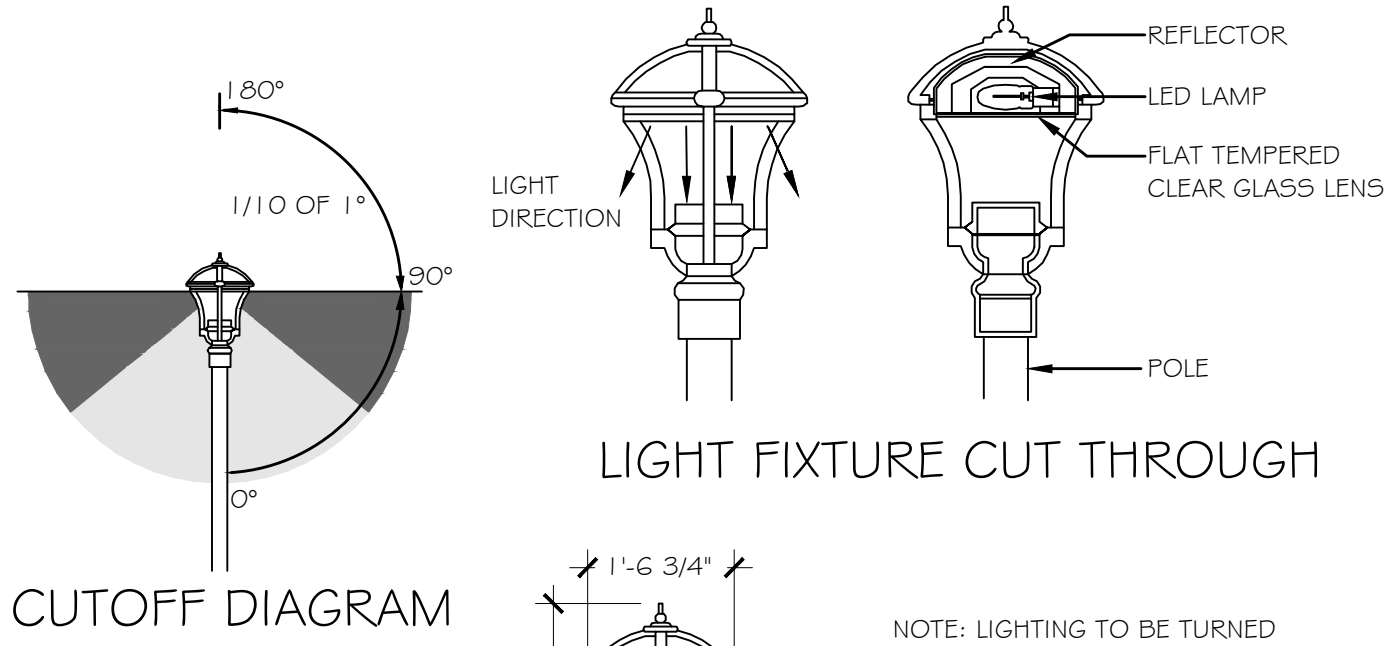
1 LIGHTING PLAN  
SCALE: 1"=20'-0"

PROPOSED ILLUMINANCE LEVELS			
	Min	Ave.	Max.
At Property Line (Street)	0.0 fc	0.1 fc	2.7 fc
At Property Line (South)	0.0 fc	0.0 fc	0.0 fc
In Parking Lot	0.0 fc	1.2 fc	5.6 fc
At Building Entrance	0.1 fc	0.1 fc	0.1 fc

- EXTERIOR LIGHTING NOTES
1. ALL EXTERIOR LIGHTS MUST BE CONTROLLED BY TIMECLOCK AND PHOTOCELL.
  2. ALL EXTERIOR LIGHTS MUST BE OFF BETWEEN 12:00 MIDNIGHT AND 6:00AM.
  3. ALL EXTERIOR LIGHTS SHALL BE LED, 3500K- 4000 K.
  4. POLE LIGHTS SHALL BE ARCHITECTURAL AREA LIGHTING PROVIDENCE SERIES PROV- (LIGHT SPREAD TYPE AS INDICATED ON PLAN) CCT-700-DB-DF-LDL-PCAT-32LED 4000K-700 WITH CLEAR TEMPERED LENS. POST SHALL BE 4" DIA. ROUND 14' HEIGHT WITH BASE # D89. SET POLE WITH 1 2" DIA. CONCRETE PIER, 3'6" BELOW GRADE.



2 WALL LIGHT  
SCALE: NOT TO SCALE



3 POLE LIGHT  
SCALE: NOT TO SCALE

FIXTURE TO BE MINKA  
LAVERY CODE: ML8101-138  
FINISH TO BE ASPEN BRONZE  
WATTAGE TO BE 18 WATT,  
4000K LED LAMP

NOTE: PRIOR TO SPECIFYING AN  
'OR APPROVED EQUAL' FIXTURE,  
POST OR BASE LEWISBORO  
PLANNING BOARD APPROVAL IS  
REQUIRED. THIS FIXTURE DOES  
NOT REQUIRE ANY CLEAR GLASS  
LENS

NOTE: LIGHT FIXTURE TO MEET ALL  
LEWISBORO LIGHTING STANDARDS  
(REG. 220.14 - EXTERIOR LIGHTING  
AND STATE REGULATIONS

NOTE: LIGHT FIXTURE IS IDA  
APPROVED - DARK SKY FRIENDLY  
FIXTURE, SEE WWW.MINKAGROUP.NET  
FOR ADDITIONAL INFORMATION

NOTE: LIGHTING TO BE TURNED  
OFF BETWEEN THE HOURS OF  
12:00AM AND 6:00AM

NOTE: PRIOR TO SPECIFYING AN  
'OR APPROVED EQUAL' FIXTURE,  
POST OR BASE LEWISBORO  
PLANNING BOARD APPROVAL IS  
REQUIRED

HORIZONTAL LAMP REFLECTOR,  
FLAT TEMPERED CLEAR GLASS LENS

NOTE: LIGHT FIXTURE TO MEET ALL  
LEWISBORO LIGHTING STANDARDS  
(REG. 220.14 - EXTERIOR LIGHTING)  
AND STATE REGULATIONS

NOTE: LIGHT FIXTURE TO BE FULL  
CUT-OFF OPTICAL SYSTEM WITH  
HORIZONTAL REFLECTORS

APPROVED BY RESOLUTION OF THE LEWISBORO PLANNING BOARD	
Chairman	DATE
Secretary	DATE
TOWN ENGINEER'S CERTIFICATION Reviewed for compliance with the Planning Board Resolution dated _____.	
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REVISIONS		No.	Date

SEAL

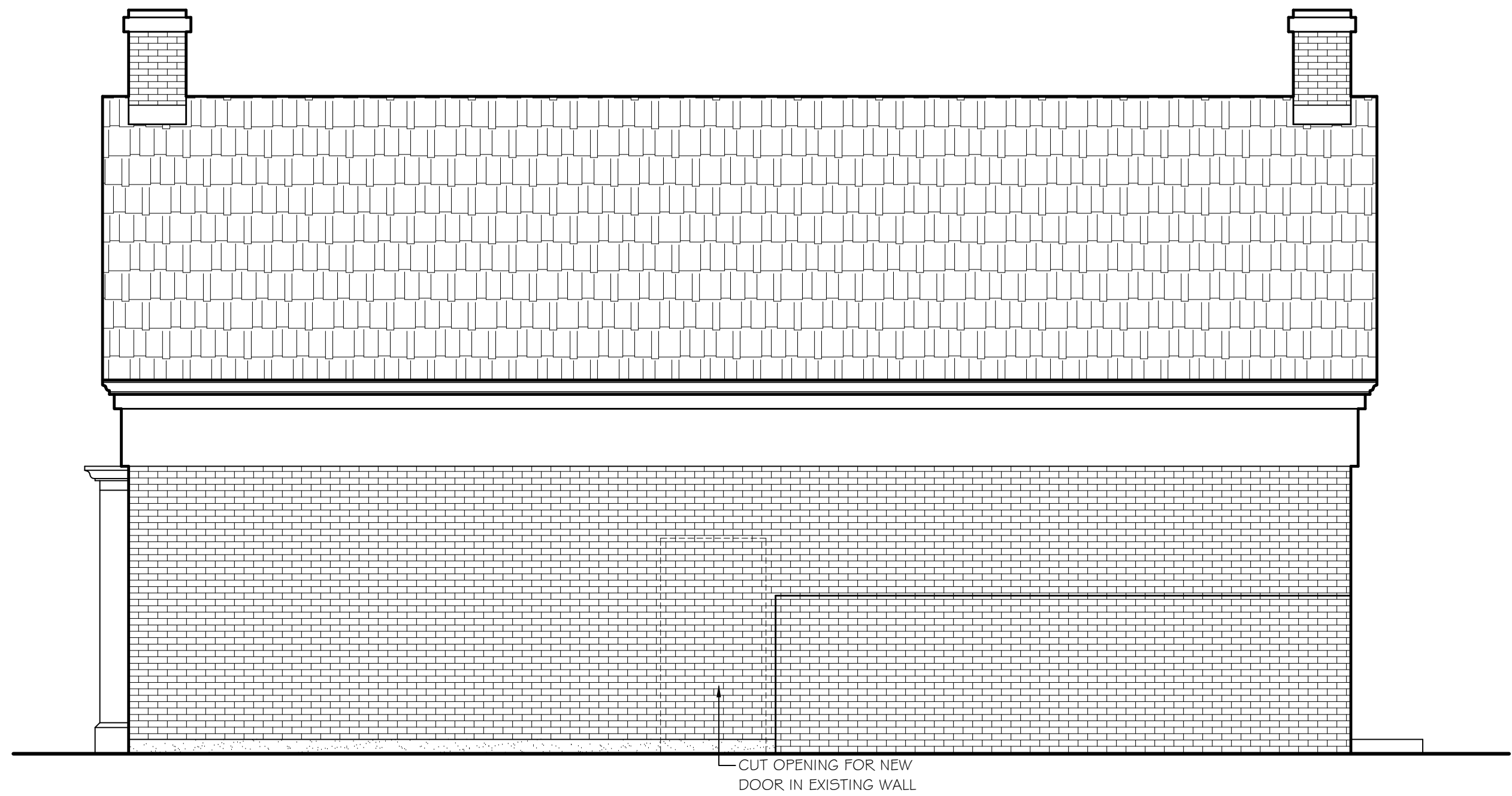
**CROSS RIVER ARCHITECTS, LLC**  
ROBERT J. EBERTS R.A., PRINCIPAL

P.O. BOX 384  
19 NO. SALEM RD. 2nd FL.  
CROSS RIVER, N.Y. 10518

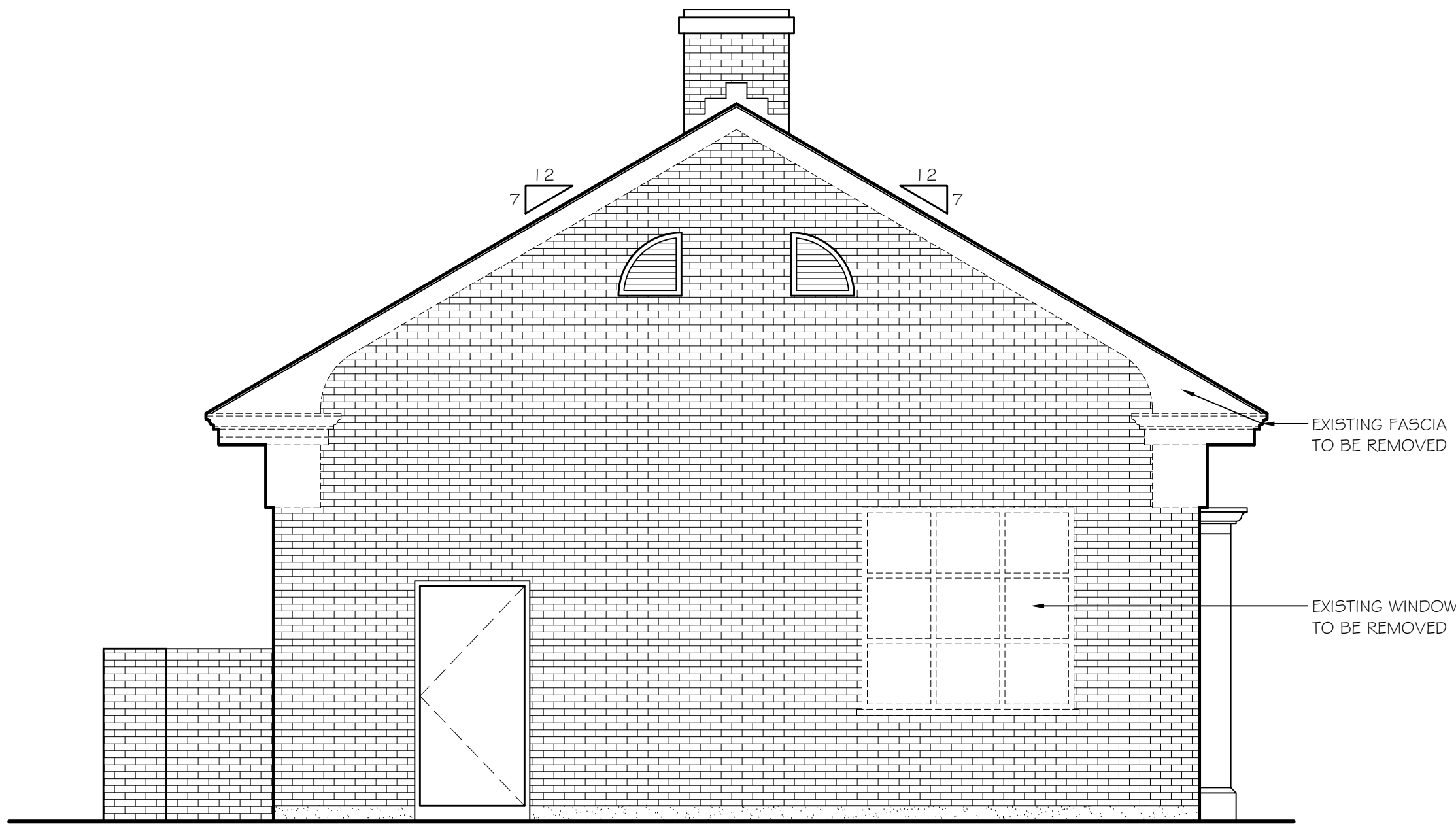
914.763.5887  
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PROJECT OAKRIDGE COMMONS SHOPPING CENTER SMITH RIDGE ROAD LEWISBORO, NY	TITLE CARWASH LIGHTING PLAN AND DETAILS
DATE JUNE 27, 2018	SCALE AS NOTED
DRAWING	

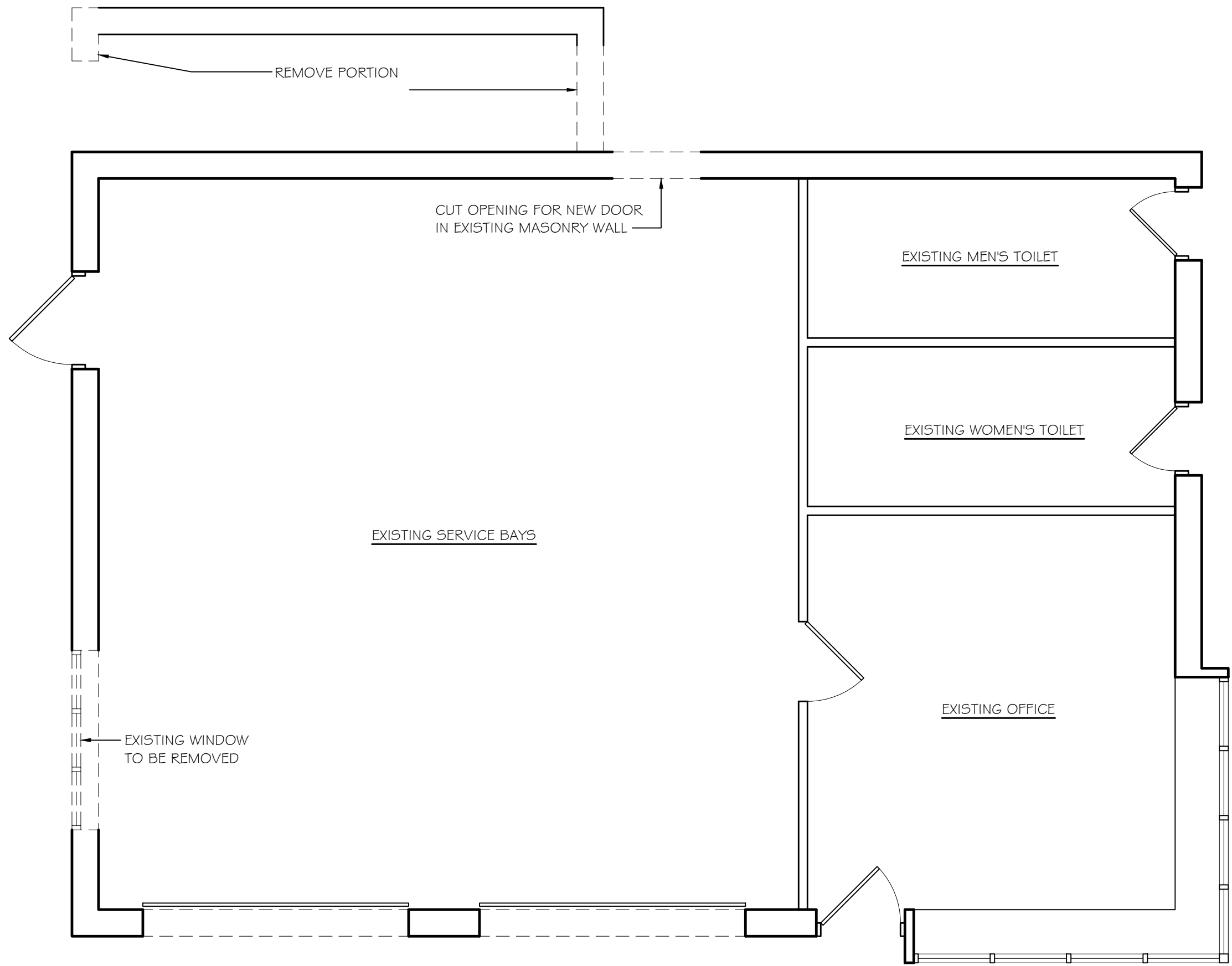




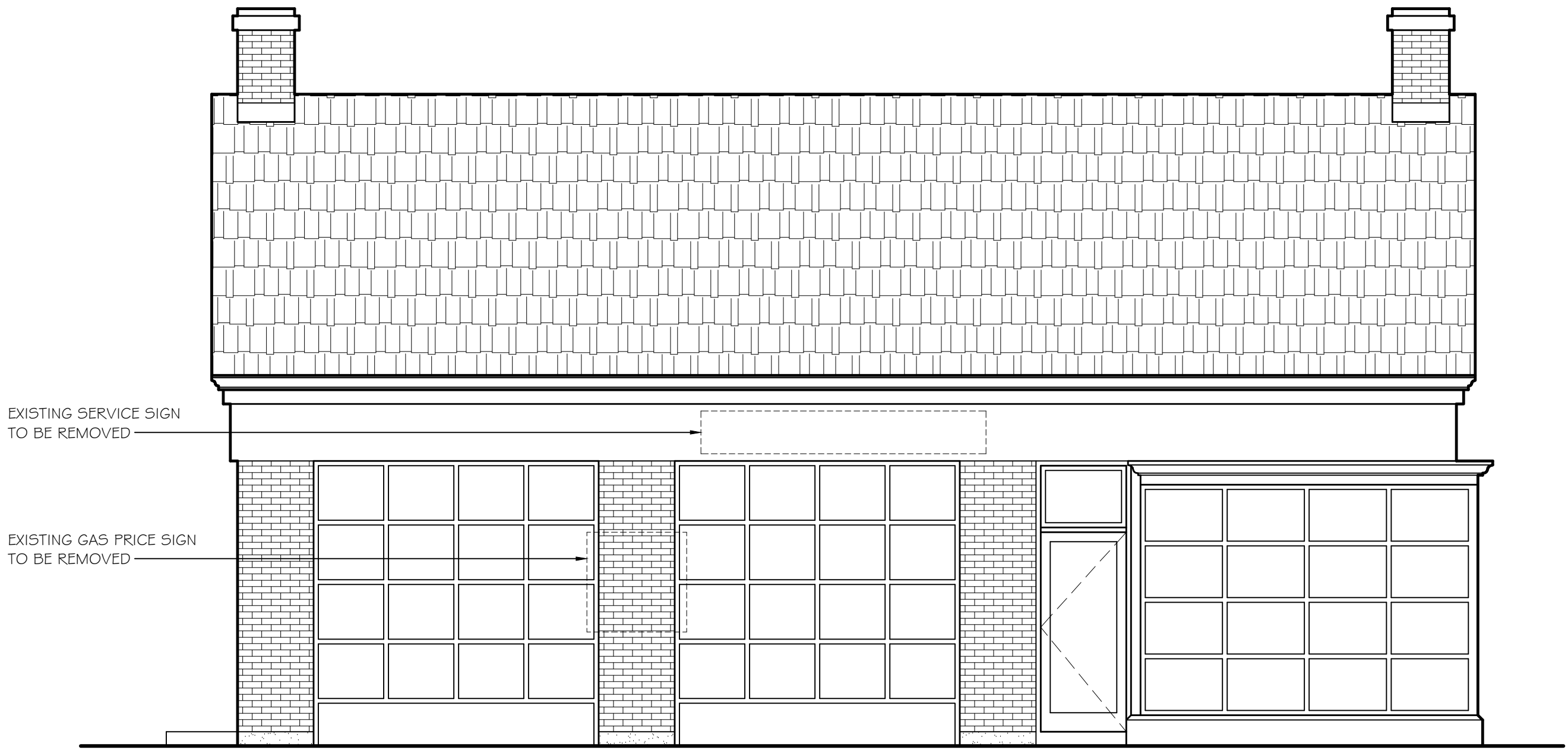
4 EXISTING REAR (WEST) ELEVATION  
SCALE: 1/4"= 1'-0"



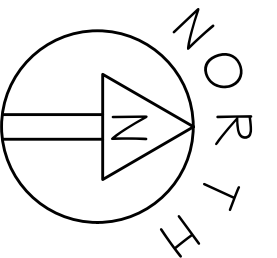
3 EXISTING LEFT (SOUTH) ELEVATION  
SCALE: 1/4"= 1'-0"



1 EXISTING FLOOR PLAN  
SCALE: 1/4"= 1'-0"



2 EXISTING FRONT (EAST) ELEVATION  
SCALE: 1/4"= 1'-0"



APPROVED BY RESOLUTION OF THE LEWISBORO PLANNING BOARD	
Chairman _____	DATE _____
Secretary _____	DATE _____
TOWN ENGINEER'S CERTIFICATION Reviewed for compliance with the Planning Board Resolution dated _____.	
Joseph M. Cermele, P.E. _____	Date _____
Kellard Sessions Consulting, P.C. Town Consulting Engineer	
OWNER'S CERTIFICATION The undersigned is the owner(s) of the property shown hereon, is familiar with this drawing and its contents, and hereby approves same for filing.	
Owners Name: Smith Ridge Associates, LLC – Philip Pine, Managing Partner Date Owners Address: 450 Oakridge Common, South Salem, NY 10590	

REVISIONS

SEAL

CROSS RIVER ARCHITECTS, LLC  
ROBERT J. EBERTS R.A., PRINCIPAL

914.763.5887  
FAX 914.763.8409

PROJECT  
OAKRIDGE COMMONS SHOPPING CENTER  
SMITH RIDGE ROAD  
LEWISBORO, NY

TITLE  
CARWASH EXISTING FLOOR PLAN AND ELEVATIONS

DATE  
FEB. 03, 2018

PROJ. #

DRAWING





## KEY DESCRIPTION

- 1 RECLAIM FILTER UNIT
- 2 EV ULTRACLEAR RECLAIM SYSTEM
- 3 AIR COMPRESSOR
- 4 PUMP STAND
- 5 CHEMICAL PUMP
- 6 CHEMICAL TANKS ON SHELF
- 7 100 GAL R.O. WATER STORAGE
- 8 CARBON FILTER
- 9 RAINMAKER III R.O. SYSTEM
- 10 CONTROL BOX
- 11 OVERHEAD DRYER FANS
- 12 WASH GANTRY
- 13 TRENCH UNDERCARRIAGE MANIFOLD
- 14 TERMINAL CONTROL BOX
- 15 FROST ALARM CONTROL BOX
- 16 OSCILLATION ROCKER PANEL PEDESTALS
- 17 AUTO DOOR CONTROLS
- 18 TIRE CHARGE MANIFOLD

Yes	Disagree	Dislike

**CROSS RIVER ARCHITECTS, LLC**  
ROBERT J. EBERTS R.A., PRINCIPAL

914.763.5887  
FAX 914.763.8409

19 NO. SALEM RD. 2nd FL.  
CROSS RIVER, N.Y. 10518

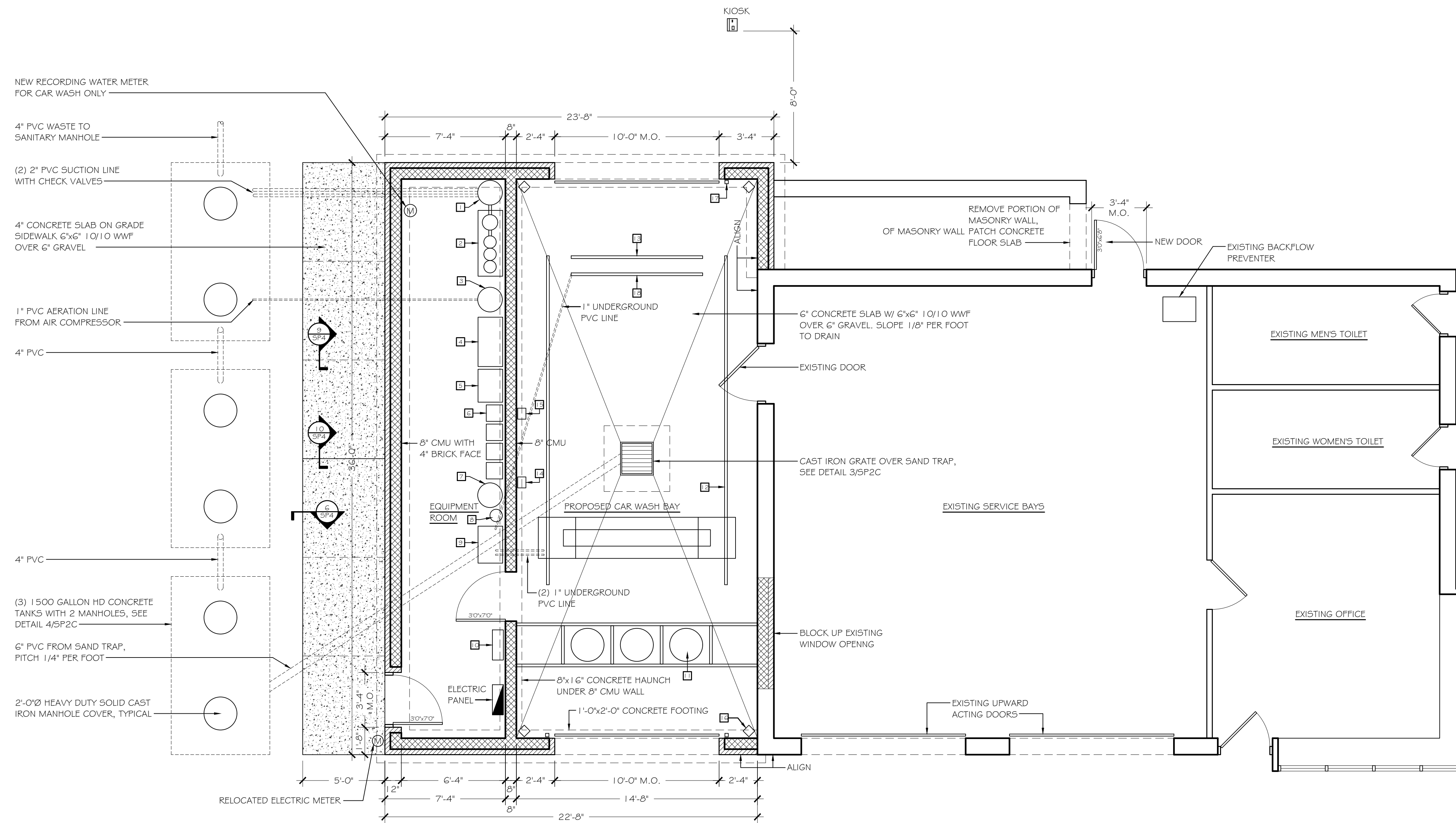
**OAKRIDGE COMMONS SHOPPING CENTER**  
SMITH RIDGE ROAD  
LEWISBORO, NY

CARWASH PROPOSED FLOOR PLAN

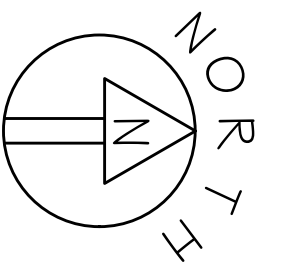
DATE  
FEB. 03, 2018

SCALE  
1/4" = 1'-0"

RAWING

$$C/2$$


1 PROPOSED FLOOR PLAN  
SCALE: 1/4" = 1'-0"



APPROVED BY RESOLUTION OF THE LEWISBORO PLANNING BOARD

Chairman	DATE
----------	------

Secretary	DATE
-----------	------

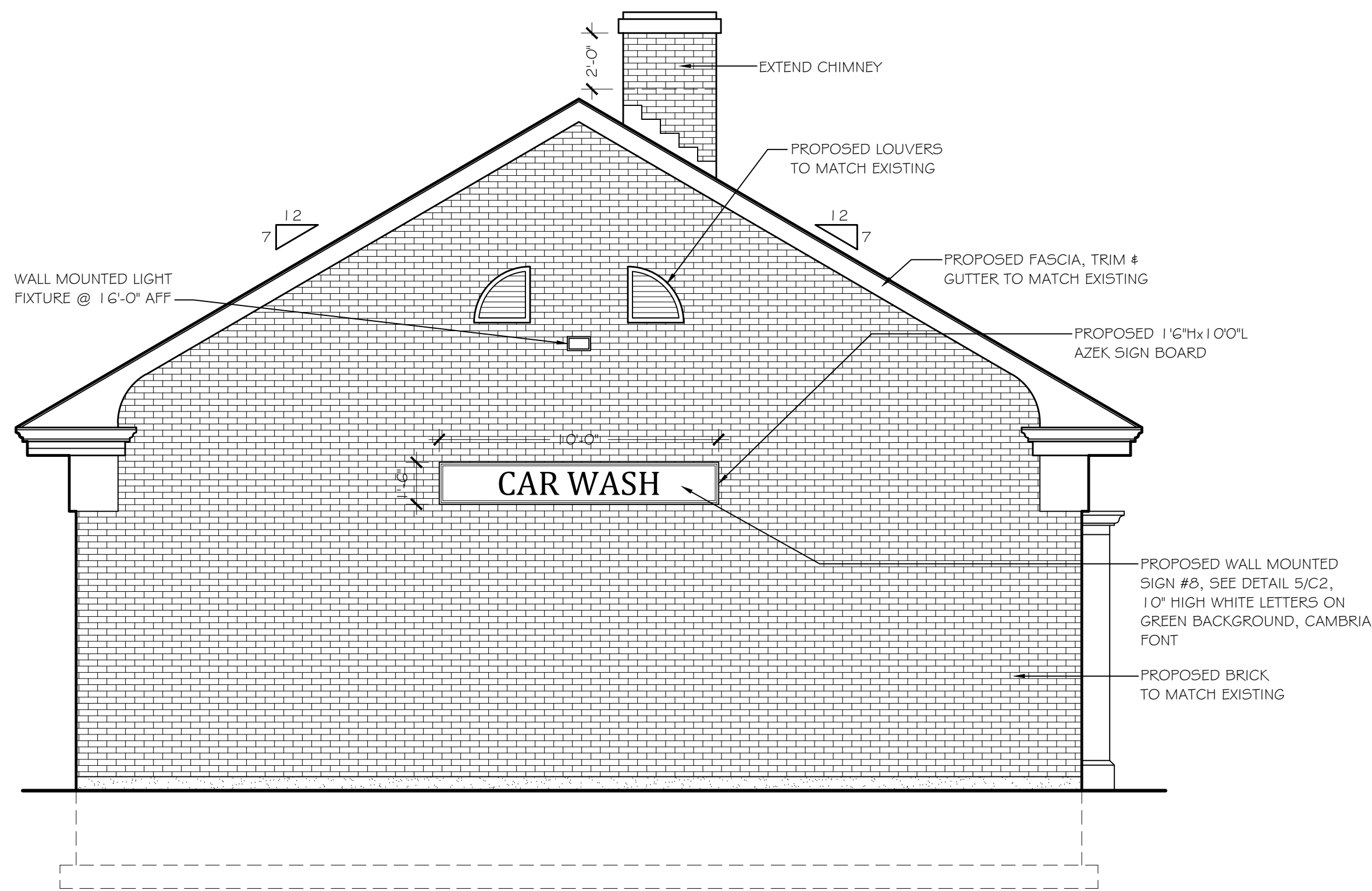
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Reviewed for compliance with the Planning Board Resolution dated\_\_\_\_\_.

\_\_\_\_\_  
Joseph M. Cermele, P.E. Date

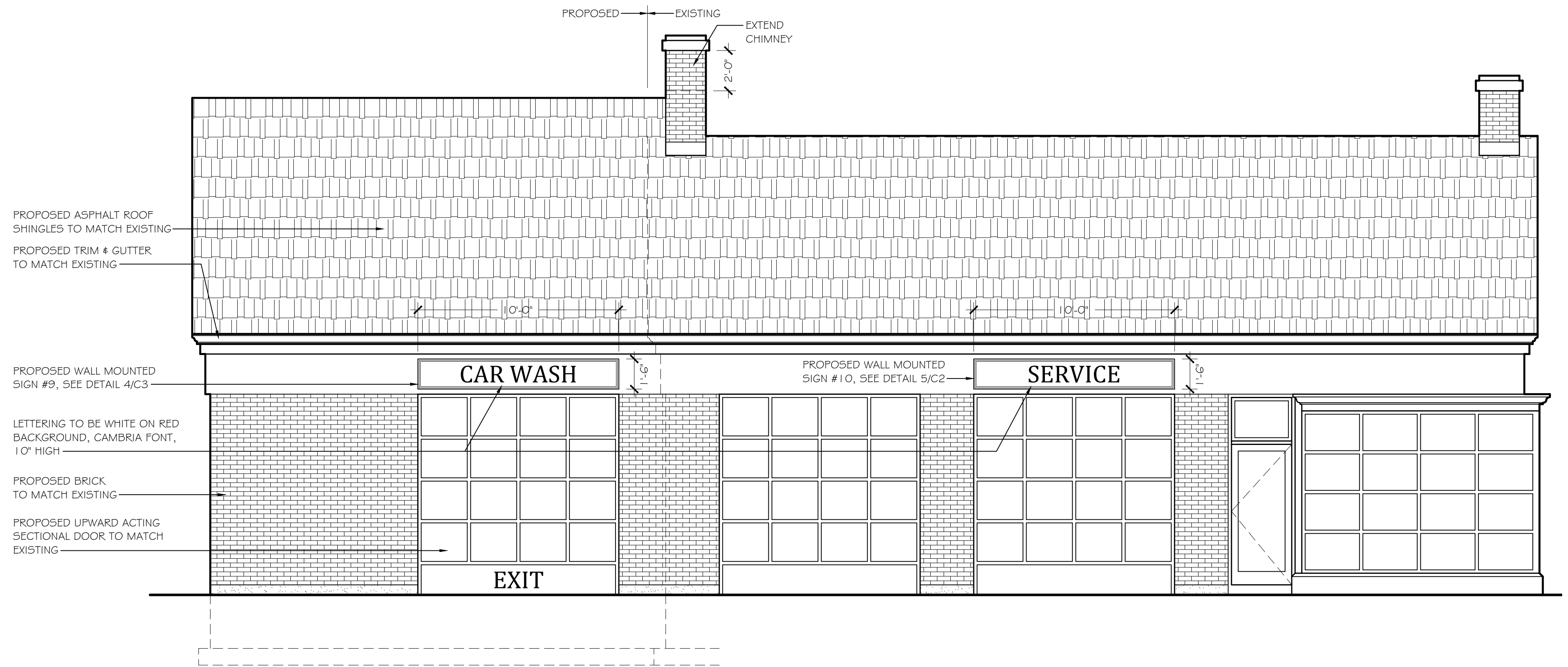
Kellard Sessions Consulting, P.C.  
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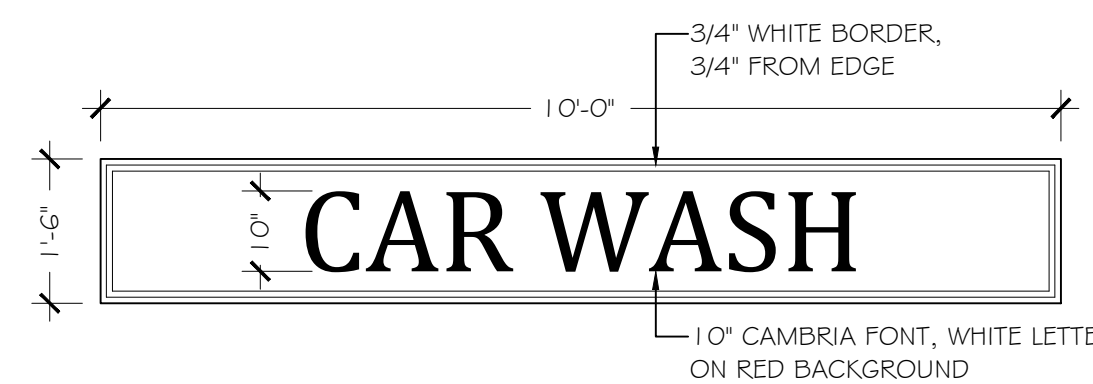
Owners Name: Smith Ridge Associates, LLC – Philip Pine, Managing Partner Date  
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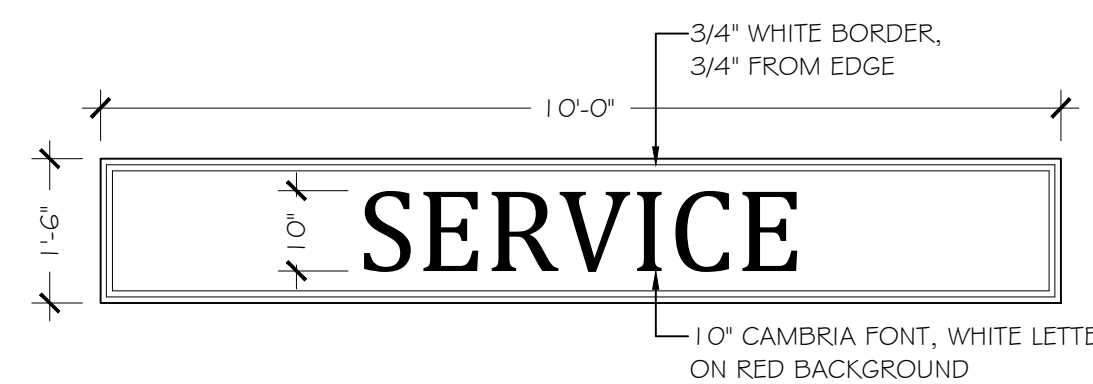
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SCALE: 1/4" = 1'-0"



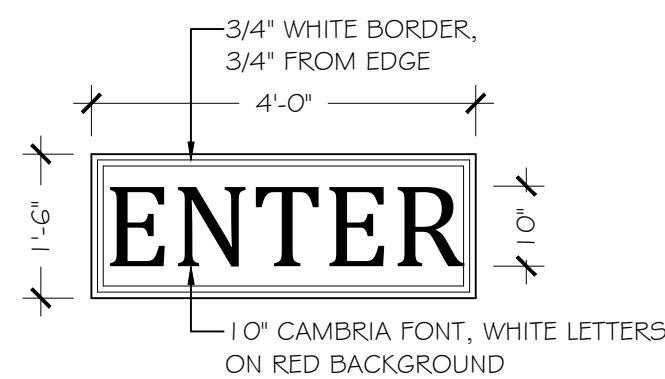
1 PROPOSED FRONT (EAST) ELEVATION  
SCALE: 1/4" = 1'-0"



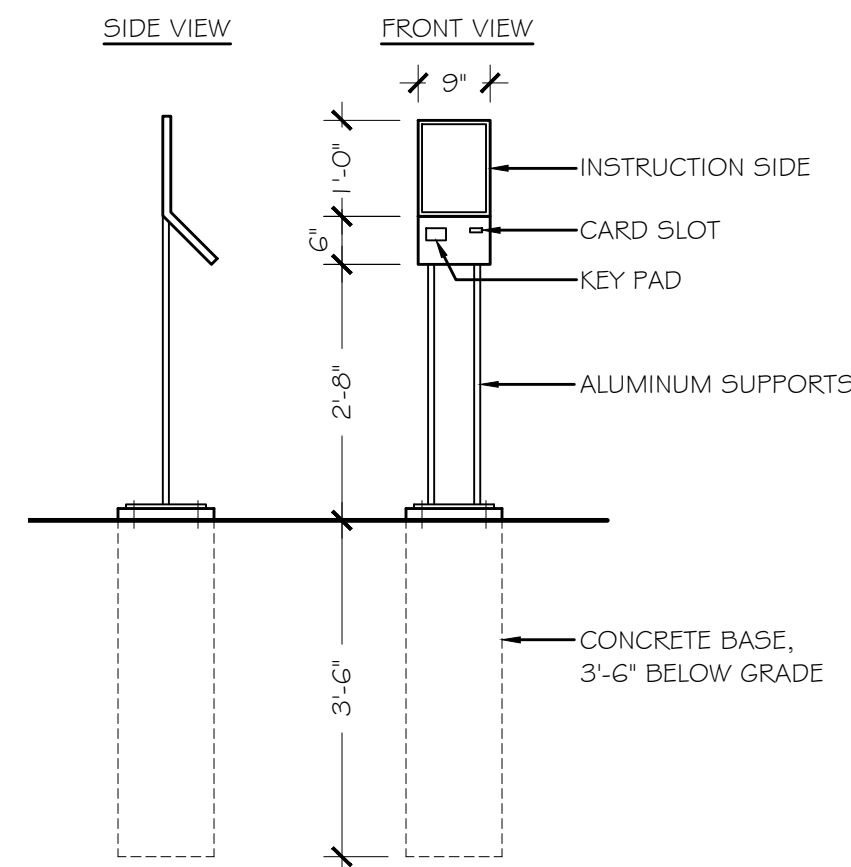
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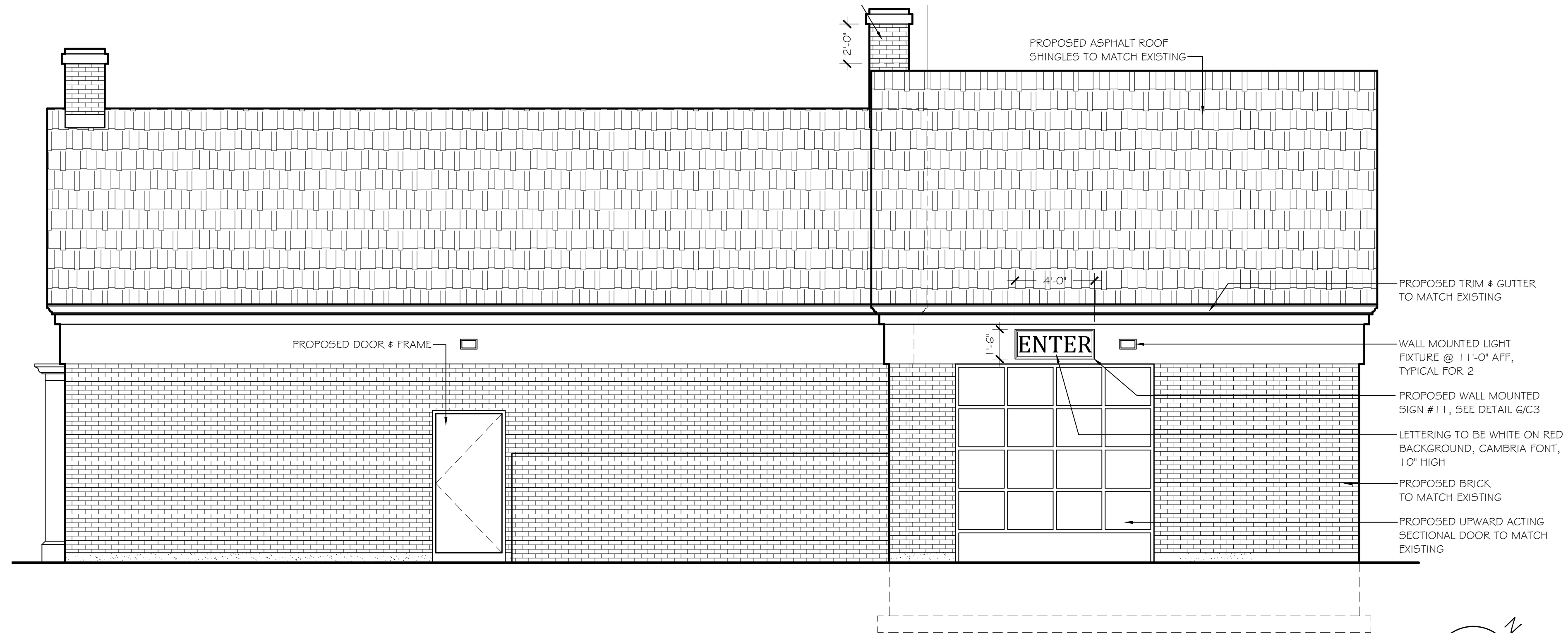
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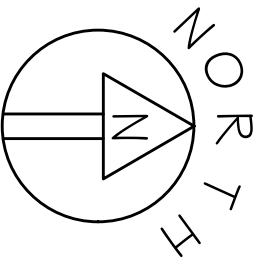
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SCALE: 1/2" = 1'-0"



8 KIOSK DETAIL  
SCALE: 1/2" = 1'-0"



3 PROPOSED REAR (WEST) ELEVATION  
SCALE: 1/4" = 1'-0"



APPROVED BY RESOLUTION OF THE LEWISBORO PLANNING BOARD	
Chairman	DATE
Secretary	DATE
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REVISIONS			
No.	Date	Desc.	

SEAL

CROSS RIVER ARCHITECTS, LLC  
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PROJECT  
OAKRIDGE COMMONS SHOPPING CENTER  
SMITH RIDGE ROAD  
LEWISBORO, NY

TITLE  
CARWASH PROPOSED FLOOR PLAN AND ELEVATIONS  
DATE  
FEB. 03, 2018

DRAWING

C/3



**Oakridge - Phase III Car Wash**  
**2015 - 2018 Oakridge Water and Sewer Daily Volumes**  
 (DAILY USAGE DATA PROVIDED BY VRI ENVIRONMENTAL SERVICES)

February 7, 2018

*Revised: October 31, 2018 - 2018 water usage data*

**Water Usage (gpd) (Rev. Oct. 2018)**

	2015	2016	2017	2018	
January	45,700	45,000	72,744	46,226	Water Main Break
February	46,100	46,200	75,786	46,179	
March	43,300	44,500	73,335	45,645	
April	47,300	45,000	56,933	46,733	
May	50,700	49,035	54,387	53,484	
June	50,200	55,233	56,933	55,000	
July	53,200	59,645	56,419	55,613	
August	50,400	55,548	53,419	54,194	
September	50,100	55,200	50,933	51,467	
October	45,800	52,581	48,452	-	
November	44,400	51,700	44,133	-	
December	45,000	63,774	45,100	-	

Total	572,200	623,416	688,574	454,541
Avg Daily	47,683	51,951	57,381	50,505

2017 Total Excl. Water Main Break (April-Dec)	466,709
2017 Avg Daily Excl. Water Main Break (April-Dec)	51,857
Avg. Daily Flow last 12 months 10/2017 to 09/2018	49,352

**Sewer Usage (gpd)**

	2015	2016	2017
January	52,000	53,000	54,000
February	51,000	52,000	52,000
March	56,000	51,000	54,000
April	52,000	50,000	54,000
May	49,000	51,000	52,000
June	49,000	47,000	50,000
July	49,000	46,000	44,000
August	46,000	45,000	42,000
September	44,000	47,000	42,000
October	47,000	47,000	41,000
November	50,000	47,000	43,000
December	52,000	51,000	45,000

Total	597,000	587,000	573,000
-------	---------	---------	---------

Average Daily	49,750	48,917	47,750
Total Average		48,806	

## Oakridge - Phase III Car Wash ANALYSIS OF WATER AND SEWER CAPACITY FOR PROPOSED OAKRIDGE DAYCARE AND CARWASH

February 7, 2018

*Revised: October 31, 2018 - 2018 water usage data*

**NYSDEC Water Taking Permit for 80,000 gpd for Oakridge Water District**

**Existing SPDES Permit allows for 80,000 gpd discharge from the Oakridge Sewer Treatment System**

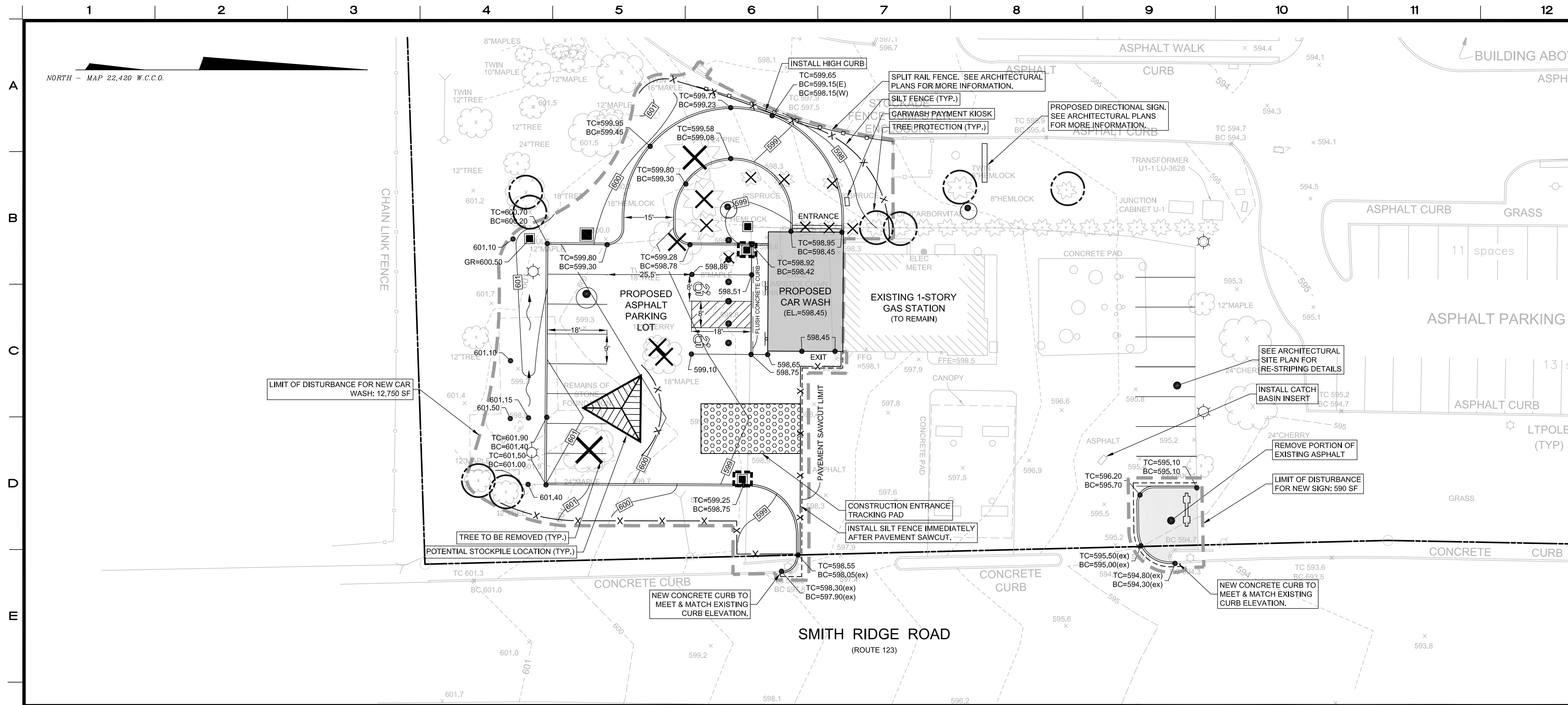
### **WATER CAPACITY CALCULATION (Rev. Oct. 2018)**

Current Water Usage	<u>% Of Capacity</u>	
Average Daily Water Usage for last 12 months (10/2017 to 09/2018) provided by VRI Environmental Services Data (gpd)	49,352	61.69%
Anticipated Water use for 15 remaining Townhomes (gpd) (previously approved)	6,750	8.44%
Average Daily Water Use + Anticipated Townhome Water Use (gpd)	56,102	70.13%
Anticipated Water Use from Daycare (gpd)	1,300	
Anticipated Water Use from Carwash (gpd)	347	
Total Anticipated Water Use for Daycare and Carwash (gpd)	1,647	2.06%
<u>Total Anticipated Water Use (gpd)</u>	57,749	72.19%
Excess Water Capacity (gpd)	22,251	27.81%

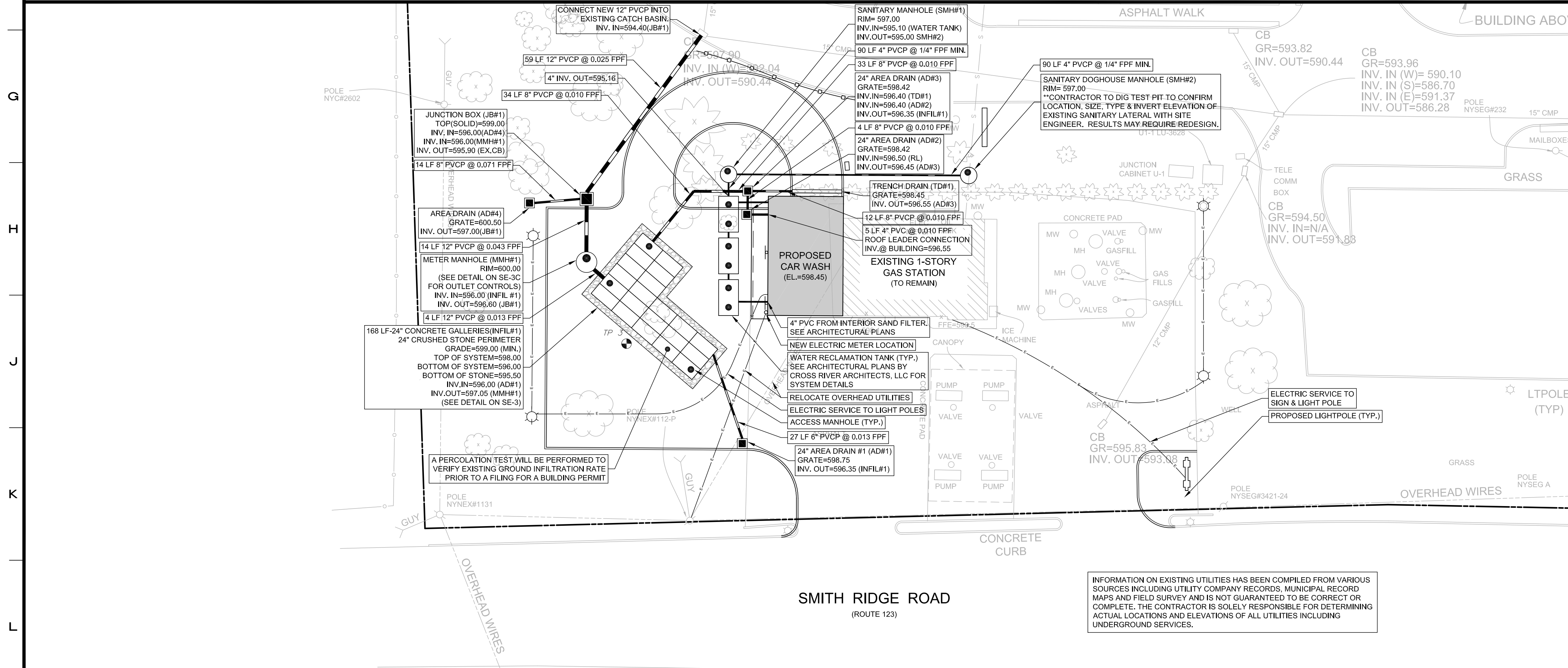
### **SEWER CAPACITY CALCULATION**

Current Sewer Usage			
Average Daily Sewer Usage from VRI Environmental Services Data (gpd)	2015	49,750	
	2016	48,917	
	2017	47,750	
Average Daily Sewer Use 2015-2017		48,806	61.01%
Anticipated Sewer use from Townhomes (gpd) (previously approved)		10,500	13.13%
Anticipated Daily Sewer Use + Anticipated Townhome Water Use (gpd)		59,306	74.13%
Anticipated Sewer Use from Daycare (gpd)		1,300	
Anticipated Sewer Use from Carwash (gpd)		347	
Total Anticipated Water Use for Daycare and Carwash		1,647	2.06%
<u>Total Anticipated Sewer Use (gpd)</u>		60,953	76.19%
Excess Sewer Capacity		19,047	23.45%

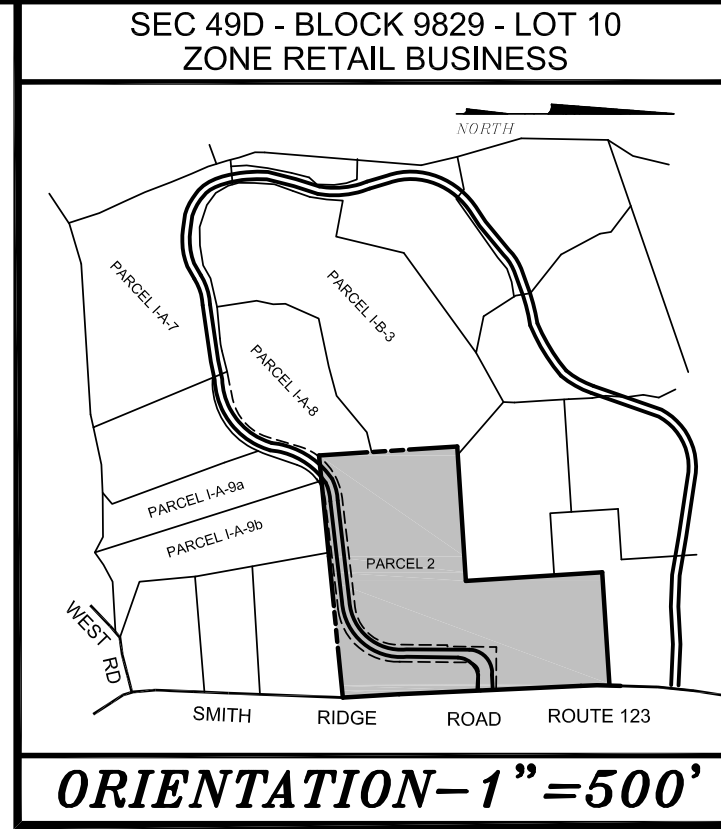




**GRADING & EROSION CONTROL PLAN**



**UTILITY SITE PLAN**



- NOTE:
- REFER TO PLANS BY CROSS RIVER ARCHITECTS, LLC DATED 6/27/2018 FOR INFORMATION RELATED TO ZONING COMPLIANCE TABLE, PARKING COUNT, CONSTRUCTION PHASING, REMOVALS PLAN, BUILDING DESIGN, SITE LIGHTING, LANDSCAPING AND TRASH MANAGEMENT PLAN.
  - WATER SUPPLY FOR CAR WASH WILL COME FROM SERVICE LINE IN ADJACENT GAS STATION STRUCTURE.

**APPROVED BY RESOLUTION OF THE LEWISBORO PLANNING BOARD**

Chairman \_\_\_\_\_ DATE \_\_\_\_\_

Secretary \_\_\_\_\_ DATE \_\_\_\_\_

**TOWN ENGINEER'S CERTIFICATION**  
Reviewed for compliance with the Planning Board Resolution dated \_\_\_\_\_

Joseph M. Cermele, P.E. \_\_\_\_\_ Date \_\_\_\_\_

Kellard Sessions Consulting, P.C.  
Town Consulting Engineer

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Owners Name: Smith Ridge Associates, LLC – Philip Pine, Owner's rep Date \_\_\_\_\_  
Owners Address: 450 Oakridge Common, South Salem, NY 10590

2	06/27/2018	REVISED: REMOVED DUMPSTER & NEW LIGHT LOCATIONS
1	2/7/2018	ORIGINAL ISSUE DATE
No.	Date	Revision

**SITE DEVELOPMENT PLAN**  
DEPICTING  
**OAKRIDGE COMMONS**  
**PHASE III - CAR WASH**  
LEWISBORO, NY  
**PREPARED FOR**  
**SMITH RIDGE ASSOCIATES,LLC**

SCALE: 0 20 40  
1"=20'

DRAWN BY: TMM CHECKED BY: AMK

**REDNISS & MEAD**  
PROFESSIONAL ENGINEERS  
AND LAND SURVEYORS, P.C.

22 First Street | Stamford, CT 06905  
Tel: 203.327.0500 | Fax: 203.357.1118  
www.rednissmead.com

SHEET No: **SE-IC**  
Comm. No: 2212





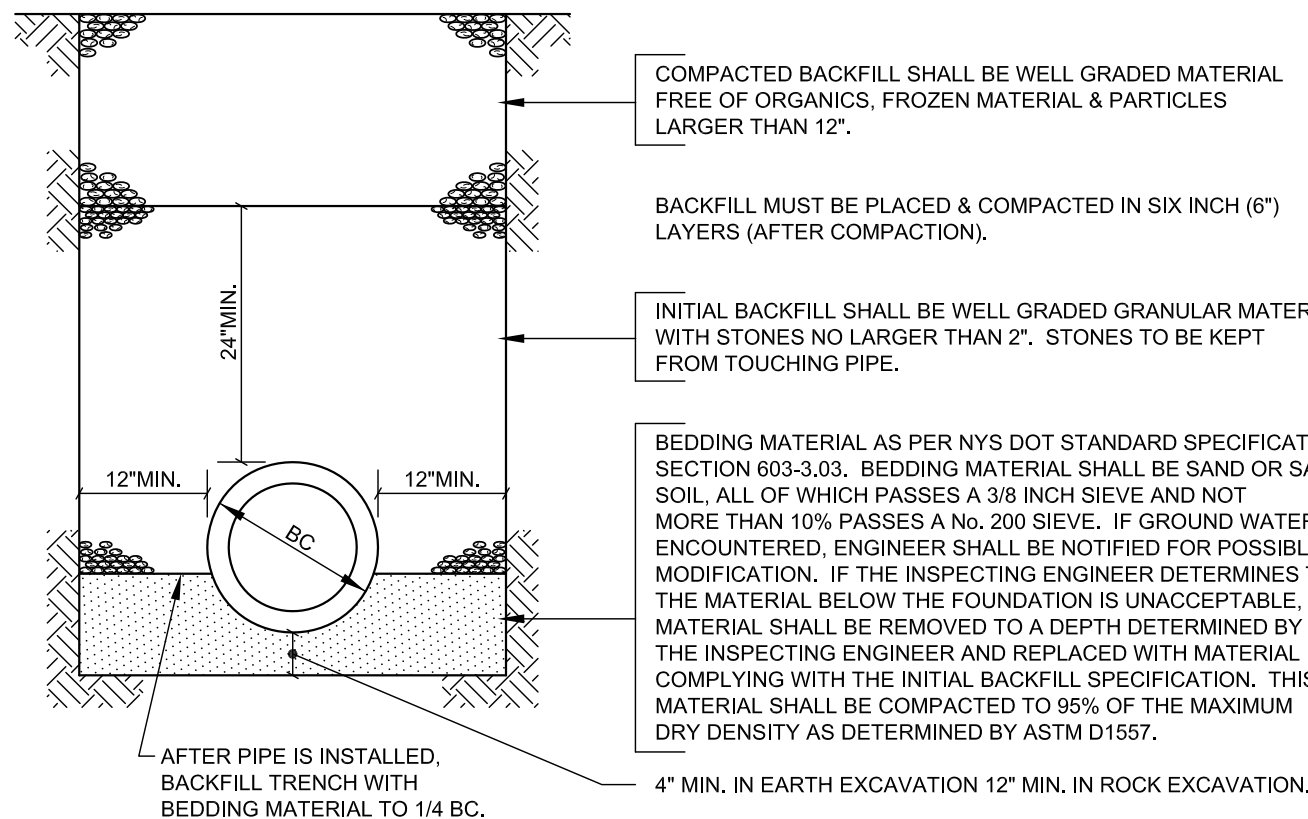


WATER STOP: 10' UPSTREAM OF STRUCTURES AND WHERE SHOWN, FOUNDATION MATERIAL, BEDDING, HAUNCHING, INITIAL BACKFILL, AND THE BOTTOM FOOT OF GENERAL BACKFILL TO BE REPLACED WITH SM. SG. OR ML SOIL AS PER UNIFIED SOIL CLASSIFICATION SYSTEM\* WITH MAXIMUM PARTICLE SIZE OF 1-1/2". FOR 3 LINEAR FEET OF TRENCH, WATER STOP TO BE KEED INTO TRENCH BOTTOM AND WALLS A MINIMUM OF ONE FOOT. NO STONES LARGER THAN 6" SHALL BE WITHIN 12" OF THE PIPE.

ALL FOUNDATION, INITIAL BACKFILL & BACKFILL MATERIAL TO BE APPROVED BY THE INSPECTING ENGINEER.

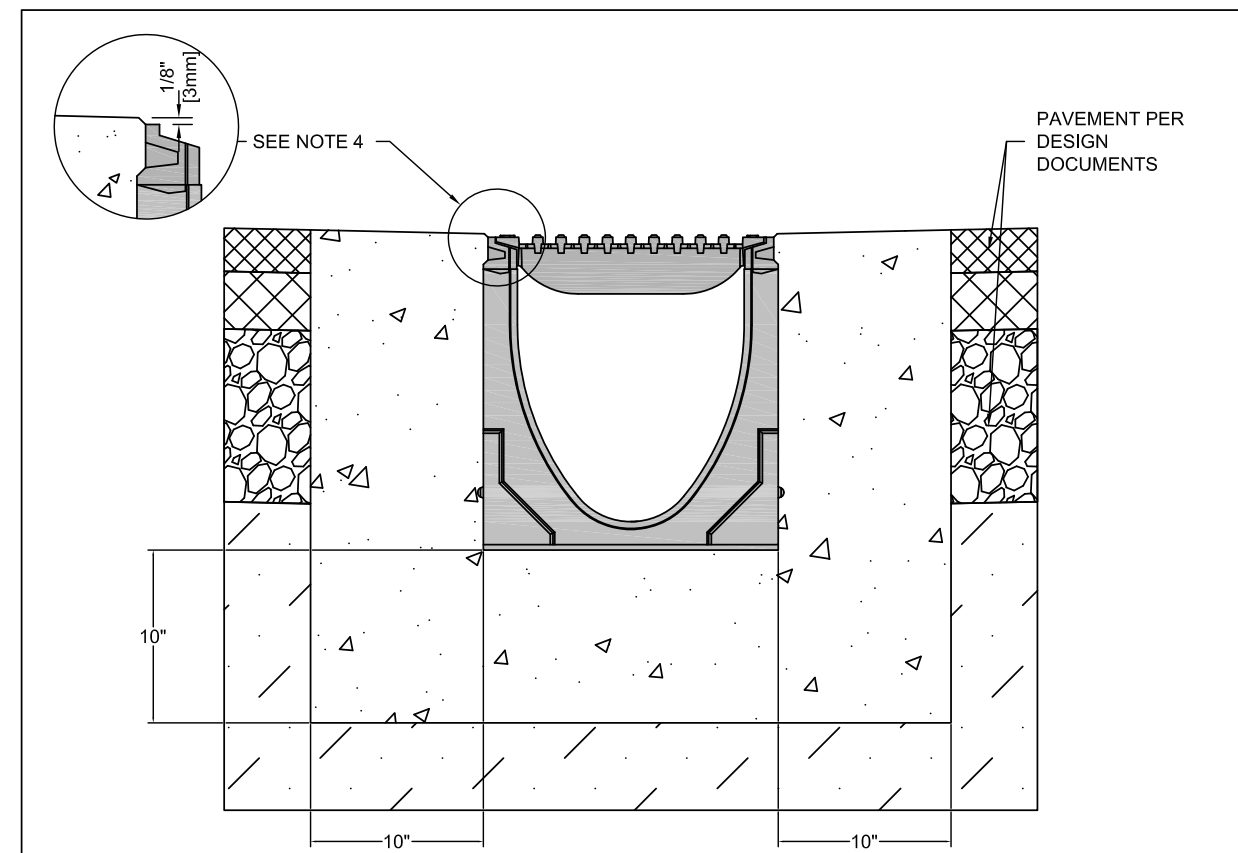
ANY DEVIATION FROM THESE METHODS & MATERIALS MUST BE APPROVED IN WRITING BY THE INSPECTING ENGINEER.

ALL MATERIAL TO BE COMPACTED TO 95% OF THE MAX. DRY DENSITY AS DETERMINED BY ASTM D1557, EXCEPT COMPACTED BACKFILL NOT UNDER PAVEMENT WHICH SHALL BE COMPACTED TO A DENSITY AT LEAST EQUAL TO THAT OF THE ADJACENT UNDISTURBED MATERIAL.



### PVC/RCP PIPE TRENCH BEDDING DETAIL

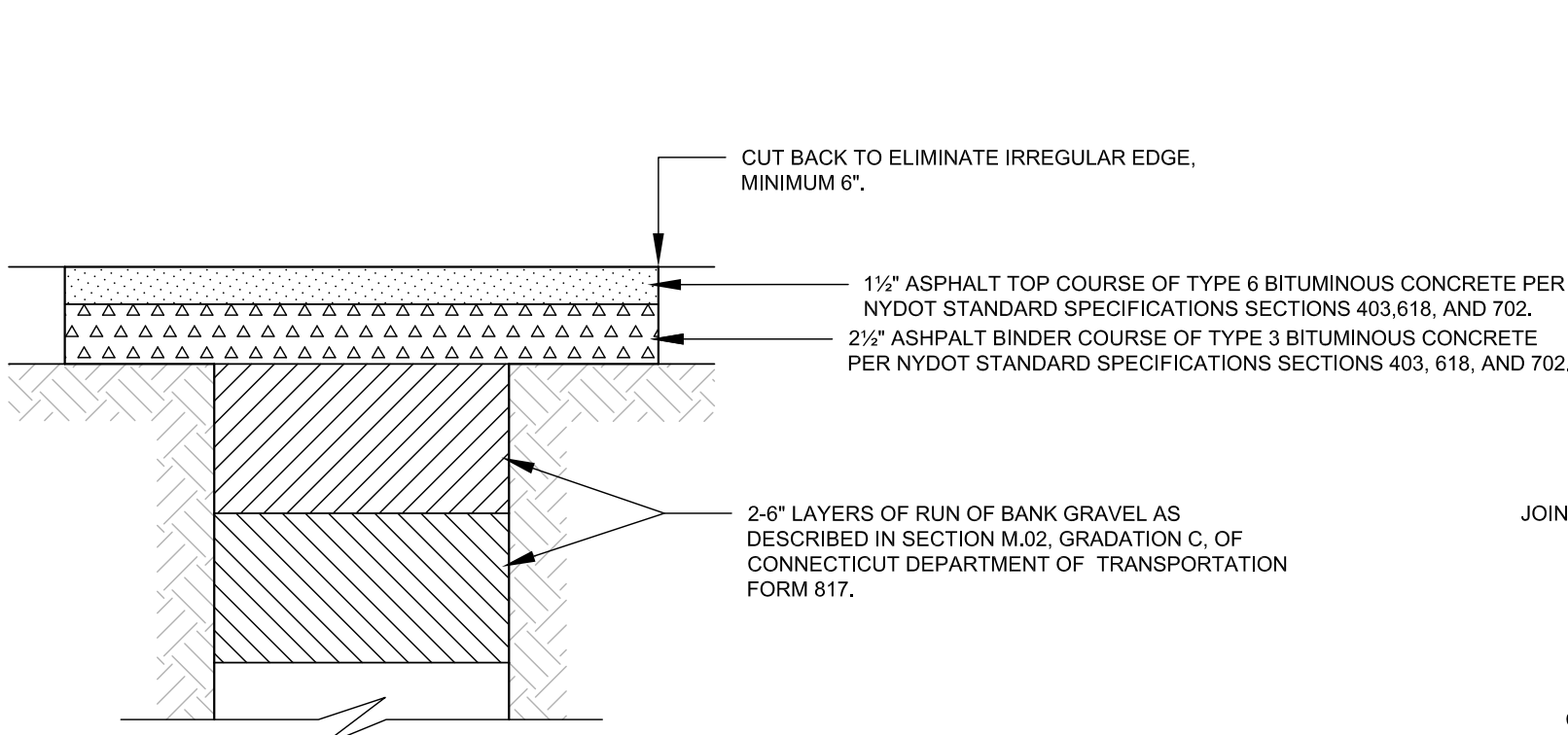
N.T.S.



NOTES:  
1. IT IS NECESSARY TO ENSURE MINIMUM DIMENSIONS SHOWN ARE SUITABLE FOR EXISTING GROUND CONDITIONS. ENGINEERING ADVICE MAY BE REQUIRED.  
2. MINIMUM CONCRETE STRENGTH OF 4,000 PSI IS RECOMMENDED. CONCRETE SHOULD BE VIBRATED TO ELIMINATE AIR POCKETS.  
3. EXPANSION AND CONTRACTION CONTROL JOINTS AND REINFORCEMENT ARE RECOMMENDED TO PROTECT CHANNEL AND CONCRETE SURROUND. ENGINEERING ADVICE MAY BE REQUIRED.  
4. THE FINISHED LEVEL OF THE CONCRETE SURROUND MUST BE APPROX. 1/8" (3mm) ABOVE THE TOP OF THE CHANNEL EDGE.  
5. CONCRETE BASE THICKNESS SHOULD MATCH SLAB THICKNESS. ENGINEERING ADVICE MAY BE REQUIRED TO DETERMINE PROPER LOAD CLASS.  
6. REFER TO ACO'S LATEST INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS.  
7. TD#1 = 1 UNIT SK-2-9020; 4 UNITS SK-24 TO 37.

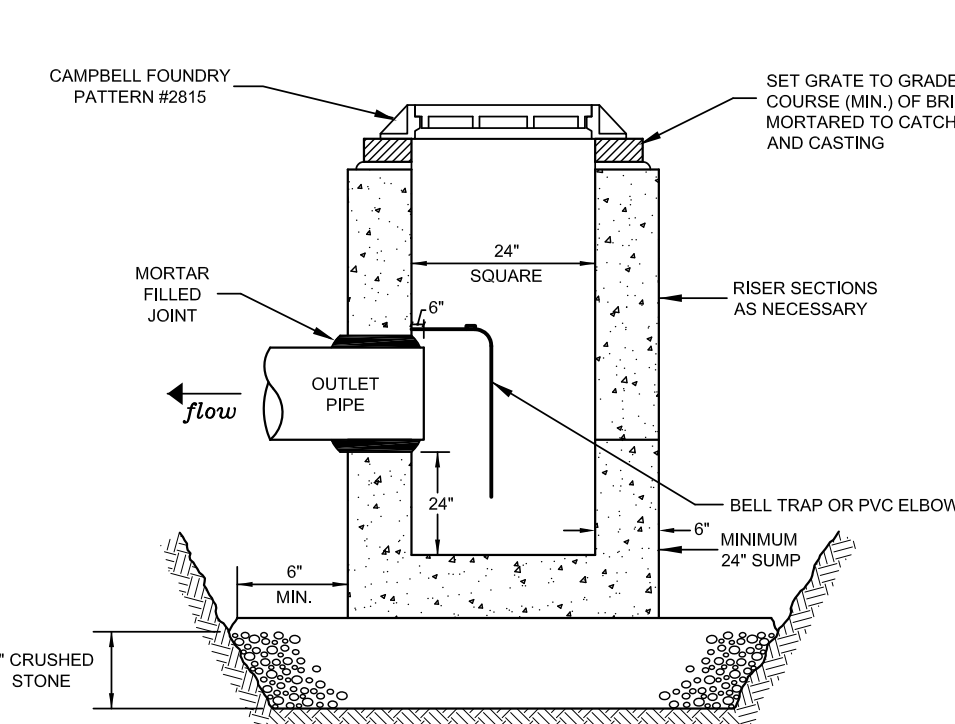
### ACO POWERDRAIN S200K TRENCH DRAIN DETAIL

N.T.S.



### ASPHALT TRENCH REPAIR

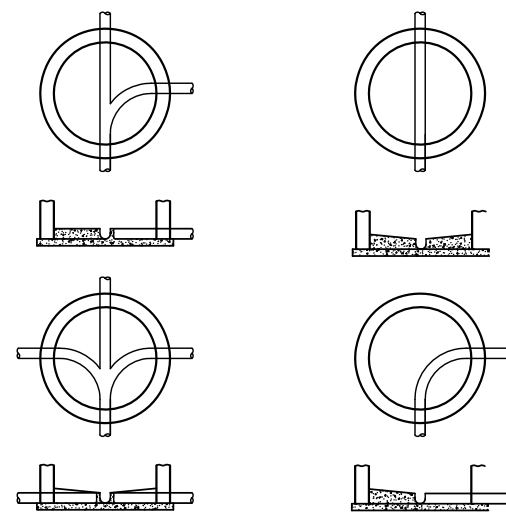
N.T.S.



NOTES:  
1. ALL CATCH BASIN COMPONENTS TO BE PRE-CAST REINFORCED CONCRETE, ABLE TO WITHSTAND THE APPLIED EARTH LOADS WITH AN H-20 TRUCK LOAD.  
2. ALL JOINTS TO BE MORTARED.  
3. AREA DRAIN SHALL CONFORM TO ASTM C478.  
4. CRUSHED STONE UNDERNEATH DRAINAGE STRUCTURES SHALL BE GRADATION NO. 2 PER NYS DOT STANDARD SPECIFICATION SECTION 703. STONE SHALL CONSIST OF SOUND, TOUGH, DURABLE PARTICLES FREE FROM SOFT, THIN, ELONGATED, LAMINATED, FRIABLE, MICACEOUS OR DISINTEGRATED PIECES, MUD, DIRT OR OTHER DELETERIOUS MATERIAL.

### 24" AREA DRAIN (AD #1-4)

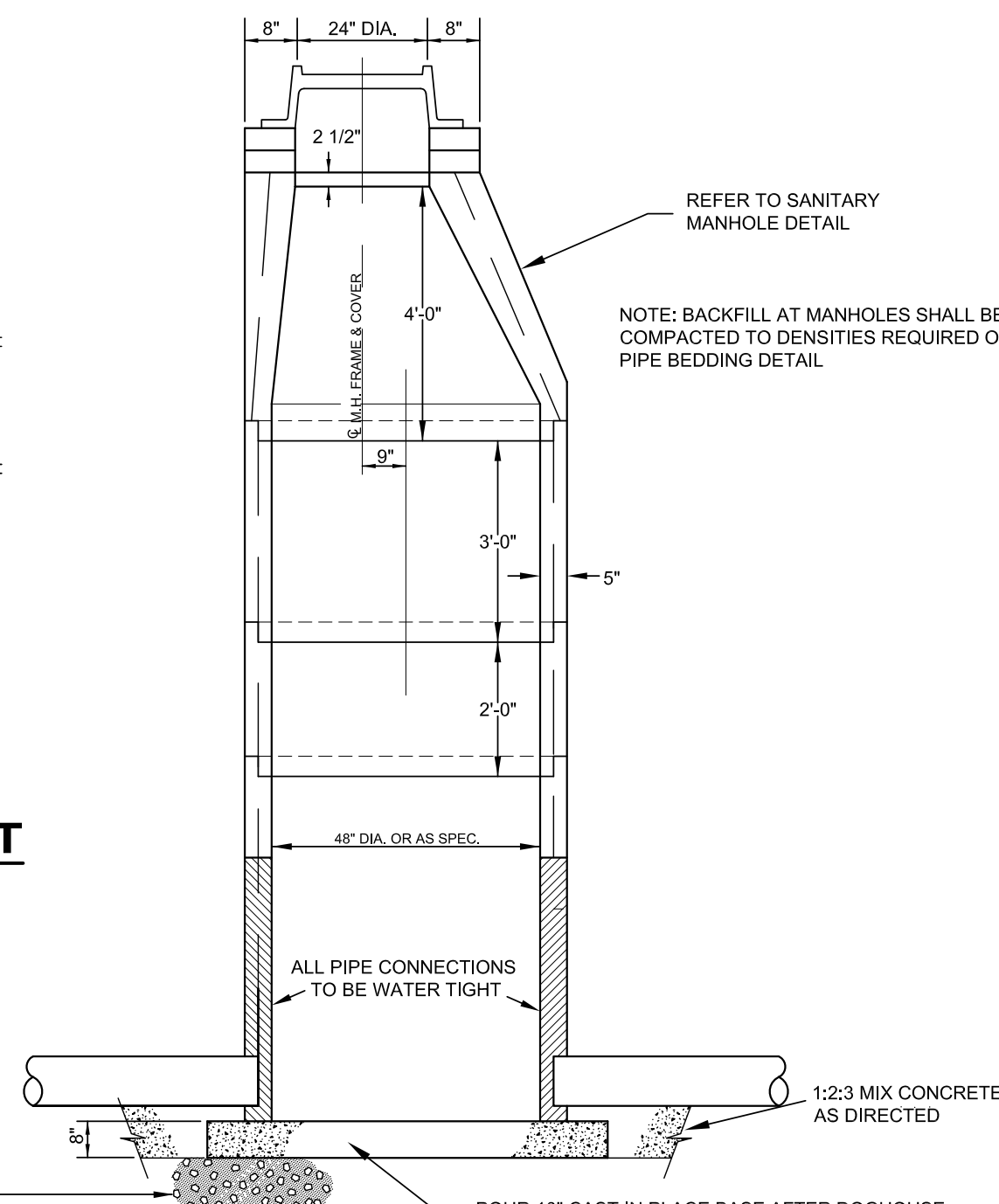
N.T.S.



### MANHOLE INVERT

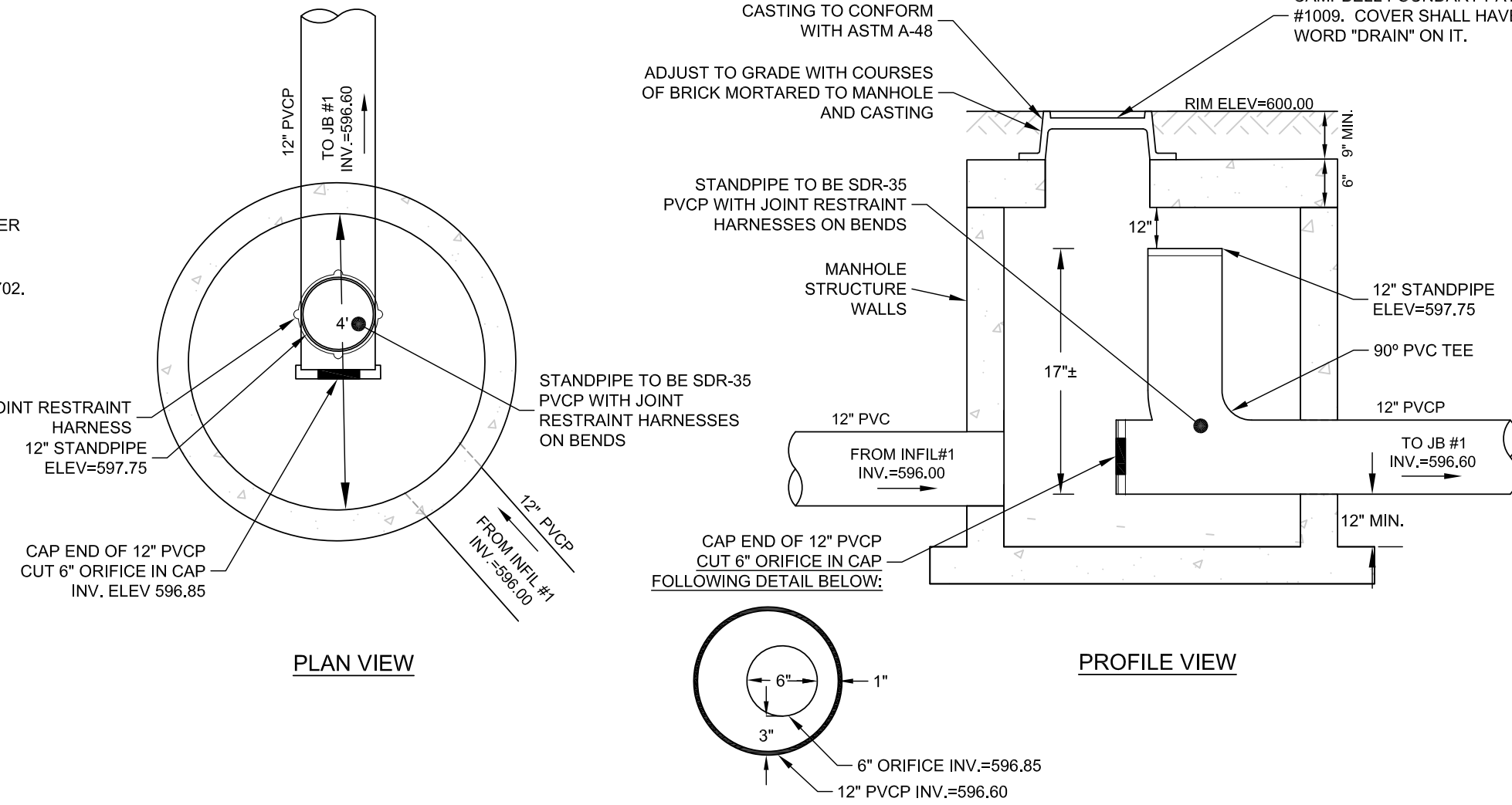
N.T.S.

PLACE MANHOLE ON A 6" LAYER OF CRUSHED STONE. IF CRUSHED STONE IS TO BE PLACED ON FILL, ALL FILL BELOW THE MANHOLE SHALL BE COMPACTED TO 95% OF THE MAXIMUM PRD DENSITY AS PER ASTM D-1557. CRUSHED STONE UNDERNEATH DRAINAGE STRUCTURES SHALL BE GRADATION NO. 2 PER NYS DOT STANDARD SPECIFICATION SECTION 703. STONE SHALL CONSIST OF SOUND, TOUGH, DURABLE PARTICLES FREE FROM SOFT, THIN, ELONGATED, LAMINATED, FRIABLE, DELETERIOUS MATERIAL.



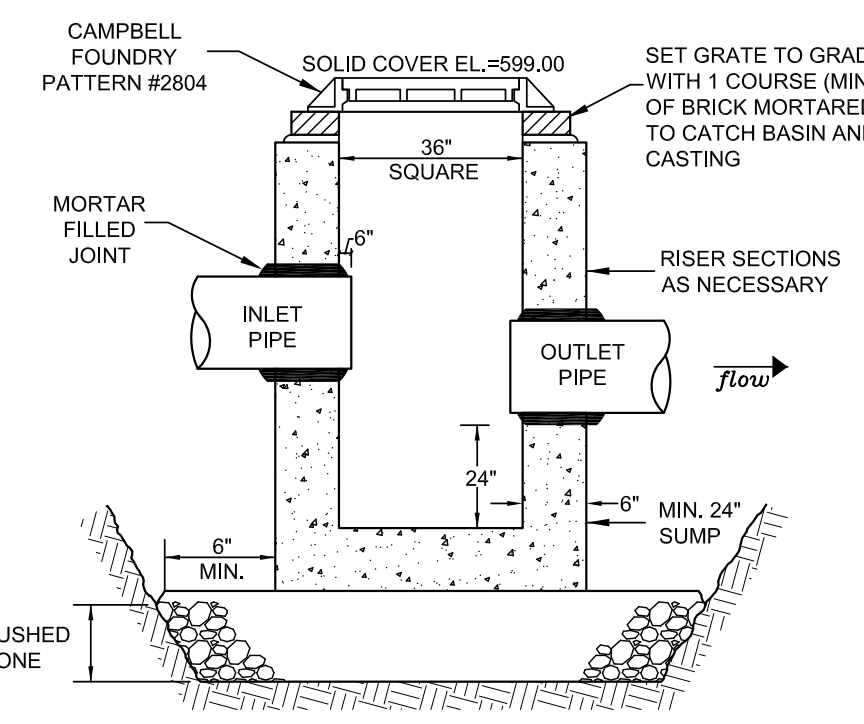
### DOG HOUSE SANITARY MANHOLE DETAIL (SMH#2)

N.T.S.



### STORMWATER METERING MANHOLE DETAIL (MMH #1)

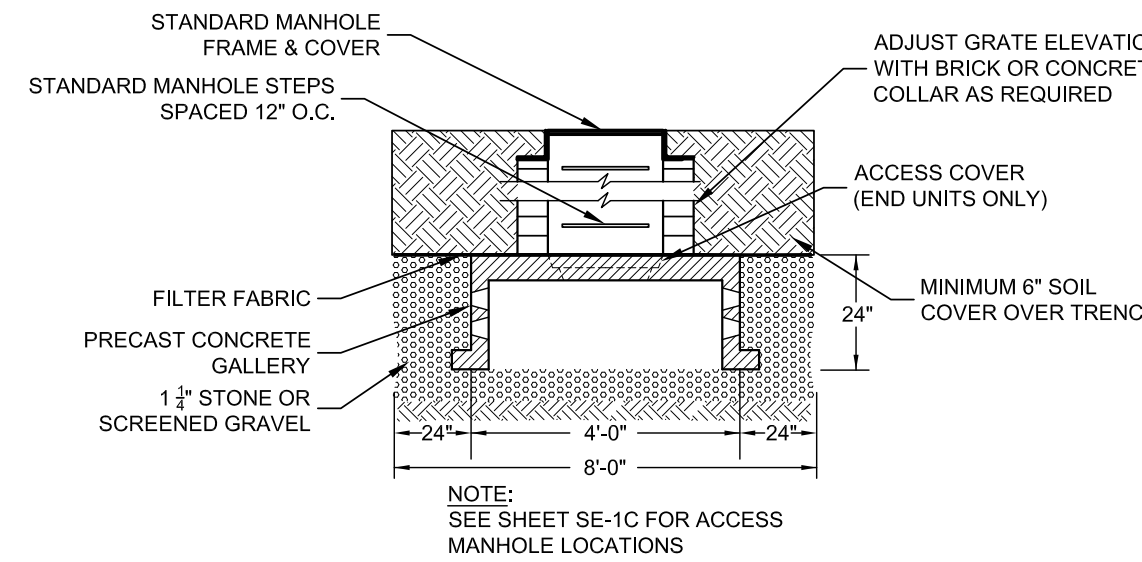
N.T.S.



### 36" JUNCTION BOX (JB#1)

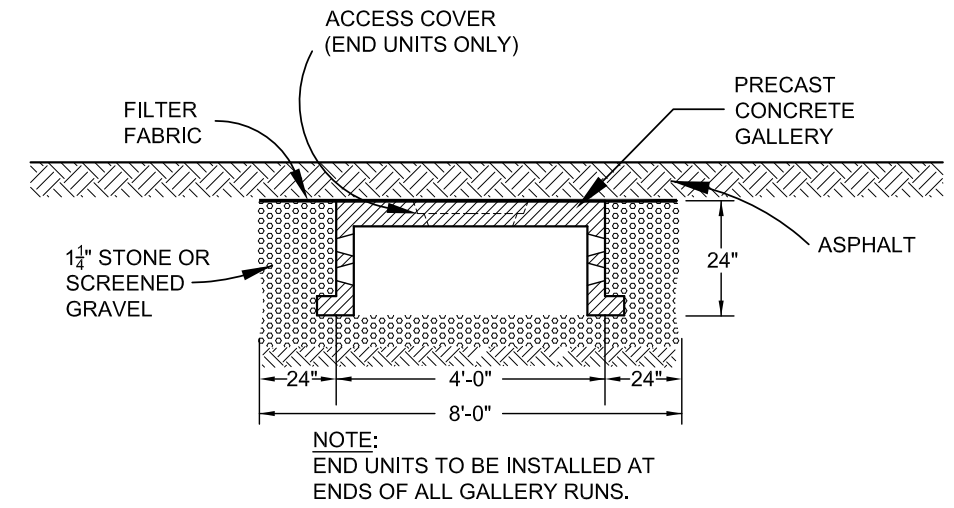
N.T.S.

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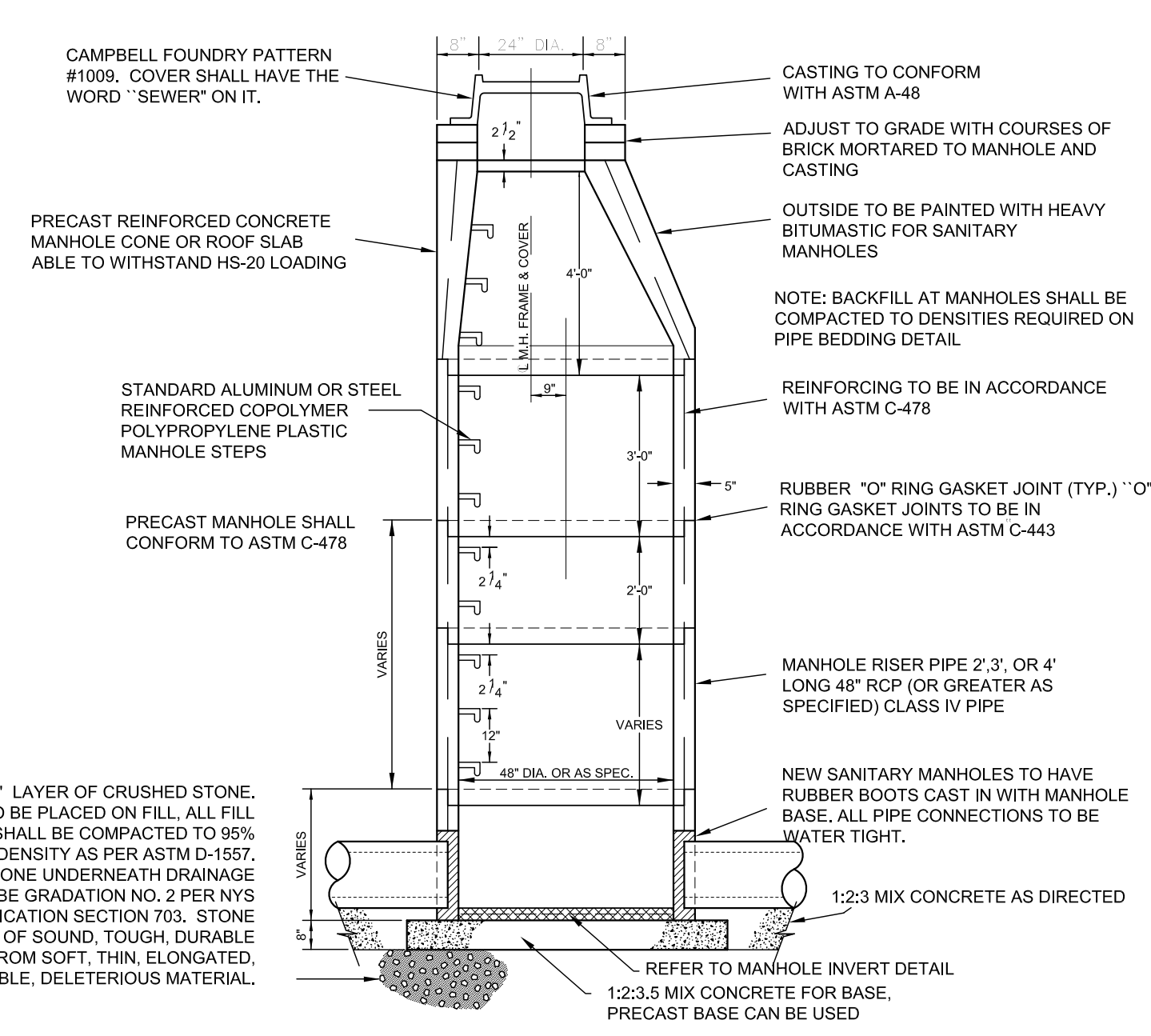
### 24" GALLERY W/ ACCESS MANHOLE

N.T.S.



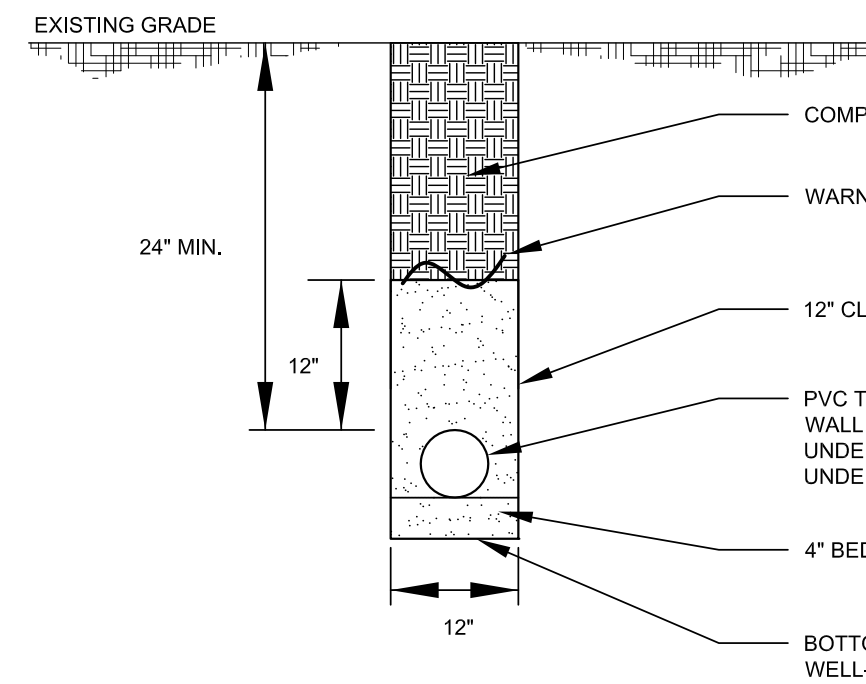
### 24" GALLERY DETAIL

N.T.S.



### SANITARY MANHOLE DETAIL (SMH#1)

N.T.S.



NOTES:

- IF 24" OF COVER CANNOT BE OBTAINED OVER THE CONDUIT, CONDUIT SHALL BE CONCRETE ENCASED.
- ALL BACKFILL MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557.

### CONDUIT TRENCH DETAIL (SAND BEDDING)

N.T.S.

APPROVED BY RESOLUTION OF THE LEWISBORO PLANNING BOARD

Chairman DATE  
Secretary DATE

TOWN ENGINEER'S CERTIFICATION  
Reviewed for compliance with the Planning Board Resolution dated \_\_\_\_\_

Joseph M. Cernie, P.E. Date

Katland Sessions Consulting, P.C.  
Town Consulting Engineer

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I	2/7/2018	ORIGINAL ISSUE DATE
No.	Date	Revision
<b>DETAILS DEPICTING OAKRIDGE COMMONS PHASE III - CAR WASH LEWISBORO, NY PREPARED FOR SMITH RIDGE ASSOCIATES,LLC</b>		
		SCALE: N.T.S.
DRAWN BY: TMM		CHECKED BY: AMK
CRAIG J. FLAHERTY NY, P.E. 093575-1 February 7, 2018		DATE
This document and copies thereof are valid only if they bear the signature and embossed seal of the designated licensed professional. Unauthorized alterations render any declaration herein null & void.		SHEET No:
REDNISS & MEAD PROFESSIONAL ENGINEERS AND LAND SURVEYORS, P.C.		SE-3C
22 First Street   Stamford, CT 06905 Tel: 203.327.0500   Fax: 203.357.1118 www.rednissandmead.com		Comm. No: 2212



RESOLUTION ADOPTED BY THE TOWN BOARD  
OF THE TOWN OF LEWISBORO  
AT A MEETING HELD ON APRIL 23, 2018

RESOLVED, that the Town Board does authorize the water and sewer connections at the Oakridge Water and Sewer Districts by a daycare facility and a car wash based on the recommendations of Kellard and Sessions and supported by the documentation provided by Redniss and Mead and be it further

RESOLVED, that this resolution will be subject to the Westchester County Department of Health agreement if required.

STATE OF NEW YORK  
COUNTY OF WESTCHESTER

I, JANET L. DONOHUE, Town Clerk of the Town of Lewisboro, County of Westchester, State of New York, do hereby certify that I have compared the preceding copy of a Resolution adopted by the Town Board of the Town of Lewisboro at a meeting held on the 23rd day of April, 2018, to the original thereof, and that the same is a true and exact copy of said original and of the whole thereof.

  
Town Clerk

Dated at South Salem, New York  
this 24th day of April, 2018



MAP and PLAN 202(b) REPORT

OAKRIDGE WATER DISTRICT IMPROVEMENTS

TOWN OF LEWISBORO  
Westchester County, New York

Prepared for:

TOWN OF LEWISBORO  
11 Main Street  
South Salem, New York 10590

Prepared by:

DELAWARE ENGINEERING, D.P.C.  
28 Madison Ave. Extension  
Albany, New York 12304

August 2018

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**TABLE OF CONTENTS**

<b>1.0 INTRODUCTION.....</b>	<b>1</b>
<b>2.0 PROCESS DESCRIPTION.....</b>	<b>1</b>
<b>3.0 PROPOSED IMPROVEMENTS .....</b>	<b>2</b>
<b>4.0 DETAILED EXPLANATION OF COSTS .....</b>	<b>3</b>
<b>5.0 MAXIMUM AMOUNT TO BE EXPENDED.....</b>	<b>3</b>

**APPENDICES**

Appendix A – Capital Costs Estimates

## **1.0 INTRODUCTION**

The purpose of this Map and Plan 202(b) Report is to document planned improvement to the Oakridge Water District water treatment plant located at 400 Oakridge Drive, South Salem in accordance with Town Law, Article 12, Section 202-b of the New York State Consolidated Law in order to describe project costs. The project does not include changes to the water district itself.

The project is required to maintain the community water system's ability to comply with the Stage 2 Disinfectants and Disinfections Byproducts Rule (Stage 2 DBPR), specifically to prevent formation of a group of disinfection byproducts known as total trihalomethanes (TTHMs). In 2016 and 2017, concentrations of TTHMs were found to be above maximum contaminant levels (MCLs) under the Stage 2 DBPR and the District was issued an Administrative Order to take action to bring the District back into compliance with the Rule.

The project proposes design and construction of an aeration system to be installed within the water storage tank to oxidize THM's formed during the disinfection process. A Supervisory Control and Data Acquisition (SCADA) system for water quality monitoring and control of chemical feed systems, and improved chemical feed equipment, will be installed. Three existing pressure vessels within the water treatment process will be re-purposed to allow the plant to utilize granular activated carbon (GAC) filters for the reduction of total organic carbon (a TTHM precursor) prior to disinfection.

## **2.0 PROCESS DESCRIPTION**

The Oakridge Water District serves approximately 895 people in the Oakridge development located on Route 123 in the Town of Lewisboro, Westchester County, New York. Included in the distribution area are 278 condominiums, 22 single-family residences, a commercial area plus a new section of approximately 40 townhomes. Source water is drawn from a system of five ground water wells. All supply lines from the wells are connected to a common header and flow into the treatment facility through a 4-inch PVC main.

Currently the Oakridge treatment plant is difficult to operate for minimization of TTHMs due to the challenges presented by the raw water quality, the limited foot print for treatment equipment and the need to simultaneously comply with drinking water disinfection requirements and disinfection by-product reduction requirements. The limitations of the treatment process mean the operators have fewer options for controlling DBP/TTHM and the precursors that form them. These limitations contribute to the presence of THMs in exceedance of regulations.

A number of steps have been taken within the limitations of the approved treatment plant design to lower THM levels, including; changing the chemical utilized to treat for iron and manganese from a chlorine product which tends to produce THMs to a permanganate product which does not, flushing hydrants and the distribution system sections with longer residence times, preventing the introduction of road salt at well locations, and other operational changes.

The Oakridge Water district will continue to own, operate, maintain the proposed improvements.

### **3.0 PROPOSED IMPROVEMENTS**

Several engineering solutions are proposed for implementation to bring the water treatment plant into compliance with the Stage 2 DBPR. These include;

1. The design and construction of an aeration system to be installed within the existing 95,000-gallon water storage tank to oxidize those THMs formed during the disinfection process. Preliminary design work has been completed and the equipment has been selected.
2. The design and installation of a Supervisory Control and Data Acquisition system (SCADA) which will monitor the level of free chlorine residual and pH at the entry point and control the chemical feed system to insure optimum pH management and disinfection is maintained and excess chlorine is not fed (which could exacerbate the DBP issues).
3. The design and installation of improved chemical feed equipment for pH adjustment, disinfection and sodium permanganate ( $\text{NaMnO}_4$ ) delivery.
4. Re-purposing three existing pressure vessels within the water treatment process as granular activated carbon (GAC) filters for the reduction of total organic carbon (TOC)



prior to disinfection. TOC is presumed to be the precursor of TTHMs formed after chlorination during water treatment, testing confirmed GAC filtration reduced the TTHM formation potentials upon typical chlorination for disinfection purposes.

Regulatory review and approval from the Westchester County Department of Health is required prior to construction.

#### **4.0 DETAILED EXPLANATION OF COSTS**

Appendix A includes a detailed break down of the expected capital costs to implement the improvements at the water treatment plant.

The capital costs are summarized as follows:

- \$179,000 – Water Tank TTHM Treatment System
- \$111,000 – SCADA upgrades
- \$48,500 – Chemical Feed System
- \$32,000 – GAC Filters
- \$56,000 – 15% Contingency
- \$56,000 – 15% Engineering
- \$482,500 - Total

#### **5.0 MAXIMUM AMOUNT TO BE EXPENDED**

The total capital costs will be paid by a municipal bond. The debt service would be paid by the 340 water users of Oakridge Water District. At 20 years, using an annual interest rate of 4%, the annual payment is approximately \$35,500.

The current water rates that are assessed quarterly for a typical water user are \$55 base; \$7 per 1,000 gallons for first 7,000 gallons; \$8 per 1,000 gallons for over 7,000 gallons to 27,000 gallons; \$9 per 1,000 gallons above 27,000 gallons.

For a typical residential condominium that uses 80,000 gallons per year, the proposed project would increase their yearly water cost from approximately \$664.00 to \$768.42.

**APPENDIX A**

**Town of Lewisboro  
Oakridge Water District  
Capital Cost Estimates**

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Project Name: Oakridge Upgrades  
 Project#: 17-1352  
 Date: 8/8/2018  
 Prepared By: R. Flores



Delaware Engineering, D.P.C.

Conceptual Cost Opinton Oakridge Water System Upgrades							
ID	Description	Quantity	Units	Materials	Labor	Equipment	Subtotals
1	Water Tank TTHM Treatment						
1.1	Floating Spray System	1	LS	\$40,000.00	\$45,000.00	\$25,000.00	\$110,000.00
1.2	Submersible Mixer	1	LS	\$7,000.00	\$10,000.00		\$17,000.00
1.3	Ventilation System	1	LS	\$7,000.00	\$10,000.00		\$17,000.00
1.4	Control Panels	1	LS	\$5,000.00	\$10,000.00		\$15,000.00
1.5	Electrical	1	LS	\$10,000.00	\$10,000.00		\$20,000.00
2	SCADA Upgrades						\$179,000.00
2.1	SCADA PLC and Panel	1	LS	\$50,000.00	\$25,000.00		\$75,000.00
2.2	Chlorine Monitoring	1	LS	\$7,500.00	\$2,500.00		\$10,000.00
2.3	pH Monitoring	1	LS	\$3,500.00	\$2,500.00		\$6,000.00
2.4	Controls and Electrical	1	LS	\$10,000.00	\$10,000.00		\$20,000.00
3	Chemical Feed System						\$111,000.00
3.1	Sodium Hypochlorite System	1	LS	\$5,000.00	\$1,000.00		\$6,000.00
3.2	Sodium Permanganate System	1	LS	\$5,000.00	\$1,000.00		\$6,000.00
3.3	Polyaluminum Chloride System	1	LS	\$5,000.00	\$1,000.00		\$6,000.00
3.4	Sodium Hydroxide System	1	LS	\$5,000.00	\$1,000.00		\$6,000.00
3.5	Piping	1	LS	\$2,000.00	\$2,000.00		\$4,000.00
3.6	Electrical	1	LS	\$3,000.00	\$6,000.00		\$9,000.00
3.7	Commission	1	LS	\$10,000.00	\$1,500.00		\$11,500.00
4	GAC Filters						\$48,500.00
4.1	Repurpose Pressure Vessels	1	LS		\$5,000.00		\$5,000.00
4.2	GA Carbon - Filtrisorb 400	1	LS	\$5,000.00	\$2,000.00		\$7,000.00
4.3	Valves and Piping	1	LS	\$10,000.00	\$10,000.00		\$20,000.00
Cost Summary							\$52,000.00

2018 Construction Cost Subtotal **\$370,500.00**  
 15% Engineering (Preliminary, Design, Construction) **\$56,000.00**  
 15% Contingency **\$56,000.00**  
 Project Costs **\$482,500.00**

**Annual Drinking Water Quality Report for 2017**  
**Oakridge Water System**  
**11 Main Street South Salem, NY**  
**(Public Water Supply ID# 5918395)**

**INTRODUCTION**

To comply with State regulations, Oakridge Water, will be annually issuing a report describing the quality of your drinking water. The purpose of this report is to raise your understanding of drinking water and awareness of the need to protect our drinking water sources. Last year, your tap water met all State drinking water health standards except for THMs. As we told you at that time, our water temporarily exceeded a drinking water standard and we have modified our treatment processes to rectify the problem. This report provides an overview of last year's water quality. Included are details about where your water comes from, what it contains, and how it compares to State standards.

If you have any questions about this report or concerning your drinking water, please contact VRI Environmental Services at (845) 677-3839. We want you to be informed about your drinking water. If you want to learn more, please attend any of our regularly scheduled town board meetings held on the second and fourth Monday of the month at 7:30 pm at the Town House.

**WHERE DOES OUR WATER COME FROM?**

In general, the sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activities. Contaminants that may be present in source water include: microbial contaminants; inorganic contaminants; pesticides and herbicides; organic chemical contaminants; and radioactive contaminants. In order to ensure that tap water is safe to drink, the State and the EPA prescribe regulations which limit the amount of certain contaminants in water provided by public water systems. The State Health Department's and the FDA's regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Our water system serves approximately 895 people with approximately 328 service connections. Our water source is groundwater drawn from five drilled wells located within the property boundaries of the Oakridge community along Oakridge Drive. The water is pumped from the wells and passes through two mixed media pressure filters then through two greensand filters to reduce iron and manganese. The water is then disinfected with sodium hypochlorite (a 15 % chlorine solution) and fills the 95,000-gallon storage tank. The system is automated to run a booster pump on variable speed that fluctuates with usage. As the water is consumed, the pressure in the system drops, and in turn, ramps up the speed of a booster pump that replenishes the pressure in the distribution system. Automatic controls maintain the proper levels within the storage and pressurized distribution systems.

The NYS DOH has completed a source water assessment for this system, based on available information. Possible and actual threats to this drinking water source were evaluated. The state source water assessment includes a susceptibility rating based on the risk posed by each potential source of contamination and how easily contaminants can move through the subsurface to the wells. The source water assessments provide resource managers with additional information for protecting source waters into the future.

As mentioned before, our water is derived from five drilled wells. The source water assessment has rated these wells as having a medium-high susceptibility to microbials, nitrates, industrial solvents, and other industrial contaminants. These ratings are due primarily to the close proximity of permitted discharge facilities (industrial/commercial facilities that discharge wastewater into the environment and are regulated by the state and/or federal government) to the wells and the associated industrial and low intensity residential activity in the assessment area, such as fertilizing lawns. In addition, the wells draw from unconfined aquifers of unknown hydraulic conductivity and the overlying soils are not known to provide adequate protection for potential contamination. Please note that, while the source water assessment rates our wells as being susceptible to microbials, our water is disinfected to ensure that the finished water delivered to you meets New York State's drinking water standards for microbial contamination.

A copy of the assessment, including the map of the assessment area, can be obtained by contacting us, as noted below.

**ARE THERE CONTAMINANTS IN OUR DRINKING WATER?**

As the State regulations require, we routinely test your drinking water for numerous contaminants. These contaminants include: total coliform, inorganic compounds, nitrate, nitrite, lead and copper, volatile organic compounds, total trihalomethanes, haloacetic acids, synthetic organic compounds, and radiologicals. The table presented below depicts which compounds were detected in your drinking water. The State allows us to test for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.

It should be noted that all drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791) or the Westchester County Health Department at (914) 813-5000.



Table of Detected Contaminants							
Contaminant	Violation Yes/No	Date of Sample	Level Detected (Max)	Unit Measurement	MCLG	Regulatory Limit (MCL, TT or AL)	Likely Source of Contamination
Gross alpha activity (including radium-226 but excluding radon and uranium) Entry Point	No	8/17/2016	1.51	pCi/L	0	15	Erosion of natural deposits
Beta particle and photon activity from man-made radionuclides Entry Point	No	8/17/2016	5.73	pCi/L	0	50 *	Decay of natural deposits and man-made emissions
Uranium Entry Point	No	8/17/2016	3.02	ug/L	0	30	Erosion of natural deposits
Contaminant	Violation Yes/No	Date of Sample	Level Detected (/Max)	Unit Measurement	MCLG	Regulatory Limit (MCL, TT or AL)	Likely Source of Contamination
Combined radium-226 and 228 Entry Point	No	8/17/2016	0.885	pCi/L	0	5	Erosion of natural deposits
Chloride	No	3/23/2015	139	mg/L	n/a	250	Naturally occurring or indicative of road salt contamination
Sulfate	No	3/23/2015	29.2	mg/L	n/a	250	Naturally occurring
Sodium	No	3/23/2015	80.91	mg/L	n/a	See Health Effects **	Naturally occurring; Road salt; Water softeners; Animal wastes;
Barium	No	3/23/2015	0.036	mg/L	2	2	Erosion of natural deposits.
Manganese	No	10/10/2017	20.9	ug/L	n/a	300	Naturally occurring; Indicative of landfill contamination.
Total Coliform	No	07/2017	1 positive sample	n/a	0	TT= 2 or more positive samples	Naturally present in the environment

**Footnotes:**

\* The State considers 50 pCi/L to be the level of concern for beta particles

\*\* Water containing more than 20 mg/l of sodium should not be used for drinking by people on severely restricted sodium diets. Water containing more than 270 mg/l should not be used for drinking by people on moderately restricted sodium diets

Table of Detected Contaminants								
Contaminant	Violation Yes/No	Date of Sample	Level Detected (90 <sup>th</sup> Percentile) (Range)	# of sites tested / # of sites exceeded AL (Range)	Unit Measurement	MCLG	Regulatory Limit (AL)	Likely Source of Contamination
Lead	No	7/25/2017	5.4 * (ND – 63.2)	10 sites tested / 1 site exceeded (63.2)	ug/L	n/a	AL = 15	Corrosion of household plumbing systems; Erosion of natural deposits
Copper	No	7/25/2017	0.283** (0.0894 – 0.352)	10 sites tested / 0 sites exceeded	mg/L	1.3	AL = 1.3	Corrosion of household plumbing systems; Erosion of natural deposits; leaching from wood preservatives;

**Footnotes:**

\* The level presented represents the 90<sup>th</sup> percentile of the 10 sites tested. A percentile is a value on a scale of 100 that indicates the percent of a distribution that is equal to or below it. The 90<sup>th</sup> percentile is equal to or greater than 90% of the copper values detected at your water system. In this case, 10 samples were collected at your water system and the 90<sup>th</sup> percentile value was the second highest reported value. The action level for lead was exceeded at one of the sites tested at a level of 63.2 ug/l.

\*\* The level presented represents the 90<sup>th</sup> percentile of the 10 sites tested. A percentile is a value on a scale of 100 that



indicates the percent of a distribution that is equal to or below it. The 90<sup>th</sup> percentile is equal to or greater than 90% of the copper values detected at your water system. In this case, 10 samples were collected at your water system and the 90<sup>th</sup> percentile value was the second highest reported value. The action level for copper was not exceeded at any of the sites tested.

**Table of Detected Contaminants**

Contaminant	Violation Yes/No	Date of Sample	Level Detected (Highest LRAA) (Range)	Unit Measurement	MCLG	Regulatory Limit (MCL, TT or AL)	Likely Source of Contamination
Total Trihalomethanes 32 Split Rock (LRAA)	Yes	Quarterly 2017	86.13* (58.4 – 113)	ug/L	n/a	80	By-product of drinking water chlorination needed to kill harmful organisms. TTHMs are formed when source water contains large amounts of organic matter.
Haloacetic Acids 32 Split Rock (LRAA)	No	Quarterly 2017	24.5* (6.31 – 27.76)	ug/L	n/a	60	By-product of drinking water disinfection needed to kill harmful organisms.
Contaminant	Violation Yes/No	Date of Sample	Level Detected (Highest LRAA) (Range)	Unit Measurement	MCLG	Regulatory Limit (MCL, TT or AL)	Likely Source of Contamination
Total Trihalomethanes 163 Laurel Ridge (LRAA)	No	Quarterly 2017	57.83* (5.73 – 84.1)	ug/L	n/a	80	By-product of drinking water chlorination needed to kill harmful organisms. TTHMs are formed when source water contains large amounts of organic matter.
Haloacetic Acids 163 Laurel Ridge (LRAA)	No	Quarterly 2017	20.72* (10.09 – 25.30)	ug/L	n/a	60	By-product of drinking water disinfection needed to kill harmful organisms.

**Footnotes:**

\* This level represents the highest locational running annual average calculated from the data collected

**Definitions:**

**Non - Detects (ND)** - Laboratory analysis indicates that the constituent is not present.

**Milligrams per liter (mg/l)** – Corresponds to one part of liquid in one million parts of liquid (parts per million – ppm).

**Micrograms per liter (ug/l)** – Corresponds to one part of liquid in one billion parts of liquid (parts per billion – ppb).

**Action Level (AL)** - The concentrations of a contaminant, which, if exceeded, triggers treatment, or other requirements, which a water system must follow.

**Maximum Contaminant Level (MCL)** - The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible.

**Maximum Contaminant Level Goal (MCLG)** - The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety

**Maximum Residual Disinfectant Level (MRDL)** – The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants

**Maximum Residual Disinfectant Level Goal (MRDLG)** – The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination

**Treatment Technique (TT)** – A required process intended to reduce the level of a contaminant in drinking water.

**Picocuries per liter (pCi/L)** – A measure of the radioactivity in water.

**LRAA** – Locational Running Annual Average

**WHAT DOES THIS INFORMATION MEAN?**

The Table shows that our system uncovered some problems this year. In August 2017, we were issued a violation due to the Locational Running Annual Average (LRAA) for Total Trihalomethanes (TTHMs), at one of our two monitoring locations, exceeding the Maximum Contamination Level (MCL). Subsequent sampling in November 2017 indicated that the LRAA for both locations was below the MCL.

**Potential Health Effects for Total Trihalomethanes (TTHMs)** - Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.

We have instituted some operational modifications such as additional flushing throughout the Oakridge and Conant Valley (drawing fresh water through the water mains to reduce water age, and reduce the formation of TTHM's) and changing the



primary oxidant utilized for iron and manganese removal from Sodium Hypochlorite (Chlorine) to Sodium Permanganate, while continuing to utilizing Sodium Hypochlorite for disinfection. Please note that for the last three (3) quarters of 2017, the levels of TTHMs at both locations were below the MCL.

We have learned through our testing that some other contaminants have been detected; however, these contaminants were detected below New York State Requirements. It should be noted that the action level for lead was exceeded in one of the samples collected. We are required to present the following information on lead in drinking water:

If present, elevated levels of lead can cause serious health problems, especially for pregnant women, infants and young children. It is possible that lead levels at your home may higher than at other homes in the community as a result of materials used in your home's plumbing. Oakridge Water is responsible for providing high quality drinking water, but can not control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using the water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (1-800-426-4791) or at <http://www.epa.gov/safewater/lead>.

#### **IS OUR WATER SYSTEM MEETING OTHER RULES THAT GOVERN OPERATIONS?**

During 2017, our system was in compliance with applicable State drinking water operating, monitoring and reporting requirements.

#### **DO I NEED TO TAKE SPECIAL PRECAUTIONS?**

Some people may be more vulnerable to disease causing microorganisms or pathogens in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice from their health care provider about their drinking water. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium, Giardia and other microbial pathogens are available from the Safe Drinking Water Hotline (800-426-4791).

#### **WHY SAVE WATER AND HOW TO AVOID WASTING IT?**

Although our system has an adequate amount of water to meet present and future demands, there are a number of reasons why it is important to conserve water:

- ♦ Saving water saves energy and some of the costs associated with both of these necessities of life;
- ♦ Saving water reduces the cost of energy required to pump water and the need to construct costly new wells, pumping systems and water towers; and
- ♦ Saving water lessens the strain on the water system during a dry spell or drought, helping to avoid severe water use restrictions so that essential fire fighting needs are met.

You can play a role in conserving water by becoming conscious of the amount of water your household is using, and by looking for ways to use less whenever you can. It is not hard to conserve water. Conservation tips include:

- ♦ Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So get a run for your money and load it to capacity.
- ♦ Turn off the tap when brushing your teeth.
- ♦ Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it up and you can save almost 6,000 gallons per year.
- ♦ Check your toilets for leaks by putting a few drops of food coloring in the tank, watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from one of these otherwise invisible toilet leaks. Fix it and you save more than 30,000 gallons a year.

#### **CLOSING**

Thank you for allowing us to continue to provide your family with quality drinking water this year. In order to maintain a safe and dependable water supply we sometimes need to make improvements that will benefit all of our customers. The costs of these improvements may be reflected in the rate structure. Rate adjustments may be necessary in order to address these improvements. We ask that all our customers help us protect our water sources, which are the heart of our community. Please call our office if you have any questions.

# NEW YORK STATE DEPARTMENT OF HEALTH

Bureau of Water Supply Protection

## Water System Operation Report

For Systems that Treat with Chlorine and/or Ultraviolet Radiation

Public Water System Name:

Oakridge Water District

Public Water System ID: NY 5918395

County:

Westchester

Town, Village or City:

Lewisboro

Source Water Type(s):

- ☐ Surface  
☒ Ground  
☐ GWDI  
☐ Purchase with subsequent chlorination  
☐ Purchase w/out subsequent chlorination  
☐ No treatment required

Reporting Month/Year:

January-2018

Date Report Submitted:

2/7/2018

MM/YYYY

MM/YYYY

			CHLORINATION				ULTRAVIOLET RADIATION/OTHER TREATMENTS					
Date	Source(s) in use	Treated water volume (GALLONS/DAY)	Gaseous		Liquid	Free Chlorine residual at entry point (mg/l)	UV Unit Active (YES/NO)	Intensity meter > 10%	Quartz sleeve cleaned (YES/NO)	Sodium Hydroxide	HMK/MN04	PCH-180
			Cylinder weight (LBS.)	Chlorine used/Day (LBS.)	Hypochlorite added to crock (GALLONS OR QUARTS)							
1	Wells 2,4,5,6,7	50,000	N/A	N/A		0.8	N/A	N/A	N/A			
2	Wells 2,4,5,6,7	41,000	N/A	N/A	5	0.8	N/A	N/A	N/A	20		11
3	Wells 2,4,5,6,7	54,000	N/A	N/A		1.2	N/A	N/A	N/A			
4	Wells 2,4,5,6,7	47,000	N/A	N/A		1.1	N/A	N/A	N/A			
5	Wells 2,4,5,6,7	59,000	N/A	N/A		1.1	N/A	N/A	N/A		4.5	
6	Wells 2,4,5,6,7	62,000	N/A	N/A		1.2	N/A	N/A	N/A			
7	Wells 2,4,5,6,7	41,000	N/A	N/A		0.8	N/A	N/A	N/A			
8	Wells 2,4,5,6,7	53,000	N/A	N/A		0.8	N/A	N/A	N/A			
9	Wells 2,4,5,6,7	50,000	N/A	N/A		0.8	N/A	N/A	N/A			
10	Wells 2,4,5,6,7	54,000	N/A	N/A		0.8	N/A	N/A	N/A		5	19
11	Wells 2,4,5,6,7	56,000	N/A	N/A		0.8	N/A	N/A	N/A	54		
12	Wells 2,4,5,6,7	69,000	N/A	N/A		0.8	N/A	N/A	N/A			
13	Wells 2,4,5,6,7	34,000	N/A	N/A		0.8	N/A	N/A	N/A			
14	Wells 2,4,5,6,7	37,000	N/A	N/A		0.8	N/A	N/A	N/A			9
15	Wells 2,4,5,6,7	51,000	N/A	N/A	4.5	0.8	N/A	N/A	N/A			
16	Wells 2,4,5,6,7	44,000	N/A	N/A		1.1	N/A	N/A	N/A	24	4.5	
17	Wells 2,4,5,6,7	45,000	N/A	N/A		1.3	N/A	N/A	N/A			
18	Wells 2,4,5,6,7	40,000	N/A	N/A		1.2	N/A	N/A	N/A			
19	Wells 2,4,5,6,7	43,000	N/A	N/A		0.9	N/A	N/A	N/A			
20	Wells 2,4,5,6,7	58,000	N/A	N/A		1.0	N/A	N/A	N/A			
21	Wells 2,4,5,6,7	27,000	N/A	N/A		0.7	N/A	N/A	N/A			
22	Wells 2,4,5,6,7	59,000	N/A	N/A		1.0	N/A	N/A	N/A		5	
23	Wells 2,4,5,6,7	39,000	N/A	N/A		0.8	N/A	N/A	N/A	26		14.5
24	Wells 2,4,5,6,7	15,000	N/A	N/A		0.7	N/A	N/A	N/A			
25	Wells 2,4,5,6,7	33,000	N/A	N/A		0.8	N/A	N/A	N/A			
26	Wells 2,4,5,6,7	47,000	N/A	N/A		0.7	N/A	N/A	N/A			
27	Wells 2,4,5,6,7	67,000	N/A	N/A		0.9	N/A	N/A	N/A			
28	Wells 2,4,5,6,7	30,000	N/A	N/A		0.8	N/A	N/A	N/A			
29	Wells 2,4,5,6,7	45,000	N/A	N/A		1.1	N/A	N/A	N/A		5	
30	Wells 2,4,5,6,7	38,000	N/A	N/A		0.8	N/A	N/A	N/A			
31	2,4,6,7	45,000	N/A	N/A		0.9	N/A	N/A	N/A			
Total		1,433,000			9.5					124		
AVG.		46,226			4.8	0.9				31.0	4.8	13.38

Chlorine Mix Ratio = 55.0 quarts/Gallons of 15 % chlorine added to 0 gallons of water in crock

Date UV quartz sleeve last cleaned:

N/A  
MM/DD/YY

Date UV lamp replaced:

N/A  
MM/DD/YY

Alarm activation:

☒ No ☐ Yes

If "Yes," date of activation:

N/A  
MM/DD/YY

Required Treatment Residual Level:

0.7 mg/l

Reported by:

Matt Kropp

Title:

Regional Manager

NYSDOH Operator

Certification Number:

NY0034619

Signature:

Date:

2/7/2018  
MM/YYYY

Operator Grade Level:

IIA,C,D



## NEW YORK STATE DEPARTMENT OF HEALTH

Bureau of Water Supply Protection

## Water System Operation Report

For Systems that Treat with Chlorine and/or Ultraviolet Radiation

Public Water System Name:

Oakridge Water District

Public Water System ID: NY

5918395

County:

Westchester

Town, Village or City:

Lewisboro

Source Water Type(s):

☐ Surface☒ Ground☐ BWSJ☐ Purchase with subsequent chlorination☐ Purchase w/out subsequent chlorination☐ log treatment required

Reporting Month/Year:

February-2018

Date Report Submitted:

3/9/2018

MM/YYYY

MM/YYYY

			CHLORINATION				ULTRAVIOLET RADIATION/OTHER TREATMENTS					
			Gaseous		Liquid	Free Chlorine residual at entry point (mg/l)	UV Unit Active (YES/NO)	Intensity meter > 70%	Quartz sleeve cleaned (YES/NO)	Sodium Hydroxide	HMKMN04	PCH-180
			Cylinder weight (LBS.)	Chlorine used/Day (LBS.)	Hypochlorite added to crotch (GALLONS OR QUARTS)							
Date	Source(s) in use	Treated water volume (GALLONS/DAY)										
1	Wells 2,4,5,6,7	45,000	N/A	N/A		0.8	N/A	N/A	N/A			
2	Wells 2,4,5,6,7	42,000	N/A	N/A		0.8	N/A	N/A	N/A		2.5	25
3	Wells 2,4,5,6,7	36,000	N/A	N/A		0.8	N/A	N/A	N/A			
4	Wells 2,4,5,6,7	52,000	N/A	N/A		1.0	N/A	N/A	N/A			
5	Wells 2,4,5,6,7	35,000	N/A	N/A		0.8	N/A	N/A	N/A		4	
6	Wells 2,4,5,6,7	37,000	N/A	N/A	4	0.8	N/A	N/A	N/A		4	
7	Wells 2,4,5,6,7	79,000	N/A	N/A		1.3	N/A	N/A	N/A	10		
8	Wells 2,4,5,6,7	36,000	N/A	N/A		0.8	N/A	N/A	N/A			
9	Wells 2,4,5,6,7	64,000	N/A	N/A		0.9	N/A	N/A	N/A		3	
10	Wells 2,4,5,6,7	48,000	N/A	N/A		0.8	N/A	N/A	N/A			
11	Wells 2,4,5,6,7	30,000	N/A	N/A		0.8	N/A	N/A	N/A			
12	Wells 2,4,5,6,7	37,000	N/A	N/A	4.5	0.8	N/A	N/A	N/A	60		
13	Wells 2,4,5,6,7	45,000	N/A	N/A		1.0	N/A	N/A	N/A			
14	Wells 2,4,5,6,7	50,000	N/A	N/A		0.9	N/A	N/A	N/A	55	4	
15	Wells 2,4,5,6,7	54,000	N/A	N/A		0.7	N/A	N/A	N/A		4	
16	Wells 2,4,5,6,7	69,000	N/A	N/A		0.8	N/A	N/A	N/A			
17	Wells 2,4,5,6,7	30,000	N/A	N/A		0.9	N/A	N/A	N/A		2	
18	Wells 2,4,5,6,7	45,000	N/A	N/A		0.7	N/A	N/A	N/A			
19	Wells 2,4,5,6,7	50,000	N/A	N/A	4	0.8	N/A	N/A	N/A			
20	Wells 2,4,5,6,7	50,000	N/A	N/A		1.4	N/A	N/A	N/A		4	16
21	Wells 2,4,5,6,7	41,000	N/A	N/A		1.2	N/A	N/A	N/A			
22	Wells 2,4,5,6,7	56,000	N/A	N/A		1.4	N/A	N/A	N/A			
23	Wells 2,4,5,6,7	46,000	N/A	N/A		0.9	N/A	N/A	N/A			
24	Wells 2,4,5,6,7	47,000	N/A	N/A		0.9	N/A	N/A	N/A			
25	Wells 2,4,5,6,7	44,000	N/A	N/A		0.8	N/A	N/A	N/A			
26	Wells 2,4,5,6,7	43,000	N/A	N/A		0.9	N/A	N/A	N/A		4.5	
27	Wells 2,4,5,6,7	36,000	N/A	N/A		0.8	N/A	N/A	N/A			
28	Wells 2,4,5,6,7	46,000	N/A	N/A		0.7	N/A	N/A	N/A			
Total		1,293,000			12.5					125		
AVG.		46,179			4.2	0.9				41.7	3.5555556	20.50

Chlorine Mix Ratio = 55.0 quarts/gallons of 15 % chlorine added to 0 gallons of water in crotch

Date UV quartz sleeve last cleaned:

N/A

Date UV lamp replaced:

N/A

MM/DD/YY

MM/DD/YY

Alarm activation:

☒ No☐ Yes

If "Yes," date of activation:

N/A

Required Treatment Residual Level:

0.7

mg/l

Reported by:

Matt Kroog

Title:

Regional Manager

NYSDOH Operator

Certification Number:

NY0034619

Signature:

Date:

3/9/2018

MM/YYYY

Operator Grade Level:

IIA,C,D

## NEW YORK STATE DEPARTMENT OF HEALTH

Bureau of Water Supply Protection

## Water System Operation Report

For Systems that Treat with Chlorine and/or Ultraviolet Radiation

Public Water System Name:

Oakridge Water District

Public Water System ID: NY

5918395

County:

Westchester

Town, Village or City:

Lewishoro

Source Water Type(s):

☐ Surface☒ Ground☐ Springs☐ Purchase with subsequent chlorination☐ Purchase w/out subsequent chlorination☐ No treatment required

Reporting Month/Year:

March-2018

Date Report Submitted:

4/3/2018

MM/YYYY

MM/YYYY

Date	Source(s) in use	Treated water volume (GALLONS/DAY)	CHLORINATION		Free Chlorine residual at entry point (mg/l)	UV Unit Active (YES/NO)	ULTRAVIOLET RADIATION/OTHER TREATMENTS				
			Gaseous	Liquid			Intensity meter > 70%	Quartz sleeve cleaned (YES/NO)	Sodium Hydroxide	HMKMNO4	PCH-180
			Cylinder weight (LBS.)	Chlorine used/Day (LBS.)	Hypochlorite added to crock (GALLONS OR QUARTS)						
1	Wells 2,4,5,6,7	59,000	N/A	N/A		0.7	N/A	N/A			
2	Wells 2,4,5,6,7	20,000	N/A	N/A	2.00	0.8	N/A	N/A			
3	Wells 2,4,5,6,7	23,000	N/A	N/A		0.8	N/A	N/A		4.00	
4	Wells 2,4,5,6,7	29,000	N/A	N/A		0.8	N/A	N/A			
5	Wells 2,4,5,6,7	49,000	N/A	N/A		0.8	N/A	N/A			
6	Wells 2,4,5,6,7	39,000	N/A	N/A		1.2	N/A	N/A			
7	Wells 2,4,5,6,7	48,000	N/A	N/A		1.4	N/A	N/A		4.00	
8	Wells 2,4,5,6,7	46,000	N/A	N/A		1.0	N/A	N/A			12.00
9	Wells 2,4,5,6,7	58,000	N/A	N/A		1.6	N/A	N/A			
10	Wells 2,4,5,6,7	44,000	N/A	N/A		1.5	N/A	N/A			
11	Wells 2,4,5,6,7	28,000	N/A	N/A		0.7	N/A	N/A			
12	Wells 2,4,5,6,7	48,000	N/A	N/A	3.00	0.7	N/A	N/A		5.00	
13	Wells 2,4,5,6,7	41,000	N/A	N/A		0.7	N/A	N/A			18.00
14	Wells 2,4,5,6,7	44,000	N/A	N/A		1.2	N/A	N/A			
15	Wells 2,4,5,6,7	47,000	N/A	N/A		1.3	N/A	N/A			
16	Wells 2,4,5,6,7	65,000	N/A	N/A		1.1	N/A	N/A	56.00	4.00	
17	Wells 2,4,5,6,7	48,000	N/A	N/A		1.3	N/A	N/A			
18	Wells 2,4,5,6,7	32,000	N/A	N/A		1.2	N/A	N/A			
19	Wells 2,4,5,6,7	46,000	N/A	N/A		1.0	N/A	N/A			
20	Wells 2,4,5,6,7	41,000	N/A	N/A		0.9	N/A	N/A		5.00	19.00
21	Wells 2,4,5,6,7	52,000	N/A	N/A		1.2	N/A	N/A			
22	Wells 2,4,5,6,7	36,000	N/A	N/A		1.5	N/A	N/A			
23	Wells 2,4,5,6,7	56,000	N/A	N/A	2.00	0.9	N/A	N/A			
24	Wells 2,4,5,6,7	57,000	N/A	N/A		0.7	N/A	N/A			
25	Wells 2,4,5,6,7	31,000	N/A	N/A		1.3	N/A	N/A			
26	Wells 2,4,5,6,7	48,000	N/A	N/A		0.8	N/A	N/A			
27	Wells 2,4,5,6,7	52,000	N/A	N/A		0.9	N/A	N/A			
28	Wells 2,4,5,6,7	48,000	N/A	N/A	2.00	0.7	N/A	N/A			18.00
29	Wells 2,4,5,6,7	68,000	N/A	N/A		0.9	N/A	N/A	54.00	5.00	
30	Wells 2,4,5,6,7	64,000	N/A	N/A		0.8	N/A	N/A			
31	Wells 2,4,5,6,7	48,000	N/A	N/A		0.8	N/A	N/A			
Total		1,415,000			9				110		
AVG.		45,645			2.3	1.0			53.0	4.5	16.75

Chlorine Mix Ratio ==

55.0

quarts/Gallons of

15

% chlorine added to

0

gallons of water in crock

Date UV quartz sleeve last cleaned:

N/A  
MM/DD/YY

Date UV lamp replaced:

N/A  
MM/DD/YY

Alarm activation:

☒ No☐ Yes

If "Yes," date of activation:

N/A  
MM/DD/YY

Required Treatment Residual Level:

0.7

mg/l

Reported by:

Matt Krohn

Title:

Regional Manager

NYSDOH Operator

Certification Number:

NY0034619

Signature:

Date:

4/3/2018

Operator Grade Level:

HA,C,D

# NEW YORK STATE DEPARTMENT OF HEALTH

Bureau of Water Supply Protection

## Water System Operation Report

For Systems that Treat with Chlorine and/or Ultraviolet Radiation

Public Water System Name:

Oakridge Water District

Public Water System ID: NY

5918395

County:

Westchester

Town, Village or City:

Lewisboro

Source Water Type(s):

☐ Surface

☐ Ground

☐ SWUD

☐ Purchase with subsequent chlorination

☐ Purchase w/out subsequent chlorination

☐ R log treatment required

Reporting Month/Year:

April-2018

Date Report Submitted:

5/7/2018

MM/YYYY

MM/YYYY

Date	Source(s) in use	Treated water volume (GALLONS/DAY)	CHLORINATION		Free Chlorine residual at entry point (mg/l)	UV Unit Active (YES/NO)	ULTRAVIOLET RADIATION/OTHER TREATMENTS				
			Gaseous	Liquid			Intensity meter > 70%	Quartz sleeve cleaned (YES/NO)	Sodium Hydroxide	HMKMNO4	PCH-180
1	Wells 2,4,5,6,7	36,000	N/A	N/A		0.7	N/A	N/A			
2	Wells 2,4,5,6,7	50,000	N/A	N/A		0.8	N/A	N/A			
3	Wells 2,4,5,6,7	55,000	N/A	N/A		0.8	N/A	N/A			
4	Wells 2,4,5,6,7	51,000	N/A	N/A	10	0.8	N/A	N/A		5	20
5	Wells 2,4,5,6,7	45,000	N/A	N/A		0.8	N/A	N/A			
6	Wells 2,4,5,6,7	65,000	N/A	N/A		1.2	N/A	N/A	55		
7	Wells 2,4,5,6,7	43,000	N/A	N/A		1.4	N/A	N/A			
8	Wells 2,4,5,6,7	26,000	N/A	N/A		1.0	N/A	N/A			
9	Wells 2,4,5,6,7	46,000	N/A	N/A		1.6	N/A	N/A			
10	Wells 2,4,5,6,7	57,000	N/A	N/A		1.5	N/A	N/A			
11	Wells 2,4,5,6,7	39,000	N/A	N/A		0.7	N/A	N/A			
12	Wells 2,4,5,6,7	53,000	N/A	N/A	4	0.7	N/A	N/A	50	5	16
13	Wells 2,4,5,6,7	59,000	N/A	N/A		0.7	N/A	N/A			
14	Wells 2,4,5,6,7	53,000	N/A	N/A		1.2	N/A	N/A			
15	Wells 2,4,5,6,7	36,000	N/A	N/A		1.3	N/A	N/A			
16	Wells 2,4,5,6,7	48,000	N/A	N/A		1.1	N/A	N/A			
17	Wells 2,4,5,6,7	46,000	N/A	N/A		1.3	N/A	N/A			
18	Wells 2,4,5,6,7	38,000	N/A	N/A		1.2	N/A	N/A		5	
19	Wells 2,4,5,6,7	42,000	N/A	N/A		1.0	N/A	N/A			15
20	Wells 2,4,5,6,7	70,000	N/A	N/A		0.9	N/A	N/A			
21	Wells 2,4,5,6,7	55,000	N/A	N/A		1.2	N/A	N/A			
22	Wells 2,4,5,6,7	23,000	N/A	N/A		1.5	N/A	N/A		7.5	
23	Wells 2,4,5,6,7	48,000	N/A	N/A	2	0.9	N/A	N/A			17
24	Wells 2,4,5,6,7	49,000	N/A	N/A		0.7	N/A	N/A			
25	Wells 2,4,5,6,7	62,000	N/A	N/A	4	1.3	N/A	N/A			
26	Wells 2,4,5,6,7	49,000	N/A	N/A		0.8	N/A	N/A			
27	Wells 2,4,5,6,7	62,000	N/A	N/A		0.9	N/A	N/A			
28	Wells 2,4,5,6,7	33,000	N/A	N/A		0.7	N/A	N/A		5	
29	Wells 2,4,5,6,7	44,000	N/A	N/A		0.9	N/A	N/A			
30	Wells 2,4,5,6,7	19,000	N/A	N/A		0.8	N/A	N/A			
Total		1,402,000			20				105		
AVG.		46,733			5.0	1.0			52.5	5.5	17.00

Chlorine Mix Ratio = 55.0 quarts/gallons of 15 % chlorine added to 0 gallons of water in crock

Date UV quartz sleeve last cleaned:

N/A

Date UV lamp replaced:

N/A

MM/DD/YY

MM/DD/YY

Alarm activation:

☐ No

☐ Yes

If "Yes," date of activation:

N/A

MM/DD/YY

Required Treatment Residual Level:

0.7 mg/l

Reported by:

Matt Krook

Title:

Regional Manager

NYSDOH Operator

Certification Number:

NY0034619

Signature:

Date:

5/7/2018

MM/YYYY

Operator Grade Level:

IIA,C,D

## NEW YORK STATE DEPARTMENT OF HEALTH

Bureau of Water Supply Protection

## Water System Operation Report

For Systems that Treat with Chlorine and/or Ultraviolet Radiation

Public Water System Name:

Oakridge Water District

Public Water System ID: NY 5918395

County: Westchester

Town, Village or City: Lewisboro

Source Water Type(s):

☐ Surface☒ Ground☐ SWUD☐ Purchase with subsequent chlorination☐ Purchase without subsequent chlorination☐ No log treatment required

Reporting Month/Year: May-2018

MM/YYYY

Date Report Submitted: 6/5/2018

MM/YYYY

Date	Source(s) in use	Treated water volume (GALLONS/MY)	CHLORINATION			Free Chlorine residual at entry point (mg/l)	UV Unit Active (YES/NO)	ULTRAVIOLET RADIATION/OTHER TREATMENTS				
			Gaseous		Liquid			Intensity meter % 70%	Quartz sleeve cleaned (YES/NO)	Sodium Hydroxide	HMKMN04	PCH-180
			Cylinder weight (LBS.)	Chlorine used/Day (LBS.)	Hypochlorite added to truck (GALLONS OR QUARTS)							
1	Wells 2,4,5,6,7	48,000	N/A	N/A		1.1	N/A	N/A	N/A			
2	Wells 2,4,5,6,7	48,000	N/A	N/A		1.1	N/A	N/A	N/A			
3	Wells 2,4,5,6,7	47,000	N/A	N/A		0.9	N/A	N/A	N/A			
4	Wells 2,4,5,6,7	82,000	N/A	N/A	5	0.8	N/A	N/A	N/A		4.5	17
5	Wells 2,4,5,6,7	37,000	N/A	N/A		0.8	N/A	N/A	N/A			
6	Wells 2,4,5,6,7	53,000	N/A	N/A		0.7	N/A	N/A	N/A			
7	Wells 2,4,5,6,7	43,000	N/A	N/A		0.8	N/A	N/A	N/A			
8	Wells 2,4,5,6,7	56,000	N/A	N/A		0.8	N/A	N/A	N/A	80		
9	Wells 2,4,5,6,7	58,000	N/A	N/A		0.8	N/A	N/A	N/A			
10	Wells 2,4,5,6,7	59,000	N/A	N/A		0.8	N/A	N/A	N/A			17
11	Wells 2,4,5,6,7	62,000	N/A	N/A		0.8	N/A	N/A	N/A			
12	Wells 2,4,5,6,7	49,000	N/A	N/A		0.7	N/A	N/A	N/A			
13	Wells 2,4,5,6,7	46,000	N/A	N/A		0.7	N/A	N/A	N/A			
14	Wells 2,4,5,6,7	47,000	N/A	N/A		0.8	N/A	N/A	N/A			
15	Wells 2,4,5,6,7	50,000	N/A	N/A		0.8	N/A	N/A	N/A		5.5	20
16	Wells 2,4,5,6,7	48,000	N/A	N/A		0.9	N/A	N/A	N/A			
17	Wells 2,4,5,6,7	49,000	N/A	N/A	5	0.8	N/A	N/A	N/A	30		
18	Wells 2,4,5,6,7	52,000	N/A	N/A		1.6	N/A	N/A	N/A			
19	Wells 2,4,5,6,7	60,000	N/A	N/A		1.9	N/A	N/A	N/A			
20	Wells 2,4,5,6,7	68,000	N/A	N/A		1.5	N/A	N/A	N/A			
21	Wells 2,4,5,6,7	22,000	N/A	N/A		1.3	N/A	N/A	N/A			
22	Wells 2,4,5,6,7	55,000	N/A	N/A		1.0	N/A	N/A	N/A			
23	Wells 2,4,5,6,7	43,000	N/A	N/A		0.7	N/A	N/A	N/A		5	
24	Wells 2,4,5,6,7	80,000	N/A	N/A		0.8	N/A	N/A	N/A			
25	Wells 2,4,5,6,7	39,000	N/A	N/A		0.7	N/A	N/A	N/A			
26	Wells 2,4,5,6,7	56,000	N/A	N/A		0.8	N/A	N/A	N/A			
27	Wells 2,4,5,6,7	56,000	N/A	N/A		0.8	N/A	N/A	N/A			
28	Wells 2,4,5,6,7	44,000	N/A	N/A		0.9	N/A	N/A	N/A			
29	Wells 2,4,5,6,7	49,000	N/A	N/A		0.8	N/A	N/A	N/A			
30	Wells 2,4,5,6,7	53,000	N/A	N/A	5	0.8	N/A	N/A	N/A	37	5	18
31	Wells 2,4,5,6,7	99,000	N/A	N/A		1.1	N/A	N/A	N/A			
Total		1,658,000			15					147		
AVG.		53,484			5.0	0.9				49.0	5	18.00

Chlorine Mix Ratio = 55.0 Gallons of 15 % chlorine added to 0 gallons of water in truck

Date UV quartz sleeve last cleaned: N/A Date UV lamp replaced: N/A

Alarm activation: ☒ No ☐ Yes If "Yes," date of activation: N/A Required Treatment Residual Level: 0.7 mg/l

Reported by: Matt Kroog Title: Regional Manager

Signature: Date: 6/5/2018 Operator Grade Level: IIA,C,D



## NEW YORK STATE DEPARTMENT OF HEALTH

Bureau of Water Supply Protection

## Water System Operation Report

For Systems that Treat with Chlorine and/or Ultraviolet Radiation

Public Water System Name:

Oakridge Water District

Public Water System ID: NY

5918395

County:

Westchester

Town, Village or City:

Lewisboro

Source Water Type(s):

☐ Surface☒ Ground☐ BWSID☐ Purchase with subsequent chlorination☐ Purchase w/o a subsequent chlorination☐ No log treatment required

Reporting Month/Year:

June-2018

Date Report Submitted:

7/9/2018

MM/YYYY

MM/YYYY

Date	Source(s) in use	Treated water volume (GALLONS/DAY)	CHLORINATION			Free Chlorine residual at entry point (mg/l)	UV Unit Active (YES/NO)	ULTRAVIOLET RADIATION/OTHER TREATMENTS				
			Gaseous		Liquid			Intensity meter > 70%	Quartz sleeve cleaned (YES/NO)	Sodium Hydroxide	HMKM004	PCH-180
			Cylinder weight (LBS.)	Chlorine used/Day (LBS.)	Hypochlorite added to crock (GALLONS OR QUARTS)							
1	Wells 2,4,5,6,7	91,000	N/A	N/A		1.8	N/A	N/A	N/A			
2	Wells 2,4,5,6,7	34,000	N/A	N/A		1.9	N/A	N/A	N/A			
3	Wells 2,4,5,6,7	54,000	N/A	N/A		0.9	N/A	N/A	N/A			
4	Wells 2,4,5,6,7	42,000	N/A	N/A		0.7	N/A	N/A	N/A	4.0	4.0	17.0
5	Wells 2,4,5,6,7	55,000	N/A	N/A		0.8	N/A	N/A	N/A			
6	Wells 2,4,5,6,7	44,000	N/A	N/A		0.3	N/A	N/A	N/A			
7	Wells 2,4,5,6,7	61,000	N/A	N/A	3.0	0.8	N/A	N/A	N/A			
8	Wells 2,4,5,6,7	75,000	N/A	N/A		0.9	N/A	N/A	N/A	50.0		5.0
9	Wells 2,4,5,6,7	42,000	N/A	N/A		0.8	N/A	N/A	N/A			
10	Wells 2,4,5,6,7	48,000	N/A	N/A		1.0	N/A	N/A	N/A			
11	Wells 2,4,5,6,7	57,000	N/A	N/A		0.8	N/A	N/A	N/A		4.0	
12	Wells 2,4,5,6,7	74,000	N/A	N/A		0.8	N/A	N/A	N/A			
13	Wells 2,4,5,6,7	56,000	N/A	N/A		0.9	N/A	N/A	N/A			19.0
14	Wells 2,4,5,6,7	55,000	N/A	N/A		0.7	N/A	N/A	N/A			
15	Wells 2,4,5,6,7	73,000	N/A	N/A		0.8	N/A	N/A	N/A		3.0	
16	Wells 2,4,5,6,7	42,000	N/A	N/A		0.7	N/A	N/A	N/A			
17	Wells 2,4,5,6,7	59,000	N/A	N/A		0.8	N/A	N/A	N/A			
18	Wells 2,4,5,6,7	39,000	N/A	N/A	3.0	0.8	N/A	N/A	N/A			
19	Wells 2,4,5,6,7	52,000	N/A	N/A		0.9	N/A	N/A	N/A	47.0		
20	Wells 2,4,5,6,7	52,000	N/A	N/A		0.8	N/A	N/A	N/A			
21	Wells 2,4,5,6,7	51,000	N/A	N/A		0.7	N/A	N/A	N/A			
22	Wells 2,4,5,6,7	72,000	N/A	N/A		0.7	N/A	N/A	N/A		4.0	17.0
23	Wells 2,4,5,6,7	43,000	N/A	N/A		0.8	N/A	N/A	N/A			
24	Wells 2,4,5,6,7	49,000	N/A	N/A		1.6	N/A	N/A	N/A			
25	Wells 2,4,5,6,7	45,000	N/A	N/A		0.8	N/A	N/A	N/A	20.0		
26	Wells 2,4,5,6,7	52,000	N/A	N/A	3.0	1.4	N/A	N/A	N/A	57.0		
27	Wells 2,4,5,6,7	61,000	N/A	N/A		1.5	N/A	N/A	N/A			
28	Wells 2,4,5,6,7	43,000	N/A	N/A		1.4	N/A	N/A	N/A		5.0	
29	Wells 2,4,5,6,7	64,000	N/A	N/A		0.8	N/A	N/A	N/A			
30	Wells 2,4,5,6,7	65,000	N/A	N/A		0.8	N/A	N/A	N/A			
Total		1,650,000				9				178		
AVG.		55,000				3.0				35.6	4	14.50

Chlorine Mix Ratio = 55.0 quarts/gallons of 15 % chlorine added to 0 gallons of water in crock

Date UV quartz sleeve last cleaned:

N/A

MM/DD/YY

Date UV lamp replaced:

N/A

MM/DD/YY

Alarm activation:

☒ No☐ Yes

If "Yes," date of activation:

N/A

MM/DD/YY

Required Treatment Residual Level:

0.7 mg/l

Reported by:

Matt Kroon

Title:

Regional Manager

NYSDOH Operator

Certification Number:

NY0034619

Signature:

Date:

7/9/2018

MM/YYYY

Operator-Grade Level:

IIA,C,D

**NEW YORK STATE DEPARTMENT OF HEALTH**  
Bureau of Water Supply Protection

**Water System Operation Report**  
For Systems that Treat with Chlorine and/or Ultraviolet Radiation

Public Water System Name: Oakridge Water District

Public Water System ID: NY 5918395

County: Westchester

Town, Village or City: Lewisboro

Source Water Type(s):  
☐ Surface  
☐ Ground  
☐ GWDI  
☐ Purchase with subsequent chlorination  
☐ Purchase w/out subsequent chlorination  
☐ No treatment required

Reporting Month/Year: July-2018  
MM/YYYY

Date Report Submitted: 8/7/2018  
MM/YYYY

Date	Source(s) in use	Treated water volume (GALLONS/DAY)	CHLORINATION			Free Chlorine residual at entry point (mg/l)	UV Unit Active (YES/NO)	ULTRAVIOLET RADIATION/OTHER TREATMENTS				
			Gaseous	Liquid				Intensity meter > 70%	Quartz sleeve cleaned (YES/NO)	Sodium Hydroxide	HMKMNO4	PCH-180
			Cylinder weight (LBS.)	Chlorine used/Day (LBS.)	Hypochlorite added to crock (GALLONS OR QUARTS)							
1	Wells 2,4,5,6,7	41,000	N/A	N/A		0.7	N/A	N/A	N/A			2
2	Wells 2,4,5,6,7	59,000	N/A	N/A		0.8	N/A	N/A	N/A			
3	Wells 2,4,5,6,7	69,000	N/A	N/A		0.8	N/A	N/A	N/A			
4	Wells 2,4,5,6,7	50,000	N/A	N/A		0.8	N/A	N/A	N/A		5	5
5	Wells 2,4,5,6,7	61,000	N/A	N/A	3	0.7	N/A	N/A	N/A			
6	Wells 2,4,5,6,7	66,000	N/A	N/A		1.1	N/A	N/A	N/A			
7	Wells 2,4,5,6,7	51,000	N/A	N/A		0.8	N/A	N/A	N/A			
8	Wells 2,4,5,6,7	71,000	N/A	N/A		0.7	N/A	N/A	N/A			7
9	Wells 2,4,5,6,7	62,000	N/A	N/A	3	0.7	N/A	N/A	N/A	30		
10	Wells 2,4,5,6,7	74,000	N/A	N/A		1.4	N/A	N/A	N/A		11	
11	Wells 2,4,5,6,7	77,000	N/A	N/A		1.2	N/A	N/A	N/A			
12	Wells 2,4,5,6,7	50,000	N/A	N/A		1.3	N/A	N/A	N/A			
13	Wells 2,4,5,6,7	89,000	N/A	N/A		0.7	N/A	N/A	N/A			
14	Wells 2,4,5,6,7	54,000	N/A	N/A		0.8	N/A	N/A	N/A		3	
15	Wells 2,4,5,6,7	46,000	N/A	N/A		0.7	N/A	N/A	N/A			
16	Wells 2,4,5,6,7	60,000	N/A	N/A	5	0.8	N/A	N/A	N/A			
17	Wells 2,4,5,6,7	46,000	N/A	N/A		1.3	N/A	N/A	N/A			
18	Wells 2,4,5,6,7	53,000	N/A	N/A		0.9	N/A	N/A	N/A			
19	Wells 2,4,5,6,7	49,000	N/A	N/A		0.8	N/A	N/A	N/A			
20	Wells 2,4,5,6,7	61,000	N/A	N/A		1.3	N/A	N/A	N/A			
21	Wells 2,4,5,6,7	67,000	N/A	N/A		1.8	N/A	N/A	N/A		4	
22	Wells 2,4,5,6,7	43,000	N/A	N/A		1.6	N/A	N/A	N/A			
23	Wells 2,4,5,6,7	36,000	N/A	N/A		0.8	N/A	N/A	N/A			
24	Wells 2,4,5,6,7	46,000	N/A	N/A	10	0.8	N/A	N/A	N/A	51		15
25	Wells 2,4,5,6,7	44,000	N/A	N/A		0.7	N/A	N/A	N/A			
26	Wells 2,4,5,6,7	51,000	N/A	N/A		0.8	N/A	N/A	N/A			
27	Wells 2,4,5,6,7	49,000	N/A	N/A		0.8	N/A	N/A	N/A		5	
28	Wells 2,4,5,6,7	45,000	N/A	N/A		0.8	N/A	N/A	N/A			
29	Wells 2,4,5,6,7	48,000	N/A	N/A		0.8	N/A	N/A	N/A			
30	Wells 2,4,5,6,7	53,000	N/A	N/A		0.8	N/A	N/A	N/A			
31	2,4,5,6,7	53,000	N/A	N/A		0.7	N/A	NA	NA			
Total		1,724,000				21				81		
AVG.		55,613				5.3	0.9			40.5	5.6	7.25

Chlorine Mix Ratio = 55.0 quarts/Gallons of 12.5 % chlorine added to 0 gallons of water in crock

Date UV quartz sleeve last cleaned: N/A MM/DD/YY Date UV lamp replaced: N/A MM/DD/YY

Alarm activation: ☒ No ☐ Yes If "Yes," date of activation: N/A MM/DD/YY Required Treatment Residual Level: 0.7 mg/l

Reported by: Matt Kroog Title: Regional Manager NYSDOH Operator Certification Number: NY0034619

Signature: [Signature] Date: 8/7/2018 MM/YYYY Operator Grade Level: IIA,C,D

## NEW YORK STATE DEPARTMENT OF HEALTH

Bureau of Water Supply Protection

## Water System Operation Report

For Systems that Treat with Chlorine and/or Ultraviolet Radiation

Public Water System Name:

Oakridge Water District

Public Water System ID: NY

5918395

County: Westchester

Town, Village or City:

Lewistown

Source Water Type(s):

☐ Surface☒ Ground☐ BWDI☐ Purchase with subsequent chlorination☐ Purchase w/out subsequent chlorination☐ If log treatment required

Reporting Month/Year:

August-2018

Date Report Submitted:

9/8/2018

MM/YYYY

MM/YYYY

Date	Source(s) in use	Treated water volume (GALLONS/DAY)	CHLORINATION			Free Chlorine residual at entry point (mg/l)	UV Unit Active (YES/NO)	ULTRAVIOLET RADIATION/OTHER TREATMENTS				
			Gaseous	Liquid	Hypochlorite added to crotch (GALLONS OR QUARTS)			Intensity meter > 70%	Quartz sleeve cleaned (YES/NO)	Sodium Hydroxide	HMKMN04	PCH-180
1	Wells 2,4,5,6,7	60,000	N/A	N/A		0.8	N/A	N/A	N/A			
2	Wells 2,4,5,6,7	47,000	N/A	N/A	10	0.8	N/A	N/A	N/A	54		
3	Wells 2,4,5,6,7	66,000	N/A	N/A		1.7	N/A	N/A	N/A			
4	Wells 2,4,5,6,7	34,000	N/A	N/A		1.8	N/A	N/A	N/A			
5	Wells 2,4,5,6,7	48,000	N/A	N/A		1.1	N/A	N/A	N/A			
6	Wells 2,4,5,6,7	56,000	N/A	N/A		1.2	N/A	N/A	N/A		4	
7	Wells 2,4,5,6,7	48,000	N/A	N/A		0.7	N/A	N/A	N/A			
8	Wells 2,4,5,6,7	63,000	N/A	N/A		0.8	N/A	N/A	N/A			
9	Wells 2,4,5,6,7	59,000	N/A	N/A		0.9	N/A	N/A	N/A			
10	Wells 2,4,5,6,7	43,000	N/A	N/A		0.7	N/A	N/A	N/A		4	
11	Wells 2,4,5,6,7	53,000	N/A	N/A		0.9	N/A	N/A	N/A			
12	Wells 2,4,5,6,7	52,000	N/A	N/A		0.7	N/A	N/A	N/A			
13	Wells 2,4,5,6,7	49,000	N/A	N/A		0.8	N/A	N/A	N/A		5	
14	Wells 2,4,5,6,7	46,000	N/A	N/A	4	0.8	N/A	N/A	N/A			
15	Wells 2,4,5,6,7	52,000	N/A	N/A		0.8	N/A	N/A	N/A	55		
16	Wells 2,4,5,6,7	58,000	N/A	N/A		1.3	N/A	N/A	N/A		3	
17	Wells 2,4,5,6,7	48,000	N/A	N/A		1.7	N/A	N/A	N/A			
18	Wells 2,4,5,6,7	59,000	N/A	N/A		1.1	N/A	N/A	N/A			
19	Wells 2,4,5,6,7	78,000	N/A	N/A		0.8	N/A	N/A	N/A			
20	Wells 2,4,5,6,7	62,000	N/A	N/A	2	0.9	N/A	N/A	N/A	56		
21	Wells 2,4,5,6,7	33,000	N/A	N/A		0.8	N/A	N/A	N/A			
22	Wells 2,4,5,6,7	56,000	N/A	N/A		0.9	N/A	N/A	N/A			
23	Wells 2,4,5,6,7	59,000	N/A	N/A		0.7	N/A	N/A	N/A			
24	Wells 2,4,5,6,7	49,000	N/A	N/A	2	0.7	N/A	N/A	N/A			
25	Wells 2,4,5,6,7	44,000	N/A	N/A		0.8	N/A	N/A	N/A			
26	Wells 2,4,5,6,7	52,000	N/A	N/A		0.7	N/A	N/A	N/A			
27	Wells 2,4,5,6,7	71,000	N/A	N/A	3	0.8	N/A	N/A	N/A			
28	Wells 2,4,5,6,7	70,000	N/A	N/A		0.9	N/A	N/A	N/A	55	5	
29	Wells 2,4,5,6,7	58,000	N/A	N/A		1.1	N/A	N/A	N/A			
30	Wells 2,4,5,6,7	54,000	N/A	N/A		0.9	N/A	N/A	N/A			
31	Wells 2,4,5,6,7	53,000	N/A	N/A		0.7	N/A	N/A	N/A			
Total		1,680,000			21					220		
AVG.		54,194			4.2	0.9				55.0	4.2	

Chlorine Mix Ratio = 55.0 quarts/gallons of 15 % chlorine added to 0 gallons of water in crotch

Date UV quartz sleeve last cleaned:

N/A

Date UV lamp replaced:

N/A

Alarm activation:

☒ No☐ Yes

If "Yes," date of activation:

N/A

Required Treatment Residual Level:

0.7

mg/l

Reported by:

Matt Kroog

Title:

Regional Manager

NYSDOH Operator

Certification Number:

NY0034619

Signature:

Date:

9/8/2018

Operator Grade Level:

HA, C.D.

**NEW YORK STATE DEPARTMENT OF HEALTH**  
Bureau of Water Supply Protection

**Water System Operation Report**  
For Systems that Treat with Chlorine and/or Ultraviolet Radiation

Public Water System Name: Oakridge Water District Public Water System ID: NY 5918395

County: Westchester Town, Village or City: Lewisboro Source Water Type(s): ☐ Surface ☒ Ground ☐ PWSID

Reporting Month/Year: September-2018 Date Report Submitted: 10/4/2018  
MM/YYYY MM/YYYY

☐ Purchase with subsequent chlorination  
☐ Purchase w/out subsequent chlorination  
☐ log treatment required

Date	Source(s) in use	Treated water volume (GALLONS/DAY)	CHLORINATION			Free Chlorine residual at entry point (mg/l)	ULTRAVIOLET RADIATION/OTHER TREATMENTS					
			Gaseous	Liquid	Hypochlorite added to crotch (GALLONS OR QUARTS)		UV Unit Active (YES/NO)	Intensity meter > 70%	Quartz sleeve cleaned (YES/NO)	Sodium Hydroxide	HMKMN04	PCH-180
1	Well(s) 4,6,7	54,000	N/A	N/A		0.7	N/A	N/A	N/A			
2	Well(s) 4,6,7	82,000	N/A	N/A		1.0	N/A	N/A	N/A			
3	Well(s) 4,6,7	49,000	N/A	N/A		0.8	N/A	N/A	N/A			
4	Well(s) 4,6,7	53,000	N/A	N/A	2	0.7	N/A	N/A	N/A		7	25
5	Well(s) 4,6,7	48,000	N/A	N/A		0.8	N/A	N/A	N/A			
6	Well(s) 4,6,7	56,000	N/A	N/A		0.8	N/A	N/A	N/A			
7	Well(s) 4,6,7	59,000	N/A	N/A		0.7	N/A	N/A	N/A			
8	Well(s) 4,6,7	27,000	N/A	N/A		0.9	N/A	N/A	N/A			
9	Well(s) 4,6,7	52,000	N/A	N/A		1.0	N/A	N/A	N/A			
10	Well(s) 4,6,7	56,000	N/A	N/A	3	1.0	N/A	N/A	N/A		4	9
11	Well(s) 4,6,7	45,000	N/A	N/A		1.2	N/A	N/A	N/A			
12	Well(s) 4,6,7	39,000	N/A	N/A		0.7	N/A	N/A	N/A	51		13
13	Well(s) 4,6,7	54,000	N/A	N/A		0.8	N/A	N/A	N/A			
14	Well(s) 4,6,7	53,000	N/A	N/A		0.8	N/A	N/A	N/A			
15	Well(s) 4,6,7	65,000	N/A	N/A		0.7	N/A	N/A	N/A			
16	Well(s) 4,6,7	55,000	N/A	N/A		0.8	N/A	N/A	N/A		6	
17	Well(s) 4,6,7	52,000	N/A	N/A	5	0.7	N/A	N/A	N/A			17
18	Well(s) 4,6,7	47,000	N/A	N/A		0.9	N/A	N/A	N/A			
19	Well(s) 4,6,7	62,000	N/A	N/A		0.7	N/A	N/A	N/A			
20	Well(s) 4,6,7	54,000	N/A	N/A		0.7	N/A	N/A	N/A		5	
21	Well(s) 4,6,7	50,000	N/A	N/A		1.4	N/A	N/A	N/A			
22	Well(s) 4,6,7	58,000	N/A	N/A		1.9	N/A	N/A	N/A			
23	Well(s) 4,6,7	41,000	N/A	N/A		0.8	N/A	N/A	N/A			
24	Well(s) 4,6,7	52,000	N/A	N/A		0.9	N/A	N/A	N/A	50	5	
25	Well(s) 4,6,7	47,000	N/A	N/A		1.0	N/A	N/A	N/A			17
26	Well(s) 4,6,7	43,000	N/A	N/A		0.7	N/A	N/A	N/A			
27	Well(s) 4,6,7	49,000	N/A	N/A		0.8	N/A	N/A	N/A			
28	Well(s) 4,6,7	43,000	N/A	N/A		0.9	N/A	N/A	N/A		5	
29	Well(s) 4,6,7	44,000	N/A	N/A		0.8	N/A	N/A	N/A			
30	Well(s) 4,6,7	55,000	N/A	N/A		0.7	N/A	N/A	N/A			
Total		1,544,000			10					101		
AVG.		51,467			3.3	0.9				50.5	5.3333333	16.20

Chlorine Mix Ratio = 55.0 quarts/gallons of 15 % chlorine added to 0 gallons of water in crotch

Date UV quartz sleeve last cleaned: N/A Date UV lamp replaced: N/A  
MM/DD/YY MM/DD/YY

Alarm activation: ☒ No ☐ Yes If "Yes," date of activation: N/A Required Treatment Residual Level: 0.7 mg/l  
MM/DD/YY

Reported by: Matt Kroos Title: Regional Manager NYSDOH Operator Certification Number: NY0034619

Signature: [Signature] Date: 10/4/2018 Operator Grade Level: IIA,C,D  
MM/YYYY



**Bob Eberts**

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**From:** Vogler Brothers Inc. <voglerbrothers@yahoo.com>  
**Sent:** Thursday, November 1, 2018 12:06 PM  
**To:** Bob Eberts  
**Subject:** Fw: Septic clean out Car Wash

**Respectfully,**  
**Tara**  
**@ Vogler Brothers Inc.**  
**39 North Street**  
**Katonah, NY 10536**  
**T(914) 232-5535 F(914)232-3944**

----- Forwarded Message -----

**From:** Vogler Brothers Inc. <voglerbrothers@yahoo.com>  
**To:** rje@crach.com <rje@crach.com>  
**Sent:** Wednesday, October 31, 2018, 2:07:22 PM EDT  
**Subject:** Septic clean out Car Wash

Hello,

As per our phone conversation cleaning the 3 tanks for a total of 1500 gallons at the Car wash at 900 Oak Ridge Commons, South Salem, NY the price would be \$475 plus tax. This is the price for this year as Westchester County Ups there fees every first of the year. More than likely the price next year would go to \$495 per the 1500 gallons.

If you have any further questions please do not hesitate to contact us.

**Respectfully,**  
**Tara**  
**@ Vogler Brothers Inc.**  
**39 North Street**  
**Katonah, NY 10536**  
**T(914) 232-5535 F(914)232-3944**

**TIM  
MILLER  
ASSOCIATES, INC.**

---

*10 North Street, Cold Spring, NY 10516*

*(845) 265-4400*

*265-4418 fax*

October 30, 2018

Lewisboro Planning Board  
Jerome Kerner, Chairman  
79 Bouton Rd.  
South Salem, NY 10590

RE: Sunday Parking for Grace Church, Oakridge Commons Shopping Center,  
Smith Ridge Road, Lewisboro, NY

Dear Mr. Kerner:

This letter discusses parking use by Grace Community Church at the Oakridge Shopping Center, based upon a review of the site plan (Site Plan Drawing SP-1, Feb. 3, 2018 by Cross River Architects LLC, Cross River, NY). I completed a site visit on Sunday, October 28th 2018.

Grace church is located in New Canaan CT. Approximately 1.8 miles south of the Oakridge Shopping Center. Church attendees are allowed by the shopping center owner to park at the shopping center and the church provides a shuttle bus service.

There appears to be more than adequate Sunday parking to accommodate the Grace Community Church parking at the shopping center. The operation appears to be of mutual benefit to all parties and the general public. It is recommended that this type of cooperation be encouraged.

***Parking Access***

The main site access was used by vehicles and shuttles that access the Oakridge Common Shopping Center. One temporary collapsible sign was located at the entrance and one by the first internal intersection. Both signs are on raised medians and not in the travel way. Shortly after making the turn at the second sign, the shuttles were a visible sign of where to park. The signs were removed before noon.

***Parking Space Utilization***

Parking utilization was reviewed at 9:30 a.m. and 10:00 a.m. to capture the maximum use of the site parking by the church.

Area A (see Figure 1) is adjacent to the under construction daycare and existing veterinary offices. The veterinary office is not open on Sunday. This is primarily where the church attendees park as the shuttle to the church stops in this area.

Area B (see Figure 1) is adjacent to the restaurant, fitness, and karate uses. The restaurant is open at noon on Sunday. The fitness and karate are open at 9 a.m. on Sunday. Employees for both arrive earlier. Parking on the north side of the buildings was not checked.

The parking analysis did not distinguish between users of the various facilities but rather examined the total parking in each area as shown in Table 1.

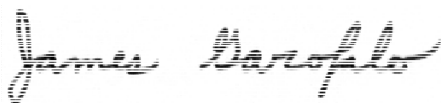
<b>Table 1</b>			
<b>Sunday Parking Utilization</b>			
	<b>Parking Utilized ****</b>		
<b>Parking Area*</b>	<b>9:30 a.m.</b>	<b>10:00 a.m.</b>	<b>Parking Spaces***</b>
Area A	35	43	<b>97**</b>
Area B	6	6	<b>44</b>
<b>Total</b>	<b>41</b>	<b>49</b>	<b>141**</b>
* See Figure 1			
** Shuttles temporarily block some spaces while loading and unloading.			
*** Parking spaces based on Site Plan Drawing SP-1, Feb. 3, 2018 by Cross River Architects LLC.			
**** Includes all users of parking areas.			

Should these lots ever become more heavily utilized the lot opposite building one and two facing Smith Ridge Road is slightly larger (147 spaces) and none of these businesses are open on Sunday. The primary vehicles observed in this lot were a few postal vans.

The Grace Community Church parking in the Oakridge Shopping Center appears to be a win-win situation for all. The church is providing a shuttle service to encourage use of a parking lot that is under used on Sunday and reduce parking need and traffic at the church. Businesses in the shopping center get additional visibility and potentially more customers. The public gains by reduced vehicles on public roads especially near the church as well as supporting local business.

I trust this adequately describes this activity and encourages continuation.

Sincerely,



James A. Garofalo, AICP CTP  
Director, Transportation Division  
TIM MILLER ASSOCIATES, INC.

C: R. Ebert  
P. Pine



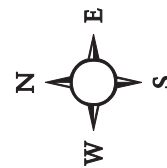
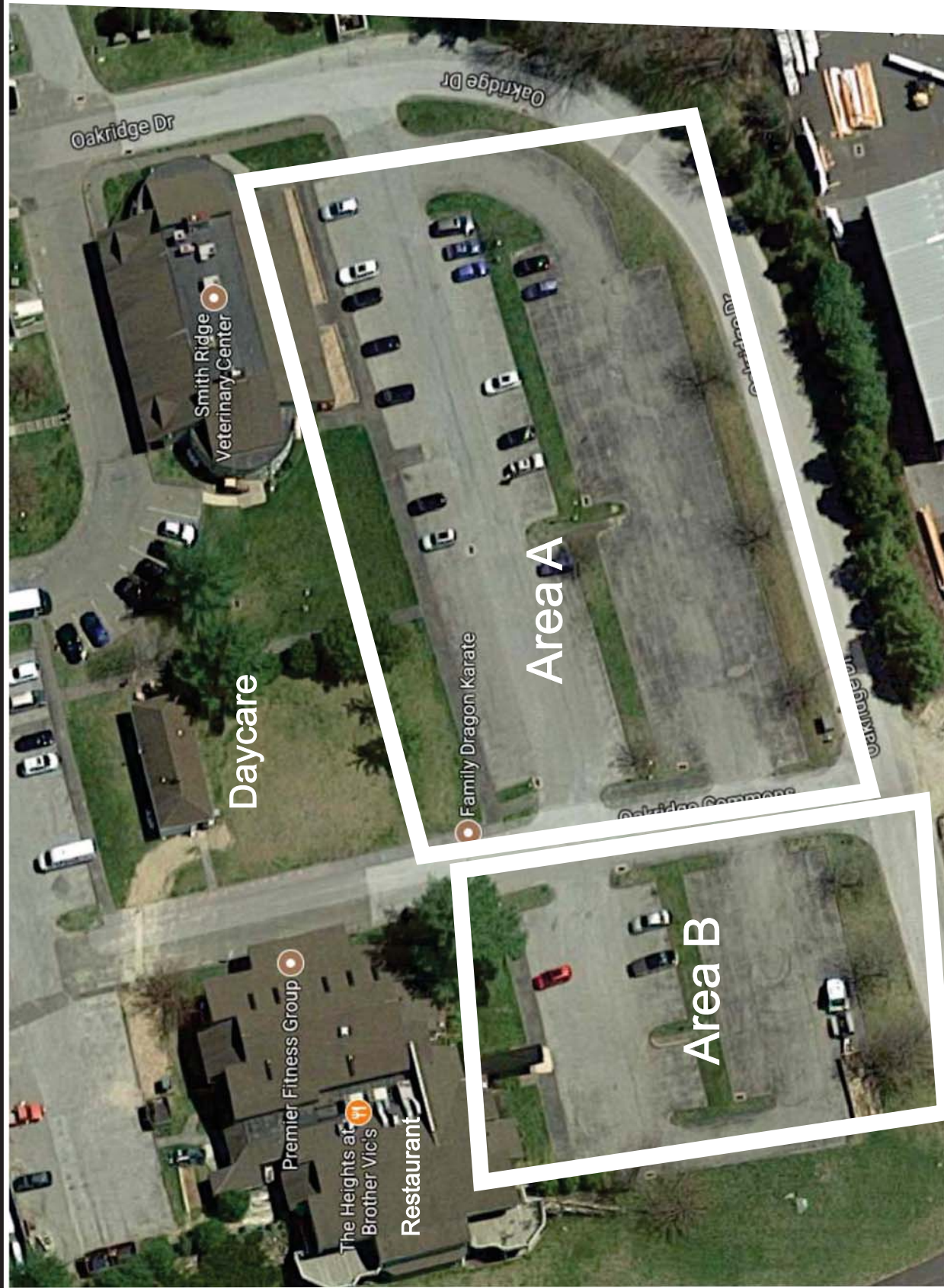


Figure 1: Oakridge Shopping Center Southern Parking Areas  
Smith Ridge Road, Lewisboro, NY

Scale: n/a  
Source: Base Google Maps

**TIM  
MILLER  
ASSOCIATES, INC.**

---

*10 North Street, Cold Spring, NY 10516*

*(845) 265-4400*

*265-4418 fax*

October 31, 2018

Lewisboro Planning Board  
Jerome Kerner, Chairman  
79 Bouton Rd.  
South Salem, NY 10590

RE: Car Wash Sight Distance, Oakridge Commons Shopping Center,  
Smith Ridge Road, Lewisboro, NY

Dear Mr. Kerner:

This letter analyzes sight distances from the Oakridge Commons Shopping Center gas station based upon a site visit on October 28th 2018. The proposed car wash is intended to use the same accesses as the existing gas station.

**Summary**

Stopping sight distance is fundamental to safe operations. Stopping sight distance appears to be sufficient in both directions. Intersection sight distance provides an additional level of safety and is met except for left turning vehicles leaving the southern gas station access sighting northbound vehicles. It is recommended that vegetation be cut back along Smith Ridge Road frontage south of the southern driveway access to improve sight lines to intersection sight distance and that nothing be planted there that would grow to be over three feet tall along the sight line. Any landscaping should consider the potential of pedestrians.

**Sight Distances**

Stopping sight distance is fundamental as it allows the driver to stop safely before colliding with another vehicle. Intersection sight distance provides an enhanced and desirable margin of safety.

Sight distances are based on prevailing (85th percentile) speeds of vehicles on the roadway and are adjusted for road grades. For this case an additional 10% is being added to the desired intersection sight distance to account for northbound vehicles on the downgrade. The speed limit is 35 miles per hour starting at the Connecticut border and extending past the site. The prevailing operating speeds could be over 40 miles per hour.

Sight distances are measured from a car using a driver eye height of 3.5 feet to a point in the road. Sight lines of truck drivers is generally as far or further as their typical eye height is 7.6 feet. The higher truck driver height tends to increase sight lines over vertical crests but can be blocked by branches well above the car driver's line of sight. In this case, there are horizontal curves both to the north and south of the site. South of the site there is a vertical

curve crest near the horizontal curve. Sight lines from the driveway are measured from 14.5 feet back from the NYS Route 123 travel way.

### **Sight Lines**

Sight lines to the north from traffic desiring to exit the gas station access are approximately 1000 feet. Northbound vehicles turning left into the gas station can see oncoming southbound vehicles approximately 1000 feet away.

Vehicles headed north have about 700 feet of sight line to vehicles turning left into the gas station. Vehicles turning left from the gas station could achieve a similar sight distance if vegetation were cut back along the frontage south of the southern gas station access. There vines are beginning to encroaching on the roadway shoulder. Vines appear to have overgrown some trees in this area. Existing sight distance is about 425 feet from the southern access to the northbound vehicles.

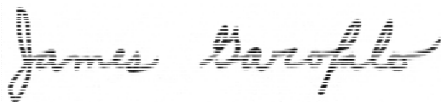
The available intersection sight distance is only a concern for left turning vehicles out of the gas station looking at northbound vehicles. The approximate 425 feet of sight distance meets the stopping sight distance for up to 45 miles per hour which should account for existing operations. The sight distance is short of intersection sight distance at 35 miles per hour. Thus the existing sight distance exceeds the fundamental critical requirement of stopping sight distance but not the desired intersection sight distance.

Basically the existing 425 feet is adequate for safe operation up to 45 miles per hour however vegetation clearing (see Figure A) could provide a sight distance of approximately 700 feet. Clearing the sight line would add a desirable safety margin for vehicle speeds up to 55 miles per hour, well more than should be needed for a 35 mile per hour road.

Clearing of vegetation is recommended for the site frontage south of the southern gas station driveway. At least the first five feet from the edge of road should be grass or other design to allow the rare pedestrian to avoid walking in the road. Landscaping should be kept under three feet within the sight triangle. The 7.6 feet eye height for trucks and looking up the vertical road grade suggests this is probably not a good place to plant trees near the road.

I trust this adequately describes how best to improve and maintain sight lines for this site improvement.

Sincerely,

A handwritten signature in cursive script that reads "James A. Garofalo". The signature is written in dark ink and is positioned below the word "Sincerely,".

James A. Garofalo, AICP CTP  
Director, Transportation Division  
TIM MILLER ASSOCIATES, INC.

C: R. Ebert  
P. Pine



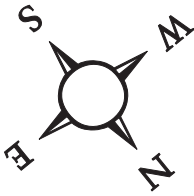


Figure A: Sight Line Obstruction  
Gas Station at  
Oakridge Commons Shopping Center  
Town of Lewisboro, Westchester County, New York  
Source: TMA 10-27-2018

**VISTA BOARD OF FIRE COMMISSIONERS  
VISTA FIRE DISTRICT #1  
377 SMITH RIDGE ROAD  
SOUTH SALEM, NEW YORK 10590**

**November 16, 2018  
Planning Board, Town of Lewisboro  
E-Mail [ACARC@Lewisboro.com](mailto:ACARC@Lewisboro.com)**

**Cal. #8-17PB  
Smith Ridge Associates  
450 Oakridge Common  
South Salem, New York 10590  
Sheet 49 Block 9829 Lot 10**

**Chairman Jerome Kerner:**

**At the November 14, 2018 meeting of the Vista Board of Fire Commissioners Mr. Phil Pine presented his application Cal. #8-17PB, for a one bay car wash addition to the existing gas station.**

**The Board found this proposed construction to be within its guidelines for fire protection after discussing water usage and traffic flow.**

**Any further questions or clarification, please contact me at 914-533-2727.**

**Sincerely,**





**Barbara Woodstead  
Secretary Vista Board of Fire Commissioners  
Vfd.2018.11.14 Vista Car Wash**

## MEMORANDUM

TO: Chairman Jerome Kerner, AIA and  
Members of Lewisboro Planning Board

CC: Ciorsdan Conran  
Judson Siebert, Esq.  
Joseph Angiello

FROM: Jan K. Johannessen, AICP   
Joseph M. Cermele, P.E., CFM   
Town Consulting Professionals

DATE: November 14, 2018

RE: Site Development Plan Approval Application  
King Lumber  
Meadow Street  
Sheet 4A, Block 11111, Lot 2  
Sheet 4A, Block 11113, Lots 7 & 9  
Sheet 4B, Block 12035, Lot 5

---

### PROJECT DESCRIPTION

The subject property is comprised of several lots totaling  $\pm 4.07$  acres of land. The property is nearly all developed and has historically been used as a lumber yard, known as King Lumber. The site is located at the end of Railroad Avenue, on Meadow Street, and is immediately west of the railroad tracks. Tax Lot 9, which contains the main retail building and customer parking lot, was previously occupied by Westchester Ford Tractor, Inc. (a tractor dealership) and has an approved site plan dating back to the late 1980's. No site plan exists for the remainder of the site. According to the applicant, King Lumber has operated on the remainder of the site for more than a century but acquired the Westchester Ford Tractor parcel and began utilizing it as part of the lumber business 10 or more years ago. This change of use and the modifications that were made to Lot 9 following King Lumber's acquisition of the parcel did not obtain Site Development Plan approval from the Planning Board. Further, the applicant has started a subsidiary U-Haul business, where U-Haul trucks are rented and returned to the site, some of which have been parked off-site and on Meadow Street. Recently, the Building Department issued the King Lumber a notice of violation for non-compliance with the site plan of record, thus triggering the applicant's application to the Planning Board. The application includes an as-built site plan of the entire site, along with modifications to accommodate the U-Haul business.

CIVIL ENGINEERING | LANDSCAPE ARCHITECTURE | SITE & ENVIRONMENTAL PLANNING



### **SEQRA**

The proposed action has been preliminarily identified as an Unlisted Action pursuant to the State Environmental Quality Review Act (SEQRA) and a coordinated review is not required. Prior to the Planning Board acting on this pending application, a Determination of Significance must first be issued.

### **REQUIRED APPROVALS AND REFERRALS**

1. Site Development Plan approval is required from the Planning Board.
2. The application has been referred to the Westchester County Planning Board in accordance with Section 239-m of the General Municipal Law.

### **COMMENTS**

1. As previously indicated, it is recommended that the Building Inspector review the site plan for zoning compliance. We recognize that many of the existing conditions may be considered existing nonconforming, but this must be clarified and confirmed by the Building Inspector.
2. The applicant shall identify if any contractor's equipment is stored and rented on the subject property. If so, Section 220-38, Storage of Contractor's Equipment, of the Zoning Code may apply. As previously identified, the applicant should seek an interpretation from the Building Inspector concerning this item.
3. All other prior comments have been adequately addressed.

In order to expedite the review of subsequent submissions, the applicant should provide annotated responses to each of the comments outlined herein.

### **PLANS REVIEWED, PREPARED BY J.D. BARRETT & ASSOCIATES, LLC DATED OCTOBER 31, 2018:**

- Existing Conditions Site Plan (Sheet 1 of 2)
- Site Plan (Sheet 2 of 2)

### **DOCUMENTS REVIEWED:**

- Letter, prepared by J.D. Barrett & Associates, LLC, dated October 31, 2018
- Short EAF, dated October 16, 2018

**AFFIDAVIT OF POSTING**

IN THE MATTER OF AN APPLICATION BY PETER LOCKWOOD – KING LUMBER, MEADOW STREET GOLDENS BRIDGE NY SEEKING APPROVAL FOR SITE DEVELOPMENT PLAN. SHEET 4A, BLOCK 11111, LOT 2; SHEET 4A, BLOCK 11113, LOTS 7 & 9; AND SHEET 4A, BLOCK 12035, LOT 5 (KING LUMBER REALTY AND KING MEADOW STREET REALTY-OWNERS OF RECORD) FOR AN AS BUILT SITE PLAN OF THE ENTIRE SITE, ALONG MODIFICATIONS ASSOCIATED WITH A UHAUL PARKING. THE SUBJECT PROPERTY IS KNOWN AS KING LUMBER; IS LOCATED AT THE END OF RAILROAD AVENUE, ON MEADOW STREET; IS IMMEDIATELY WEST OF THE RAILROAD TRACKS; CONSISTS OF APPROXIMATELY V4.07 ACRES AND IS LOCATED WITHIN A SPECIAL CHARACTER GENERAL BUSINESS (SCR-GB) ZONING DISTRICT.

STATE OF NEW YORK )

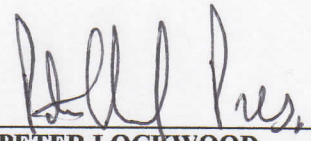
)SS:

COUNTY OF WESTCHESTER )

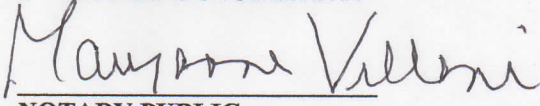
PETER LOCKWOOD, BEING DULY SWORN SAYS: I AM OVER 18 YEARS OF AGE AND RESIDE IN THORNWOOD, NEW YORK.

ON OCTOBER 9, 2018, A SIGN WAS POSTED FRONT ENTRANCE RIGHT SIDE OF GATE. NOTICING THE OCTOBER 16, 2018 PLANNING BOARD PUBLIC HEARING AS WAS PROVIDED TO ME BY THE TOWN OF LEWISBORO PLANNING BOARD

PHOTOGRAPHS OF THE AFOREMENTIONED POSTED SIGN AT THE LOCATION CITED ABOVE ARE ATTACHED.

  
PETER LOCKWOOD

SWORN TO BEFORE ME THIS  
2<sup>ND</sup> DAY OF OCTOBER 2018

  
NOTARY PUBLIC





**NOTICE**

This property is the subject of an application before the  
Lewisboro Planning Board.  
A Public Hearing has been scheduled at which time all interested parties  
will be afforded an opportunity to be heard.

*Please contact the Planning Board Secretary at  
914-763-5592*

*or visit  
[www.lewisborogov.com](http://www.lewisborogov.com)  
for additional information*



**From:** "mike surdej" <oscarmong@optonline.net>

**To:** planning@lewisborogov.com

**Date:** 10/16/2018 05:04:16 PM

**Subject:** King Lumber @ tonight's meeting October 16th, 2018 w/ Planning Board

To: The Honorable members of the Town of Lewisboro Planning Board,

I have recently learned that King Lumber will be before the Board in regards to some matters about site use, etc. I am not privy to the details of that situation but I am writing to the Board with the intent of presenting a fuller picture of this local business. King Lumber has been a "go to" source for many of my personal construction and maintenance needs for over thirty years. I have found them to be an honest and dependable resource staffed with intelligent and helpful people ( the young people have been trained exceptionally well). This business has been a reliable and and participatory part of our Town and a good neighbor. They have supported our Scouting community as well as the School District's and Town's Cross Country and Community Trail at the John Jay High School. They also were one of the sponsors for the race held on that course this past April.

My observation has been that their (King Lumber) addition of a U-Haul adjunct to their business is just that, an adjunct and a convenience to their customers and not a main thrust of their business plan. Sometimes clients overestimate the carrying capacity of their own vehicles and sometimes contractors will avail themselves of that service as an addition to their fleet in order to complete a job. I'm sure that they (King Lumber) intend to continue to be a good neighbor in that locale and that the paperwork can evolve into a reasonable and functional solution between two reasonable and functional entities.

Thank you for your thoughtful attention to this matter and for hearing my statement,

Respectfully

  
Michael Surdej

# J.D. BARRETT & ASSOCIATES, LLC

www.jdbarrett.com

Landscape Architects • Site Planners • Environmental Scientists

October 31, 2018

Mr. Jerome Kerner, RA, Chairman  
Town of Lewisboro Planning Board (PB)  
79 Bouton Road – Town Offices  
South Salem, NY 10590

**Re: Site Development Plan Approval**  
**King Lumber - Meadow Street, Goldens Bridge, NY**  
**Sheet 4A, Block 11111, Lot 2**  
**Sheet 4A, Block 11113, Lots 7 & 9**  
**Sheet 4B, Block 12035, Lot 5**

Dear Chairman Kerner and Members of the PB:

Since our last appearance before the PB at the October 16, 2018 PB meeting and our subsequent follow-up meeting with the Town Planning Consultant at Town Hall on October 25, 2018, we have prepared new and revised information in support of Site Development Plan Approval from the PB for this project. We provide the following information for the PB's continued consideration for this project.

- This explanatory **Cover Letter**, prepared by J.D. Barrett & Associates, LLC, dated October 31, 2018.
- A completed **Short Form EAF**, Parts 1 and 2, dated October 16, 2018.
- **Revised Site Plans** for the project, prepared by J.D. Barrett & Associates, LLC, dated October 31, 2018, including:
  - Sheet 1 of 2 – Existing Conditions Site Plan
  - Sheet 2 of 2 – Site Plan

The following information is provided in response to the Memorandum to the PB, dated 08/08/18, prepared by Kellard Sessions-Town Consulting Professionals. Responses provided to comments 1-18 are keyed below. In addition, a red "cloud" symbol with the comment number inside the cloud is noted on the Site Plans for ease of plan review. We offer the following responses to the heading "Comments" on pages 2 of 4 and 3 of 4.

1. Comment #1 – Re: Business Operation Information – We have added notes to the plan, Sheet 1 of 2, Existing Conditions Site Plan that include a summary of the Lumber Yard's hours of business operation, number of employees, number and size of delivery trucks and estimated deliveries to and from the Lumberyard, per day.
2. Comment #2 – Re: Zoning Compliance – The Lumberyard operation has been in existence for more than 100 years and predates zoning. As such, some aspects of the operation are

legally non-conforming to the Zoning Code. Attorney Sirignano is currently discussing this matter with the Building Inspector to obtain clarification.

3. Comment #3 – Re: Zoning Tables – The Zoning Table has been corrected to specify that the rear yard setback for the property is 50 feet. We have also added the Floor Area Ratio calculation to Sheet 1 of 2, Existing Conditions Site Plan.
4. Comment #4 – Re: Parking Calculations – We have provided a table of parking calculations on Sheet 1 of 2, Existing Conditions Site Plan. We have provided for one parking space per 1000 SF of storage area where 29 spaces would be required. We obtained this calculation standard from the Approved Site Plan for the Rings End Lumber Yard on Rte. 35. The approved site plan was prepared by Insite Engineering, dated 11/13/07, last revised 06/16/08. We used this calculation as a guide to what the PB had previously approved in a similar situation because we could not locate in the Zoning Code a section that stipulates the parking requirement for storage space.
5. Comment #5 – Re: Off-Street Loading Requirements – We have added a table to Sheet 1 of 2, Existing Conditions Site Plan, that explains how we determined that four off-street loading spaces would be required, per Code Section 220-57. We show the loading spaces on Sheet 2 of 2, Site Plan. We also show how the delivery trucks typically turn around in the Lumber Yard to exit, once the materials are off-loaded with fork lift trucks and ferried to the storage areas.
6. Comment #6 – Re: Delivery Truck Parking – We have shown on the plan where the Lumber Yard parks their nine delivery trucks, when not in use.
7. Comment #7 – Re: Landscape Buffer Setback – The landscape buffer setbacks have been added to the plan and are shown in dashed green lines, and keyed with “cloud 7” for ease of plan review.
8. Comment #8 – Re: Exterior Lighting – We have shown the exterior lighting as it currently exists at the Lumber Yard. There are two types of exterior lights on the property, including five light pole standards that are owned and maintained by NYS Electrical Company. We also show seven building mounted flood lights.
9. Comment #9 – Re: Outdoor Storage – Attorney Sirignano is currently discussing this matter with the Building Inspector.
10. Comment #10 – Re: Compliant Parking Spaces – We have added typical dimensions to all parking spaces shown on the plan, including standard parking spaces, parallel parking spaces and handicapped parking spaces. See “red cloud 10” per details and dimensions of parking spaces.
11. Comment #11 – Re: Handicapped Parking Spaces – See response to Comment #10 above.
12. Comment #12 – Re: Fences, Gates & Bollards – We have shown details of the proposed fencing and gates, as well as the bollards proposed to protect the retail store glass entryway. At this time, a pull-down metal mesh grate is proposed to protect the glass entry. The bollards may not be necessary, but we are showing them on the plan as “future-optional”



bollards, should the owners deem in the future that they are required to protect the store entry in addition to the pull-down metal mesh grate that will protect the glass store entry.

13. Comment #13 – Re: - U-Haul Parking – We have shown the six designed spaces for the U-Haul trucks on the property in front of the retail store in the main parking lot. As noted previously, the main gate to the parking lot will now remain open 24/7 so late deliveries of the U-Haul vehicles, after hours, can park in the Lumber Yard parking lot and not on Meadow Street. The six parking spaces for the U-Hauls are not counted toward the parking requirement for this project.
14. Comment #14 – Re: Earthen Parking Lot Behind Building A – We have indicated on the plan, Sheet 1 of 2, Existing Conditions Plan that the existing earthen and gravel parking lot will be top-dressed with compacted item 4 road base as needed to cover earthen areas and fill potholes. The item 4 road base will help prevent erosion to the earthen areas of the parking/storage area.
15. Comment #15 – Re: Drainage Structures – We have shown the existing drainage structures on the property, their inter-connections and routing. No changes in the drainage structures or drainage pattern are proposed with this application for Site Development Plan Approval.
16. Comment #16 – Re: Contractors Equipment Stored on Site – The Lumber Yard does not store independent contractors' equipment on their site.
17. Comment #17 – Re: EAF – We provide the completed EAF parts 1 and 2, signed by the owner/applicant.
18. Comment #18 – Re: Site Visit – A site visit was conducted at the Lumber Yard to review the site plan and existing conditions on 09/06/18. Attending the meeting, in addition to the Lumber Yard representatives Attorney Sirignano and J. D. Barrett, were Town Planner-Jan Johannessen and Building Inspector-Joe Cermele.

### Summary

We trust that the information we have provided in response to the PB's questions and concerns and in response to Town professionals' staff comments will be helpful to the PB's continued review of this application. We look forward to discussing the project with the PB at the November 20, 2018 PB meeting.

Please call our office with any questions. On behalf of the applicant and project team, we thank the PB for their time and kind consideration for the project.

Sincerely,



Jeri D. Barrett, R.L.A.

JDB:lj

Enc.

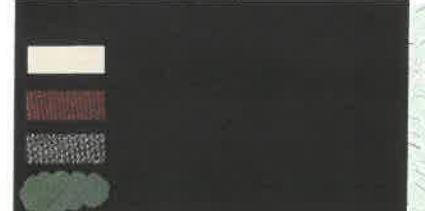
cc: M. Sirignano, Esq., P. Lockwood-King Lumber Co.



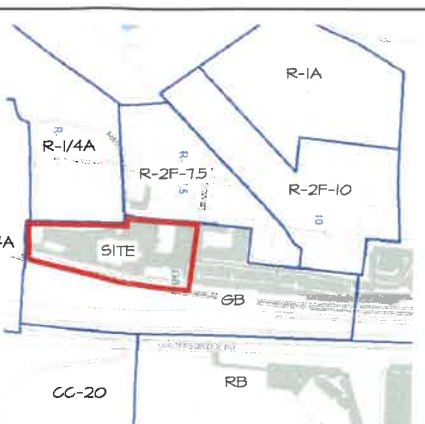
Submitted by Teri Barnett at PH 10/16/19



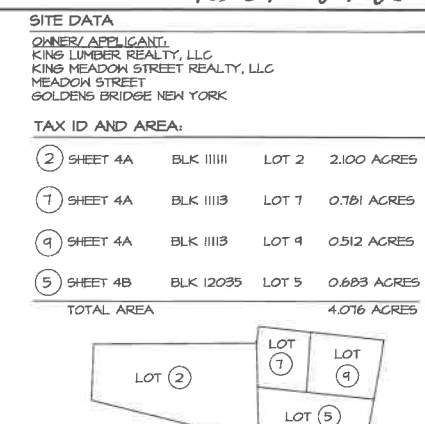
LOCATION MAP  
SCALE: NTS  
COVERAGE TYPE SUMMARY:



AERIAL PHOTO  
SCALE: NTS



ZONING MAP  
SCALE: NTS  
ZONE: GB DISTRICT (GENERAL BUSINESS)



TAX MAP  
SCALE: NTS

**SITE DATA**  
OWNER/APPLICANT:  
KING LUMBER REALTY, LLC  
KING MEADOW STREET REALTY, LLC  
MEADOW STREET  
GOLDEN BRIDGE NEW YORK

**TAX ID AND AREA:**

2	SHEET 4A	BLK IIIII	LOT 2	2.100 ACRES
7	SHEET 4A	BLK IIIII	LOT 7	0.781 ACRES
9	SHEET 4A	BLK IIIII	LOT 9	0.512 ACRES
5	SHEET 4B	BLK 12035	LOT 5	0.683 ACRES
TOTAL AREA				4.076 ACRES

**MINIMUM LOT SIZE**  
AREA (ACRES): 1/2 ACRE  
FRONTAGE (FT): 100'

**MINIMUM YARD (FEET)**  
FRONT: 45'  
SIDE: 15' \* (B)  
REAR: 15' \* (50')

**MAXIMUM BLDG HEIGHT**  
STORIES: 2.5  
FEET: 30'

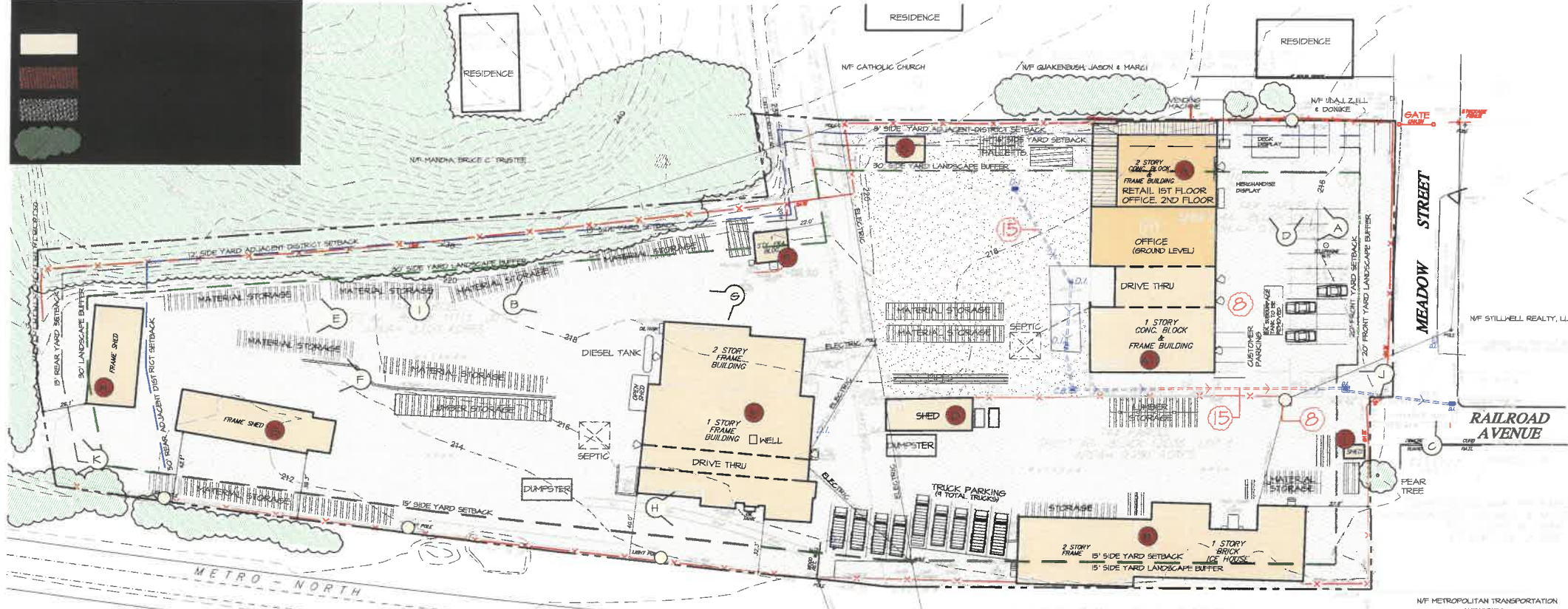
**MAXIMUM BLDG COVERAGE**  
20% \*\*

**MAXIMUM SITE COVERAGE**  
60% \*\*

**FLOOR AREA RATIO (FAR)\*\*\***  
40%

**EX. CONDITION:**  
4.076 ACRES  
165'  
116'  
316'  
0'  
26.1'  
2.5  
30'  
19%  
82% (EX. NON-COMPLIANT)  
4.4%

\* WHERE A LOT LINE ADJUTS LAND IN A RESIDENCE DISTRICT, THE SETBACK REQUIREMENTS FOR THAT RESIDENCE DISTRICT SHALL GOVERN.  
\*\* NO SINGLE STRUCTURE SHALL EXCEED COVERAGE OF 10,000 SQUARE FEET. BUILDING A & A-1 EXCEED 10,000 SF & 10,000 SF.  
\*\*\* FAR - 4.4% FAR IS CALCULATED AS SUM OF RETAIL AND OFFICE SPACE IN BUILDING A DIVIDED BY TOTAL LOT AREA. ACCESSORY STORAGE BUILDINGS NOT COUNTED IN FAR CALCULATION.



**KING LUMBER BUILDING SUMMARY:**

KEY	NAME/USE	SIZE	BLDG MATERIAL	FRONT	SIDE	REAR
1	RETAIL GROUND FLOOR/ OFFICE UPPER FLOOR	6441 SF	CONCRETE BLOCK AND FRAME	YES	NO *	YES
2	GARAGE STORAGE	4491 SF	CONCRETE BLOCK AND FRAME	YES	NO *	YES
3	ICE HOUSE/ MATERIAL STORAGE	6025 SF	BRICK AND FRAME	YES	NO *	YES
4	SHED (CLOSED SIDES)	356 SF	FRAME	YES	YES	YES
5	OPEN SHED (1 STORY)	917 SF	FRAME	YES	NO *	YES
6	PINE/ LUMBER SHED/ BLDG	1032 SF	FRAME	YES	YES	YES
7	CLOSED 1 STORY BLDG/ STORAGE	364 SF	FRAME	YES	YES	YES
8	PLYWOOD SHED OPEN	2250 SF	FRAME	YES	YES	YES
9	OPEN SHED	1724 SF	FRAME	YES	YES	YES
10	GUARD SHACK	101 SF	FRAME	NO *	YES	YES

\* EXISTING NON COMPLIANT STRUCTURE

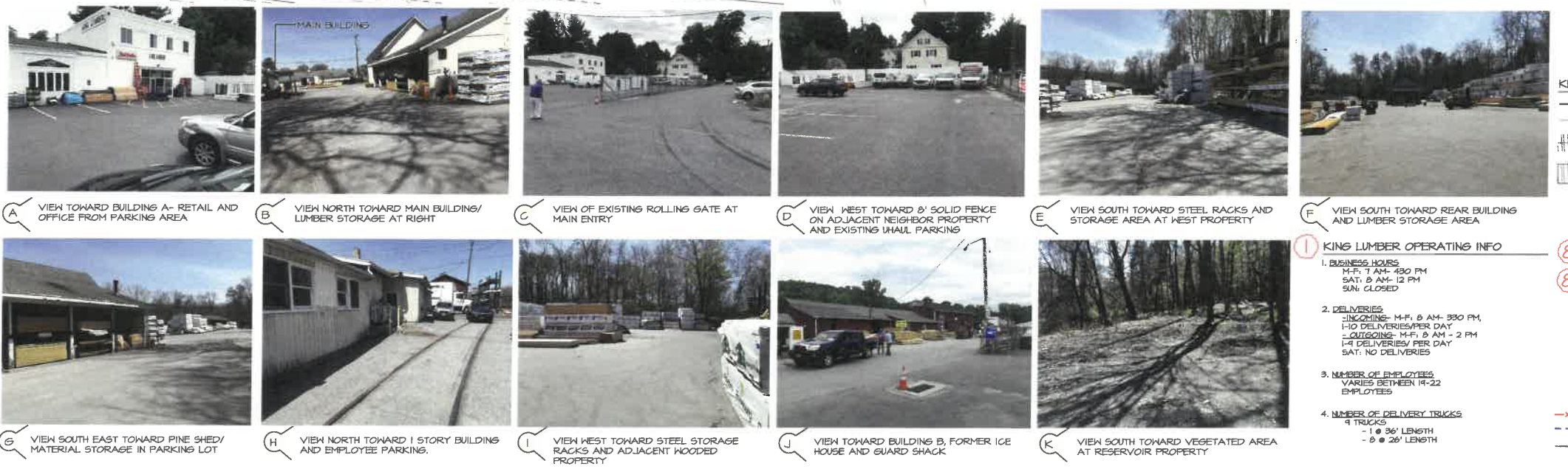
**PARKING REQUIREMENTS:**

	REQUIRED	PROPOSED
RETAIL = 1 SPACE / 200 SF X 2562 SF	13 SPACES	13 SPACES
OFFICE = 1 SPACE / 250 SF X 5284 SF	21 SPACES	21 SPACES
*STORAGE = 1 SPACE / 1000 SF X 20,428 SF	29 SPACES	29 SPACES
TOTAL SPACES REQUIRED	63 SPACES	63 SPACES

4 \* TAKEN FROM RINGS END APPROVED SITE PLAN, DATED 11/13/07, LAST REVISED 6/16/08

**GENERAL NOTES:**

- THESE PLANS ARE PREPARED IN SUPPORT OF SITE PLAN APPLICATION APPROVAL FOR THE KING LUMBER, LLC PROPERTY, MEADOW STREET, GOLDEN BRIDGE, NEW YORK.
- SURVEY INFORMATION PREPARED BY H. STANLEY JOHNSON AND COMPANY LAND SURVEYORS, P.C., 42 SMITH AVENUE, P.O. BOX 93, MT. KISCO, NEW YORK 10549, DATED FEBRUARY 21, 2018.
- TOPOGRAPHIC INFORMATION TAKEN FROM HAPPING HISTORIC COUNTY GIS WEBSITE.
- SITE PLAN INFORMATION PREPARED BY J.D. BARRETT AND ASSOCIATES, 104 SPORT HILL ROAD, EASTON, CONNECTICUT.
- THERE ARE NO PROPOSED CHANGES TO SITE UTILITIES (ELECTRIC, TELEPHONE, CABLE, SEPTIC AND WATER). THERE ARE NO PROPOSED SEWER AND WATER CONNECTIONS TO THE PROPOSED REPLACEMENT STORAGE BUILDING.
- ANY FUTURE OR REPLACEMENT OIL STORAGE TANK FACILITIES, IF UTILIZED, SHALL BE RESTRICTED TO THE CONFINES OF AN INTERIOR OR BASEMENT INSTALLATION. NO SUCH FACILITY SHALL BE LOCATED ON THE EXTERIOR OF THE BUILDINGS OR BURIED IN THE GROUND EXCEPT AS SHOWN HEREON.
- ANY CHANGES TO THESE APPROVED AND SIGNED AMENDED SITE PLANS, AND THE IMPROVEMENTS SHOWN HEREON SHALL REQUIRE THE PRIOR REVIEW AND APPROVAL OF THE PLANNING BOARD AS AN AMENDMENT TO THE AMENDED SITE PLAN, AS APPROPRIATE.
- AREAS CURRENTLY DEPICTED HEREON AS PROPOSED TEMPORARY STORAGE AREAS REPRESENT THE GENERAL VICINITY OF STORAGE AREA ON THE SITE. HOWEVER, THE LOCATIONS, SIZE AND SHAPE OF THESE AREAS MAY VARY DURING DAY TO DAY OPERATIONS. AT ALL TIMES ACCESSIBLE AREAS SUITABLE FOR EMERGENCY VEHICLE ACCESS MUST BE MAINTAINED.
- CATCH BASINS, DRAIN MANHOLES TO BE CLEANED OF ACCUMULATED SEDIMENT AND DEBRIS EVERY SPRING AND FALL.
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- THE FIRE DEPARTMENT SHALL BE NOTIFIED OF ANY FUEL SPILL UNABLE TO BE CONTAINED WITH "SPEEDY- DRY" OR FUEL ABSORBENT PADS.



A VIEW TOWARD BUILDING A- RETAIL AND OFFICE FROM PARKING AREA  
B VIEW NORTH TOWARD MAIN BUILDING/ LUMBER STORAGE AT RIGHT  
C VIEW OF EXISTING ROLLING GATE AT MAIN ENTRY  
D VIEW WEST TOWARD 8' SOLID FENCE ON ADJACENT NEIGHBOR PROPERTY AND EXISTING UHAUL PARKING  
E VIEW SOUTH TOWARD STEEL RACKS AND STORAGE AREA AT WEST PROPERTY  
F VIEW SOUTH TOWARD REAR BUILDING AND LUMBER STORAGE AREA  
G VIEW SOUTH EAST TOWARD PINE SHED/ MATERIAL STORAGE IN PARKING LOT  
H VIEW NORTH TOWARD 1 STORY BUILDING AND EMPLOYEE PARKING  
I VIEW WEST TOWARD STEEL STORAGE RACKS AND ADJACENT WOODED PROPERTY  
J VIEW TOWARD BUILDING B, FORMER ICE HOUSE AND GUARD SHACK  
K VIEW SOUTH TOWARD VEGETATED AREA AT RESERVOIR PROPERTY

**KEY:**

- BOUNDARY LINE
- EXISTING CONTOUR
- STEEL RACKS
- MATERIAL STORAGE
- MATERIAL STORAGE WITH OVERHEAD ROOF
- EX. DRAINAGE INLETS
- EX. TELEPHONE POLE
- EX. BUILDING MOUNTED LIGHTS (1 TOTAL)
- EX. STREET LIGHT POLE (5 TOTAL)
- EX. SEPTIC LOCATION
- EARTHEN GRAVEL
- MACADAM/ ASPHALT PAVING
- FENCE
- ADJACENT DISTRICT SETBACK
- LANDSCAPE BUFFER
- EXISTING PARKING SPOT

**EXISTING CONDITIONS SITE PLAN**  
Prepared For:  
KING LUMBER  
MEADOW STREET  
GOLDEN BRIDGE, NEW YORK  
10526

Prepared By:  
Attorney:  
MICHAEL FULLER SIRIGNANO  
842 RTE 35, 3RD FLOOR SUITE  
CROSS RIVER, NEW YORK 10518  
Tel. 914.763.5500 Fax 914.763.9589

Landscape Architect/Environmental Planner:  
J.D. BARRETT & ASSOCIATES, LLC  
104 SPORT HILL ROAD  
EASTON, CONNECTICUT 06612  
Tel. 203.312.5805 Fax 203.312.0449

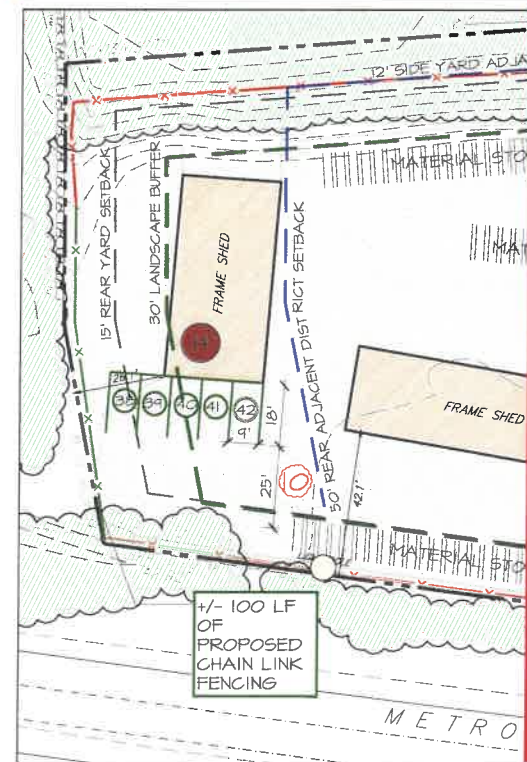
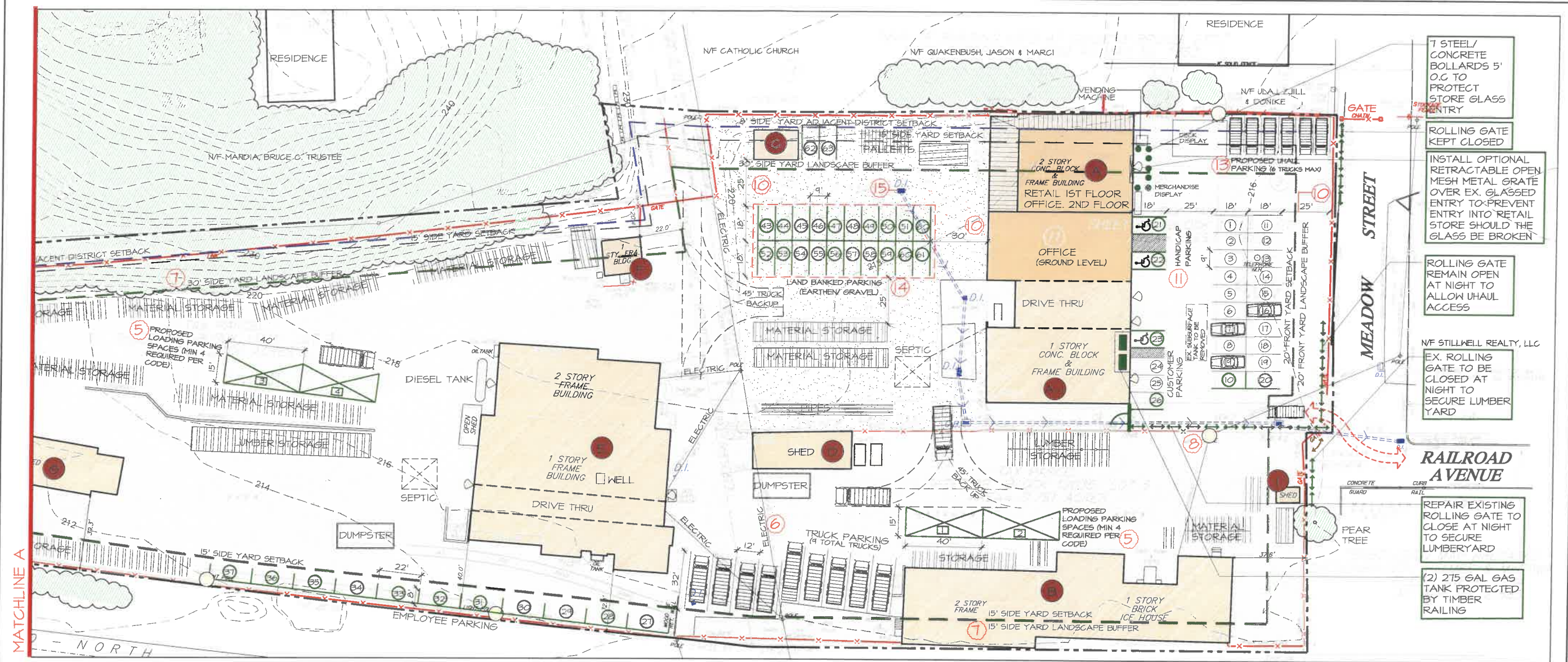
Surveyor:  
H. STANLEY JOHNSON AND COMPANY  
LAND SURVEYORS, P.C.  
42 SMITH AVENUE  
P.O. BOX 93  
MT. KISCO, NEW YORK 10549  
TEL. 914.241.3812 FAX. 914.241.0438

Scale: 1" = 30'

Date: June 20, 2018  
Rev. Date: July 16, 2018  
Rev. Date: October 15, 2018

SHEET: 1 OF 2





### Three Additional Features for Van-Accessible Parking Spaces

The diagram illustrates a van-accessible parking space with the following features:

- Sign with "van accessible"** and the international symbol of accessibility mounted high enough so the sign can be seen when a vehicle is parked in the space.
- accessible route** leading to the space.
- 96" min. width access aisle**, level (max. slope 1:50 in all directions), located beside the van parking space.
- Min. 98-inch-high clearance** at van parking space, access aisle, and on vehicular route to and from van space.

## ADA HANDICAP SIGNAGE

### PARKING DIMENSIONS

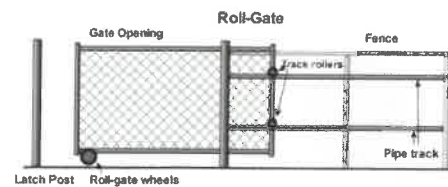
PARALLEL PARKING  
8' X 22'

STANDARD PARKING  
9' X 18'



HANDICAP PARKING  
8' X 18'

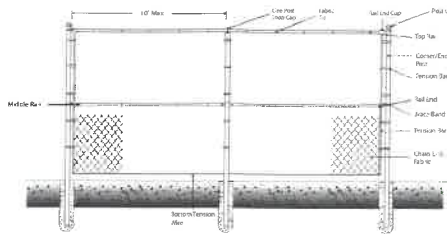
LOADING PARKING  
15' X 40'



12 TYPICAL CHAIN LINK ROLLING GATE  
Scale: NTS

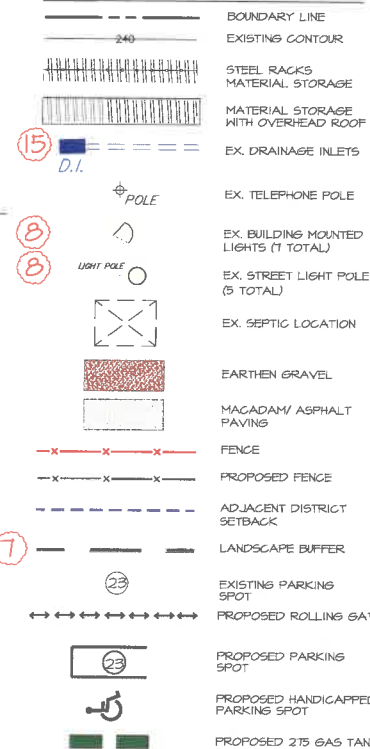


12 TYPICAL CONCRETE BOLLARD  
Scale: NTS



12 TYPICAL CHAINLINK FENCE  
Scale: NTS

KEY:



PARKING REQUIREMENTS:

RETAIL	= 1 SPACE / 200 SF X 2562 SF	= 13 SPACES	
OFFICE	= 1 SPACE / 250 SF X 5234 SF	= 21 SPACES	
STORAGE	= 1 SPACE / 1000 SF X 28,418 SF	= 29 SPACES	
TOTAL SPACES REQUIRED		63 SPACES	63 SPACES

## SITE PLAN

Prepared For :  
KING LUMBER  
MEADOW STREET  
GOLDENS BRIDGE, NEW YORK  
10526

Prepared By :  
 Attorney :  
**MICHAEL FULLER SIRIGNANO**  
**842 RTE 35, 3RD FLOOR SUITE**  
**CROSS RIVER, NEW YORK 10518**  
 Tel. 414.763.5500 Fax 414.763.9584

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**EASTON, CONNECTICUT 06612**  
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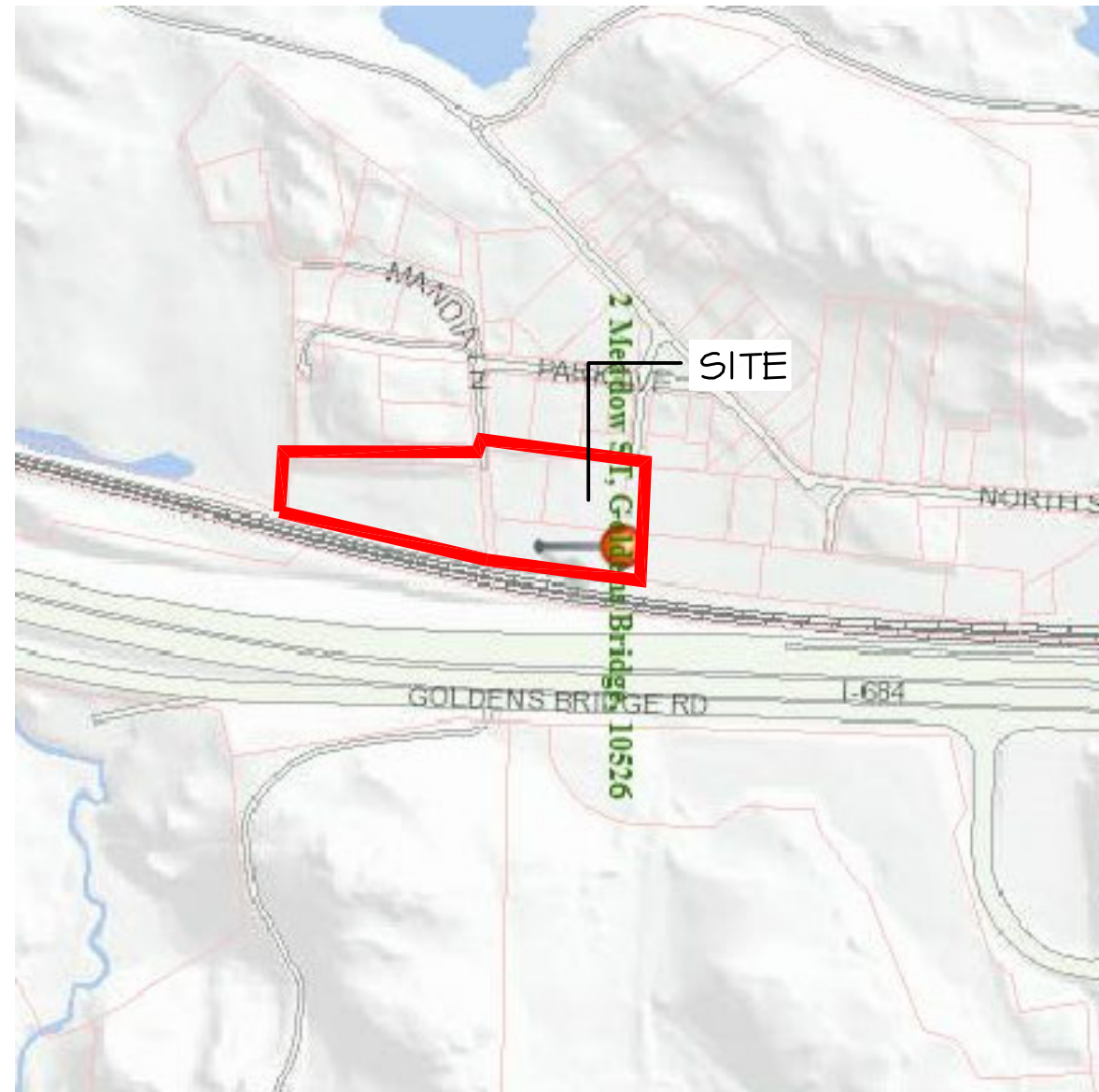
Surveyor:  
H. STANLEY JOHNSON AND COMPANY  
LAND SURVEYORS, P.C  
42 SMITH AVENUE  
P.O BOX 93  
MT. KISCO, NEW YORK 10544  
TEL. 914.241.3872 FAX. 914.241.0438

Scale : 1" = 20'

Age Group	Percentage of total sample
18-24	~38%
25-34	~32%
35-44	~28%
45-54	~22%
55-64	~18%
65-74	~12%
75-84	~8%
85+	~1%

Rev. Date : July 16, 2018  
Rev. Date : October 15, 2018

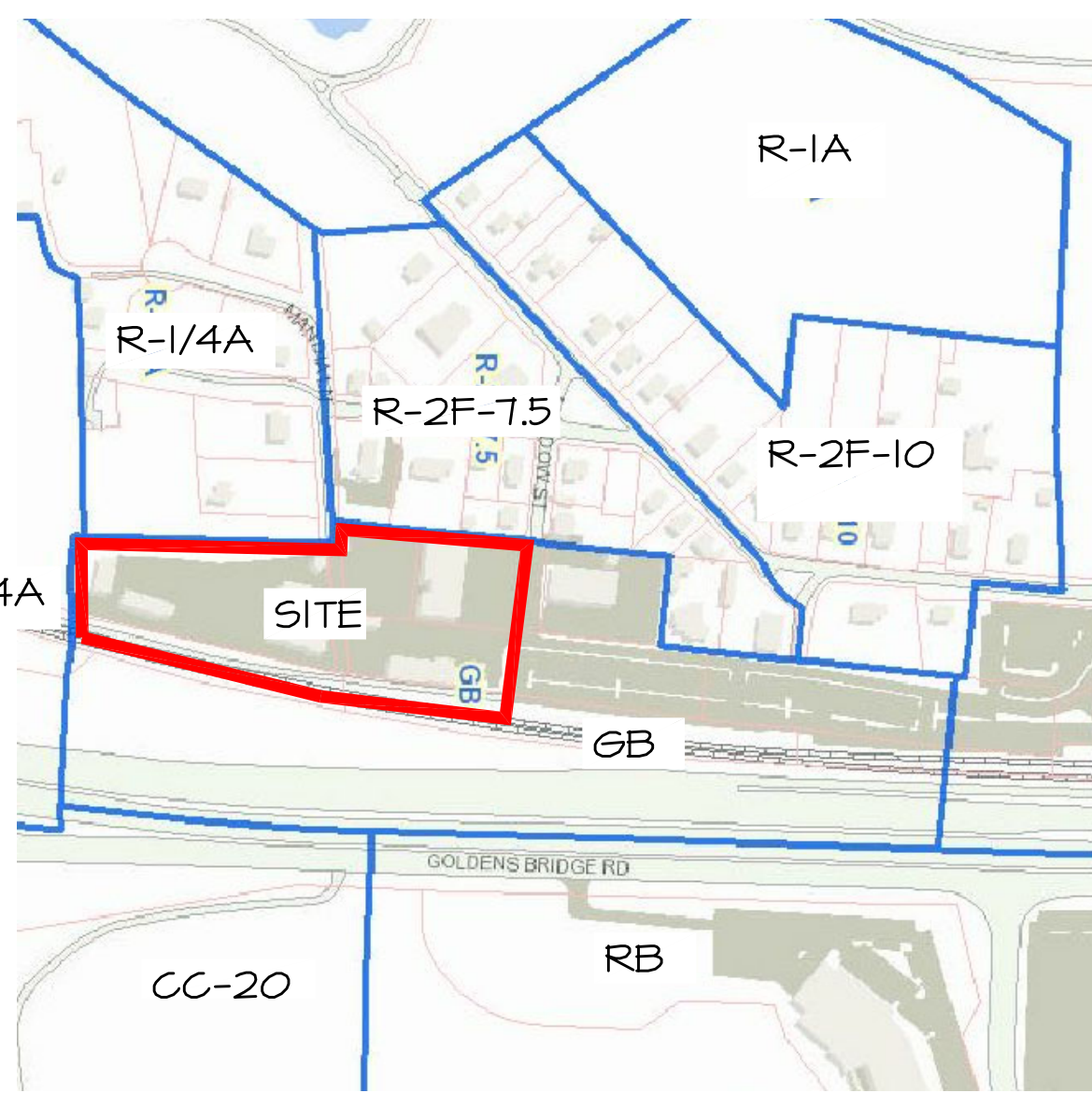




LOCATION MAP  
SCALE: NTS



AERIAL PHOTO  
SCALE: NTS



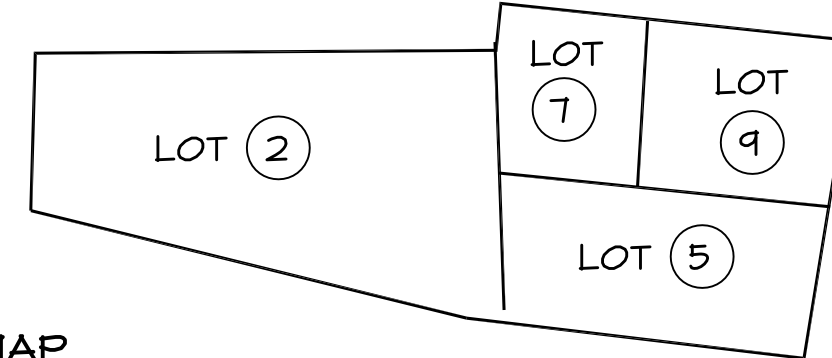
ZONING MAP  
SCALE: NTS

#### SITE DATA

OWNER/ APPLICANT:  
KING LUMBER REALTY, LLC  
KING MEADOW STREET REALTY, LLC  
MEADOW STREET  
GOLDENS BRIDGE NEW YORK

#### TAX ID AND AREA:

②	SHEET 4A	BLK IIIII	LOT 2	2.100 ACRES
⑦	SHEET 4A	BLK IIII3	LOT 7	0.781 ACRES
⑨	SHEET 4A	BLK IIII3	LOT 9	0.512 ACRES
⑤	SHEET 4B	BLK I2035	LOT 5	0.683 ACRES
TOTAL AREA				4.076 ACRES



TAX MAP  
SCALE: NTS

#### ZONING CONFORMANCE ANALYSIS: ZONE: GB DISTRICT (GENERAL BUSINESS)

REGULATION:	REQUIRED:	EX. CONDITION:
MINIMUM LOT SIZE		
AREA (ACRES)	1/2 ACRE	4.076 ACRES
FRONTAGE (FT)	100'	165'
MINIMUM YARD (FEET)		
FRONT:		
FROM STREET TO CENTERLINE	45'	118'
FROM FRONT LOT LINE	20'	37.6'
SIDE	15' * (8')	0'
REAR	15' * (50')	26.1'
MAXIMUM BLDG HEIGHT	2.5	< 2.5
STORIES	30'	< 30'
FEET		
MAXIMUM BLDG COVERAGE	20% **	19%
MAXIMUM SITE COVERAGE	60% **	82% (EX. NON-COMPLIANT)
FLOOR AREA RATIO (FAR)***	40%	4.4%

\*\* WHERE A LOT LINE ADJUTS LAND IN A RESIDENCE DISTRICT, THE SETBACK REQUIREMENTS FOR THAT RESIDENCE DISTRICT SHALL GOVERN.  
\*\*\* NO SINGLE STRUCTURE SHALL EXCEED COVERAGE OF 10,000 SQUARE FEET. (BUILDING A & A-1 EXCEED 10,000 SF @ 10,942 SF)  
\*\*\* FAR: 4.4% FAR IS CALCULATED AS SUM OF RETAIL AND OFFICE SPACE IN BUILDING A DIVIDED BY TOTAL LOT AREA. ACCESSORY STORAGE BUILDINGS NOT COUNTED IN FAR CALCULATION.

#### KING LUMBER BUILDING SUMMARY:

KEY	NAME/ USE	SIZE	BLDG MATERIAL	YARD COMPLIANCE
A	RETAIL GROUND FLOOR/ OFFICE UPPER FLOOR	6441 SF	CONCRETE BLOCK AND FRAME	FRONT YES SIDE YES REAR YES
A-1	GARAGE STORAGE	4451 SF	CONCRETE BLOCK AND FRAME	FRONT YES SIDE NO * REAR YES
B	ICE HOUSE/ MATERIAL STORAGE	6825 SF	BRICK AND FRAME	FRONT YES SIDE NO * REAR YES
C	SHED (CLOSED SIDES)	356 SF	FRAME	FRONT YES SIDE YES REAR YES
D	OPEN SHED (1 STORY)	491 SF	FRAME	FRONT YES SIDE NO * REAR YES
E	PINE/ LUMBER SHED/ BLDG	10,522 SF	FRAME	FRONT YES SIDE YES REAR YES
F	CLOSED 1 STORY BLDG/ STORAGE	364 SF	FRAME	FRONT YES SIDE YES REAR YES
G	PLYWOOD SHED OPEN	2258 SF	FRAME	FRONT YES SIDE YES REAR YES
H	OPEN SHED	1724 SF	FRAME	FRONT YES SIDE YES REAR YES
I	GUARD SHACK	101 SF	FRAME	FRONT NO * SIDE YES REAR YES
TOTAL		33,124 SF		
* EXISTING NON COMPLIANT STRUCTURE				

#### PARKING REQUIREMENTS:

REQUIRED	PROPOSED
RETAIL = 1 SPACE / 200 SF X 2562 SF = 13 SPACES	
OFFICE = 1 SPACE / 250 SF X 5234 SF = 21 SPACES	
*STORAGE = 1 SPACE / 1000 SF X 28,428 SF = 28 SPACES	
TOTAL SPACES REQUIRED	63 SPACES
4	5

#### OFF- STREET LOADING REQUIREMENTS:

REQUIRED	PROPOSED
FLOOR AREA OF EXISTING STRUCTURES = 33,124 SF	
PER CODE SECTION 220-57	
1 SPACE FOR FIRST 4,000 SF	1
1 SPACE FOR EACH ADDITIONAL 10,000 SF	3
TOTAL SPACES	4

#### GENERAL NOTES:

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- SURVEY INFORMATION PREPARED BY H. STANLEY JOHNSON AND COMPANY LAND SURVEYORS, P.C., 42 SMITH AVENUE, P.O. BOX 43 MT. KISCO, NEW YORK DATED FEBRUARY 21, 2018.
- TOPOGRAPHIC INFORMATION TAKEN FROM MAPPING WESTCHESTER COUNTY GIS WEBSITE.
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#### KEY:

- ⑧ REFERENCE TO TOWN PLANNER'S COMMENTS MEMO DATED 8/8/18
- 240 BOUNDARY LINE
- EXISTING CONTOUR
- STEEL RACKS
- MATERIAL STORAGE
- MATERIAL STORAGE WITH OVERHEAD ROOF
- EX. DRAINAGE INLETS
- EX. TELEPHONE POLE
- EX. BUILDINGS MOUNTED LIGHTS (7 TOTAL)
- EX. STREET LIGHT POLE (5 TOTAL)
- EX. SEPTIC LOCATION
- EARTHEN GRAVEL
- MACADAM/ ASPHALT PAVING
- FENCE
- ADJACENT DISTRICT SETBACK
- LANDSCAPE BUFFER
- EXISTING PARKING SPOT

#### EXISTING CONDITIONS

#### SITE PLAN

Prepared For:  
KING LUMBER  
MEADOW STREET  
GOLDENS BRIDGE, NEW YORK  
10526



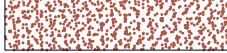
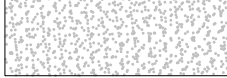
Prepared By:  
Attorney:  
MICHAEL FULLER SIRIGNANO  
842 RTE 35, 3RD FLOOR SUITE  
CROSS RIVER, NEW YORK 10518  
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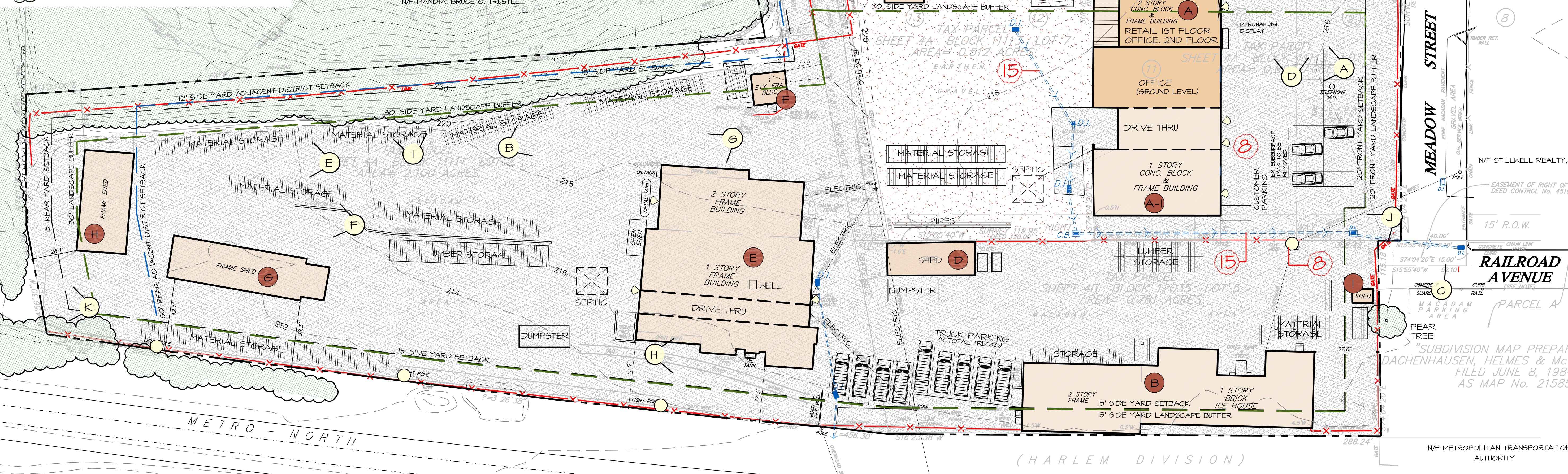
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Surveyor:  
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P.O. BOX 43  
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TEL. 914.241.3812 FAX. 914.241.0438  
Scale: 1" = 30'

Date: June 20, 2018  
Rev. Date: July 16, 2018  
Rev. Date: October 15, 2018  
Rev. Date: October 26, 2018  
Rev. Date: October 31, 2018

SHEET: 1 OF 2

COVERAGE TYPE SUMMARY:			
KEY	TYPE	AREA	% OF LOT
	STRUCTURE	33,124 SF	19%
	EARTHEN/ GRAVEL	22,376 SF	12%
	ASPHALT	114,591 SF	63%
	VEGETATION	8,712 SF	6%



A VIEW TOWARD BUILDING A- RETAIL AND OFFICE FROM PARKING AREA



B VIEW NORTH TOWARD MAIN BUILDING/ LUMBER STORAGE AT RIGHT



C VIEW OF EXISTING ROLLING GATE AT MAIN ENTRY



D VIEW WEST TOWARD 8' SOLID FENCE ON ADJACENT NEIGHBOR PROPERTY AND EXISTING HAUL PARKING



E VIEW SOUTH TOWARD STEEL RACKS AND STORAGE AREA AT WEST PROPERTY



F VIEW SOUTH TOWARD REAR BUILDING AND LUMBER STORAGE AREA



G VIEW SOUTH EAST TOWARD PINE SHED/ MATERIAL STORAGE IN PARKING LOT



H VIEW NORTH TOWARD 1 STORY BUILDING AND EMPLOYEE PARKING.



I VIEW WEST TOWARD STEEL STORAGE RACKS AND ADJACENT WOODED PROPERTY



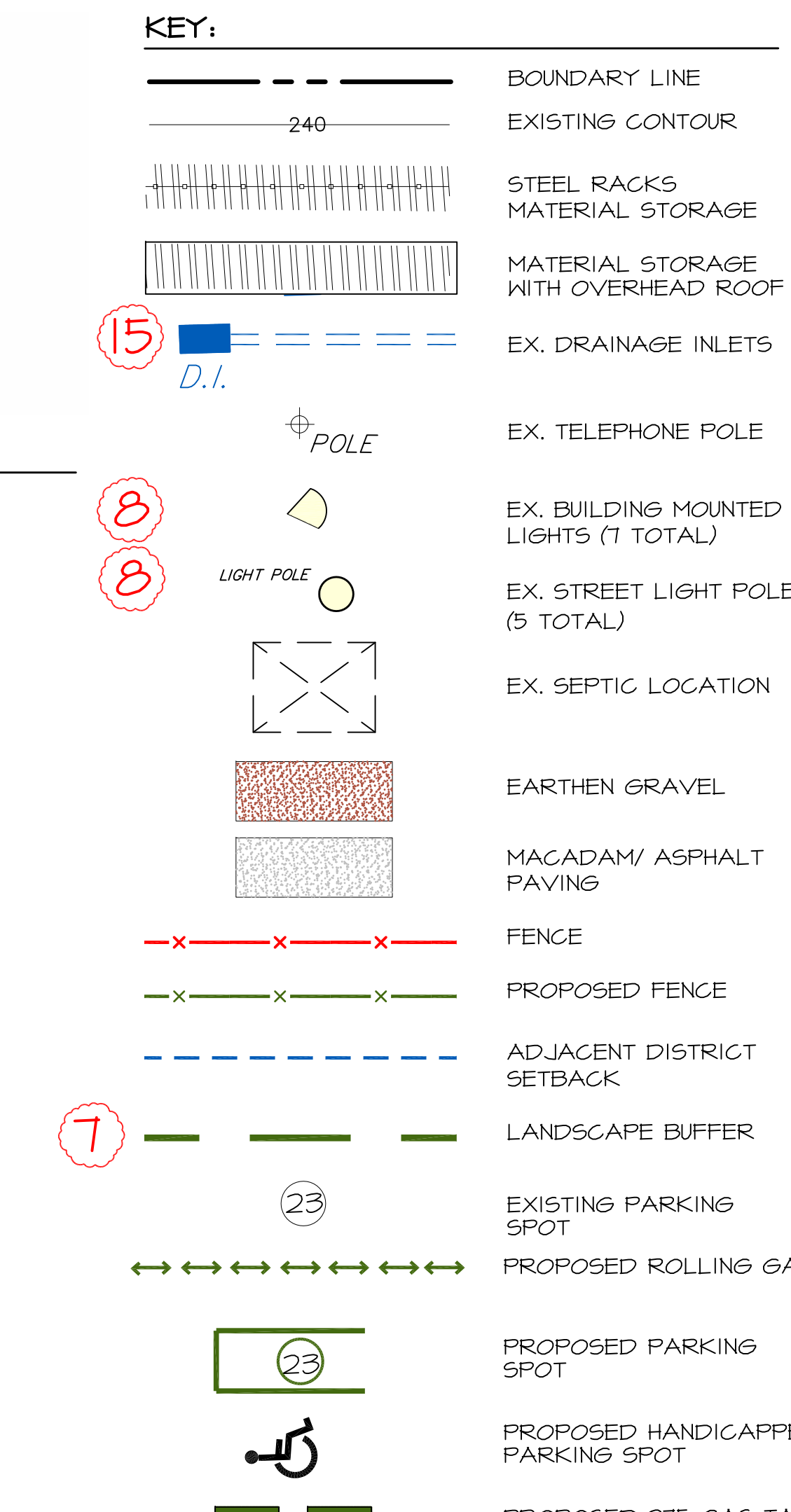
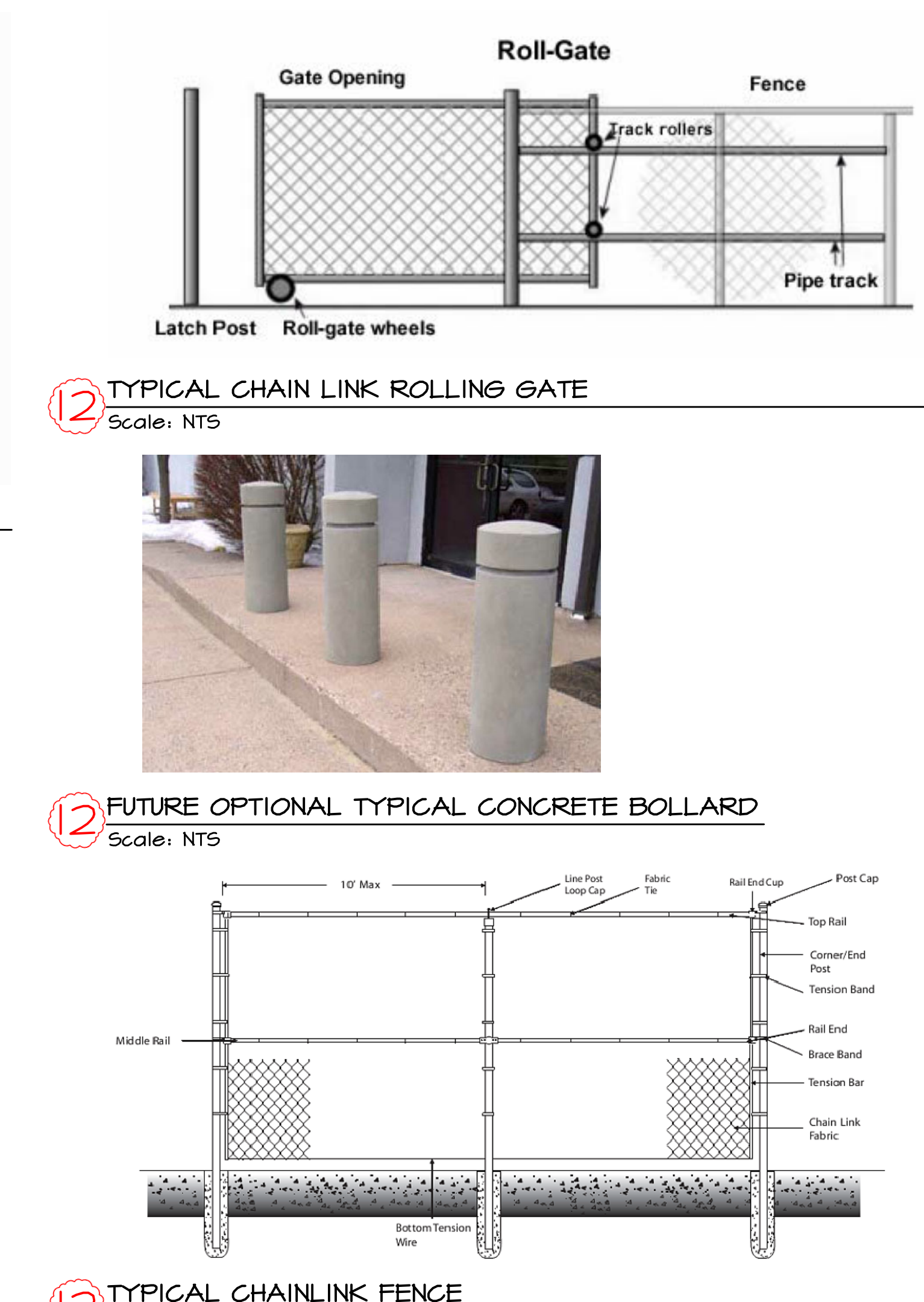
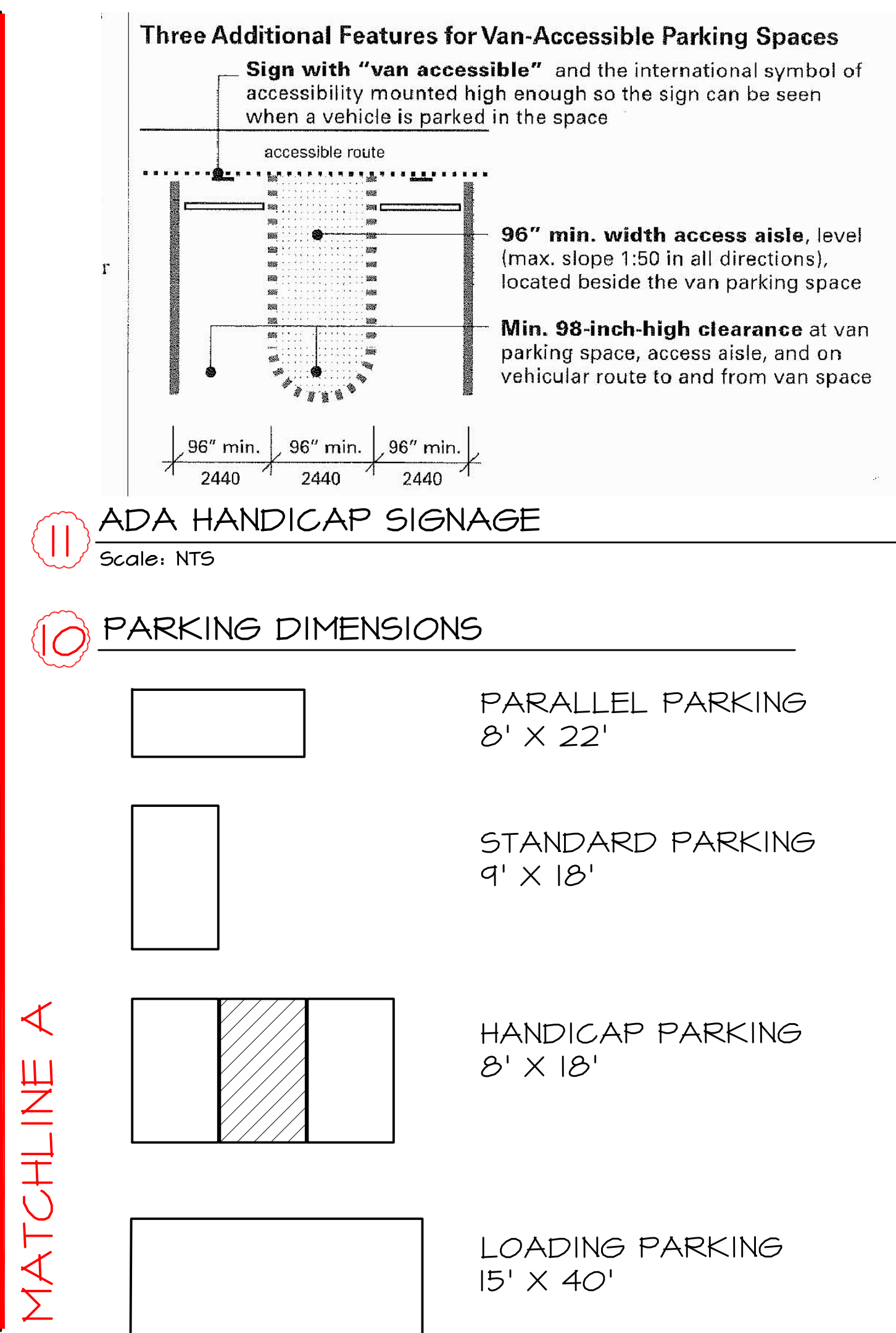
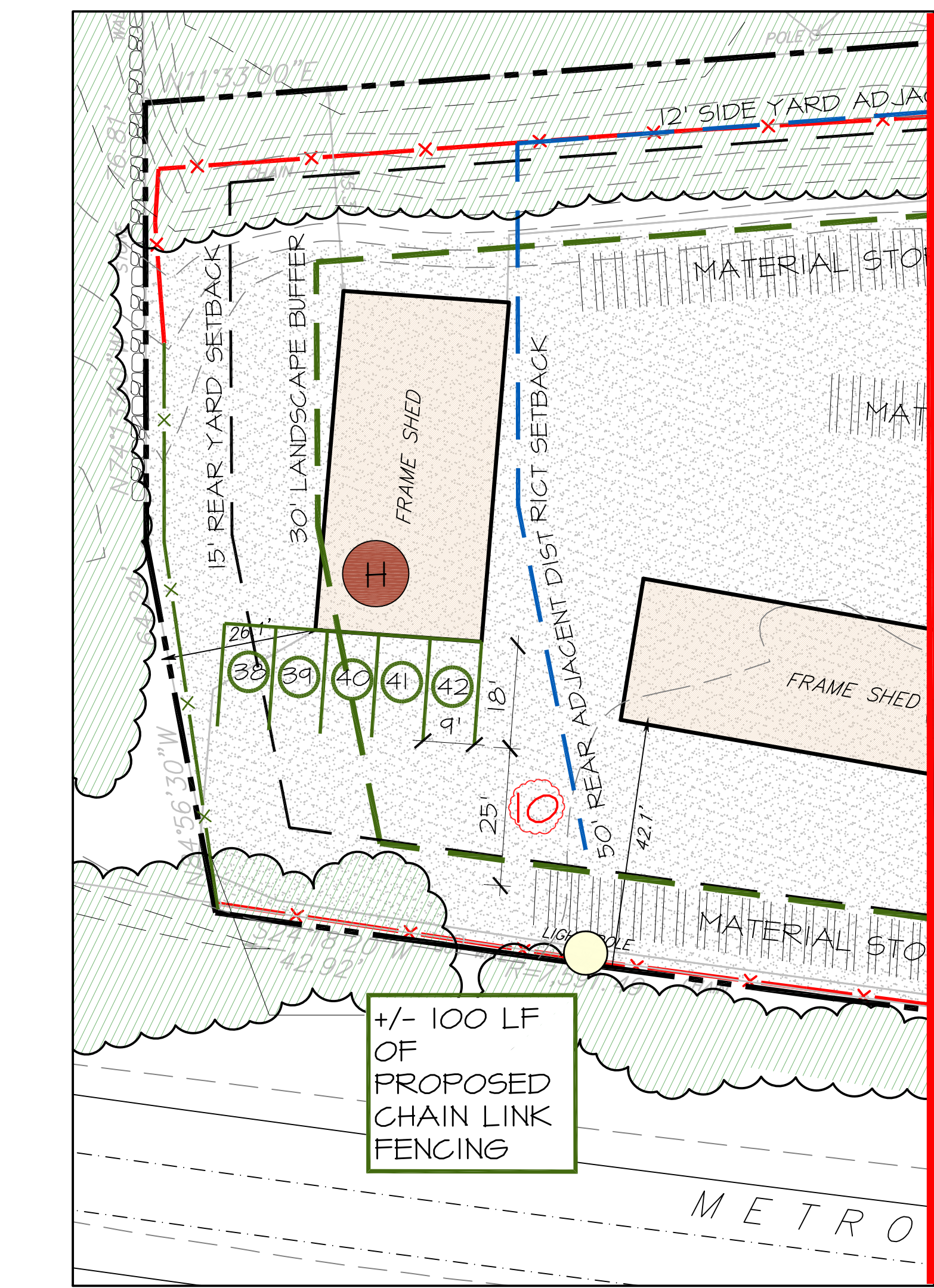
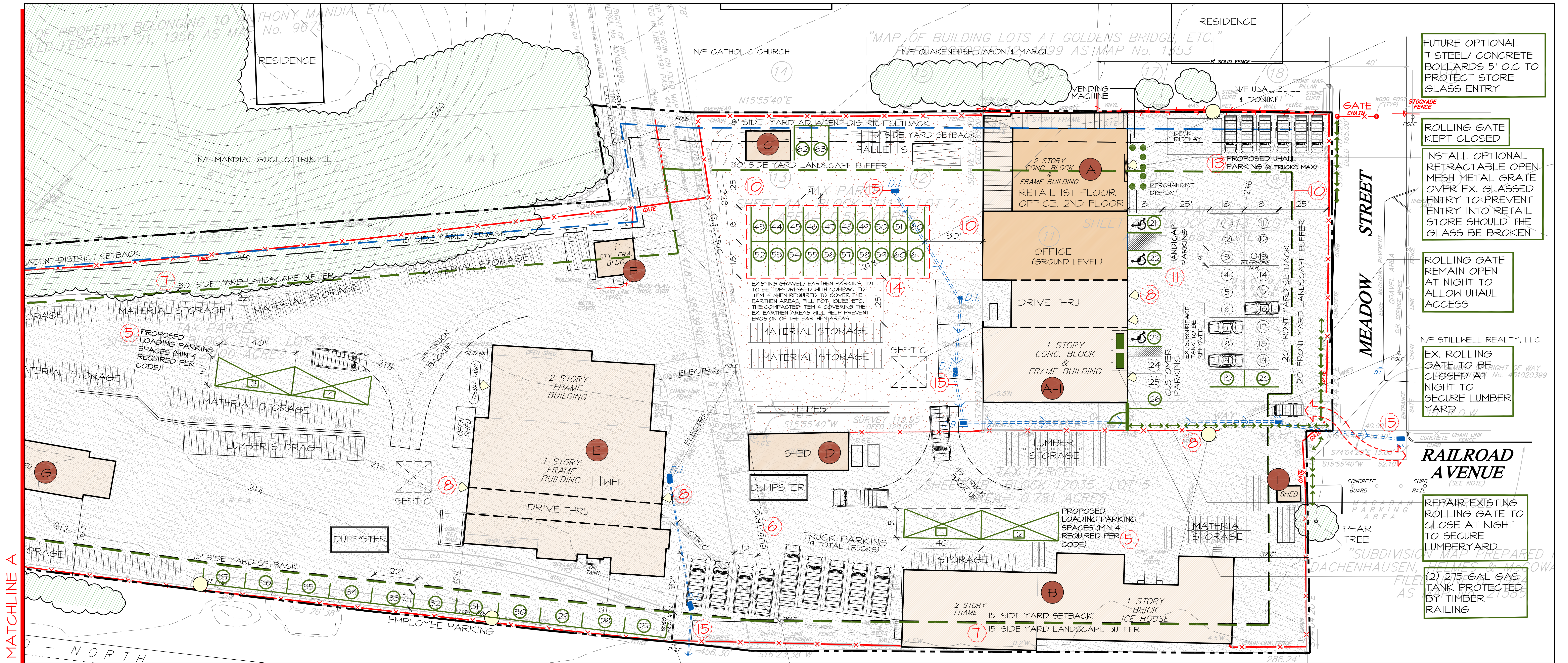
J VIEW TOWARD BUILDING B, FORMER ICE HOUSE AND GUARD SHACK



K VIEW SOUTH TOWARD VEGETATED AREA AT RESERVOIR PROPERTY

- ① KING LUMBER OPERATING INFO
- BUSINESS HOURS  
M-F: 7 AM- 430 PM  
SAT: 8 AM- 12 PM  
SUN: CLOSED
  - DELIVERIES  
INCOMING- M-F, 8 AM- 330 PM,  
1-10 DELIVERIES/PER DAY  
OUTGOING- M-F, 8 AM - 2 PM  
1-4 DELIVERIES/ PER DAY  
SAT: NO DELIVERIES
  - NUMBER OF EMPLOYEES  
VARIES BETWEEN 14-22 EMPLOYEES
  - NUMBER OF DELIVERY TRUCKS  
4 TRUCKS  
- 1 @ 36' LENGTH  
- 3 @ 26' LENGTH







# Short Environmental Assessment Form

## Part 1 - Project Information

### Instructions for Completing

**Part 1 - Project Information.** The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 - Project and Sponsor Information							
Name of Action or Project: <div style="font-family: cursive; font-size: 1.2em;">King Lumber</div>							
Project Location (describe, and attach a location map): <div style="font-family: cursive; font-size: 1.2em;">Meadow St &amp; Mandia Lane</div>							
Brief Description of Proposed Action: <div style="font-family: cursive; font-size: 1.2em;">Site Plan application to permit change of use in General Business (GB) zone in connection with former Ford tractor sales yard to current King Lumber Supply yard. No new structures are proposed.</div>							
Name of Applicant or Sponsor: <div style="font-family: cursive; font-size: 1.2em;">King Lumber</div>		Telephone: 914-232-5151 E-Mail: kinglumber@aol.com					
Address: <div style="font-family: cursive; font-size: 1.2em;">2 Meadow St.</div>							
City/PO: <div style="font-family: cursive; font-size: 1.2em;">Golden's Bridge</div>		State: <div style="font-family: cursive; font-size: 1.2em;">NY</div>	Zip Code: <div style="font-family: cursive; font-size: 1.2em;">10526</div>				
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%;">NO</th> <th style="width: 50%;">YES</th> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table>	NO	YES	<input checked="" type="checkbox"/>	<input type="checkbox"/>
NO	YES						
<input checked="" type="checkbox"/>	<input type="checkbox"/>						
2. Does the proposed action require a permit, approval or funding from any other governmental Agency? If Yes, list agency(s) name and permit or approval:			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%;">NO</th> <th style="width: 50%;">YES</th> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table>	NO	YES	<input checked="" type="checkbox"/>	<input type="checkbox"/>
NO	YES						
<input checked="" type="checkbox"/>	<input type="checkbox"/>						
3.a. Total acreage of the site of the proposed action?		<div style="font-family: cursive; font-size: 1.2em;">4.076</div> acres					
b. Total acreage to be physically disturbed?		_____ acres					
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor?		<div style="font-family: cursive; font-size: 1.2em;">4.076</div> acres					
4. Check all land uses that occur on, adjoining and near the proposed action. <div style="display: flex; flex-wrap: wrap; padding: 5px;"> <div style="width: 50%;"><input type="checkbox"/> Urban</div> <div style="width: 50%;"><input type="checkbox"/> Rural (non-agriculture)</div> <div style="width: 50%;"><input type="checkbox"/> Industrial</div> <div style="width: 50%;"><input checked="" type="checkbox"/> Commercial</div> <div style="width: 50%;"><input checked="" type="checkbox"/> Residential (suburban)</div> <div style="width: 50%;"><input type="checkbox"/> Forest</div> <div style="width: 50%;"><input type="checkbox"/> Agriculture</div> <div style="width: 50%;"><input type="checkbox"/> Aquatic</div> <div style="width: 50%;"><input checked="" type="checkbox"/> Other (specify): <div style="font-family: cursive; font-size: 1.2em;">MTA Station</div></div> <div style="width: 50%;"><input type="checkbox"/> Parkland</div> </div>							



5. Is the proposed action, a. A permitted use under the zoning regulations?	NO <input type="checkbox"/>	YES <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
b. Consistent with the adopted comprehensive plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	NO <input type="checkbox"/>	YES <input checked="" type="checkbox"/>	
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area? If Yes, identify: _____	NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/>	
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/>	
b. Are public transportation service(s) available at or near the site of the proposed action?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
c. Are any pedestrian accommodations or bicycle routes available on or near site of the proposed action?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
9. Does the proposed action meet or exceed the state energy code requirements? If the proposed action will exceed requirements, describe design features and technologies: <b>NA</b>	NO <input type="checkbox"/>	YES <input type="checkbox"/>	
10. Will the proposed action connect to an existing public/private water supply? If No, describe method for providing potable water: _____	NO <input type="checkbox"/>	YES <input checked="" type="checkbox"/>	
11. Will the proposed action connect to existing wastewater utilities? If No, describe method for providing wastewater treatment: _____	NO <input type="checkbox"/>	YES <input checked="" type="checkbox"/>	
12. a. Does the site contain a structure that is listed on either the State or National Register of Historic Places?	NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/>	
b. Is the proposed action located in an archeological sensitive area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	NO <input type="checkbox"/>	YES <input checked="" type="checkbox"/>	
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody? If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: _____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply: <input type="checkbox"/> Shoreline <input type="checkbox"/> Forest <input type="checkbox"/> Agricultural/grasslands <input type="checkbox"/> Early mid-successional <input type="checkbox"/> Wetland <input checked="" type="checkbox"/> Urban <input type="checkbox"/> Suburban			
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/>	
16. Is the project site located in the 100 year flood plain?	NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/>	
17. Will the proposed action create storm water discharge, either from point or non-point sources? If Yes, a. Will storm water discharges flow to adjacent properties? <input type="checkbox"/> NO <input type="checkbox"/> YES	NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/>	
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)? If Yes, briefly describe: <input type="checkbox"/> NO <input type="checkbox"/> YES			

**PRINT FORM**



Project: Date: 

## *Short Environmental Assessment Form*

### *Part 2 - Impact Assessment*

**Part 2 is to be completed by the Lead Agency.**

Answer all of the following questions in Part 2 using the information contained in Part 1 and other materials submitted by the project sponsor or otherwise available to the reviewer. When answering the questions the reviewer should be guided by the concept "Have my responses been reasonable considering the scale and context of the proposed action?"

	No, or small impact may occur	Moderate to large impact may occur
1. Will the proposed action create a material conflict with an adopted land use plan or zoning regulations?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Will the proposed action result in a change in the use or intensity of use of land?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Will the proposed action impair the character or quality of the existing community?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Will the proposed action have an impact on the environmental characteristics that caused the establishment of a Critical Environmental Area (CEA)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Will the proposed action result in an adverse change in the existing level of traffic or affect existing infrastructure for mass transit, biking or walkway?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Will the proposed action cause an increase in the use of energy and it fails to incorporate reasonably available energy conservation or renewable energy opportunities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Will the proposed action impact existing: a. public / private water supplies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. public / private wastewater treatment utilities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Will the proposed action impair the character or quality of important historic, archaeological, architectural or aesthetic resources?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. Will the proposed action result in an adverse change to natural resources (e.g., wetlands, waterbodies, groundwater, air quality, flora and fauna)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10. Will the proposed action result in an increase in the potential for erosion, flooding or drainage problems?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. Will the proposed action create a hazard to environmental resources or human health?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**TOWN OF LEWISBORO**  
**Westchester County, New York**



**Building Department**  
**79 Bouton Road**  
**South Salem, New York 10590**

**Tel: (914) 763-3060**  
**Fax: (914) 875-9148**  
**Email: [jangiello@lewisborogov.com](mailto:jangiello@lewisborogov.com)**

November 20, 2018

Mr. Jerome Kerner, Chairman  
Town of Lewisboro Planning Board

Re: Application of King Lumber, Meadow St., Goldens Bridge

Dear Mr. Kerner and Members of the Board,

I have reviewed the plans from J.D. Barrett & Associates, LLC latest revision dated 10/31/18. The retail lumber yard and truck rental are permitted uses with existing nonconforming site conditions. I have the following comments:

1. The Planning Board has discretion to determine if one parking space per 1,000 square feet of storage area is sufficient per Section 220-56E.
2. While outdoor storage of material and equipment must be enclosed per Section 220-24(C)(2)(d), I believe this section does not apply to lots 2 and 5 due to the site's existing nonconforming status. There is an approved site plan for lots 7 and 9 dated 2/21/89 for Westchester Ford Tractor, Inc. indicating equipment storage behind building "A".
3. The new deck display located in front of building "A" on the East side of lot 9 is within the required setback and the permitted lot coverage has already been exceeded.
4. Shed C and the unenclosed storage on the East side of lot 7 are not on Westchester Ford Tractor's approved site plan and the permitted lot coverage has already been exceeded.
5. The gross floor area of all buildings, per Section 220-2 definition, must be utilized for the FAR calculation.
6. The number of required off-street parking spaces and off-street loading spaces must be recalculated to include the second floor areas.

Please do not hesitate to contact me with any questions.

Sincerely,

Joe Angiello  
Building Inspector



TOWN BOARD OF THE TOWN OF LEWISBORO  
COUNTY OF WESTCHESTER: STATE OF NEW YORK  
-----X  
GOSSETT BROTHERS NURSERY, LTD.;

JOHN VUOLO; and

J. VUOLO, CORP. d/b/a SOUTH SALEM WINERY,

Co-Petitioners,

PETITION FOR  
AMENDMENT OF  
TOWN CODE OF  
TOWN OF  
LEWISBORO

For amendments to the Town Code of the Town of  
Lewisboro adding, as a "Permitted Use" the designation  
"Accessory Winery"

-----X

Gossett Brothers Nursery, John Vuolo, and J.Vuolo, Corp. d/b/a South Salem Winery (the "Co-Petitioners") hereby petition the Town Board of the Town of Lewisboro for amendments to the Town Code of the Town of Lewisboro pursuant to New York State Town Law Sections 264 and 265 as follows:

The Co-Petitioners

1. Petitioner Gossett Brothers Nursery, Ltd. ("Gossetts") is a corporation duly organized and existing under the laws of the State of New York with offices at 1202 Route 35, South Salem, NY 10590.

2. Gossetts is a third-generation, family-owned and operated nursery and farm market located on an attractive, well recognized parcel in the heart of Lewisboro,

along Route 35. Gossetts' premises comprise approximately 5.5 acres in R4 zoning, improved with a greenhouse, retail building, and storage areas, and ample parking.

3. Gossetts is a cherished mainstay of Lewisboro's consumer commerce. A family-owned local business, it hosts our weekend farm market, a holiday market, and operates a successful year-round nursery and garden center.

4. Gossetts' roots are deeply embedded in our Town. It has employed and continues to employ successive generations of high school students; it is a steadfast donor to charitable and community events; and it continues to set a mark as one of Lewisboro's most reliable, most universally liked business. The Gossett family regularly opens its farm to the community, hosting student tours and educational events for our schools, participating in our annual library fair, building its annual whimsical North Pole. Individually, generations of Gossetts have served our Town as volunteers, as civic leaders, as citizens recognized for their decency and their commitment to Lewisboro.

5. Gossetts' agricultural operations have been recognized on several important levels. Gossetts has earned the designation 'Farm Operation' as defined in Section 301(11) of the New York Agriculture and Markets Law. And the County of Westchester and the State of New York together recognize Gossetts as an 'Agricultural District' pursuant to Section 304 of the New York Agriculture and Markets Law.



6. Gossetts' importance as a unique agricultural operation has also been acknowledged by the Watershed Agriculture Counsel, an affiliate of the New York Department of Environmental Protection. The Counsel has worked closely with Gossetts, offering its expertise and its resources, to ensure that this farming operation is remains an important and environmentally unspoiled site, home to all manner of creatures: turtles, frogs, snakes, hawks, songbirds, bunnies and others.

7. Co-Petitioners John Vuolo is a long-time Lewisboro resident who has raised his family here. Mr. Vuolo started, owns and operates J.Vuolo, Corp., a New York corporation. South Salem Winery is the d/b/a designation of J.Vuolo, Corp. (the "Winery").

8. Mr. Vuolo is an artisan wine-maker, self-taught, whose entrepreneurial spirit has gifted our community with its eponymous wine. John has been scrupulous to ensure that his business is and has been fully licensed by the New York State Liquor Authority and that is wine-making operations are consistent with all applicable health codes and regulations. His dedication to craftsmanship extends to the actual wine-making and presentation equipment and furnishings, built, for the most part, by Mr. Vuolo from materials recycled from wine barrels and wine making tools, or repurposed from Gossetts.

9. The Winery is the first business in Westchester County to be awarded a New York State Farm Winery designation, which means Lewisboro is the first town in

our county to have its own Farm Winery. Consistent with his focus on local ingredients, Mr. Vuolo makes his wine solely from grapes grown in New York State.

### The Proposed Amendment

10. Co-Petitioners respectfully request the Town Board update and amend Sections 220-2; 220-23; 220-32; and 220-43.5 of the Town Code of the Town of Lewisboro (the “Code”) to establish ‘Accessory Wineries’ as a permitted use pursuant to a special permit.

11. Specifically, and as set forth in more detail in the draft ordinance attached hereto, Co-Petitioners respectfully ask the Town Board to include within the Code the following:

- a. a definition of Accessory Winery (§ 220-2);
- b. “Accessory Wineries” in the Schedule of Permitted Uses (§220-23); and
- c. a description of the criteria for “Accessory Wineries” and the requirements therefor, including:
  - i. appropriate licensing by the New York State Liquor Authority;



- ii. obtaining a designation as a 'Farm Operation' in a certified Agricultural District pursuant to Westchester County regulation and the New York Agriculture and Markets Law;
- iii. that the wine be made on the premises, predominantly from New York State grown grapes;
- iv. that no full meals be served on the premises;
- v. that the operation otherwise comply with the requirements of the Westchester County Department of Health;
- vi. that Accessory Wineries be located on New York State roads;
- vii. that adequate parking be available to patrons;
- viii. that items for sale be reasonably related to wine and wine making;
- ix. that site plan approval be, to the extent necessary, abbreviated and consistent with the purposes of these amendments; and
- xi. consistent with other sections of the Code, that the Board of Approval be tasked with reviewing and approving special permit applications for accessory wineries.

12. The foregoing criteria are intended to encourage and facilitate the development of agricommerce within our Town; to foster entrepreneurship with a focus on artisan quality, regional ingredients, and development of Lewisboro as an attractive tourist destination with its own distinctive goods and products.

13. More importantly, they are intended to ensure a high degree of professionalism and responsibility to our community, including, for example, that these operations maintain appropriate state licensing; that the products be made on the premises, that accessory wineries have food available; and that they are located on well-traveled commercially accessible state roads.

#### South Salem Winery's Collaboration with Gossetts

14. Further commending this application is the Co-Petitioners' long-standing collaboration and good faith efforts in support thereof.

15. SSW has sold wine at Gossetts since 2014. It makes its own wine on Gossetts' premises in small batches and produces on-site and entirely by hand approximately 600 gallons of various varieties per annum. It is fully licensed by the New York State Liquor Authority to conduct small wine-tastings, sale of its wine by the glass and sale of its wine in bottles.

16. In 2018, Westchester Magazine heralded Lewisboro's own SSW as the County's "Best Wine Experience."

17. In recent years, SSW has held a number of highly successful events showcasing its wine and local artists. These include book signings, music performances, limited wine tastings, and similar cultural events. These festive occasions were



conducted in good faith, before SSW was advised that the Lewisboro Town Code contains no winery designation.

18. Though brief, SSW's tenure as a fun cultural destination was notable for its safe, prudent operation; for the enthusiasm of its customers; for its unique ability to showcase the appeal of our Town and its rich products; and for the professionalism of its owners. There were exactly zero incidents relating to imprudent consumption of alcohol and zero complaints from neighbors or regulators. By all accounts, SSW's operations were a laudable, ingenious addition to Lewisboro's commercial and social fabric, melding two respected businesses seamlessly and creatively.

19. SSW determined, of its own volition, to cease its sales by the glass and wine-tasting operations, not because of any complaint or adverse administrative directive, but out of an abundance of caution and a respect for the rule of law. Co-Petitioners' desire to ensure full compliance with applicable law and regulation speaks to their good citizenship and commitment to their Town.

20. Petitioners respectfully submit that the Town stands to benefit from the proposed amendment. It is not a stretch to envision a Lewisboro restaurant and entertainment row along Route 35 comprising its existing establishments and a newly-minted artisan winery proudly selling products under the South Salem tradename. The proposed regulations are carefully drafted to ensure a high degree of regulatory oversight; advancement of local and state-wide agricultural interests; and operation of an accessory

winery by mature, professional businesses capable of discharging the important responsibilities to our community that will accompany this kind of operation.

21. Finally, Co-Petitioners' respectfully call the Town Board's attention to their past operations in pursuing the proposed amendments. Their reputations speak for themselves. They are vested in Lewisboro. They have acted in good faith and in a manner that reflects their heartfelt commitment to local agriculture; to our Town's special character and appeal; and to finding ways to promote the pride we take in living here. The instant Petition advances a vision for our Town articulated by its residents and its elected lawmakers and we ask that you give it your fullest consideration.

WHEREFORE, the Petitioners respectfully request that the Town Board grant this Petition and amend the Code as set forth herein.

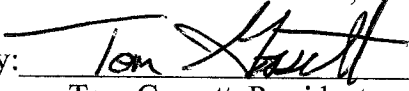
*[signature page(s) follow]*




DATED: October 1, 2018  
Town of Lewisboro, New York

Respectfully submitted,

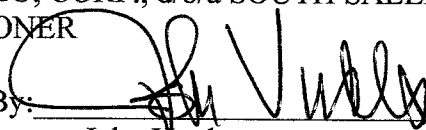
GOSSETT BROTHERS NURSERY, CO-PETITIONER

By:   
Tom Gossett, President

JOHN VUOLO, CO-PETITIONER

By:   
John Vuolo

J. VUOLO, CORP., d/b/a SOUTH SALEM WINERY, CO-PETITIONER

By:   
John Vuolo  
President

## **EXHIBIT A TO PETITION**

### **Draft Accessory Winery Statute and Regulations**

#### 220-2. Definitions and word usage:

ACCESSORY WINERY – A manufacturing facility or establishment engaged in the processing of grapes to produce wine and cider and which may include an area for wine tasting and for the sale of wine and cider and wine and cider related items and accessories.

#### 220-23. Schedule of regulations for residential districts.

A. Permitted principal uses in R-4A, R-2A, R-1A, R-1/2A and R-1/4A Districts are as follows:

(15) \*Accessory Winery

#### 220-32.

B. Approving Agency. Applications for special permit uses shall be reviewed and acted upon by the Planning Board with the following exceptions:

(2) The Board of Appeals is hereby designated and authorized to review and take action on applications for the following special uses:

(h) Accessory Wineries.

#### 220-43.5 Accessory Winery.

A. Purpose. The purpose and intent of this Section is to permit encourage the expansion of local agribusiness so as enhance opportunities for local farming operations, stimulate interest in the Town and thereby foster tourism, invite further creative investment by existing agribusinesses, and assist and enable the entrepreneurial development of farming and agricultural endeavors. In furtherance of these purposes, specific conditions are set forth herein for Accessory Wineries:

B. Accessory Wineries shall be special uses as follows:



- (1) An accessory winery shall be located on the premises of and accessory to an existing Farm Operation as defined in Section 301(11) of the New York Agriculture and Markets Law and shall be located in an existing Westchester County adopted, New York State certified Agricultural District pursuant to Section 304 of the New York State Agricultural & Markets Law.
- (2) An accessory winery shall be and remain licensed as a "Farm Winery" by the New York State Liquor Authority.
- (3) All wine and cider offered for sale must be produced and processed at the accessory winery from grapes or other fruit, as applicable, of which at least 80% are grown in New York State.
- (4) The accessory winery may have a retail gift shop on the premises which may sell items accessory to wine and cider, such as corkscrews, wine glasses, decanters, items for the storage and display of wine, books on winemaking and the region and non-specific items bearing the logo or insignia of the winery.
- (5) The accessory winery may prepare and serve snacks and food for consumption on the premises, primarily intended to accompany tastings, but shall not serve full meals. Any food preparation or service shall be in compliance with all applicable regulations, including as required by the Westchester County Department of Health.
- (6) An accessory winery shall be located on a state road only.
- (7) There shall be no fewer than ten (10) off-street parking spaces in addition to those required by this chapter for the farm or business to which the accessory winery is attached.
- (8) The special use permit shall be granted for a period of five (5) years and may be renewed for additional five (5) year periods. An application for and a renewal of, the special use permit shall be made to the Building Department on a form provided by the Building Department for such purpose, and by payment of a fee in an amount set forth in a fee schedule as adopted and amended from time to time by resolution of the Town Board. The application shall be accompanied by evidence in form and substance reasonably satisfactory to the Building Department of the accessory winery's New York State Liquor Authority license and its designation as a Farm Operation pursuant to the New York Agriculture and Markets Law. The Building Inspector shall thereafter inspect the premises and refer the application or renewal to the Board of Appeals if the premises are in compliance with the provisions of this chapter, the Building Code and the provisions of the original special use permit.
- (9) If and to the extent that site plan approval is required to increase parking areas, to enlarge or materially modify subsurface sewage disposal areas pursuant to a specific directive by the Westchester County Board of Health issued to the applicant, if any, or otherwise materially alter the physical site conditions to comply with a specific directive

of a competent agency having authority, the Planning Board shall require the submission of an abbreviated site plan, which shall be processed concurrently with the application for a special use permit. In all other situations, site plan approval by the Planning Board shall not be required.

- (1) In addition to the special standards described above, accessory wineries shall comply with all other requirements of this chapter.



George Latimer  
County Executive

County Planning Board

October 26, 2018

Janet L. Donahue, Town Clerk  
Town of Lewisboro  
P.O. Box 500/11 Main Street  
South Salem, NY 10590

**Subject: Referral File No. LEW 18-007 – Zoning Text Amendment: Accessory Wineries**

Dear Ms. Donahue:

The Westchester County Planning Board has received a proposed local law that would amend the text of the Lewisboro Zoning Ordinance to permit and regulate accessory wineries as a special use on properties located in State certified Agricultural Districts that also contain an existing farm operation.

We have reviewed this matter under the provisions of Section 239 L, M and N of the General Municipal Law and Section 277.61 of the County Administrative Code and we find it to be a matter for local determination in accordance with the Town's planning and zoning policies.

Thank you for calling this matter to our attention.

Respectfully,  
WESTCHESTER COUNTY PLANNING BOARD

By:



Norma V. Drummond  
Commissioner

NVD/KE

## LOCAL LAW NUMBER \_\_-2018 OF THE TOWN OF LEWISBORO

### SECTION 1 -- TITLE

This Local Law shall be known as 2018 Amendments to Chapter 220 regarding Affirmatively Furthering Fair Housing (AFFH) Dwelling Units, which will amend Section 220-2 to amend the definition of “Affordable Affirmatively Furthering Fair Housing (AFFH) Unit”, and to enact Section 220-25.1, entitled “Inclusionary Affirmatively Furthering Fair Housing (AFFH) Dwelling Units.”

### SECTION 2 -- ADOPTION

Now therefore be it enacted by the Town Board of the Town of Lewisboro Local Law \_\_-2018 that this law shall take effect immediately upon filing with the Secretary of State:

### SECTION 3 – AMENDMENTS TO CHAPTER 220

#### **Section 220-2. Definitions and word usage.**

B. For the purposes of this chapter only, certain words and terms used herein are defined as follows:

**AFFORDABLE AFFIRMATIVELY FURTHERING FAIR HOUSING (AFFH) UNIT – 1)** A for-purchase housing unit that is affordable to a household whose income does not exceed 80% of the area median income (AMI) for Westchester as defined annually by the U.S. Department of Housing and Urban Development (HUD) and for which the annual housing cost of a unit including common charges, principal, interest, taxes and insurance (PITI) does not exceed 33% of 80% AMI, adjusted for family size and that is marketed in accordance with the Westchester County Fair & Affordable Housing Affirmative Marketing Plan. **2)** A rental unit that is affordable to a household whose income does not exceed 60% of AMI and for which the annual housing cost of the unit, defined as rent plus any tenant paid utilities, does not exceed 30% of 60% AMI adjusted for family size, and that is marketed in accordance with the Westchester County Fair & Affordable Housing Affirmative Marketing Plan.

#### **Section 220-25.1. Inclusionary Affirmatively Furthering Fair Housing (AFFH) Dwelling Units.**

- A. Required Affordable AFFH Dwelling Units. Within all residential developments of ten (10) or more dwelling units created by subdivision or site plan, no less than ten percent (10%) of the total number of units must be created as affordable AFFH units.

No preferences shall be utilized to prioritize the selection of income-eligible tenants or purchasers for affordable AFFH dwelling units created under this section. Notwithstanding the above, all such affordable AFFH dwelling units, whether for purchase or for rent, shall be marketed in accordance with the Westchester County Fair & Affordable Housing Affirmative Marketing Plan.



This section shall not apply to any development of dwelling units constructed prior to the enactment of this section, or to any development of dwelling units to be constructed which has received a negative declaration of environmental consequence prior to the enactment hereof. Previously approved middle-income dwelling units shall continue to comply with Section 220-26(F) of this chapter.

- B. Time period of affordability and property restriction. Dwelling units designated as affordable AFFH dwelling units must remain affordable for a minimum of 50 years from the date of initial certificate of occupancy for rental properties, or of original sale for ownership units. A property containing any affordable AFFH dwelling units must be restricted using a mechanism such as a declaration of restrictive covenants in recordable form acceptable to the Town Attorney which shall ensure that the affordable AFFH dwelling unit shall remain subject to the affordable regulations for the minimum 50 year period of affordability. Among other provisions, the covenant shall require that the affordable AFFH dwelling unit be the primary residence of the resident household selected to occupy the unit. Upon approval, such declaration shall be recorded against the property containing the affordable AFFH dwelling prior to the issuance of a Certificate of Occupancy for the development.
- C. Eligibility. Such affordable AFFH dwelling units shall be available for sale, resale or continuing rental only to income-eligible families for AFFH dwelling units as defined in Section 220-2 of this chapter.
- D. Unit Appearance and integration.
  - (1) Within one-family dwelling developments, the affordable AFFH dwelling units may be one-family dwellings or may be incorporated into one or more two-family dwellings. Each one-family affordable AFFH dwelling unit may be located on a lot meeting 75% of the minimum lot area for the one-family dwellings in the development.
  - (2) Each two-family affordable AFFH dwelling and each multifamily affordable AFFH dwelling unit shall be located on a lot meeting the minimum lot area for the one-family dwellings in the development. All such affordable AFFH units shall be as indistinguishable as possible in appearance from the other one-family dwellings in a development. Interior finishes and furnishings may be reduced in quality and cost to assist in the lowering of the cost of development of the affordable AFFH dwelling units
  - (3) Within multifamily developments, affordable AFFH dwelling units shall be physically integrated into the design of the development, subject to review by the Planning Board, and shall be distributed among efficiency, one-, two- three- and four- bedroom units in the same proportion as all other units in the development. Interior finishes and furnishings may be reduced in

quality and cost to assist in the lowering of the cost of development of the affordable AFFH dwelling units.

E. Minimum Floor area.

- (1) The minimum gross floor area per affordable AFFH dwelling unit shall not be less than the following:

Dwelling Unit	Minimum Gross Floor Area (square feet)
Efficiency	450
1-bedroom	675
2-bedroom	750
3-bedroom	1,000 (including at least 1.5 baths)
4-bedroom	1,200 (including at least 1.5 baths)

- (2) For purposes of this section, the Planning Board may allow paved terraces or balconies to be counted toward the minimum gross floor area requirements in an amount not to exceed 1/3 of the square footage of such terraces or balconies.

F. Occupancy standards. For the sale or rental of affordable AFFH units, the following occupancy schedule shall apply, subject to the New York State Uniform Fire Prevention and Building Code requirements:

Number of bedrooms	Number of persons
Efficiency	1
1-bedroom	3
2-bedroom	5
3-bedroom	7
4-bedroom	9

G. Affirmative marketing. The affordable dwelling units created under the provisions of this section shall be sold or rented, and resold and re-rented during the required period of affordability, to only qualifying income-eligible households. Such income-eligible household shall be solicited in accordance with the requirements, policies and protocols established in the Westchester County Fair & Affordable Housing Affirmative Marketing Plan.

H. Continued eligibility for occupancy of rental dwelling unit.

- (1) Applicants for rental units referred to in this section shall, if eligible and if selected for occupancy according to subsection J of this Section 220-25.1, sign leases for a term of not more than two years. As long as a resident remains eligible and has complied with the terms of the lease, said resident



shall be offered renewal leases for a term of no more than two years each. Renewal of a lease shall be subject to the conditions of federal, state or county provisions that may be imposed by the terms of the original development funding agreements for the development or to the provisions of other applicable local law. If no such provisions are applicable and if a resident's annual gross income should subsequently exceed the maximum then allowable, as defined in this chapter, then:

Option (a): said resident may complete their current lease term and shall be offered a non-restricted (AFFH) rental unit available in the development at the termination of such lease term, if available. If no such dwelling unit shall be available at said time, the resident may be allowed to sign one additional one-year lease for the affordable AFFH unit they occupy but shall not be offered a renewal of the lease beyond the expiration of said term.

OR

Option (b): said resident shall pay the greater of (1) the rent amount payable under the provisions of this ordinance or (2) 30% of the resident's monthly adjusted household income provided that the increased rent may not exceed the market rent in that development for units with the same number of bedrooms.

OR

Option (c): said resident shall pay the greater of (1) the rent amount payable under the provisions of this ordinance or (2) 30% of the resident's monthly adjusted household income provided that the increased rent may not exceed the market rent in that development for units with the same number of bedrooms for a term of not more than one (1) year.

- (2) Notwithstanding the foregoing, renewal of a lease shall be subject to the conditions of federal, state or county provisions that may be imposed by the terms of the original development funding agreements for the development or to the provisions of other applicable local law.

I. Resale requirements. In the case owner-occupied affordable AFFH dwelling units, the title to said property shall be restricted so that in the event of any resale by the home buyer or any successor, the resale price shall not exceed the then-maximum sales price for said unit, as determined in this chapter, or the sum of:

- (1) The net purchase price (i.e., gross sales prices minus subsidies paid for the unit by the selling owner, increased by the percentage increase, if any, in the Consumer Price Index for Urban Wage Earners and Clerical Workers in the New York-Northern New Jersey Area, as published by the United States Bureau of Labor Statistics (the "Index") on any date between (a) the month

that was two months earlier than the date on which the seller acquired the unit and (b) the month that is two months earlier than the month in which the seller contracts to sell the unit. If the Bureau stops publishing this index, and fails to designate a successor index, the Town will designate a substitute index; and

- (2) The cost of major capital improvements made by the seller of the unit while said seller of the unit owned the unit as evidenced by paid receipts depreciated on a straight line basis over a 15-year period from the date of completion and such approval shall be requested for said major capital improvement no later than the time the seller of the unit desires to include it in the resale price.
- (3) Notwithstanding the foregoing, in no event shall the resale price exceed an amount affordable to a household at 80% of AMI at the time of the re-sale.

J. Administration. The administration of the compliance and eligibility related to the rental, sales and marketing of such AFFH dwelling units shall be performed by the County of Westchester or an organization or agency designated by the County.

K. Expedited Review Process.

- (1) Pre-application meeting: The applicant for a development of affordable AFFH units shall be entitled to at least one pre-application meeting at which representatives will be in attendance from each municipal agency, board, commission and staff expected to play a role in the approval and review of the development application review process. The purpose of the pre-application meeting will be to expedite the development application review process through:
  - (a) The early identification of issues, concerns, code compliance and coordination matters that may arise during the review and approval process.
  - (b) The establishment of a comprehensive review process outline, proposed meeting schedule and conceptual timeline.
- (2) Meeting schedule and timeline: Municipal departments, agencies, authorities, boards, commissions, councils, committees and staff shall endeavor to honor the proposed meeting schedule and conceptual timeline established as an outcome of the pre-application to the greatest extent possible during the review and approval process, subject to the demonstrated cooperation of applicant to adhere to same. Should the approval process extend beyond one year, an applicant for a development including affordable AFFH units shall be entitled to at least one additional meeting per year with the same departments, agencies, authorities, boards, commissions,



councils, or committees to review any and all items discussed at previous pre-application meetings.

- (3) Calendar / agenda priority: : Municipal departments, agencies, authorities, boards, commissions, councils, or committees with review or approval authority over applications for developments including affordable AFFH units shall give priority to such applications by placing applications for developments including affordable AFFH units first on all meeting and work session calendars and agenda and when feasible based on the ability to conduct required reviews and public notice, with the intent of shortening minimum advance submission deadlines to the extent practicable.

#### SECTION 4 – HOME RULE

Nothing in this Local Law is intended, or shall be construed (a) to limit the home rule authority of the Town under State Law to limit the Town’s discretion in setting fees and charges in connection with any applications requiring Town approval.

#### SECTION 5 -- SEVERABILITY

If any part or provision of this Local Law or the application thereof to any person or circumstance be adjudged invalid by any court of competent jurisdiction, such judgment shall be confined in its operation to the part of provision or application directly involved in the controversy in which judgment shall have been rendered and shall not affect or impair the validity of the remainder of this Local Law or the application thereof to other persons or circumstances, and the Town of Lewisboro hereby declares that it would have passed this Local Law or the remainder thereof had such invalid application or invalid provision been apparent.

#### SECTION 6 – EFFECTIVE DATE

This Local Law shall take effect immediately upon filing in the office of the Secretary of State in accordance with Section 27 of the Municipal Home Rule Law.

George Latimer  
County Executive

County Planning Board  
October 26, 2018

Janet L. Donahue, Town Clerk  
Town of Lewisboro  
P.O. Box 500/11 Main Street  
South Salem, NY 10590

**Subject: Referral File No. LEW 18-008 – Incorporation of Model Ordinance Provisions  
Zoning Text Amendment**

Dear Ms. Donahue:

The Westchester County Planning Board has received a proposed amendment to the text of the Town Zoning Ordinance to incorporate the Model Ordinance Provisions from the Westchester County Fair and Affordable Housing Implementation Plan to affirmatively further fair housing in Lewisboro.

We have reviewed the proposed amendments under the provisions of Section 239 L, M and N of the General Municipal Law and Section 277.61 of the County Administrative Code. The County Planning Board commends the Town for incorporating the Model Ordinance Provisions into the Town Zoning Ordinance to ensure consistency with Westchester County's affordable affirmatively furthering fair housing (AFFH) guidelines.

We offer the following comments:

1. **Development incentives.** We note that the proposed zoning amendments do not include incentives to encourage the creation of affordable AFFH units above the number required to be created by the ordinance. We recommend the Town consider providing incentives such as allowing higher densities, easing minimum height, bulk and setback requirements, or an allowance for shared parking so as to reduce infrastructure costs.
2. **Minimum inclusion of affordable AFFH units.** We also note that the new regulations would only require the inclusion of affordable AFFH units for residential developments of 10 units or greater. We recommend that consideration be given towards requiring one affordable AFFH unit in developments between five and nine units in size.
3. **Occupancy standards.** The table showing occupancy standards should be revised to prescribe both minimum and maximum occupancy limits for affordable AFFH units based on the number of bedrooms.
4. **Administration.** *Section J. Administration* of the proposed zoning amendment should be revised to include a reference to the monitoring responsibilities of the organization or agency overseeing the



administration of affordable AFFH units in the Town, if the Town wishes for the County to conduct the on-going monitoring of the compliance of the units.

**5. Typographical errors.** *Section K(3) Calendar/agenda priority* includes a second “:” that should be removed. *Section 4 – Home Rule* contains an “(a)” that should be removed.

Thank you for calling this matter to our attention.

Respectfully,

WESTCHESTER COUNTY PLANNING BOARD

By:

A handwritten signature in black ink, appearing to read 'Norma V. Drummond', written over a horizontal line.

Norma V. Drummond  
Commissioner

NVD/LH



## **WATER FACILITIES ENGINEER'S REPORT**

**For**

**Wilder Balter Partners, Inc.  
NYS Route 22**

**Town of Lewisboro, New York**

**September 14, 2018**

Prepared by:  
Insite Engineering, Surveying & Landscape Architecture, P.C.  
3 Garrett Place  
Carmel, New York 10512



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### APPENDICES

Appendix A	Proposed Well Pump Curves and Calculations
Appendix B	Chlorination System
Appendix C	System Calculations
Appendix D	Potable Water Tank Information
Appendix E	Ultraviolet Disinfection System

## 1.0 INTRODUCTION

The project sponsor, Wilder Balter Partners, Inc. (the "Applicant"), proposes a 42-unit multifamily residential development comprised of five (5) buildings, including indoor and outdoor recreational facilities, an access road off of New York State Route 22, onsite parking for 116 vehicles and associated stormwater management facilities on 35.4± acres of land located on the east side of New York State Route 22 north of the I-684 northbound Exit 6A ramp.

The development site is currently vacant wooded land and is not served by public water and sewer service. Water service will be provided by a new community water system supplied by on-site wells and wastewater will be treated by a new community on-site septic system. The community water and sewer systems will be designed and constructed in accordance with the standards and subject to the approval of the Westchester County Department of Health (WCDOH) and the New York State Department of Environmental Conservation (NYSDEC).

The subject property currently consists of three separate tax parcels which are proposed to be merged. The property is located in two zoning districts: the western portion of the site near Route 22 is in the CC-20 Campus Commercial District and the eastern portion of the site in the R4-A residential district. Multi-family housing is a permitted use in the CC-20 zoning district. Surrounding and nearby properties to the north, east and west are generally undeveloped, and transportation uses (Interstate 684). Properties to the south are mostly developed low density residential lots.

## 2.0 DESIGN FLOW

Flow rates for the anticipated uses at the proposed facility and the design flow for the proposed project are listed in the table below. The average daily water and sewer design flows for the proposed project are based on the hydraulic loading rates given in the New York State Department of Environmental Conservation (NYSDEC) publication *Design Standards for Intermediate Sized Wastewater Treatment Systems – 2014 (DEC 14)*.

The water and wastewater flow will be designed for the proposed ten (10) 1-bedroom units, twenty-two (22) 2-bedroom units, and ten (10) 3-bedroom units. A design flow of 110 gpd/bedroom is used. Since the clubhouse will primarily be used by residents of the development, no additional gallon per day allotment is provided for the clubhouse.

Average Daily Design Flow			
Use	# of Units	Flow Rate (gpd/unit)	Design Flow (gpd)
One Bedroom Unit	10	110	1,100
Two Bedroom Unit	22	220	4,840
Three Bedroom Unit	10	330	3,300
<b>Total</b>			<b>9,240</b>

A design flow of 9,240 gallons per day will be used for the sewer and water facilities.

The average hourly flow rate for the project is calculated as follows:

$$\text{Average Hourly Flow} = 9,240 \text{ gpd} \div 24 \text{ hr/day} \div 60 \text{ min/hr} = 6.4 \text{ gpm}$$

The peak hourly flow for the water system is calculated using a peaking factor of ten as required by the Westchester County Department of Health.

$$\text{Peak Hourly Flow} = 6.4 \text{ gpm} \times 10 = 64 \text{ gpm}$$



The peak hourly flow will be used to size the proposed distribution system.

Each building will be equipped with fire sprinklers. Initial estimates for the fire sprinkler demand are 300 gpm for a 30 minute duration (9,000 gallons).

The final fire sprinkler demands for the system will be confirmed by the project's mechanical engineer and provided in the Final Engineer's Report. The combined peak flow for domestic and fire sprinkler will be used to size the system. The combined peak flow for design is  $300 + 64 = 364$  gpm.

### **3.0 WATER SUPPLY SOURCE**

The water supply for the project is proposed to be provided by three existing onsite wells. For quantity and quality testing of the wells proposed to be used, see the Wilder Balter Partners 72-hour Pumping Test Program by WSP, dated September 2018. The wells will be required to meet the maximum day demand of 18,480 gpd (2 times average daily flow), or 12.8 gpm with the best well out of service. It is anticipated that two (2) wells may be required to meet the 12.8 gpm max daily flow with the best well out of service. The stabilized pumping rates for wells 2, 3, and 4 are 5.3 gpm, 8.5 gpm, and 8.3 gpm. With Well 3 out of service (best well) the remaining wells can provide 13.6 gpm meeting the max day demand.

Well 2 had an iron concentration of 0.865 mg/L exceeding the MCL (0.3 mg/L). The manganese result was 0.124 mg/L below the MCL, but the well is above the combined iron and manganese MCL of 0.5 mg/L. Well 2 also had a turbidity result of 2.85 MCL exceeding the MCL.

Well 2 has sat idle for many years prior to the recent pump test. It is anticipated that the turbidity and iron is elevated due to this long idle period. These parameters are expected to be reduced when the well is put into production. The blended water from all the wells will meet the iron MCL and combined iron and manganese MCL, so no treatment is proposed. Well 2 is currently considered GWUDI (until proven otherwise) by the Westchester County Department of Health, therefore a 5 micron and 1 micron filter preceding a UV treatment system is proposed to reduce the turbidity.

The three wells tested positive for total coliform, which was potentially caused by installation of the temporary pumping equipment. Prior to use, the wells will be disinfected and retested for total coliform and e-coli.

As the blended water will meet the MCL for iron and manganese, no treatment beyond the cartridge filters on Well 2 for turbidity, UV on Well 2 for GWUDI and chlorine disinfection for all wells is proposed.

#### **3.1 Well Pumps**

A Gould's 7GS10 is proposed for Well 2 and will pump between 5.5 and 8 gpm as noted in Appendix A. A Gould's Model 25GS30 is proposed for Well 3. As calculated in Appendix A, the pump will produce 9 to 23 gpm. For Well 4, a Gould's Model 13GS20 is proposed. The pump will provide 8 to 18 gpm as calculated in Appendix A.

### **4.0 WATER CONTROL BUILDING**

A control/treatment building is proposed in the northeastern portion of the site. The building will be locked except for maintenance and repair. The discharge from the three supply wells will be piped to this building through separate 1.5" pipes. After entering the building, the raw water will be chlorinated before the well lines combine into a single 4" pipe to transport the treated water to the storage/contact tank. The building will contain meters, water sampling spigots, UV treatment for well 2 and chlorinator equipment for each well source.

## 5.0 DISINFECTION

### 5.1 Ultraviolet Light Disinfection System

Well 2 is located within the 150-foot Town of Lewisboro wetland control area. Due to its proximity to wetlands the well must be tested to determine if the groundwater is under the direct influence of surface water (GWUDI). Per conversations with the Westchester County Department of Health, this determination cannot be made prior to construction of the subject project. If well 2 is GWUDI it would require an ultraviolet disinfection system and continuous turbidity monitoring. It is proposed to install sediment filters, turbidity meters and an ultraviolet disinfection system for the required treatment for well 2 while the GWUDI determination is made. If it is determined at a later date that the wells are not GWUDI, these systems could be removed.

A 5-micron and 1-micron absolute filter are proposed on the well line from well 2. The proposed filters are manufactured by Harmsco, model numbers HC/40-5, and PP-HC/40-1.

The UV system proposed is Hallett 30 as manufactured by UV Pure Technologies. The systems are NSF/ANSI Standard 55 Class A certified and will provide a UV dosage of 40 mJ/cm<sup>2</sup> to meet the New York State Department of Health requirements. The system will be installed in the water control building. Refer to the project plans for a water system schematic for system layout along with location of valves, meter, filters, and appurtenances.

Two Hallett 30 units will be installed in parallel on the well service line for well 2. The Hallett 30 is rated to approximately 30 gpm and contains a flow restrictor, which limits flow to less than 30 gpm.

The self-contained monitoring system for each UV unit will be connected to an audio and visual alarm. The self-contained monitoring system for each UV unit will also be connected to a solenoid valve on the individual pipe serving the UV unit it monitors. The solenoid valve for the primary units is open during normal operating conditions and closes during times of improper function such as when power is interrupted, the proper dose is not delivered as measured by the UV intensity monitor, a quartz bulb goes out, or the self-diagnostic computer shuts down due to other malfunctions.

The UV lamps should be replaced once a year at a minimum, and the intensity checked monthly. Should a decrease in the intensity be observed the quartz sleeve should be cleaned in accordance with the manufacturer's specifications.

A turbidity meter is proposed for well 2. A single turbidity meter will continuously monitor the level of turbidity of the water in the well 2 service line. A Hach 1720E Turbidity Meter is proposed for the project. The monitor will be connected to an alarm and auto dialer that will be triggered if the turbidity exceeds 1 NTU.

The UV system and all piping is to be disinfected upon completion of work in accordance with AWWA Standard C651-05 (except section 4.4.2.). Acceptable bacteriological results must be submitted and accepted by the Westchester County Department of Health prior to utilization of the water system. Manufacturers information sheets for the filters, turbidity meter, and UV system can be found in Appendix E.

### 5.2 Chlorine Disinfection

Disinfection will be provided by sodium hypochlorite. A separate chemical solution crock and feed pump will inject chlorine into each of the three raw well water sources prior to the vented storage tank. The vented storage tank and the pipes from the tank to the water control building will provide chlorine contact prior to the water being pumped to the distribution system. The chlorination systems will be housed in a separate room within the water control building.



The New York State Department of Health Fact Sheet on Microbial Log removal/inactivation Rule Requirements was used to determine the required CT value to achieve 4-log virus inactivation. For water with a pH range between 6 to 9 and a minimum temperature of 5 degree Celsius, a CT of 8.0 min\*mg/l is required. The system CT value is calculated below.

Peak flow in tank supply line (see section 3.0)	=	49 gpm
Volume of water in tank supply line	=	254 gallons
Contact time in tank supply line (254 gallons / 49 gpm)	=	5.1 min
Peak flow from tank to first user (see Section 2.0)	=	364 gpm
Normal minimum water in tank (see Section 6.0)	=	10,920 gallons
Baffling factor	=	0.3
Minimum effective volume provided in tank (0.3 x 10,920)	=	3,276 gallons
Travel time in tank (3,276 gallons / 364 gpm)	=	9.0 min
Volume of water in the watermain	=	900 gallons
Travel time in the watermain (900 gallons / 364 gpm)	=	2.4 min
Minimum travel time to first user	=	16.5 min
Minimum chlorine residual	=	0.5 mg/l
Minimum CT value (16.5 min*0.5 mg/l)	=	8.2 min*mg/l > 8.0 ok

## 6.0 STORAGE TANK

A 14,000 gallon vented storage tank is proposed to provide chlorine contact and supplemental storage during times of peak flow. The Health Department's policy requires that the volume of the storage tank be approximately equal to or greater than the average daily flow. Additional storage is provided for the fire sprinkler demand.

The tank will be sized so at the normal low water elevation in the tank will have a minimum reserve volume to provide 30 minutes of combined peak flow. The minimum reserve volume for 30 minutes of combined peak flow (364 gpm) is 10,920 gallons. The 14,000 gallon tank will allow for normal operation and cycling of the well pumps above the minimum reserve volume.

The tank is proposed to be a fiberglass potable water tank that conforms to NSF Standard 61. The tank levels will be used to control the well pumps. The well pumps will be set to rotate as lead pump, so all wells will be utilized.

Average daily flow (see Section 2.0)	=	9,240 gallons
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The well pumps will be set to alternate as lead and lag or lag 2. The lead pump will turn on when the water level in the tank falls below the lead pump on level. Two well pumps will operate simultaneously if the level in the tank drops below the lag level and all three well pumps will operate if the tank falls below the lag 2 level.

Low Level Alarm and Lag 2 On 2.8' From top (10,920 gallons in tank)

Lag Pump On 2.4' From top (11,400 gallons in tank)

Lead Pump On 2.0' From top (12,000 gallons in tank)

Pumps Off	1.6' From top (12,500 gallons in tank)
High Level Alarm	1.2' From top (13,000 gallons in tank)
Overflow	0.8' From top (13,400 gallons in tank)

## 7.0 SYSTEM OPERATION PRESSURES

The elevation of the storage tank above the users will provide the pressure for the distribution system. The static pressure is based upon relative elevation. The system will be designed to meet *Recommended Standard for Water Works* 2012 minimum pressure at each service connection of 35 psi.

Minimum Water Elevation of Storage Tank (Empty)	405.0 ft
First Elevation of highest grade level floor	301.3 ft
Elevation of lowest grade level floor	289.5 ft
Static Head	103.7 ft to 115.5 ft
Static Pressure at lowest grade level floor	50 psi
Static Pressure at highest grade level floor	44 psi

To calculate the pressures during peak flow conditions, the head loss in the watermain must be calculated. As noted in Appendix C, a head loss of 4 feet (2 psi) was calculated at the combined peak flow of 364 gpm. This results in a pressure range of 42 psi to 48 psi. This exceeds the RSWW minimum requirement of 35 psi.

## 8.0 DISTRIBUTION SYSTEM

The distribution system is proposed to be 8" diameter PVC DR-14 watermain. The system will contain isolation gate valves and flushing hydrants. Gate valves will be located strategically to minimize the number of units out of service due to a service disruption. Fire service and domestic service lines will be installed for each building. Flushing hydrants will be installed at low points in the system, as well as at dead ends.

No fire hydrants are proposed since the system is only designed to meet domestic and fire sprinkler use requirements.





## **APPENDIX A**

### **Proposed Well Pump Curves and Calculations**







**Wilder Balter Partners, Inc. - NYS Route 22, Lewisboro**  
**Well Pump Design Calculations: Well 2 (Well Low)**

<b>Static Head</b>	382 ft	Vertical distance from static water level to tank water level
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**Loss in Drop Pipe**

C	120	Roughness coefficient for smooth plastic pipe
d	1 in	Diameter of Drop Pipe
L	235 ft	Length of Drop Pipe
Q	6 gpm	Flow Rate
V	2.2 ft/s	Velocity
L <sub>e</sub>	10 ft	Equivalent length to account for losses in valves and bends
L <sub>t</sub>	245 ft	Total Length = L + L <sub>e</sub>

Head Loss in Drop Pipe	9 ft	$HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$
------------------------	------	--

**Well Service Line**

C	140	Roughness coefficient for smooth plastic pipe
d	1.25 in	Diameter of water line
L	390 ft	Length of 1.5" PE water line from well to water control building
Q	6 gpm	Flow Rate
V	1.4 ft/s	Velocity
L <sub>e</sub>	39 ft	Equivalent length to account for losses in valves and bends
L <sub>t</sub>	429 ft	Total Length = L + L <sub>e</sub>

Head Loss in Well Service Line	4 ft	$HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$
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**Wilder Balter Partners, Inc. - NYS Route 22, Lewisboro**  
**Well Pump Design Calculations: Well 2 (Well High)**

**Static Head**                      205 ft      Vertical distance from static water level to tank water level

**Loss in Drop Pipe**

C            120            Roughness coefficient for smooth plastic pipe

d            1 in            Diameter of Drop Pipe

L            235 ft           Length of Drop Pipe

Q            8 gpm          Flow Rate

V            3.3 ft/s        Velocity

L<sub>e</sub>           10 ft           Equivalent length to account for losses in valves and bends

L<sub>t</sub>           245 ft           Total Length = L + L<sub>e</sub>

Head Loss in Drop Pipe            17 ft       $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$

**Well Service Line**

C            140            Roughness coefficient for smooth plastic pipe

d            1.25 in        Diameter of water line

L            390 ft           Length of 1.5" PE water line from well to water control building

Q            8 gpm          Flow Rate

V            2.1 ft/s        Velocity

L<sub>e</sub>           39 ft           Equivalent length to account for losses in valves and bends

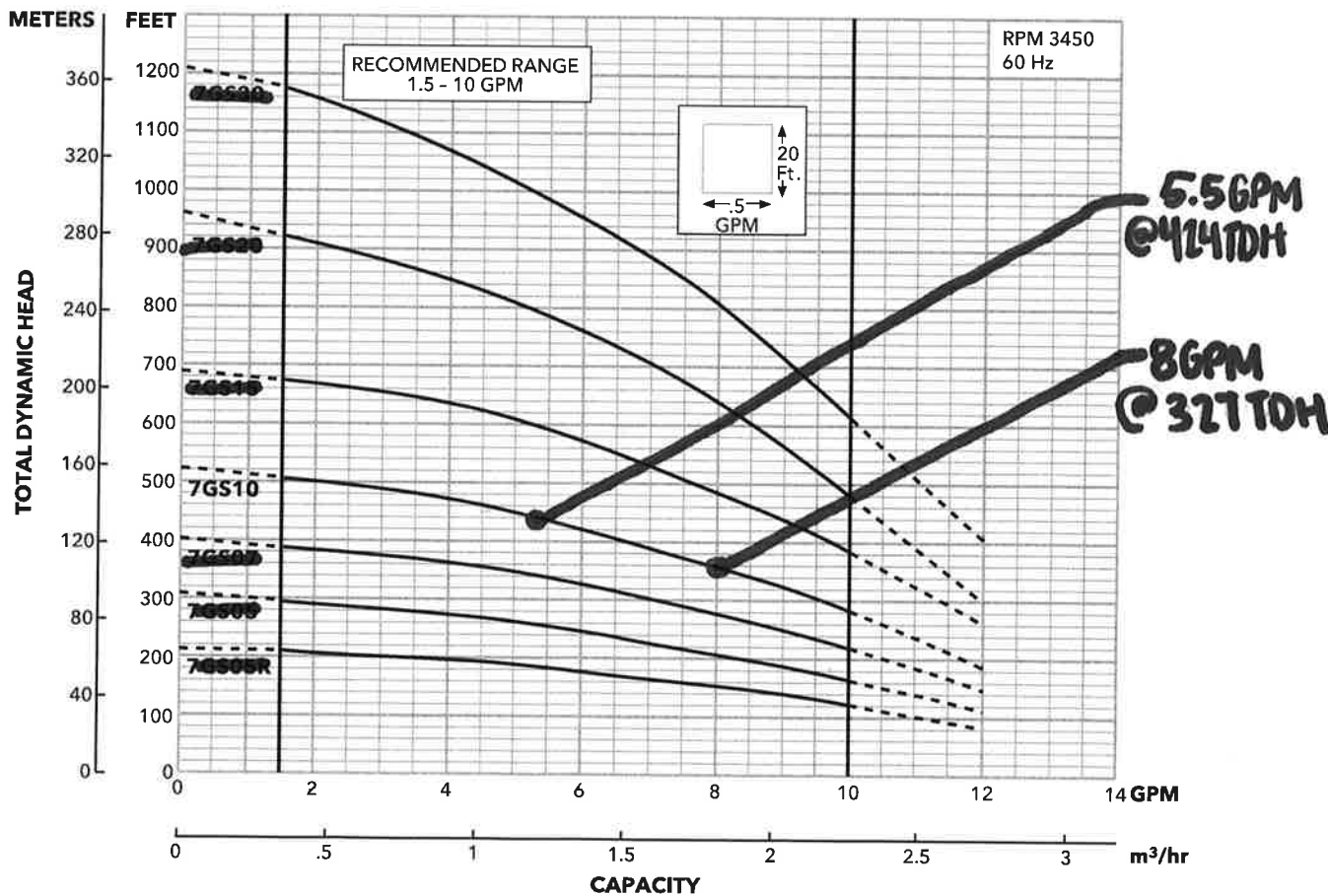
L<sub>t</sub>           429 ft           Total Length = L + L<sub>e</sub>

Head Loss in Well Service Line            8 ft       $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$

~~Model~~  
~~5GS~~



## Model 7GS









**Wilder Balter Partners, Inc. - NYS Route 22, Lewisboro**  
**Well Pump Design Calculations: Well 3 (Well Low)**

**Static Head**                      400 ft      Vertical distance from static water level to tank water level

**Loss in Drop Pipe**

C            120            Roughness coefficient for smooth plastic pipe

d            1 in            Diameter of Drop Pipe

L            319 ft            Length of Drop Pipe

Q            9 gpm            Flow Rate

V            3.7 ft/s            Velocity

$L_e$             10 ft            Equivalent length to account for losses in valves and bends

$L_t$             329 ft            Total Length =  $L + L_e$

Head Loss in Drop Pipe            28 ft       $HL = \frac{10.44(L)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$

**Well Service Line**

C            140            Roughness coefficient for smooth plastic pipe

d            1.25 in            Diameter of water line

L            165 ft            Length of 1.5" PE water line from well to water control building

Q            9 gpm            Flow Rate

V            2.4 ft/s            Velocity

$L_e$             16.5 ft            Equivalent length to account for losses in valves and bends

$L_t$             181.5 ft            Total Length =  $L + L_e$

Head Loss in Well Service Line            4 ft       $HL = \frac{10.44(L)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$



**Wilder Balter Partners, Inc. - NYS Route 22, Lewisboro**  
**Well Pump Design Calculations: Well 3 (Well High)**

**Static Head**                      146 ft      Vertical distance from static water level to tank water level

**Loss in Drop Pipe**

C            120            Roughness coefficient for smooth plastic pipe

d            1 in            Diameter of Drop Pipe

L            319 ft           Length of Drop Pipe

Q            23 gpm      Flow Rate

V            9.4 ft/s      Velocity

L<sub>e</sub>           10 ft           Equivalent length to account for losses in valves and bends

L<sub>t</sub>           329 ft           Total Length = L + L<sub>e</sub>

Head Loss in Drop Pipe            162 ft       $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$

**Well Service Line**

C            140            Roughness coefficient for smooth plastic pipe

d            1.25 in           Diameter of water line

L            165 ft           Length of 1.5" PE water line from well to storage tank

Q            23 gpm      Flow Rate

V            6.0 ft/s      Velocity

L<sub>e</sub>           16.5 ft           Equivalent length to account for losses in valves and bends

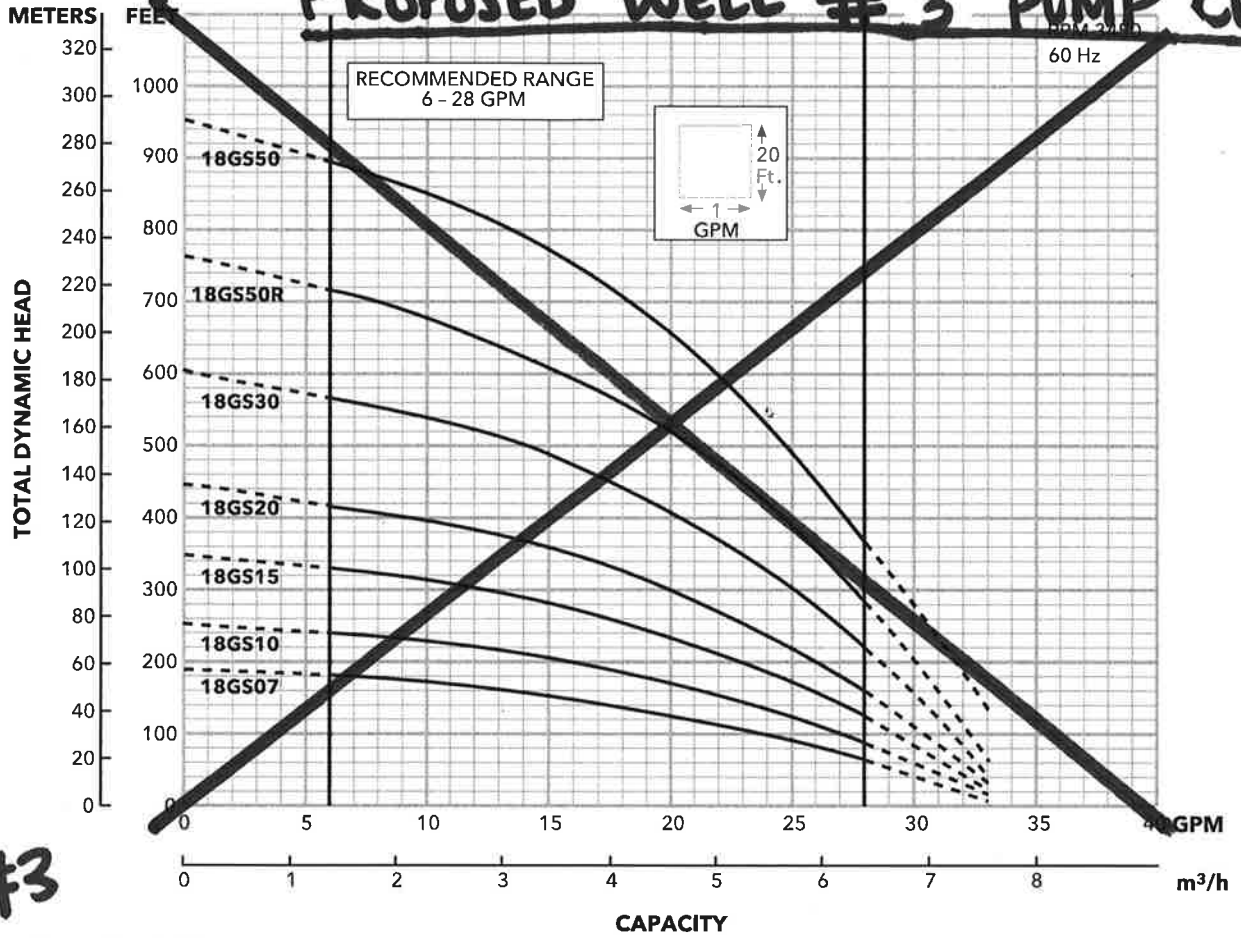
L<sub>t</sub>           181.5 ft           Total Length = L + L<sub>e</sub>

Head Loss in Well Service Line            23 ft       $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$



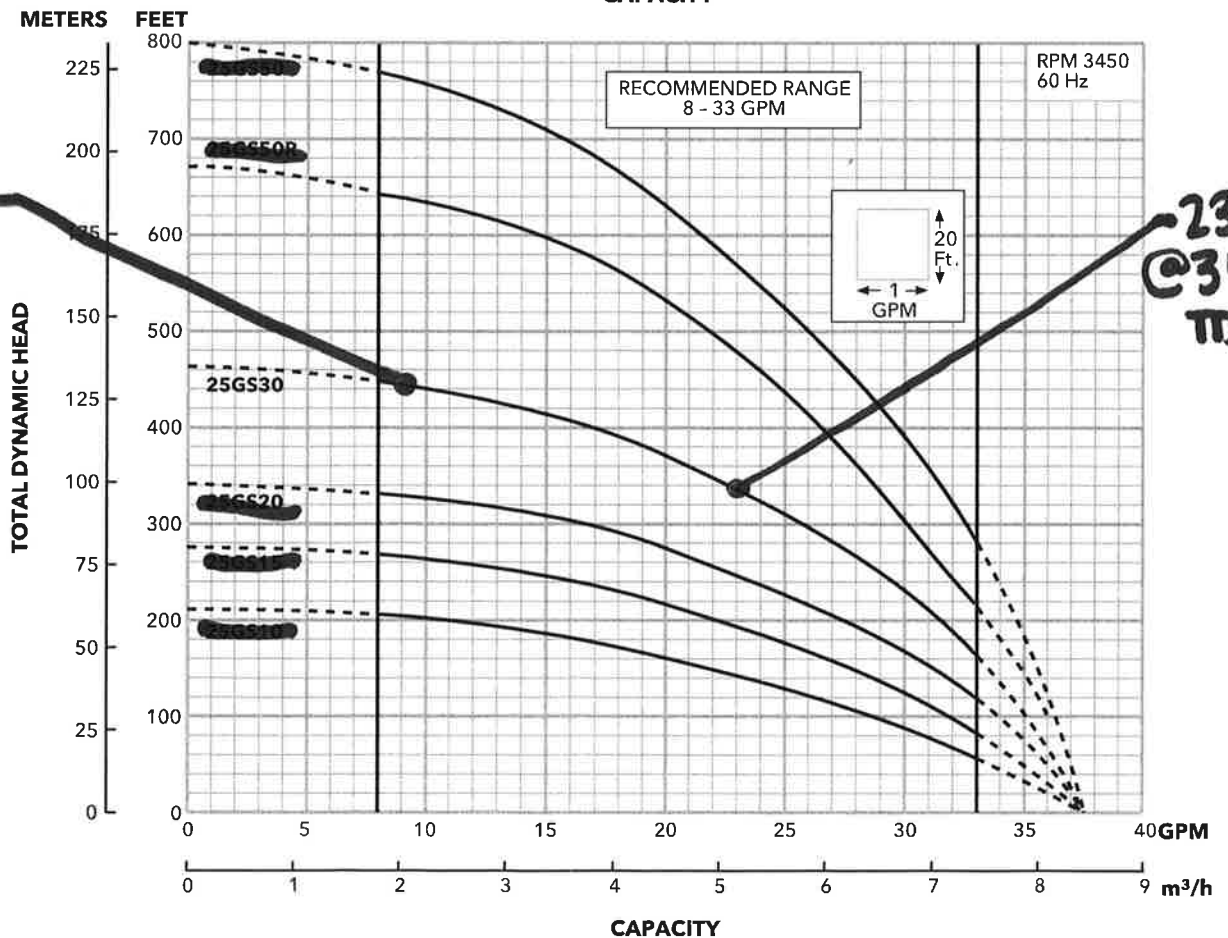
# WILDER BALTER PARTNERS, INC. PROPOSED WELL #3 PUMP CURVE

**Model  
18GS**



**WELL #3**

**Model  
25GS**



**9GPM  
@44 TDH**

**23GPM  
@340 TDH**





**Wilder Balter Partners, Inc. - NYS Route 22, Lewisboro**  
**Well Pump Design Calculations: Well 4 (Well Low)**

**Static Head**                      443 ft      Vertical distance from static water level to tank water level

**Loss in Drop Pipe**

C            120            Roughness coefficient for smooth plastic pipe

d            1 in            Diameter of Drop Pipe

L            364 ft            Length of Drop Pipe

Q            8 gpm            Flow Rate

V            3.4 ft/s            Velocity

L<sub>e</sub>            10 ft            Equivalent length to account for losses in valves and bends

L<sub>t</sub>            374 ft            Total Length = L + L<sub>e</sub>

Head Loss in Drop Pipe            28 ft       $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$

**Well Service Line**

C            140            Roughness coefficient for smooth plastic pipe

d            1.25 in            Diameter of water line

L            46 ft            Length of 1.5" PE water line from well to water control building

Q            8 gpm            Flow Rate

V            2.2 ft/s            Velocity

L<sub>e</sub>            4.6 ft            Equivalent length to account for losses in valves and bends

L<sub>t</sub>            50.6 ft            Total Length = L + L<sub>e</sub>

Head Loss in Well Service Line            1 ft       $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$





**Wilder Balter Partners, Inc. - NYS Route 22, Lewisboro**  
**Well Pump Design Calculations: Well 4 (Well High)**

**Static Head**                      141 ft      Vertical distance from static water level to tank water level

**Loss in Drop Pipe**

C            120            Roughness coefficient for smooth plastic pipe

d            1 in            Diameter of Drop Pipe

L            364 ft           Length of Drop Pipe

Q            18 gpm          Flow Rate

V            7.4 ft/s          Velocity

L<sub>e</sub>           10 ft            Equivalent length to account for losses in valves and bends

L<sub>t</sub>           374 ft           Total Length = L + L<sub>e</sub>

Head Loss in Drop Pipe            117 ft       $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$

**Well Service Line**

C            140            Roughness coefficient for smooth plastic pipe

d            1.25 in           Diameter of water line

L            46 ft            Length of 1.5" PE water line from well to water control building

Q            18 gpm          Flow Rate

V            4.7 ft/s          Velocity

L<sub>e</sub>           4.6 ft            Equivalent length to account for losses in valves and bends

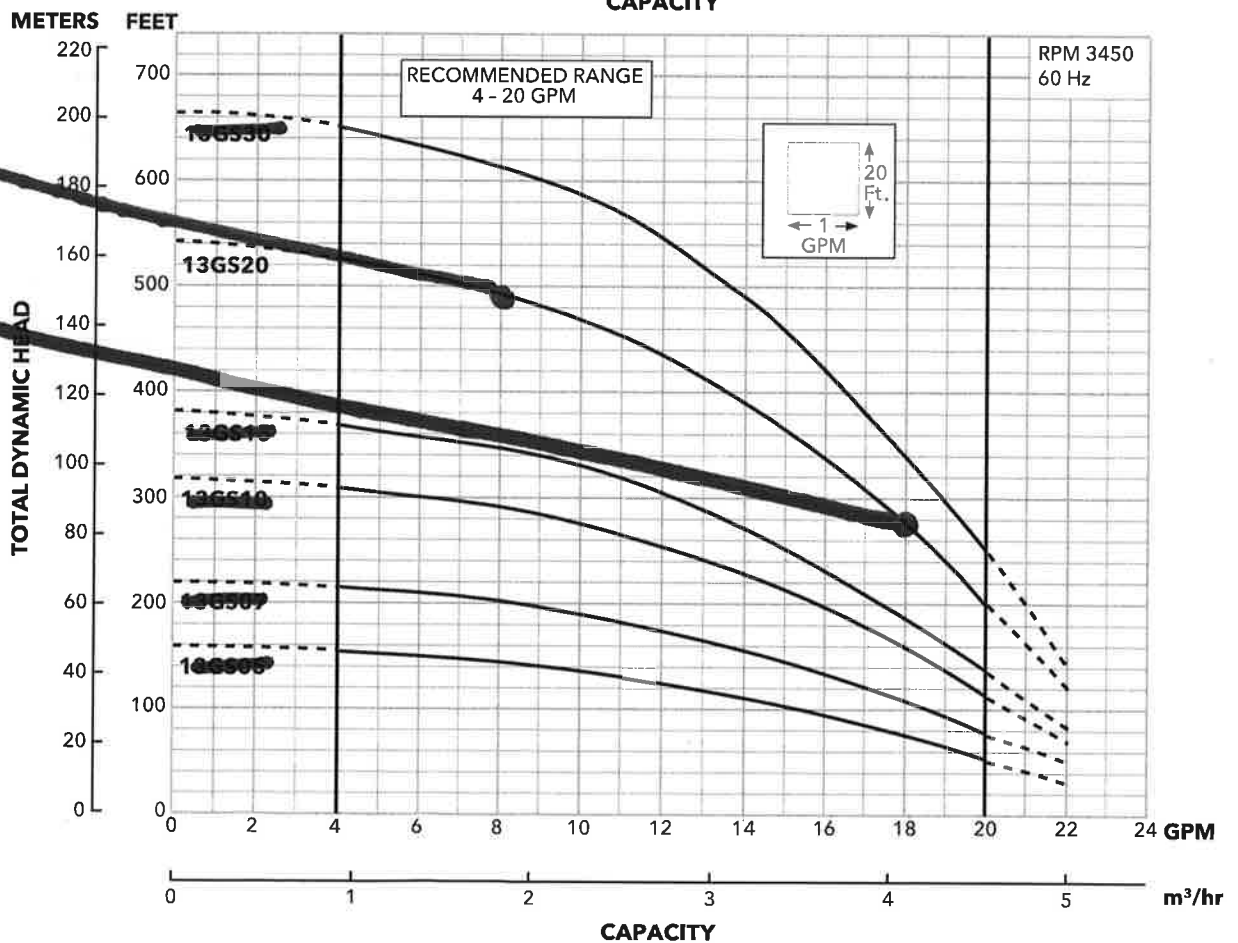
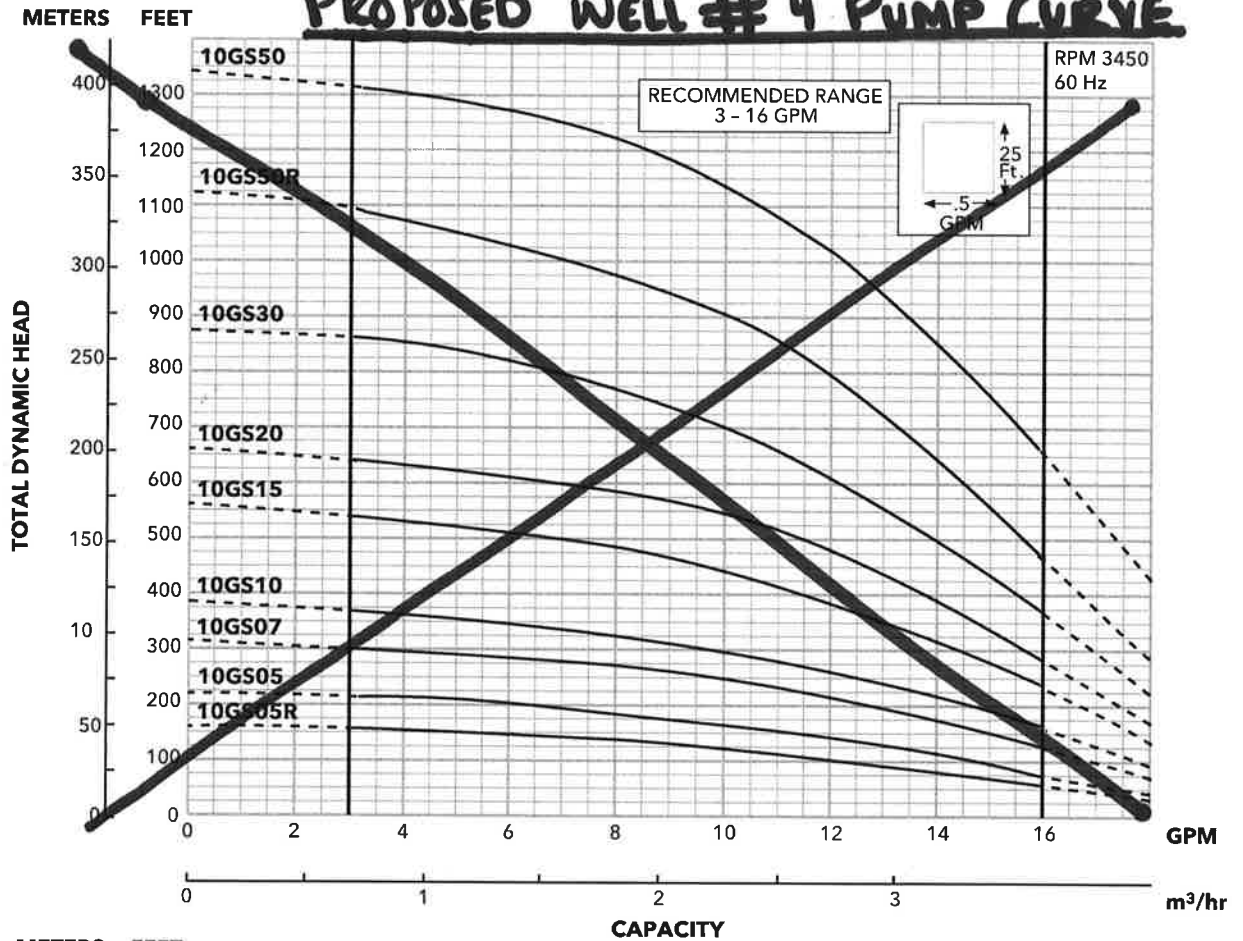
L<sub>t</sub>           50.6 ft           Total Length = L + L<sub>e</sub>

Head Loss in Well Service Line            4 ft       $HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$

Residential Water Systems

# WILDER BALTER PARTNERS, INC. PROPOSED WELL #4 PUMP CURVE

Model  
10GS







## **APPENDIX B**

### **Chlorination System**



# Data Sheet

## ROYTRONIC® Series A

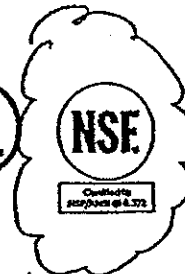
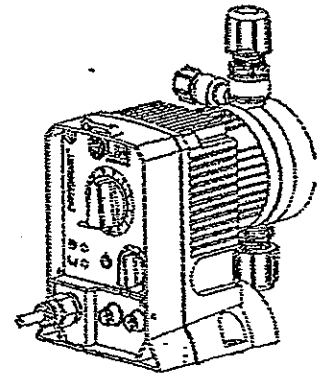
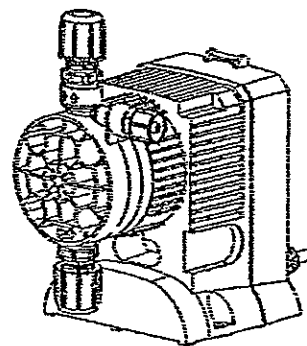
### Electronic Metering Pumps

#### Model Code Configuration

Drive	Control Code									
	1 - Dual Manual Control: Speed (stroking frequency) and stroke length manually adjustable 7 - Pulse Input / Dual Manual Control: External control capability through pulse input and low level float switch plus manual control adjustments of control code 1 8 - Analog Input / Dual Manual Control: External control capability through 4-20mA input and low level float switch plus manual control adjustments of control code 1									
	Output Codes with FastPrime™ Liquid End <i>See Autoshy</i>									
	<table border="1"> <thead> <tr> <th>Max Capacity</th> <th>Max Pressure</th> </tr> </thead> <tbody> <tr> <td>1 - 0.25 GPH (1.0 Ml)</td> <td>250 psi (17.2 Bar)</td> </tr> <tr> <td>4 - 0.5 GPH (1.9 Ml)</td> <td>250 psi (17.2 Bar)</td> </tr> <tr> <td>5 - 1.0 GPH (3.8 Ml)</td> <td>110 psi (7.6 Bar)</td> </tr> <tr> <td>6 - 2.0 GPH (7.6 Ml)</td> <td>50 psi (3.4 Bar)</td> </tr> </tbody> </table>	Max Capacity	Max Pressure	1 - 0.25 GPH (1.0 Ml)	250 psi (17.2 Bar)	4 - 0.5 GPH (1.9 Ml)	250 psi (17.2 Bar)	5 - 1.0 GPH (3.8 Ml)	110 psi (7.6 Bar)	6 - 2.0 GPH (7.6 Ml)
Max Capacity	Max Pressure									
1 - 0.25 GPH (1.0 Ml)	250 psi (17.2 Bar)									
4 - 0.5 GPH (1.9 Ml)	250 psi (17.2 Bar)									
5 - 1.0 GPH (3.8 Ml)	110 psi (7.6 Bar)									
6 - 2.0 GPH (7.6 Ml)	50 psi (3.4 Bar)									
Liquid End	Voltage Code									
	1 - 110-120V US Plug 2 - 220-240V US Plug 3 - 220-240V DIN Plug 5 - 220-240V UK Plug 6 - 220-240V Aust/NZ Plug 7 - 220-240V Swiss Plug 8 - 110-120V No Plug									
	Liquid End Code									
	See accompanying pages for options									
	Liquitram™ Size Code									
	1 - 0.2 in² 2 - 0.4 in² 3 - 0.8 in²									
Material Code										
See accompanying pages for options										
Head/Valve Code										
S - FastPrime™ Head + 4FV M - FastPrime™ Head H - AutoPrime™ Head + 4FV A - AutoPrime™ Head										
Connection Code										
I - Inch Tube connections with tubing M - Metric Tube connection without tubing U - Inch Tube connection with Black UV resistant suction/discharge tubing P - NPT only (316 ss Heads)										

A 141 91041

Model A 7 5 1 8 2 8 6 1



#### Specifications

Series	Strokes Per Minute (Adjustable)		Stroke Length (Adjustable) Recommended Minimum	Average Input Power @ Max Speed and Pressure	Max. Shipping Weight
	Min	Max			
A81, A71, A11	1	120	20%	42 watts	10 lbs (4.75 kg)
A84, A74, A14	1	240	20%		
A85, A75, A15					
A86, A76, A16					



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<http://www.lmipumps.com>

Replaces same of Rev.B 2/2011  
 2022.C 11/2014



## AutoPrime™ Liquid End Configuration Data & Materials of Construction

Drive Assembly	Liquid End	Size Code	Materials of Construction				Accs. Valve	Tubing & Connections
			Head/Fittings	Balls	Liquifram™	Seat/O-Ring		
A81 ■ A71 ■ A11 ■ A84 ■ A74 ■ A14 ■	910HI†	1	Acrylic/PVC	Ceramic	Fluorofilm™	PTFE/Polyprel®	4FV	PE 1/4" O.D.
	918HI†	1	PVC/PVC	Ceramic	Fluorofilm™	PTFE/Polyprel®	4FV	PE 1/4" O.D.

Drive Assembly	Liquid End	Size Code	Materials of Construction				Accs. Valve	Tubing & Connections
			Head/Fittings	Balls	Liquifram™	Seat/O-Ring		
A85 ■ A75 ■ A15 ■	920HI†	2	Acrylic/PVC	Ceramic	Fluorofilm™	PTFE/Polyprel®	4FV	PE 3/8" O.D.
	928HI†	2	PVC/PVC	Ceramic	Fluorofilm™	PTFE/Polyprel®	4FV	PE 3/8" O.D.

Drive Assembly	Liquid End	Size Code	Materials of Construction				Accs. Valve	Tubing & Connections
			Head/Fittings	Balls	Liquifram™	Seat/O-Ring		
A86 ■ A76 ■ A16 ■	930HI†	3	Acrylic/PVC	Ceramic	Fluorofilm™	PTFE/Polyprel®	4FV	PE 3/8" O.D.
	938HI†	3	PVC/PVC	Ceramic	Fluorofilm™	PTFE/Polyprel®	4FV	PE 3/8" O.D.

## Output Information with AutoPrime™ Liquid End

Series	Gallons per Hour		Liters per Hour		mL/cc per Minute		mL/cc per Stroke		Maximum Injection Pressure
	Min	Max	Min	Max	Min	Max	Min	Max	
AX1*	0.001	0.13	0.005	0.5	0.082	8.2	0.0007	0.068	150 psi (10.3 Bar)
AX4*	0.003	0.25	0.01	0.9	0.157	15.7	0.0013	0.13	150 psi (10.3 Bar)
AX5*	0.006	0.65	0.02	2.5	0.41	41.0	0.0017	0.17	110 psi (7.6 Bar)
AX6*	0.017	1.7	0.06	6.4	1.07	107.2	0.0045	0.45	50 psi (3.4 Bar)

\*Minimum output is based on one stroke per minute. Minimum output can be reduced further in external mode.  
(Where X = Control Code 0,1,3,7,8).

AUTOPRIME™ liquid ends have 3 check valves: suction on the bottom; discharge on the front; autopriming bleed on the top. By design, a repeatable portion of the process fluid continuously bleeds through the top check valve to be returned to the chemical supply. The result is the assurance that any gas in the head is automatically relieved thus eliminating air-binding. Depending on application, output may be reduced up to 50%. Variables include supplier piping, stroke length and speed setting. Maximum pressure is 150 psi (10.3 Bar) for AX1, AX4, 110 psi (7.6 Bar) for AX5, 50 psi (3.4 Bar) for AX6 models. (Where X = control codes 0,1,3,7,8).

■ See front page for voltage code specifications. 4FV Indicates that the pump is equipped with an LMI Four Function Valve. This diaphragm type, anti-syphon/pressure relief valve is installed on the pump head. It provides anti-syphon protection and aids priming, even under pressure.

† To specify black, UV resistant tubing, change 'I' to 'U'. To specify head only and no 4FV, change 'S' to 'N' for FastPrime or change 'H' to 'A' for AutoPrime. To specify 1/2" NPT Male, change 'I' to 'P'.

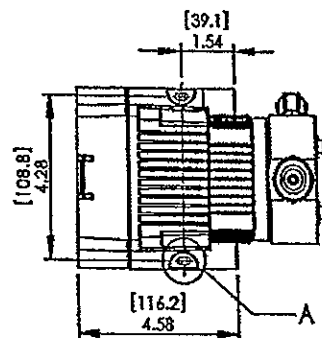
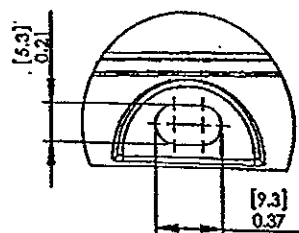
Fluorofilm™ is a copolymer of PTFE and PFA. Polyprel® is an elastomeric PTFE copolymer.

Polyprel is a registered trademark of Milton Roy, LLC.

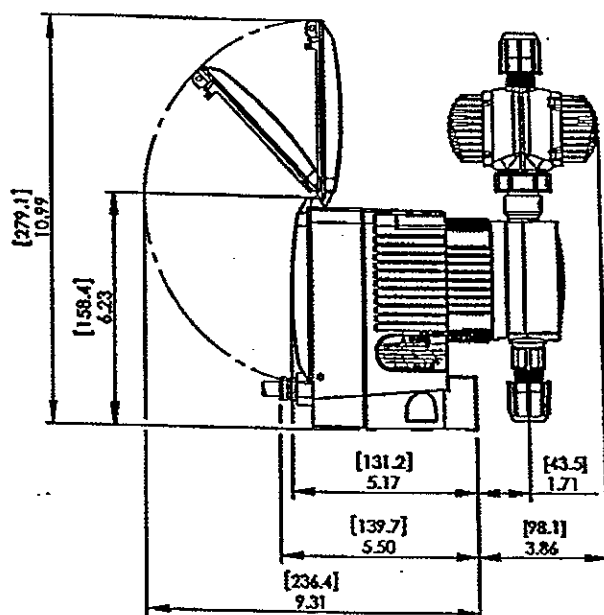
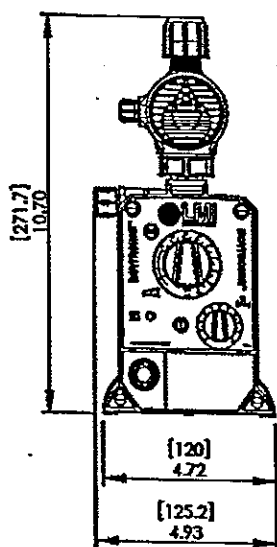
Fluorofilm and Liquifram are trademarks of Milton Roy, LLC.

# MOUNTING INFORMATION

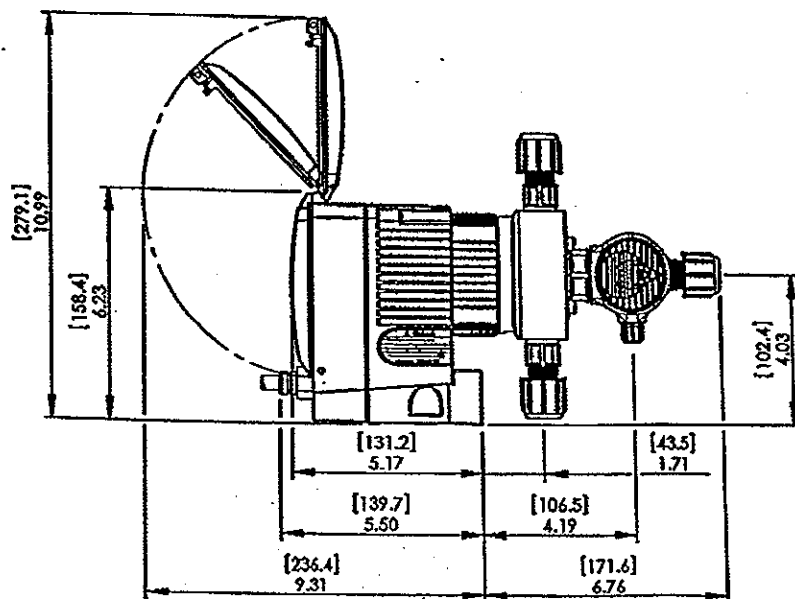
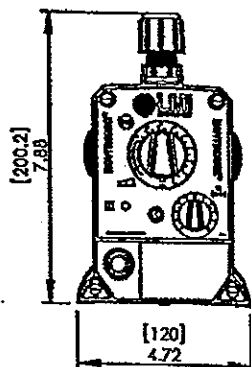
## VIEW A



## FASTPRIME LIQUID ENDS



## AUTOPRIME LIQUID ENDS



NOTE: ALL DIMENSIONS IN INCHES [MM]. DIMENSIONS SHOWN ARE FOR LARGEST LIQUID END. DIMENSIONS WILL VARY DEPENDING ON LIQUID END SELECTED.

# Instruction Sheet

## 35 Gallon Polyethylene Tank Assembly

### Model No. 27400

The LMI 35 gallon polyethylene tank assembly (Model No. 27400) can be used for flooded suction or suction lift applications.

When using the tank for a flooded suction application, LMI pumps are placed in the tank's designed recess area near the bottom of the tank. The following pump models can be utilized: AA, ROYTRONIC® Series A, J, P and ROYTRONIC EXCEL™ Series AD with FASTPRIME™ liquid ends.

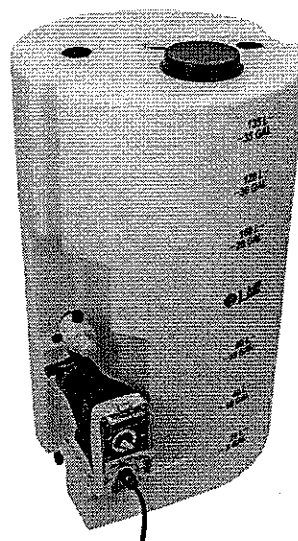
When using the tank for a suction lift application, LMI pumps are placed on the molded recess at the top of the tank. The following pump models can be utilized: AA, ROYTRONIC® Series A, J, P, B, C and ROYTRONIC EXCEL™ Series AD.

#### NOTE:

- (a) LMI Model No. 27400 comes with the combination drain valve and pump suction connection disassembled.
- (b) Full, flat bottom support is required.

#### Flooded Suction Instructions:

1. Wrap Teflon® tape or apply pipe thread compound to the threads of the nipple at the rear of the drain valve.
2. Thread the valve into the drain port of the tank. Hand tighten enough to prevent leakage or apply a 7/8" open end wrench to the hex nut behind the valve knob. Leave the valve with its branch pointing up toward the pump shelf.
3. Choose correct size tubing connector for your LMI pump's tubing. Wrap Teflon® tape or apply pipe thread compound to the 1/4" NPT male pipe threads of the connector.
4. Thread connector onto the vertical branch of the gray PVC drain valve. It may be necessary to apply a 13/16" open end wrench to the hexagonal portion of the connector to fully tighten this fitting.
5. Unpack the LMI Series pump which will be used with your tank assembly. Remove the coupling nut from the tubing connection at the suction side (bottom) of the pump head.
6. Cut a short length of suction tubing (about 5" [12.5 cm] long). Install this tubing on the pump's suction connection as instructed in the pump's instruction manual.
7. Apply Velcro® strip halves to the pump bottom and tank shelf checking to be sure that spacing is the same on the pump as on shelf.
8. Slide white tubing coupling nut onto the tubing with threads pointing downward.



#### Model No. 27400 Tank Assembly

9. Set the pump on the tank shelf with the short length of suction tubing inserted into the white connector in the drain valve. Check that the tubing is long enough that it seats fully in the socket.
10. Remove the black foam rubber tubing retainer from the vertical groove in the tank. Insert the discharge tubing through the center hole of this retainer. Connect the discharge tubing to the discharge side of the pump head as instructed in the pump's instruction manual. Hand tighten coupling nut.
11. Fill tank with approximately 6" (13 cm) of water and check all connection points for leakage. Tighten connections where necessary.
12. When all connections are tight, remove water from tank and fill with solution to be pumped.

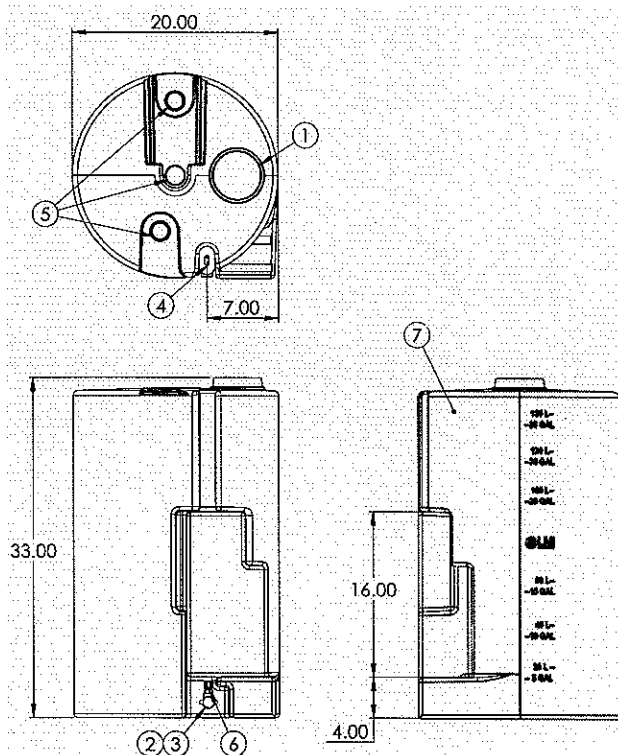


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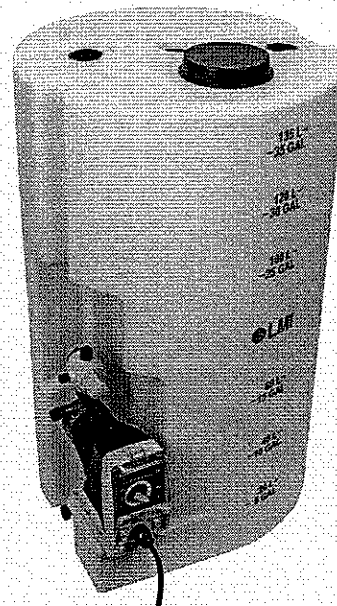
## No. 27400 35 Gallon Tank Assembly

- Ultraviolet resistant, yellow polyethylene tank with recess for mounting of any LMI Series AA, J, P pump, ROYTRONIC® Series A or ROYTRONIC EXCEL™ Series AD Pump with FASTPRIME™ liquid ends.
- Fitted for mounting of agitator and liquid level switch.
- Provides an economical, all-in-one flooded suction installation. Less to assemble, less to maintain.
- Shut off valve, discharge tubing retainer and large upper fill hole complete this unique design.
- 5 gallon graduations. 20 liter graduations.
- Suitable for most corrosive and non-corrosive solutions.
- Certified to NSF/ANSI standard 61 and 372.



### NOTES:

1. Full, flat bottom support required.
2. Maximum solution/ambient temperature 110° F (43° C).
3. Minimum solution/ambient temperature 0° F (-18° C).
4. Not suitable for use with slurries, concentrated organic solvents, oils and related materials.



**Model No. 27400 Tank Assembly**  
(Pump must be ordered separately.)

COMPONENT PARTS Model 27400 Tank Assembly			
Ref No.	Part No.	Description	Qty
1	27039	Capplug, PE, large	1
2	27300	Valve, 1/4" PVC	1
3*	10482	Fitting, 3/8", 1/4" NPT PP	1
3*	27397	Fitting, 1/4", 1/4" NPT PP	1
4	27398-1	Retainer, Tube	1
5	10346	Capplug, PE, small	3
6	27401	Nipple, 1/4" PVC	1
7	27325	Tank, 35 Gallon PE	1
8	27903	Velcro®	2
9	77382	Connector Kit, 1/4"	1
10	77383	Connector Kit, 3/8"	1
Shipping Weight: 18 lbs (8.2 kg)			
*Two fittings are supplied with each tank assembly for connection to either 3/8" OD or 1/4" OD tubing.			



## **APPENDIX C**

### **System Calculations**







**Wilder Balter Partners, Inc. - NYS Route 22, Lewisboro**  
**Watermain Sizing**

**Loss in Watermain**

C	120	Roughness coefficient for smooth plastic pipe
d	8 in	Diameter of Watermain
L	1250 ft	Length of Pipe from Tank to Furthest Building
Q	364 gpm	Flow Rate
V	2.3 ft/s	Velocity
L <sub>e</sub>	125 ft	Equivalent length to account for losses in valves and bends
L <sub>t</sub>	1375 ft	Total Length = L + L <sub>e</sub>

Head Loss in  
Watermain

$$4 \text{ ft} \quad HL = \frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})}$$





## **APPENDIX D**

### **Potable Water Tank Information Sheet**



## Xerxes Tank Data

(Listed in U.S. Gallons, Feet/Inches and Pounds)

Nominal Tank Capacity (gallons)	Single-Wall and Double-Wall Tank Length	Single-Wall Tank Weights (lbs)	Double-Wall Tank Weight (lbs)
---------------------------------	---	--------------------------------	-------------------------------

### 4-foot-diameter tanks

600	6'-11 7/8"	600	900
1,000	11'-3 7/8"	900	1,400
1,500	16'-0"	1,400	2,100

### 6-foot-diameter tanks

1,500	10'-7 1/4"	1,000	1,700
2,000	13'-5 3/4"	1,300	—
2,500	13'-5 3/4"	—	2,200
3,000	16'-4 1/4"	1,600	2,600
4,000	21'-11 1/8"	2,200	3,600
5,000	26'-5"	2,600	4,300
6,000	30'-8 3/4"	3,000	5,000

### 8-foot-diameter tanks

3,000	12'-3"	1,400	2,100
4,000	15'- 1/2"	1,800	2,700
5,000	17'-8 1/2"	2,200	3,200
6,000	20'-6 1/2"	2,600	3,700
7,000	23'-1"	3,000	4,300
8,000	26'- 1/2"	3,400	4,800
9,000	28'-9"	3,800	5,400
10,000	31'-6 1/2"	4,200	5,900
11,000	34'-4"	4,700	6,400
12,000	37'- 1/2"	5,100	7,000
13,000	41'-2"	5,600	7,600
14,000	43'-11 1/2"	6,000	8,200
15,000	46'- 9"	6,600	9,100

### 10-foot-diameter tanks

10,000	21'-5 1/4"	4,500	4,900
11,000	22'-9 3/4"	4,800	5,200
12,000	24'- 1/4"	5,100	5,600
13,000	25'-6 3/4"	5,500	5,900
14,000	26'-11 1/4"	5,800	6,300
15,000	29'-5 3/4"	6,600	7,000
20,000	37'-8 3/4"	8,600	9,000
22,000	42'- 3/4"	9,700	10,500
25,000	47'-6 3/4"	11,100	11,800
30,000	55'-9 3/4"	13,200	14,000
35,000	64'- 3/4"	15,400	16,500
40,000	73'-8 1/4"	17,900	19,000

### 12-foot-diameter tanks

20,000	29'-4"	9,200	14,000
25,000	35'-7"	10,800	16,600
30,000	43'-1"	13,100	19,900
35,000	49'-4"	14,700	22,500
40,000	54'-4"	16,100	24,600
48,000	65'-7"	19,300	29,500
50,000	68'-1"	20,000	30,500

## ZCL Tank Data

(Listed in Litres, Millimeters and Kilograms)

Nominal Tank Capacity (litres)	Single-Wall and Double-Wall Tank Length (millimeters)	Single-Wall Tank Weights (kilograms)	Double-Wall Tank Weights (kilograms)
--------------------------------	---	--------------------------------------	--------------------------------------

### 4-foot-diameter tanks

2,500	2,538	300	400
3,900	3,395	400	500
5,000	4,380	500	600

### 6-foot-diameter tanks

10,000	4,520	500	900
15,000	6,604	800	1,300
20,000	8,465	1,000	1,700
25,000	10,420	1,300	2,200

### 8-foot-diameter tanks

15,000	3,994	500	900
20,000	5,137	900	1,200
25,000	6,090	1,100	1,400
30,000	7,264	1,300	1,700
35,000	8,185	1,500	2,000
40,000	9,392	1,800	2,300
45,000	10,363	1,900	2,500
50,000	11,328	2,100	2,700
60,000	13,500	2,600	3,400
65,000	14,522	2,900	3,700

### 10-foot-diameter tanks

50,000	7,449	2,600	2,900
55,000	8,280	2,900	3,200
60,000	8,827	3,100	3,300
65,000	9,576	3,400	3,600
70,000	10,395	3,600	3,900
75,000	10,903	3,800	4,100
80,000	11,582	4,000	4,400
85,000	12,268	4,200	4,700
90,000	13,068	4,500	5,000
100,000	14,345	5,000	5,400
110,000	15,723	5,400	5,900
115,000	16,097	5,500	6,100
135,000	18,745	6,400	7,100
150,000	21,406	7,300	8,100

### 12-foot-diameter tanks

80,000	8,941	4,200	6,400
95,000	10,846	4,900	7,600
120,000	13,132	6,000	9,100
135,000	15,037	6,700	10,300
150,000	16,561	7,400	11,200
185,000	19,990	8,800	13,400
190,000	20,752	9,100	13,900







## Potable Water Applications



Designers and owners of water systems recognize that when the intended use is for potable drinking water, careful consideration is needed when choosing the tank material and manufacturer. Unlike other water storage tanks, such as those used for rainwater or stormwater, potable water tanks have clear health and safety considerations. This is why third-party standards, such as the National Sanitation Foundation (NSF) Standard 61, are relied upon to evaluate the suitability of products and the materials used to manufacture these products.

The majority of potable water storage tanks available on the market today refer to the NSF Standard 61 listing. Upon close examination, systems designers learn that the completed storage tank itself is not listed. Rather, the materials used in producing the tank (or, more commonly, the lining of the tank interior) are the listed materials. Material manufacturers, such as resin producers, submit their raw materials to NSF for evaluation. These listed materials are then used by tank manufacturers for the interior surface of a tank without the engineering restrictions or third-party oversight of the materials application that comes with a listed and labeled tank.

### The Xerxes/ZCL Difference

While we offer aboveground and underground tanks that use NSF-61 listed resin in their construction, we go a step beyond that by submitting tank samples for lab testing and opening our manufacturing facilities for random, third-party inspections. This much more thorough evaluation and testing of a potable water tank enables us to certify compliance with NSF Standard 61 by applying a unique label to the tank. With very few manufacturers able to provide this certification, it's another clear example of the Xerxes/ZCL difference. When selecting a potable water tank, project designers and owners should require that the completed tank be listed to NSF Standard 61, and that a label verifying the listing is attached to it.

When it comes to storage of potable water, why accept anything short of the highest possible standard?





## **APPENDIX E**

### **Ultraviolet Disinfection System**



# Hallett<sup>MC</sup>

30

## Ultraviolet Water Purification Systems

Hallett<sup>TM</sup> UV systems are the world's only NSF/ANSI 55 Class A Certified UV water purification systems with patented Crossfire Technology.<sup>TM</sup> UV Pure's Hallett<sup>TM</sup> 30 for community and commercial applications, outperforms conventional systems for disinfection of all pathogens including viruses, bacteria, cryptosporidium, giardia, legionella and E. coli.



### CROSSFIRE TECHNOLOGY IS THE MOST EFFECTIVE UV TREATMENT

- **NSF** NSF/ANSI 55 CLASS A CERTIFIED to 30 US gpm, 113 L/min, 6.7 m<sup>3</sup>/hr
- Highest UV Dose – proprietary high-output long-life lamps
- UV dose rate at max flow is 40 mJ/cm<sup>2</sup> at end of lamp life
- Elliptical reflectors target and deactivate pathogens from 360°
- Lamps air-cooled – operate at most effective UV output at all times

### CROSSFIRE TECHNOLOGY IS ENGINEERED TO BE RISK FREE AND FAIL-SAFE

- Dual smart UV sensors monitor both UV output and water quality
- Built-in microprocessor monitoring with both visual & audible alarm notification
- Automatic shut-off fail-safe solenoid valve – if the water is running, the water is safe

### CROSSFIRE TECHNOLOGY IS SELF-CLEANING

- Automatic mechanical quartz cleaning system – quartz does not foul
- No quartz cleaning or system drainage required, so no risk of quartz breakage
- Water softening is not required, saving money and the environment

### CROSSFIRE TECHNOLOGY IS VIRTUALLY MAINTENANCE FREE

- Lamps mounted in air – easy to replace, no system draining required

### CROSSFIRE TECHNOLOGY IS SIMPLE TO INSTALL

- Flexible stainless FIP connections for quick and simple installation
- Compact size

Find out everything. [www.uvpure.com](http://www.uvpure.com)

*\* should consider adding Surge Valve.*

Pure, safe water.



*Always.*




NSF/ANSI 55 CLASS A CERTIFIED

ULTRAVIOLET WATER PURIFICATION SYSTEMS

Hallett systems with patented Crossfire Technology provide microbiological purification of drinking water. With a Hallett system properly installed, fail-safe engineering ensures that no potentially dangerous microorganisms can enter a drinking water distribution system. UV Pure recommends the use of other filtration systems to treat chemical and other non-microbiological contaminants. To find out everything visit [www.uvpure.com](http://www.uvpure.com)



# Hallett™ 30 with Crossfire Technology™ Specifications

Certification	 NSF/ANSI 55 Class A Certified
Flow Capacity	30 US gpm, 113 L/min, 6.7 m³/hr
Multiple System Flow Capacity	Run in parallel – up to 600 US gpm
UV Dose	40 mJ/cm² at end of lamp life
Built-in microprocessor	Dual smart sensors monitor UV output and water quality
Alarms	Visual & audible notification of: 1. System is working & water is safe 2. Lamp output alarm 3) Water quality alarm
Monitoring	Continuous UV transmittance feedback
Solenoid Valve	Auto shut-off fail-safe valve so only safe water can enter your water distribution system
Self-Cleaning	Stainless steel wiper prevents quartz fouling
Maintenance	Automatic alarm reminder – 2 lamps – replacement required every 12 months, a simple 2 minute process
Redundancy	Additional back-up systems can be installed cost effectively
Inlet & Outlet Connections	Flexible FIP Connections – 1" inlet and 1" outlet
Pre-filtration	5 micron sediment filter recommended and or carbon filter for taste and odour
Maximum Pressure	100 PSI, 690 kPa (tested to 240 PSI)
Pressure Drop	20 PSI @ 22 gpm (138 kPa @ 83L/min)
Voltage	120/220 VAC – 140W
Electronic ballast	Auto power regulated, protected from power fluctuations
Dry Contacts	Available for remote monitoring or auto dialers
Electrical	Entela (UL & CSA equivalent)
Dimensions	32" H x 8" W x 9" D (81cm H x 20 cm W x 23 cm D)
Warranty	3 years on all electrical components, 5 years on housing

## Hallett™ System Pre-treatment Conditions

WITH CROSSFIRE TECHNOLOGY™ – NO WATER SOFTENER REQUIRED



### Water Conditions

### Effective Treatment Range

	MIN	
Hardness	0	50 Grain (855 mg/L)
Iron	0	3 mg/L (ppm)
Manganese	0	0.5 mg/L
% UV Transmittance	75%	100%
pH	6.00	9.00
Total Dissolved Solids (TDS)	0	1000 mg/L
Water Temperature	1° C (34° F)	38° C (100° F)
Air Temperature	7° C (45° F)	38° C (100° F)
Turbidity	0 NTU	1 NTU
Water Pressure	10 PSI (69 kPa)	100 PSI (690 kPa)

## Microbiological Drinking Water Purification

THE HALLETT™ SYSTEM WITH CROSSFIRE TECHNOLOGY™ SCORES 10/10

	HALLETT SYSTEM	CONVENTIONAL UV	OZONE	REVERSE OSMOSIS	CHLORINATOR	SAND FILTER
Real-time indicator of water quality	✓	-	-	-	-	-
NSF certified	✓	selected units	-	-	-	-
Works in high TDS	✓	-	✓	✓	✓	✓
No softener required	✓	-	✓	✓	✓	✓
Self-cleaning/low maintenance	✓	-	-	-	-	✓
Not hazardous to your health	✓	✓	-	✓	-	✓
Economical	✓	✓	-	-	-	-
Effective removal of all pathogens	✓	✓	-	-	-	-
Fail-safe shut-off	✓	selected units	-	-	-	-
Doesn't put contaminants back in the environment	✓	✓	✓	-	-	-
<b>SCORE</b>	<b>10/10</b>	<b>5/10</b>	<b>3/10</b>	<b>3/10</b>	<b>2/10</b>	<b>4/10</b>

Pintr Canada Rev. 02/16/06

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Catalog Number 6010018

# **1720E Low Range Turbidimeter**

USER MANUAL

04/2016, Edition 8

# Section 1 Specifications

Specifications are subject to change without notice.

**Table 1 1720E Low Range Specifications**

<b>Range</b>	0–100 nephelometric turbidity units (NTU)			
<b>Measurement Units</b>	mg/L, NTU, TE/F, FTU, Degree			
<b>Accuracy<sup>1</sup></b>	± 2% of reading or ± 0.02 NTU (whichever is greater) from 0 to 40 NTU; ± 5% of reading from 40 to 100 NTU (when calibration is performed at 20.0 NTU with the offset turned off).			
<b>Linearity<sup>1</sup></b>	Better than 1% 0–40 NTU on formazin. Allows for accurate calibration at high turbidity values.			
<b>Resolution (Displayed)</b>	0.0001 NTU up to 9.9999 NTU; 0.001 NTU from 10.000 to 99.999 NTU; 0.01 NTU at 100.00 NTU			
<b>Repeatability</b>	Better than ±1.0% of reading or ±0.002 NTU, whichever is greater			
<b>Response Time</b>	For a full-scale step change, initial response in 1 minute, 15 seconds. Varies with flow rate, see the table below. The response time is also dependent on the signal averaging time, which is user selectable.			
	<b>% Step Change</b>	<b>Flow Rate</b>		
		<b>750</b>	<b>500</b>	<b>250</b>
	10	1¼ minutes	1½ minutes	2½ minutes
	50	2 minutes	2½ minutes	6 minutes
	90	3½ minutes	3½ minutes	9 minutes
	99	4 minutes	5 minutes	12 minutes
<b>Sample Flow Required</b>	250 to 750 mL/minute			
<b>Storage Temperature</b>	–20 to 60 °C (–4 to 140 °F)			
<b>Operating Temperature</b>	0 to 50 °C (32–122 °F) for single sensor system, 0 to 40 °C (32–104 °F) for two sensor system			
<b>Sample Temperature Range</b>	0 to 50 °C			
<b>Operating Humidity</b>	5 to 95% non-condensing			
<b>Power Requirements</b>	12 VDC ± 5%, 12.5 Watts maximum			
<b>Sample Inlet Fitting</b>	1/8 barb fitting to ¼-inch NPT male adapter			
<b>Signal Average Time</b>	no averaging, 6, 30, 60, and 90 seconds, user selectable. Default is 30 seconds.			
<b>Dimensions</b>	Turbidimeter body and cap: 25.4 x 30.5 x 40.6 cm (10 x 12 x 16 inches)			
<b>Sensor Cable Length</b>	1.8 m (5.9 ft); optional 7.62 m (25 ft)			
<b>Mounting Options</b>	Turbidimeter Body and Head Assembly: Wall; floor stand			
<b>Shipping Weight</b>	1720E Series 2 Turbidimeter and Controller: 6.31 kg (13.5 lb); 1720E Turbidimeter only: 4.71 kg (10 lb)			
<b>Calibration Methods</b>	<ol style="list-style-type: none"> <li>1. StablCal® (stabilized formazin) – primary or wet calibration of the instrument. Recommended at 20.0 NTU.</li> <li>2. Formazin – user-prepared primary or wet calibration of the instrument. Recommended at 20.0 NTU.</li> <li>3. Multi-sensor calibration – Performed with a specialized calibration procedure for up to eight sensors on a single set of fresh StablCal® standards.</li> </ol>			



**Table 1 1720E Low Range Specifications (continued)**

<b>Verification (Wet) Method</b>	<ol style="list-style-type: none"><li>1. StablCal® (stabilized formazin) – recommended for verification in the appropriate application range of measurement. For regulatory verification, standards of 0.1 to 50 NTU.</li><li>2. Formazin – fresh user-prepared standard</li></ol>
<b>Verification (Dry) Method</b>	<ol style="list-style-type: none"><li>1. ICE-PIC™ Verification Module with factory-set values of 20.0 or 1.0 ±25%. Unique value is assigned when dry verification is done immediately after calibration and is used as pass/fail criteria for subsequent verifications.</li></ol>
<b>Recommended Maintenance</b>	<ol style="list-style-type: none"><li>1. Lamp replacement: once per year.</li><li>2. Cleaning: mandatory before calibration, optional before calibration, and mandatory upon verification failure.</li></ol>
<b>Installation Environment</b>	Indoor
<b>Primary Compliance Method</b>	USEPA 180.1; Hach Method 8195; ASTM D 6698; Standard Methods 2130B
<b>Limit of Detection<sup>1</sup></b>	0.0032 NTU (according to criteria specified by ISO 15839)

<sup>1</sup> All specifications are based on a calibration with 20.0 NTU formazin and with the offset turned off.

# HARMSCO®

## HP Hurricane® Filter Housings

*Two Technologies in One*

### Lower Operation Cost

- Harmsco® HP Hurricane® filters provide unsurpassed performance. Our unique design separates dense solids prior to cartridge filtration for extended filter life, increased dirt holding capacity and reduced maintenance costs.



Certified to  
ANSI-NSF 61

Excluding High Temp Cartridges

### Features

- ▶ Combination cyclone separator and cartridge filter in a single compact design
- ▶ Patented Up-flow design with tangential entry - prevents air entrapment
- ▶ Rotational flow "flutters" media pleats - improving loading performance
- ▶ Electropolished 304 stainless steel housing
- ▶ Fail-Safe closure system
- ▶ Three sizes for greater media surface area
- ▶ CPVC standpipe (standard) - stainless steel optional
- ▶ Extensive choice of cartridge micron ratings and media, including carbon block
- ▶ NSF 61 listed



### Applications

- ▶ Commercial/Residential Drinking Water
- ▶ Cooling Tower Filtration
- ▶ Desalination Pre-filtration (316 and coated options)
- ▶ Surface Water Treatment Rule (SWTR) I, II
- ▶ Process Water
- ▶ Whole House Filtration
- ▶ Industrial Waste Water Treatment
- ▶ Reverse Osmosis Pre-filtration
- ▶ Small Community Compliance (cysts)
- ▶ Well Water
- ▶ Ground Water Remediation
- ▶ Ground Water Under Direct Influence (GUDI)



**HARMSCO® Filtration Products**



Made in USA



## Cartridge Selection

**Polyester** - engineered for high efficiency, low pressure drops; NSF 61 Listed

		Sediment Removal	Turbidity Reduction	Chlorine Removal	Taste & Odor Reduction	Cyst Removal	Pre-Filtration	Post-Filtration	Antimicrobial	Absolute Rated	Nominal Rated	100% Synthetic	Non Potable Use	Course Filtration	High Temperature	All Polypropylene	NSF Listed	Cleanable/Reusable
HC/40-0.35	Hur 40 Cartridge - 0.35 Micron	•	•				•			•						•	•	
HC/40-1	Hur 40 Cartridge - 1 Micron	•	•				•			•						•	•	
HC/40-5	Hur 40 Cartridge - 5 Micron	•	•				•			•						•	•	
HC/40-10	Hur 40 Cartridge - 10 Micron	•	•				•			•						•	•	
HC/40-20	Hur 40 Cartridge - 20 Micron	•	•				•			•						•	•	
HC/40-50	Hur 40 Cartridge - 50 Micron	•	•				•			•						•	•	
HC/40-100	Hur 40 Cartridge - 100 Micron	•	•				•			•						•	•	
HC/40-150	Hur 40 Cartridge - 150 Micron	•	•				•			•						•	•	
HC/90-0.35	Hur 90 Cartridge - 0.35 Micron	•	•				•			•						•	•	
HC/90-1	Hur 90 Cartridge - 1 Micron	•	•				•			•						•	•	
HC/90-5	Hur 90 Cartridge - 5 Micron	•	•				•			•						•	•	
HC/90-10	Hur 90 Cartridge - 10 Micron	•	•				•			•						•	•	
HC/90-20	Hur 90 Cartridge - 20 Micron	•	•				•			•						•	•	
HC/90-50	Hur 90 Cartridge - 50 Micron	•	•				•			•						•	•	
HC/90-100	Hur 90 Cartridge - 100 Micron	•	•				•			•						•	•	
HC/90-150	Hur 90 Cartridge - 150 Micron	•	•				•			•						•	•	
HC/170-0.35	Hur 170 Cartridge - 0.35 Micron	•	•				•			•						•	•	
HC/170-1	Hur 170 Cartridge - 1 Micron	•	•				•			•						•	•	
HC/170-5	Hur 170 Cartridge - 5 Micron	•	•				•			•						•	•	
HC/170-10	Hur 170 Cartridge - 10 Micron	•	•				•			•						•	•	
HC/170-20	Hur 170 Cartridge - 20 Micron	•	•				•			•						•	•	
HC/170-50	Hur 170 Cartridge - 50 Micron	•	•				•			•						•	•	
HC/170-100	Hur 170 Cartridge - 100 Micron	•	•				•			•						•	•	
HC/170-150	Hur 170 Cartridge - 150 Micron	•	•				•			•						•	•	

**High Temperature** - up to 200°F (93°C)\* \*250°F (121°C) with metal end caps, using suffix "HTM"

		Sediment Removal	Turbidity Reduction	Chlorine Removal	Taste & Odor Reduction	Cyst Removal	Pre-Filtration	Post-Filtration	Antimicrobial	Absolute Rated	Nominal Rated	100% Synthetic	Non Potable Use	Course Filtration	High Temperature	All Polypropylene	NSF Listed	Cleanable/Reusable
HC/40-20HT	Hur 40 Cartridge - 20 Micron High Temp	•	•				•			•					•	•	•	
HC/40-50HT	Hur 40 Cartridge - 50 Micron High Temp	•	•				•			•					•	•	•	
HC/90-5CPHT	Hur 90 Cartridge - 5 Micron High Temp	•	•				•			•					•	•	•	
HC/90-5HT	Hur 90 Cartridge - 5 Micron High Temp	•	•				•			•					•	•	•	
HC/90-10HT	Hur 90 Cartridge - 10 Micron High Temp	•	•				•			•					•	•	•	
HC/90-20HT	Hur 90 Cartridge - 20 Micron High Temp	•	•				•			•					•	•	•	
HC/90-50HT	Hur 90 Cartridge - 50 Micron High Temp	•	•				•			•					•	•	•	
HC/170-5CPHT	Hur 170 Cartridge - 5 Micron High Temp	•	•				•			•					•	•	•	
HC/170-5HT	Hur 170 Cartridge - 5 Micron High Temp	•	•				•			•					•	•	•	
HC/170-10HT	Hur 170 Cartridge - 10 Micron High Temp	•	•				•			•					•	•	•	
HC/170-20HT	Hur 170 Cartridge - 20 Micron High Temp	•	•				•			•					•	•	•	
HC/170-50HT	Hur 170 Cartridge - 50 Micron High Temp	•	•				•			•					•	•	•	

**Harmsco Free** - 100% synthetic composite media; NSF 61 Listed

		Sediment Removal	Turbidity Reduction	Chlorine Removal	Taste & Odor Reduction	Cyst Removal	Pre-Filtration	Post-Filtration	Antimicrobial	Absolute Rated	Nominal Rated	100% Synthetic	Non Potable Use	Course Filtration	High Temperature	All Polypropylene	NSF Listed	Cleanable/Reusable
HC/40-1W-HF	Hur 40 Cartridge - 1 Micron	•	•				•			•						•	•	
HC/40-5W-HF	Hur 40 Cartridge - 5 Micron	•	•				•			•						•	•	
HC/40-20W-HF	Hur 40 Cartridge - 20 Micron	•	•				•			•						•	•	
HC/90-1W-HF	Hur 90 Cartridge - 1 Micron	•	•				•			•						•	•	
HC/90-5W-HF	Hur 90 Cartridge - 5 Micron	•	•				•			•						•	•	
HC/90-20W-HF	Hur 90 Cartridge - 20 Micron	•	•				•			•						•	•	
HC/170-1W-HF	Hur 170 Cartridge - 1 Micron	•	•				•			•						•	•	
HC/170-5W-HF	Hur 170 Cartridge - 5 Micron	•	•				•			•						•	•	
HC/170-20W-HF	Hur 170 Cartridge - 20 Micron	•	•				•			•						•	•	

**Poly-Pleat** - 1 micron absolute, multi-layered media; NSF 61 Listed

		Sediment Removal	Turbidity Reduction	Chlorine Removal	Taste & Odor Reduction	Cyst Removal	Pre-Filtration	Post-Filtration	Antimicrobial	Absolute Rated	Nominal Rated	100% Synthetic	Non Potable Use	Course Filtration	High Temperature	All Polypropylene	NSF Listed	Cleanable/Reusable
PP-HC-40-1	Poly Pleat Hur 40 Cartridge - 1 Micron	•	•				•			•						•	•	
PPFS-HC-40-1	PP-Fail Safe Hur 40 Cartridge - 1 Micron	•	•				•			•						•	•	
PP-HC-90-1	Poly Pleat Hur 90 Cartridge - 1 Micron	•	•				•			•						•	•	
PPFS-HC-90-1	PP-Fail Safe Hur 90 Cartridge - 1 Micron	•	•				•			•						•	•	
PP-HC-170-1	Poly Pleat Hur 170 Cartridge - 1 Micron	•	•				•			•						•	•	
PPFS-HC-170-1	PP-Fail Safe Hur 170 Cartridge - 1 Micron	•	•				•			•						•	•	

**All-Poly** - 100% polypropylene media with polypropylene end caps and components; also available in 10, 20 and 50 micron ratings

		Sediment Removal	Turbidity Reduction	Chlorine Removal	Taste & Odor Reduction	Cyst Removal	Pre-Filtration	Post-Filtration	Antimicrobial	Absolute Rated	Nominal Rated	100% Synthetic	Non Potable Use	Course Filtration	High Temperature	All Polypropylene	NSF Listed	Cleanable/Reusable
HC-PP-40-0.2	Hur 40 High Purity Pleated PP - 0.2 Mic	•	•				•			•						•	•	
HC-PP-40-0.45	Hur 40 High Purity Pleated PP - 0.45 Mic	•	•				•			•						•	•	
HC-PP-40-1	Hur 40 High Purity Pleated PP - 1 Mic	•	•				•			•						•	•	
HC-PP-40-5	Hur 40 High Purity Pleated PP - 5 Mic	•	•				•			•						•	•	
HC-PP-90-0.2	Hur 90 High Purity Pleated PP - 0.2 Mic	•	•				•			•						•	•	
HC-PP-90-0.45	Hur 90 High Purity Pleated PP - 0.45 Mic	•	•				•			•						•	•	
HC-PP-90-1	Hur 90 High Purity Pleated PP - 1 Mic	•	•				•			•						•	•	
HC-PP-90-5	Hur 90 High Purity Pleated PP - 5 Mic	•	•				•			•						•	•	
HC-PP-170-0.2	Hur 170 High Purity Pleated PP - 0.2 Mic	•	•				•			•						•	•	
HC-PP-170-0.45	Hur 170 High Purity Pleated PP - 0.45 Mic	•	•				•			•						•	•	
HC-PP-170-1	Hur 170 High Purity Pleated PP - 1 Mic	•	•				•			•						•	•	
HC-PP-170-5	Hur 170 High Purity Pleated PP - 5 Mic	•	•				•			•						•	•	

**SureSafe Antimicrobial** - reduces growth of bacteria and mold on media

		Sediment Removal	Turbidity Reduction	Chlorine Removal	Taste & Odor Reduction	Cyst Removal	Pre-Filtration	Post-Filtration	Antimicrobial	Absolute Rated	Nominal Rated	100% Synthetic	Non Potable Use	Course Filtration	High Temperature	All Polypropylene	NSF Listed	Cleanable/Reusable
HC/40-20-AM	Hur 40 Cartridge - 20 Micron	•	•				•			•						•	•	
HC/40-50-AM	Hur 40 Cartridge - 50 Micron	•	•				•			•						•	•	
HC/90-20-AM	Hur 90 Cartridge - 20 Micron	•	•				•			•						•	•	
HC/90-50-AM	Hur 90 Cartridge - 50 Micron	•	•				•			•						•	•	
HC/170-20-AM	Hur 170 Cartridge - 20 Micron	•	•				•			•						•	•	
HC/170-50-AM	Hur 170 Cartridge - 50 Micron	•	•				•			•						•	•	

**Carbon Block** - includes pleated 5 micron nominal pre-filtration; NSF 42 Listed

		Sediment Removal	Turbidity Reduction	Chlorine Removal	Taste & Odor Reduction	Cyst Removal	Pre-Filtration	Post-Filtration	Antimicrobial	Absolute Rated	Nominal Rated	100% Synthetic	Non Potable Use	Course Filtration	High Temperature	All Polypropylene	NSF Listed	Cleanable/Reusable
HC/40-AC-5	Hur 40 Cart. Carbon + 5 Mic Pre-filt	•	•	•	•		•			•						•	•	
HC/90-AC-5	Hur 90 Cart. Carbon + 5 Mic Pre-filt	•	•	•	•		•			•						•	•	
HC/170-AC-5	Hur 170 Cart. Carbon + 5 Mic Pre-filt	•	•	•	•		•			•						•	•	

**EZ Clean** - 100% synthetic composite 50 micron media

		Sediment Removal	Turbidity Reduction	Chlorine Removal	Taste & Odor Reduction	Cyst Removal	Pre-Filtration	Post-Filtration	Antimicrobial	Absolute Rated	Nominal Rated	100% Synthetic	Non Potable Use	Course Filtration	High Temperature	All Polypropylene	NSF Listed	Cleanable/Reusable
HC/40-EZ-CLEAN	Hur Cartridge - EZ CLEAN - 50 Micron	•	•				•			•						•	•	
HC/90-EZ-CLEAN	Hur Cartridge - EZ CLEAN - 50 Micron	•	•				•			•						•	•	
HC/170-EZ-CLEAN	Hur Cartridge - EZ CLEAN - 50 Micron	•	•				•			•						•	•	

**Poly-Mesh** - 100% synthetic composite 250 micron media

		Sediment Removal	Turbidity Reduction	Chlorine Removal	Taste & Odor Reduction	Cyst Removal	Pre-Filtration	Post-Filtration	Antimicrobial	Absolute Rated	Nominal Rated	100% Synthetic	Non Potable Use	Course Filtration	High Temperature	All Polypropylene	NSF Listed	Cleanable/Reusable
HC/170-PM	Hur 170 Cartridge Poly Mesh - 250 Micron	•	•				•			•						•	•	

## Cartridge Sizing Guide

**Cleanable/Reusable** Hurricane® cartridges are cleanable and reusable in most applications and micron ratings (5 micron and up).

**For Harmsco® Hurricane® and WaterBetter® Single-cartridge Filter Housings**

Harmsco® recommends operation at 70% of maximum flow rate for optimum performance.

**Polyester, High Temperature, Harmsco Free, SureSafe, EZ Clean, Poly-Mesh**

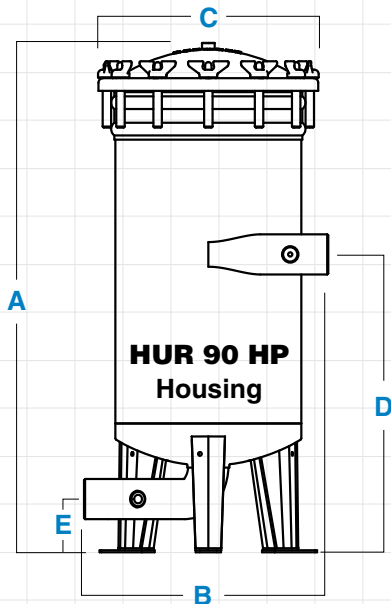
Filter Model	Pleated Media Area (sq.ft.)	Length (in.)	O.D. (in.)	Max Flow Rate (GPM)	Recommended Flow Rate (GPM)	Max Flow Rate (LPM)	Max Flow Rate (M³/HR)	No./Case	Carton Size
WB 40SC-2*	40	9-5/8	7-3/4	Up to 50	35	Up to 189	Up to 12	1	9x9x11
WB 90SC-2*	90	19-1/2	7-3/4	Up to 100	70	Up to 378	Up to 24	1	9x9x21
WB 170SC-2*	170	30-3/4	7-3/4	Up to 150	105	Up to 568	Up to 36	1	9x9x32

**Poly-Pleat**

WB 40SC-2*	25	9-5/8	7-3/4	-	15	-	-	1	9x9x11
WB 90SC-2*	50	19-1/2	7-3/4	-	25	-	-	1	9x9x21
WB 170SC-2*	100	30-3/4	7-3/4	-	50	-	-	1	9x9x32



# Harmsco® HP Hurricane® Filter Housings



Certified to  
ANSI-NSF 61

Excluding High Temp Cartridges



HUR 40 HP



HUR 90 HP



HUR 170 HP

## Ordering Information

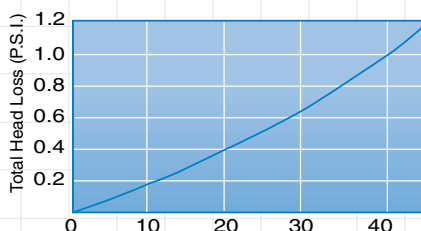
Filter Model	A Filter Height	B Width	C Diameter	D Inlet	E Outlet	Pipe Size NPT	Drain Size NPT	Floor Space In.	Service Ht.	Shipping Wt. Lbs.	Carton Size In.
HUR 40 HP	19-1/2"	14-5/8"	13"	12-3/4"	3-7/16"	2"	1"	15x15	35"	40	14x16x21
HUR 90 HP	29-7/8"	14-5/8"	13"	17-3/4"	3-7/16"	2"	1"	15x15	51"	52	14x16x38
HUR 170 HP	40-1/2"	14-5/8"	13"	23-5/8"	3-7/16"	2"	1"	15x15	72"	64	14x16x42

## Filter Specifications

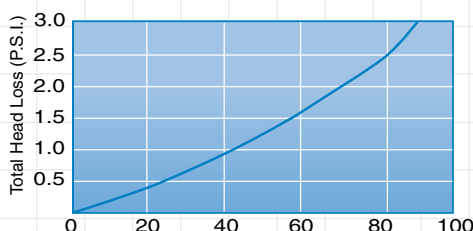
- ▶ Electropolished 304 stainless steel\*
- ▶ Standpipe - CPVC\*
- ▶ Temperature - 140°F (60°C)\* max. \*Up to 250°F (121°C) with optional stainless steel standpipe and high temperature cartridges installed
- ▶ Pressure - 150 psi (10 bar) max.
- ▶ Wing nuts - brass
- ▶ Rim gaskets - EPDM (Buna-N, Viton available)
- ▶ BSTP optional
- ▶ Gauge sample ports (1/4"), inlet and outlet
- ▶ 90° elbow and 45° sweep on outlet for staggered in-line vertical installation

\*All stainless steel housings are 304; 316 available upon request. Stainless steel standpipe for high temperature also available.

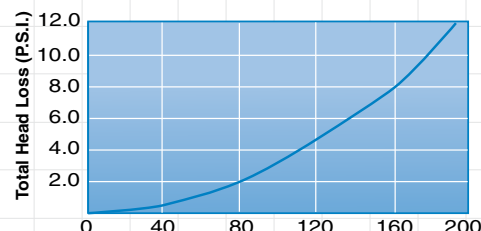
## Pressure Drop



Pressure drop HUR 40 HP



Pressure drop HUR 90 HP



Pressure drop HUR 170 HP

The total head loss data shown above was developed by NSF International and indicates pressure drop with Hurricane® filter housings and one micron filter cartridges in clean water.

For additional information, please refer to the "Installation & Operation Manual" for Hurricane® Filters.



**HARMSCO® Filtration Products**

P.O. Box 14066, North Palm Beach, FL 33408

(561) 848-9628 • Toll-free: (800) 327-3248 • Fax: (561) 845-2474 • E-mail: sales@harmasco.com

[www.harmasco.com](http://www.harmasco.com)



Made in USA

07D 11/10







OWTS AREA TEST DATA

- DEEP TESTS
- NOTE: NO GROUNDWATER, MOTTLED, OR ROCK ENCOUNTERED UNLESS NOTED.
- D1, D2, D3, D4: 0'-8": TOPSOIL  
8"-24": LIGHT BROWN FINE SAND AND SILT  
24"-84": LIGHT BROWN SAND AND GRAVEL
- D5: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-84": GRAY FINE TO MEDIUM SAND WITH GRAVEL  
\*ROCK AT 84"
- D6: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-84": GRAY FINE TO MEDIUM SAND WITH GRAVEL
- D7: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-84": GRAY FINE TO MEDIUM SAND WITH GRAVEL
- D8: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-84": GRAY FINE TO MEDIUM SAND WITH GRAVEL  
\*GROUNDWATER AT 54"
- D9: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-84": GRAY FINE TO MEDIUM SAND WITH GRAVEL  
\*ROCK AT 84"
- D10: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-84": GRAY FINE TO MEDIUM SAND WITH GRAVEL  
\*ROCK AT 84"
- PERCOLATION TESTS
- P.1: 4 MIN/IN  
P.2: 3 MIN/IN  
P.3: 4 MIN/IN  
P.4: 4 MIN/IN  
P.5: 6 MIN/IN  
P.6: 4 MIN/IN  
P.6A: 3 MIN/IN  
P.7: 4 MIN/IN  
P.7A: 3 MIN/IN  
P.8: 6 MIN/IN  
P.9: 5 MIN/IN  
P.10: 4 MIN/IN

OWTS AREA DESIGN DATA:

DESIGN FLOW: 9,240 GPD  
PERCOLATION RATE: 3 TO 5 MIN/IN  
ABSORPTION TRENCHES: 3,850 LF PRIMARY TRENCHES REQUIRED, 3,900 LF PRIMARY TRENCHES PROVIDED  
3,850 LF EXPANSION TRENCHES REQUIRED, 3,886 LF EXPANSION TRENCHES PROVIDED. TOTAL PROVIDED 7,786 LF

ADDITIONAL REQUIREMENTS: OWTS PUMP PIT AND SOIL AIR TREATMENT UNITS REFER TO THE WASTEWATER ENGINEER'S REPORT FOR ADDITIONAL DESIGN INFORMATION

LEGEND

EXISTING PROPERTY LINE  
EXISTING WETLAND LIMIT LINE  
TOWN 150' CONTROL AREA  
NYSDEC 100' ADJACENT AREA  
EXISTING WETLAND SYMBOL  
EXISTING WELL  
EXISTING EDGE OF WATER  
EXISTING 10' CONTOUR  
EXISTING 2' CONTOUR  
PROPOSED EDGE OF PAVEMENT  
PROPOSED CURB  
PROPOSED CONCRETE WALK  
PROPOSED RETAINING WALL  
PROPOSED GUIDELINE  
PROPOSED 10' CONTOUR  
PROPOSED 2' CONTOUR  
PROPOSED SPOT GRADE  
PROPOSED DRAINAGE PIPE  
PROPOSED ROOF DRAIN  
PROPOSED FOOTING DRAIN  
PROPOSED GRASS SWALE  
PROPOSED 8" PVC DR-18 WATER MAIN  
PROPOSED 4" PVC DR-18 WATER SERVICE  
PROPOSED 4" PVC DR-18 TANK SUPPLY LINE  
PROPOSED 1.5" PE WELL SERVICE LINE  
PROPOSED SEWER MAIN  
PROPOSED SEWER SERVICE WITH CLEANOUT  
PROPOSED 2" PVC SDR 21 SEWER FORCEMAIN (PRIMARY)  
PROPOSED 2" PVC SDR 21 SEWER FORCEMAIN (EXPANSION)  
PROPOSED UNDERGROUND CABLE, ELECTRIC AND TELECOMMUNICATION TRENCH  
PROPOSED TRANSFORMER  
PROPOSED UNDERGROUND PROPANE TANK  
PROPOSED GENERATOR  
PROPOSED CURB STOP  
PROPOSED GATE VALVE  
PROPOSED FLUSHING HYDRANT WITH GATE VALVE  
PROPOSED END SECTION WITH RIPRAP  
PROPOSED DRAINAGE INLET  
PROPOSED OUTLET STRUCTURE  
PROPOSED DRAINAGE MANHOLE  
PROPOSED 14-WAY DISTRIBUTION BOX  
DEEP TEST LOCATION  
PERCOLATION TEST LOCATION  
PROPOSED SILT FENCE

SOILS LEGEND

SOILS	DESCRIPTION	HYDROLOGICAL GROUP
CrC	Charlton-Chatfield complex, rolling, very rocky	B
CtC	Chatfield-Hollis-Rock outcrop complex, rolling	B
CuB	Chatfield-Hollis-Rock outcrop complex, hilly	B
HtF	Hollis-Rock outcrop complex, very steep	C
LcB	Leicester loam, 3% to 8% slopes, stony	A/D
Pa	Palms muck	A/D
RhB	Riverhead loam, 3% to 8% slopes	B

SEWER MAIN TABLE

STRUCTURE	BM	INVERT	PIPE SIZE	LENGTH	SLOPE
SMH 4A	295.7	291.5	8"	211 L.F.	1.7%
SMH 4	292.1	287.9	8"	170 L.F.	1.23%
SMH 5	288.0	284.0	8"	297 L.F.	1.0%
SMH 4	292.1	287.9	8"	170 L.F.	1.23%
SMH 3	287.5	283.5	8"	169 L.F.	10.4%
SMH 2	248.6	244.6	8"	87 L.F.	9.7%
SMH 1	237.8	233.8	8"	87 L.F.	9.7%

2 09-14-18 REVISED PER WCDH COMMENTS TMB  
1 12-12-17 REVISED PER PCDOH COMMENTS SVW  
NO. DATE REVISION BY

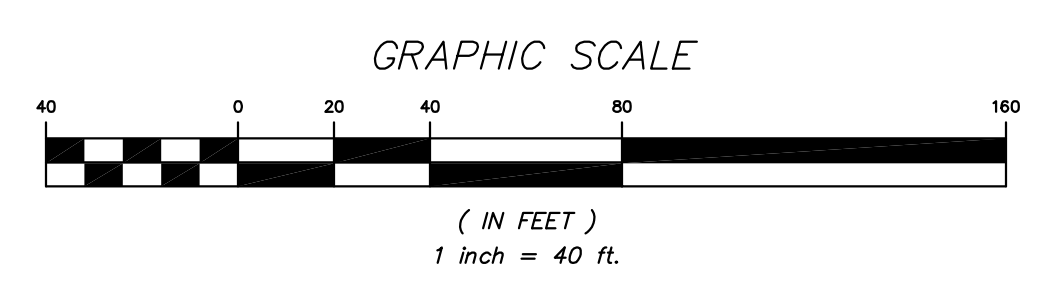
**INSITE**  
ENGINEERING, SURVEYING &  
LANDSCAPE ARCHITECTURE, P.C.

PROJECT: WILDER BALTER PARTNERS, INC.  
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK

DRAWING: ENLARGED OWTS PLAN - WEST END

PROJECT NUMBER 15246.100 PROJECT MANAGER J.J.C. DRAWING NO. SHEET  
DATE 09-27-17 DRAWN P.L.M. BY HD-2 2  
SCALE 1" = 30' CHECKED BY Z.M.P.

OWTS PLAN  
SCALE: 1" = 40'



ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 2209 OF ARTICLE 145 OF THE EDUCATION LAW.





OWTS AREA TEST DATA

PERCOLATION TESTS

P.11: 3 MIN/IN  
P.11A: 3 MIN/IN  
P.12: 3 MIN/IN  
P.13: 3 MIN/IN  
P.14: 3 MIN/IN  
P.14A: 3 MIN/IN  
P.15: 6 MIN/IN  
P.15A: 4 MIN/IN  
P.16: 3 MIN/IN  
P.17: 3 MIN/IN  
P.18: 4 MIN/IN  
P.19: 5 MIN/IN  
P.20: 8 MIN/IN  
P.20A: 3 MIN/IN  
P.21: 3 MIN/IN  
P.21A: 3 MIN/IN  
P.22: 3 MIN/IN  
P.22A: 3 MIN/IN  
P.23: 3 MIN/IN  
P.23A: 3 MIN/IN

DEEP TESTS

NOTE: NO GROUNDWATER, MOTTLED, OR ROCK ENCOUNTERED UNLESS NOTED.

D11: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-60": GRAY FINE TO MEDIUM SAND WITH GRAVEL  
"ROCK AT 60"

D11A: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-52": GRAY FINE TO MEDIUM SAND WITH GRAVEL  
"ROCK AT 52"

D12: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-52": GRAY FINE TO MEDIUM SAND WITH GRAVEL  
"ROCK AT 52"

D13: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-60": GRAY FINE TO MEDIUM SAND WITH GRAVEL  
"ROCK AT 60"

D14: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-84": GRAY FINE TO MEDIUM SAND WITH GRAVEL  
"ROCK AT 84"

D14A: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-84": GRAY FINE TO MEDIUM SAND WITH GRAVEL  
"ROCK AT 84"

D15: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-60": GRAY FINE TO MEDIUM SAND WITH GRAVEL  
"ROCK AT 60"

D15A: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-72": GRAY FINE TO MEDIUM SAND WITH GRAVEL  
"ROCK AT 72"

D16: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-60": GRAY FINE TO MEDIUM SAND WITH GRAVEL  
"ROCK AT 60"

D17: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-60": GRAY FINE TO MEDIUM SAND WITH GRAVEL  
"ROCK AT 60"

D18: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-60": GRAY FINE TO MEDIUM SAND WITH GRAVEL  
"ROCK AT 60"

D19: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-84": GRAY FINE TO MEDIUM SAND WITH GRAVEL  
"ROCK AT 84"

D20: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-84": GRAY FINE TO MEDIUM SAND WITH GRAVEL  
"ROCK AT 84"

D20A: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-84": GRAY FINE TO MEDIUM SAND WITH GRAVEL  
"ROCK AT 84"

D21: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-84": GRAY FINE TO MEDIUM SAND WITH GRAVEL  
"ROCK AT 84"

D21A: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-72": GRAY FINE TO MEDIUM SAND WITH GRAVEL  
"ROCK AT 72"

D22: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-72": GRAY FINE TO MEDIUM SAND WITH GRAVEL  
"ROCK AT 72"

D22A: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-60": GRAY FINE TO MEDIUM SAND WITH GRAVEL  
"ROCK AT 60"

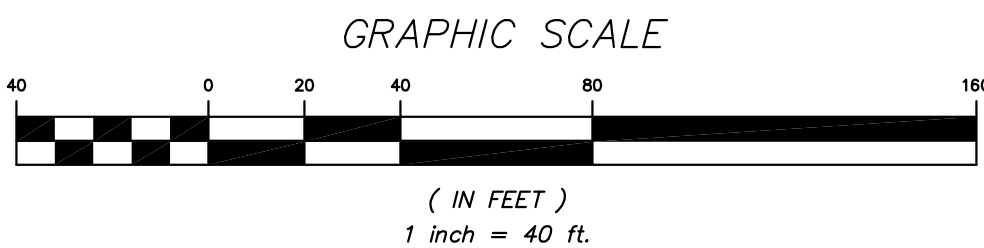
D23: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-60": GRAY FINE TO MEDIUM SAND WITH GRAVEL  
"ROCK AT 60"

D23A: 0'-8": TOPSOIL  
8"-36": RED/BROWN FINE SANDY LOAM  
36"-66": GRAY FINE TO MEDIUM SAND WITH GRAVEL  
"ROCK AT 66"

OWTS AREA DESIGN DATA:

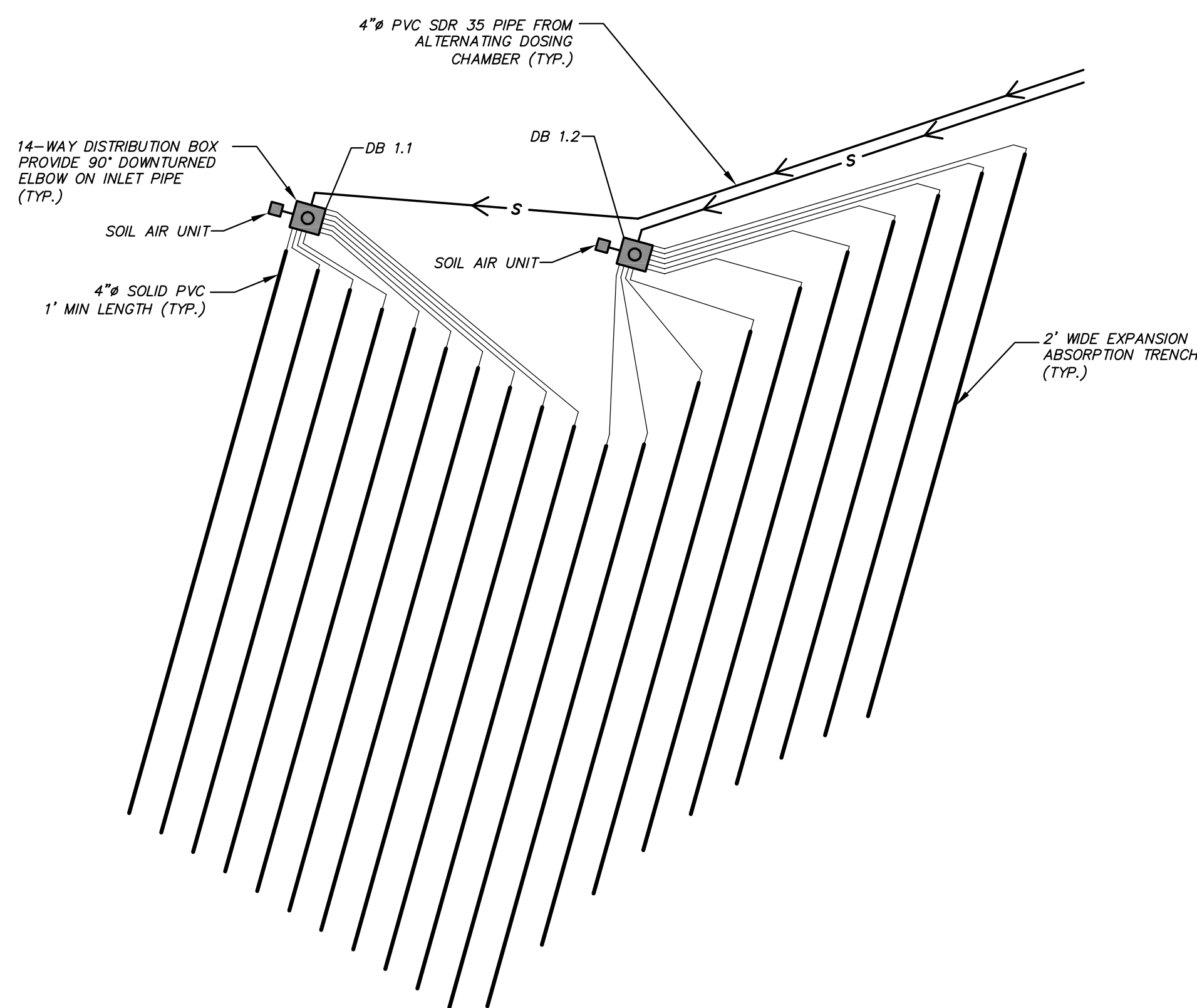
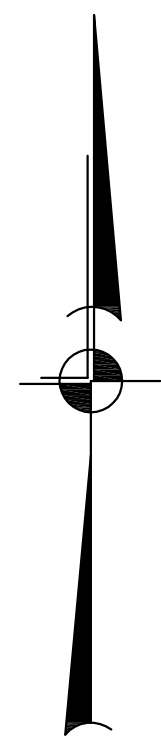
DESIGN FLOW: 9,240 GPD  
PERCOLATION RATE: 3 TO 5 MIN/IN  
ABSORPTION TRENCHES: 3,850 LF PRIMARY TRENCHES REQUIRED, 3,900 LF PRIMARY TRENCHES PROVIDED  
1,850 LF EXPANSION TRENCHES REQUIRED, 3,886 LF EXPANSION TRENCHES PROVIDED, TOTAL PROVIDED 7,786 LF  
ADDITIONAL REQUIREMENTS: OWTS PUMP PIT AND SOIL AIR TREATMENT UNITS REFER TO THE WASTEWATER ENGINEER'S REPORT FOR ADDITIONAL DESIGN INFORMATION

LEGEND	
	EXISTING PROPERTY LINE
	EXISTING WETLAND LIMIT LINE
	TOWN 150' CONTROL AREA
	NYSDEC 100' ADJACENT AREA
	EXISTING WETLAND SYMBOL
	EXISTING WELL
	EXISTING EDGE OF WATER
	EXISTING 10' CONTOUR
	EXISTING 2' CONTOUR
	PROPOSED EDGE OF PAVEMENT
	PROPOSED CURB
	PROPOSED CONCRETE WALK
	PROPOSED RETAINING WALL
	PROPOSED GUIDERAIL
	PROPOSED 10' CONTOUR
	PROPOSED 2' CONTOUR
	PROPOSED SPOT GRADE
	PROPOSED DRAINAGE PIPE
	PROPOSED ROOF DRAIN
	PROPOSED FOOTING DRAIN
	PROPOSED GRASS SWALE
	PROPOSED 8" PVC DR-18 WATER MAIN
	PROPOSED 4" PVC DR-18 WATER SERVICE
	PROPOSED 4" PVC DR-18 TANK SUPPLY LINE
	PROPOSED 1.5" PE WELL SERVICE LINE
	PROPOSED SEWER MAIN
	PROPOSED SEWER SERVICE WITH CLEANOUT
	PROPOSED 2" PVC SDR 21 SEWER FORCE MAIN (PRIMARY)
	PROPOSED 2" PVC SDR 21 SEWER FORCE MAIN (EXPANSION)
	PROPOSED UNDERGROUND CABLE, ELECTRIC AND TELECOMMUNICATION TRENCH
	PROPOSED TRANSFORMER
	PROPOSED UNDERGROUND PROPANE TANK
	PROPOSED GENERATOR
	PROPOSED CURB STOP
	PROPOSED GATE VALVE
	PROPOSED FLUSHING HYDRANT WITH GATE VALVE
	PROPOSED END SECTION WITH RIPRAP
	PROPOSED DRAINAGE INLET
	PROPOSED OUTLET STRUCTURE
	PROPOSED DRAINAGE MANHOLE
	PROPOSED 14-WAY DISTRIBUTION BOX
	DEEP TEST LOCATION
	PERCOLATION TEST LOCATION
	PROPOSED SILT FENCE

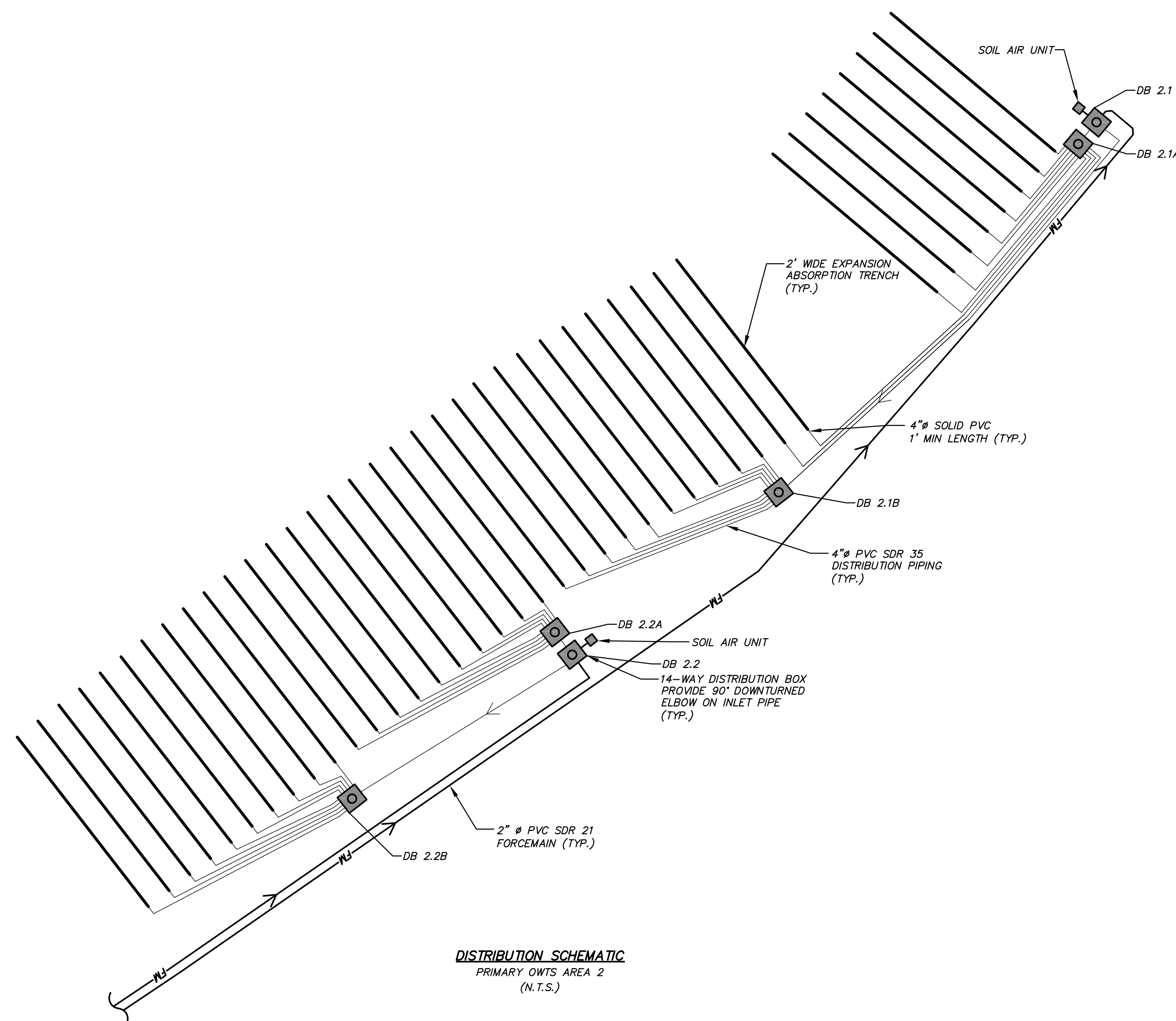


2	09-14-18	REVISED PER WCDH COMMENTS	TMB
1	12-12-17	REVISED PER PCDDH COMMENTS	SVW
NO.	DATE	REVISION	BY
 ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C. 3 Garrett Place Carmel, NY 10512 (845) 225-9690 (845) 225-9717 fax www.insite-eng.com			
PROJECT: WILDER PARTNERS, INC. ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK			
DRAWING: ENLARGED OWTS PLAN - EAST END			
PROJECT NUMBER	15246.100	PROJECT MANAGER	J.J.C
DATE	09-27-17	DRAWN BY	P.L.M
SCALE	1" = 30'	CHECKED BY	Z.M.P.
DRAWING NO.	HD-3	SHEET	3
			11

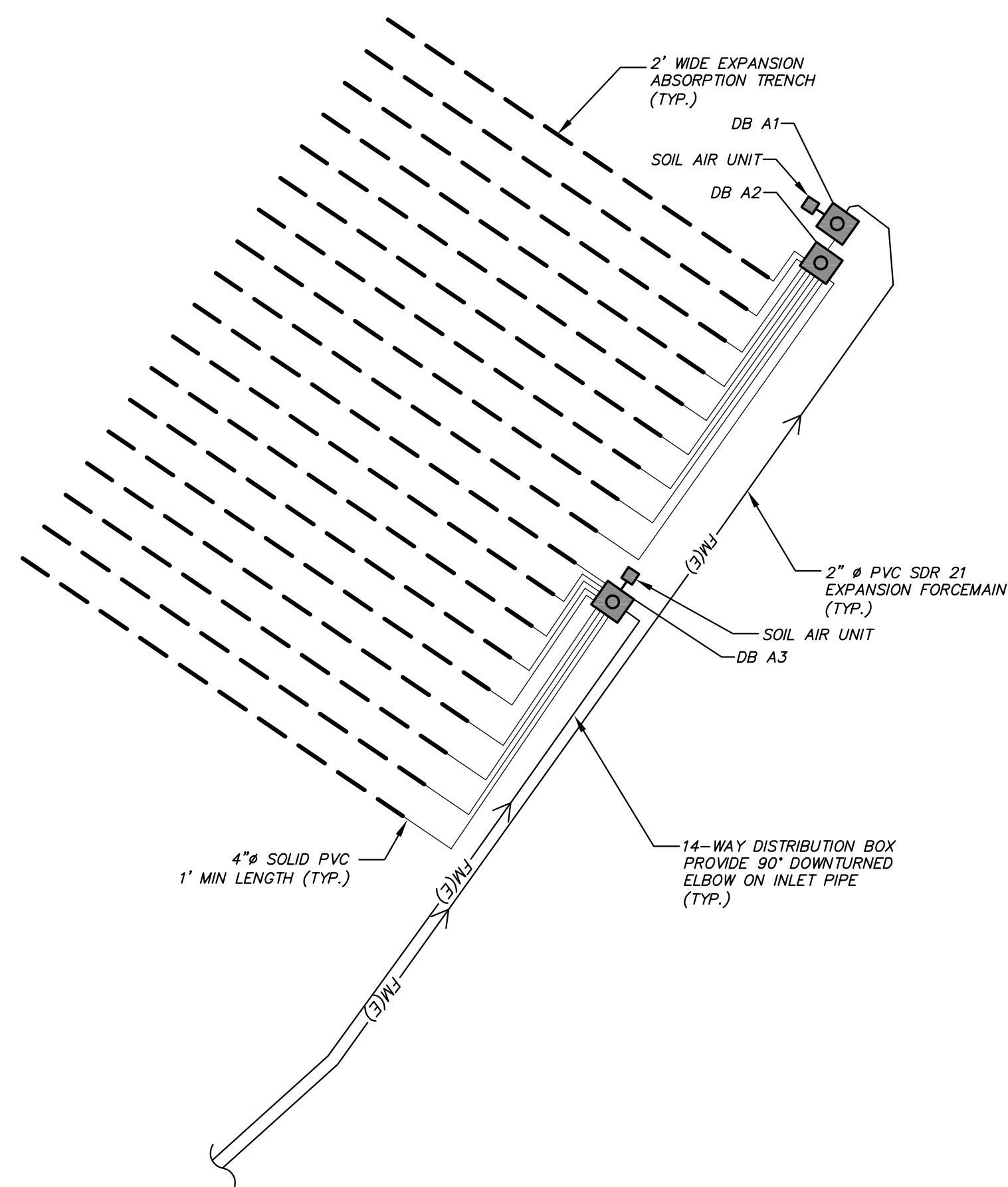




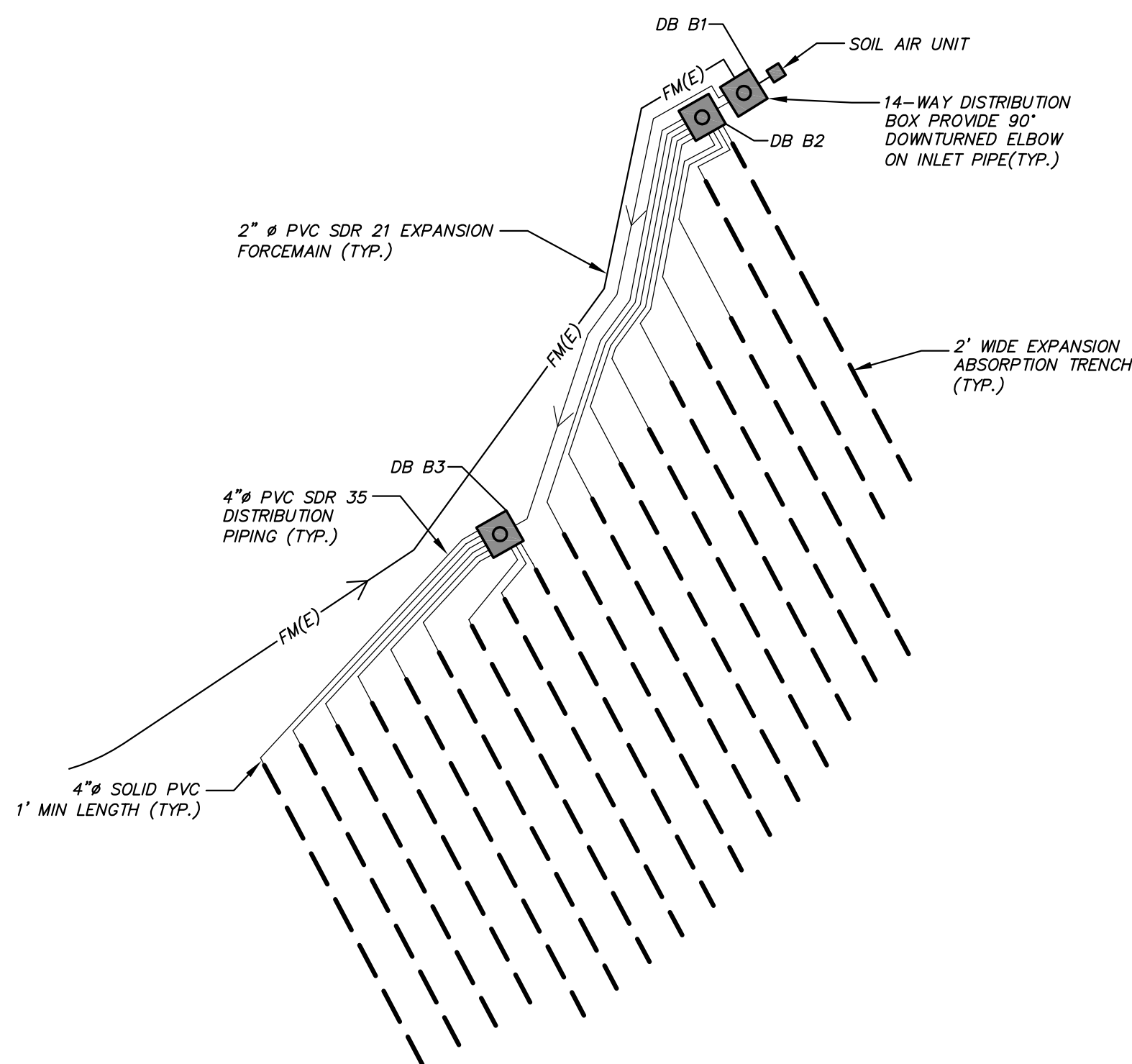
**DISTRIBUTION SCHEMATIC**  
PRIMARY OWTS AREA 1  
(N.T.S.)



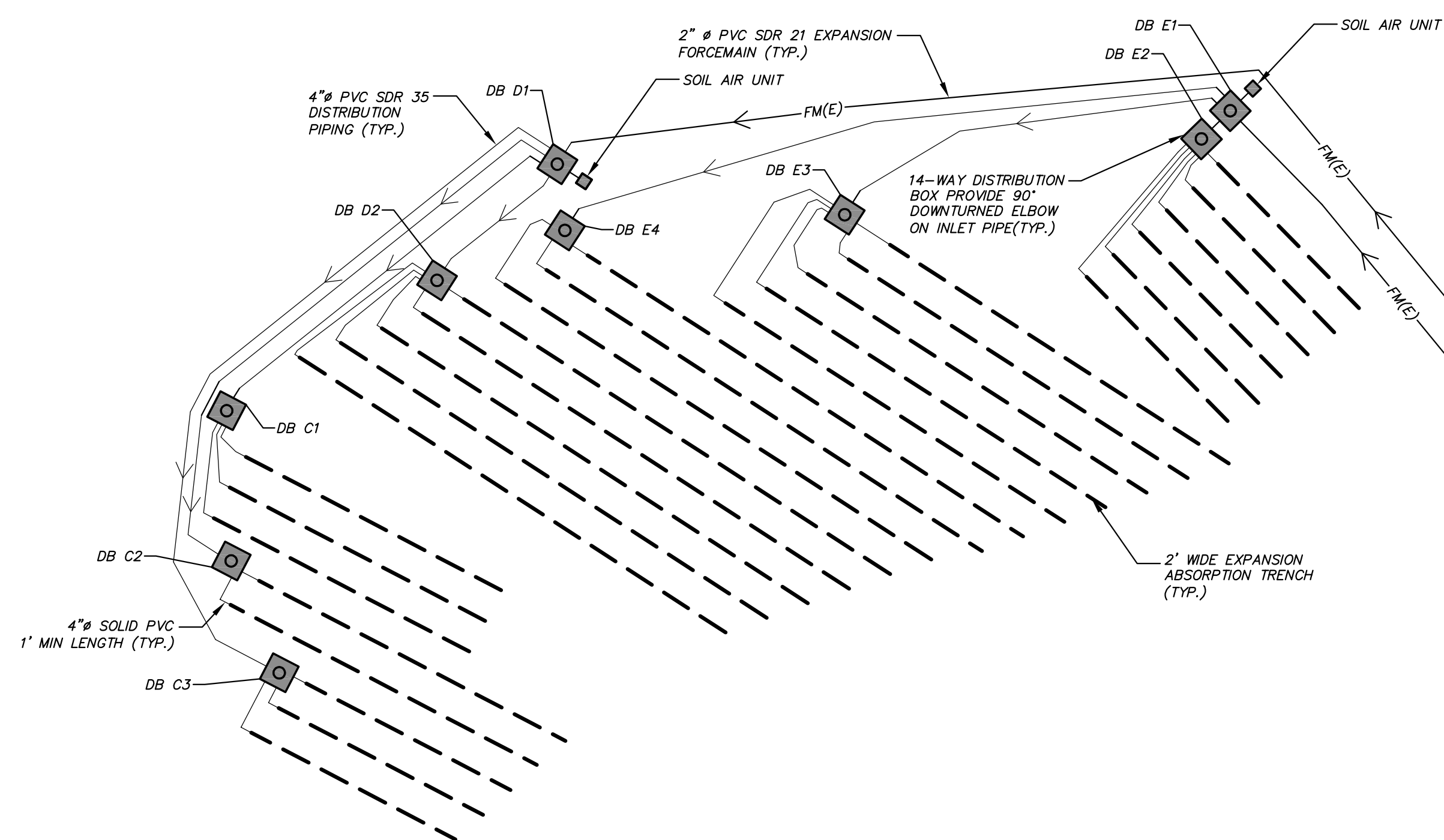
**DISTRIBUTION SCHEMATIC**  
PRIMARY OWTS AREA 2  
(N.T.S.)



**DISTRIBUTION SCHEMATIC**  
EXPANSION AREA "A"  
(N.T.S.)

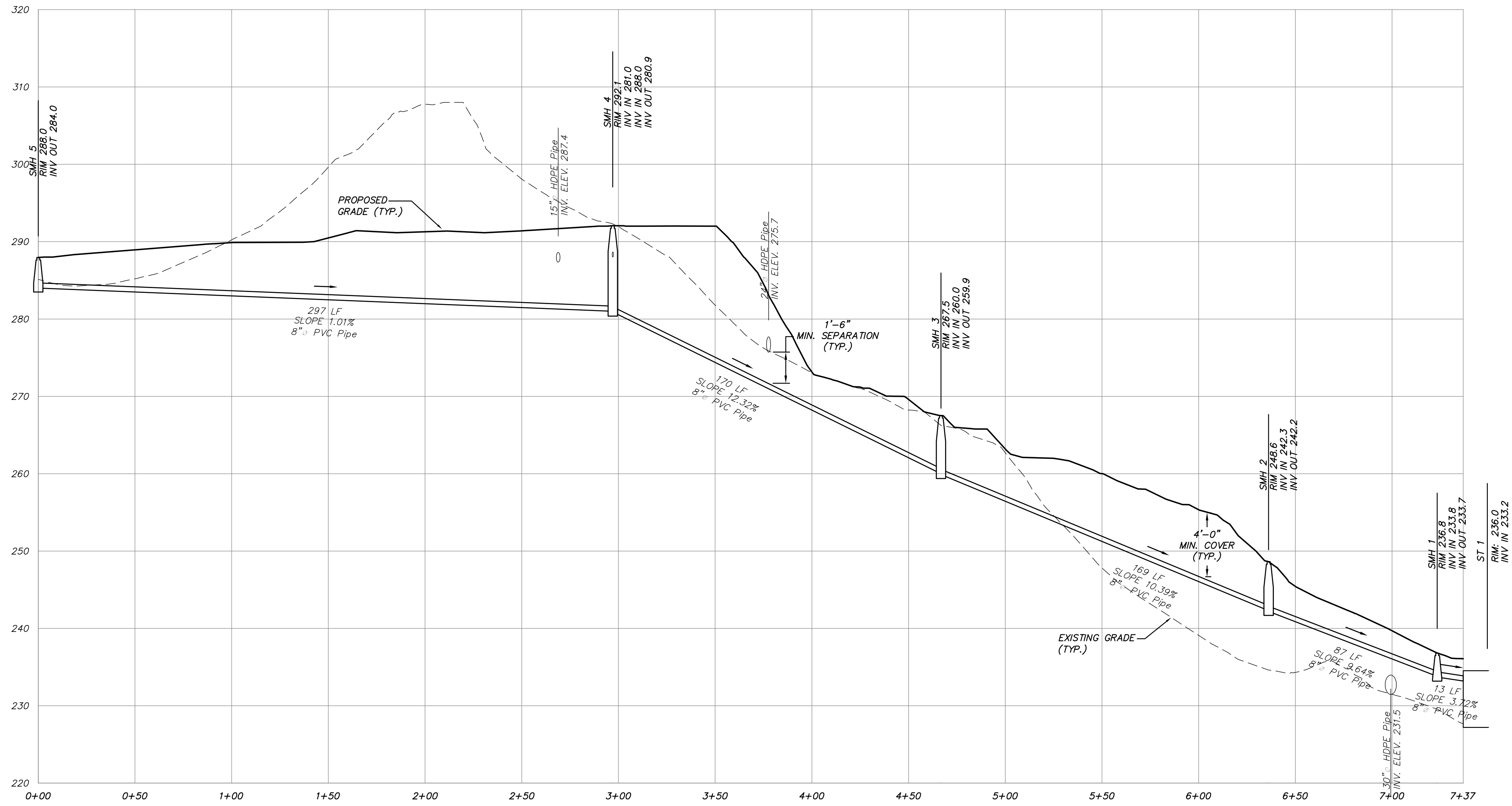


**DISTRIBUTION SCHEMATIC**  
EXPANSION AREA "B"  
(N.T.S.)

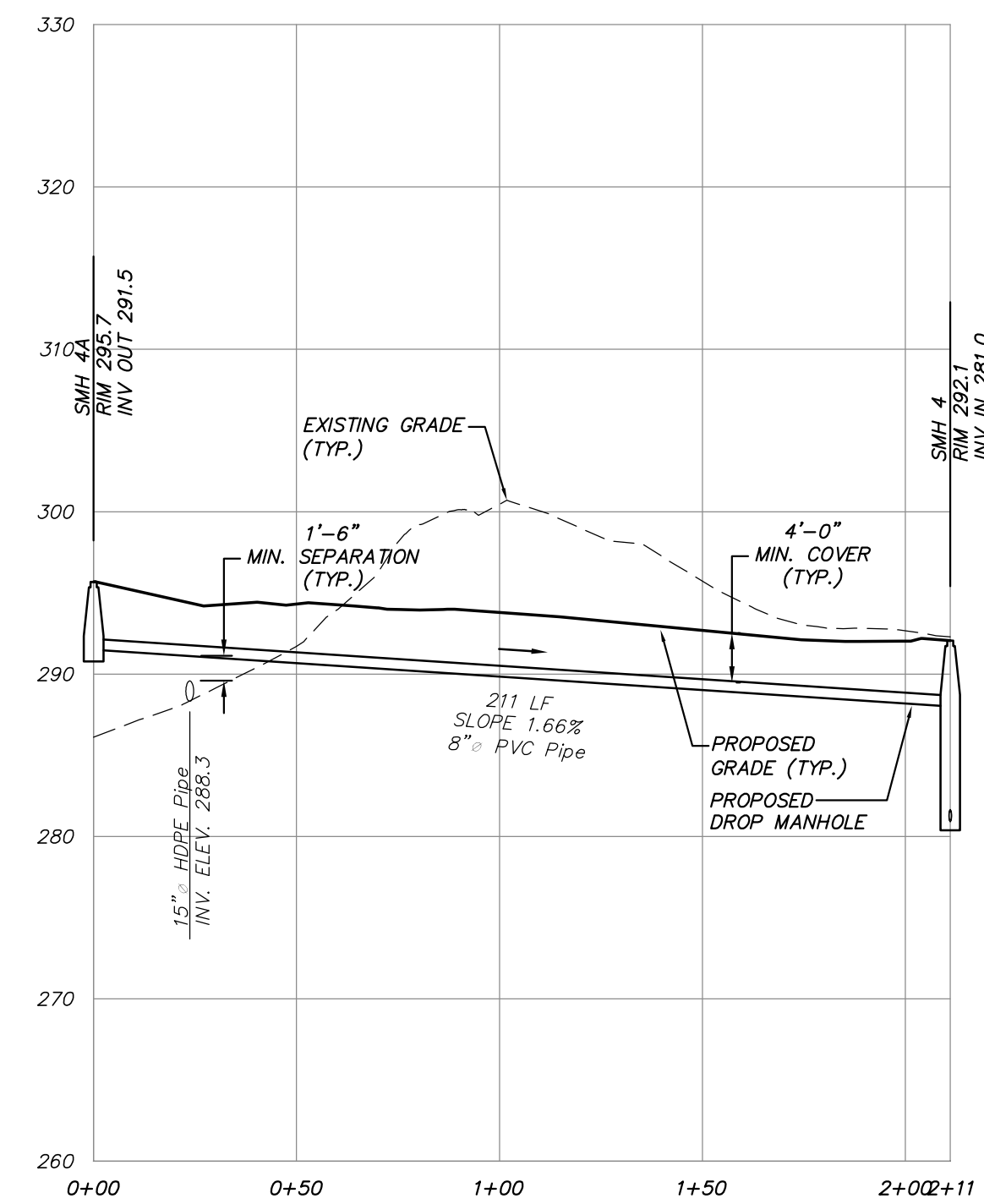


**DISTRIBUTION SCHEMATIC**  
EXPANSION AREAS "C", "D" & "E"  
(N.T.S.)

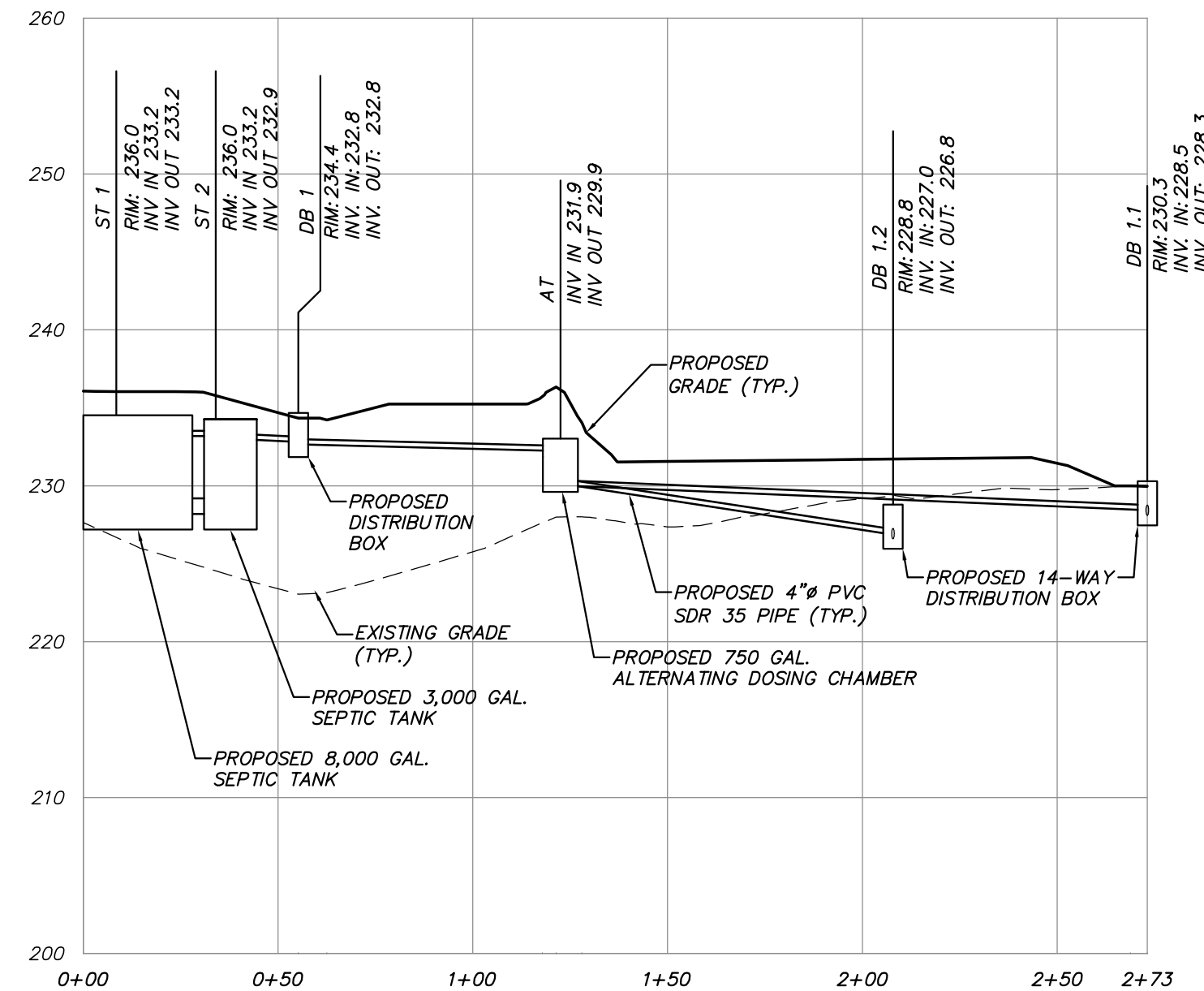
2	09-14-18	REVISED PER WCDH COMMENTS	TMB
1	12-12-17	REVISED PER WCDH COMMENTS	SVW
NO.	DATE	REVISION	BY
<b>INSITE</b> ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C. 3 Garrett Place Carmel, NY 10512 (845) 225-9690 (845) 225-9717 fax www.insite-eng.com			
PROJECT: <b>WILDER BALTER PARTNERS, INC.</b> ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK			
DRAWING: <b>OWTS DISTRIBUTION SCHEMATICS</b>			
PROJECT NUMBER	15246.100	PROJECT MANAGER	J.J.C.
DATE	09-27-17	DRAWN BY	S.V.W.
SCALE	AS SHOWN	CHECKED BY	Z.M.P.
DRAWING NO.	<b>HD-4</b>		
SHEET	4		
	11		



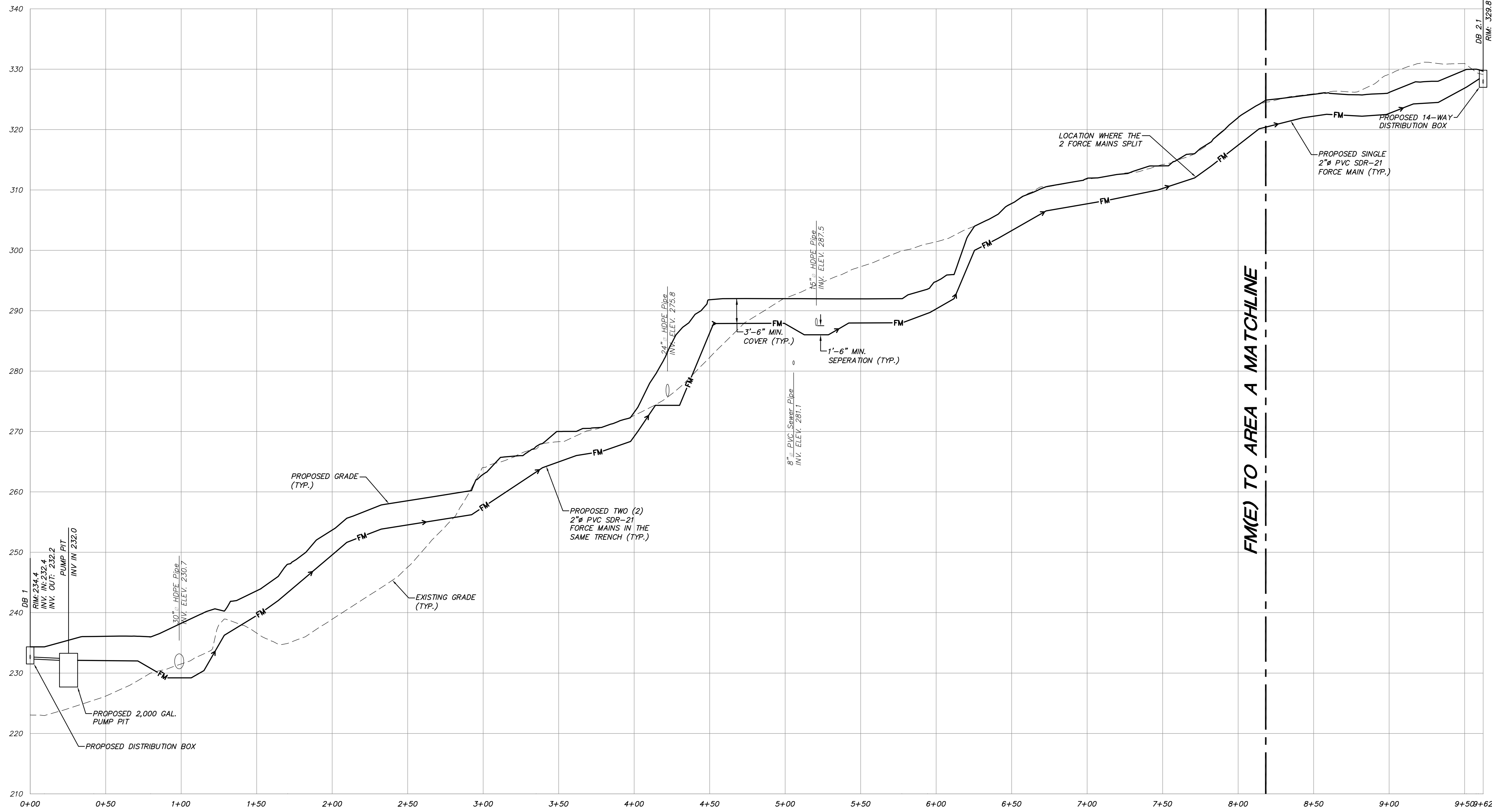
SMH 5 TO SEPTIC TANK  
SCALE: HORIZ. 1" = 40'  
VERT. 1" = 10'



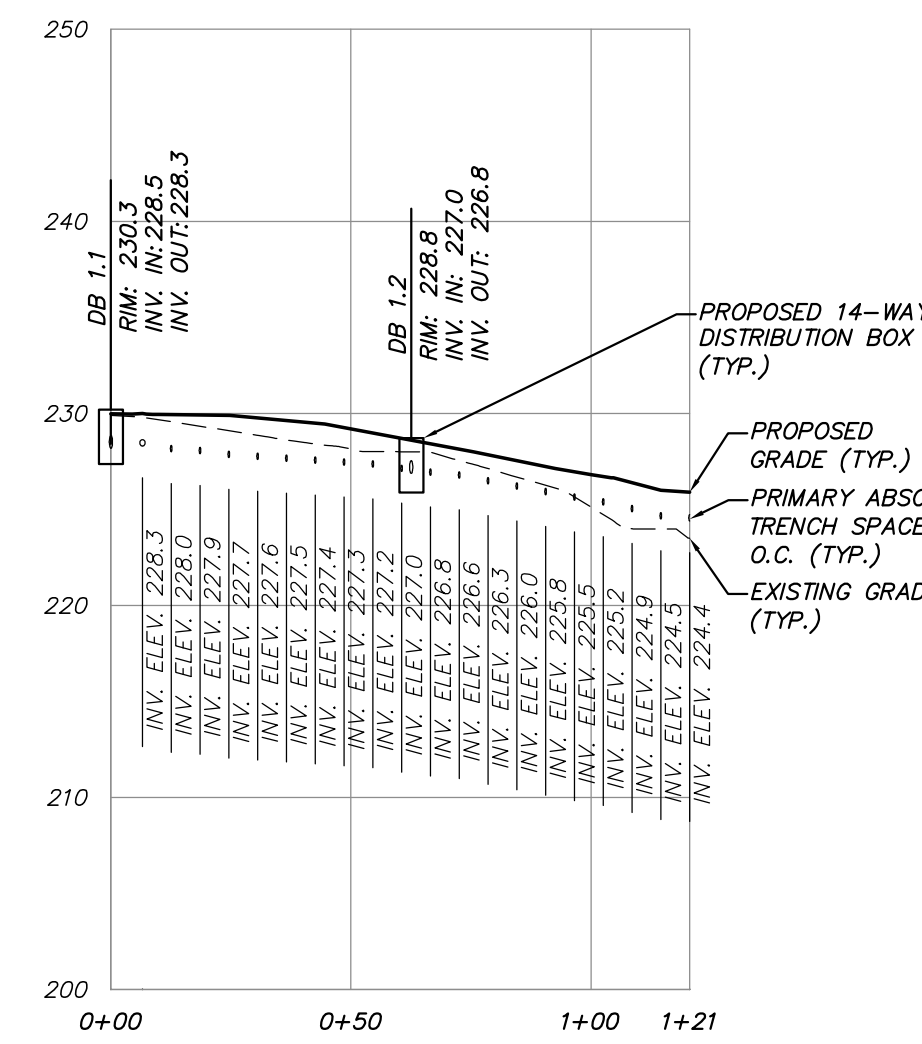
SMH 4A TO SMH 4  
SCALE: HORIZ. 1" = 40'  
VERT. 1" = 10'



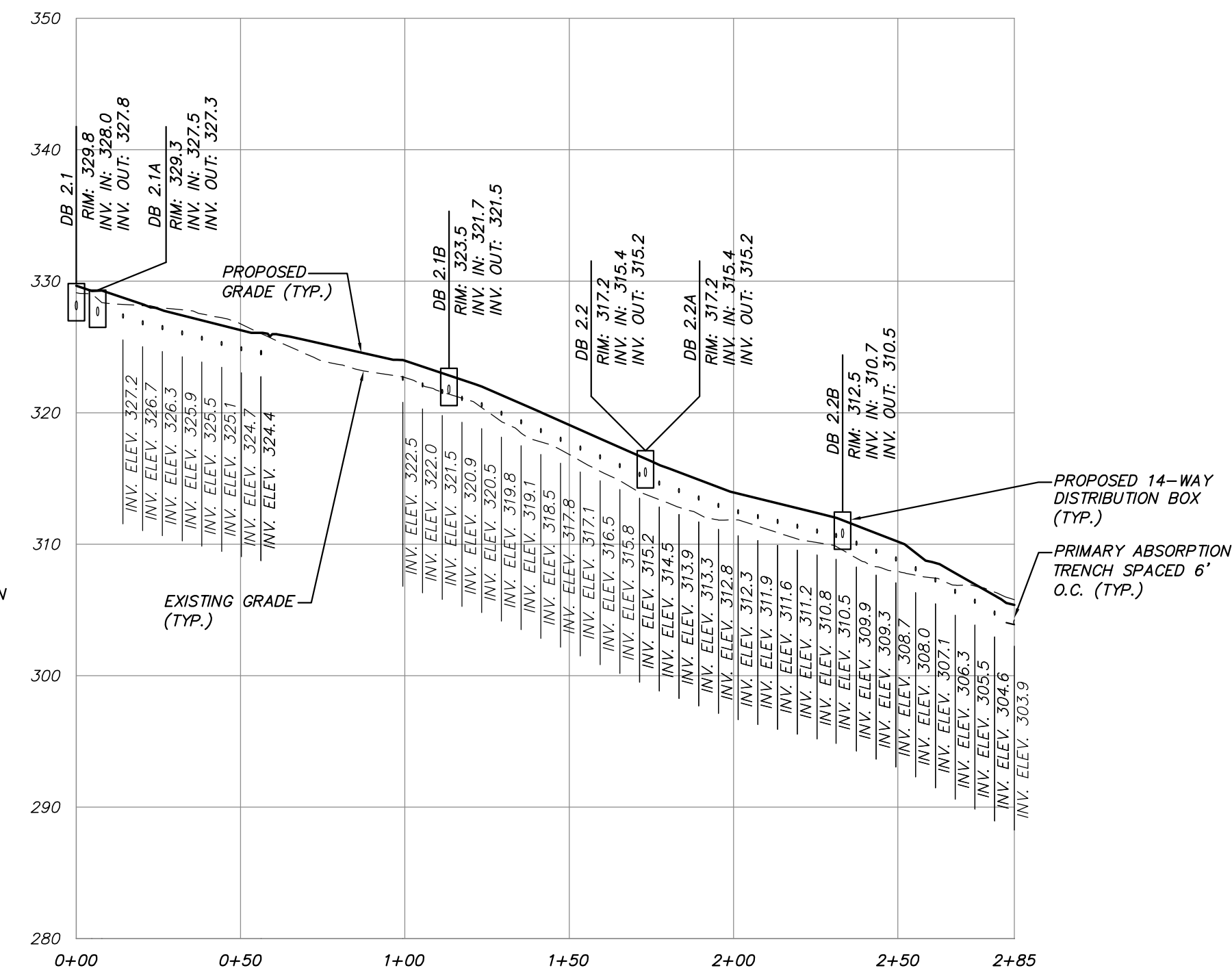
ST1 TO PRIMARY AREA 1  
SCALE: HORIZ. 1" = 40'  
VERT. 1" = 10'



FM TO PRIMARY AREA 2  
SCALE: HORIZ. 1" = 40'  
VERT. 1" = 10'



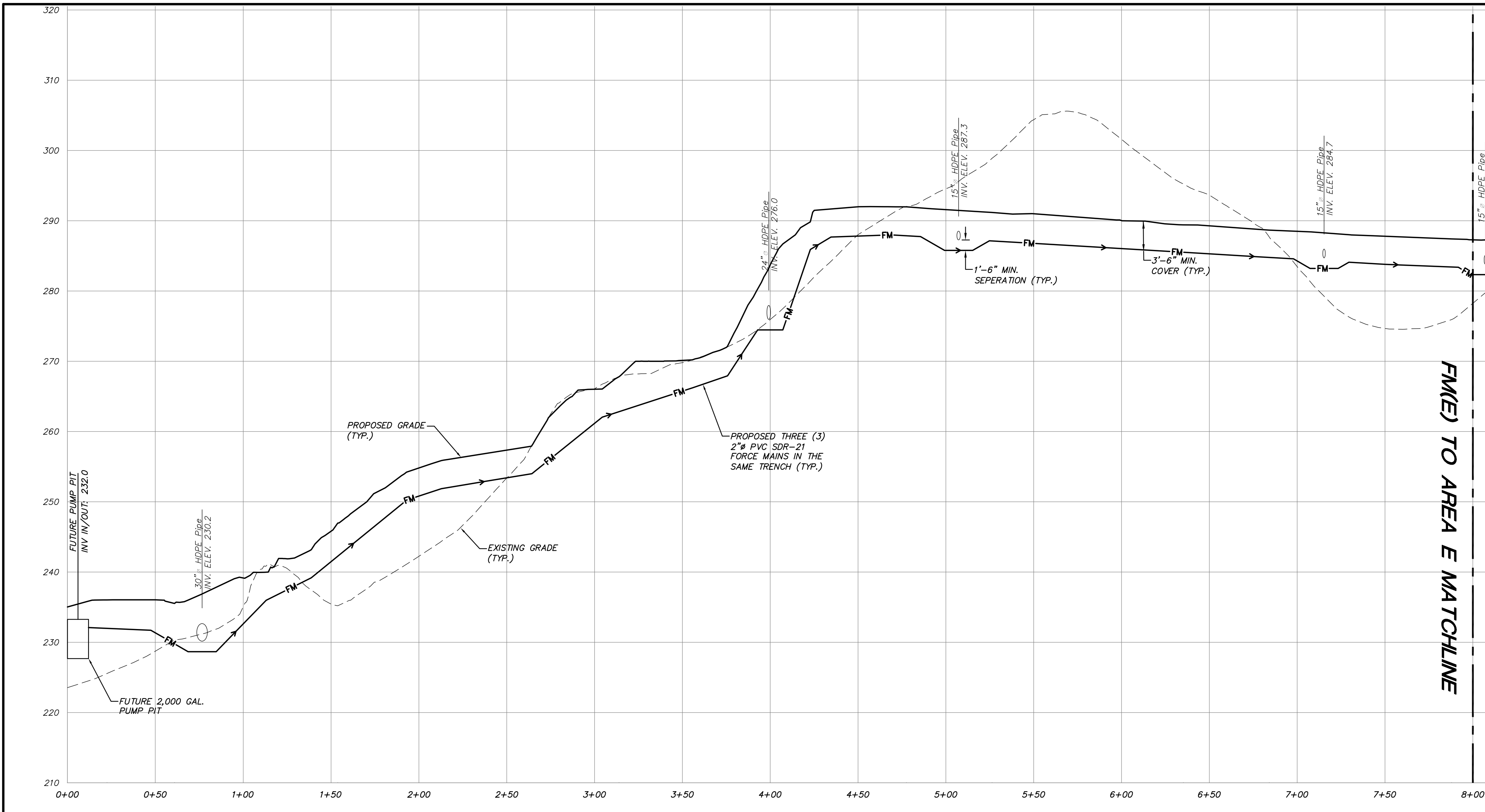
PRIMARY AREA 1  
SCALE: HORIZ. 1" = 40'  
VERT. 1" = 10'



PRIMARY AREA 2  
SCALE: HORIZ. 1" = 40'  
VERT. 1" = 10'

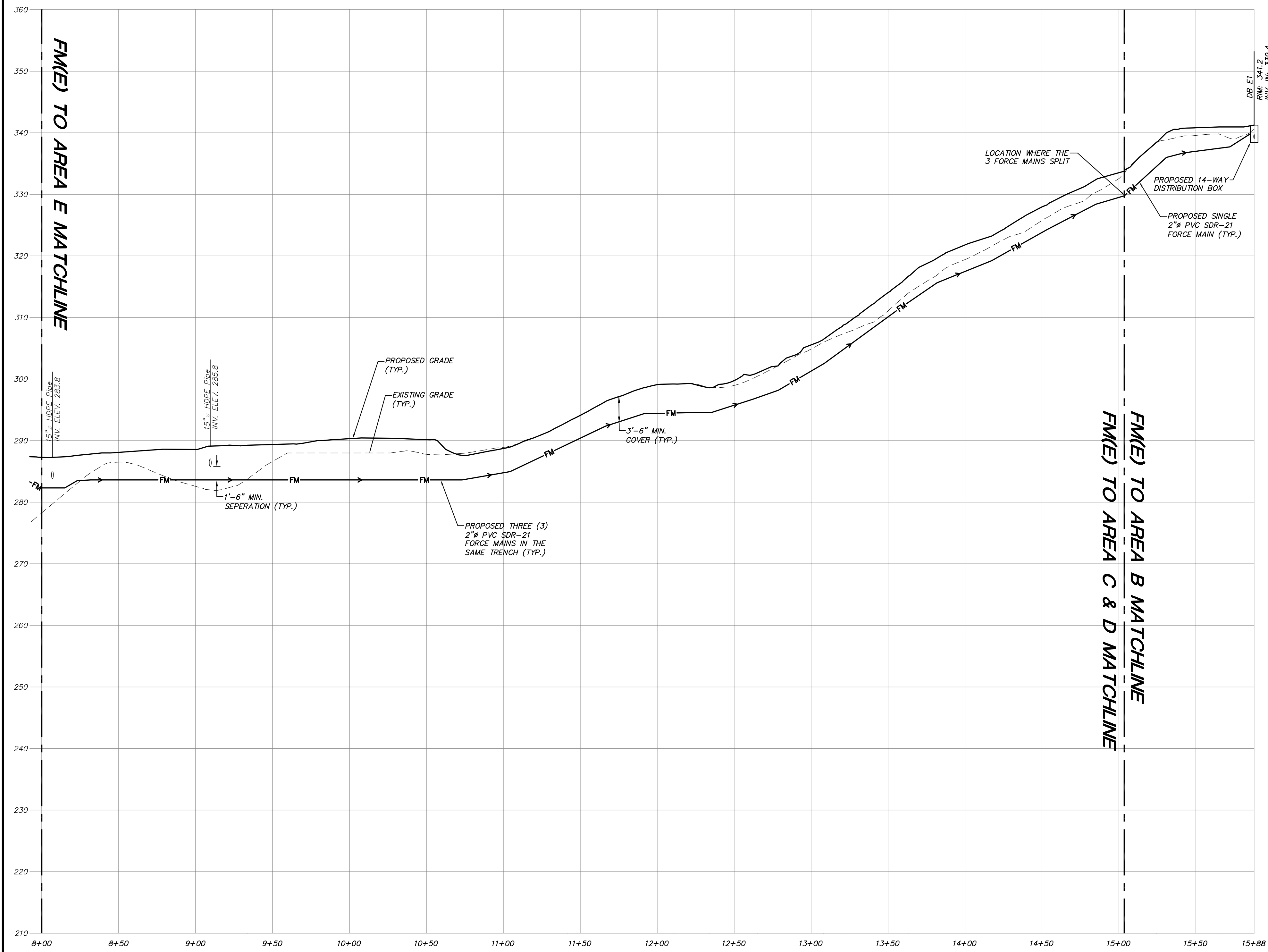
1	09-14-18	REVISED PER WOOD COMMENTS	TM8
NO.	DATE	REVISION	BY
<b>INSITE</b> ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.			
PROJECT: <b>WILDER BALTER PARTNERS, INC.</b>			
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK			
DRAWING: <b>SEWER PROFILES</b>			
PROJECT NUMBER	15246.100	PROJECT MANAGER	J.J.C.
DATE	10-25-17	DRAWN BY	E.J.P.
SCALE	AS SHOWN	CHECKED BY	Z.M.P.
DRAWING NO.	HD-5		
SHEET	5		
3 Garrett Place Carmel, NY 10512 (845) 225-9690 (845) 225-9717 fax www.insite-eng.com			11





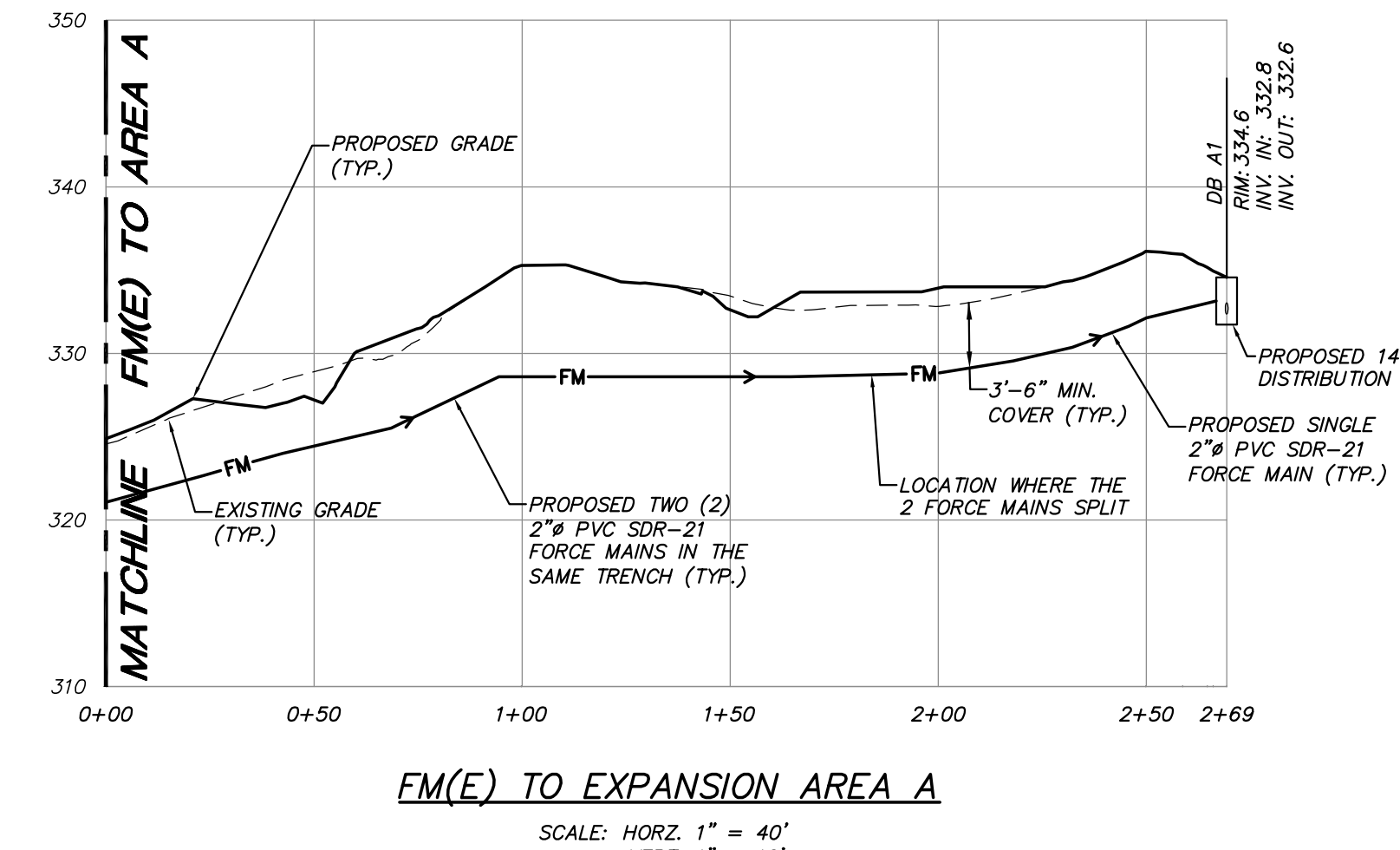
FM(E) TO EXPANSION AREA E - PART 1

SCALE: HORIZ. 1" = 40'  
VERT. 1" = 10'



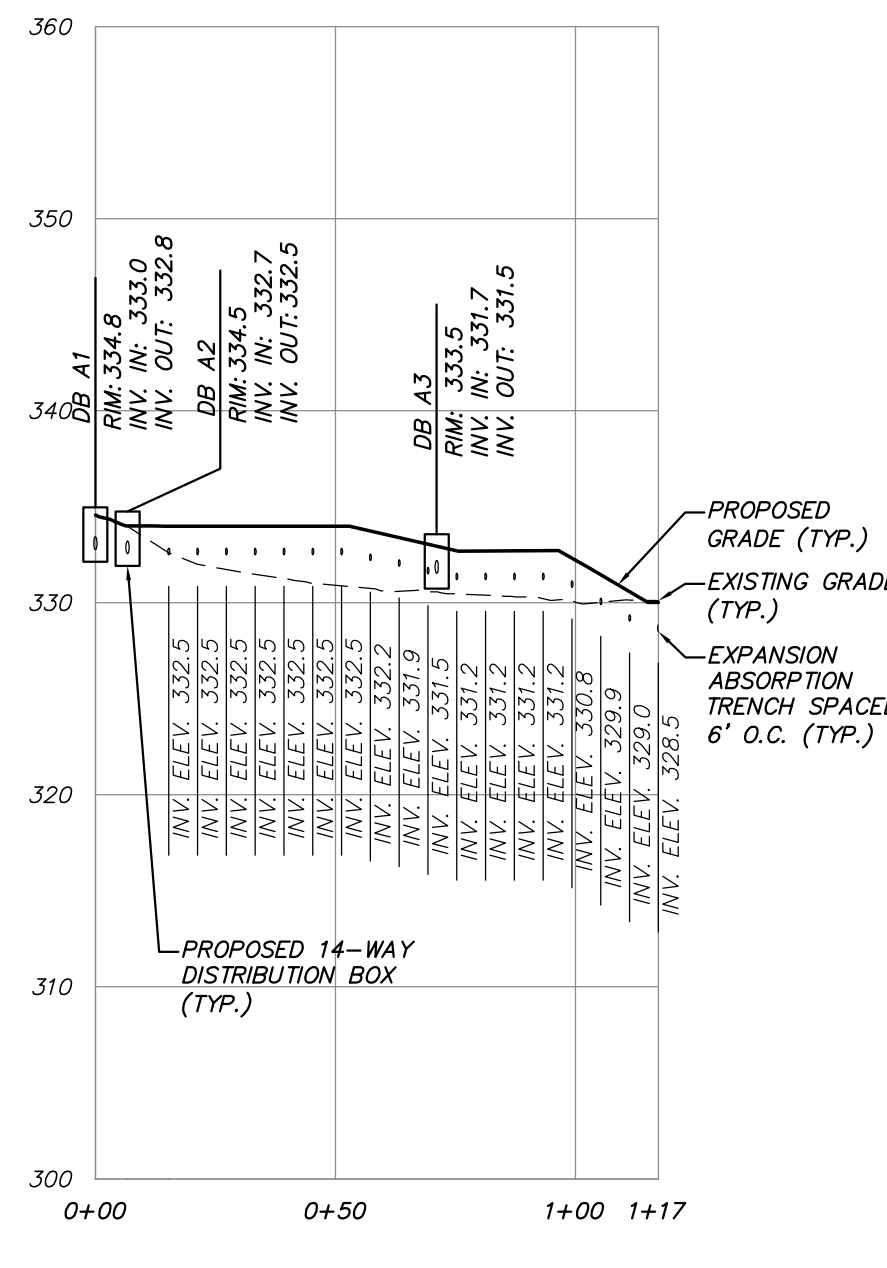
FM(E) TO EXPANSION AREA E - PART 2

SCALE: HORIZ. 1" = 40'  
VERT. 1" = 10'



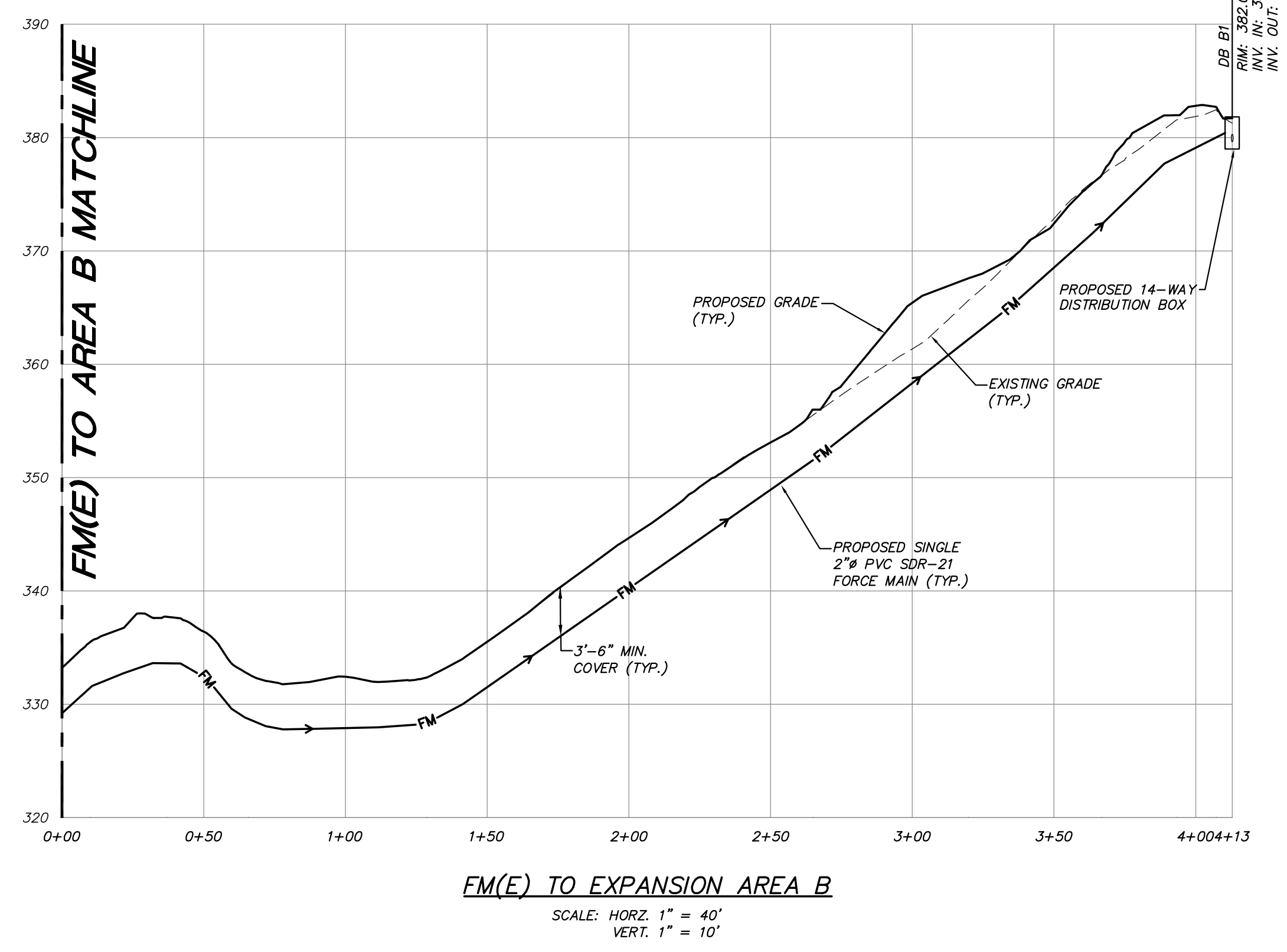
FM(E) TO EXPANSION AREA A

SCALE: HORIZ. 1" = 40'  
VERT. 1" = 10'



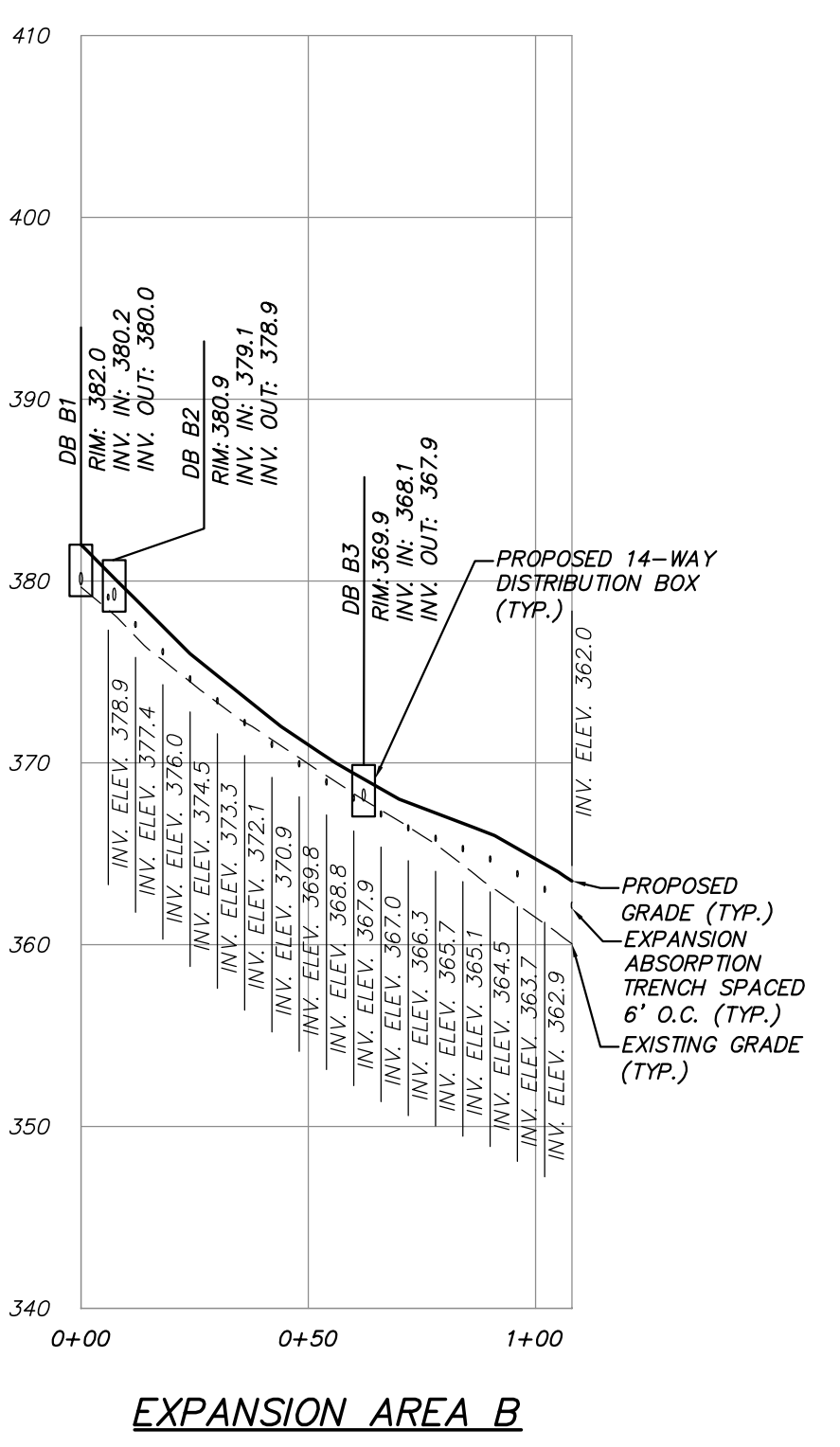
EXPANSION AREA A

SCALE: HORIZ. 1" = 40'  
VERT. 1" = 10'



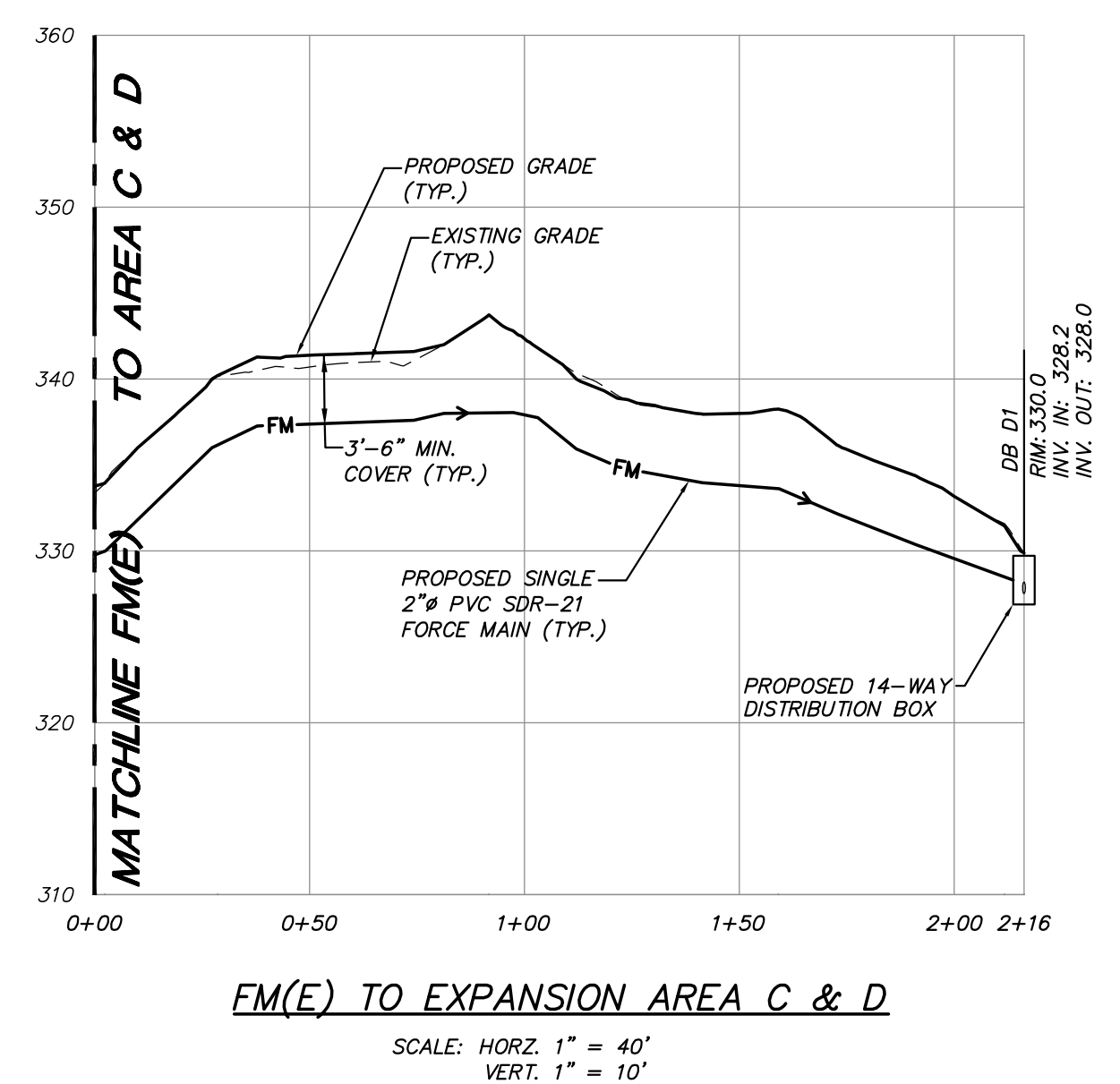
FM(E) TO EXPANSION AREA B

SCALE: HORIZ. 1" = 40'  
VERT. 1" = 10'



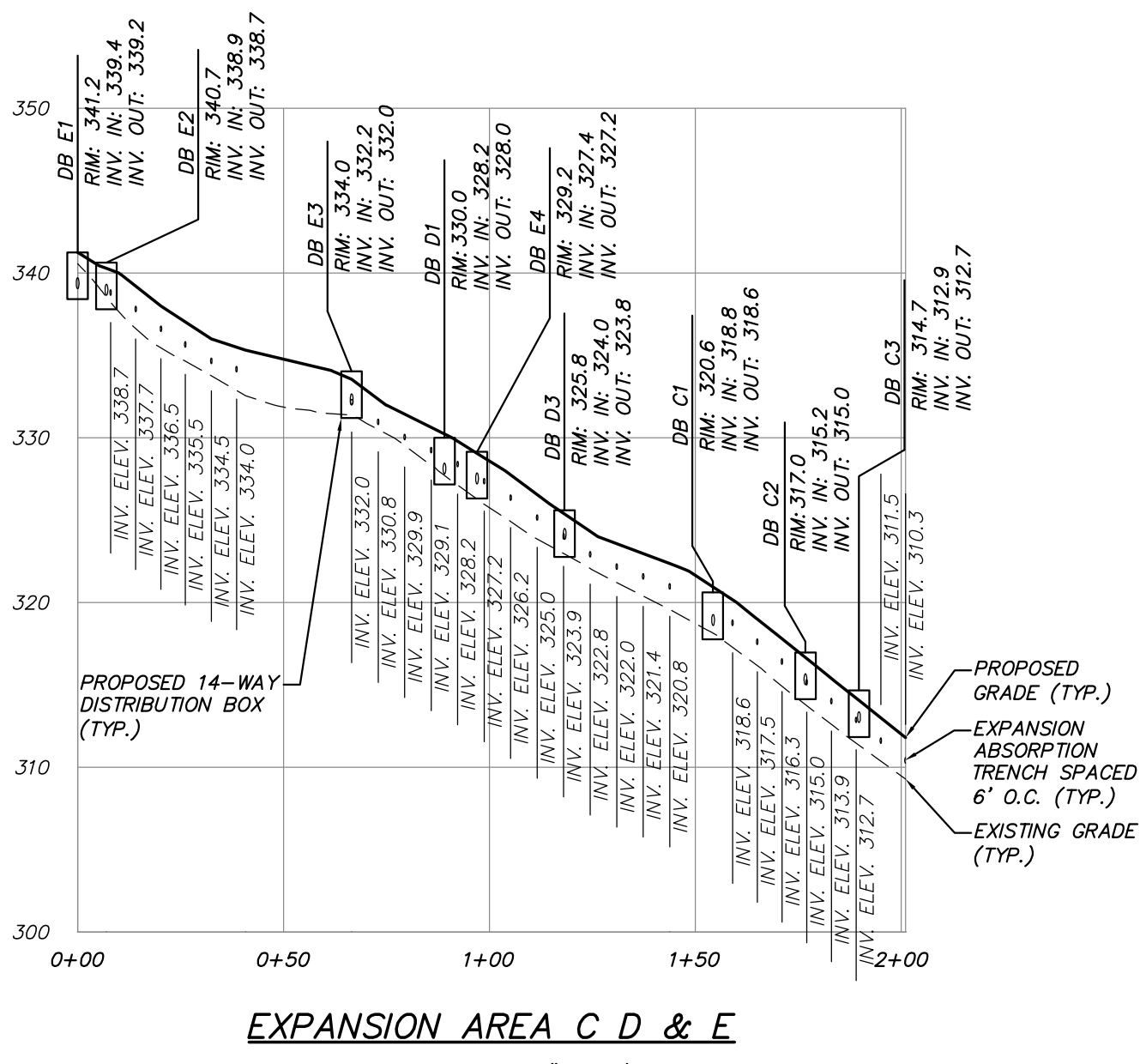
EXPANSION AREA B

SCALE: HORIZ. 1" = 40'  
VERT. 1" = 10'



FM(E) TO EXPANSION AREA C & D

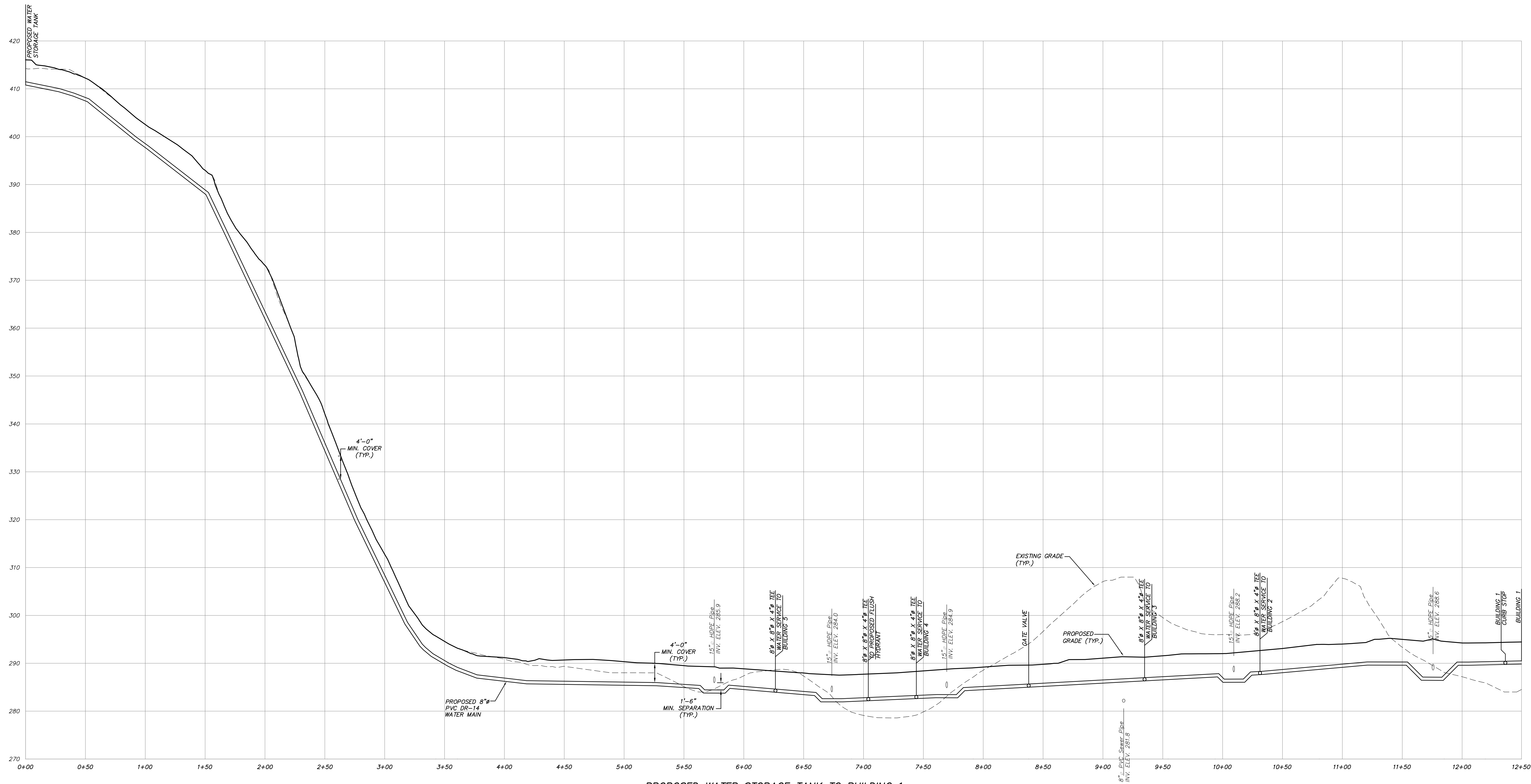
SCALE: HORIZ. 1" = 40'  
VERT. 1" = 10'



EXPANSION AREA C, D & E


SCALE: HORIZ. 1" = 40'  
VERT. 1" = 10'

1	08-14-18	REVISED PER WOOD COMMENTS	TMB
NO.	DATE	REVISION	BY
<b>INSITE</b> ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.			
PROJECT: <b>WILDER BALTER PARTNERS, INC.</b>			
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK			
DRAWING: <b>SEWER PROFILES</b>			
PROJECT NUMBER	15246.100	PROJECT MANAGER	J.J.C.
DATE	10-25-17	DRAWN BY	E.J.P.
SCALE	AS SHOWN	CHECKED BY	Z.M.P.
DRAWING NO.	HD-6		
SHEET	6		
	11		



PROPOSED WATER STORAGE TANK TO BUILDING 1

SCALE: HORIZ. 1" = 40'  
VERT. 1" = 10'

NO.		DATE		REVISION		BY	
				<b>INSITE</b> ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.			
				3 Garrett Place Carmel, NY 10512 (845) 225-9690 (845) 225-9717 fax www.insite-eng.com			
PROJECT:							
<u>WILDER BALTER PARTNERS, INC.</u>							
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK							
DRAWING:							
<u>WATER PROFILE</u>							
PROJECT NUMBER		15246.100		PROJECT MANAGER		J.J.C.	
DATE		9-14-18		DRAWN BY		E.J.P.	
SCALE		AS SHOWN		CHECKED BY		Z.M.P.	
						DRAWING NO.	
						SHEET	
						7	
						11	



**TESTS FOR NON-PRESSURE PIPELINES FOR TRANSPORT OF SEWAGE**  
The leakage shall be determined by exfiltration, infiltration or low pressure air.

- | <u>Type of Pipe</u>  | <u>Leakage</u> |
|--|----------------|
| Ductile iron – mechanical or push-on joints                          | 100            |
| Polyvinyl chloride, thermal plastic or fiberglass with rubber joints | 100            |
| Cast iron soil pipe  | 0              |
2. Regardless of the above allowable leakage, any spurting leaks detected shall be permanently stopped.

- a. When groundwater is present, the average test pressure of 3 psig shall be above any back pressure due to the groundwater level.
- b. The maximum pressure allowed under any condition in air testing shall be 10 psig. The maximum groundwater level for air testing is 13 feet above the top of the pipe.
5. The equipment required for air testing shall be furnished by the Contractor and shall include the necessary compressor, valves, gauges and plugs to allow for the monitoring of the pressure, release of pressure and a separable test gauge.
- a. The test gauge shall be sized to allow for the measuring of the 0.5 psi less allowed during the test period and shall be on a separate line to the test section.

1. *General*
  - a. *Each manhole shall be tested by either exfiltration, infiltration or vacuum testing.*
  - b. *A manhole will be acceptable if the leakage does not exceed an allowance of one gallon per vertical foot of depth for 24 hours. Regardless of the allowable leakage, any leaks detected shall be permanently stopped.*

- b. A vacuum of 10 in. of mercury shall be drawn on the manhole, the valve on the vacuum line of the test head closed, and the vacuum pump shut off. The time shall be measured for the vacuum to drop to 9 in. of mercury.
- c. The manhole shall pass if the time for the vacuum reading to drop from 10 in. of mercury to 9 in. of mercury meets or exceeds the values indicated below:

- VALVE BOX COVER WITH "SEWER"  
STAMPED ON COVER SET TOP OF  
COVER FLUSH WITH FINISH  
GRADE—PROVIDE 1'-6" X 1'-6"  
CONCRETE ENCASEMENT AROUND  
COVER
- FINAL GRADE  
(SEE PLAN FOR FINISH)
- 4" DIA. PVC  
THREADED CAP

1. All sewer mains & sewer services shown on these plans shall be polyvinyl chloride (PVC) SDR 35. Sewer main shall be 8" diameter and all services shall be 6" diameter.

- ## POWER FORCEMAIN TESTING PROCEDURES

### Hydrostatic Pressure and Leakage Test

*R.O.B. fill must be stabilized by allowing the R.O.B. fill to settle naturally for at least 6 months and include at least one freeze-thaw cycle on fill at least once.*

(N.T.S.)

1. The proposed OWTS area shall be isolated (survey staked out and surrounded by construction fence) and protected against damage by erosion, storage of earth or materials, displacement, compaction or other adverse physical changes to the characterisation of the soil.

A technical diagram showing a cross-section of a concrete trough installed in a manhole. The trough is a circular structure with a central vertical pipe labeled 'OUTLET' at the bottom. An 'INLET' pipe enters from the upper right. The trough is labeled 'CONCRETE TROUGH TO BE POUR'D IN PLACE BY CONTRACTOR AND BROOM FINISHED.' A dashed line indicates the 'SLOPE BENCHES TOWARDS TROUGH (1/2" Y'FT. MIN. SLOPE)'. A curved line at the top right is labeled 'MANUFACTURE INLET AND ANGLE AS SHOWN ON PLAN'. A label 'PRECAST INLET AND OUTLET SIZE AND ANGLE AS REQUIRED' points to the inlet and outlet pipes. The word 'INLET' is also written near the top right pipe.

NOTES:

1. PROVIDE 1' OF SOLID PIPE AT THE BEGINNING OF EVERY TRENCH.
2. PROVIDE END CAPS AT THE END OF EACH ABSORPTION TRENCH.
3. THE SLOPE OF THE PEROFORATED PIPES SHALL BE BETWEEN A MINIMUM OF 1/32" / FT AND A MAXIMUM OF 1/4" / FT, UNLESS THE TRENCHES ARE FLOODED BY PUMPING OR BY A DOSING TANK. DOSED TRENCHES SHALL BE LEVEL.
4. ALL STONES FOUND IN THE TRENCH SHALL BE REMOVED FOR A DEPTH OF AT LEAST SIX INCHES BELOW THE BOTTOM OF THE PIPE.
5. A MINIMUM OF 5' OF VERTICAL SEPARATION SHALL BE PROVIDED FROM THE BOTTOM OF ABSORPTION TRENCH TO LEDGE ROCK AND/OR GROUNDWATER.

EDGE OF ABSORPTION TRENCH

10'

2'

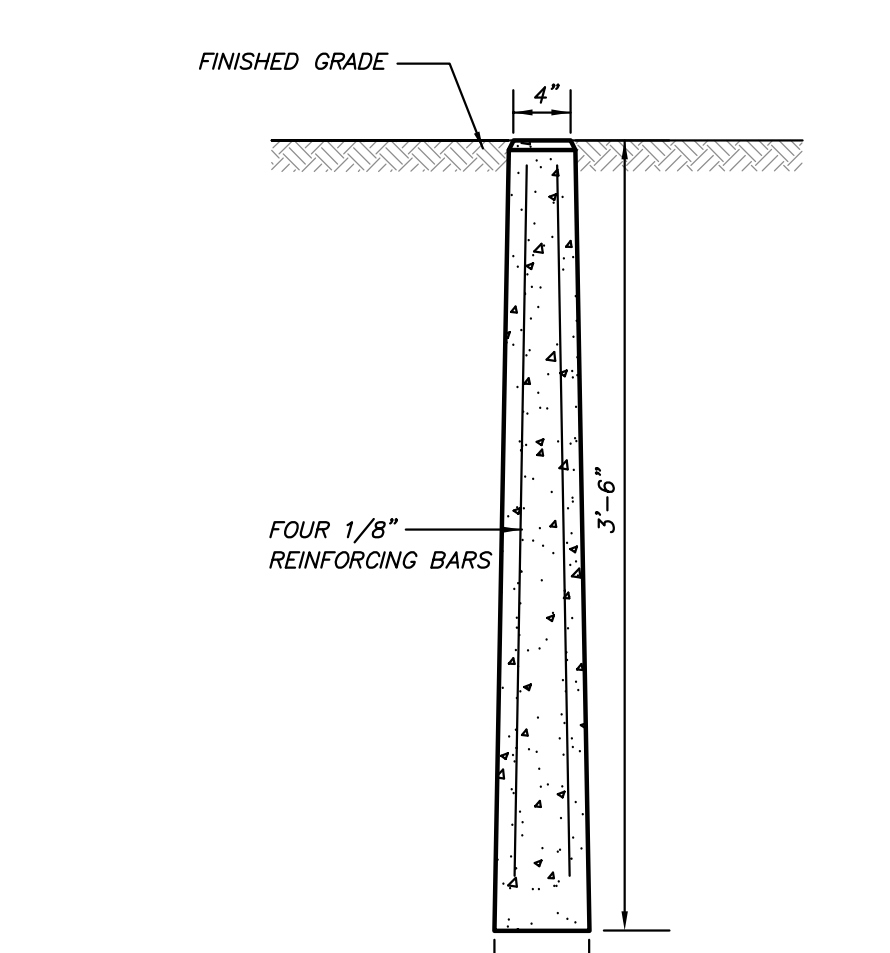
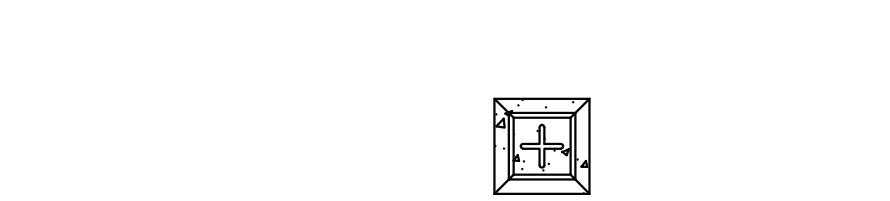
6.0 to 8.0 IN. GRAVEL

1/4" ON 3H SLOPED IMPERVIOUS CLAY BARRIER

0.5" MIN.

EXISTING GROUND

5' MIN. TO EDGE OF ABSORPTION AREA



NOTE:  
SET FLUSH WITH FINISHED GRADE.  
(TO BE USED TO DELINEATE THE  
FOUR CORNERS OF EACH SSTS  
SECTION 34 TOTAL).

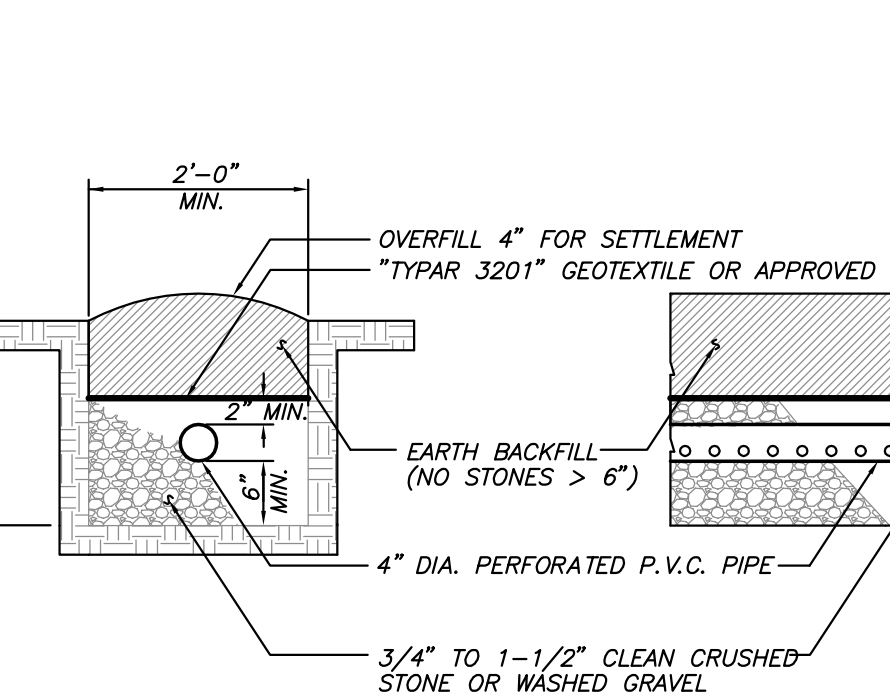


Diagram illustrating the connection of a sewer service pipe to a main sewer line.

Labels and components shown:

- 2" x 4" MARKER CUT 18" ABOVE GROUND
- CLEAN OUT AS SHOWN
- FINISHED GRADE
- CAP
- 6" x 6" x 4" WVC-FITTING
- 4" MIN. R.O.B. GRAVEL
- 6" ELBOW AS REQUIRED
- BRANCH
- SEWER MAIN
- 45° MAX.
- 6" PVC 35 SDR SEWER SERVICE PIPE (LOCATION AS SHOWN ON DRAWINGS OR AS DIRECTED)
- DISTURBED EARTH

- 

1. The sewer forcemain from the sewer pump pit to the 14 way distribution boxes shall be 2" diameter forcemains.

EDGE OF ABSORPTION TRENCH

10'

2'

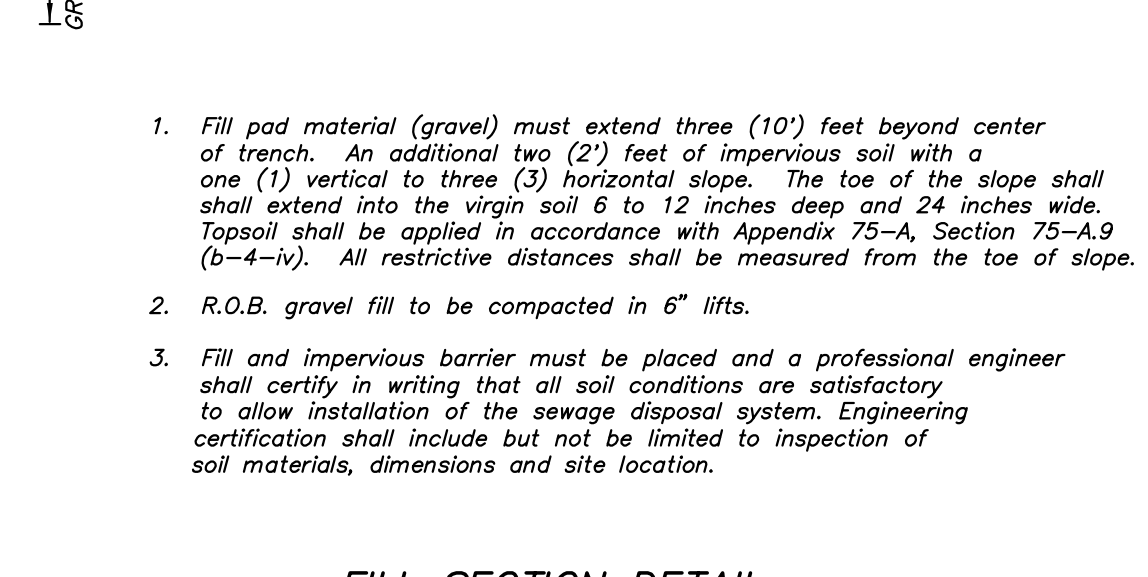
6.0 to 8.0 IN. GRAVEL

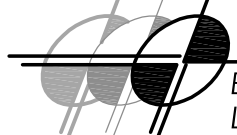
1/4" ON 3H SLOPED IMPERVIOUS CLAY BARRIER

0.5" MIN.

EXISTING GROUND

5' MIN. TO EDGE OF ABSORPTION AREA



1	09-14-18	REVISED PER WCDOH COMMENTS		TMB
NO.	DATE	REVISION		BY
		<b>INSITE</b> ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.		3 Garrett Place Carmel, NY 10512 (845) 225-9690 (845) 225-9717 fax <a href="http://www.insite-eng.com">www.insite-eng.com</a>
PROJECT:				
<u>WILDER BALTER PARTNERS, INC.</u>				
ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK				
DRAWING:				
<u>SEWER, AND OWTS DETAILS</u>				
PROJECT NUMBER	15248.100	PROJECT MANAGER	J.V.C.	DRAWING NO.
DATE	09-27-17	DRAWN BY	P.L.M.	HD-8 8 / 11
SCALE	AS SHOWN	CHECKED BY	Z.M.P.	







DRAWING NO.	SHEET NO.
HD-10	10

TESTS ON PRESSURE PIPING FOR TRANSPORT OF WATER

#### A. Hydrostatic Pressure Test

A. **Hydrostatic Pressure Test**  
Hydrostatic testing shall be performed in accordance with the revision of AWWA C605, Section 7.3, "Hydrostatic Testing".

1. Test pressure shall be as scheduled or, where no pressure is scheduled, shall be 150 psi, or 1.25 times the static operating pressure, whichever is higher.
2. Test pressure shall be held on the piping for a period of at least 2 hours, unless a longer period is requested by the Engineer.
3. The test medium shall be water.

### B. Hydrostatic Leakage Test

1. The leakage test shall be conducted concurrently with the pressure test.

2. The rate of leakage shall be determined at 15-minute intervals by means of volumetric measurement of the makeup water added to maintain the test pressure. The test shall proceed until the rate of leakage has stabilized or is decreasing below an allowable value, for three consecutive 15-minute intervals. After this, the test pressure shall be maintained for at least another 15 minutes.
  - a. At the completion of the test, the pressure shall be released at the furthestmost point from the point of application.
3. All exposed piping shall be examined during the test and all leaks, defective material or joints shall be repaired or replaced before repeating the tests.
4. The allowable leakage will be determined by the following formula.

$$Q = \frac{LD \sqrt{P}}{748,000}$$

Where:

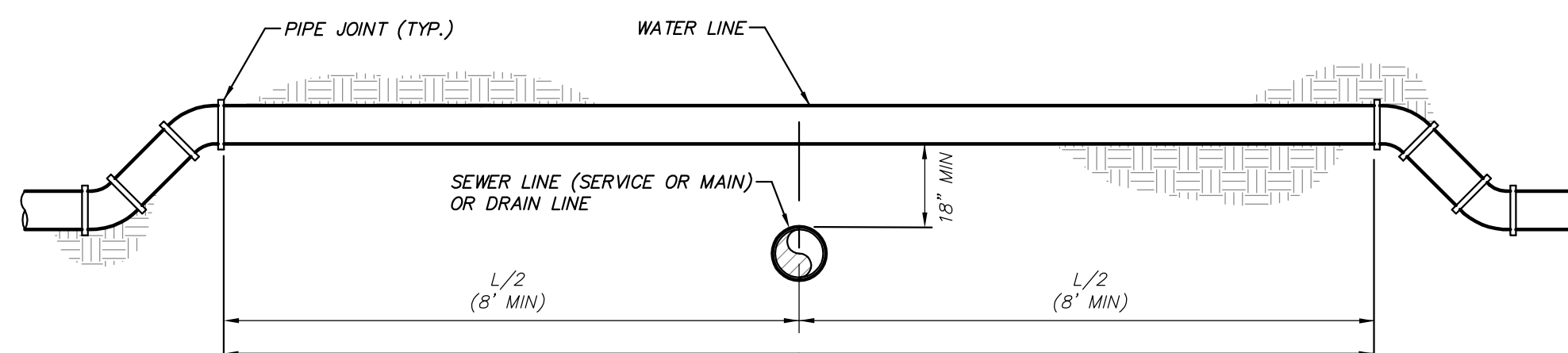
$Q$  = quantity of makeup water, in gallons per hour  
 $L$  = length of pipe tested, in feet  
 $D$  = nominal diameter of the pipe, in inches  
 $P$  = average test pressure during the hydrostatic test, in pounds per square inch (gauge)

5. *Regardless of the above allowables, any visible leaks shall be permanently stopped.*
6. *The test medium shall be water.*

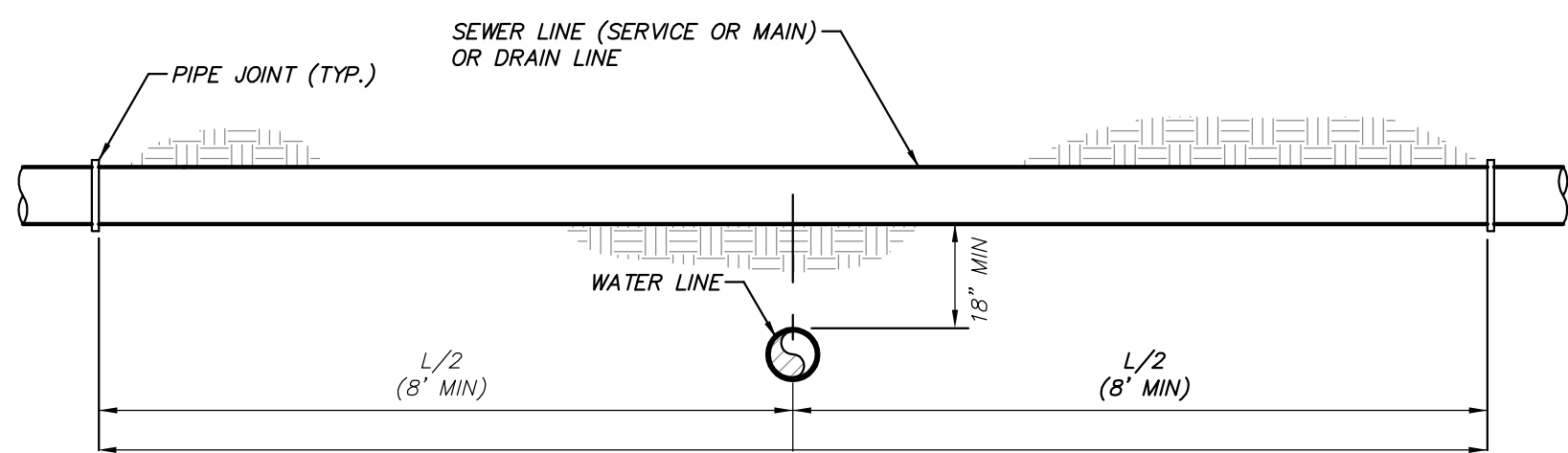
### C. Disinfection

C. Disinfection  
Prior to placing the water main into service, the new pipe shall be cleaned and disinfected in accordance with the latest revision of AWWA C651, Section 4.4.3, "The Continuous Feed Method". The "Tablet Method" will not be accepted.

1. All work under this section shall be performed in the presence of the Design Engineer, and a representative of the public health authority having jurisdiction, as required.
2. Chlorination shall be scheduled such that sampling and flushing will be performed during normal daylight working hours. The contractor shall provide acceptable backflow prevention on all empty water to prevent any potential backflow contamination or cross connection.
3. Chlorination shall be done by use of a solution of water and liquid chlorine, calcium hypochlorite or sodium hypochlorite and the solution shall be contained in the pipe or structure as specified.
4. Prior to chlorination, all dirt and foreign matter shall be removed by vacuum cleaning and flushing of the pipeline or pipeline.
5. The chlorine solution shall be introduced to pipelines through corporation stops placed at the contact point of the pipe and the structure. The length of tubing extending directly into the structure, or other approved methods.
6. The application of the chlorine solution shall be by means of a controlled solution feed device. The rate of chlorine solution flow shall be in such proportion to the volume of free water in the structure that the chlorine solution and the residual shall be between 25 and 50 parts per million (PPM) or milligrams per liter (mg).
7. The chlorine treated water shall be retained in the pipe or structure at least 24 hours, unless otherwise directed. During the retention period, all valves and hydrants within the treated sections shall be opened.
8. The chlorine residual shall be not less than 10 PPM (or mg/l) at any point in the structure at the end of the 24-hour retention period.
9. When making repairs to, or when specified, structures and portions of pipelines shall be chlorinated by a concentrated chlorine solution containing not less than 100 parts of free chlorine per gallon of water. The chlorine solution shall be sprayed on the entire inner surface of the empty pipes or structures. The structure treated shall remain in contact with the strong chlorine solution at least 30 minutes.
10. After the required retention of chlorinated water in the pipe or structures, they shall be thoroughly flushed until the replacement water shall, upon test, both chemically and bacteriologically, be found to be water quality served by the public from the existing water supply system.
11. The disposal of chlorinated water from any pipe or structure shall be such that it does not cause any contamination to the water supply.
12. The Contractor shall make all arrangements for the testing of water quality by an approved independent laboratory. Two acceptable bacterial test, taken at the same point, shall be made on the water sample. At least 1 set of samples must be collected from every 1,000 L of the new water main, plus the first 50 m of the old water main. The results of the tests shall be forwarded to the Design Engineer and the public health authority having jurisdiction.
13. All water quality requirements shall be fulfilled prior to the passage of any water into the system to a public supply or the use of the new system.



WATER LINE CROSSING OVER  
SANITARY SEWER LINE OR STORM DRAIN LINE



WATER LINE CROSSING UNDER  
SANITARY SEWER LINE OR STORM DRAIN LINE

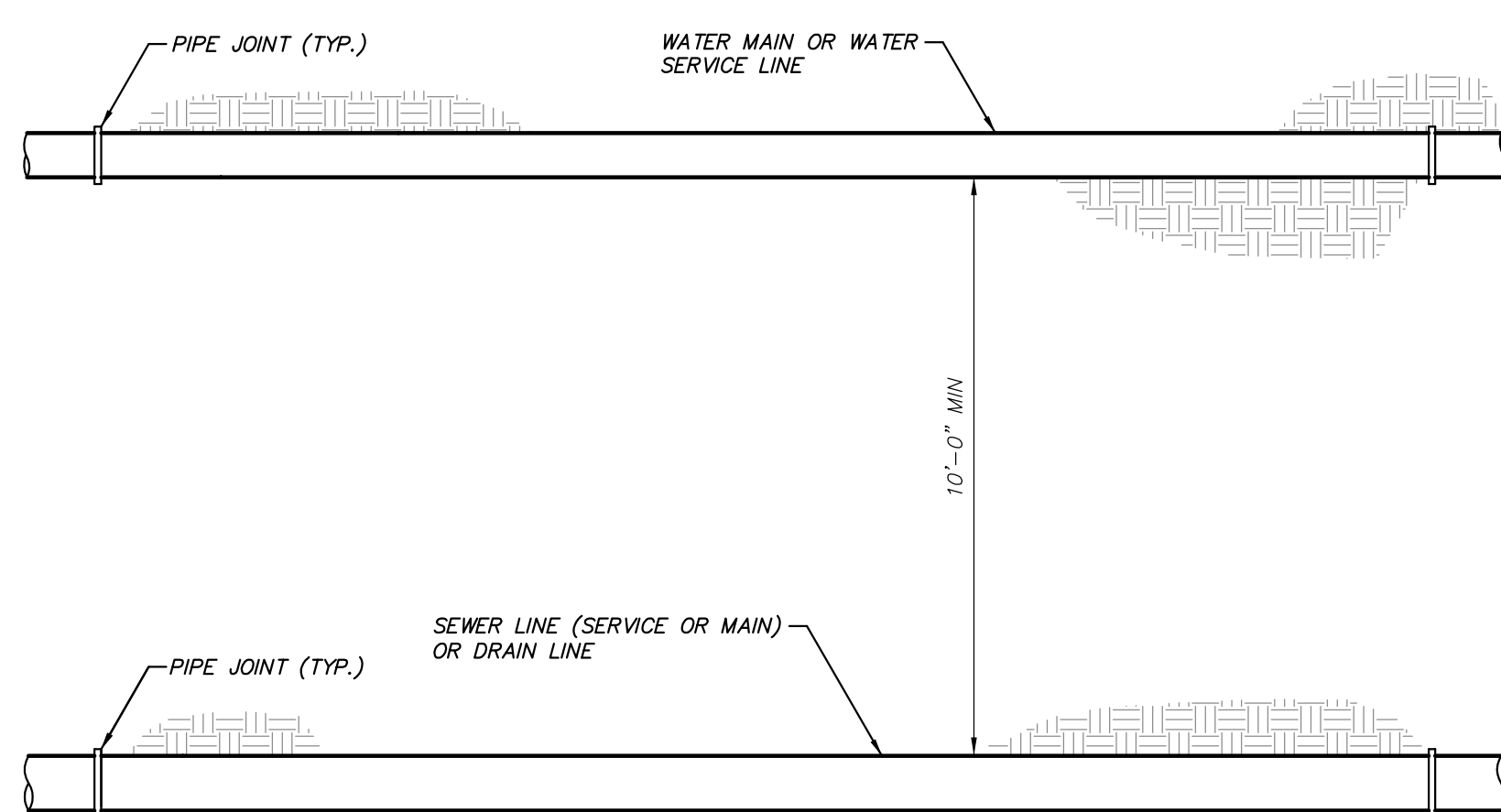
NOTES

- NOTES:
1. WHEN 18" SEPARATION CANNOT BE MAINTAINED, THE WATER LINE SHALL BE ENCASED IN CONCRETE (SEE DETAIL) ONLY WITH PRIOR APPROVAL OF THE DESIGN ENGINEER AND DEPARTMENT OF HEALTH.
  2. PROVIDE PIPE AND FITTING RESTRAINT AS REQUIRED.
  3. THE 18" SEPARATION APPLIES TO WATER MAINS AND WATER SERVICE CONNECTIONS

WATER LINE CROSSING DETAIL  
(N.T.S.)

PVC PIPE WATER MAIN NOTES:

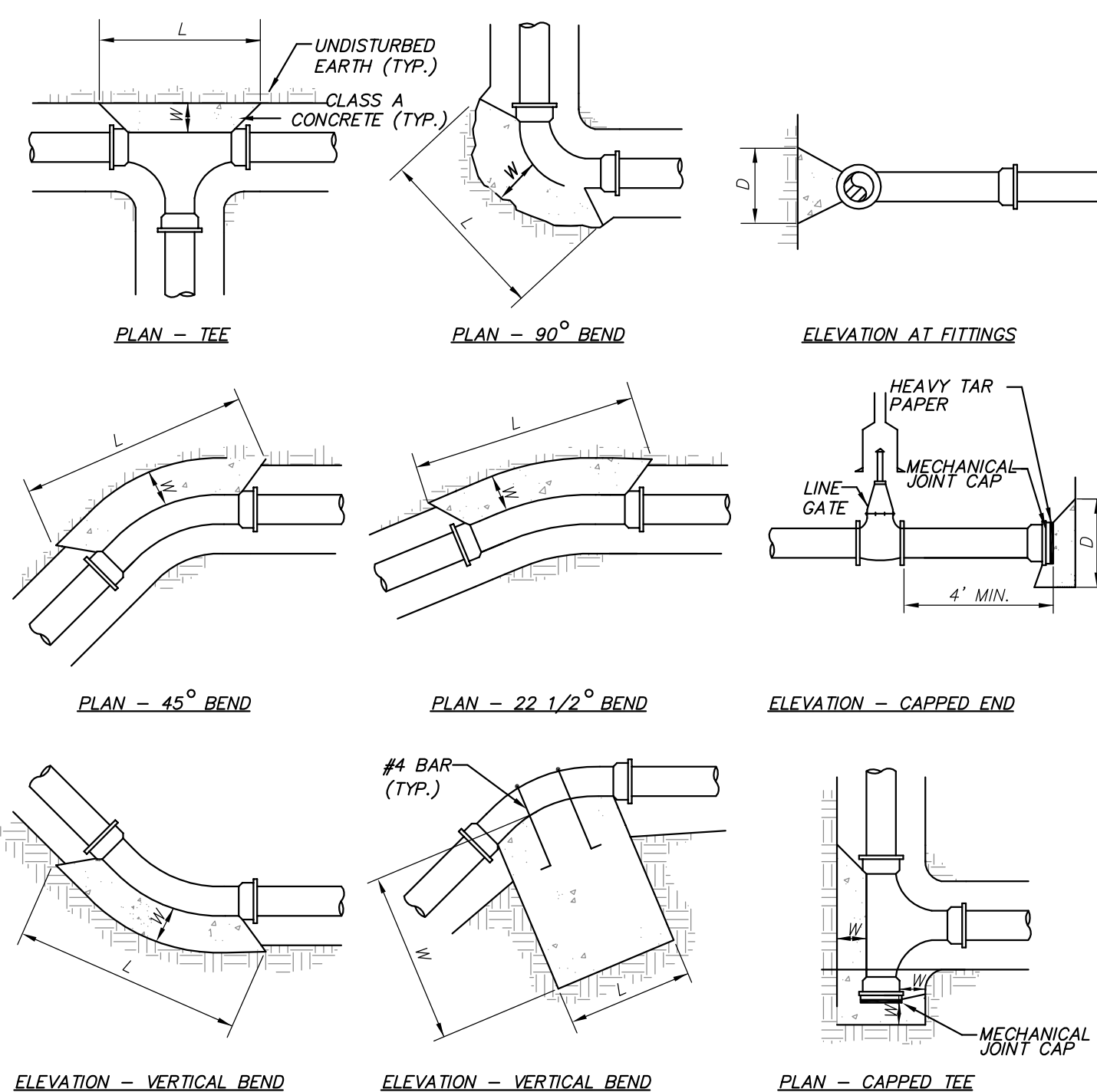
1. All water mains shall be PVC-U 200 DDR pipe with factory installed push-on gaskets. All pipe shall be in conformance with the latest edition AWWA C900.
2. All water main fittings shall be Class 350 ductile iron mechanical joints in accordance with the latest edition of AWWA/ANSI Standards J101/A21.11, "CRIP RMC" restrained joint connections shall be approved. All pipe and fittings (as manufactured by ROMAC Industries, Inc. or approved equal).
3. Thrust blocks shall be installed at all changes in horizontal or vertical alignment.
4. All water mains and appurtenances shall be installed in accordance with the latest edition of AWWA C605.
5. Gate valves shall be "Clow" or approved equal, iron body, non-rising stem conventional packing, resilient seated, mechanical joint with restrained joint gaskets, pressure-tight, 150 lb opening shall be left (COW and operation shall be by 2" square wrench nut).
6. All water mains and appurtenances (including water service lines up to the curb stop) shall be pressure tested and leakage tested to the satisfaction of the Design Engineer and Town's Authorized Representative. This shall be done in accordance with the latest edition of AWWA Standard C605.
7. All water mains and appurtenances shall be flushed, disinfected, and tested to the satisfaction of the Design Engineer, and the Westchester County Department of Health and Environmental Services prior to the latest edition of AWWA Standard C651, section 4.4.3, the "Continuous Flow Method". The "tablet method" will not be allowed.
8. Water mains shall be laid at least 10 feet horizontally from any existing or proposed sanitary or storm sewer main. The distance shall be measured edge to edge. In cases where it is not practical to maintain a 10 foot separation, the Design Engineer shall be notified in writing and the Town's Authorized Representative prior approval on a case-by-case basis, if supported by data from the Design Engineer prior to the installation of the water lines. The horizontal separation shall also be maintained for the water service connections.
9. Water mains crossing sanitary or storm sewer mains shall be laid to provide a minimum vertical clearance of 18 inches between the outside of the water main and the outside of the sewer. This shall be the case where the water main is installed above the sewer or below the sewer. If the water main is installed above the sewer joints will be equidistant and as far as possible from the water main joints. If the water main is installed below the sewer, the structural support shall be provided for the sewer to maintain line and grade. In cases where it is not practical to maintain 18 inch vertical separation, the Design Engineer and Town's Authorized Representative prior to the installation of the water service connections on a case-by-case basis, if supported by data from the Design Engineer prior to the installation of the water lines. The vertical separation also applies to water service connections.
10. The Design Engineer, Westchester County Department of Health, and Town's Authorized Representative shall be notified forty eight (48) hours before construction is started.
11. The water mains shall not be placed into service until a certificate of construction compliance has been submitted to and accepted by the Westchester County Department of Health.
12. The Westchester County Department of Health must be notified forty eight (48) hours prior to pressure testing the water main improvements.
13. The contractor shall notify the Design Engineer every day that water main



## NOTES

- NOTES:
1. WHEN THE 10' SEPARATION CANNOT BE MAINTAINED, THE WATER LINE SHALL BE ENCASED IN CONCRETE (SEE DETAIL) ONLY WITH PRIOR APPROVAL OF THE DESIGN ENGINEER AND DEPARTMENT OF HEALTH.
  2. THE 10' SEPARATION APPLIES TO WATER MAINS AND WATER SERVICE CONNECTIONS

WATER LINE HORIZONTAL SEPARATION DETAIL  
(N.T.S.)

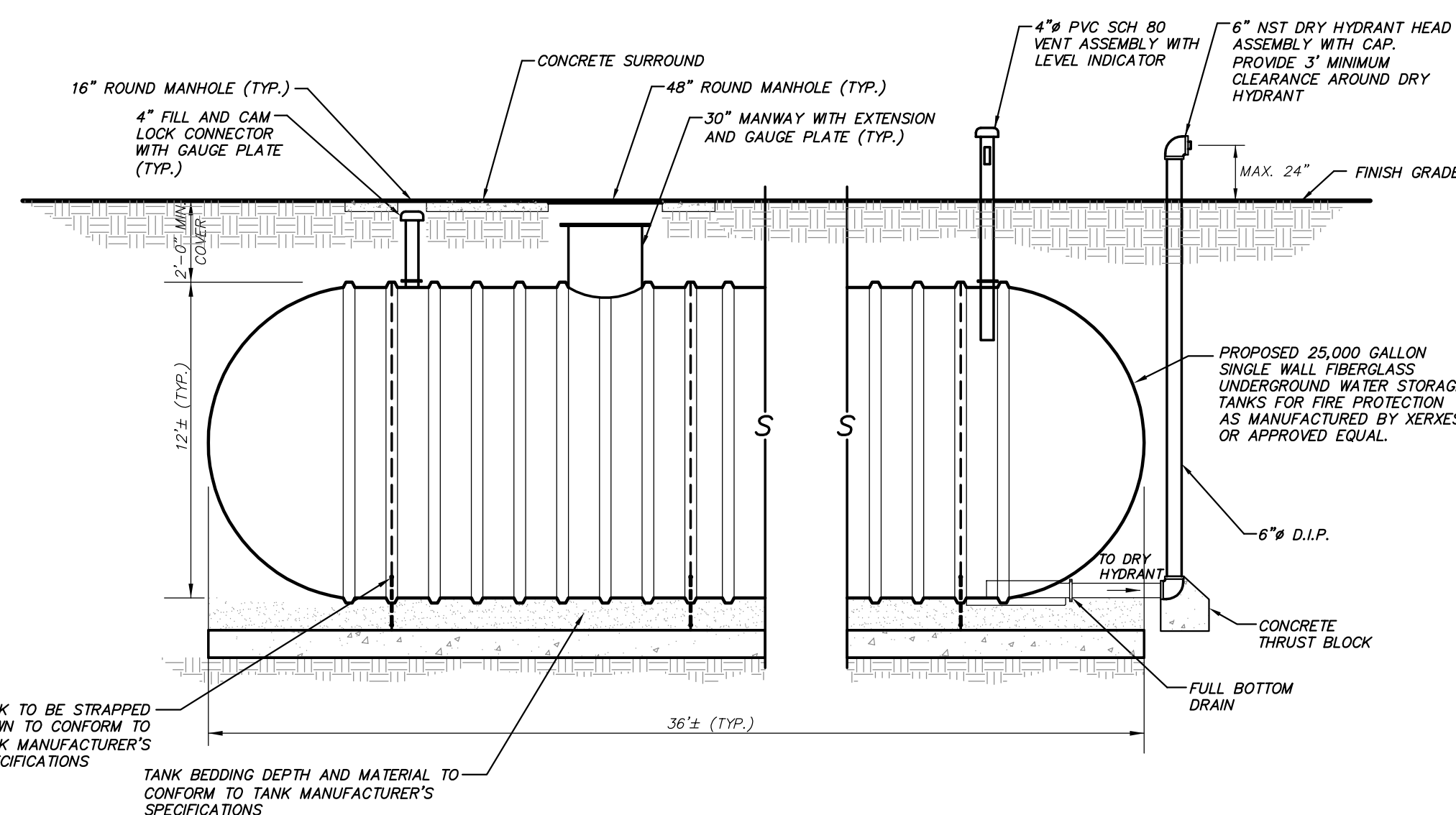


THRUST BLOCK DETAILS  
( N.T.S. )

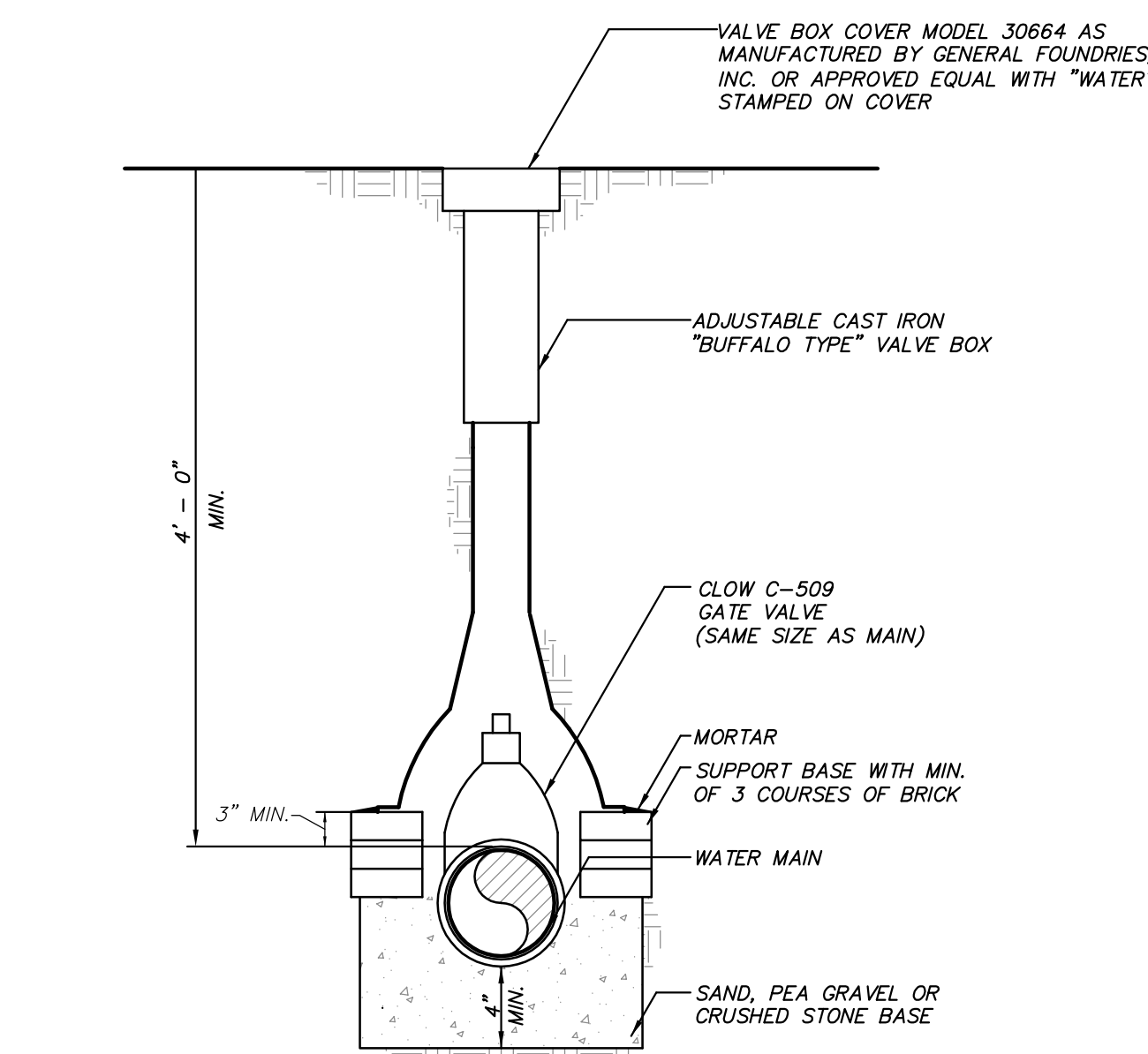
PIPE SIZE	CAP/TEE		22 1/2"		45°		90°		W
	L	D	L	D	L	D	L	D	
4"	2'	1.5'	2'	1.5'	2'	1.5'	2'	1.5'	1.5'
6"	2'	1.5'	2'	1.5'	2'	1.5'	2'	1.5'	1.5'
8"	3'	2'	2'	2'	2'	2'	3'	2'	1.5'

- NOTES**

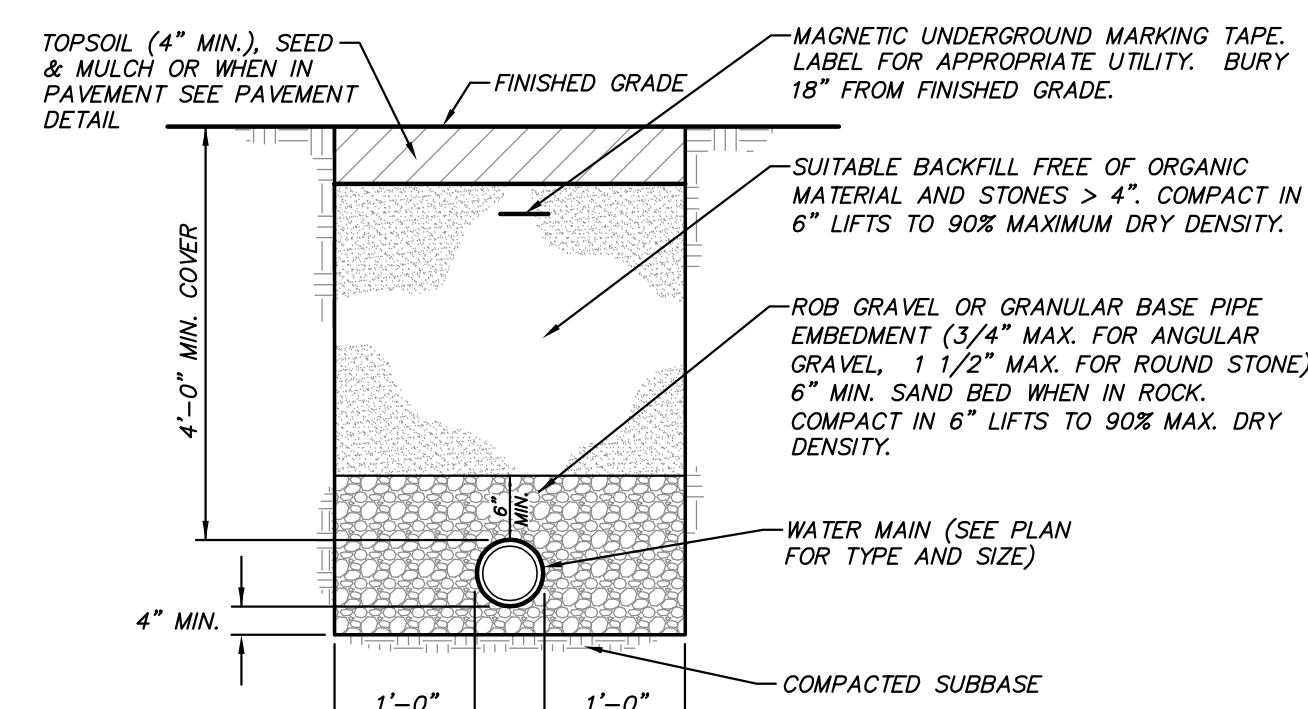
- NOTES:
1. PROVIDE CONCRETE THRUST BLOCKS AT ALL CHANGES IN HORIZONTAL OR VERTICAL ALIGNMENTS FOR THE DRY HYDRANT AND CONNECTION PIPE
  2. PROVIDE LOW LEVEL ALARM IN CLUBHOUSE BUILDING.



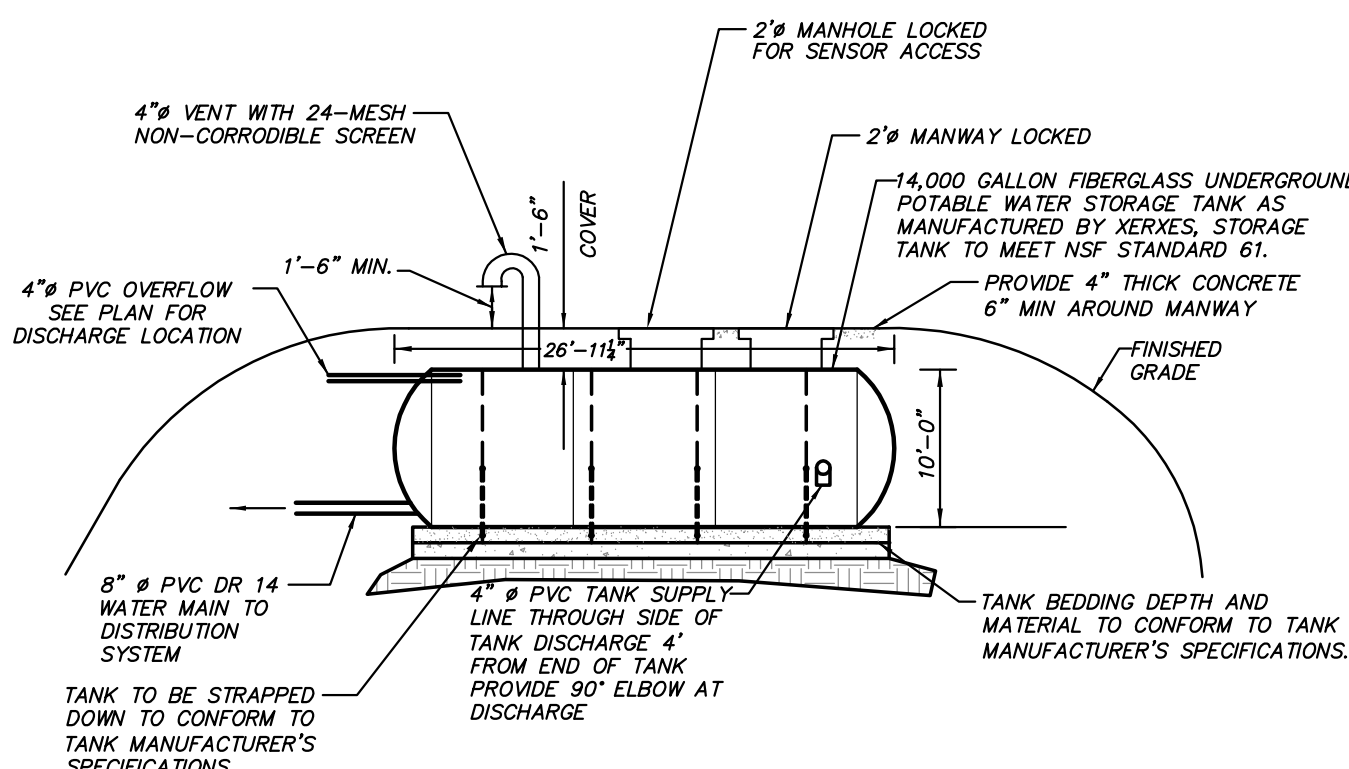
FIRE PROTECTION STORAGE TANK DETAIL  
(N.T.S.)



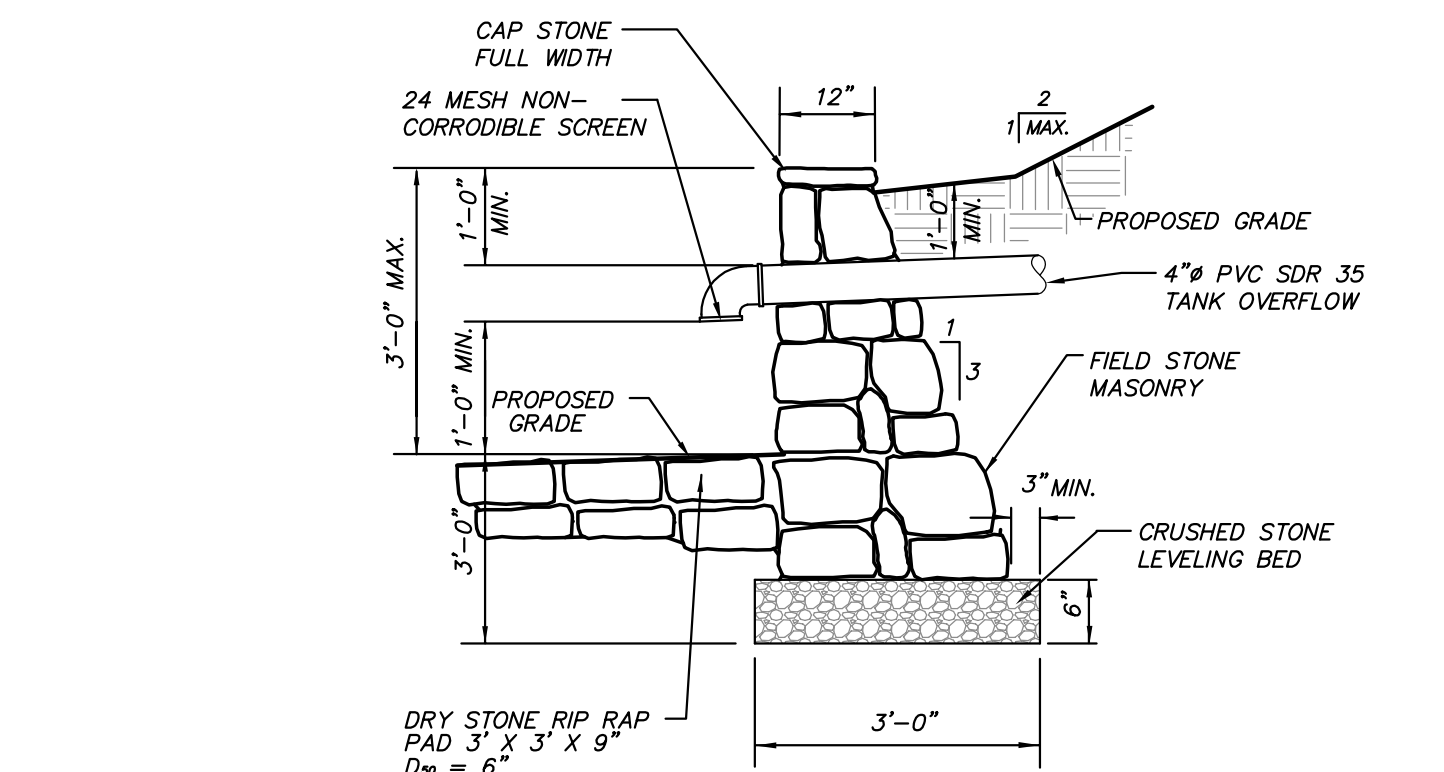
WATER MAIN GATE VALVE AND VALVE BOX DETAIL  
(N.T.S.)



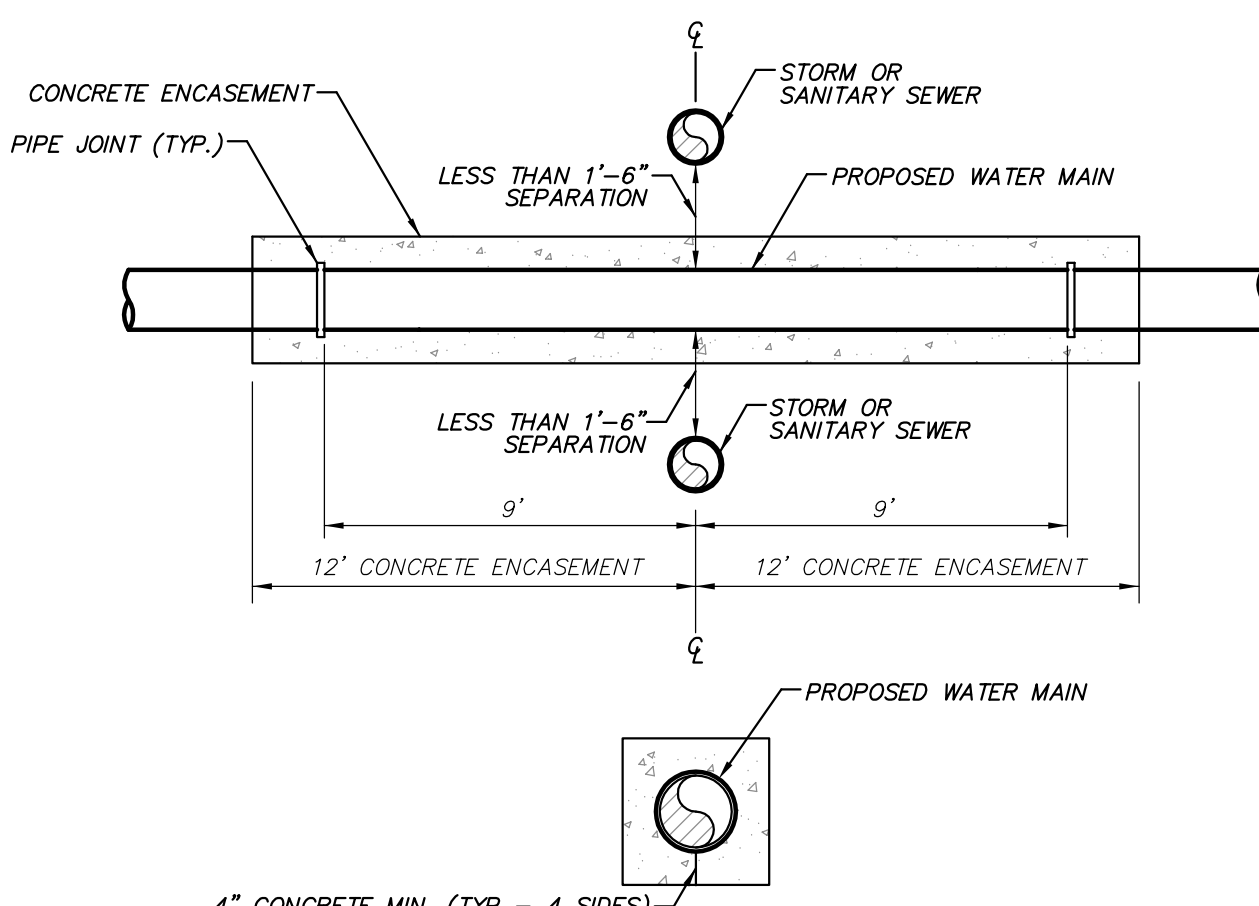
WATER MAIN TRENCH DETAIL  
(N.T.S.)



POTABLE WATER STORAGE TANK DETAIL  
(NTS)

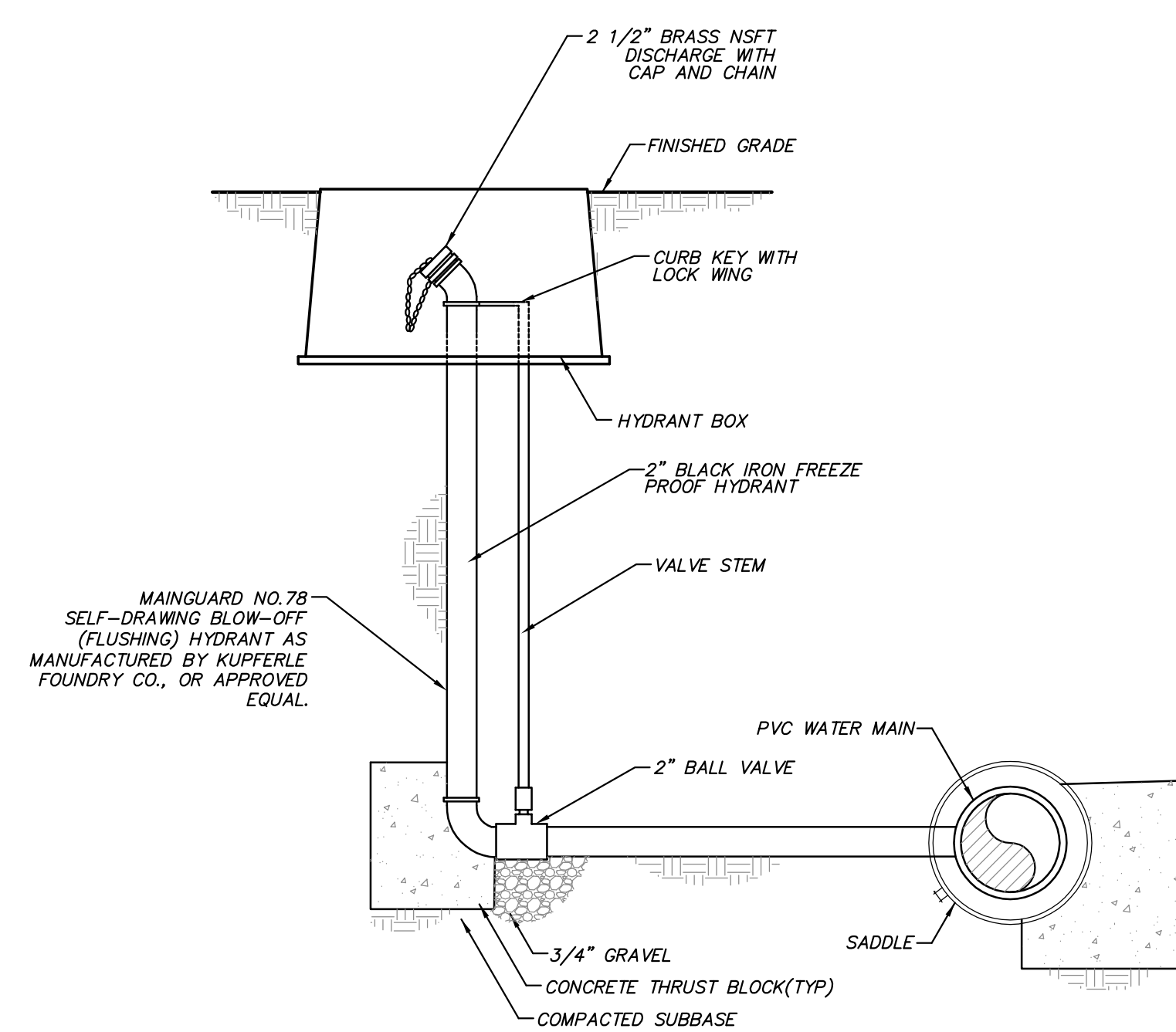


WATER STORAGE TANK OVERFLOW  
SPLASH PAD DETAIL  
(N.T.S.)

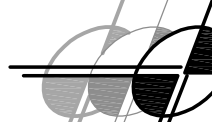


WATER MAIN CONCRETE ENCASEMENT DETAIL  
(N.T.S.)

NOTE: CONCRETE ENCASEMENT IS ONLY TO BE USED WHEN 18" MINIMUM SEPARATION IS NOT POSSIBLE. CONCRETE ENCASEMENT REQUIRES PRIOR APPROVAL BY THE DESIGN ENGINEER & THE DEPARTMENT OF HEALTH



FLUSHING HYDRANT DETAIL  
( N.T.S.)

NO.		DATE		REVISION		BY	
				<b>INSITE</b> ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C. 3 Garrett Place Carmel, NY 10512 (845) 225-9690 (845) 225-9777 fax <a href="http://www.insite-eng.com">www.insite-eng.com</a>			
PROJECT:						<div>WILDER BALTER PARTNERS, INC.</div> <div>ROUTE 22, TOWN OF LEWISBORO, WESTCHESTER COUNTY, NEW YORK</div>	
DRAWING:							
<u>WATER DETAILS</u>							
PROJECT NUMBER	15246.100			PROJECT MANAGER	J.J.C.	DRAWING NO.	SHEET
DATE	9-14-18			DRAWN BY	S.V.W.	HD-11	11 / 11
SCALE	AS SHOWN			CHECKED	D.L.M.		



GOLDENS BRIDGE FIRE DISTRICT  
P.O. BOX 409  
GOLDENS BRIDGE, N.Y. 10526

October 25, 2018

Mr. Jerome Kerner, Chairman  
Planning Board of the Town of Lewisboro  
79 Bouton Road  
South Salem, N.Y. 10590

Re:  
July 25, 2018 Letter  
Application of Wilder Balter Partners, Inc.  
NYS Route 22, Goldens Bridge, New York  
(Cal #1-15 PB, #20-17 WP, #5-17 SW)

Dear Chairman Kerner:

After an October 10, 2018 meeting at the Goldens Bridge Firehouse with representatives of Wilder Balter Partners, Inc. ("Wilder Balter") to discuss the developer's revised plans for its affordable housing project on Route 22 in Goldens Bridge – which is currently under review by the Planning Board of the Town of Lewisboro ("Planning Board") – the Goldens Bridge Fire District ("Fire District") presents the following firematic-related observations, evaluations, concerns and recommendations.

- All recommendations contained herein are firematic related and strictly for firematic benefit in terms of the safety and well-being of inhabitants, protection of property, and safety of firefighting personnel and other emergency responders. Recommendations are also intended to ensure the most effective and efficient firematic strategies and responses to fire events that avoid loss of life of both inhabitants and responders, and minimize loss of property.
- In a July 25, 2018 letter, the Planning Board requested that the Fire District advise on a number of issues regarding the Wilder Balter project, including:
  - the means of ingress/egress provided to the project site;
  - specifications pertaining to the roadway servicing the project site, including grading, road geometry and road width;
  - the placement of the water storage tank on the project site;
  - the position adopted by the ICC (in a July 17, 2017 review letter) with regard to the proposed project, and
  - any other comments or recommendations relating to fire safety and prevention.

- Before these specific issues are addressed, it should be noted that Wilder Balter has targeted some of the concerns and recommendations outlined in the Fire District's June 19, 2017 letter to the Planning Board – noting that many are code requirements. Wilder Balter has made the following representations:

- Wilder Balter plans to install the Knox Box Rapid Entry System on all apartments and auxiliary structures (code), and has asked for the input of the Fire District to advise on which system to purchase and where to install the boxes at an appropriate juncture during the construction.
- Wilder Balter plans to install clearly visible placards at the entrances and exits of all structures that identify building and roof construction type (code).
- Wilder Balter plans to install interior smoke and carbon monoxide detection alarms (code).
- Wilder Balter plans to install an interior fire suppression sprinkler system (code):

- *It should be noted that the Fire District has asked for drawings of the planned fire suppression sprinkler system, but Wilder Balter has said drawings will not be available until it is further along in the process. Wilder Balter has represented that those drawings will be provided to the Fire District when they become available.*

- *It should also be noted that as per the Fire District's recommendations, Wilder Balter has agreed to install external sprinkler heads on all outside decks and patios. Wilder Balter also agreed to provide these drawings when they become available.*

- *The Fire District recommended that the water tank pumps feeding the sprinkler system, and the sprinkler system itself, be connected to emergency power generators so that they are fully functional during power outages (code). Wilder Balter represented that the sprinkler system would be connected to a dedicated emergency power generator.*

- **The Fire District originally recommended that the fire suppression sprinkler system be installed in the attic space as well:**

- *Wilder Balter indicated that it typically does not install sprinkler heads in attic space – and since there will be no electrical wiring or connections at all in the attic space in the Route 22 project, Wilder Balter has no plans for inclusion of sprinkler heads in the attic space.*

- *Although many house and roof fires originate in the attic when lightning strikes cause electrical shorts, other fires also originate in attic space.*

- **Therefore, the Fire District continues to recommend installation of a fire suppression sprinkler system in the attic.**

- *Wilder Balter indicated a willingness to consider sprinkler heads in the attic.*

- Parking concerns in terms of blocking the sole access road in the complex:

- *It should be noted that Wilder Balter addressed the Fire District's concern about oversized vehicles potentially protruding into the access road by representing that the developer has indicated plans for three*

*spaces for oversized vehicles in locations that would not interfere with fire vehicle access.*

- It should also be noted that in addressing the Fire District's concern of parking enforcement in terms of vehicles potentially parking along the access road, Wilder Balter represented that its staff, which includes an around-the-clock caretaker who will live on site, would ensure parking enforcement.*

- While the Fire District trusts the intentions of Wilder Balter to have staff uphold parking enforcement, we recommend that the most effective way to ensure unimpeded passage for fire trucks and emergency vehicles is an adequate number of parking spaces to dissuade inhabitants and visitors from parking illegally along the access road.*

- Wilder Balter also represented to the Fire District that it would provide the names and emergency contact telephone numbers of all on-site staff members to the Fire Department.*

- Wilder Balter plans to install Fire Department connections and placards that are highly visible and accessible – and has agreed that the Fire District and Fire Chiefs would be involved in selecting the appropriate locations of these firematic safety devices.*

- Turning our attention back to the Planning Board's July 25, 2017 letter in which the Fire District was asked to advise on the following issues regarding the Wilder Balter housing project:*

- On the first issue – “the means of ingress/egress provided to the project site”*

- For the safety and protection of inhabitants, property and responders, the Fire District maintains its opinion and recommendation for a SECONDARY MEANS OF ACCESS to the site.*

- We fully recognize that ICC requirements call for secondary access for developments with dwelling units of 200 or more, but there are a number of firematic reasons that support our recommendation for secondary access at the Route 22 site:*

- One-way in/one-way out on this already narrow access road could impede response, life-saving rescue, and fire suppression and containment strategies.*

- Secondary access would alleviate the Fire District's firematic concerns and would make response operations as they are intended – safer, smoother, and more effective and efficient for inhabitants, property and firefighters.*

- The Fire District has recommended to Wilder Balter a reconfiguration of the access road from its current one-way in/one-way out design to a drive through loop that allows safe maneuverability of emergency vehicles, including safe entry and exit on a road that loops around the complex, rather than maneuvering around a tight bullhead/hammerhead turn, or worse, exit in reverse.*



• Wilder Balter acknowledged that the “balloon” loop (as characterized by Wilder Balter representatives) in the Bridleside development would be preferred at the Route 22 site because it enables a secondary roadway for exit. However, Wilder Balter indicated that a secondary egress would not be economically feasible because it would require tearing up the property.

• On the second issue in the Planning Board’s July 25, 2017 letter – “specifications pertaining to the roadway servicing the project site, including grading, road geometry and road width”

- Wilder Balter indicated that the 24-foot-wide road could be widened an additional two feet by pushing into the hill and adding a retaining wall.
- While appreciative of Wilder Balter’s effort, in practical terms, two additional feet (certainly better than zero additional feet) is not very significant when moving fire trucks – and, furthermore, does not address the fact that it remains a narrow one-way in/one-way out egress.
- As it stands now, the Fire District still has concerns about the width of the circular points of the road and the roadway bullhead/hammerhead – particularly since Wilder Balter has described a scenario of rock cliffs running parallel to portions of the roadway and at the bullhead/hammerhead turn, certainly not ideal conditions for maneuvering fire trucks and other emergency vehicles entering and exiting the complex.
- With regard to the part of the road referred to as the bullhead/hammerhead turn, although Wilder Balter indicated that the bullhead/hammerhead turn would be 26 feet wide, it is unclear if the radius measurement is from the inside or outside of the circle. The Fire District needs clarification on this point.
- The dead-end, cul-de-sac configuration remains a concern for the Fire District because, again, adding two feet in width is insignificant when maneuvering fire rigs around such tight space. The current configuration is not conducive to fire trucks and other emergency response vehicles.
- In addition to the balloon loop/secondary access road issue, the Fire District also has concerns with the road grading, which is fairly steep for big rig apparatus – particularly during snow, ice and other severe weather conditions, which are becoming more commonplace in our area.
- The Fire District recommends:
  - substantial widening of the roadway and bullhead/hammerhead, especially in the one-way in/one-way out configuration scenario – unless this configuration is changed to a secondary egress, a loop such as the configuration at Bridleside, in which case the Code width of the roadway would be sufficient;
  - elimination of the center island (whether grass, planters or the like) from the bullhead/hammerhead turn;
  - additional widening of the bullhead/hammerhead turn;
  - add distance to the access road to implement a change in the grade;

- *a written plan from Wilder Balter detailing a strategy to keep the one-way in/one-way out roadway passable during severe weather conditions and storms.*
- On the third issue in the Planning Board's July 25, 2017 letter – **“the placement of the water storage tank on the project site”**
  - *Wilder Balter has represented that it is providing a 25,000-gallon fire protection water storage tank designated for Goldens Bridge Fire Department use only.*
  - *The Fire District requires that Wilder Balter provide a detailed drawing of the location and size of this tank since the developer has yet to provide these drawings.*
  - *The Fire District has recommended to Wilder Balter that the plan for the fire protection tank should include the following: two 6" draw pipes from the bottom of the tank with 6" female NST connections and 6" plug with chain to prevent any debris from entering the line. In addition, we recommended two 2.5" fill lines with 2.5" female NST connections, and two 2.5" plugs with chain – with all lines run in ductile steel pipe.*
  - *Wilder Balter has agreed to allow the Fire District to provide input and inspection prior to the final tank design and installation to make certain that the size of pipes, nozzles, fittings, etc., meets the Fire Department's specifications, and that the tank is situated in the appropriate location – which is significant because once hose is fed and the line is charged, the integrity of the line must be maintained and protected.*
- On the fourth issue in the Planning Board's July 25, 2017 letter – **“the position adopted by the ICC with regard to the proposed project”**
  - *Even the ICC recognizes that local factors and conditions come into play in the review process. In its July 17, 2017 review letter (to Wilder Balter's representative, Mr. Michael Giardino of L & M Design LLC), the ICC states that factors such as vehicle congestion and local weather conditions could warrant action beyond standard code requirements per the evaluation of local code officials.*
  - *The Fire District had originally asked that Wilder Balter submit its plans for the Route 22 housing project to the ICC for review – a request with which Wilder Balter complied.*
  - *Based on the ICC's July 17, 2017 review letter, it is the Fire District's position that the ICC did not sign off on the plan.*
  - *Furthermore, the ICC states that its July 17, 2017 letter constitutes a limited scope review – limited to a site plan design review – and as such, a complete building/fire code review was neither requested nor performed.*
  - *Although Wilder Balter insists that the plans have not changed firematically despite multiple alterations to the plans submitted to the ICC on June 30, 2017 – including the addition of a significant number of multi-bedroom apartments – the Fire District does not agree with the developer's position.*
  - *While the developer is correct in saying that it is not obligated to resubmit its plans to the ICC, the Code review now lies with the Lewisboro Building Inspector.*

- **As such the Fire District:**
  - **requests that the Building Inspector address the ICC's concerns outlined in its letter to the developer's representative;**
  - **requests a copy of the Building Inspector's response to the ICC review when it becomes available, and**
  - **recommends a complete ICC building/fire code review based on three factors: 1) there have been substantial changes to the original plans reviewed by the ICC, 2) the ICC's initial review was a limited scope review, and 3) a complete building/fire code review was not performed.**
- On the fifth issue in the Planning Board's July 25, 2017 letter – **“any other comments or recommendations relating to fire safety and prevention”**
  - ***These were addressed at the beginning of this document, prior to addressing the five points in the Planning Board's July 25, 2017 letter. However, there is an additional concern that arose as a result of the change in unit assignments:***
    - ***The Fire District expressed to Wilder Balter a concern of whether Fire Department vehicle placement would be within the collapse zone of the particular structure. (Collapse zone is calculated by the overall height of a structure, multiplied 1.5 times, to create a potential debris field – that is, the landing area of debris if a wall were to collapse.)***
    - ***Wilder Balter represented that the building would be within code constraints for a 3-story structure.***
    - **The Fire District would like confirmation from the Building Inspector that the building is compliant with Town code multiple story structures.**

If you have any questions or need clarification on our assessment, evaluation, concerns and recommendations, do not hesitate to contact the Fire District. Thank you for seeking the input of the Fire District on this project.

Respectfully submitted,

Edward W. Brancati, Chairman  
Board of Fire Commissioners  
Goldens Bridge Fire District

cc:

Town of Lewisboro Planning Board Members  
Janet Anderson  
Greg LaSorsa  
John O'Donnell  
Richard Sklarin

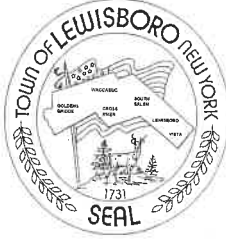
Board of Fire Commissioners, Goldens Bridge Fire District  
Joann Vasi, Secretary  
Tom Beneventano  
Robert Melillo  
Joe Simoncini



Goldens Bridge Fire Department  
James McManus, Chief  
Al Melillo, First Assistant Chief  
Dennis Delborgo, Second Assistant Chief

George H. Roberts, Esq., Counsel, Goldens Bridge Fire District

TOWN OF LEWISBORO  
Westchester County, New York



Building Department  
79 Bouton Road  
South Salem, New York 10590

Tel: (914) 763-3060  
Fax: (914) 875-9148  
Email: [jangiello@lewisborogov.com](mailto:jangiello@lewisborogov.com)

November 13, 2018

Mr. Jerome Kerner, Chairman  
Town of Lewisboro Planning Board

Re: Application of Wilder Balter Partners, Inc.  
NYS Toute 22, Goldens Bridge

Dear Mr. Kerner and Members of the Board,

I have reviewed the plans from Insite Engineering, Surveying & Landscape Architects, P.C. latest revision dated 9/27/18 and found them to be compliant with the 2015 IFC as amended by the 2017 NYS Code Supplement. I have also reviewed the plans for compliance with the Town of Lewisboro Zoning Code and have the following comment.

**The clubhouse should not be considered as part of the recreational facilities required per section 220-26(D)(3). Adequately sized walking trails could be utilized to fulfill the balance of the requirement.**

Please do not hesitate to contact me with any questions.

Sincerely,

Joe Angiello  
Building Inspector

cc: Goldens Bridge Fire Dept.  
P.O. Box 409  
Goldens Bridge, NY 10526  
Att: Mr. Edward Brancati, Commissioner

## CONSERVATION EASEMENT

This Conservation Easement Agreement is made as of this \_\_\_\_ day of December, 2018, between Property Group Partners, LLC, having an office at 609 Fifth Avenue, New York, New York 10017 (hereinafter referred to as “Grantor”), and the Lewisboro Land Trust, Inc., a New York not-for-profit corporation with a mailing address of PO Box 496, South Salem, New York 10590 (hereinafter referred to as “Grantee”).

**WHEREAS**, Grantor is the owner in fee of real property located in the Town of Lewisboro, Westchester County, New York, known and designated on the tax map of the Town of Lewisboro as Section 5, Block 1735, Lots 19, 20 and 21, acquired by Grantor by deed from Lewisboro Land Corporation dated 7/22/2011 and recorded on 8/12/2011 in the Westchester County Clerk’s office, Division of Land Records at Control Number 511883446, more particularly described in Schedule A attached hereto and incorporated herein by reference (hereinafter the “Property”); and

**WHEREAS**, Grantor wishes to donate a conservation easement (hereinafter this “Conservation Easement”) pursuant to Article 49, Title 3 of the New York Environmental Conservation Law on a 20.06 acre portion of the Property, which is currently primarily undeveloped, more particularly described in Schedule B attached hereto and incorporated herein by reference (hereinafter the “Conservation Area”); and

**WHEREAS**, Grantee is a publicly supported tax exempt New York not-for-profit corporation within the meaning of Article 49, Title 3, of the Environmental Conservation Law of the State of New York, organized for the purpose, among others, of conserving real property, and is thereby qualified to be the grantee of conservation easements; and

**WHEREAS**, Grantor wishes to preserve and protect the scenic values and natural habitat, wooded, and wetland areas of the Conservation Area and provide for access to trails on the Conservation Area for the public thereby protecting significant conservation values, including the following:

- Preservation of the Conservation Area preserves land for outdoor recreation for the general public. The Conservation Area connects to a nature preserve maintained by Bedford Audubon which has hiking trails open to the public. The Conservation Area will provide an addition to the existing trail system enhancing the public recreation value of the preserve.
- Preservation of the Conservation Area open space through this Conservation Easement will help protect its wildlife habitat in perpetuity which [REDACTED]; and
- Preservation of the Conservation Area preserves open space pursuant to clearly delineated State and local government conservation policy and provides a significant public benefit. The Conservation Area is in the Muscoot reservoir watershed, a part of the drinking water supply for New York City and surrounding areas



NY Open Space Plan, Lewisboro Master Plan, County of Westchester Croton plan ; and

**WHEREAS**, the conservation values of the Conservation Area are documented in a Baseline Data Report dated 2018, acknowledged by the signatures of Grantor and Grantee, which is to be filed in the office of the Lewisboro Land Trust, Inc. and is incorporated herein by reference, and which includes an inventory of the relevant conservation values, maps, photographs, reports and other documents that the parties agree provide an accurate representation of the Conservation Area at the time of the execution of this Conservation Easement, and which is intended to provide objective baseline information for purposes of future monitoring and enforcement; and

**WHEREAS**, Grantee agrees to accept this Conservation Easement and to honor the intentions of Grantor as stated herein and to preserve and protect the Conservation Area in perpetuity according to the terms of this Conservation Easement for the benefit of this and future generations.

**NOW THEREFORE**, in consideration of the foregoing and the mutual covenants, terms, conditions, and restrictions contained herein, the Grantor hereby voluntarily grants and conveys to Grantee this Conservation Easement in perpetuity over the Conservation Area of the nature and character and to the extent set forth herein.

**1. Purpose.** It is the purpose of this Conservation Easement to assure that the Conservation Area will be retained predominantly in its natural and open space condition for conservation purposes by protecting the Conservation Area from development and other disturbance except as permitted herein, by allowing public use of trails on the Conservation Area and to forever extinguish all development rights inherent in the Conservation Area in excess of those permitted herein, thereby preserving and protecting the significant conservation values of the Conservation Area.

**2. Prohibited Uses and Restrictions.** Any activity on or use of the Conservation Area inconsistent with the purpose of this Conservation Easement is prohibited. Without limiting the generality of the foregoing provision, the following restrictions specifically apply to the Conservation Area;

**a.** No quarry, gravel pit, surface or subsurface mining or drilling shall be permitted on or under the Conservation Area except as permitted herein. The foregoing shall not prohibit the construction, operation, maintenance, repair, replacement and/or modification (including expansion) of the water supply facilities (the "Water Supply Facilities") serving other areas of the Property, as shown on the Easement Map attached hereto as Exhibit 1, which Water Supply Facilities may be modified by Grantor from time to time with the approval of the Westchester County Department of Health, the Town of Lewisboro and/or any other agency having jurisdiction. Grantor agrees to promptly restore the Conservation Area as closely to its original condition as may be practicable after the completion of any such construction, maintenance, repair, replacement and/or modification thereof. The parties hereby recognize and acknowledge that the

construction of the Water Supply facilities will require the permanent removal of trees to accommodate same.

**b.** No dumping or storage of ashes, non-composted organic waste, lawn clippings, leaves, tree branches, tree stumps and similar by-products from the maintenance of the Property, garbage, or any toxic or offensive materials shall be allowed on the Conservation Area. This provision shall not prohibit the construction, operation, repair, maintenance, repair, replacement and/or modification (including expansion) of the on-site wastewater treatment system expansion areas (the "OWTS") serving other areas of the Property as allowed in paragraph 4d and shown on the Easement Map attached hereto as Exhibit 1, which OWTS may be modified by Grantor from time to time with the approval of the Westchester County Department of Health, the Town of Lewisboro and/or any other agency having jurisdiction. Grantor agrees that should the OWTS be required in the future, any resulting disturbance will be promptly restored as closely to its original condition as may be practicable after completion of any such construction, maintenance, repair, replacement and/or modification thereof. The parties hereby recognize and acknowledge that the construction of the OWTS will require the permanent removal of trees to accommodate same.

**c.** No more than *de minimus* commercial recreational activities may be conducted on the Conservation Area.

**d.** There shall be no temporary or permanent buildings or structures constructed or placed on the Conservation Area other than those permitted by paragraphs 2a, 2b and 4d herein.

**e.** There shall be no excavation or removing from the Conservation Area of soil, loam, gravel, sand, rock or other mineral resource or natural deposit except as specifically permitted in paragraphs 2a, 2b, 3b and 4d herein.

**f.** The use and application of chemically based, non-organic herbicides, pesticides, fertilizers, fungicides, lime and other chemicals are prohibited on the Conservation Area, except to the extent permitted in connection with the Mitigation Plan dated June 24, 2017, rev. October 11, 2017 and August 2, 2018, approved by the NYSDEC pursuant to the Freshwater Wetlands Permit attached hereto as Exhibit 2, as same may be amended from time to time with approval of the NYSDEC and/or the Town of Lewisboro.

**g.** There shall be no placing, filling, dumping or storage of fill, waste, refuse, trash, debris, junk, garbage or any toxic or offensive materials on the Conservation Area.

**h.** Notwithstanding any other restriction contained herein, Grantor may take such actions with respect to the Conservation Area as are necessary to protect the health and safety of the public and the persons using the Conservation Area; provided that if any such action is contrary to a restriction contained herein, the action shall be limited to the minimum variation necessary to afford the required protection. Grantor shall provide reasonable prior notice to Grantee of such action.

**3. Rights Conveyed to Grantee.** To accomplish the purposes of this Conservation Easement, the following rights are conveyed to Grantee by this Conservation Easement.

- a.** The right to preserve and protect the conservation values of the Conservation Area.
- b.** The right to clear and mark trails for pedestrian use on the Conservation Area connecting to trails on the adjacent Bedford Audubon property, and to allow public pedestrian use of those trails in reasonable manner and during daylight. Trails on the Conservation Area shall avoid areas containing infrastructure on the Conservation Area permitted by paragraphs 2a, 2b and 4d herein.
- c.** The right to enter upon the Conservation Area at reasonable times in order to monitor compliance and otherwise enforce the terms of this Conservation Easement. Grantee shall provide Grantor or Grantor's successors, reasonable notice of such entry unless Grantee reasonably determines that immediate entry is required to prevent, terminate or mitigate violations of this Conservation Easement. Notice shall not be required for regular access to the trails on the Conservation Area for trail construction and maintenance or for access to these trails for passive recreational use by the Grantee or the public accessing these trails from adjacent property.
- d.** The right to prevent any activity on, incursion into, or use of the Conservation Area that is inconsistent with the purposes of this Conservation Easement, and to require the restoration of such areas or features of the Conservation Area that are damaged by any inconsistent activity or use pursuant to the remedies set forth in paragraph 6 herein.

**4. Reserved Grantor's Rights.** Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Conservation Area, all rights accruing from its ownership of the Conservation Area, including, without limitation, the right to sell, transfer or encumber the Conservation Area, as owner, subject to the restrictions and covenants set forth in this Conservation Easement; and the right to engage in, or permit others to engage in, all uses of the Conservation Area that are not expressly prohibited herein and are not inconsistent with the purposes of this Conservation Easement. In addition, any other provision of this Conservation Easement to the contrary notwithstanding, Grantor specifically reserves for itself and its successors in interest with respect to the Conservation Area, and they shall enjoy, the following rights with respect to the Conservation Area:

- a.** Grantor retains the right to remove vegetation that is identified by Grantor in consultation with Grantee as "invasive" from the Conservation Area. Grantor may plant, maintain, trim and remove vegetation and trees (including the removal of vines and those trees that are dead and diseased) and, in accordance with a forest management plan approved by Grantee whose goal and purpose is the preservation of conservation values (in particular natural habitat) and not the conduct of timbering for commercial or domestic purposes, may remove dead and diseased trees and may plant trees native to the Northeast region of the United States.



**b.** Grantor specifically reserves the right to implement the plant removals and additions set forth in the Mitigation Plan, dated June 24, 2017, rev. October 11, 2017 and August 2, 2018, approved by the NYSDEC pursuant to the Freshwater Wetlands Permit incorporated herein and attached hereto as Exhibit 2, as same may be amended from time to time with approval of the NYSDEC and/or the Town of Lewisboro.

**c.** Grantor retains the right to lease or grant others less-than-fee interests in all or a portion of the Conservation Area for any use permitted to Grantor under this Conservation Easement, provided that such lease or other interest is consistent with and subject to the terms of this Conservation Easement.

**d.** Grantor specifically reserves the right to construct, operate, maintain, repair, replace, modify and/or expand the OWTS and the Water Supply Facilities within the Conservation Area to support the use and development of the rest of the Property.

**e.** Grantor specifically reserves the right to control access between the Conservation Area and the rest of the Property, with the expectation that the public access to the Conservation Area will occur from an adjacent property. Access to the Conservation Area from the rest of the Property is granted only to Grantee for purposes of monitoring compliance with this Conservation Easement. Grantor may provide other access from the rest of the Property to the Conservation Area at its discretion.

**f.** Grantor and Grantee retain the right to post the Conservation Area against hunting and trapping.

## **5. Enforcement.**

**a. Notice.** If Grantee determines that a violation of this Conservation Easement has occurred or is threatened, Grantee shall give written notice to Grantor of such violation and demand that corrective action sufficient to cure the violation be taken. Where the violation involves injury to the Conservation Area resulting from any use inconsistent with the terms or the purpose of this Conservation Easement, Grantee shall demand that Grantor restore the Conservation Area to its prior condition in accordance with a plan approved by the Grantee.

**b. Injunctive Relief.** If Grantor fails to cure the violation within 30 days after receipt of notice of a violation from Grantee, or, where the violation cannot reasonably be cured within a 30 day period, Grantor fails to begin curing such violation within a 30 day period, or Grantor fails to diligently continue to cure such violation until it is cured, as its sole remedy Grantee may bring an action at law or in equity in a court of competent jurisdiction to enforce the terms of this Conservation Easement, to enjoin the violation by temporary or permanent injunction, and to require the restoration of the Conservation Area to the condition that existed prior to any such injury.

**c. Emergency Enforcement.** If Grantee, in its sole discretion, determines that circumstances require immediate action to prevent or mitigate significant damage to the conservation values of the Conservation Area, Grantee may pursue its remedies under this Section 5 without prior notice to Grantor or without waiting for the period for cure to expire.

**d. Costs of Enforcement.** All reasonable costs of enforcing the terms of this Conservation Easement against Grantor, including but not limited to the costs and expenses of legal action, reasonable attorney's fees, and any costs involved in the restoration of the Conservation Area resulting from Grantor's violation of the terms of this Conservation Easement, shall be borne by Grantor unless Grantor ultimately prevails in judicial enforcement, in which case each party shall bear its own costs.

**e. Forbearance.** Forbearance or delay by Grantee in the exercise of any of its rights to enforce this Conservation Easement or to exercise any right granted to it under this Conservation Easement shall not be deemed a waiver of such rights or of any of the terms of the Conservation Easement. Grantor hereby waives any defense of laches, estoppel or prescription.

**f. Acts Beyond Grantor's Control.** Grantee shall have no cause of action under this Conservation Easement against Grantor for injury or damage to the Conservation Area which is beyond Grantor's control, including, without limitation, flood, fire, wind, storms, or earth movement, or from any prudent action taken by Grantor, under emergency conditions, to prevent, abate or mitigate significant injury to the Conservation Area or adjacent properties from such causes.

**6. Notices and Approvals.** When Grantee's or Grantor's approval is required for any action or activity allowed by this Conservation Easement to be taken only with approval, such approval shall be in writing and signed by both parties to this Conservation Easement or their successors. Any notice required by this Conservation Easement shall be deemed given when received or three days after being mailed by certified or registered mail, return receipt requested, postage prepaid, properly addressed as follows: (a) if to Grantee, at address set forth above; (b) if to Grantor, at the address set forth above; (c) if to any subsequent owner, at the address provided by notice to Grantee of transfer of the Property as required by this paragraph. Any party may change the address to which notices are to be sent to him, her or it by duly giving notice pursuant to this paragraph.

Whenever Grantee's approval is required under this Conservation Easement, Grantee shall grant or withhold its approval in writing within 20 business days of receipt of Grantor's written request therefor. Grantee agrees to evaluate Grantor's requests under this Conservation Easement based on its good faith exercise of professional judgment. In the case of withholding of approval, Grantee shall notify Grantor in writing with reasonable specificity of the reasons for withholding of approval and the conditions, if any, on which approval may otherwise be given. Failure of Grantee to deliver a written response to Grantor within such 20 business days shall be deemed to constitute written approval by Grantee of any request submitted for approval that is clearly not contrary to the express restrictions hereof. Following the receipt of Grantee's

approval, and not less than 7 days prior to the commencement of the approved activity, Grantor shall notify Grantee in writing in the manner described in the preceding paragraph of Grantor's intention to exercise such right.

**7. Costs, Liabilities, and Insurance.** Grantor shall retain all responsibilities and shall bear all costs and liabilities of any kind related to the ownership, operation, upkeep, and maintenance of the Conservation Area. Grantor shall remain solely responsible for obtaining any applicable governmental permits and approvals for any construction or other activity or use permitted by this Conservation Easement, and all such construction and other such activity or use shall be undertaken in accordance with all applicable federal, state, and local laws, regulations, and requirements. Both Grantee and Grantor shall maintain general public liability insurance insuring against claims on account of loss of life, bodily injury or property damage that may arise from any activities conducted on, or any use of, the Conservation Area respectively by Grantee or Grantor, its invitees, successors and or assigns. Said insurance shall name, respectively, Grantor or Grantee as additional insured and shall be carried by an insurance company or companies qualified to do business in the State of New York and shall bear an endorsement to the effect that any additional insured shall be notified not less than ten (10) days in advance of modification or cancellation thereof; further such insurance shall have limits for loss of life or bodily injury in the amounts of not less than \$1,000,000 for each person and \$1,000,000 for each occurrence.

**8. Taxes.** Grantor shall pay before delinquency all taxes, assessments, fees, and charges of whatever description levied on or assessed against the Conservation Area by competent authority, including any taxes imposed upon, or incurred as a result of, this Conservation Easement, and shall furnish Grantee with evidence of such payment upon request.

**9. Representations and Warranties.** Grantor represents and warrants that, after reasonable investigation and to the best of its knowledge, the Conservation Area is in compliance with all federal, state and local laws, regulations and requirements applicable to the Conservation Area or its use, and there is no threatened or pending litigation in any way affecting, involving, or related to the Conservation Area.

**10. Subordination of Mortgages.** Grantor represents that there are no mortgages on the Conservation Area.

**11. Amendment.** This Conservation Easement may be amended upon the written consent of Grantee and Grantor; provided that no amendment may alter the restrictions on use, nor shall it allow subdivision that is inconsistent with the purposes of this Conservation Easement, nor shall it in any way limit the perpetual duration of this Conservation Easement. Any such amendment, variance or waiver shall be consistent with the basic purposes of this Conservation Easement and shall comply with Article 49, Title 3, of the Environmental Conservation Law. Any such amendment, variance or waiver that does not comply with Article 49 shall be void and of no force or effect. Any amendment shall be in writing and shall be recorded in the Westchester County Clerk's Office, Division of Land Records.



**12. Recordation.** Grantee shall record this instrument in a timely fashion in the Westchester County Clerk's Office, Division of Land Records, and may re-record it at any time as may be required to preserve its rights in this Conservation Easement.

**13. Assignment.** Grantee's rights and obligations under this Conservation Easement may be assigned only to an organization that is a not-for-profit conservation corporation or other entity authorized to take title to a conservation easement under New York Environmental Conservation Law, Article 49, Title 3, and which agrees to continue to carry out the conservation purposes of this Conservation Easement. Any assignee other than a governmental unit must be an entity able to enforce this Conservation Easement, having purposes similar to those of Grantee and which encompass those of this Conservation Easement. Grantee agrees to provide Grantor notice of any assignment pursuant to paragraph 7 herein, 20 days prior to any assignment. Failure to provide such notice prior to assignment shall not affect the validity of the assignment, nor shall it impair the validity of this Conservation Easement or limit its enforceability in any way.

**14. Subsequent Transfers.** Any subsequent conveyance of any interest in the Conservation Area, including, without limitation, a transfer of title or lease shall be subject to this Conservation Easement, and any deed, lease or other instrument evidencing or effecting such conveyance shall contain language providing that the Conservation Area is subject to a perpetual conservation easement which runs with the land and which was granted to the Lewisboro Land Trust, Inc. The conveyance shall note the date of this Conservation Easement and the Control Number by which the Westchester County Clerk identifies this Conservation Easement. The failure to include such language in any deed or instrument shall not affect the validity or enforceability of this Conservation Easement.

#### **15. Definitions and Binding Effect.**

**a. The Conservation Area.** The provisions of this Conservation Easement shall run with the Conservation Area in perpetuity and shall bind and be enforceable against Grantor and all future owners and any party entitled to possession or use of the Conservation Area or any portion thereof while such party is the owner or entitled to possession or use thereof. Grantor will endeavor to permanently identify those areas as under a conservation easement with a suitable marker.

**b. Owner.** As used in this Conservation Easement, the term "owner" includes the owner of any beneficial equitable interest in the Conservation Area or any portion thereof; the term "Grantor" includes the original Grantor, his, her or their heirs, successors and assigns, all future owners of all or any portion of the Conservation Area, and any party entitled to possession or use thereof; and the term "Grantee" includes the original Grantee and its successors and assigns. Notwithstanding the foregoing, upon any transfer of title, the transferor shall cease being a Grantor or owner for purposes of this Conservation Easement and shall have no further responsibility or liability hereunder for acts done or conditions arising thereafter, but, subject to Section 5b. of this Agreement the transferor shall remain liable for acts and conditions occurring during its ownership of the Property.

**16. Extinguishment.** If circumstances arise in the future that make the purpose of this Conservation Easement impossible to accomplish, and if this Conservation Easement or any of its restrictions are extinguished by judicial proceeding, then, upon any subsequent sale, exchange or involuntary conversion by Grantor, Grantee shall be entitled to that portion of the proceeds equal to the proportionate value of the conservation restrictions as provided immediately below. Grantor agrees that the conveyance of this Conservation Easement to Grantee gives rise to a property right, immediately vested in Grantee, with a fair market value that is equal to the proportionate value that the conservation restrictions hereby created at the date hereof bears to the value of the Conservation Area as a whole at the date hereof (subject to reasonable adjustment to the extent permissible under Section 170(h) of the Internal Revenue Code for any improvements which may hereafter be made on the Conservation Area). The value of the Conservation Area as of the date hereof shall be determined by a per acre value of the Conservation Area based on the per acre value of the Property as a whole based on Grantor's basis in the Property as a whole. Grantee agrees to use its share of such proceeds in a manner consistent with the conservation purposes of this Conservation Easement.

**17. Condemnation.** If all or any part of the Conservation Area is taken by the exercise of the power of eminent domain, or acquired by purchase in lieu of condemnation, whether by public, corporate, or other authority, so as to terminate this Conservation Easement, in whole or in part, Grantor and Grantee shall act jointly to recover the full value of the interests in the Conservation Area subject to the taking or in lieu purchase and all direct or incidental damages resulting therefrom. Jointly accrued expenses of actions taken to recover the value of Conservation Area taken by condemnation or in lieu purchase shall be paid out of the amount recovered, and individually accrued expenses shall be paid out of the respective Grantee's or Grantor's share. Grantee's share of the balance of the amount recovered shall be determined by multiplying that balance by the ratio set forth in paragraph 16, but only to the extent it reflects the value of the Conservation Area without this Conservation Easement. To the extent the value for which compensation is paid pursuant to this paragraph is diminished by this Conservation Easement, Grantee's share shall be diminished.

**18. Further Acts.** Each party shall perform any further acts and execute and deliver any documents, including amendments to this Conservation Easement, which may be reasonably necessary to carry out its provisions or which are necessary to qualify this instrument as a conservation easement under Article 49, Title 3, of the Conservation Law or any regulations promulgated pursuant thereto.

**19. Certificate of Compliance.** Grantee shall provide Grantor, within 20 days of written request therefor, a written notice stating whether the Property is in compliance with the terms of this Conservation Easement, and if Grantee alleges it is not in compliance, stating the substance of the alleged violation and the proposed remedy therefor.

**20. Severability.** Invalidity of any provision of this Conservation Easement by court judgment, order, statute or otherwise shall not affect any other provisions, which shall be and remain in force and effect.

**21. Authorization.** Grantee warrants that acceptance of this Conservation Easement has been duly authorized by Grantee's Board of Directors.



**IN WITNESS WHEREOF**, the parties have executed this instrument as of the day and year written above.

**GRANTOR:**

**Property Group Partners, LLC**

By:\_\_\_\_\_

**GRANTEE:**

**Lewisboro Land Trust, Inc.**

By:\_\_\_\_\_

Bobbe Stultz, Co-Chair

By:\_\_\_\_\_

Section: 5  
Block: 10776  
Lot: 19, 20 & 21  
Municipality: Town of Lewisboro

## ACKNOWLEDGMENTS

STATE OF NEW YORK       )  
COUNTY OF WESTCHESTER ) ss.:

On the            day of           , before me, the undersigned, a Notary Public in and for the State, personally appeared           , personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he/she executed it in his/her capacity, and that by his/her signature on the instrument, the individual executed the instrument.

---

Notary Public

STATE OF NEW YORK       )  
COUNTY OF WESTCHESTER ) ss.:

On the            day of           , 201   , before me, the undersigned, a Notary Public in and for the State, personally appeared           , personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he/she executed it in his/her capacity, and that by his/her signature on the instrument, the individual executed the instrument.

---

Notary Public

**Record and Return:**

Lewisboro Land Trust, Inc.  
PO Box 496  
South Salem, New York 10590

**SCHEDULE A**

[Description of the Property]



Benchmark Title Agency, LLC

Title No. BTA73015

**SCHEDULE A**

ALL that certain plot, piece or parcel of land, situate, lying and being in the Town of Lewisboro, County of Westchester and State of New York, being more particularly bounded and described as follows:

**BEGINNING** at a point on the easterly side of Route 22, as widened by New York State Highway Taking Map No. 8, Parcel 28 and Taking Map No. 21 Parcel 32, where the same is intersected by the northerly side of land now or formerly of the City of New York;

**RUNNING THENCE** along said easterly side of Route 22, as widened, the following courses and distances:

North 28 degrees 15 minutes 21 seconds East 260.98 feet;  
North 38 degrees 03 minutes 21 seconds East 275.87 feet;  
North 9 degrees 45 minutes 20 seconds West 66.48 feet;  
North 31 degrees 49 minutes 05 seconds East 148.20 feet; and  
North 42 degrees 19 minutes 55 seconds East 56.47 feet to land now and formerly of Route 22 Associates;

**RUNNING THENCE** along said last mentioned land the following courses and distances:

South 80 degrees 59 minutes 30 seconds East 1.47 feet;  
South 81 degrees 48 minutes 20 seconds East 228.34 feet;  
South 80 degrees 32 minutes 10 seconds East 79.77 feet;  
South 85 degrees 01 minute 40 seconds East 40.66 feet;  
South 86 degrees 14 minutes 20 seconds East 42.20 feet;  
South 79 degrees 54 minutes 30 seconds East 36.99 feet;  
South 82 degrees 52 minutes East 90.62 feet;  
South 83 degrees 19 minutes 10 seconds East 177.69 feet;  
South 85 degrees 05 minutes 55 seconds East 396.77 feet;  
South 83 degrees 18 minutes East 221.40 feet; and  
South 84 degrees 56 minutes 45 seconds East 334.05 feet to land now or formerly of Louis McCagg;

**THENCE** along said land of McCagg and continuing along land now or formerly of Mary W. Parker, the following courses and distances:

South 6 degrees 23 minutes 40 seconds West 140.98 feet;  
South 4 degrees 19 minutes West 32.82 feet;

FOR           The policy to be issued under this report will insure the title to such buildings and  
CONVEYANCING   improvements erected on the premises which by law constitute real property.  
ONLY

Page 1

**SCHEDULE B**  
**(Description of the Conservation Area)**

15246.200

September 06.

**2018 WB LEWISBORO CONSERVATION EASEMENT**

All that certain plot, piece or parcel of land situate, lying, and being in the Town of Lewisboro, County of Westchester and State of New York, bounded and described as follows:

COMMENCING at a point on the easterly line of Route 22, as widened by New York State Highway Taking Map No. 8, Parcel 28 and Taking Map No. 21 Parcel 32 filed in the office of the Westchester County Clerk, on March 20, 1967 as map no. 15270, where the same is intersected by a division line between lands of the grantor herein on the North and lands now or formerly of the City of New York Bureau of Water Supply, Taxes on the South; thence along said division line, S58°40'17"E 245.99 feet to the True Point or Place of Beginning of the herein described Preservation Easement;

thence from said point of beginning, turning and crossing through the lands of the grantor herein the following courses and distances:

- 1) N77°52'27"E 574.00 feet,
- 2) N28°34'18"E 139.60 feet,
- 3) N74°01'23"E 100.00 feet and
- 4) N00°03'21"W 671.90 feet to a point on the southerly line of other lands now or formerly

belonging to the City of New York Bureau of Water Supply, Taxes;

thence along the said line, the following courses and distances:

- 1) N82°14'58"E 396.77 feet,
- 2) N84°02'53"E 221.40 feet and
- 3) N82°24'08"E 334.05 feet to a point on the westerly line of the lands now or formerly belonging

to Mathew A. and Rebecca H. Carpenter;

thence along said line, and also along the lands now or formerly belonging to Bedford Audubon Society Inc. the following courses and distances:

- 1) S06°15'27"E 140.98 feet,
- 2) S08°20'07"E 32.82 feet,
- 3) S01°00'13"W 27.95 feet,
- 4) S21°14'57"E 10.44 feet,
- 5) S04°02'37"E 53.64 feet,
- 6) S03°19'27"E 31.24 feet,
- 7) S11°03'52"E 68.50 feet,
- 8) S07°44'52"E 126.40 feet and
- 9) S08°49'02"E 118.13 feet to other lands now or formerly belonging to Bedford Audubon Society Inc.;

thence easterly along said lands and also along the lands now or formerly belonging to Lauren Behrman and Jeffrey Zimmerman and lands now or formerly belonging to Alec, Brandon and Heather Fisher, S74°01'23"W 1130.46 feet to a corner;

thence southerly continuing along the lands of Fisher and also along the lands now or formerly of Bryan Robertson the following courses and distances:

- 1) S09°22'07"E 54.42 feet,
- 2) S07°35'57"E 142.86 feet,
- 3) S06°20'47"E 53.80 feet and
- 4) S08°58'37"E 60.30 feet to a point on the northerly line of the lands now or formerly belonging to Richard and Allison McCauley;

thence along said line, and also along the lands now or formerly belonging to Elizabeth Agostino the following courses and distances:

- 1) S70°16'23"W 12.76 feet,
- 2) S78°33'23"W 183.28 feet,
- 3) S76°20'43"W 145.00 feet,
- 4) N71°56'07"W 42.74 feet,
- 5) N68°27'17"W 58.08 feet,
- 6) N69°42'27"W 142.93 feet,
- 7) N65°41'27"W 42.86 feet and
- 5) S89°24'43"W 99.83 feet to a point on the easterly line of the lands of the City of New York Bureau of Water Supply, Taxes;

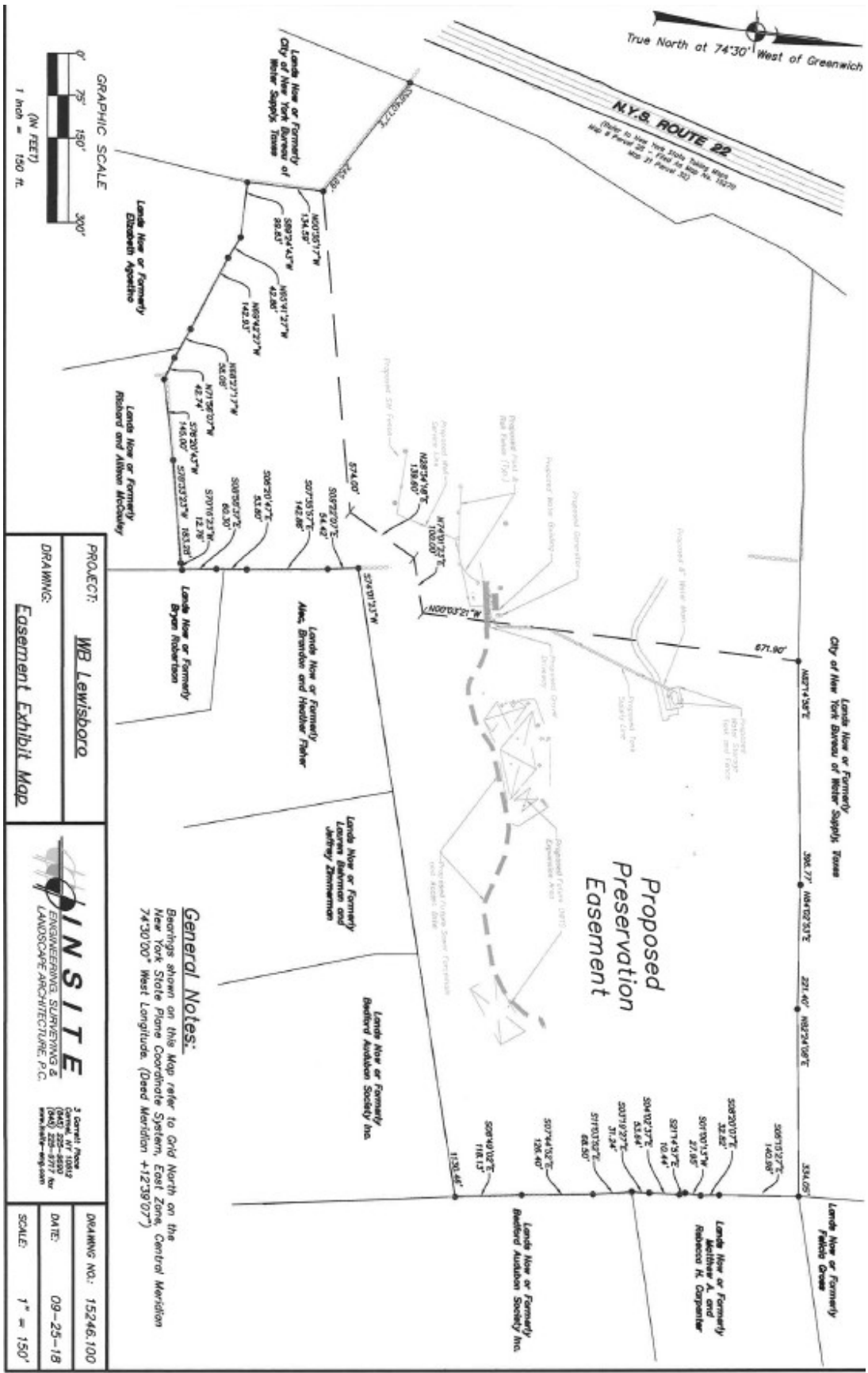
thence along the said line, N00°35'17"W 134.59 feet to the POINT OR PLACE OF BEGINNING.

Containing 20.060 acres.



**EXHIBIT 1**

EASEMENT MAP, by Insite Engineering dated Sept. 28, 2018







**EXHIBIT 2**

MITIGATION PLAN, by Frederick Wells RLA and Steve Marino PWS  
Dated June 23, 2017, rev. October 11, 2017 and Aug. 2 2017

Wetland Buffer Restoration and Enhancement Plan for Wilder Balter Partners Inc., Route 22, Lewisboro, Westchester County, New York. The plan includes a detailed site map showing the wetland buffer area and the proposed restoration and enhancement measures. The plan also includes a table of contents, a list of figures, and a list of references.

Wetland Buffer Restoration and Enhancement Plan	Wetland Buffer Restoration and Enhancement Plan
1.0 Introduction	1.0 Introduction
2.0 Site Description	2.0 Site Description
3.0 Wetland Buffer Restoration and Enhancement Measures	3.0 Wetland Buffer Restoration and Enhancement Measures
4.0 Implementation Schedule	4.0 Implementation Schedule
5.0 Monitoring and Evaluation	5.0 Monitoring and Evaluation
6.0 Conclusion	6.0 Conclusion

The wetland buffer restoration and enhancement plan for Wilder Balter Partners Inc., Route 22, Lewisboro, Westchester County, New York, is a comprehensive document that outlines the proposed measures for restoring and enhancing the wetland buffer area. The plan includes a detailed site map showing the wetland buffer area and the proposed restoration and enhancement measures. The plan also includes a table of contents, a list of figures, and a list of references.

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6.0 Conclusion	6.0 Conclusion



## Ciorsdan Conran

---

**From:** Brad Schwartz <bschwartz@zarin-steinmetz.com>  
**Sent:** Friday, October 05, 2018 1:33 PM  
**To:** Ciorsdan Conran  
**Cc:** Tim Cronin III; 'Keith Staudohar'  
**Subject:** RE: Pinheiro 7-14WP and 1-14SW

Hi Ciorsdan, per our discussion yesterday, please forward this extension request to the Board. We will have a representative attend the 11/20 meeting.

Dear Chairman Kerner and Members of the Planning Board,

We represent Fernando Pinheiro. This requests a second, 2-year extension of the Wetland and Stormwater Permits issued on November 18, 2014. The approved subdivision plat for this 2-lot subdivision was filed on April 28, 2015 (Map # 28871). Lot 1 contains the existing single-family residence. Work on Lot 2 has not commenced as the Pinheiros are continuing to evaluate their options for the property. Thank you for your consideration of this request.

Respectfully,  
Brad Schwartz

**Brad K. Schwartz, Esq.**  
Partner

 **ZARIN &  
STEINMETZ**  
81 Main Street, Suite 415  
White Plains, New York 10601  
Tel.: (914) 682-7800 ext.118  
Direct: (914) 220-9793  
Fax: (914) 683-5490  
[bschwartz@zarin-steinmetz.com](mailto:bschwartz@zarin-steinmetz.com)  
[www.zarin-steinmetz.com](http://www.zarin-steinmetz.com)  
[Add to address book](#) | [Bio](#)

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Site Planning  
Civil Engineering  
Landscape Architecture  
Land Surveying  
Transportation Engineering

Environmental Studies  
Entitlements  
Construction Services  
3D Visualization  
Laser Scanning

November 16, 2018

Chairman Jerome Kerner and Members of the Board  
Town of Lewisboro Planning Board  
79 Bouton Road  
South Salem, NY 10590

RE: JMC Project 16124  
Mercedes-Benz of Goldens Bridge  
321 Main Street (NYS Rte. 22)  
Town of Lewisboro, New York

**Traffic Study**

Dear Chairman Kerner and Members of the Board:

On behalf of Celebrity Motor Car, LLC we are pleased to submit nine (9) copies of the JMC Traffic Study, dated November 16, 2018. We are respectfully requesting that the Planning Board briefly discuss hiring a traffic engineer to review the traffic study. If a traffic engineer is hired within the next week or two, it may be possible for them to review the traffic study by the December meeting so the project can possibly receive a negative declaration to complete the SEQRA process. We understand the November 20th meeting agenda is completely filled as discussed at the October meeting but we are hoping that a one minute procedural conversation by the Board to decide to hire a traffic engineer is possible.

We trust that the enclosed traffic study is sufficient for the Board to decide to hire a traffic engineer to begin review. In the interim, if you have questions or require additional information, please do not hesitate to contact our office at (914) 273-5225.

Sincerely,

JMC Planning Engineering Landscape Architecture & Land Surveying, PLLC

  
Stephen Spina, PE  
Senior Project Manager

cc: Mr. Tom Maoli  
Ms. Bernadette Kopec  
Mr. Chris Pelella, AIA  
Mr. John Sullivan, FAIA  
Michael Sirignano, Esq.

p:\2016\16124\admin\ltkerner 11-16-2018.docx

JMC Planning Engineering Landscape Architecture & Land Surveying, PLLC | JMC Site Development Consultants, LLC

120 BEDFORD ROAD | ARMONK, NY 10504 | 914.273.5225 | MAIL@JMCPLLC.COM | JMCPLLC.COM

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## TRAFFIC STUDY

---

# **MERCEDES BENZ OF GOLDENS BRIDGE**

**321 NY 22  
TOWN OF LEWISBORO, NEW YORK**

*Prepared for:* **Celebrity Motor Car, LLC**  
130 Route 10  
Whippany, NJ 07981

*Prepared by:*



JMC Project **16124**

*Date:* November 16, 2018

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B.	FIGURES												
	<table><tr><th><u>FIGURE</u></th><th><u>TITLE</u></th></tr><tr><td>1</td><td>2018 Existing Volumes-Peak Weekday AM Hour</td></tr><tr><td>2</td><td>2018 Existing Volumes-Peak Weekday PM Hour</td></tr><tr><td>3</td><td>2018 Existing Volumes-Peak Saturday MIDDAY Hour</td></tr></table>	<u>FIGURE</u>	<u>TITLE</u>	1	2018 Existing Volumes-Peak Weekday AM Hour	2	2018 Existing Volumes-Peak Weekday PM Hour	3	2018 Existing Volumes-Peak Saturday MIDDAY Hour				
<u>FIGURE</u>	<u>TITLE</u>												
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2	2018 Existing Volumes-Peak Weekday PM Hour												
3	2018 Existing Volumes-Peak Saturday MIDDAY Hour												



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## C. CAPACITY ANALYSES

## **I. INTRODUCTION**

This Traffic Study has been prepared to assess existing conditions as well as future traffic operations in association with the proposed expansion of the Mercedes Benz of Goldens Bridge car dealership located at 321 NY 22 in the Town of Lewisboro. The location of the site is illustrated on the figures included in Appendix B.

The property currently contains a 12,400 square foot Showroom Building as well as an 18,200 square foot Service Building. There are four existing curb cuts located along the property's NY 22 frontage and there are two curb cuts along Green Hill Road. Access to the property is mainly served by one of the four existing curb cuts along NY 22. The subject development area also contains a 2 story building and garage located at 5 Anderson Lane which currently has two driveways with one connecting to Anderson Lane and the other connecting to Green Hill Road. Additionally, the subject development area contains a single family house located at 46 Green Hill Road with a driveway connecting to Green Hill Road.

The project was previously approved by the Town Planning Board on October 11, 2011 and Town Zoning Board of Appeals on May 11, 2011. NYSDOT approved the roadway permit application on April 5, 2012.

The application proposes to demolish the buildings and structures located on the 5 Anderson Lane and 46 Green Hill Road properties. The existing Showroom Building is proposed to be expanded by 38,500 square feet while the existing Service Building is proposed to be expanded by 2,700 square feet. The expansion of the existing dealership proposes a total building gross floor area of 71,800 square feet. As part of the application, parking on the property will be expanded to provide additional parking spaces for customers, employees, service and vehicle inventory.

As discussed above, the subject development area has 9 total curb cuts with four along NY 22, one along Anderson Lane, and four along Green Hill Road. As part of the proposed expansion,

the curb cuts along NY 22 are proposed to be consolidated from four existing to two proposed curb cuts. Additionally, the four curb cuts along Green Hill Road are proposed to be reduced to one proposed curb cut. The two proposed driveways along NY 22 will serve as the main access to the property and provide full turning movements from both driveways. The proposed driveway along Anderson Lane will be relocated from its existing location to provide access to an open parking structure for employee parking and vehicle inventory parking. The proposed driveway along Green Hill Road will improve the existing driveway serving the 46 Green Hill Road property and will provide access to the proposed vehicle inventory parking lot and a secondary access to the Service Building.

## **II. EXISTING CONDITIONS**

### **A. Existing Roadway Network**

JMC performed field reconnaissance at the site and adjoining roadway network in order to gather existing conditions data. The field work included a determination of lane widths, striping, horizontal and vertical alignments, signs, traffic signal phasing and timings, speed limits, pedestrian activities, traffic flows, on street parking, sidewalks, curbing, etc.

NY 22 is a north-south roadway under the jurisdiction of the NYSDOT. It provides one travel in each direction within the study area and widens to provide additional lanes at various locations. NY 22 has a posted speed limit of 55 mph within the study area; however, the speed limit reduces to 40 mph north of the subject property.

NY 138 is an east-west roadway under the jurisdiction of the NYSDOT. It provides one travel in each direction within the study area and widens to provide additional lanes at various locations. NY 138 has a posted speed limit of 35 mph within the study area. A connector road provides a connection between NY 22 and NY 138.

In order to evaluate the changes in traffic associated with the proposed expansion, the



following intersections have been analyzed:

1. NY 22 & Connector Road
2. NY 22 & Anderson Lane
3. NY 22 & Site Driveway A
4. NY 22 & Site Driveway B
5. NY 138 & Connector Road

The connector road intersects NY 22 at an unsignalized 'T' intersection. NY 22 provides one thru lane in each direction with shared turning movements. The connector road provides a left turn lane and a separate 230 foot long right turn lane. The connector road operates under stop sign control.

The intersection of NY 22 and Anderson Lane is an unsignalized 'T' intersection. NY 22 provides one thru lane in each direction with shared turning movements. Anderson Lane provides a single approach lane with shared turning movements. Anderson Lane operates under stop sign control.

Site Driveway A is a proposed driveway to be constructed as part of the proposed expansion which connects to NY 22. NY 22 provides one travel lane in each direction and would have shared turning movements into the proposed site driveway. The proposed site driveway would be controlled by a stop sign and provide a single lane approach with shared turning movements.

Site Driveway B is an existing driveway which connects to NY 22 and would be reconstructed as part of the proposed expansion. NY 22 provides one travel lane in each direction with shared turning movements into the existing site driveway. The existing site driveway provides a single lane approach with shared turning movements. Under proposed conditions, the site driveway would be controlled by a stop sign.

The intersection of NY 138 & the connector road is a three-legged signalized intersection. NY 138 westbound provides an 85 foot long left turn lane and a thru lane while the eastbound approach provides a single thru lane with shared turning movements. The connector road provides a left turn lane and a separate 75 foot long right turn lane.

## **B. Existing Volumes**

Manual traffic counts were performed in order to quantify and analyze existing peak hour volumes as well as to establish base conditions for projecting future operations. The counts included pedestrian activities and truck traffic.

Traffic counts were conducted from 7:00 – 9:00 AM and 4:00 – 6:00 PM for all the studied intersections on Thursday, September 27, 2018 except for the Site Driveway B intersection. The intersection of NY 22 and Site Driveway B was counted on Friday, September 28, 2018 from 7:00 to 9:00 AM as well as on Thursday, September 27, 2018 from 4:00 to 6:00 PM. Additionally, the Connector Road intersections with NY 22 and NY 138 were counted on Saturday, September 29, 2018 from 12:00 to 2:00 PM while the Site Driveway B and Anderson Lane intersections with NY 22 were counted on Saturday, September 22, 2018 from 12:00 to 2:00 PM. The traffic counts were performed while schools were in session. The peak hour volumes of the roadways occurred between 7:15 – 8:15 AM during the weekday morning, 4:30 – 5:30 PM during the weekday afternoon and 12:15 – 1:15 PM during the Saturday midday. The volumes are shown on Figures 1 thru 3 "2018 Existing Volumes". All figures are included in Appendix B.

## **C. Intersection Analysis Methodology**

The intersections have been analyzed based on the methodologies of the Highway Capacity Manual 6<sup>th</sup> Edition. Information derived from the manual relative to the level of service criteria is provided below.

## **I. Level-of-Service Criteria for Signalized Intersections**

Levels of Service (LOS) for signalized intersections are defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during ideal conditions: in the absence of traffic control, in the absence of geometric delay, in the absence of any incidents, and when there are no other vehicles on the road. Only the portion of total delay attributed to the control facility is quantified. This delay is called control delay. Control delay includes the delays of initial deceleration, move-up time in the queue, stops, and reacceleration. In this chapter, control delay may also be referred to as signal delay. Specifically, LOS criteria for traffic signals are stated in terms of the average control delay per vehicle, typically for a peak 15-minute analysis period. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the volume/capacity ( $v/c$ ) ratio for the lane group in question.

*LOS A* describes operations with very low control delay, up to 10 seconds per vehicle. This level of services occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

*LOS B* describes operations with control delay greater than 10 and up to 20 seconds per vehicle. This level generally occurs with good progression, short cycle lengths, or both.

*LOS C* describes operations with control delay greater than 20 and up to 35 seconds per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both.



*LOS D* describes operations with control delay greater than 35 and up to 55 seconds per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high  $v/c$  ratios. Many vehicles stop, and the proportion of vehicles not stopping declines.

*LOS E* describes operations with control delay greater than 55 and up to 80 seconds per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high  $v/c$  ratios. Individual cycle failures are frequent occurrences.

*LOS F* describes operations with control delay in excess of 80 seconds per vehicle and/or the arrival flow rates exceed the capacity of the intersection. It will also occur at high  $v/c$  ratios below 1.0 with many individual cycle failures. If the volume-to-capacity ( $v/c$ ) is greater than 1.0, the LOS is considered an F, even if the delays are lower than 80 seconds.

The LOS criteria for signalized intersections are presented below.

<b><i>Signalized Level of Service Criteria</i></b>		
<b>Control Delay (Seconds/Vehicle)</b>	<b>LOS by Volume-to-Capacity Ratio</b>	
	<b><math>v/c \leq 1.0</math></b>	<b><math>v/c &gt; 1.0</math></b>
$\leq 10$	A	F
$> 10$ and $\leq 20$	B	F
$> 20$ and $\leq 35$	C	F
$> 35$ and $\leq 55$	D	F
$> 55$ and $\leq 80$	E	F
$> 80$	F	F

For approach-based and intersectionwide assessments, LOS is defined solely by control delay.

## 2. Level of Service for Unsignalized Intersections

The Levels of Service (LOS) for Two Way Stop Control (TWSC) and All Way Stop Control (AWSC) intersections and Roundabouts are determined by the computed or measured control delay and are defined for each minor movement. LOS is not defined for the intersection as a whole for TWSC intersections. LOS criteria are presented below.

<b><i>Unsignalized Level of Service Criteria</i></b>		
<b>Control Delay (Seconds/Vehicle)</b>	<b>LOS by Volume-to-Capacity Ratio</b>	
	<b><math>v/c \leq 1.0</math></b>	<b><math>v/c &gt; 1.0</math></b>
$\leq 10$	A	F
$> 10$ and $\leq 15$	B	F
$> 15$ and $\leq 25$	C	F
$> 25$ and $\leq 35$	D	F
$> 35$ and $\leq 50$	E	F
$> 50$	F	F

For TWSC intersections, the LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or the intersection as a whole at TWSC intersections. For approach-based and intersectionwide assessments at AWSC intersections and roundabouts, LOS is defined solely by control delay.

Average control delay less than 10 seconds/vehicle are defined as LOS A. Follow-up times of less than 5 seconds/vehicle have been measured when there is no conflicting traffic, so control delays of less than 10 seconds/vehicle are appropriate for low flow conditions. If the volume-to-capacity ( $v/c$ ) is greater than 1.0, the LOS is considered an F, even if the delays are lower than 50 seconds.

The LOS criteria for unsignalized intersections are somewhat different than the criteria used for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. A number of driver behavior considerations combine to make delays at signalized intersections less onerous than delays at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, whereas drivers on the minor approaches to unsignalized intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at an unsignalized intersections versus that at signalized intersections. For these reasons, it is considered that the control delay threshold for any given LOS would be less for an unsignalized intersection than it would be for a signalized intersection.

#### **D. Existing Operations**

The intersection capacity analyses based on existing volumes and conditions are shown on Tables 3 thru 5. The specific volume/capacity ratios, delay for average vehicle in seconds and the associated levels of service are summarized for each lane group, the approach as well as the overall intersection as applicable are depicted on Tables 3 - 5. All tables are included in Appendix A.

During the peak weekday morning hour, the left turn movement onto NY 22 at the intersection of NY 22 and Connector Road operates over capacity and at a level of service F. The Anderson Lane approach to its intersection with NY 22 operate at a level of service C. Site Driveway B operates at a level of service B. The overall intersection of NY 138 and Connector Road operates at a level of service A with the Connector Road approach and lanes operating at a level of service B. All other movements at the studied intersections operate at a level of service A during the peak weekday AM hour.



During the peak weekday afternoon hour, the left turn movement onto NY 22 at the intersection of NY 22 and Connector Road operates at a level of service C while the right turn movement onto NY 22 operates at a level of service B. The Anderson Lane approach to its intersection with NY 22 operate at a level of service B. Site Driveway B operates at a level of service B. The overall intersection of NY 138 and Connector Road operates at a level of service A with the NY 138 westbound left turn lane operating at a level of service B. All other movements at the studied intersections operate at a level of service A during the peak weekday PM hour.

During the peak Saturday midday hour, the left turn and right turn movements onto NY 22 at the intersection of NY 22 and Connector Road operate at a level of service B. The Anderson Lane approach to its intersection with NY 22 operate at a level of service B. Site Driveway B operates at a level of service A. The overall intersection of NY 138 and Connector Road operates at a level of service A. All other movements at the studied intersections operate at a level of service A during the peak Saturday midday hour.

### **III. PROJECTED CONDITIONS**

#### **A. No-Build Volumes**

In order to project future traffic increases to the 2021 design year, the existing volumes were increased by a general growth rate of 0.5% per year compounded annually. Based on NYSDOT's 2016 Traffic Volume Report, the traffic volumes along NY 22 decreased from 2009 to 2015 by 0.61% per year and is estimated to decrease by an additional 0.50% for 2016. The growth rate utilized in this traffic study provides a conservative analysis based on the traffic volumes along NY 22.

Based on discussions with Town's planning consultant, this study incorporates the traffic volumes associated with the Goldens Bridge Village Centre expansion and the WBP AFFH Multi-Family development. The other development volumes are shown on figures

contained within Appendix B. The traffic volumes associated with the 11 lot Falcon Ridge Subdivision have been reviewed and are considered as part of the general growth volumes within the study area. The general growth volumes plus the other development volumes result in the 2021 No-Build volumes. The intersection capacity analyses based on No-Build volumes and conditions are shown on Tables 3 thru 5 in Appendix A.

During the peak weekday AM hour, all movements at the studied intersections under the no-build conditions are projected to operate at the same levels of service as experienced under existing conditions except for one movement. The overall intersection of NY 138 and Connector Road is projected to increase in delay from a level of service A under existing conditions to a level of service B under no-build conditions during the peak weekday AM hour.

During the peak weekday PM hour, all movements at the studied intersections under the no-build conditions are projected to operate at the same levels of service as experienced under existing conditions except for two movements. At the intersection of NY 138 and Connector Road, the NY 138 eastbound thru/right lane and the NY 138 westbound approach are projected to increase in delay to operate at a level of service B under no-build conditions.

During the peak Saturday midday hour, all the turning movements at the studied intersections under no-build conditions are projected to operate at the same levels of service as experienced under existing conditions.

## **B. Build Volumes**

The projected traffic associated with the proposed dealership expansion are based on traffic counts conducted at the existing dealership driveway along NY 22. Table I shows counted hourly volumes at the existing dealership driveway. As shown in Table I, the peak hour volumes of the generator are 36, 43, and 57 trips during the weekday AM, weekday

PM, and Saturday midday hours. These volumes represent peak hour volumes of the generator which do not occur during the peak hour of the roadway network with the exception of the peak weekday AM hour where the dealership volumes and roadway volumes peak during the same hour. An average trip generation rate for each peak hour per 1,000 square feet of gross floor area was calculated utilizing the existing dealership peak hour volumes. These trip generation rates were utilized to project the traffic volumes associated with the proposed car dealership. The peak hour traffic volumes for the existing car dealership and the projected traffic volumes for the proposed car dealership are shown on Table 2 contained in Appendix A. Table 2 also depicts the net additional traffic volumes between the existing and proposed car dealership. The net additional traffic volumes generated by the proposed car dealership are 49, 77, and 58 trips during the peak weekday AM, weekday PM, and Saturday midday hours, respectively.

The net additional volumes were routed through the studied intersections based on existing driveway distributions and consideration of the area roadways. The projected net additional volumes for the dealership have been shown in the figures in Appendix B. Adding the net additional traffic volumes to the No-Build volumes results in 2021 Build volumes with the proposed car dealership expansion.

Table 2 does not incorporate pass-by trips which are trips that typically drive past or near the subject property and will patronize the dealership when it is completed. This study does not take a credit for traffic associated with the two existing buildings that would be demolished as part of the proposed expansion. As mentioned above, the traffic volumes utilized for the car dealership are peak hour volumes of the generator which is superimposed on the peak hour traffic volumes of the roadway network providing a conservative analysis in this study.



#### **IV. FINDINGS & CONCLUSION**

Intersection capacity analysis computed based on the 2021 Build volumes with proposed dealership expansion indicate that the intersections will operate at the same levels of service as projected for the No-Build volumes except for one turning movement. During the peak Saturday midday hour, the Connector Road left turn movement onto NY 22 is projected to increase in delay by 0.8 seconds from a level of service B under No-Build conditions to operate at a level of service C under Build conditions. Projected operations with the proposed car dealership expansion are shown on Tables 3 thru 5 in Appendix A.

The two proposed site driveways are projected to operate at a level of service B or better during all studied peak hours. Even though the left turn movement onto NY 22 from Connector Road operates at a level of service F under existing and future conditions during the peak weekday AM hour, the same movement operates at a level of service C or better under existing and future conditions during the other studied peak hours. As stated in the traffic studies for the Goldens Bridge Village Centre expansion and the WBP AFFH Multi-Family development, the traffic volumes at the intersection of NY 22 and Connector Road should be monitored for future signalization.

Respectfully submitted,

JMC Planning Engineering Landscape Architecture & Land Surveying, PLLC

Marc Petraro, PE, PTOE  
Senior Project Manager

Kevin Masciovecchio, EIT  
Senior Designer II

# ***APPENDIX A***

## ***TABLES***

**TABLE 1**

**MERCEDES BENZ OF GOLDENS BRIDGE**  
**COUNTED DRIVEWAY VOLUMES<sup>(1)</sup>**

Day of Week	TIME	ENTER	EXIT	TOTAL
Weekday	7:00 - 8:00 AM	29	6	35
	<b>7:15 - 8:15 AM<sup>(2)</sup></b>	<b>27</b>	<b>9</b>	<b>36</b>
	7:30 - 8:30 AM	21	11	32
	7:45 - 8:45 AM	21	9	30
	8:00 - 9:00 AM	21	10	31
Saturday	12:00 - 1:00 PM	19	14	33
	12:15 - 1:15 PM	21	18	39
	<b>12:30 - 1:30 PM<sup>(2)</sup></b>	<b>22</b>	<b>21</b>	<b>43</b>
	12:45 - 1:45 PM	18	18	36
	1:00 - 2:00 PM	17	18	35
Weekday	<b>4:00 - 5:00 PM<sup>(2)</sup></b>	<b>34</b>	<b>23</b>	<b>57</b>
	4:15 - 5:15 PM	28	27	55
	4:30 - 5:30 PM	24	30	54
	4:45 - 5:45 PM	16	29	45
	5:00 - 6:00 PM	10	28	38

Notes:

(1) JMC conducted traffic counts at the existing Mercedes Benz of Goldens Bridge driveway along NY 22. Traffic counts were conducted on 09/28/2018 between 7:00 and 9:00 AM, on 09/27/2018 between 4:00 and 6:00 PM, as well as on 09/22/2018 between 12:00 and 2:00 PM.

(2) The bold rows represent the highest counted hourly volumes which are the peak hour volumes of the generator.



**TABLE 2****PROPOSED DEVELOPMENT VOLUMES**

DESCRIPTION	PEAK WEEKDAY AM HOUR			PEAK WEEKDAY PM HOUR			PEAK SATURDAY MIDDAY HOUR		
	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
A. Existing 30,600 S.F. Car Dealership Driveway Volumes (JMC Counts from Table 1) <sup>(1)</sup>	27	9	36	34	23	57	22	21	43
B. Proposed 71,800 S.F. Car Dealership Driveway Volumes (Based on average rate per 1,000 S.F. of JMC Counts at existing dealership) <sup>(2)</sup>	64	21	85	80	54	134	52	49	101
C. Net Additional Driveway Volumes (Row C = Row B - Row A)	37	12	49	46	31	77	30	28	58

**Notes:**

(1) Existing car dealership volumes are based on traffic counts conducted by JMC at the existing site driveway for the Mercedes Benz of Goldens Bridge. Existing volumes are peak hour volumes of the generator.

(2) Proposed car dealership volumes are based on the peak hour of the generator counts at the existing car dealership. The trip generation average rate per 1,000 square feet for the existing car dealership was applied to the proposed car dealership square footage to project the proposed car dealership traffic volumes.

**TABLE 3****INTERSECTION OPERATIONS-PEAK WEEKDAY AM HOUR**

INTERSECTION	APPROACH	LANE GROUP	2018 EXISTING			2021 NO BUILD			2021 BUILD		
			V/C <sup>(1)</sup>	DELAY <sup>(2)</sup>	LOS <sup>(3)</sup>	V/C <sup>(1)</sup>	DELAY <sup>(2)</sup>	LOS <sup>(3)</sup>	V/C <sup>(1)</sup>	DELAY <sup>(2)</sup>	LOS <sup>(3)</sup>
1. NY 22 & Connector Road (Unsignalized)	WESTBOUND	LEFT	1.08	160.2	F	1.38	284.7	F	1.47	324.8	F
		RIGHT	0.07	9.5	A	0.10	9.7	A	0.12	9.9	A
	NORTHBOUND	THRU/RIGHT	-	-	-	-	-	-	-	-	-
	SOUTHBOUND	LEFT/THRU	0.17	8.4	A	0.20	8.6	A	0.21	8.7	A
2. NY 22 & Anderson Lane (Unsignalized)	WESTBOUND	LEFT/RIGHT	0.02	18.9	C	0.02	20.4	C	0.02	21.5	C
	NORTHBOUND	THRU/RIGHT	-	-	-	-	-	-	-	-	-
	SOUTHBOUND	LEFT/THRU	0.00	7.4	A	0.00	7.5	A	0.00	7.6	A
3. NY 22 & Site Driveway A (Unsignalized)	WESTBOUND	LEFT/RIGHT							0.02	11.3	B
	NORTHBOUND	THRU/RIGHT		N/A			N/A		-	-	-
	SOUTHBOUND	LEFT/THRU							0.00	7.5	A
4. NY 22 & Site Driveway B (Unsignalized)	WESTBOUND	LEFT/RIGHT	0.02	10.6	B	0.02	10.8	B	0.02	10.9	B
	NORTHBOUND	THRU/RIGHT	-	-	-	-	-	-	-	-	-
	SOUTHBOUND	LEFT/THRU	0.01	7.4	A	0.01	7.4	A	0.01	7.4	A
5. NY 138 & Connector Road (Signalized)	EASTBOUND	THRU/RIGHT	0.11	5.5	A	0.12	5.8	A	0.14	5.9	A
	WESTBOUND	LEFT	0.18	6.6	A	0.22	7.2	A	0.23	7.4	A
		THRU	0.67	8.8	A	0.68	9.2	A	0.68	9.2	A
		COMPOSITE	-	8.4	A	-	8.8	A	-	8.8	A
	NORTHBOUND	LEFT	0.60	14.3	B	0.61	14.7	B	0.61	14.8	B
		RIGHT	0.26	11.8	B	0.30	12.3	B	0.30	12.3	B
		COMPOSITE	-	13.6	B	-	14.0	B	-	14.0	B
	INTERSECTION	COMPOSITE	-	9.7	A	-	10.2	B	-	10.2	B

**Notes:**

- (1) V/C represents volume/capacity ratio  
(2) Delay is average seconds delay per vehicle  
(3) LOS represents level of service

**TABLE 4****INTERSECTION OPERATIONS-PEAK WEEKDAY PM HOUR**

INTERSECTION	APPROACH	LANE GROUP	2018 EXISTING			2021 NO BUILD			2021 BUILD		
			V/C <sub>(1)</sub>	DELAY <sub>(2)</sub>	LOS <sub>(3)</sub>	V/C <sub>(1)</sub>	DELAY <sub>(2)</sub>	LOS <sub>(3)</sub>	V/C <sub>(1)</sub>	DELAY <sub>(2)</sub>	LOS <sub>(3)</sub>
1. NY 22 & Connector Road (Unsignalized)	WESTBOUND	LEFT	0.38	19.0	C	0.20	20.6	C	0.22	22.7	C
		RIGHT	0.17	12.7	B	0.21	12.7	B	0.25	13.3	B
	NORTHBOUND	THRU/RIGHT	-	-	-	-	-	-	-	-	-
	SOUTHBOUND	LEFT/THRU	0.15	9.9	A	0.17	9.7	A	0.18	9.9	A
2. NY 22 & Anderson Lane (Unsignalized)	WESTBOUND	LEFT/RIGHT	0.09	13.3	B	0.09	13.9	B	0.10	14.8	B
	NORTHBOUND	THRU/RIGHT	-	-	-	-	-	-	-	-	-
	SOUTHBOUND	LEFT/THRU	0.00	8.2	A	0.00	8.2	A	0.00	8.3	A
3. NY 22 & Site Driveway A (Unsignalized)	WESTBOUND	LEFT/RIGHT							0.04	10.7	B
	NORTHBOUND	THRU/RIGHT		N/A			N/A		-	-	-
	SOUTHBOUND	LEFT/THRU							0.01	8.4	A
4. NY 22 & Site Driveway B (Unsignalized)	WESTBOUND	LEFT/RIGHT	0.05	10.3	B	0.05	10.5	B	0.07	10.7	B
	NORTHBOUND	THRU/RIGHT	-	-	-	-	-	-	-	-	-
	SOUTHBOUND	LEFT/THRU	0.00	8.2	A	0.00	8.3	A	0.01	8.3	A
5. NY 138 & Connector Road (Signalized)	EASTBOUND	THRU/RIGHT	0.38	9.5	A	0.43	10.3	B	0.43	10.4	B
	WESTBOUND	LEFT	0.14	10.8	B	0.21	12.1	B	0.23	12.5	B
		THRU	0.34	9.2	A	0.35	9.8	A	0.34	9.8	A
		COMPOSITE	-	9.6	A	-	10.8	B	-	10.7	B
	NORTHBOUND	LEFT	0.52	8.6	A	0.52	8.4	A	0.53	8.8	A
		RIGHT	0.51	8.6	A	0.54	8.6	A	0.55	9.0	A
		COMPOSITE	-	8.6	A	-	8.5	A	-	8.9	A
	INTERSECTION	COMPOSITE	-	9.0	A	-	9.3	A	-	9.6	A

Notes:

- (1) V/C represents volume/capacity ratio  
(2) Delay is average seconds delay per vehicle  
(3) LOS represents level of service



**TABLE 5****INTERSECTION OPERATIONS-PEAK SATURDAY MIDDAY HOUR**

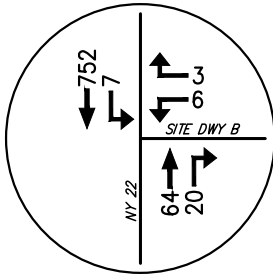
INTERSECTION	APPROACH	LANE GROUP	2018 EXISTING			2021 NO BUILD			2021 BUILD		
			V/C <sup>(1)</sup>	DELAY <sup>(2)</sup>	LOS <sup>(3)</sup>	V/C <sup>(1)</sup>	DELAY <sup>(2)</sup>	LOS <sup>(3)</sup>	V/C <sup>(1)</sup>	DELAY <sup>(2)</sup>	LOS <sup>(3)</sup>
1. NY 22 & Connector Road (Unsignalized)	WESTBOUND	LEFT	0.08	13.4	B	0.10	14.2	B	0.11	15.0	C
		RIGHT	0.11	10.2	B	0.12	10.3	B	0.14	10.5	B
	NORTHBOUND	THRU/RIGHT	-	-	-	-	-	-	-	-	-
	SOUTHBOUND	LEFT/THRU	0.10	8.6	A	0.11	8.7	A	0.13	8.8	A
2. NY 22 & Anderson Lane (Unsignalized)	WESTBOUND	LEFT/RIGHT	0.02	10.4	B	0.02	10.7	B	0.02	11.0	B
	NORTHBOUND	THRU/RIGHT	-	-	-	-	-	-	-	-	-
	SOUTHBOUND	LEFT/THRU	0.00	8.8	A	0.00	8.8	A	0.00	8.9	A
3. NY 22 & Site Driveway A (Unsignalized)	WESTBOUND	LEFT/RIGHT							0.03	9.7	A
	NORTHBOUND	THRU/RIGHT		N/A			N/A		-	-	-
	SOUTHBOUND	LEFT/THRU							0.00	7.7	A
4. NY 22 & Site Driveway B (Unsignalized)	WESTBOUND	LEFT/RIGHT	0.02	9.4	A	0.03	9.5	A	0.04	9.6	A
	NORTHBOUND	THRU/RIGHT	-	-	-	-	-	-	-	-	-
	SOUTHBOUND	LEFT/THRU	0.00	7.6	A	0.00	7.7	A	0.01	7.7	A
5. NY 138 & Connector Road (Signalized)	EASTBOUND	THRU/RIGHT	0.25	7.3	A	0.27	7.7	A	0.28	7.9	A
	WESTBOUND	LEFT	0.15	8.4	A	0.18	9.0	A	0.20	9.3	A
		THRU	0.24	7.3	A	0.25	7.6	A	0.25	7.7	A
		COMPOSITE	-	7.7	A	-	8.2	A	-	8.4	A
	NORTHBOUND	LEFT	0.42	8.6	A	0.42	8.4	A	0.43	8.4	A
		RIGHT	0.49	9.1	A	0.50	9.0	A	0.50	9.0	A
		COMPOSITE	-	8.8	A	-	8.8	A	-	8.7	A
	INTERSECTION	COMPOSITE	-	8.3	A	-	8.4	A	-	8.5	A

Notes:

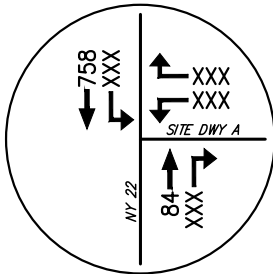
- (1) V/C represents volume/capacity ratio  
(2) Delay is average seconds delay per vehicle  
(3) LOS represents level of service

# ***APPENDIX B***

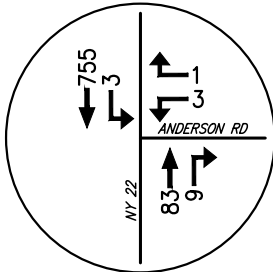
## ***FIGURES***



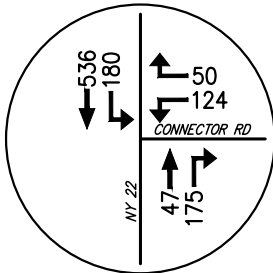
4 NY 22 & SITE DRIVEWAY B



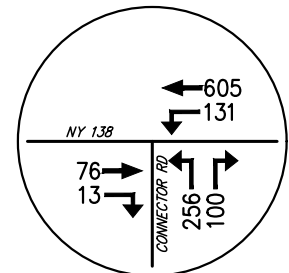
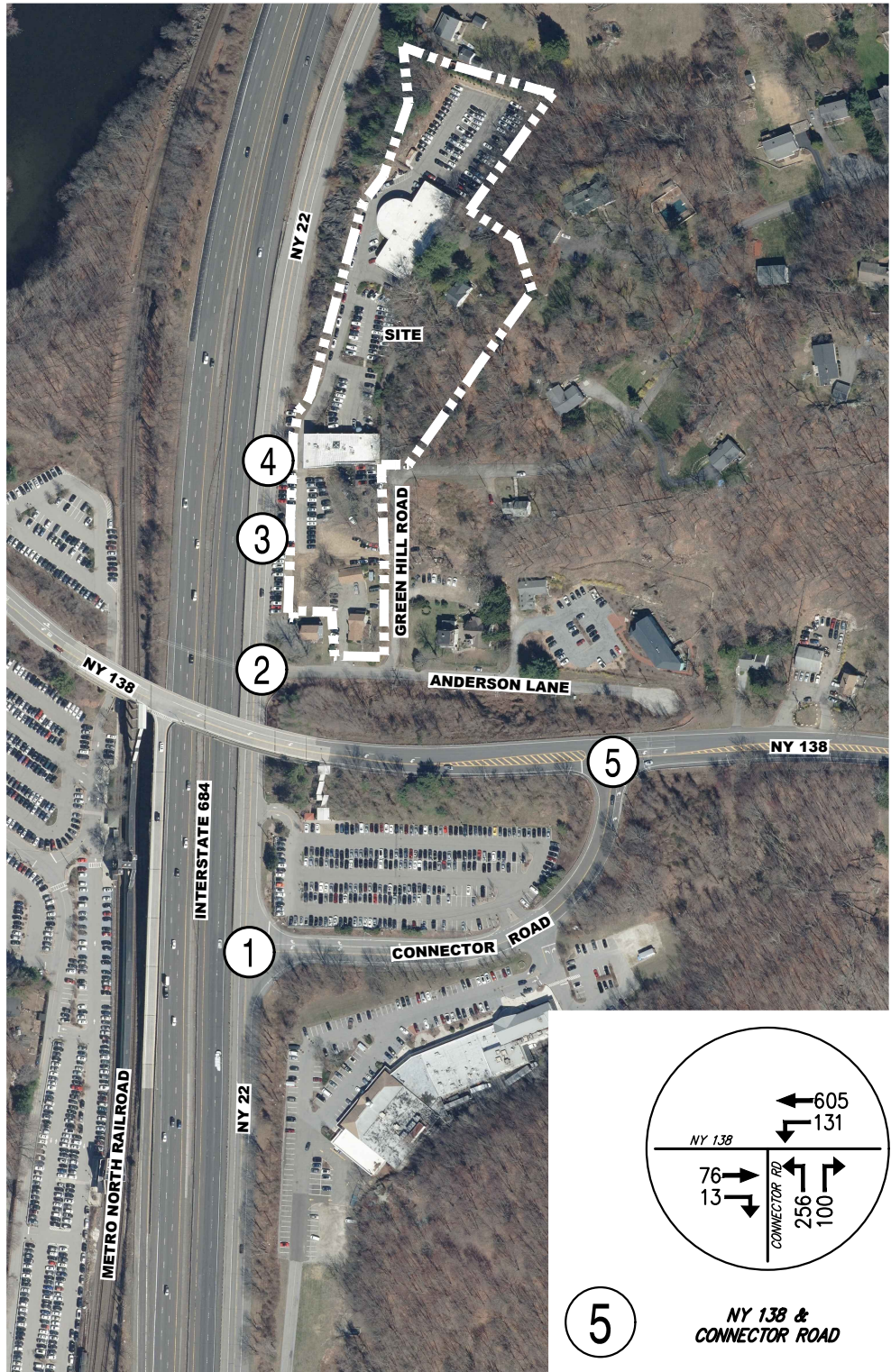
3 NY 22 & SITE DRIVEWAY A



2 NY 22 & ANDERSON ROAD



1 NY 22 & CONNECTOR ROAD



5 NY 138 & CONNECTOR ROAD

# **MERCEDES BENZ OF GOLDENS BRIDGE**

NYS ROUTE 22

TOWN OF LEWISBORO, NY

## **2018 EXISTING VOLUMES**

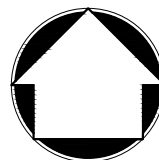
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JMC PROJECT: 16124

FIGURE: 01

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 NY 10504

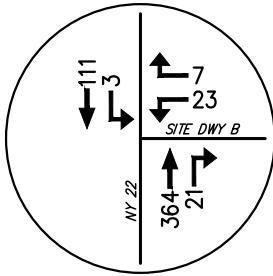
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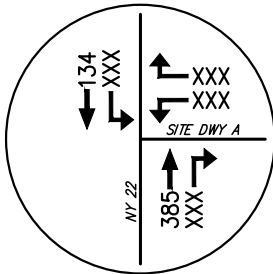
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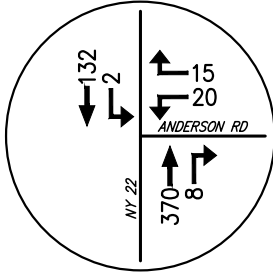




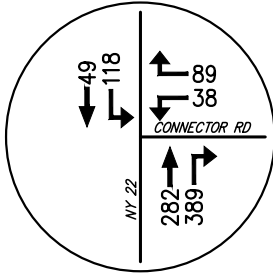
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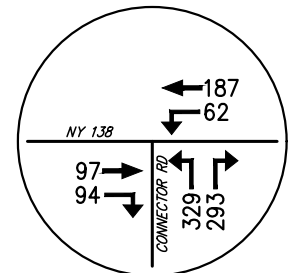
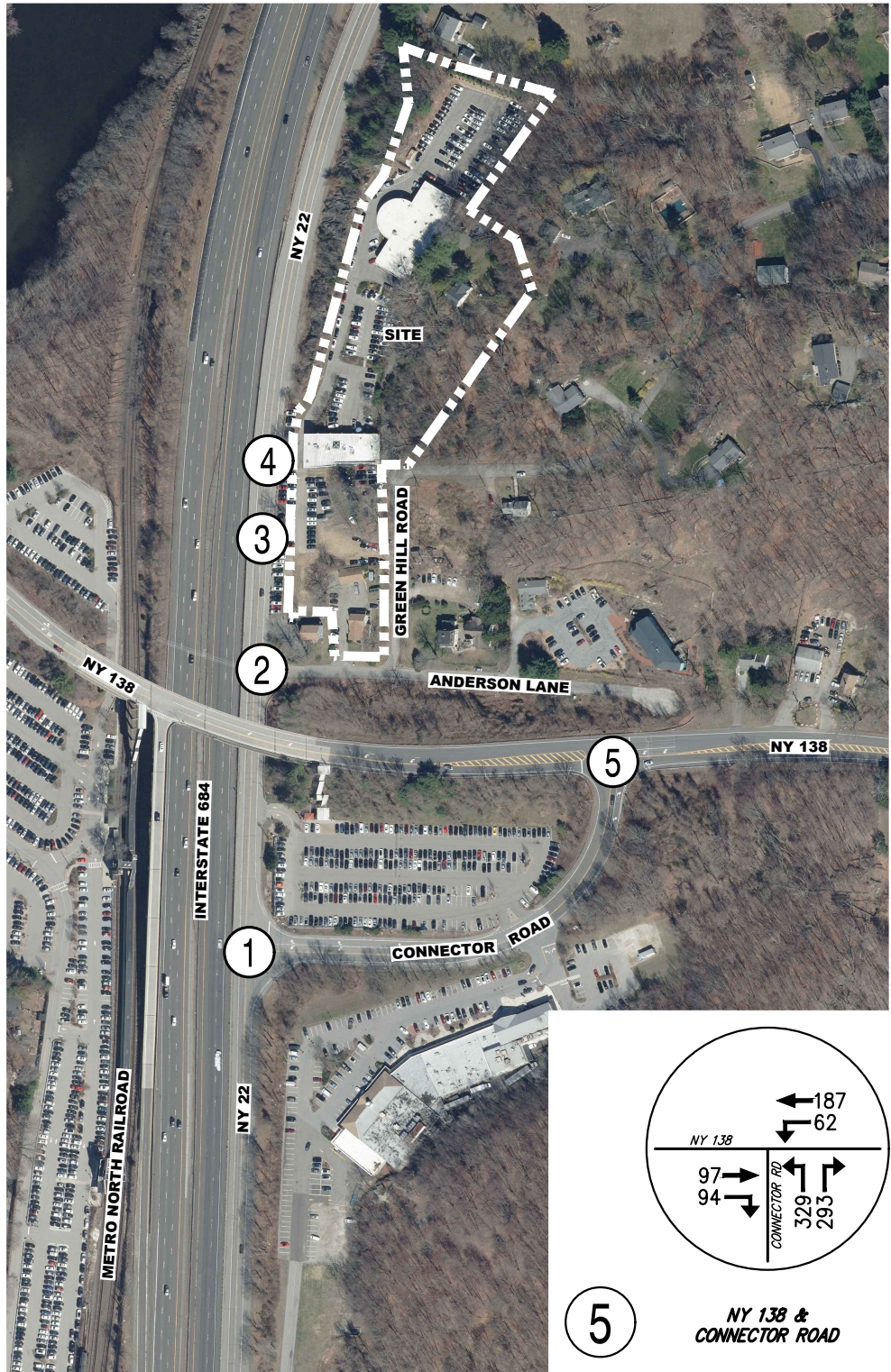
3 NY 22 & SITE DRIVEWAY A



2 NY 22 & ANDERSON ROAD



1 NY 22 & CONNECTOR ROAD



5 NY 138 & CONNECTOR ROAD

## MERCEDES BENZ OF GOLDENS BRIDGE

NYS ROUTE 22

TOWN OF LEWISBORO, NY

### 2018 EXISTING VOLUMES

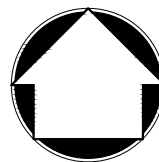
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JMC PROJECT: 16124

FIGURE: 02

SCALE: 1" = 800'



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ARMONK  
NY 10504

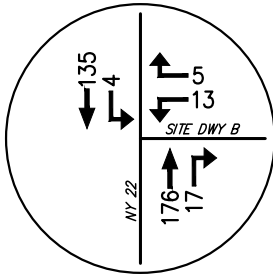
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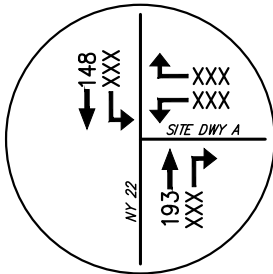
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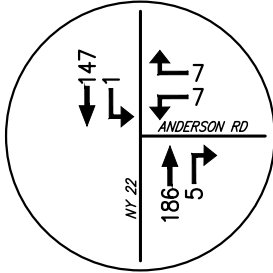




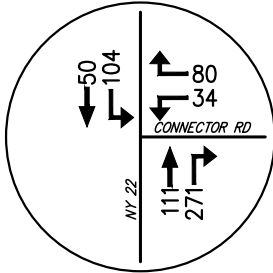
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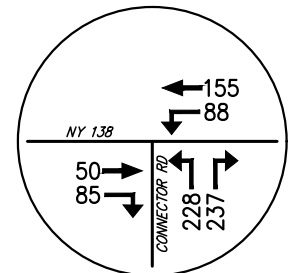
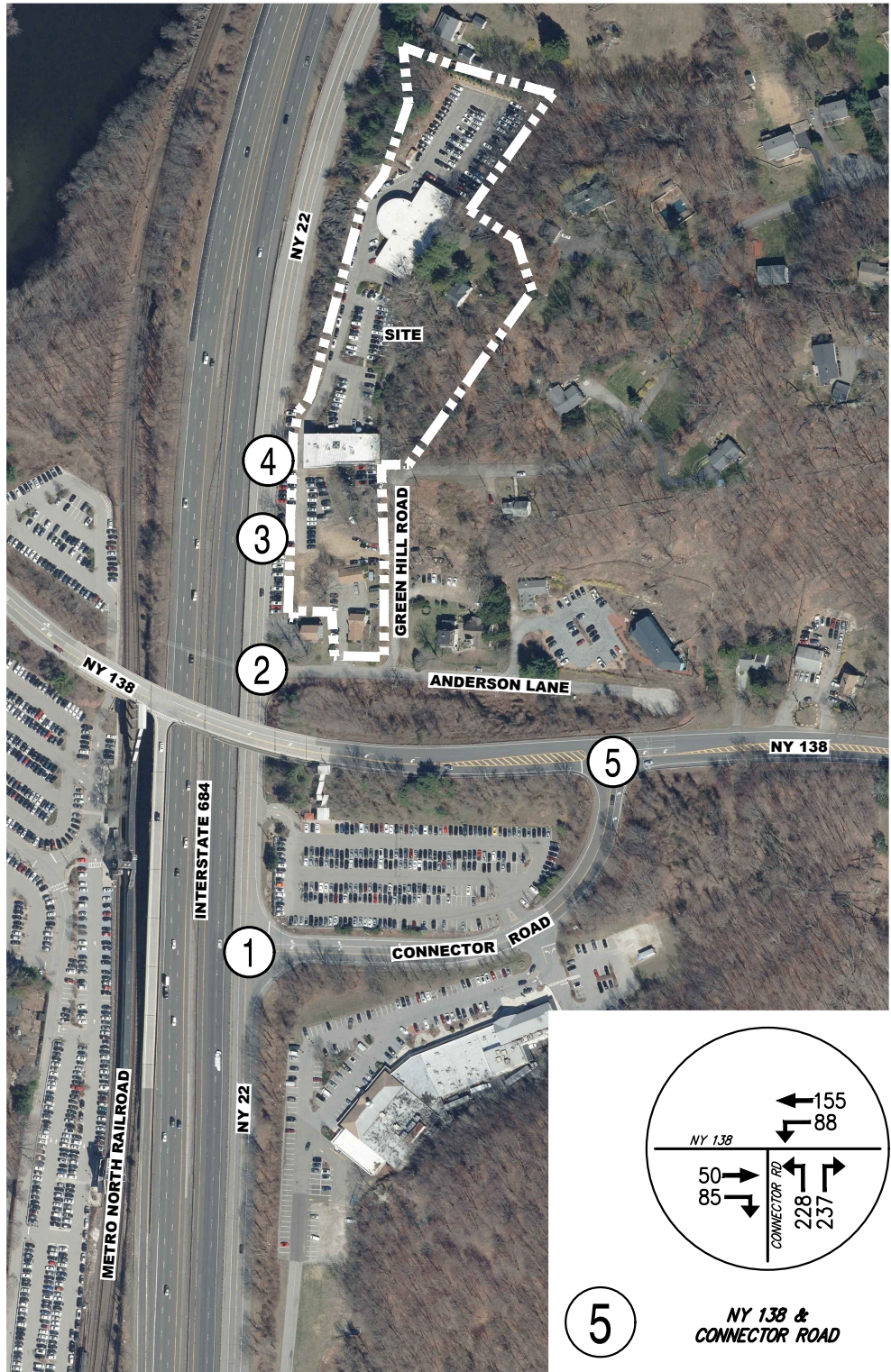
3 NY 22 & SITE DRIVEWAY A



2 NY 22 & ANDERSON ROAD



1 NY 22 & CONNECTOR ROAD



5 NY 138 & CONNECTOR ROAD

## MERCEDES BENZ OF GOLDENS BRIDGE

NYS ROUTE 22

TOWN OF LEWISBORO, NY

### 2018 EXISTING VOLUMES

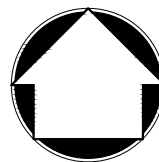
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JMC PROJECT: 16124

FIGURE: 03

SCALE: 1" = 800'



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ARMONK  
NY 10504

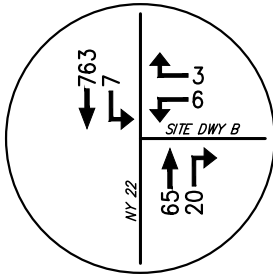
(914) 273-5225  
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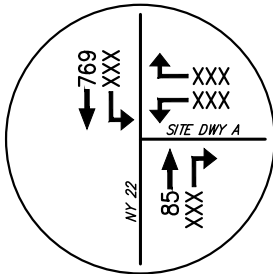
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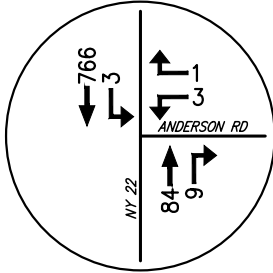




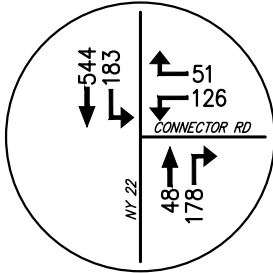
4 NY 22 & SITE DRIVEWAY B



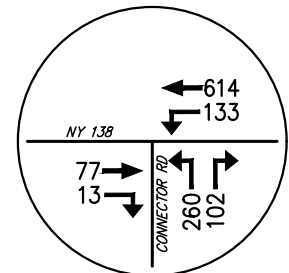
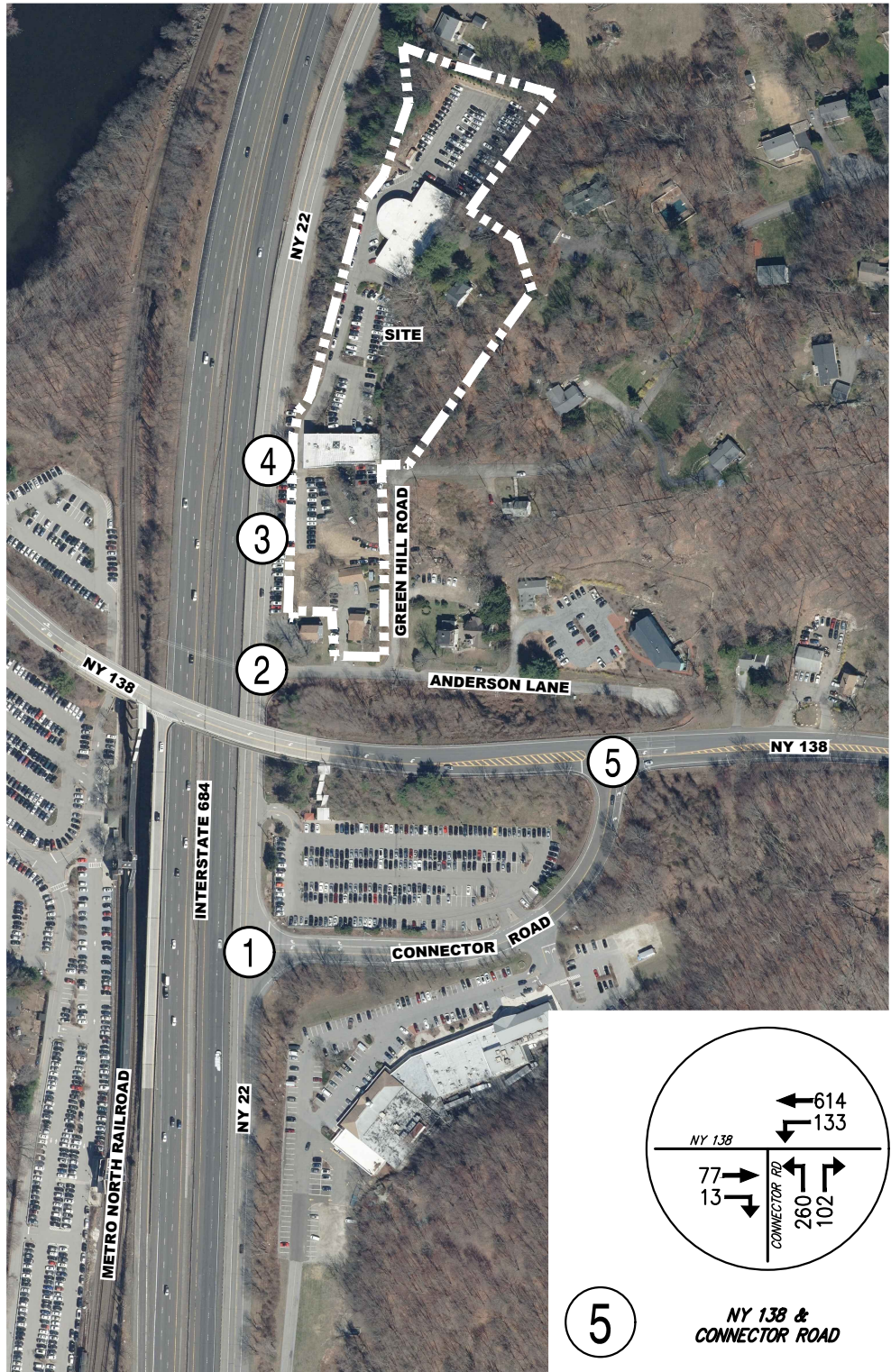
3 NY 22 & SITE DRIVEWAY A



2 NY 22 & ANDERSON ROAD



1 NY 22 & CONNECTOR ROAD



5 NY 138 & CONNECTOR ROAD

## MERCEDES BENZ OF GOLDENS BRIDGE

NYS ROUTE 22

TOWN OF LEWISBORO, NY

## 2021 GENERAL GROWTH VOLUMES

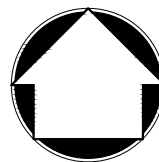
PEAK WEEKDAY AM HOUR

DATE: 11/16/2018

JMC PROJECT: 16124

FIGURE: 04

SCALE: 1" = 800'



120 BEDFORD RD  
ARMONK  
NY 10504

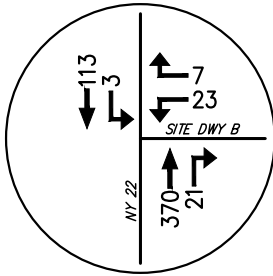
(914) 273-5225  
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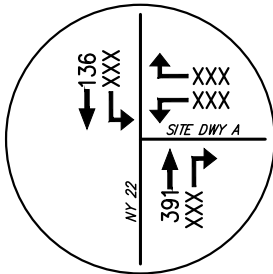
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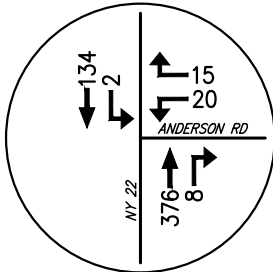




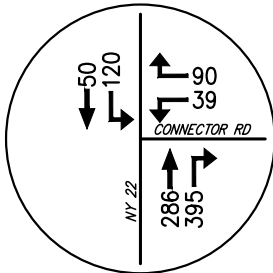
4 NY 22 & SITE DRIVEWAY B



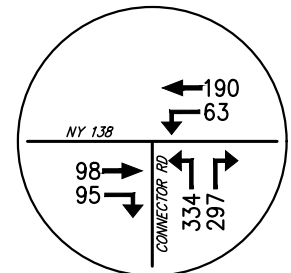
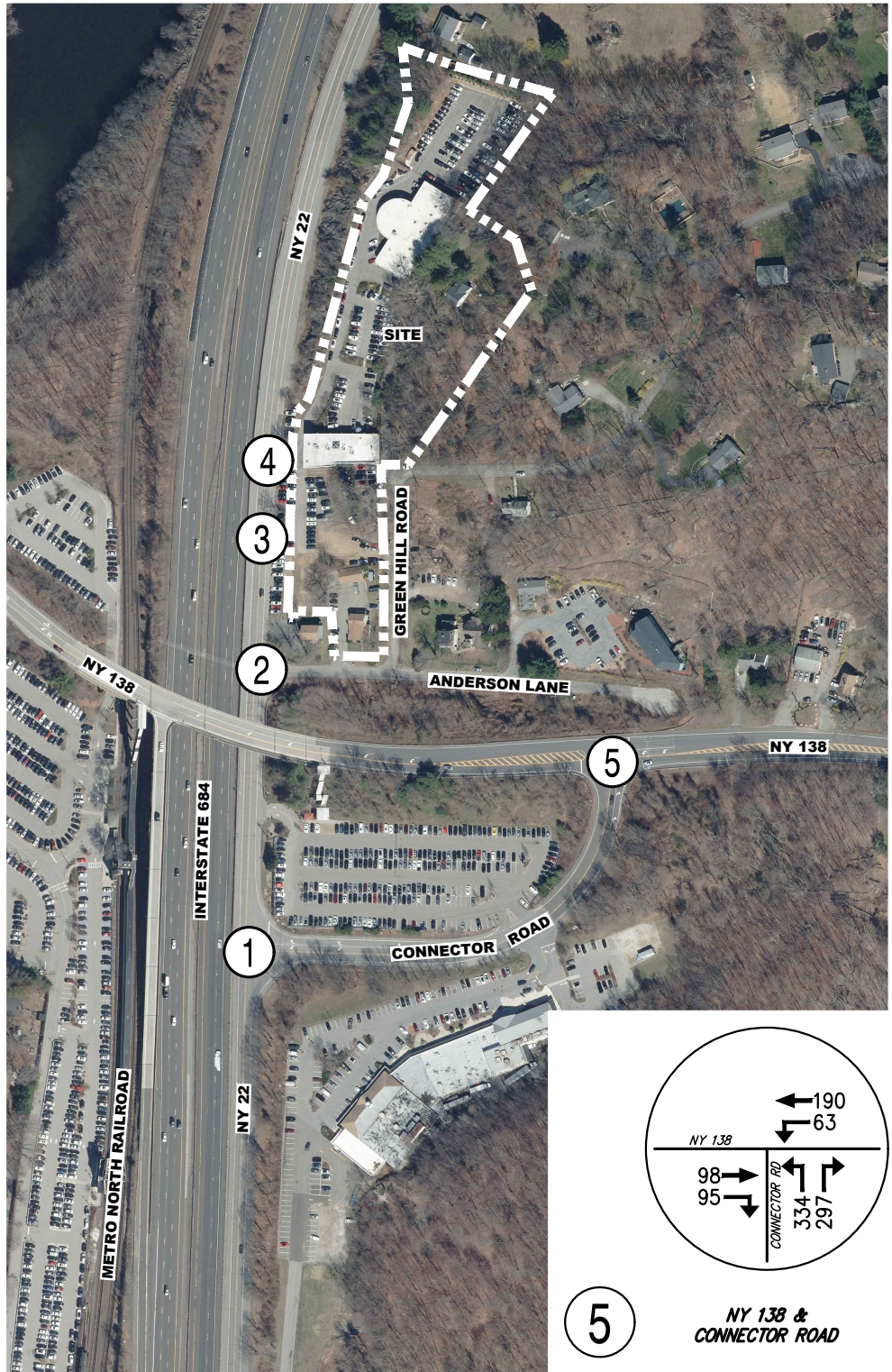
3 NY 22 & SITE DRIVEWAY A



2 NY 22 & ANDERSON ROAD



1 NY 22 & CONNECTOR ROAD



5 NY 138 & CONNECTOR ROAD

# **MERCEDES BENZ OF GOLDENS BRIDGE**

NYS ROUTE 22

TOWN OF LEWISBORO, NY

## **2021 GENERAL GROWTH VOLUMES**

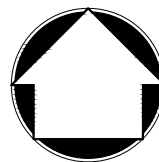
PEAK WEEKDAY PM HOUR

DATE: 11/16/2018

JMC PROJECT: 16124

FIGURE: 05

SCALE: 1" = 800'



120 BEDFORD RD  
ARMONK  
NY 10504

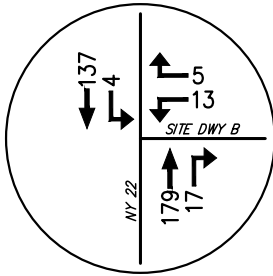
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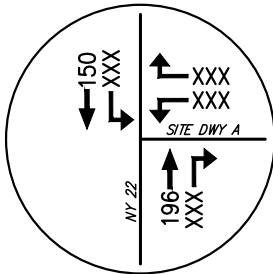
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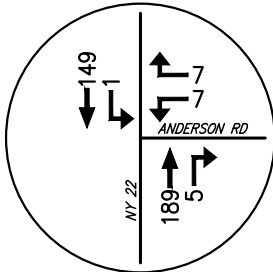




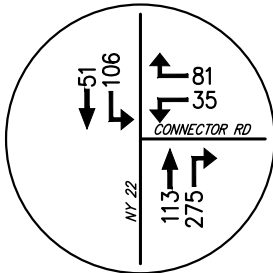
4 NY 22 & SITE DRIVEWAY B



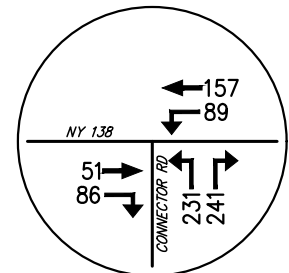
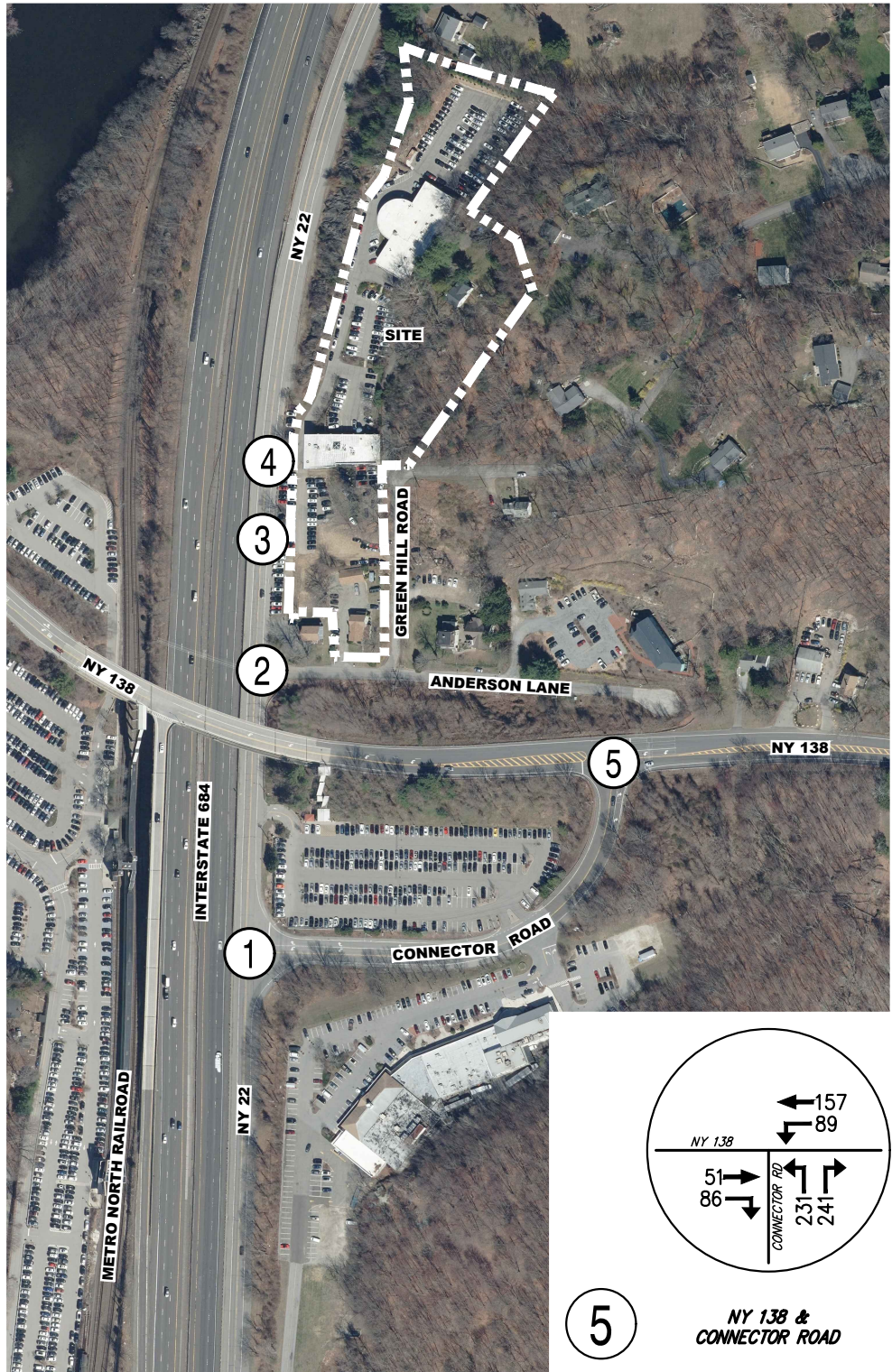
3 NY 22 & SITE DRIVEWAY A



2 NY 22 & ANDERSON ROAD



1 NY 22 & CONNECTOR ROAD



5 NY 138 & CONNECTOR ROAD

## MERCEDES BENZ OF GOLDENS BRIDGE

NYS ROUTE 22

TOWN OF LEWISBORO, NY

## 2021 GENERAL GROWTH VOLUMES

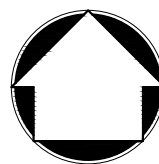
PEAK SATURDAY HOUR

DATE: 11/16/2018

JMC PROJECT: 16124

FIGURE: 06

SCALE: 1" = 800'



120 BEDFORD RD  
ARMONK  
NY 10504

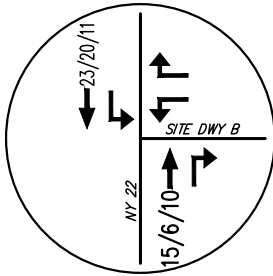
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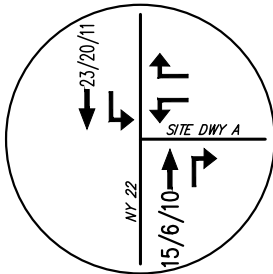
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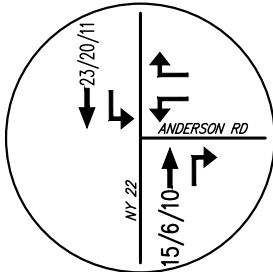




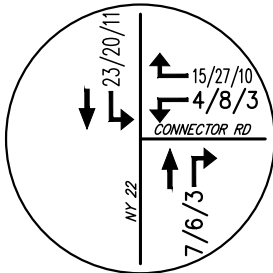
4 NY 22 & SITE DRIVEWAY B



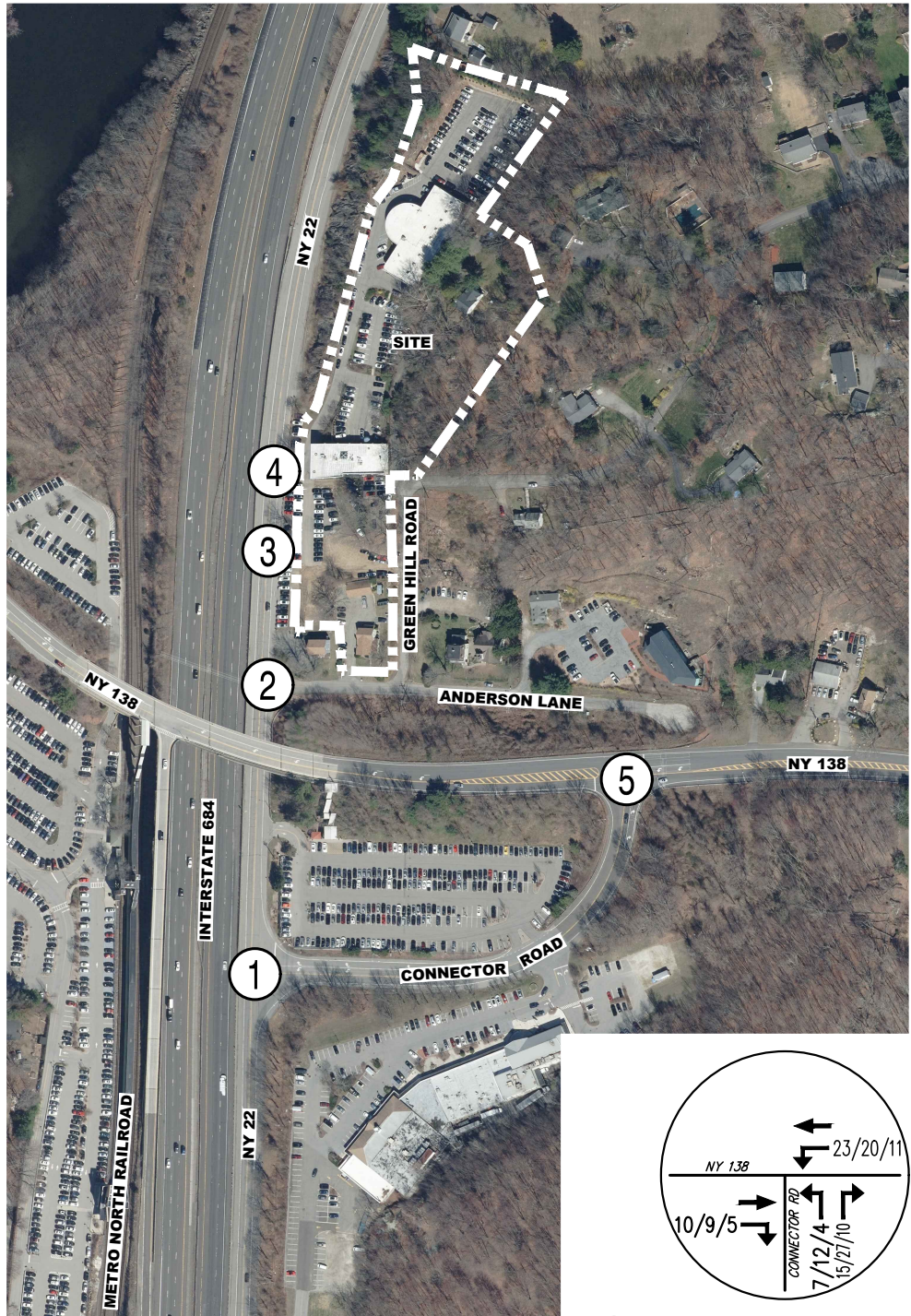
3 NY 22 & SITE DRIVEWAY A



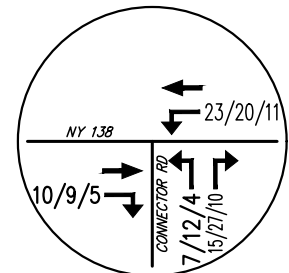
2 NY 22 & ANDERSON ROAD



1 NY 22 & CONNECTOR ROAD



LEGEND:  
PEAK WEEKDAY AM HOUR  
/PEAK WEEKDAY PM HOUR  
/PEAK SATURDAY MIDDAY HOUR



5 NY 138 & CONNECTOR ROAD

## MERCEDES BENZ OF GOLDENS BRIDGE

NYS ROUTE 22

TOWN OF LEWISBORO, NY

## OTHER DEVELOPMENT VOLUMES

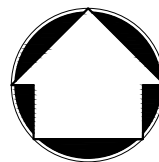
GOLDENS BRIDGE VILLAGE CENTRE

DATE: 11/16/2018

JMC PROJECT: 16124

FIGURE: 07

SCALE: 1" = 800'



120 BEDFORD RD  
ARMONK  
NY 10504

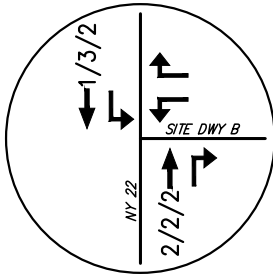
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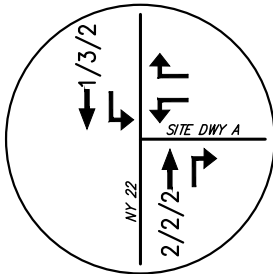
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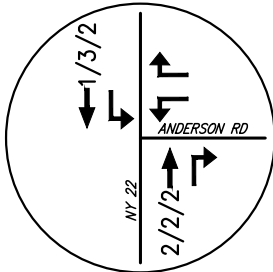




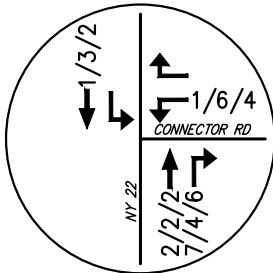
4 NY 22 & SITE DRIVEWAY B



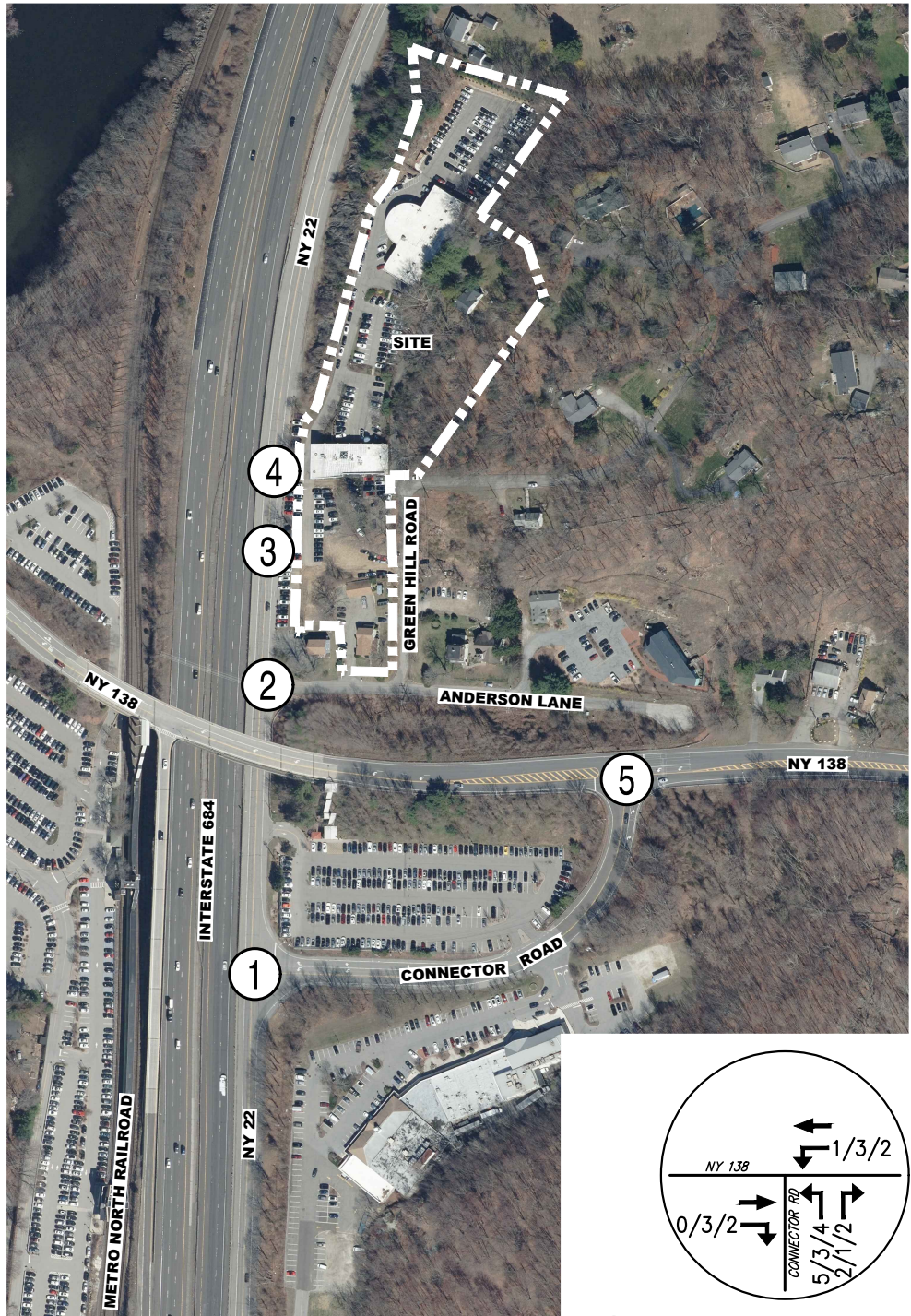
3 NY 22 & SITE DRIVEWAY A



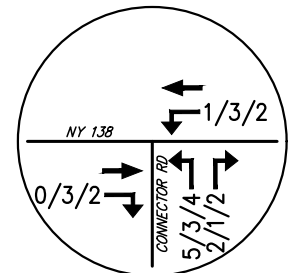
2 NY 22 & ANDERSON ROAD



1 NY 22 & CONNECTOR ROAD



LEGEND:  
PEAK WEEKDAY AM HOUR  
/PEAK WEEKDAY PM HOUR  
/PEAK SATURDAY MIDDAY HOUR



5 NY 138 & CONNECTOR ROAD

## MERCEDES BENZ OF GOLDENS BRIDGE

NYS ROUTE 22

TOWN OF LEWISBORO, NY

## OTHER DEVELOPMENT VOLUMES

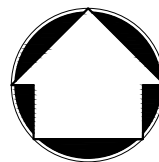
WILDER BALTER MULTI-FAMILY DEVELOPMENT

DATE: 11/16/2018

JMC PROJECT: 16124

FIGURE: 08

SCALE: 1" = 800'



120 BEDFORD RD  
ARMONK  
NY 10504

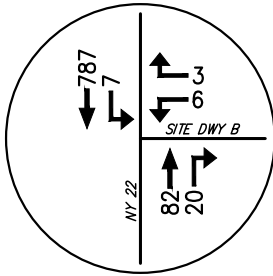
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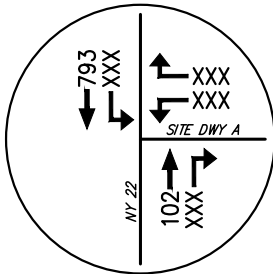
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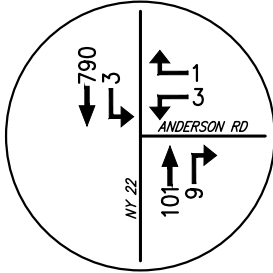




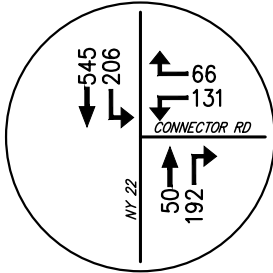
4 NY 22 & SITE DRIVEWAY B



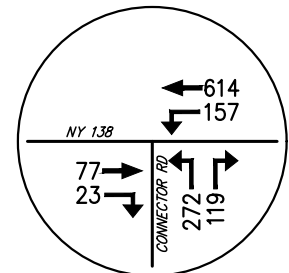
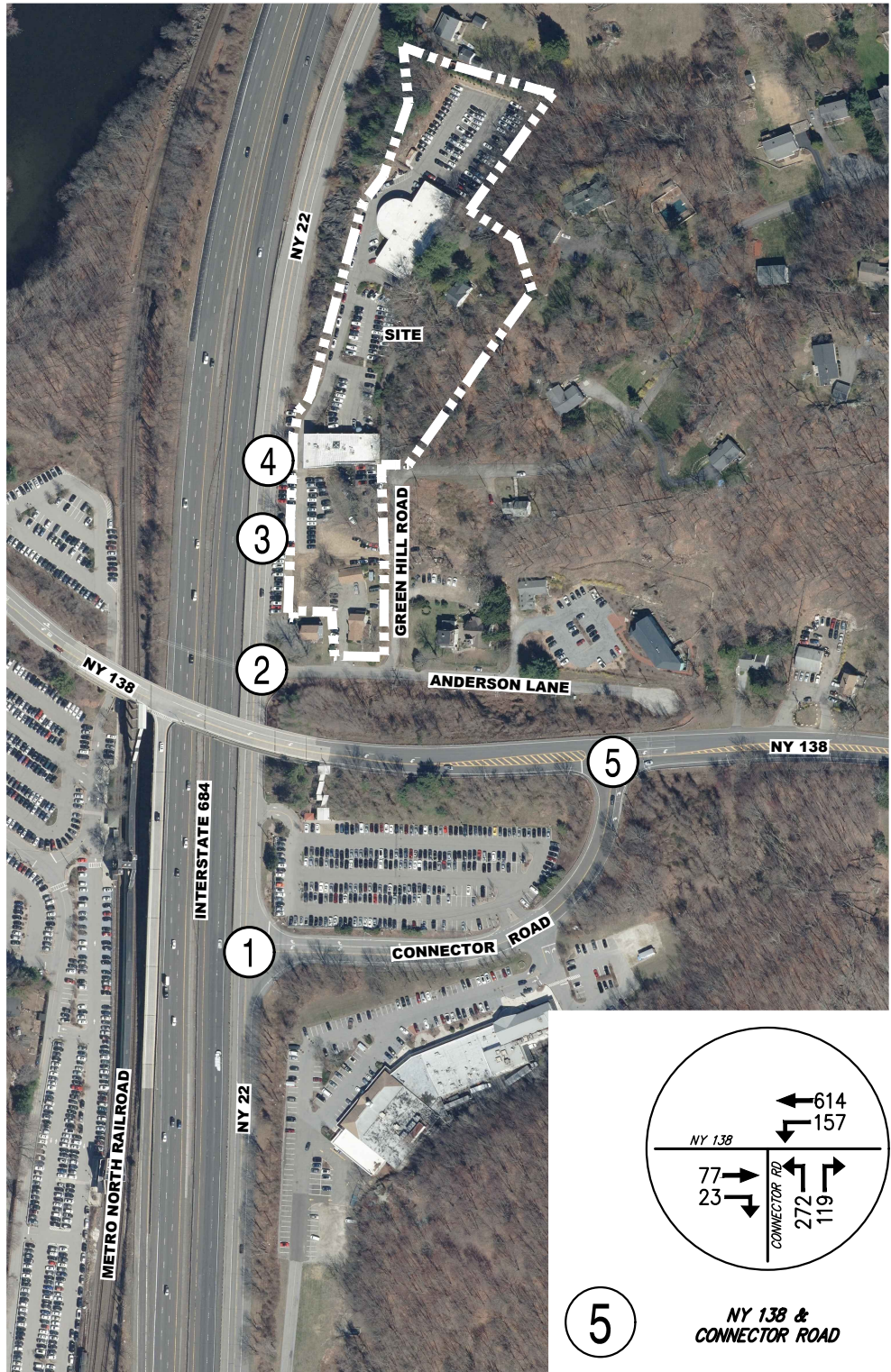
3 NY 22 & SITE DRIVEWAY A



2 NY 22 & ANDERSON ROAD



1 NY 22 & CONNECTOR ROAD



5 NY 138 & CONNECTOR ROAD

## MERCEDES BENZ OF GOLDENS BRIDGE

NYS ROUTE 22

TOWN OF LEWISBORO, NY

## 2021 NO BUILD VOLUMES

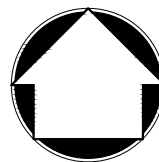
PEAK WEEKDAY AM HOUR (7:15 - 8:15)

DATE: 11/16/2018

JMC PROJECT: 16124

FIGURE: 09

SCALE: 1" = 800'



120 BEDFORD RD  
ARMONK  
NY 10504

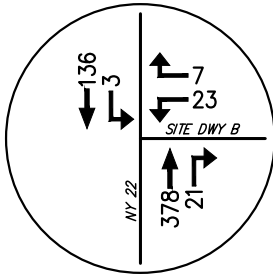
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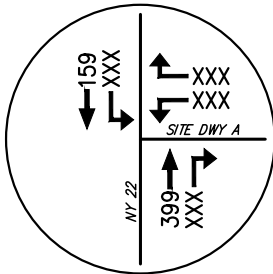
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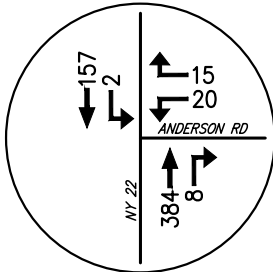




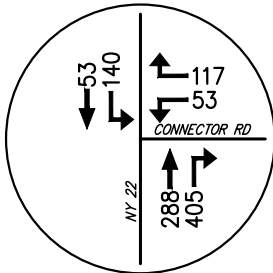
4 NY 22 & SITE DRIVEWAY B



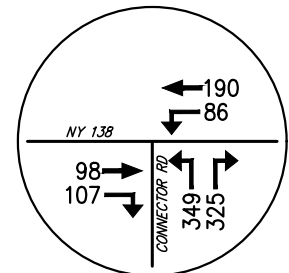
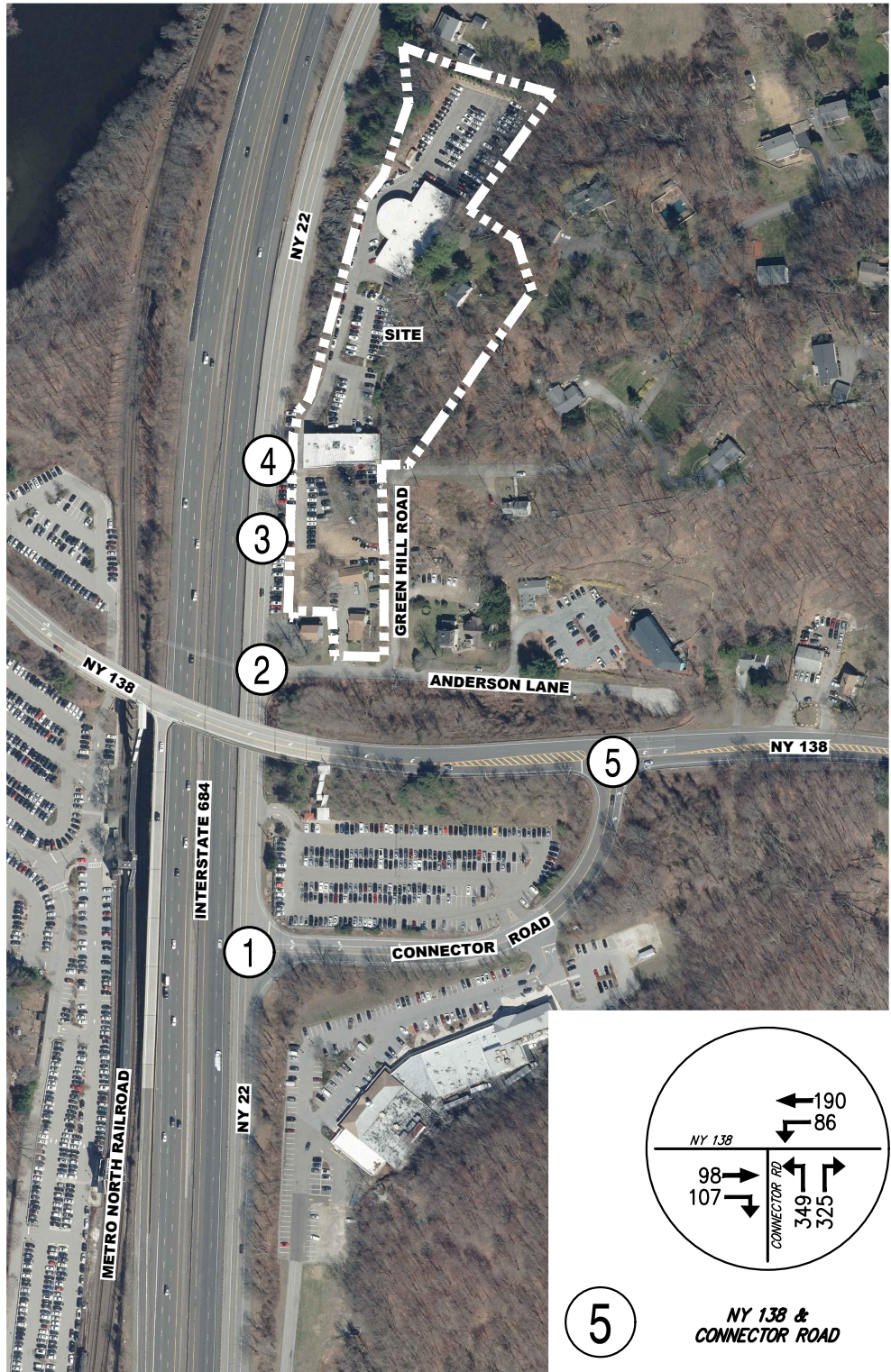
3 NY 22 & SITE DRIVEWAY A



2 NY 22 & ANDERSON ROAD



1 NY 22 & CONNECTOR ROAD



5 NY 138 & CONNECTOR ROAD

## MERCEDES BENZ OF GOLDENS BRIDGE

NYS ROUTE 22

TOWN OF LEWISBORO, NY

### 2021 NO BUILD VOLUMES

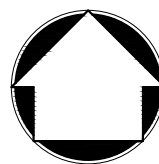
PEAK WEEKDAY PM HOUR (4:30 - 5:30)

DATE: 11/16/2018

JMC PROJECT: 16124

FIGURE: 10

SCALE: 1" = 800'



120 BEDFORD RD  
ARMONK  
NY 10504

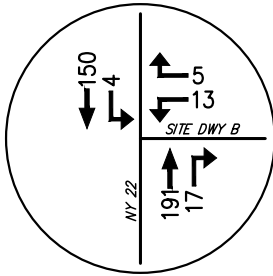
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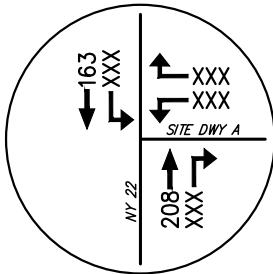
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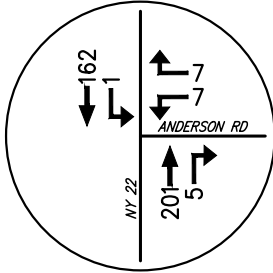




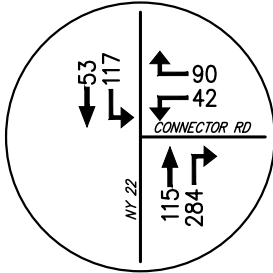
4 NY 22 & SITE DRIVEWAY B



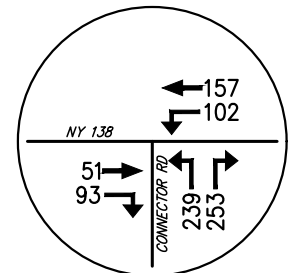
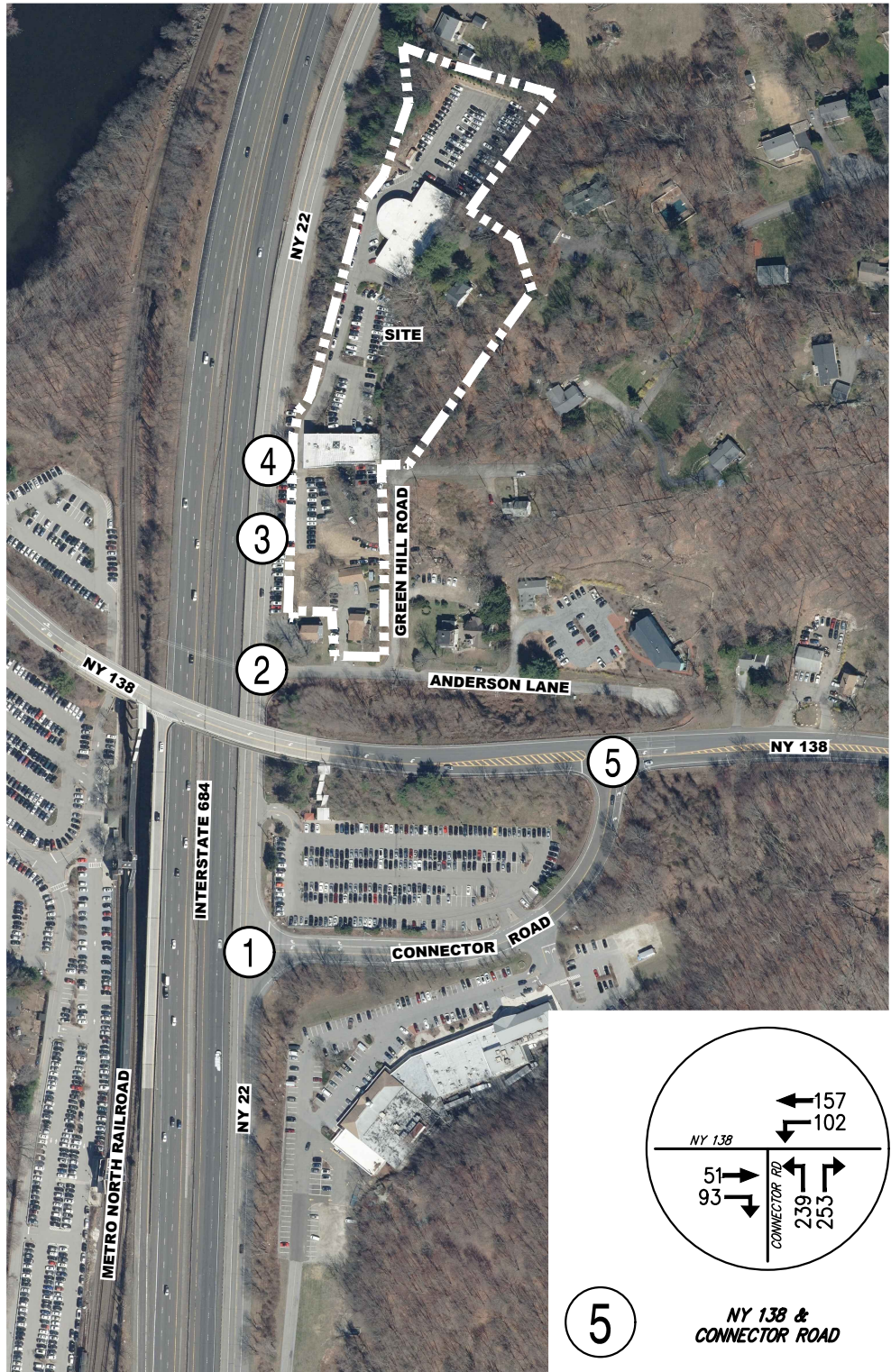
3 NY 22 & SITE DRIVEWAY A



2 NY 22 & ANDERSON ROAD



1 NY 22 & CONNECTOR ROAD



5 NY 138 & CONNECTOR ROAD

## MERCEDES BENZ OF GOLDENS BRIDGE

NYS ROUTE 22

TOWN OF LEWISBORO, NY

### 2021 NO BUILD VOLUMES

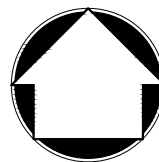
PEAK SATURDAY HOUR (12:15 - 1:15)

DATE: 11/16/2018

JMC PROJECT: 16124

FIGURE: 11

SCALE: 1" = 800'



120 BEDFORD RD  
ARMONK  
NY 10504

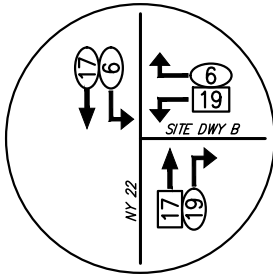
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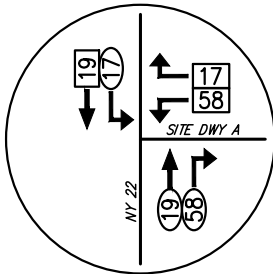
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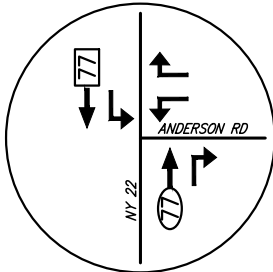




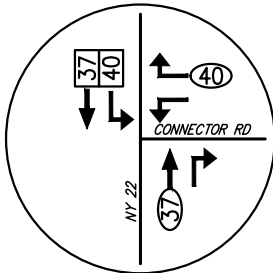
4 NY 22 & SITE DRIVEWAY B



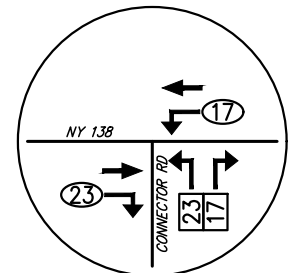
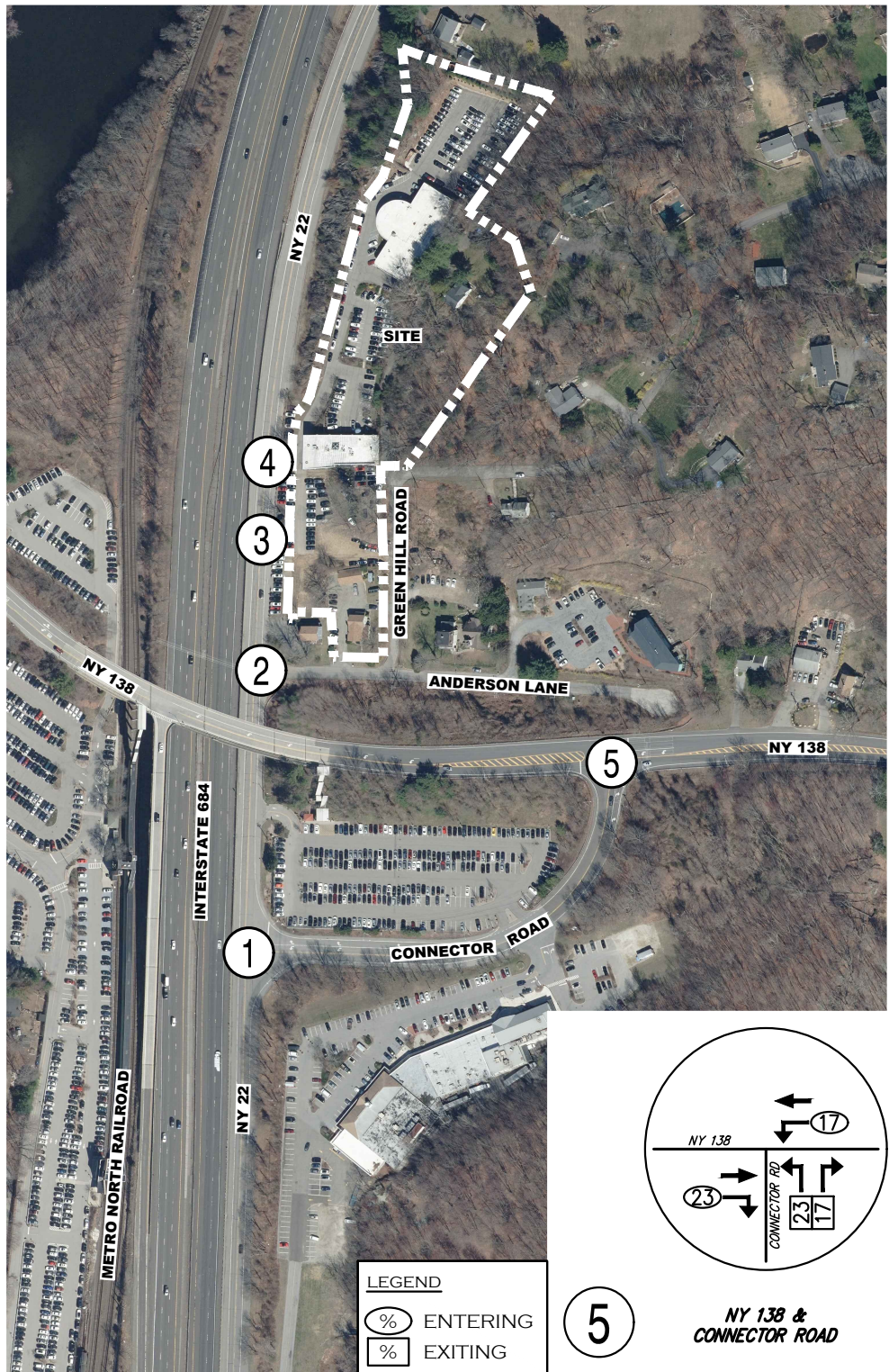
3 NY 22 & SITE DRIVEWAY A



2 NY 22 & ANDERSON ROAD



1 NY 22 & CONNECTOR ROAD



5 NY 138 & CONNECTOR ROAD

## MERCEDES BENZ OF GOLDENS BRIDGE

NYS ROUTE 22

TOWN OF LEWISBORO, NY

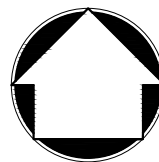
## NET ADDITIONAL DRIVEWAY TRIP DISTRIBUTIONS

DATE: 11/16/2018

JMC PROJECT: 16124

FIGURE: 12

SCALE: 1" = 800'



120 BEDFORD RD  
ARMONK  
NY 10504

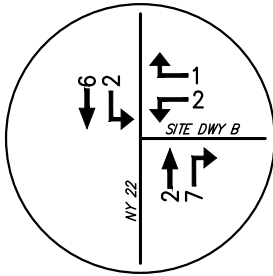
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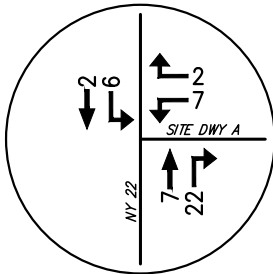
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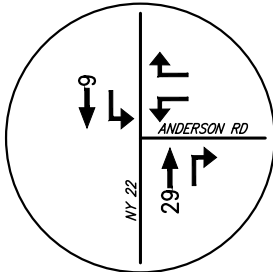




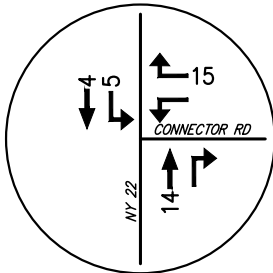
4 NY 22 & SITE DRIVEWAY B



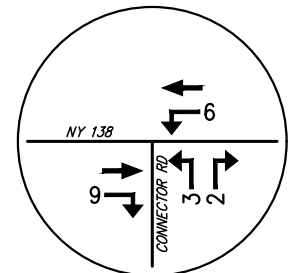
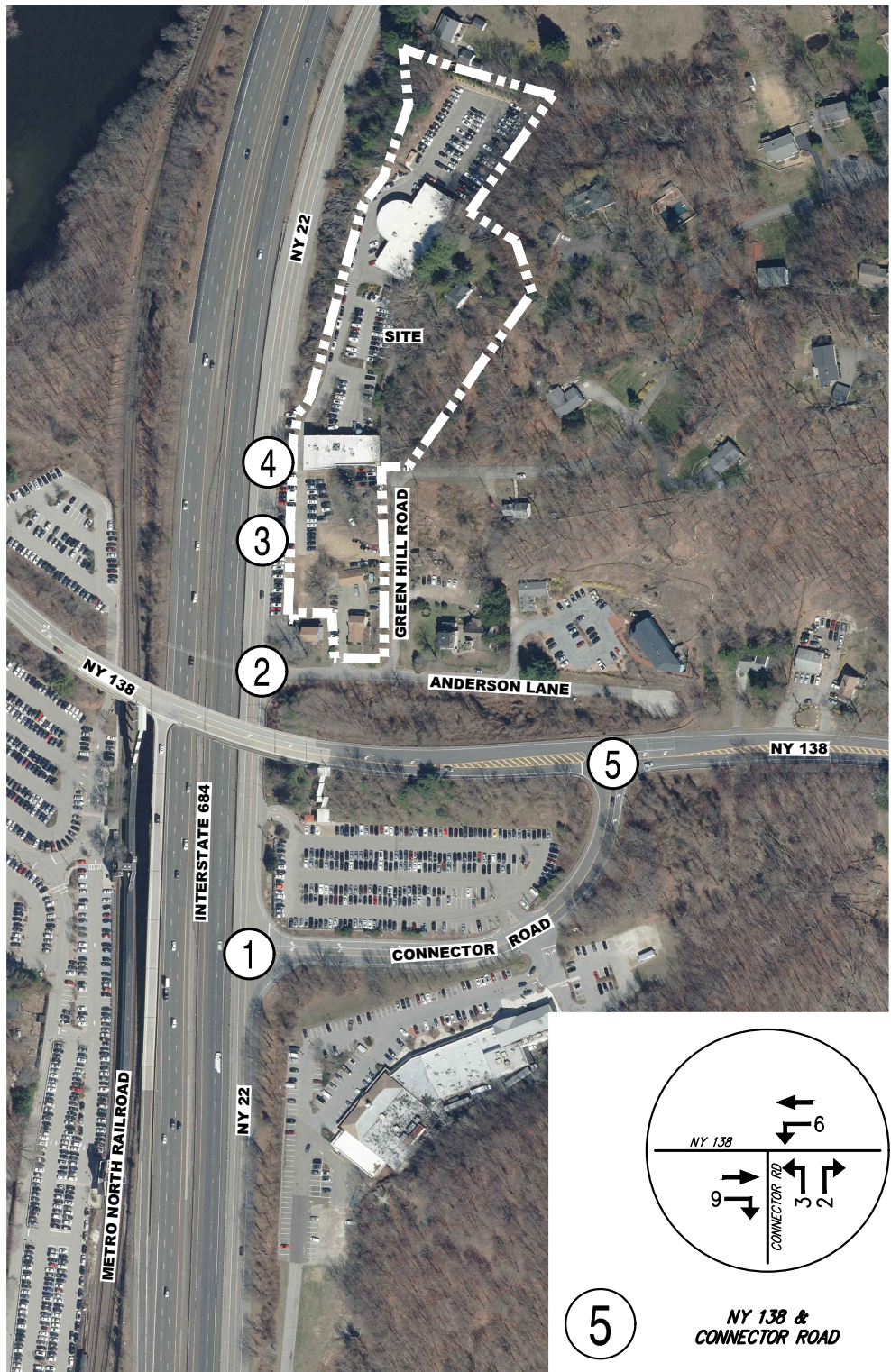
3 NY 22 & SITE DRIVEWAY A



2 NY 22 & ANDERSON ROAD



1 NY 22 & CONNECTOR ROAD



5 NY 138 & CONNECTOR ROAD

# **MERCEDES BENZ OF GOLDENS BRIDGE**

NYS ROUTE 22

TOWN OF LEWISBORO, NY

## **NET ADDITIONAL DRIVEWAY VOLUMES**

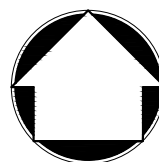
PEAK WEEKDAY AM HOUR

DATE: 11/16/2018

JMC PROJECT: 16124

FIGURE: 13

SCALE: 1" = 800'



120 BEDFORD RD  
ARMONK  
NY 10504

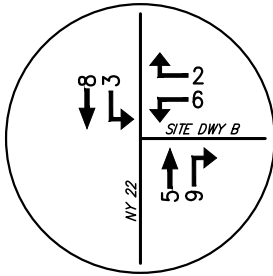
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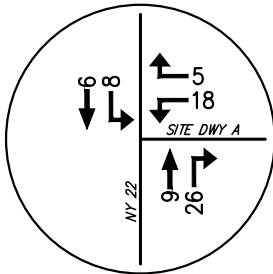
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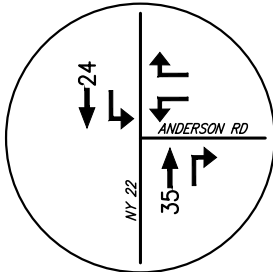




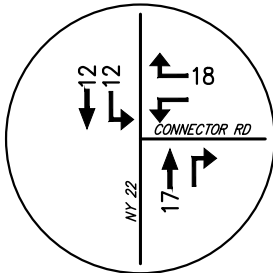
4 NY 22 & SITE DRIVEWAY B



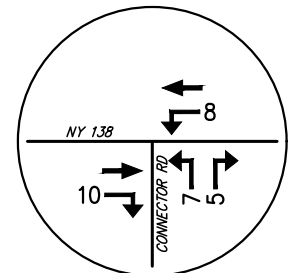
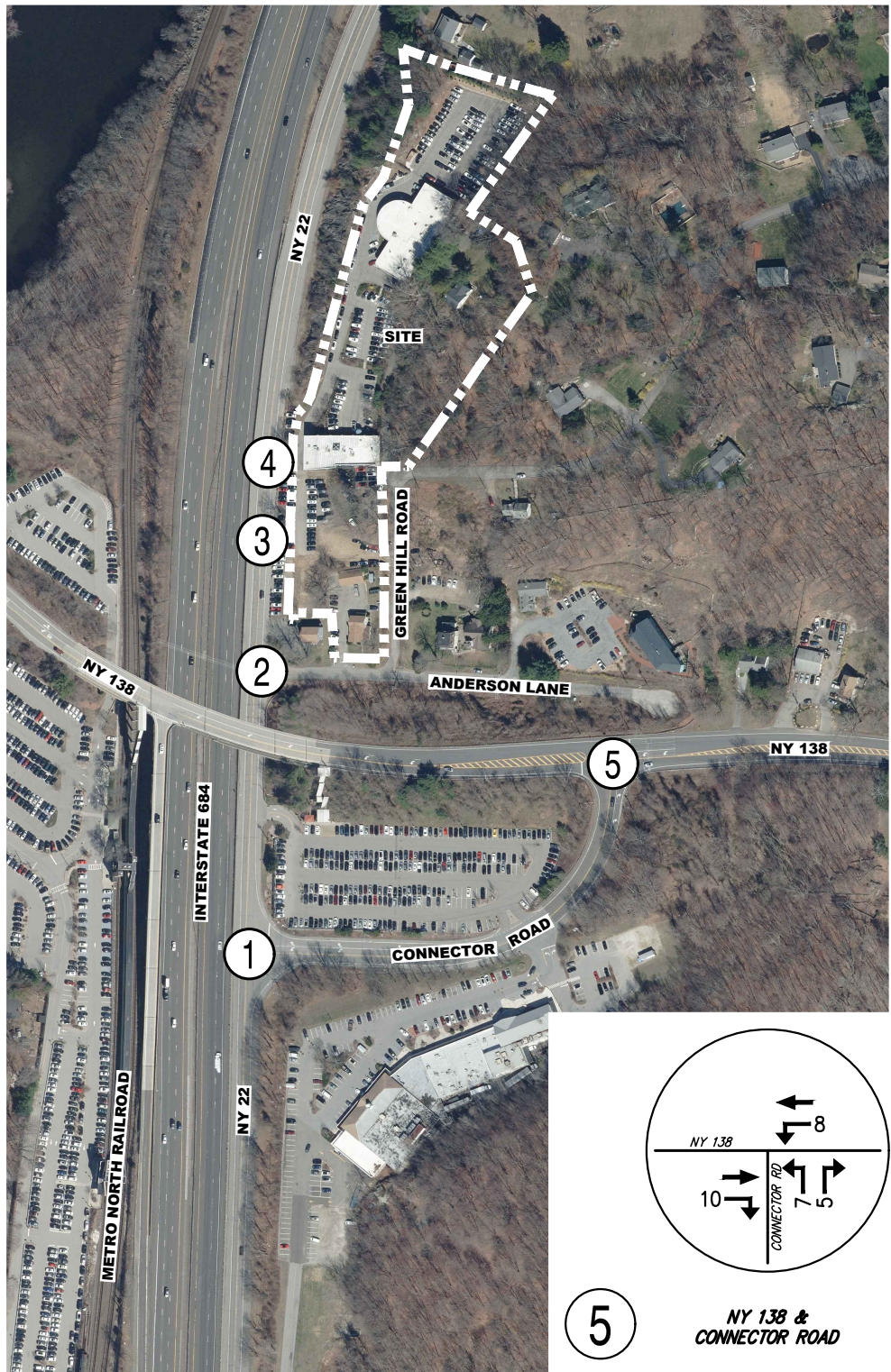
3 NY 22 & SITE DRIVEWAY A



2 NY 22 & ANDERSON ROAD



1 NY 22 & CONNECTOR ROAD



5 NY 138 & CONNECTOR ROAD

## MERCEDES BENZ OF GOLDENS BRIDGE

NYS ROUTE 22

TOWN OF LEWISBORO, NY

### NET ADDITIONAL DRIVEWAY VOLUMES

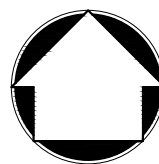
PEAK WEEKDAY PM HOUR

DATE: 11/16/2018

JMC PROJECT: 16124

FIGURE: 14

SCALE: 1" = 800'



120 BEDFORD RD  
ARMONK  
NY 10504

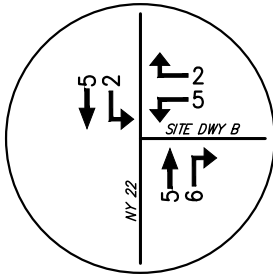
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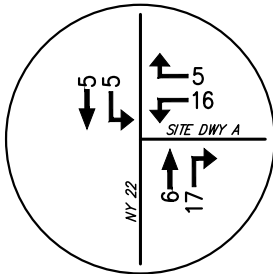
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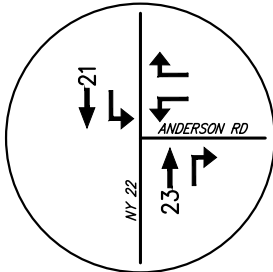




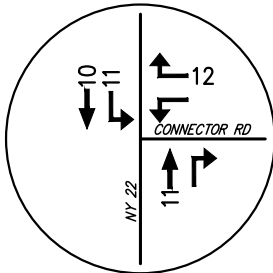
4 NY 22 & SITE DRIVEWAY B



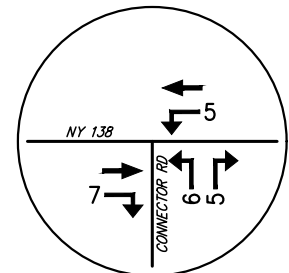
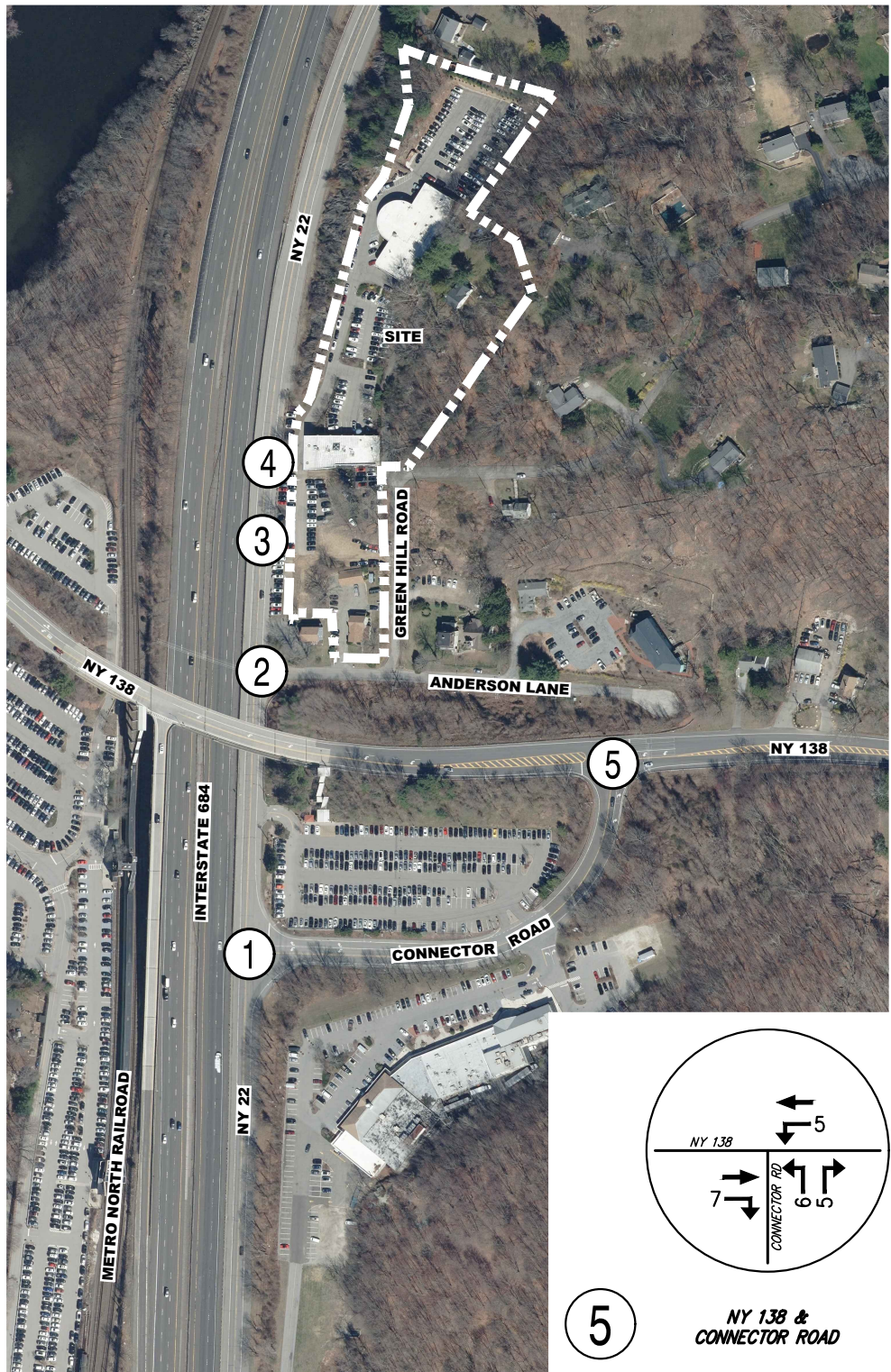
3 NY 22 & SITE DRIVEWAY A



2 NY 22 & ANDERSON ROAD



1 NY 22 & CONNECTOR ROAD



5 NY 138 & CONNECTOR ROAD

## MERCEDES BENZ OF GOLDENS BRIDGE

NYS ROUTE 22

TOWN OF LEWISBORO, NY

### NET ADDITIONAL DRIVEWAY VOLUMES

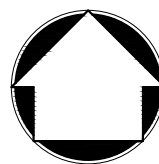
PEAK SATURDAY HOUR

DATE: 11/16/2018

JMC PROJECT: 16124

FIGURE: 15

SCALE: 1" = 800'



120 BEDFORD RD  
ARMONK  
NY 10504

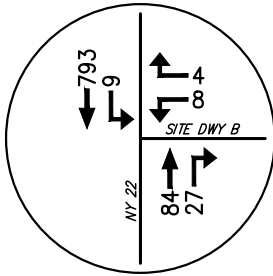
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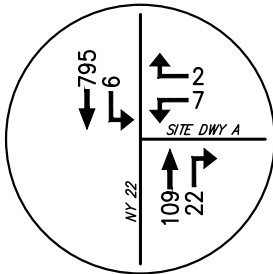
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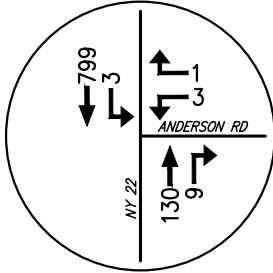




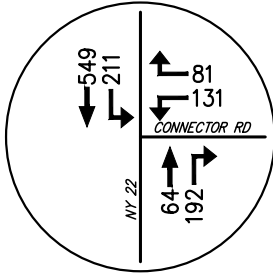
4 NY 22 & SITE DRIVEWAY B



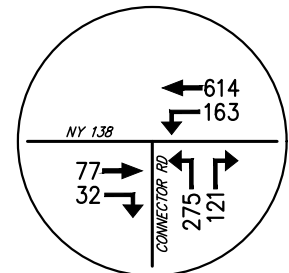
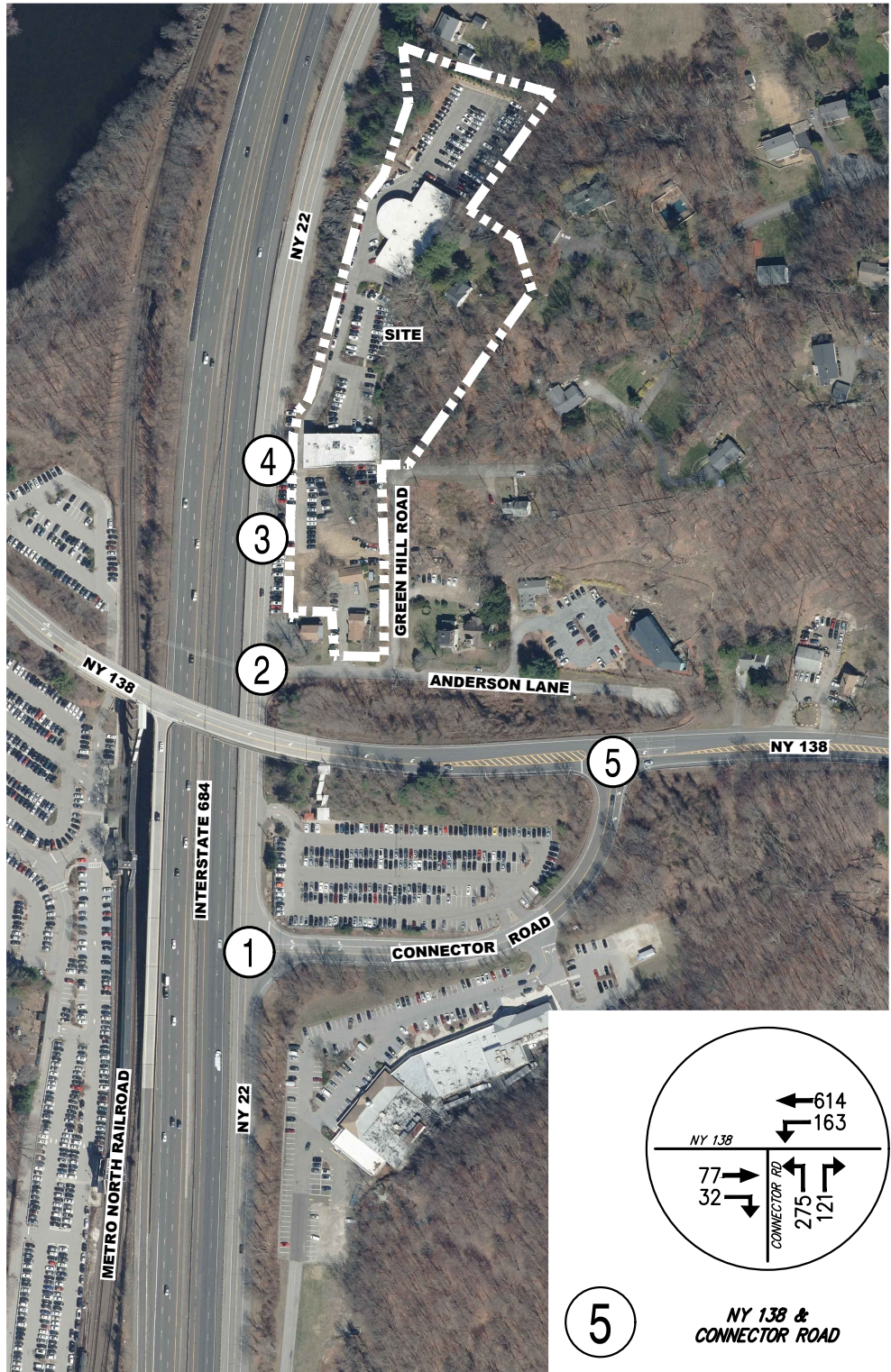
3 NY 22 & SITE DRIVEWAY A



2 NY 22 & ANDERSON ROAD



1 NY 22 & CONNECTOR ROAD



5 NY 138 & CONNECTOR ROAD

## MERCEDES BENZ OF GOLDENS BRIDGE

NYS ROUTE 22

TOWN OF LEWISBORO, NY

### 2021 BUILD VOLUMES

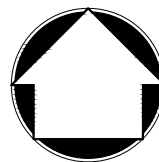
PEAK WEEKDAY AM HOUR (7:15 - 8:15)

DATE: 11/16/2018

JMC PROJECT: 16124

FIGURE: 16

SCALE: 1" = 800'



120 BEDFORD RD  
ARMONK  
NY 10504

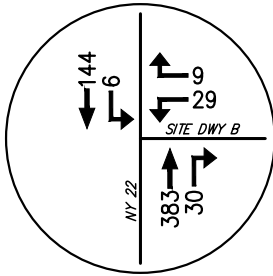
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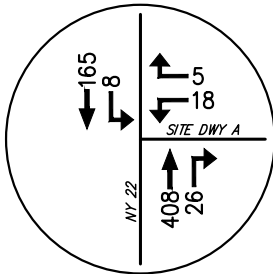
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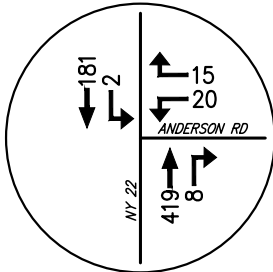




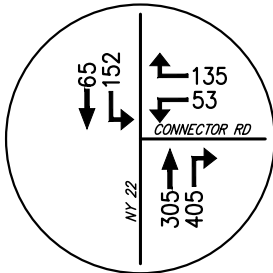
4 NY 22 & SITE DRIVEWAY B



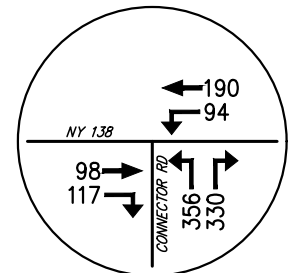
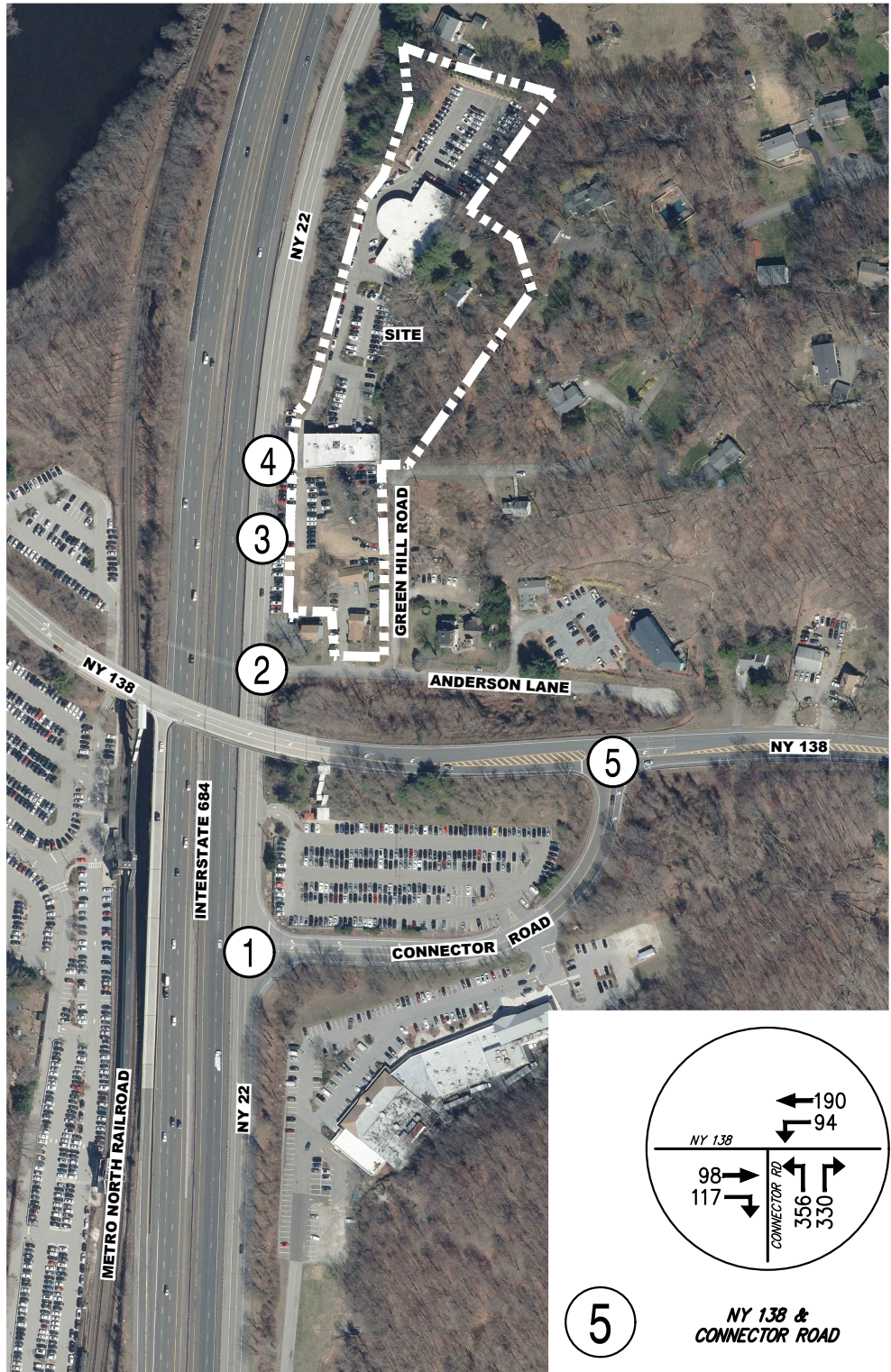
3 NY 22 & SITE DRIVEWAY A



2 NY 22 & ANDERSON ROAD



1 NY 22 & CONNECTOR ROAD



5 NY 138 & CONNECTOR ROAD

## MERCEDES BENZ OF GOLDENS BRIDGE

NYS ROUTE 22

TOWN OF LEWISBORO, NY

### 2021 BUILD VOLUMES

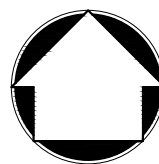
PEAK WEEKDAY PM HOUR (4:30 - 5:30)

DATE: 11/16/2018

JMC PROJECT: 16124

FIGURE: 17

SCALE: 1" = 800'



120 BEDFORD RD  
ARMONK  
NY 10504

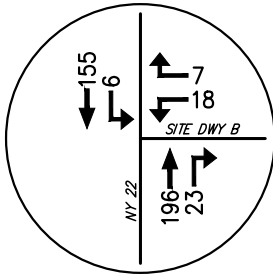
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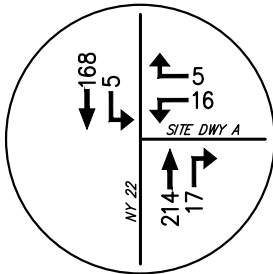
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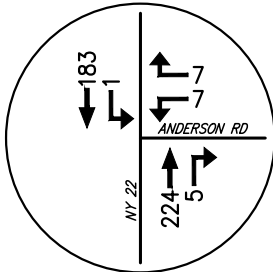




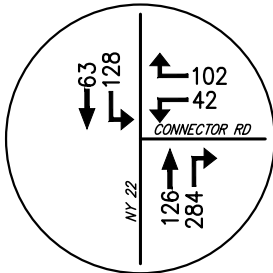
4 NY 22 & SITE DRIVEWAY B



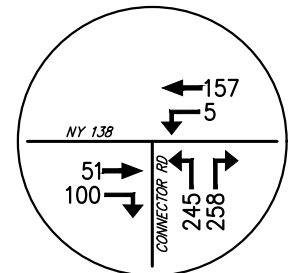
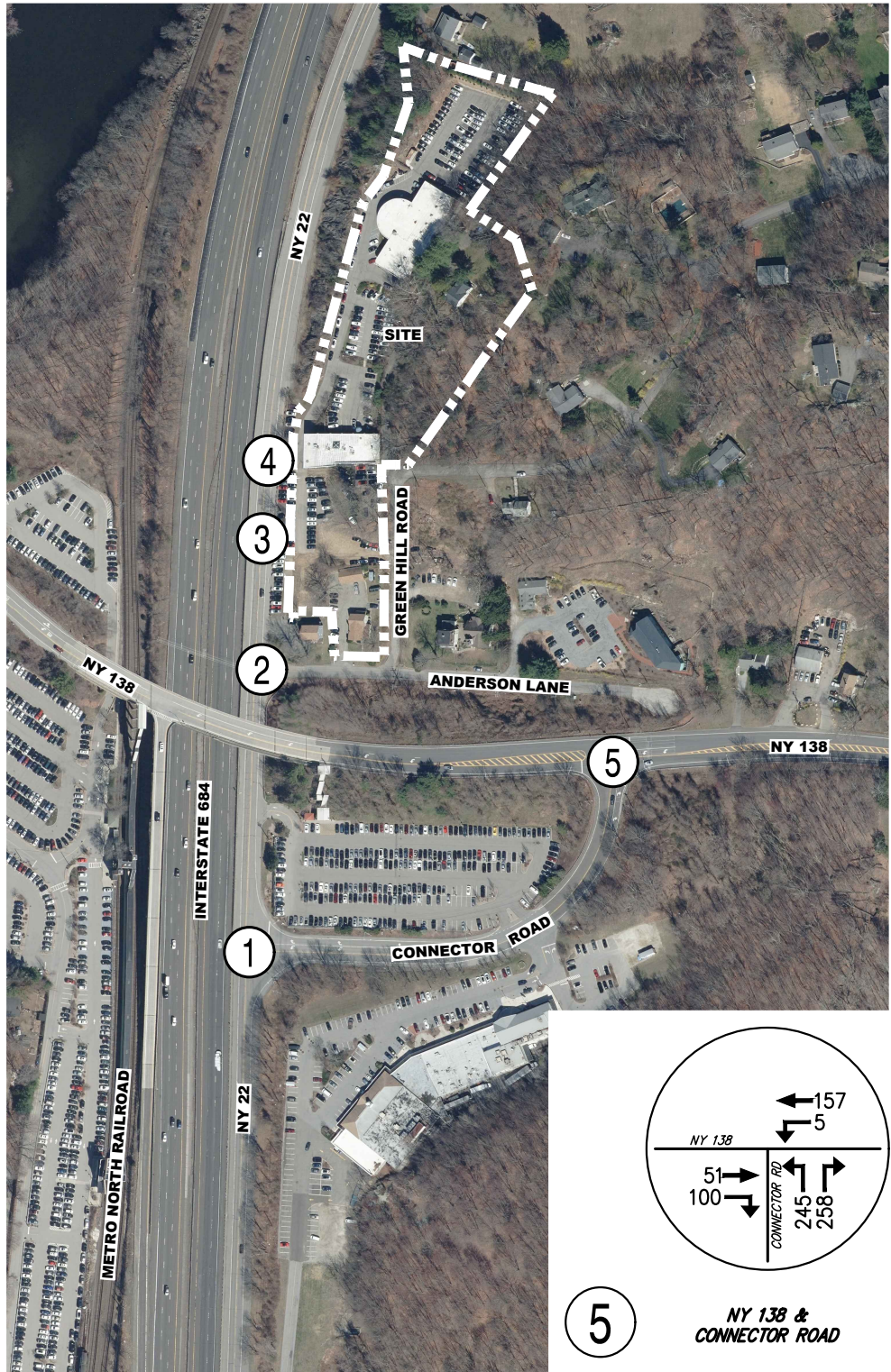
3 NY 22 & SITE DRIVEWAY A



2 NY 22 & ANDERSON ROAD



1 NY 22 & CONNECTOR ROAD



5 NY 138 & CONNECTOR ROAD

## MERCEDES BENZ OF GOLDENS BRIDGE

NYS ROUTE 22

TOWN OF LEWISBORO, NY

### 2021 BUILD VOLUMES

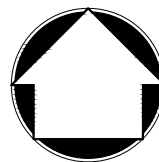
PEAK SATURDAY HOUR (12:15 - 1:15)

DATE: 11/16/2018

JMC PROJECT: 16124

FIGURE: 18

SCALE: 1" = 800'



120 BEDFORD RD  
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***APPENDIX C***

***CAPACITY ANALYSES***

Lanes, Volumes, Timings  
1: NY 22 & Connector Road

2018-EX-AM  
10/19/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	124	50	47	175	180	536
Future Volume (vph)	124	50	47	175	180	536
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%		-2%			0%
Storage Length (ft)	0	200		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.894			
Flt Protected	0.950					0.988
Satd. Flow (prot)	1728	1503	1583	0	0	1809
Flt Permitted	0.950					0.988
Satd. Flow (perm)	1728	1503	1583	0	0	1809
Link Speed (mph)	30		55			55
Link Distance (ft)	836		1411			503
Travel Time (s)	19.0		17.5			6.2
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	5%	8%	6%	9%	3%	4%
Adj. Flow (vph)	153	62	58	216	222	662
Shared Lane Traffic (%)						
Lane Group Flow (vph)	153	62	274	0	0	884
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	19.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	124	50	47	175	180	536
Future Vol, veh/h	124	50	47	175	180	536
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	200	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-1	-	-2	-	-	0
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	5	8	6	9	3	4
Mvmt Flow	153	62	58	216	222	662

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1272	166	0	0	274
Stage 1	166	-	-	-	-
Stage 2	1106	-	-	-	-
Critical Hdwy	6.25	6.18	-	-	4.13
Critical Hdwy Stg 1	5.25	-	-	-	-
Critical Hdwy Stg 2	5.25	-	-	-	-
Follow-up Hdwy	3.545	3.372	-	-	2.227
Pot Cap-1 Maneuver	196	867	-	-	1283
Stage 1	864	-	-	-	-
Stage 2	332	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	~ 142	867	-	-	1283
Mov Cap-2 Maneuver	~ 142	-	-	-	-
Stage 1	627	-	-	-	-
Stage 2	332	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	116.9	0	2.1
HCM LOS	F		










Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 142 867 1283	-	-
HCM Lane V/C Ratio	-	- 1.078 0.071 0.173	-	-
HCM Control Delay (s)	-	- 160.2 9.5 8.4	0	
HCM Lane LOS	-	- F A A	A	
HCM 95th %tile Q(veh)	-	- 8.3 0.2 0.6	-	-

Notes			
-: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon






Lanes, Volumes, Timings  
2: NY 22 & Anderson Lane

2018-EX-AM  
10/19/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	3	1	83	9	3	755
Future Volume (vph)	3	1	83	9	3	755
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	12	12	12
Grade (%)	4%		-2%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.973		0.986			
Flt Protected	0.962					
Satd. Flow (prot)	1685	0	1722	0	0	1909
Flt Permitted	0.962					
Satd. Flow (perm)	1685	0	1722	0	0	1909
Link Speed (mph)	30		55			55
Link Distance (ft)	519		503			117
Travel Time (s)	11.8		6.2			1.5
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	0%	0%	11%	0%	3%	0%
Adj. Flow (vph)	4	1	99	11	4	899
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	0	110	0	0	903
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	11		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.07	1.07	0.99	0.99	0.99	0.99
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection

Int Delay, s/veh 0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	1	83	9	3	755
Future Vol, veh/h	3	1	83	9	3	755
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	4	-	-2	-	-	-1
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	0	11	0	3	0
Mvmt Flow	4	1	99	11	4	899










Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1012	105	0
Stage 1	105	-	-
Stage 2	907	-	-
Critical Hdwy	7.2	6.6	-
Critical Hdwy Stg 1	6.2	-	-
Critical Hdwy Stg 2	6.2	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	214	944	-
Stage 1	903	-	-
Stage 2	325	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	213	944	-
Mov Cap-2 Maneuver	213	-	-
Stage 1	898	-	-
Stage 2	325	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	264	1474
HCM Lane V/C Ratio	-	-	0.018	0.002
HCM Control Delay (s)	-	-	18.9	7.4
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Lanes, Volumes, Timings  
3: NY 22 & Site Driveway A




2018-EX-AM  
10/19/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	84	0	0	758
Future Volume (vph)	0	0	84	0	0	758
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12	12
Grade (%)	-12%		1%			-2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	2081	0	1644	0	0	1881
Flt Permitted						
Satd. Flow (perm)	2081	0	1644	0	0	1881
Link Speed (mph)	30		55			55
Link Distance (ft)	183		117			236
Travel Time (s)	4.2		1.5			2.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	15%	0%	0%	2%
Adj. Flow (vph)	0	0	91	0	0	824
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	91	0	0	824
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	13		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.89	0.89	1.01	1.01	0.99	0.99
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					



Intersection

Int Delay, s/veh 0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	84	0	0	758
Future Vol, veh/h	0	0	84	0	0	758
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-12	-	1	-	-	-2
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	15	0	0	2
Mvmt Flow	0	0	91	0	0	824










Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	915	91	0
Stage 1	91	-	-
Stage 2	824	-	-
Critical Hdwy	4	5	-
Critical Hdwy Stg 1	3	-	-
Critical Hdwy Stg 2	3	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	562	1002	-
Stage 1	996	-	-
Stage 2	752	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	562	1002	-
Mov Cap-2 Maneuver	562	-	-
Stage 1	996	-	-
Stage 2	752	-	-




Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1517	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	0	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	0	-

Lanes, Volumes, Timings  
4: NY 22 & Site Driveway B

2018-EX-AM  
10/19/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	6	3	64	20	7	752
Future Volume (vph)	6	3	64	20	7	752
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12	12
Grade (%)	-12%		1%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.959		0.968			
Flt Protected	0.966					
Satd. Flow (prot)	1928	0	1643	0	0	1844
Flt Permitted	0.966					
Satd. Flow (perm)	1928	0	1643	0	0	1844
Link Speed (mph)	30		55			55
Link Distance (ft)	182		236			636
Travel Time (s)	4.1		2.9			7.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	15%	0%	0%	2%
Adj. Flow (vph)	7	3	70	22	8	817
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	0	92	0	0	825
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	13		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.89	0.89	1.01	1.01	1.01	1.01
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					












Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	3	64	20	7	752
Future Vol, veh/h	6	3	64	20	7	752
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-12	-	1	-	-	2
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	15	0	0	2
Mvmt Flow	7	3	70	22	8	817
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	914	81	0	0	92	0
Stage 1	81	-	-	-	-	-
Stage 2	833	-	-	-	-	-
Critical Hdwy	4	5	-	-	4.1	-
Critical Hdwy Stg 1	3	-	-	-	-	-
Critical Hdwy Stg 2	3	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	562	1011	-	-	1515	-
Stage 1	1000	-	-	-	-	-
Stage 2	750	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	556	1011	-	-	1515	-
Mov Cap-2 Maneuver	556	-	-	-	-	-
Stage 1	990	-	-	-	-	-
Stage 2	750	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10.6	0	0.1			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	654	1515	-	
HCM Lane V/C Ratio	-	-	0.015	0.005	-	
HCM Control Delay (s)	-	-	10.6	7.4	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0	0	-	



Lanes, Volumes, Timings  
5: Connector Road & NY 138

2018-EX-AM

10/19/2018

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	76	13	131	605	256	100
Future Volume (vph)	76	13	131	605	256	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	12	16	10	10
Grade (%)	3%			1%	1%	
Storage Length (ft)		0	85		0	75
Storage Lanes		0	1		1	1
Taper Length (ft)			130		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		1.00			
Frt	0.980					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1816	0	1761	2121	1596	1428
Flt Permitted			0.697		0.950	
Satd. Flow (perm)	1816	0	1291	2121	1596	1428
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	14					104
Link Speed (mph)	35			35	30	
Link Distance (ft)	518			589	836	
Travel Time (s)	10.1			11.5	19.0	
Confl. Peds. (#/hr)		1	1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	8%	4%	2%	1%	5%	5%
Adj. Flow (vph)	79	14	136	630	267	104
Shared Lane Traffic (%)						
Lane Group Flow (vph)	93	0	136	630	267	104
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	10	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.94	0.94	1.01	0.85	1.10	1.10
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		2	2	2	2
Detector Template	NYS DOT		NYS DOT	NYS DOT	NYS DOT	NYS DOT
Leading Detector (ft)	78		78	78	78	78
Trailing Detector (ft)	-10		-10	-10	-10	-10
Detector 1 Position(ft)	-10		-10	-10	-10	-10
Detector 1 Size(ft)	40		40	40	40	40
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	4.0		4.0	4.0	4.0	4.0
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)	38		38	38	38	38
Detector 2 Size(ft)	40		40	40	40	40
Detector 2 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex

Peak Weekday AM Hour (7:15 - 8:15)  
JMC 16124

Synchro 10 Report  
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Lanes, Volumes, Timings  
5: Connector Road & NY 138

2018-EX-AM

10/19/2018

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Channel						
Detector 2 Extend (s)	4.0		4.0	4.0	4.0	4.0
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	6			2	4	
Permitted Phases			2			4
Detector Phase	6		2	2	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	5.0	5.0
Minimum Split (s)	15.0		15.0	15.0	10.0	10.0
Total Split (s)	45.0		45.0	45.0	35.0	35.0
Total Split (%)	56.3%		56.3%	56.3%	43.8%	43.8%
Maximum Green (s)	40.0		40.0	40.0	30.0	30.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0		4.0	4.0	4.0	4.0
Recall Mode	Min		Min	Min	None	None
v/c Ratio	0.11		0.22	0.63	0.53	0.20
Control Delay	7.5		9.8	13.8	20.1	5.1
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	7.5		9.8	13.8	20.1	5.1
Queue Length 50th (ft)	11		20	117	58	0
Queue Length 95th (ft)	40		63	286	166	30
Internal Link Dist (ft)	438			509	756	
Turn Bay Length (ft)			85			75
Base Capacity (vph)	1484		1053	1730	1024	954
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	0.06		0.13	0.36	0.26	0.11

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 50.7

Natural Cycle: 40

Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Connector Road & NY 138

↖ Ø2	↗ Ø4
45 s	35 s
→ Ø6	
45 s	

# HCM 6th Signalized Intersection Summary

## 5: Connector Road & NY 138

2018-EX-AM











10/19/2018

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↑	↖	↗
Traffic Volume (veh/h)	76	13	131	605	256	100
Future Volume (veh/h)	76	13	131	605	256	100
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1798	1798	1864	1954	1820	1820
Adj Flow Rate, veh/h	79	14	136	630	267	104
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	8	8	2	1	5	5
Cap, veh/h	716	127	776	941	445	396
Arrive On Green	0.48	0.48	0.48	0.48	0.26	0.26
Sat Flow, veh/h	1486	263	1298	1954	1733	1542
Grp Volume(v), veh/h	0	93	136	630	267	104
Grp Sat Flow(s),veh/h/ln	0	1750	1298	1954	1733	1542
Q Serve(g_s), s	0.0	1.1	2.4	9.4	5.2	2.1
Cycle Q Clear(g_c), s	0.0	1.1	3.6	9.4	5.2	2.1
Prop In Lane		0.15	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	842	776	941	445	396
V/C Ratio(X)	0.00	0.11	0.18	0.67	0.60	0.26
Avail Cap(c_a), veh/h	0	1833	1510	2047	1362	1212
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	5.4	6.4	7.6	12.5	11.3
Incr Delay (d2), s/veh	0.0	0.1	0.2	1.2	1.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.3	0.4	2.5	1.8	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	5.5	6.6	8.8	14.3	11.8
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h	93			766	371	
Approach Delay, s/veh	5.5			8.4	13.6	
Approach LOS	A			A	B	
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	23.4		14.8		23.4	
Change Period (Y+Rc), s	5.0		5.0		5.0	
Max Green Setting (Gmax), s	40.0		30.0		40.0	
Max Q Clear Time (g_c+I1), s	11.4		7.2		3.1	
Green Ext Time (p_c), s	7.0		2.8		0.6	
Intersection Summary						
HCM 6th Ctrl Delay			9.7			
HCM 6th LOS			A			







Lanes, Volumes, Timings  
1: NY 22 & Connector Road

2018-EX-PM  
10/19/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	38	89	282	389	118	49
Future Volume (vph)	38	89	282	389	118	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%		-2%			0%
Storage Length (ft)	0	200		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.922			
Flt Protected	0.950					0.966
Satd. Flow (prot)	1728	1591	1706	0	0	1751
Flt Permitted	0.950					0.966
Satd. Flow (perm)	1728	1591	1706	0	0	1751
Link Speed (mph)	30		55			55
Link Distance (ft)	836		1411			503
Travel Time (s)	19.0		17.5			6.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	2%	6%	2%	6%	2%
Adj. Flow (vph)	41	97	307	423	128	53
Shared Lane Traffic (%)						
Lane Group Flow (vph)	41	97	730	0	0	181
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection

Int Delay, s/veh 3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	38	89	282	389	118	49
Future Vol, veh/h	38	89	282	389	118	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	200	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-1	-	-2	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	2	6	2	6	2
Mvmt Flow	41	97	307	423	128	53










Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	828	519	0	0	730
Stage 1	519	-	-	-	-
Stage 2	309	-	-	-	-
Critical Hdwy	6.25	6.12	-	-	4.16
Critical Hdwy Stg 1	5.25	-	-	-	-
Critical Hdwy Stg 2	5.25	-	-	-	-
Follow-up Hdwy	3.545	3.318	-	-	2.254
Pot Cap-1 Maneuver	353	565	-	-	856
Stage 1	608	-	-	-	-
Stage 2	751	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	299	565	-	-	856
Mov Cap-2 Maneuver	299	-	-	-	-
Stage 1	514	-	-	-	-
Stage 2	751	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.6	0	7
HCM LOS	B		




Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 299 565	856	-
HCM Lane V/C Ratio	-	- 0.138 0.171	0.15	-
HCM Control Delay (s)	-	- 19 12.7	9.9	0
HCM Lane LOS	-	- C B	A	A
HCM 95th %tile Q(veh)	-	- 0.5 0.6	0.5	-

Lanes, Volumes, Timings  
2: NY 22 & Anderson Lane

2018-EX-PM  
10/19/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	20	15	370	8	2	132
Future Volume (vph)	20	15	370	8	2	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	12	12	12
Grade (%)	4%		-2%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.943		0.997			
Flt Protected	0.972					0.999
Satd. Flow (prot)	1602	0	1841	0	0	1818
Flt Permitted	0.972					0.999
Satd. Flow (perm)	1602	0	1841	0	0	1818
Link Speed (mph)	30		55			55
Link Distance (ft)	519		503			117
Travel Time (s)	11.8		6.2			1.5
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	7%	4%	0%	0%	5%
Adj. Flow (vph)	23	17	430	9	2	153
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	0	439	0	0	155
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	11		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.07	1.07	0.99	0.99	0.99	0.99
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					















Intersection						
Int Delay, s/veh	0.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	15	370	8	2	132
Future Vol, veh/h	20	15	370	8	2	132
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	4	-	-2	-	-	-1
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	7	4	0	0	5
Mvmt Flow	23	17	430	9	2	153
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	592	435	0	0	439	0
Stage 1	435	-	-	-	-	-
Stage 2	157	-	-	-	-	-
Critical Hdwy	7.2	6.67	-	-	4.1	-
Critical Hdwy Stg 1	6.2	-	-	-	-	-
Critical Hdwy Stg 2	6.2	-	-	-	-	-
Follow-up Hdwy	3.5	3.363	-	-	2.2	-
Pot Cap-1 Maneuver	414	582	-	-	1132	-
Stage 1	596	-	-	-	-	-
Stage 2	846	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	413	582	-	-	1132	-
Mov Cap-2 Maneuver	413	-	-	-	-	-
Stage 1	595	-	-	-	-	-
Stage 2	846	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	13.3	0	0.1			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	472	1132	-	
HCM Lane V/C Ratio	-	-	0.086	0.002	-	
HCM Control Delay (s)	-	-	13.3	8.2	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.3	0	-	

Lanes, Volumes, Timings  
3: NY 22 & Site Driveway A

2018-EX-PM

10/19/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	385	0	0	134
Future Volume (vph)	0	0	385	0	0	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12	12
Grade (%)	-12%		1%			-2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr t						
Flt Protected						
Satd. Flow (prot)	2081	0	1800	0	0	1793
Flt Permitted						
Satd. Flow (perm)	2081	0	1800	0	0	1793
Link Speed (mph)	30		55			55
Link Distance (ft)	183		117			236
Travel Time (s)	4.2		1.5			2.9
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	5%	10%	0%	7%
Adj. Flow (vph)	0	0	448	0	0	156
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	448	0	0	156
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	13		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.89	0.89	1.01	1.01	0.99	0.99
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					










Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	385	0	0	134
Future Vol, veh/h	0	0	385	0	0	134
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-12	-	1	-	-	-2
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	5	10	0	7
Mvmt Flow	0	0	448	0	0	156
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	604	448	0	0	448	0
Stage 1	448	-	-	-	-	-
Stage 2	156	-	-	-	-	-
Critical Hdwy	4	5	-	-	4.1	-
Critical Hdwy Stg 1	3	-	-	-	-	-
Critical Hdwy Stg 2	3	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	695	714	-	-	1123	-
Stage 1	873	-	-	-	-	-
Stage 2	973	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	695	714	-	-	1123	-
Mov Cap-2 Maneuver	695	-	-	-	-	-
Stage 1	873	-	-	-	-	-
Stage 2	973	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	-	1123	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	-	-	0	0	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	-	0	-	






Lanes, Volumes, Timings  
4: NY 22 & Site Driveway B

2018-EX-PM

10/19/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	23	7	364	21	3	111
Future Volume (vph)	23	7	364	21	3	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12	12
Grade (%)	-12%		1%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.969		0.993			
Flt Protected	0.963					0.999
Satd. Flow (prot)	1942	0	1783	0	0	1759
Flt Permitted	0.963					0.999
Satd. Flow (perm)	1942	0	1783	0	0	1759
Link Speed (mph)	30		55			55
Link Distance (ft)	182		236			636
Travel Time (s)	4.1		2.9			7.9
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	5%	10%	0%	7%
Adj. Flow (vph)	27	8	423	24	3	129
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	0	447	0	0	132
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	13		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.89	0.89	1.01	1.01	1.01	1.01
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	7	364	21	3	111
Future Vol, veh/h	23	7	364	21	3	111
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-12	-	1	-	-	2
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	5	10	0	7
Mvmt Flow	27	8	423	24	3	129

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	570	435	0
Stage 1	435	-	-
Stage 2	135	-	-
Critical Hdwy	4	5	-
Critical Hdwy Stg 1	3	-	-
Critical Hdwy Stg 2	3	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	711	723	-
Stage 1	878	-	-
Stage 2	981	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	709	723	-
Mov Cap-2 Maneuver	709	-	-
Stage 1	875	-	-
Stage 2	981	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.3	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	712	1124
HCM Lane V/C Ratio	-	-	0.049	0.003
HCM Control Delay (s)	-	-	10.3	8.2
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Lanes, Volumes, Timings  
5: Connector Road & NY 138

2018-EX-PM

10/19/2018

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰		↱	↲	↳	↴
Traffic Volume (vph)	97	94	62	187	329	293
Future Volume (vph)	97	94	62	187	329	293
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	12	16	10	10
Grade (%)	3%			1%	1%	
Storage Length (ft)		0	85		0	75
Storage Lanes		0	1		1	1
Taper Length (ft)			130		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		1.00			
Frt	0.933					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1798	0	1744	2060	1627	1485
Flt Permitted			0.630		0.950	
Satd. Flow (perm)	1798	0	1155	2060	1627	1485
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	87					257
Link Speed (mph)	35			35	30	
Link Distance (ft)	518			589	836	
Travel Time (s)	10.1			11.5	19.0	
Confl. Peds. (#/hr)		1	1			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	2%	3%	4%	3%	1%
Adj. Flow (vph)	103	100	66	199	350	312
Shared Lane Traffic (%)						
Lane Group Flow (vph)	203	0	66	199	350	312
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	10	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.94	0.94	1.01	0.85	1.10	1.10
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		2	2	2	2
Detector Template	NYS DOT		NYS DOT	NYS DOT	NYS DOT	NYS DOT
Leading Detector (ft)	78		78	78	78	78
Trailing Detector (ft)	-10		-10	-10	-10	-10
Detector 1 Position(ft)	-10		-10	-10	-10	-10
Detector 1 Size(ft)	40		40	40	40	40
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	4.0		4.0	4.0	4.0	4.0
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)	38		38	38	38	38
Detector 2 Size(ft)	40		40	40	40	40
Detector 2 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex

Peak Weekday PM Hour (4:30 - 5:30)  
JMC 16124

Synchro 10 Report  
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Lanes, Volumes, Timings  
5: Connector Road & NY 138

2018-EX-PM

10/19/2018

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Channel						
Detector 2 Extend (s)	4.0		4.0	4.0	4.0	4.0
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	6			2	4	
Permitted Phases			2			4
Detector Phase	6		2	2	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	5.0	5.0
Minimum Split (s)	15.0		15.0	15.0	10.0	10.0
Total Split (s)	45.0		45.0	45.0	35.0	35.0
Total Split (%)	56.3%		56.3%	56.3%	43.8%	43.8%
Maximum Green (s)	40.0		40.0	40.0	30.0	30.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0		4.0	4.0	4.0	4.0
Recall Mode	Min		Min	Min	None	None
v/c Ratio	0.33		0.19	0.31	0.51	0.40
Control Delay	9.0		13.1	13.2	11.1	3.7
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	9.0		13.1	13.2	11.1	3.7
Queue Length 50th (ft)	16		9	29	45	6
Queue Length 95th (ft)	66		38	88	112	39
Internal Link Dist (ft)	438			509	756	
Turn Bay Length (ft)			85			75
Base Capacity (vph)	1712		1097	1956	1328	1259
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	0.12		0.06	0.10	0.26	0.25

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 38

Natural Cycle: 40

Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Connector Road & NY 138

↖ Ø2	↗ Ø4
45 s	35 s
→ Ø6	
45 s	

# HCM 6th Signalized Intersection Summary

## 5: Connector Road & NY 138

2018-EX-PM






10/19/2018

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰		↱	↰	↱	↱
Traffic Volume (veh/h)	97	94	62	187	329	293
Future Volume (veh/h)	97	94	62	187	329	293
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1875	1875	1850	1908	1850	1879
Adj Flow Rate, veh/h	103	100	66	199	350	312
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	4	3	1
Cap, veh/h	269	261	472	587	677	612
Arrive On Green	0.31	0.31	0.31	0.31	0.38	0.38
Sat Flow, veh/h	873	848	1165	1908	1762	1593
Grp Volume(v), veh/h	0	203	66	199	350	312
Grp Sat Flow(s),veh/h/ln	0	1720	1165	1908	1762	1593
Q Serve(g_s), s	0.0	3.0	1.5	2.6	5.0	4.9
Cycle Q Clear(g_c), s	0.0	3.0	4.5	2.6	5.0	4.9
Prop In Lane		0.49	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	530	472	587	677	612
V/C Ratio(X)	0.00	0.38	0.14	0.34	0.52	0.51
Avail Cap(c_a), veh/h	0	2118	1548	2350	1627	1471
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	8.8	10.6	8.7	7.7	7.7
Incr Delay (d2), s/veh	0.0	0.6	0.2	0.5	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.8	0.3	0.8	1.3	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	9.5	10.8	9.2	8.6	8.6
LnGrp LOS	A	A	B	A	A	A
Approach Vol, veh/h	203			265	662	
Approach Delay, s/veh	9.5			9.6	8.6	
Approach LOS	A			A	A	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		15.0		17.5		15.0
Change Period (Y+Rc), s		5.0		5.0		5.0
Max Green Setting (Gmax), s		40.0		30.0		40.0
Max Q Clear Time (g_c+I1), s		6.5		7.0		5.0
Green Ext Time (p_c), s		2.0		5.6		1.6
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			9.0			
HCM 6th LOS			A			





Lanes, Volumes, Timings  
1: NY 22 & Connector Road

2018-EX-SAT

10/19/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	34	80	111	271	104	50
Future Volume (vph)	34	80	111	271	104	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%		-2%			0%
Storage Length (ft)	0	200		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.904			
Flt Protected	0.950					0.967
Satd. Flow (prot)	1761	1591	1684	0	0	1743
Flt Permitted	0.950					0.967
Satd. Flow (perm)	1761	1591	1684	0	0	1743
Link Speed (mph)	30		55			55
Link Distance (ft)	836		1411			503
Travel Time (s)	19.0		17.5			6.2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	2%	3%	3%	8%	0%
Adj. Flow (vph)	36	85	118	288	111	53
Shared Lane Traffic (%)						
Lane Group Flow (vph)	36	85	406	0	0	164
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					



Intersection						
Int Delay, s/veh	3.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	34	80	111	271	104	50
Future Vol, veh/h	34	80	111	271	104	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	200	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-1	-	-2	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	2	3	3	8	0
Mvmt Flow	36	85	118	288	111	53










Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	537	262	0	0	406
Stage 1	262	-	-	-	-
Stage 2	275	-	-	-	-
Critical Hdwy	6.23	6.12	-	-	4.18
Critical Hdwy Stg 1	5.23	-	-	-	-
Critical Hdwy Stg 2	5.23	-	-	-	-
Follow-up Hdwy	3.527	3.318	-	-	2.272
Pot Cap-1 Maneuver	518	782	-	-	1121
Stage 1	791	-	-	-	-
Stage 2	781	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	465	782	-	-	1121
Mov Cap-2 Maneuver	465	-	-	-	-
Stage 1	710	-	-	-	-
Stage 2	781	-	-	-	-




Approach	WB	NB	SB
HCM Control Delay, s	11.2	0	5.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 465 782 1121	-	-
HCM Lane V/C Ratio	-	- 0.078 0.109 0.099	-	-
HCM Control Delay (s)	-	- 13.4 10.2 8.6	0	
HCM Lane LOS	-	- B B A A		
HCM 95th %tile Q(veh)	-	- 0.3 0.4 0.3	-	-

Lanes, Volumes, Timings  
2: NY 22 & Anderson Lane

2018-EX-SAT  
10/19/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	7	7	186	5	1	147
Future Volume (vph)	7	7	186	5	1	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	12	12	12
Grade (%)	4%		-2%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.932		0.997			
Flt Protected	0.976					
Satd. Flow (prot)	1530	0	1895	0	0	1843
Flt Permitted	0.976					
Satd. Flow (perm)	1530	0	1895	0	0	1843
Link Speed (mph)	30		55			55
Link Distance (ft)	519		503			117
Travel Time (s)	11.8		6.2			1.5
Confl. Bikes (#/hr)				3		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	14%	0%	1%	0%	100%	3%
Adj. Flow (vph)	7	7	196	5	1	155
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	201	0	0	156
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	11		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.07	1.07	0.99	0.99	0.99	0.99
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	7	186	5	1	147
Future Vol, veh/h	7	7	186	5	1	147
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	4	-	-2	-	-	-1
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	14	0	1	0	100	3
Mvmt Flow	7	7	196	5	1	155

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	356	199	0	0	201
Stage 1	199	-	-	-	-
Stage 2	157	-	-	-	-
Critical Hdwy	7.34	6.6	-	-	5.1
Critical Hdwy Stg 1	6.34	-	-	-	-
Critical Hdwy Stg 2	6.34	-	-	-	-
Follow-up Hdwy	3.626	3.3	-	-	3.1
Pot Cap-1 Maneuver	572	829	-	-	951
Stage 1	772	-	-	-	-
Stage 2	814	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	571	829	-	-	951
Mov Cap-2 Maneuver	571	-	-	-	-
Stage 1	771	-	-	-	-
Stage 2	814	-	-	-	-










Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	0.1
HCM LOS	B		




Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	676	951
HCM Lane V/C Ratio	-	-	0.022	0.001
HCM Control Delay (s)	-	-	10.4	8.8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0



Lanes, Volumes, Timings  
3: NY 22 & Site Driveway A

2018-EX-SAT  
10/19/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	193	0	0	148
Future Volume (vph)	0	0	193	0	0	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12	12
Grade (%)	-12%		1%			-2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	2081	0	1872	0	0	1828
Flt Permitted						
Satd. Flow (perm)	2081	0	1872	0	0	1828
Link Speed (mph)	30		55			55
Link Distance (ft)	183		117			236
Travel Time (s)	4.2		1.5			2.9
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	1%	0%	0%	5%
Adj. Flow (vph)	0	0	217	0	0	166
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	217	0	0	166
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	13		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.89	0.89	1.01	1.01	0.99	0.99
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	193	0	0	148
Future Vol, veh/h	0	0	193	0	0	148
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-12	-	1	-	-	-2
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	1	0	0	5
Mvmt Flow	0	0	217	0	0	166










Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	383	217	0
Stage 1	217	-	-
Stage 2	166	-	-
Critical Hdwy	4	5	-
Critical Hdwy Stg 1	3	-	-
Critical Hdwy Stg 2	3	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	805	890	-
Stage 1	952	-	-
Stage 2	970	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	805	890	-
Mov Cap-2 Maneuver	805	-	-
Stage 1	952	-	-
Stage 2	970	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		




Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1365
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	0	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0

Lanes, Volumes, Timings  
4: NY 22 & Site Driveway B

2018-EX-SAT  
10/19/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	13	5	176	17	4	135
Future Volume (vph)	13	5	176	17	4	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12	12
Grade (%)	-12%		1%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.961		0.988			
Flt Protected	0.966					0.999
Satd. Flow (prot)	1932	0	1851	0	0	1792
Flt Permitted	0.966					0.999
Satd. Flow (perm)	1932	0	1851	0	0	1792
Link Speed (mph)	30		55			55
Link Distance (ft)	182		236			636
Travel Time (s)	4.1		2.9			7.9
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	1%	0%	0%	5%
Adj. Flow (vph)	15	6	198	19	4	152
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	0	217	0	0	156
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	13		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.89	0.89	1.01	1.01	1.01	1.01
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					



Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	5	176	17	4	135
Future Vol, veh/h	13	5	176	17	4	135
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-12	-	1	-	-	2
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	1	0	0	5
Mvmt Flow	15	6	198	19	4	152

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	368	208	0
Stage 1	208	-	-
Stage 2	160	-	-
Critical Hdwy	4	5	-
Critical Hdwy Stg 1	3	-	-
Critical Hdwy Stg 2	3	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	813	898	-
Stage 1	955	-	-
Stage 2	972	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	811	898	-
Mov Cap-2 Maneuver	811	-	-
Stage 1	952	-	-
Stage 2	972	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	0.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	833	1365
HCM Lane V/C Ratio	-	-	0.024	0.003
HCM Control Delay (s)	-	-	9.4	7.6
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Lanes, Volumes, Timings  
5: Connector Road & NY 138

2018-EX-SAT

10/19/2018

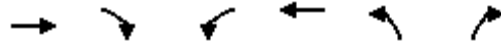
	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↗	↖	↗
Traffic Volume (vph)	50	85	88	155	228	237
Future Volume (vph)	50	85	88	155	228	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	12	16	10	10
Grade (%)	3%			1%	1%	
Storage Length (ft)		0	85		0	75
Storage Lanes		0	1		1	1
Taper Length (ft)			130		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					1.00	
Frt	0.915					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1802	0	1796	2121	1612	1456
Flt Permitted			0.667		0.950	
Satd. Flow (perm)	1802	0	1261	2121	1610	1456
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	89					247
Link Speed (mph)	35			35	30	
Link Distance (ft)	518			589	836	
Travel Time (s)	10.1			11.5	19.0	
Confl. Peds. (#/hr)					1	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	1%	0%	1%	4%	3%
Adj. Flow (vph)	52	89	92	161	238	247
Shared Lane Traffic (%)						
Lane Group Flow (vph)	141	0	92	161	238	247
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	10	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.94	0.94	1.01	0.85	1.10	1.10
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		2	2	2	2
Detector Template	NYS DOT		NYS DOT	NYS DOT	NYS DOT	NYS DOT
Leading Detector (ft)	78		78	78	78	78
Trailing Detector (ft)	-10		-10	-10	-10	-10
Detector 1 Position(ft)	-10		-10	-10	-10	-10
Detector 1 Size(ft)	40		40	40	40	40
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	4.0		4.0	4.0	4.0	4.0
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)	38		38	38	38	38
Detector 2 Size(ft)	40		40	40	40	40
Detector 2 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex

Peak Saturday Midday Hour (12:15 - 1:15)  
JMC 16124

Synchro 10 Report  
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Lanes, Volumes, Timings  
5: Connector Road & NY 138

2018-EX-SAT  
10/19/2018






Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Channel						
Detector 2 Extend (s)	4.0		4.0	4.0	4.0	4.0
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	6			2	4	
Permitted Phases			2			4
Detector Phase	6		2	2	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	5.0	5.0
Minimum Split (s)	15.0		15.0	15.0	10.0	10.0
Total Split (s)	45.0		45.0	45.0	35.0	35.0
Total Split (%)	56.3%		56.3%	56.3%	43.8%	43.8%
Maximum Green (s)	40.0		40.0	40.0	30.0	30.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0		4.0	4.0	4.0	4.0
Recall Mode	Min		Min	Min	None	None
v/c Ratio	0.22		0.22	0.23	0.41	0.36
Control Delay	5.6		10.8	10.1	10.2	3.1
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	5.6		10.8	10.1	10.2	3.1
Queue Length 50th (ft)	6		11	19	27	0
Queue Length 95th (ft)	34		39	57	72	27
Internal Link Dist (ft)	438			509	756	
Turn Bay Length (ft)			85			75
Base Capacity (vph)	1790		1252	2107	1467	1347
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	0.08		0.07	0.08	0.16	0.18

Intersection Summary

Area Type: Other  
Cycle Length: 80  
Actuated Cycle Length: 33  
Natural Cycle: 40  
Control Type: Actuated-Uncoordinated












Splits and Phases: 5: Connector Road & NY 138

 Ø2	 Ø4
45 s	35 s
 Ø6	
45 s	













# HCM 6th Signalized Intersection Summary 5: Connector Road & NY 138





2018-EX-SAT  
10/19/2018

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	50	85	88	155	228	237
Future Volume (veh/h)	50	85	88	155	228	237
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1890	1890	1894	1954	1835	1850
Adj Flow Rate, veh/h	52	89	92	161	238	247
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	0	1	4	3
Cap, veh/h	212	363	597	662	563	505
Arrive On Green	0.34	0.34	0.34	0.34	0.32	0.32
Sat Flow, veh/h	626	1071	1263	1954	1747	1568
Grp Volume(v), veh/h	0	141	92	161	238	247
Grp Sat Flow(s),veh/h/ln	0	1697	1263	1954	1747	1568
Q Serve(g_s), s	0.0	1.8	1.7	1.8	3.2	3.7
Cycle Q Clear(g_c), s	0.0	1.8	3.4	1.8	3.2	3.7
Prop In Lane		0.63	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	575	597	662	563	505
V/C Ratio(X)	0.00	0.25	0.15	0.24	0.42	0.49
Avail Cap(c_a), veh/h	0	2301	1881	2649	1777	1594
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	7.0	8.3	7.0	7.8	8.0
Incr Delay (d2), s/veh	0.0	0.3	0.2	0.3	0.7	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.4	0.3	0.5	0.8	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	7.3	8.4	7.3	8.6	9.1
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h	141			253	485	
Approach Delay, s/veh	7.3			7.7	8.8	
Approach LOS	A			A	A	
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	15.0		14.5		15.0	
Change Period (Y+Rc), s	5.0		5.0		5.0	
Max Green Setting (Gmax), s	40.0		30.0		40.0	
Max Q Clear Time (g_c+I1), s	5.4		5.7		3.8	
Green Ext Time (p_c), s	1.9		3.9		1.1	
Intersection Summary						
HCM 6th Ctrl Delay			8.3			
HCM 6th LOS			A			

Lanes, Volumes, Timings  
1: NY 22 & Connector Road

2021-NB-AM  
10/25/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	131	66	50	192	206	545
Future Volume (vph)	131	66	50	192	206	545
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%		-2%			0%
Storage Length (ft)	0	200		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.893			
Flt Protected	0.950					0.986
Satd. Flow (prot)	1728	1503	1581	0	0	1806
Flt Permitted	0.950					0.986
Satd. Flow (perm)	1728	1503	1581	0	0	1806
Link Speed (mph)	30		55			55
Link Distance (ft)	836		1411			503
Travel Time (s)	19.0		17.5			6.2
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	5%	8%	6%	9%	3%	4%
Adj. Flow (vph)	162	81	62	237	254	673
Shared Lane Traffic (%)						
Lane Group Flow (vph)	162	81	299	0	0	927
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	33.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	131	66	50	192	206	545
Future Vol, veh/h	131	66	50	192	206	545
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	200	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-1	-	-2	-	-	0
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	5	8	6	9	3	4
Mvmt Flow	162	81	62	237	254	673

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1362	181	0	0	299	0
Stage 1	181	-	-	-	-	-
Stage 2	1181	-	-	-	-	-
Critical Hdwy	6.25	6.18	-	-	4.13	-
Critical Hdwy Stg 1	5.25	-	-	-	-	-
Critical Hdwy Stg 2	5.25	-	-	-	-	-
Follow-up Hdwy	3.545	3.372	-	-	2.227	-
Pot Cap-1 Maneuver	173	851	-	-	1256	-
Stage 1	851	-	-	-	-	-
Stage 2	307	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 117	851	-	-	1256	-
Mov Cap-2 Maneuver	~ 117	-	-	-	-	-
Stage 1	576	-	-	-	-	-
Stage 2	307	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	192.6	0	2.4
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 117 851 1256	-	-
HCM Lane V/C Ratio	-	- 1.382 0.096 0.202	-	-
HCM Control Delay (s)	-	- 284.7 9.7 8.6	0	
HCM Lane LOS	-	- F A A	A	
HCM 95th %tile Q(veh)	-	- 11.1 0.3 0.8	-	










Notes			
-: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lanes, Volumes, Timings  
2: NY 22 & Anderson Lane




2021-NB-AM

10/25/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	3	1	101	9	3	790
Future Volume (vph)	3	1	101	9	3	790
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	12	12	12
Grade (%)	4%		-2%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.973		0.989			
Flt Protected	0.962					
Satd. Flow (prot)	1685	0	1724	0	0	1909
Flt Permitted	0.962					
Satd. Flow (perm)	1685	0	1724	0	0	1909
Link Speed (mph)	30		55			55
Link Distance (ft)	519		503			117
Travel Time (s)	11.8		6.2			1.5
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	0%	0%	11%	0%	3%	0%
Adj. Flow (vph)	4	1	120	11	4	940
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	0	131	0	0	944
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	11		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.07	1.07	0.99	0.99	0.99	0.99
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection

Int Delay, s/veh 0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	1	101	9	3	790
Future Vol, veh/h	3	1	101	9	3	790
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	4	-	-2	-	-	-1
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	0	11	0	3	0
Mvmt Flow	4	1	120	11	4	940










Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1074	126	0
Stage 1	126	-	-
Stage 2	948	-	-
Critical Hdwy	7.2	6.6	-
Critical Hdwy Stg 1	6.2	-	-
Critical Hdwy Stg 2	6.2	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	193	917	-
Stage 1	880	-	-
Stage 2	308	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	192	917	-
Mov Cap-2 Maneuver	192	-	-
Stage 1	875	-	-
Stage 2	308	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.4	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	239	1448
HCM Lane V/C Ratio	-	-	0.02	0.002
HCM Control Delay (s)	-	-	20.4	7.5
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Lanes, Volumes, Timings  
3: NY 22 & Site Driveway A




2021-NB-AM  
10/25/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	102	0	0	793
Future Volume (vph)	0	0	102	0	0	793
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12	12
Grade (%)	-12%		1%			-2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr t						
Flt Protected						
Satd. Flow (prot)	2081	0	1644	0	0	1881
Flt Permitted						
Satd. Flow (perm)	2081	0	1644	0	0	1881
Link Speed (mph)	30		55			55
Link Distance (ft)	183		117			236
Travel Time (s)	4.2		1.5			2.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	15%	0%	0%	2%
Adj. Flow (vph)	0	0	111	0	0	862
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	111	0	0	862
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	13		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.89	0.89	1.01	1.01	0.99	0.99
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					



Intersection

Int Delay, s/veh 0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	102	0	0	793
Future Vol, veh/h	0	0	102	0	0	793
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-12	-	1	-	-	-2
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	15	0	0	2
Mvmt Flow	0	0	111	0	0	862










Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	973	111	0
Stage 1	111	-	-
Stage 2	862	-	-
Critical Hdwy	4	5	-
Critical Hdwy Stg 1	3	-	-
Critical Hdwy Stg 2	3	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	540	983	-
Stage 1	989	-	-
Stage 2	741	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	540	983	-
Mov Cap-2 Maneuver	540	-	-
Stage 1	989	-	-
Stage 2	741	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1492
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	0	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0

Lanes, Volumes, Timings  
4: NY 22 & Site Driveway B

2021-NB-AM  
10/25/2018




						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	6	3	82	20	7	787
Future Volume (vph)	6	3	82	20	7	787
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12	12
Grade (%)	-12%		1%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.959		0.973			
Flt Protected	0.966					
Satd. Flow (prot)	1928	0	1642	0	0	1844
Flt Permitted	0.966					
Satd. Flow (perm)	1928	0	1642	0	0	1844
Link Speed (mph)	30		55			55
Link Distance (ft)	182		236			636
Travel Time (s)	4.1		2.9			7.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	15%	0%	0%	2%
Adj. Flow (vph)	7	3	89	22	8	855
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	0	111	0	0	863
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	13		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.89	0.89	1.01	1.01	1.01	1.01
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC  
4: NY 22 & Site Driveway B

2021-NB-AM  
10/25/2018

Intersection

Int Delay, s/veh 0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	3	82	20	7	787
Future Vol, veh/h	6	3	82	20	7	787
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-12	-	1	-	-	2
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	15	0	0	2
Mvmt Flow	7	3	89	22	8	855

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	971	100	0
Stage 1	100	-	-
Stage 2	871	-	-
Critical Hdwy	4	5	-
Critical Hdwy Stg 1	3	-	-
Critical Hdwy Stg 2	3	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	540	994	-
Stage 1	993	-	-
Stage 2	738	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	535	994	-
Mov Cap-2 Maneuver	535	-	-
Stage 1	983	-	-
Stage 2	738	-	-












Approach	WB	NB	SB
HCM Control Delay, s	10.8	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	632	1492
HCM Lane V/C Ratio	-	-	0.015	0.005
HCM Control Delay (s)	-	-	10.8	7.4
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0	0

Lanes, Volumes, Timings  
5: Connector Road & NY 138

2021-NB-AM

10/25/2018

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	77	23	157	614	272	119
Future Volume (vph)	77	23	157	614	272	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	12	16	10	10
Grade (%)	3%			1%	1%	
Storage Length (ft)		0	85		0	75
Storage Lanes		0	1		1	1
Taper Length (ft)			130		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		1.00			
Frt	0.969					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1798	0	1761	2121	1596	1428
Flt Permitted			0.690		0.950	
Satd. Flow (perm)	1798	0	1278	2121	1596	1428
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	24					124
Link Speed (mph)	35			35	30	
Link Distance (ft)	518			589	836	
Travel Time (s)	10.1			11.5	19.0	
Confl. Peds. (#/hr)		1	1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	8%	4%	2%	1%	5%	5%
Adj. Flow (vph)	80	24	164	640	283	124
Shared Lane Traffic (%)						
Lane Group Flow (vph)	104	0	164	640	283	124
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	10	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.94	0.94	1.01	0.85	1.10	1.10
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		2	2	2	2
Detector Template	NYS DOT		NYS DOT	NYS DOT	NYS DOT	NYS DOT
Leading Detector (ft)	78		78	78	78	78
Trailing Detector (ft)	-10		-10	-10	-10	-10
Detector 1 Position(ft)	-10		-10	-10	-10	-10
Detector 1 Size(ft)	40		40	40	40	40
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	4.0		4.0	4.0	4.0	4.0
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)	38		38	38	38	38
Detector 2 Size(ft)	40		40	40	40	40
Detector 2 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex

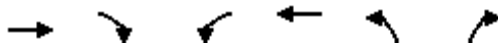
Peak Weekday AM Hour (7:15 - 8:15)  
JMC 16124

Synchro 10 Report  
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Lanes, Volumes, Timings  
5: Connector Road & NY 138

2021-NB-AM  
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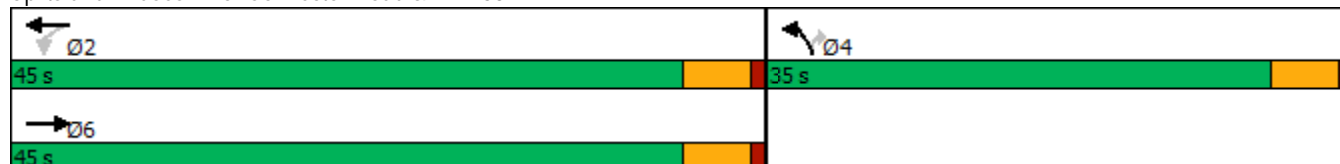


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Channel						
Detector 2 Extend (s)	4.0		4.0	4.0	4.0	4.0
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	6			2	4	
Permitted Phases			2			4
Detector Phase	6		2	2	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	5.0	5.0
Minimum Split (s)	15.0		15.0	15.0	10.0	10.0
Total Split (s)	45.0		45.0	45.0	35.0	35.0
Total Split (%)	56.3%		56.3%	56.3%	43.8%	43.8%
Maximum Green (s)	40.0		40.0	40.0	30.0	30.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0		4.0	4.0	4.0	4.0
Recall Mode	Min		Min	Min	None	None
v/c Ratio	0.12		0.27	0.64	0.55	0.23
Control Delay	7.3		10.6	14.4	20.7	4.9
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	7.3		10.6	14.4	20.7	4.9
Queue Length 50th (ft)	11		25	123	64	0
Queue Length 95th (ft)	42		78	303	176	33
Internal Link Dist (ft)	438			509	756	
Turn Bay Length (ft)			85			75
Base Capacity (vph)	1438		1019	1692	1003	944
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	0.07		0.16	0.38	0.28	0.13

Intersection Summary

Area Type: Other  
Cycle Length: 80  
Actuated Cycle Length: 52  
Natural Cycle: 45  
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Connector Road & NY 138



# HCM 6th Signalized Intersection Summary

## 5: Connector Road & NY 138











2021-NB-AM

10/25/2018

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↗	↖	↗
Traffic Volume (veh/h)	77	23	157	614	272	119
Future Volume (veh/h)	77	23	157	614	272	119
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1798	1798	1864	1954	1820	1820
Adj Flow Rate, veh/h	80	24	164	640	283	124
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	8	8	2	1	5	5
Cap, veh/h	642	193	758	945	464	413
Arrive On Green	0.48	0.48	0.48	0.48	0.27	0.27
Sat Flow, veh/h	1327	398	1285	1954	1733	1542
Grp Volume(v), veh/h	0	104	164	640	283	124
Grp Sat Flow(s),veh/h/ln	0	1725	1285	1954	1733	1542
Q Serve(g_s), s	0.0	1.3	3.2	10.1	5.7	2.6
Cycle Q Clear(g_c), s	0.0	1.3	4.6	10.1	5.7	2.6
Prop In Lane		0.23	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	834	758	945	464	413
V/C Ratio(X)	0.00	0.12	0.22	0.68	0.61	0.30
Avail Cap(c_a), veh/h	0	1717	1416	1945	1294	1151
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	5.7	7.0	8.0	12.9	11.7
Incr Delay (d2), s/veh	0.0	0.1	0.2	1.2	1.9	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.3	0.6	2.8	2.0	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	5.8	7.2	9.2	14.7	12.3
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h	104			804	407	
Approach Delay, s/veh	5.8			8.8	14.0	
Approach LOS	A			A	B	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		24.4		15.8		24.4
Change Period (Y+Rc), s		5.0		5.0		5.0
Max Green Setting (Gmax), s		40.0		30.0		40.0
Max Q Clear Time (g_c+I1), s		12.1		7.7		3.3
Green Ext Time (p_c), s		7.3		3.1		0.7
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			10.2			
HCM 6th LOS			B			





Lanes, Volumes, Timings  
1: NY 22 & Connector Road

2021-NB-PM  
10/25/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	53	117	288	405	140	53
Future Volume (vph)	53	117	288	405	140	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%		-2%			0%
Storage Length (ft)	0	200		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.921			
Flt Protected	0.950					0.965
Satd. Flow (prot)	1728	1591	1705	0	0	1748
Flt Permitted	0.950					0.965
Satd. Flow (perm)	1728	1591	1705	0	0	1748
Link Speed (mph)	30		55			55
Link Distance (ft)	836		1411			503
Travel Time (s)	19.0		17.5			6.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	2%	6%	2%	6%	2%
Adj. Flow (vph)	58	127	313	440	152	58
Shared Lane Traffic (%)						
Lane Group Flow (vph)	58	127	753	0	0	210
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection

Int Delay, s/veh 4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	53	117	288	405	140	53
Future Vol, veh/h	53	117	288	405	140	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	200	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-1	-	-2	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	2	6	2	6	2
Mvmt Flow	58	127	313	440	152	58

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	895	533	0
Stage 1	533	-	-
Stage 2	362	-	-
Critical Hdwy	6.25	6.12	-
Critical Hdwy Stg 1	5.25	-	-
Critical Hdwy Stg 2	5.25	-	-
Follow-up Hdwy	3.545	3.318	-
Pot Cap-1 Maneuver	323	555	-
Stage 1	600	-	-
Stage 2	712	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	263	555	-
Mov Cap-2 Maneuver	263	-	-
Stage 1	488	-	-
Stage 2	712	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.2	0	7.4
HCM LOS	C		










Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	263	555
HCM Lane V/C Ratio	-	-	0.219	0.229
HCM Control Delay (s)	-	-	22.5	13.4
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	0.8	0.9






Lanes, Volumes, Timings  
2: NY 22 & Anderson Lane

2021-NB-PM

10/25/2018










						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	20	15	384	8	2	157
Future Volume (vph)	20	15	384	8	2	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	12	12	12
Grade (%)	4%		-2%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.943		0.997			
Flt Protected	0.972					0.999
Satd. Flow (prot)	1602	0	1841	0	0	1818
Flt Permitted	0.972					0.999
Satd. Flow (perm)	1602	0	1841	0	0	1818
Link Speed (mph)	30		55			55
Link Distance (ft)	519		503			117
Travel Time (s)	11.8		6.2			1.5
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	7%	4%	0%	0%	5%
Adj. Flow (vph)	23	17	447	9	2	183
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	0	456	0	0	185
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	11		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.07	1.07	0.99	0.99	0.99	0.99
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					




Intersection						
Int Delay, s/veh	0.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	15	384	8	2	157
Future Vol, veh/h	20	15	384	8	2	157
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	4	-	-2	-	-	-1
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	7	4	0	0	5
Mvmt Flow	23	17	447	9	2	183
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	639	452	0	0	456	0
Stage 1	452	-	-	-	-	-
Stage 2	187	-	-	-	-	-
Critical Hdwy	7.2	6.67	-	-	4.1	-
Critical Hdwy Stg 1	6.2	-	-	-	-	-
Critical Hdwy Stg 2	6.2	-	-	-	-	-
Follow-up Hdwy	3.5	3.363	-	-	2.2	-
Pot Cap-1 Maneuver	385	568	-	-	1115	-
Stage 1	584	-	-	-	-	-
Stage 2	815	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	384	568	-	-	1115	-
Mov Cap-2 Maneuver	384	-	-	-	-	-
Stage 1	583	-	-	-	-	-
Stage 2	815	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	13.9	0		0.1		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	446	1115	-	
HCM Lane V/C Ratio	-	-	0.091	0.002	-	
HCM Control Delay (s)	-	-	13.9	8.2	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.3	0	-	

Lanes, Volumes, Timings  
3: NY 22 & Site Driveway A

2021-NB-PM

10/25/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	399	0	0	159
Future Volume (vph)	0	0	399	0	0	159
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12	12
Grade (%)	-12%		1%			-2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr t						
Flt Protected						
Satd. Flow (prot)	2081	0	1800	0	0	1793
Flt Permitted						
Satd. Flow (perm)	2081	0	1800	0	0	1793
Link Speed (mph)	30		55			55
Link Distance (ft)	183		117			236
Travel Time (s)	4.2		1.5			2.9
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	5%	10%	0%	7%
Adj. Flow (vph)	0	0	464	0	0	185
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	464	0	0	185
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	13		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.89	0.89	1.01	1.01	0.99	0.99
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					










Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	399	0	0	159
Future Vol, veh/h	0	0	399	0	0	159
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-12	-	1	-	-	-2
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	5	10	0	7
Mvmt Flow	0	0	464	0	0	185
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	649	464	0	0	464	0
Stage 1	464	-	-	-	-	-
Stage 2	185	-	-	-	-	-
Critical Hdwy	4	5	-	-	4.1	-
Critical Hdwy Stg 1	3	-	-	-	-	-
Critical Hdwy Stg 2	3	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	674	703	-	-	1108	-
Stage 1	868	-	-	-	-	-
Stage 2	963	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	674	703	-	-	1108	-
Mov Cap-2 Maneuver	674	-	-	-	-	-
Stage 1	868	-	-	-	-	-
Stage 2	963	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	0	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	-	1108	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	-	-	0	0	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	-	0	-	



Lanes, Volumes, Timings  
4: NY 22 & Site Driveway B

2021-NB-PM

10/25/2018




						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	23	7	378	21	3	136
Future Volume (vph)	23	7	378	21	3	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12	12
Grade (%)	-12%		1%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.969		0.993			
Flt Protected	0.963					0.999
Satd. Flow (prot)	1942	0	1783	0	0	1758
Flt Permitted	0.963					0.999
Satd. Flow (perm)	1942	0	1783	0	0	1758
Link Speed (mph)	30		55			55
Link Distance (ft)	182		236			636
Travel Time (s)	4.1		2.9			7.9
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	5%	10%	0%	7%
Adj. Flow (vph)	27	8	440	24	3	158
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	0	464	0	0	161
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	13		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.89	0.89	1.01	1.01	1.01	1.01
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

HCM 6th TWSC  
4: NY 22 & Site Driveway B

2021-NB-PM  
10/25/2018

Intersection

Int Delay, s/veh 0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	7	378	21	3	136
Future Vol, veh/h	23	7	378	21	3	136
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-12	-	1	-	-	2
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	5	10	0	7
Mvmt Flow	27	8	440	24	3	158

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	616	452	0
Stage 1	452	-	-
Stage 2	164	-	-
Critical Hdwy	4	5	-
Critical Hdwy Stg 1	3	-	-
Critical Hdwy Stg 2	3	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	690	711	-
Stage 1	872	-	-
Stage 2	971	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	688	711	-
Mov Cap-2 Maneuver	688	-	-
Stage 1	869	-	-
Stage 2	971	-	-












Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	693	1108
HCM Lane V/C Ratio	-	-	0.05	0.003
HCM Control Delay (s)	-	-	10.5	8.3
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Lanes, Volumes, Timings  
5: Connector Road & NY 138

2021-NB-PM

10/25/2018

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	98	107	86	190	349	325
Future Volume (vph)	98	107	86	190	349	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	12	16	10	10
Grade (%)	3%			1%	1%	
Storage Length (ft)		0	85		0	75
Storage Lanes		0	1		1	1
Taper Length (ft)			130		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		1.00			
Frt	0.929					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1790	0	1744	2060	1627	1485
Flt Permitted			0.622		0.950	
Satd. Flow (perm)	1790	0	1141	2060	1627	1485
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	99					269
Link Speed (mph)	35			35	30	
Link Distance (ft)	518			589	836	
Travel Time (s)	10.1			11.5	19.0	
Confl. Peds. (#/hr)		1	1			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	2%	3%	4%	3%	1%
Adj. Flow (vph)	104	114	91	202	371	346
Shared Lane Traffic (%)						
Lane Group Flow (vph)	218	0	91	202	371	346
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	10	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.94	0.94	1.01	0.85	1.10	1.10
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		2	2	2	2
Detector Template	NYS DOT		NYS DOT	NYS DOT	NYS DOT	NYS DOT
Leading Detector (ft)	78		78	78	78	78
Trailing Detector (ft)	-10		-10	-10	-10	-10
Detector 1 Position(ft)	-10		-10	-10	-10	-10
Detector 1 Size(ft)	40		40	40	40	40
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	4.0		4.0	4.0	4.0	4.0
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)	38		38	38	38	38
Detector 2 Size(ft)	40		40	40	40	40
Detector 2 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex

Lanes, Volumes, Timings  
5: Connector Road & NY 138

2021-NB-PM  
10/25/2018

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Channel						
Detector 2 Extend (s)	4.0		4.0	4.0	4.0	4.0
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	6			2	4	
Permitted Phases			2			4
Detector Phase	6		2	2	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	5.0	5.0
Minimum Split (s)	15.0		15.0	15.0	10.0	10.0
Total Split (s)	45.0		45.0	45.0	35.0	35.0
Total Split (%)	56.3%		56.3%	56.3%	43.8%	43.8%
Maximum Green (s)	40.0		40.0	40.0	30.0	30.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0		4.0	4.0	4.0	4.0
Recall Mode	Min		Min	Min	None	None
v/c Ratio	0.36		0.27	0.33	0.53	0.43
Control Delay	9.4		14.8	14.0	11.1	4.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	9.4		14.8	14.0	11.1	4.0
Queue Length 50th (ft)	18		14	32	49	8
Queue Length 95th (ft)	72		52	94	119	45
Internal Link Dist (ft)	438			509	756	
Turn Bay Length (ft)			85			75
Base Capacity (vph)	1686		1071	1934	1289	1232
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	0.13		0.08	0.10	0.29	0.28

Intersection Summary

Area Type: Other  
 Cycle Length: 80  
 Actuated Cycle Length: 39.3  
 Natural Cycle: 40  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Connector Road & NY 138

↖ Ø2	↗ Ø4
45 s	35 s
→ Ø6	
45 s	



# HCM 6th Signalized Intersection Summary

## 5: Connector Road & NY 138











2021-NB-PM





10/25/2018

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↗	↖	↗
Traffic Volume (veh/h)	98	107	86	190	349	325
Future Volume (veh/h)	98	107	86	190	349	325
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1875	1875	1850	1908	1850	1879
Adj Flow Rate, veh/h	104	114	91	202	371	346
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	4	3	1
Cap, veh/h	244	268	440	571	712	644
Arrive On Green	0.30	0.30	0.30	0.30	0.40	0.40
Sat Flow, veh/h	817	895	1149	1908	1762	1593
Grp Volume(v), veh/h	0	218	91	202	371	346
Grp Sat Flow(s),veh/h/ln	0	1712	1149	1908	1762	1593
Q Serve(g_s), s	0.0	3.4	2.3	2.8	5.4	5.6
Cycle Q Clear(g_c), s	0.0	3.4	5.8	2.8	5.4	5.6
Prop In Lane		0.52	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	512	440	571	712	644
V/C Ratio(X)	0.00	0.43	0.21	0.35	0.52	0.54
Avail Cap(c_a), veh/h	0	2033	1461	2267	1569	1419
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	9.5	11.8	9.3	7.6	7.6
Incr Delay (d2), s/veh	0.0	0.8	0.3	0.5	0.8	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.0	0.5	0.9	1.4	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	10.3	12.1	9.8	8.4	8.6
LnGrp LOS	A	B	B	A	A	A
Approach Vol, veh/h	218			293	717	
Approach Delay, s/veh	10.3			10.5	8.5	
Approach LOS	B			B	A	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		15.1		18.6		15.1
Change Period (Y+Rc), s		5.0		5.0		5.0
Max Green Setting (Gmax), s		40.0		30.0		40.0
Max Q Clear Time (g_c+I1), s		7.8		7.6		5.4
Green Ext Time (p_c), s		2.3		6.1		1.7
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			9.3			
HCM 6th LOS			A			

Lanes, Volumes, Timings  
1: NY 22 & Connector Road

2021-NB-SAT  
10/25/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	42	90	115	284	117	53
Future Volume (vph)	42	90	115	284	117	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%		-2%			0%
Storage Length (ft)	0	200		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.904			
Flt Protected	0.950					0.967
Satd. Flow (prot)	1761	1591	1684	0	0	1741
Flt Permitted	0.950					0.967
Satd. Flow (perm)	1761	1591	1684	0	0	1741
Link Speed (mph)	30		55			55
Link Distance (ft)	836		1411			503
Travel Time (s)	19.0		17.5			6.2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	2%	3%	3%	8%	0%
Adj. Flow (vph)	45	96	122	302	124	56
Shared Lane Traffic (%)						
Lane Group Flow (vph)	45	96	424	0	0	180
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	3.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	42	90	115	284	117	53
Future Vol, veh/h	42	90	115	284	117	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	200	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-1	-	-2	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	2	3	3	8	0
Mvmt Flow	45	96	122	302	124	56










Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	577	273	0	0	424	0
Stage 1	273	-	-	-	-	-
Stage 2	304	-	-	-	-	-
Critical Hdwy	6.23	6.12	-	-	4.18	-
Critical Hdwy Stg 1	5.23	-	-	-	-	-
Critical Hdwy Stg 2	5.23	-	-	-	-	-
Follow-up Hdwy	3.527	3.318	-	-	2.272	-
Pot Cap-1 Maneuver	492	772	-	-	1104	-
Stage 1	782	-	-	-	-	-
Stage 2	759	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	435	772	-	-	1104	-
Mov Cap-2 Maneuver	435	-	-	-	-	-
Stage 1	691	-	-	-	-	-
Stage 2	759	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.5	0	6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 435 772 1104	-	-
HCM Lane V/C Ratio	-	- 0.103 0.124 0.113	-	-
HCM Control Delay (s)	-	- 14.2 10.3 8.7	0	
HCM Lane LOS	-	- B B A A		
HCM 95th %tile Q(veh)	-	- 0.3 0.4 0.4	-	-

Lanes, Volumes, Timings  
2: NY 22 & Anderson Lane




2021-NB-SAT  
10/25/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	7	7	201	5	1	162
Future Volume (vph)	7	7	201	5	1	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	12	12	12
Grade (%)	4%		-2%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.932		0.997			
Flt Protected	0.976					
Satd. Flow (prot)	1530	0	1895	0	0	1844
Flt Permitted	0.976					
Satd. Flow (perm)	1530	0	1895	0	0	1844
Link Speed (mph)	30		55			55
Link Distance (ft)	519		503			117
Travel Time (s)	11.8		6.2			1.5
Confl. Bikes (#/hr)				3		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	14%	0%	1%	0%	100%	3%
Adj. Flow (vph)	7	7	212	5	1	171
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	217	0	0	172
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	11		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.07	1.07	0.99	0.99	0.99	0.99
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					



Intersection

Int Delay, s/veh 0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	7	201	5	1	162
Future Vol, veh/h	7	7	201	5	1	162
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	4	-	-2	-	-	-1
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	14	0	1	0	100	3
Mvmt Flow	7	7	212	5	1	171

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	388	215	0
Stage 1	215	-	-
Stage 2	173	-	-
Critical Hdwy	7.34	6.6	-
Critical Hdwy Stg 1	6.34	-	-
Critical Hdwy Stg 2	6.34	-	-
Follow-up Hdwy	3.626	3.3	-
Pot Cap-1 Maneuver	544	810	-
Stage 1	756	-	-
Stage 2	798	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	543	810	-
Mov Cap-2 Maneuver	543	-	-
Stage 1	755	-	-
Stage 2	798	-	-










Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0.1
HCM LOS	B		




Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	650	936
HCM Lane V/C Ratio	-	-	0.023	0.001
HCM Control Delay (s)	-	-	10.7	8.8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Lanes, Volumes, Timings  
3: NY 22 & Site Driveway A

2021-NB-SAT










10/25/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	208	0	0	163
Future Volume (vph)	0	0	208	0	0	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12	12
Grade (%)	-12%		1%			-2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frnt						
Flt Protected						
Satd. Flow (prot)	2081	0	1872	0	0	1828
Flt Permitted						
Satd. Flow (perm)	2081	0	1872	0	0	1828
Link Speed (mph)	30		55			55
Link Distance (ft)	183		117			236
Travel Time (s)	4.2		1.5			2.9
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	1%	0%	0%	5%
Adj. Flow (vph)	0	0	234	0	0	183
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	234	0	0	183
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	13		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.89	0.89	1.01	1.01	0.99	0.99
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					




Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	208	0	0	163
Future Vol, veh/h	0	0	208	0	0	163
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-12	-	1	-	-	-2
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	1	0	0	5
Mvmt Flow	0	0	234	0	0	183
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	417	234	0	0	234	0
Stage 1	234	-	-	-	-	-
Stage 2	183	-	-	-	-	-
Critical Hdwy	4	5	-	-	4.1	-
Critical Hdwy Stg 1	3	-	-	-	-	-
Critical Hdwy Stg 2	3	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	787	876	-	-	1345	-
Stage 1	946	-	-	-	-	-
Stage 2	964	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	787	876	-	-	1345	-
Mov Cap-2 Maneuver	787	-	-	-	-	-
Stage 1	946	-	-	-	-	-
Stage 2	964	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	-	1345	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	-	-	0	0	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	-	0	-	

Lanes, Volumes, Timings  
4: NY 22 & Site Driveway B

2021-NB-SAT  
10/25/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	13	5	191	17	4	150
Future Volume (vph)	13	5	191	17	4	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12	12
Grade (%)	-12%		1%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.961		0.989			
Flt Protected	0.966					0.999
Satd. Flow (prot)	1932	0	1853	0	0	1792
Flt Permitted	0.966					0.999
Satd. Flow (perm)	1932	0	1853	0	0	1792
Link Speed (mph)	30		55			55
Link Distance (ft)	182		236			636
Travel Time (s)	4.1		2.9			7.9
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	1%	0%	0%	5%
Adj. Flow (vph)	15	6	215	19	4	169
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	0	234	0	0	173
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	13		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.89	0.89	1.01	1.01	1.01	1.01
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					



Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	5	191	17	4	150
Future Vol, veh/h	13	5	191	17	4	150
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-12	-	1	-	-	2
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	1	0	0	5
Mvmt Flow	15	6	215	19	4	169

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	402	225	0
Stage 1	225	-	-
Stage 2	177	-	-
Critical Hdwy	4	5	-
Critical Hdwy Stg 1	3	-	-
Critical Hdwy Stg 2	3	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	795	883	-
Stage 1	949	-	-
Stage 2	966	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	793	883	-
Mov Cap-2 Maneuver	793	-	-
Stage 1	946	-	-
Stage 2	966	-	-












Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	0.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	816	1345
HCM Lane V/C Ratio	-	-	0.025	0.003
HCM Control Delay (s)	-	-	9.5	7.7
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Lanes, Volumes, Timings  
5: Connector Road & NY 138

2021-NB-SAT

10/25/2018

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	51	93	102	157	239	253
Future Volume (vph)	51	93	102	157	239	253
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	12	16	10	10
Grade (%)	3%			1%	1%	
Storage Length (ft)		0	85		0	75
Storage Lanes		0	1		1	1
Taper Length (ft)			130		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					1.00	
Frt	0.913					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1798	0	1796	2121	1612	1456
Flt Permitted			0.662		0.950	
Satd. Flow (perm)	1798	0	1252	2121	1610	1456
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	97					264
Link Speed (mph)	35			35	30	
Link Distance (ft)	518			589	836	
Travel Time (s)	10.1			11.5	19.0	
Confl. Peds. (#/hr)					1	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	1%	0%	1%	4%	3%
Adj. Flow (vph)	53	97	106	164	249	264
Shared Lane Traffic (%)						
Lane Group Flow (vph)	150	0	106	164	249	264
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	10	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.94	0.94	1.01	0.85	1.10	1.10
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		2	2	2	2
Detector Template	NYS DOT		NYS DOT	NYS DOT	NYS DOT	NYS DOT
Leading Detector (ft)	78		78	78	78	78
Trailing Detector (ft)	-10		-10	-10	-10	-10
Detector 1 Position(ft)	-10		-10	-10	-10	-10
Detector 1 Size(ft)	40		40	40	40	40
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	4.0		4.0	4.0	4.0	4.0
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)	38		38	38	38	38
Detector 2 Size(ft)	40		40	40	40	40
Detector 2 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex

Peak Saturday Midday Hour (12:15 - 1:15)  
JMC 16124

Synchro 10 Report  
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Lanes, Volumes, Timings  
5: Connector Road & NY 138

2021-NB-SAT  
10/25/2018

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Channel						
Detector 2 Extend (s)	4.0		4.0	4.0	4.0	4.0
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	6			2	4	
Permitted Phases			2			4
Detector Phase	6		2	2	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	5.0	5.0
Minimum Split (s)	15.0		15.0	15.0	10.0	10.0
Total Split (s)	45.0		45.0	45.0	35.0	35.0
Total Split (%)	56.3%		56.3%	56.3%	43.8%	43.8%
Maximum Green (s)	40.0		40.0	40.0	30.0	30.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0		4.0	4.0	4.0	4.0
Recall Mode	Min		Min	Min	None	None
v/c Ratio	0.23		0.26	0.23	0.42	0.38
Control Delay	5.6		11.5	10.4	10.5	3.1
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	5.6		11.5	10.4	10.5	3.1
Queue Length 50th (ft)	6		13	20	29	0
Queue Length 95th (ft)	37		47	61	79	29
Internal Link Dist (ft)	438			509	756	
Turn Bay Length (ft)			85			75
Base Capacity (vph)	1764		1227	2079	1439	1329
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	0.09		0.09	0.08	0.17	0.20

Intersection Summary

Area Type: Other  
Cycle Length: 80  
Actuated Cycle Length: 33.9  
Natural Cycle: 40  
Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Connector Road & NY 138

↖ Ø2	↗ Ø4
45 s	35 s
→ Ø6	
45 s	

# HCM 6th Signalized Intersection Summary

## 5: Connector Road & NY 138











2021-NB-SAT  
10/25/2018





	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↗	↖	↗
Traffic Volume (veh/h)	51	93	102	157	239	253
Future Volume (veh/h)	51	93	102	157	239	253
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1890	1890	1894	1954	1835	1850
Adj Flow Rate, veh/h	53	97	106	164	249	264
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	0	1	4	3
Cap, veh/h	199	364	574	649	587	526
Arrive On Green	0.33	0.33	0.33	0.33	0.34	0.34
Sat Flow, veh/h	598	1095	1253	1954	1747	1568
Grp Volume(v), veh/h	0	150	106	164	249	264
Grp Sat Flow(s),veh/h/ln	0	1693	1253	1954	1747	1568
Q Serve(g_s), s	0.0	2.0	2.0	1.8	3.3	4.1
Cycle Q Clear(g_c), s	0.0	2.0	4.0	1.8	3.3	4.1
Prop In Lane		0.65	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	562	574	649	587	526
V/C Ratio(X)	0.00	0.27	0.18	0.25	0.42	0.50
Avail Cap(c_a), veh/h	0	2249	1823	2597	1741	1562
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	7.4	8.8	7.3	7.7	8.0
Incr Delay (d2), s/veh	0.0	0.4	0.2	0.3	0.7	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.5	0.4	0.5	0.9	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	7.7	9.0	7.6	8.4	9.0
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h	150			270	513	
Approach Delay, s/veh	7.7			8.2	8.8	
Approach LOS	A			A	A	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		15.0		15.1		15.0
Change Period (Y+Rc), s		5.0		5.0		5.0
Max Green Setting (Gmax), s		40.0		30.0		40.0
Max Q Clear Time (g_c+I1), s		6.0		6.1		4.0
Green Ext Time (p_c), s		2.1		4.2		1.1
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			8.4			
HCM 6th LOS			A			



Lanes, Volumes, Timings  
1: NY 22 & Connector Road

2021-BD-AM  
10/25/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	131	81	64	192	211	549
Future Volume (vph)	131	81	64	192	211	549
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%		-2%			0%
Storage Length (ft)	0	200		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.899			
Flt Protected	0.950					0.986
Satd. Flow (prot)	1728	1503	1594	0	0	1806
Flt Permitted	0.950					0.986
Satd. Flow (perm)	1728	1503	1594	0	0	1806
Link Speed (mph)	30		55			55
Link Distance (ft)	836		1411			503
Travel Time (s)	19.0		17.5			6.2
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	5%	8%	6%	9%	3%	4%
Adj. Flow (vph)	162	100	79	237	260	678
Shared Lane Traffic (%)						
Lane Group Flow (vph)	162	100	316	0	0	938
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	36.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	131	81	64	192	211	549
Future Vol, veh/h	131	81	64	192	211	549
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	200	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-1	-	-2	-	-	0
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	5	8	6	9	3	4
Mvmt Flow	162	100	79	237	260	678

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1396	198	0	0	316	0
Stage 1	198	-	-	-	-	-
Stage 2	1198	-	-	-	-	-
Critical Hdwy	6.25	6.18	-	-	4.13	-
Critical Hdwy Stg 1	5.25	-	-	-	-	-
Critical Hdwy Stg 2	5.25	-	-	-	-	-
Follow-up Hdwy	3.545	3.372	-	-	2.227	-
Pot Cap-1 Maneuver	166	833	-	-	1239	-
Stage 1	837	-	-	-	-	-
Stage 2	301	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 110	833	-	-	1239	-
Mov Cap-2 Maneuver	~ 110	-	-	-	-	-
Stage 1	555	-	-	-	-	-
Stage 2	301	-	-	-	-	-










Approach	WB	NB	SB
HCM Control Delay, s	204.5	0	2.4
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 110 833 1239	-	-
HCM Lane V/C Ratio	-	- 1.47 0.12 0.21	-	-
HCM Control Delay (s)	-	- \$ 324.8 9.9 8.7	0	
HCM Lane LOS	-	- F A A	A	
HCM 95th %tile Q(veh)	-	- 11.7 0.4 0.8	-	

Notes			
-: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon




Lanes, Volumes, Timings  
2: NY 22 & Anderson Lane

2021-BD-AM  
10/25/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	3	1	130	9	3	799
Future Volume (vph)	3	1	130	9	3	799
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	12	12	12
Grade (%)	4%		-2%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.973		0.991			
Flt Protected	0.962					
Satd. Flow (prot)	1685	0	1725	0	0	1909
Flt Permitted	0.962					
Satd. Flow (perm)	1685	0	1725	0	0	1909
Link Speed (mph)	30		55			55
Link Distance (ft)	519		503			117
Travel Time (s)	11.8		6.2			1.5
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	0%	0%	11%	0%	3%	0%
Adj. Flow (vph)	4	1	155	11	4	951
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	0	166	0	0	955
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	11		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.07	1.07	0.99	0.99	0.99	0.99
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection

Int Delay, s/veh 0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	1	130	9	3	799
Future Vol, veh/h	3	1	130	9	3	799
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	4	-	-2	-	-	-1
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	0	11	0	3	0
Mvmt Flow	4	1	155	11	4	951

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1120	161	0
Stage 1	161	-	-
Stage 2	959	-	-
Critical Hdwy	7.2	6.6	-
Critical Hdwy Stg 1	6.2	-	-
Critical Hdwy Stg 2	6.2	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	180	873	-
Stage 1	842	-	-
Stage 2	303	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	179	873	-
Mov Cap-2 Maneuver	179	-	-
Stage 1	837	-	-
Stage 2	303	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.5	0	0
HCM LOS	C		










Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	223	1406
HCM Lane V/C Ratio	-	-	0.021	0.003
HCM Control Delay (s)	-	-	21.5	7.6
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.1	0



Lanes, Volumes, Timings  
3: NY 22 & Site Driveway A




2021-BD-AM

10/25/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	7	2	109	22	6	795
Future Volume (vph)	7	2	109	22	6	795
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12	12
Grade (%)	-12%		1%			-2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.973		0.977			
Flt Protected	0.962					
Satd. Flow (prot)	1948	0	1642	0	0	1882
Flt Permitted	0.962					
Satd. Flow (perm)	1948	0	1642	0	0	1882
Link Speed (mph)	30		55			55
Link Distance (ft)	183		117			236
Travel Time (s)	4.2		1.5			2.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	15%	0%	0%	2%
Adj. Flow (vph)	8	2	118	24	7	864
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	0	142	0	0	871
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	13		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.89	0.89	1.01	1.01	0.99	0.99
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection

Int Delay, s/veh 0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	2	109	22	6	795
Future Vol, veh/h	7	2	109	22	6	795
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-12	-	1	-	-	-2
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	15	0	0	2
Mvmt Flow	8	2	118	24	7	864










Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1008	130	0
Stage 1	130	-	-
Stage 2	878	-	-
Critical Hdwy	4	5	-
Critical Hdwy Stg 1	3	-	-
Critical Hdwy Stg 2	3	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	526	966	-
Stage 1	983	-	-
Stage 2	736	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	521	966	-
Mov Cap-2 Maneuver	521	-	-
Stage 1	974	-	-
Stage 2	736	-	-




Approach	WB	NB	SB
HCM Control Delay, s	11.3	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	580	1453
HCM Lane V/C Ratio	-	-	0.017	0.004
HCM Control Delay (s)	-	-	11.3	7.5
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Lanes, Volumes, Timings  
4: NY 22 & Site Driveway B

2021-BD-AM  
10/25/2018












						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	8	4	84	27	9	793
Future Volume (vph)	8	4	84	27	9	793
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12	12
Grade (%)	-12%		1%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.958		0.967			
Flt Protected	0.967					0.999
Satd. Flow (prot)	1928	0	1641	0	0	1843
Flt Permitted	0.967					0.999
Satd. Flow (perm)	1928	0	1641	0	0	1843
Link Speed (mph)	30		55			55
Link Distance (ft)	182		236			636
Travel Time (s)	4.1		2.9			7.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	15%	0%	0%	2%
Adj. Flow (vph)	9	4	91	29	10	862
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	0	120	0	0	872
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	13		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.89	0.89	1.01	1.01	1.01	1.01
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	4	84	27	9	793
Future Vol, veh/h	8	4	84	27	9	793
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-12	-	1	-	-	2
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	15	0	0	2
Mvmt Flow	9	4	91	29	10	862
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	988	106	0	0	120	0
Stage 1	106	-	-	-	-	-
Stage 2	882	-	-	-	-	-
Critical Hdwy	4	5	-	-	4.1	-
Critical Hdwy Stg 1	3	-	-	-	-	-
Critical Hdwy Stg 2	3	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	534	988	-	-	1480	-
Stage 1	991	-	-	-	-	-
Stage 2	735	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	527	988	-	-	1480	-
Mov Cap-2 Maneuver	527	-	-	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	735	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10.9	0		0.1		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	624	1480	-	
HCM Lane V/C Ratio	-	-	0.021	0.007	-	
HCM Control Delay (s)	-	-	10.9	7.4	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.1	0	-	



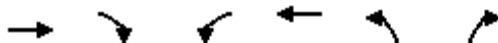
Lanes, Volumes, Timings  
5: Connector Road & NY 138

2021-BD-AM  
10/25/2018

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	77	32	163	614	275	121
Future Volume (vph)	77	32	163	614	275	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	12	16	10	10
Grade (%)	3%			1%	1%	
Storage Length (ft)		0	85		0	75
Storage Lanes		0	1		1	1
Taper Length (ft)			130		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		1.00			
Frt	0.961					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1785	0	1761	2121	1596	1428
Flt Permitted			0.684		0.950	
Satd. Flow (perm)	1785	0	1267	2121	1596	1428
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	33					126
Link Speed (mph)	35			35	30	
Link Distance (ft)	518			589	836	
Travel Time (s)	10.1			11.5	19.0	
Confl. Peds. (#/hr)		1	1			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	8%	4%	2%	1%	5%	5%
Adj. Flow (vph)	80	33	170	640	286	126
Shared Lane Traffic (%)						
Lane Group Flow (vph)	113	0	170	640	286	126
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	10	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.94	0.94	1.01	0.85	1.10	1.10
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		2	2	2	2
Detector Template	NYS DOT		NYS DOT	NYS DOT	NYS DOT	NYS DOT
Leading Detector (ft)	78		78	78	78	78
Trailing Detector (ft)	-10		-10	-10	-10	-10
Detector 1 Position(ft)	-10		-10	-10	-10	-10
Detector 1 Size(ft)	40		40	40	40	40
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	4.0		4.0	4.0	4.0	4.0
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)	38		38	38	38	38
Detector 2 Size(ft)	40		40	40	40	40
Detector 2 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex

Lanes, Volumes, Timings  
5: Connector Road & NY 138

2021-BD-AM  
10/25/2018



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Channel						
Detector 2 Extend (s)	4.0		4.0	4.0	4.0	4.0
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	6			2	4	
Permitted Phases			2			4
Detector Phase	6		2	2	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	5.0	5.0
Minimum Split (s)	15.0		15.0	15.0	10.0	10.0
Total Split (s)	45.0		45.0	45.0	35.0	35.0
Total Split (%)	56.3%		56.3%	56.3%	43.8%	43.8%
Maximum Green (s)	40.0		40.0	40.0	30.0	30.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0		4.0	4.0	4.0	4.0
Recall Mode	Min		Min	Min	None	None
v/c Ratio	0.13		0.29	0.65	0.56	0.23
Control Delay	6.9		10.8	14.5	20.8	4.9
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	6.9		10.8	14.5	20.8	4.9
Queue Length 50th (ft)	11		27	124	65	0
Queue Length 95th (ft)	44		82	305	179	33
Internal Link Dist (ft)	438			509	756	
Turn Bay Length (ft)			85			75
Base Capacity (vph)	1426		1008	1687	1000	942
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	0.08		0.17	0.38	0.29	0.13

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 52.2

Natural Cycle: 45

Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Connector Road & NY 138

45 s	35 s
45 s	

# HCM 6th Signalized Intersection Summary

## 5: Connector Road & NY 138











2021-BD-AM

10/25/2018

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↗	↖	↗
Traffic Volume (veh/h)	77	32	163	614	275	121
Future Volume (veh/h)	77	32	163	614	275	121
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1798	1798	1864	1954	1820	1820
Adj Flow Rate, veh/h	80	33	170	640	286	126
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	8	8	2	1	5	5
Cap, veh/h	584	241	748	945	467	415
Arrive On Green	0.48	0.48	0.48	0.48	0.27	0.27
Sat Flow, veh/h	1209	499	1275	1954	1733	1542
Grp Volume(v), veh/h	0	113	170	640	286	126
Grp Sat Flow(s),veh/h/ln	0	1707	1275	1954	1733	1542
Q Serve(g_s), s	0.0	1.5	3.4	10.2	5.8	2.6
Cycle Q Clear(g_c), s	0.0	1.5	4.9	10.2	5.8	2.6
Prop In Lane		0.29	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	826	748	945	467	415
V/C Ratio(X)	0.00	0.14	0.23	0.68	0.61	0.30
Avail Cap(c_a), veh/h	0	1687	1391	1931	1285	1143
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	5.8	7.1	8.0	12.9	11.8
Incr Delay (d2), s/veh	0.0	0.1	0.2	1.2	1.9	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.4	0.7	2.9	2.1	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	5.9	7.4	9.2	14.8	12.3
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h	113			810	412	
Approach Delay, s/veh	5.9			8.8	14.0	
Approach LOS	A			A	B	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		24.6		15.9		24.6
Change Period (Y+Rc), s		5.0		5.0		5.0
Max Green Setting (Gmax), s		40.0		30.0		40.0
Max Q Clear Time (g_c+I1), s		12.2		7.8		3.5
Green Ext Time (p_c), s		7.4		3.2		0.8
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			10.2			
HCM 6th LOS			B			

Lanes, Volumes, Timings  
1: NY 22 & Connector Road





2021-BD-PM  
10/25/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	53	135	305	405	152	65
Future Volume (vph)	53	135	305	405	152	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%		-2%			0%
Storage Length (ft)	0	200		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.923			
Flt Protected	0.950					0.966
Satd. Flow (prot)	1728	1591	1708	0	0	1751
Flt Permitted	0.950					0.966
Satd. Flow (perm)	1728	1591	1708	0	0	1751
Link Speed (mph)	30		55			55
Link Distance (ft)	836		1411			503
Travel Time (s)	19.0		17.5			6.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	2%	6%	2%	6%	2%
Adj. Flow (vph)	58	147	332	440	165	71
Shared Lane Traffic (%)						
Lane Group Flow (vph)	58	147	772	0	0	236
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					



Intersection

Int Delay, s/veh 4.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	53	135	305	405	152	65
Future Vol, veh/h	53	135	305	405	152	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	200	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-1	-	-2	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	2	6	2	6	2
Mvmt Flow	58	147	332	440	165	71










Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	953	552	0
Stage 1	552	-	-
Stage 2	401	-	-
Critical Hdwy	6.25	6.12	-
Critical Hdwy Stg 1	5.25	-	-
Critical Hdwy Stg 2	5.25	-	-
Follow-up Hdwy	3.545	3.318	-
Pot Cap-1 Maneuver	299	542	-
Stage 1	589	-	-
Stage 2	685	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	237	542	-
Mov Cap-2 Maneuver	237	-	-
Stage 1	466	-	-
Stage 2	685	-	-




Approach	WB	NB	SB
HCM Control Delay, s	17.2	0	7.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 237 542	825	-
HCM Lane V/C Ratio	-	- 0.243 0.271	0.2	-
HCM Control Delay (s)	-	- 25 14.1	10.5	0
HCM Lane LOS	-	- D B	B	A
HCM 95th %tile Q(veh)	-	- 0.9 1.1	0.7	-

Lanes, Volumes, Timings  
2: NY 22 & Anderson Lane

2021-BD-PM  
10/25/2018










						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	20	15	419	8	2	181
Future Volume (vph)	20	15	419	8	2	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	12	12	12
Grade (%)	4%		-2%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.943		0.998			
Flt Protected	0.972					
Satd. Flow (prot)	1602	0	1843	0	0	1819
Flt Permitted	0.972					
Satd. Flow (perm)	1602	0	1843	0	0	1819
Link Speed (mph)	30		55			55
Link Distance (ft)	519		503			117
Travel Time (s)	11.8		6.2			1.5
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	7%	4%	0%	0%	5%
Adj. Flow (vph)	23	17	487	9	2	210
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	0	496	0	0	212
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	11		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.07	1.07	0.99	0.99	0.99	0.99
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	15	419	8	2	181
Future Vol, veh/h	20	15	419	8	2	181
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	4	-	-2	-	-	-1
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	7	4	0	0	5
Mvmt Flow	23	17	487	9	2	210
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	706	492	0	0	496	0
Stage 1	492	-	-	-	-	-
Stage 2	214	-	-	-	-	-
Critical Hdwy	7.2	6.67	-	-	4.1	-
Critical Hdwy Stg 1	6.2	-	-	-	-	-
Critical Hdwy Stg 2	6.2	-	-	-	-	-
Follow-up Hdwy	3.5	3.363	-	-	2.2	-
Pot Cap-1 Maneuver	346	537	-	-	1078	-
Stage 1	555	-	-	-	-	-
Stage 2	788	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	345	537	-	-	1078	-
Mov Cap-2 Maneuver	345	-	-	-	-	-
Stage 1	554	-	-	-	-	-
Stage 2	788	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	14.8	0		0.1		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	407	1078	-	
HCM Lane V/C Ratio	-	-	0.1	0.002	-	
HCM Control Delay (s)	-	-	14.8	8.3	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.3	0	-	




Lanes, Volumes, Timings  
3: NY 22 & Site Driveway A

2021-BD-PM

10/25/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	18	5	408	26	8	165
Future Volume (vph)	18	5	408	26	8	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12	12
Grade (%)	-12%		1%			-2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.970		0.992			
Flt Protected	0.963					0.998
Satd. Flow (prot)	1944	0	1781	0	0	1795
Flt Permitted	0.963					0.998
Satd. Flow (perm)	1944	0	1781	0	0	1795
Link Speed (mph)	30		55			55
Link Distance (ft)	183		117			236
Travel Time (s)	4.2		1.5			2.9
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	5%	10%	0%	7%
Adj. Flow (vph)	21	6	474	30	9	192
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	0	504	0	0	201
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	13		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.89	0.89	1.01	1.01	0.99	0.99
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					















Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	5	408	26	8	165
Future Vol, veh/h	18	5	408	26	8	165
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-12	-	1	-	-	-2
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	5	10	0	7
Mvmt Flow	21	6	474	30	9	192
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	699	489	0	0	504	0
Stage 1	489	-	-	-	-	-
Stage 2	210	-	-	-	-	-
Critical Hdwy	4	5	-	-	4.1	-
Critical Hdwy Stg 1	3	-	-	-	-	-
Critical Hdwy Stg 2	3	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	652	686	-	-	1071	-
Stage 1	860	-	-	-	-	-
Stage 2	955	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	646	686	-	-	1071	-
Mov Cap-2 Maneuver	646	-	-	-	-	-
Stage 1	852	-	-	-	-	-
Stage 2	955	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10.7	0	0.4			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	654	1071	-	
HCM Lane V/C Ratio	-	-	0.041	0.009	-	
HCM Control Delay (s)	-	-	10.7	8.4	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.1	0	-	

Lanes, Volumes, Timings  
4: NY 22 & Site Driveway B

2021-BD-PM

10/25/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	29	9	383	30	6	144
Future Volume (vph)	29	9	383	30	6	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12	12
Grade (%)	-12%		1%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.969		0.990			
Flt Protected	0.963					0.998
Satd. Flow (prot)	1942	0	1776	0	0	1759
Flt Permitted	0.963					0.998
Satd. Flow (perm)	1942	0	1776	0	0	1759
Link Speed (mph)	30		55			55
Link Distance (ft)	182		236			636
Travel Time (s)	4.1		2.9			7.9
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	5%	10%	0%	7%
Adj. Flow (vph)	34	10	445	35	7	167
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	0	480	0	0	174
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	13		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.89	0.89	1.01	1.01	1.01	1.01
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	9	383	30	6	144
Future Vol, veh/h	29	9	383	30	6	144
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-12	-	1	-	-	2
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	5	10	0	7
Mvmt Flow	34	10	445	35	7	167
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	644	463	0	0	480	0
Stage 1	463	-	-	-	-	-
Stage 2	181	-	-	-	-	-
Critical Hdwy	4	5	-	-	4.1	-
Critical Hdwy Stg 1	3	-	-	-	-	-
Critical Hdwy Stg 2	3	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	677	704	-	-	1093	-
Stage 1	868	-	-	-	-	-
Stage 2	965	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	672	704	-	-	1093	-
Mov Cap-2 Maneuver	672	-	-	-	-	-
Stage 1	862	-	-	-	-	-
Stage 2	965	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10.7	0		0.3		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	679	1093	-	
HCM Lane V/C Ratio	-	-	0.065	0.006	-	
HCM Control Delay (s)	-	-	10.7	8.3	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0	-	

Lanes, Volumes, Timings  
5: Connector Road & NY 138

2021-BD-PM

10/25/2018

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↗	↖	↗
Traffic Volume (vph)	98	117	94	190	356	330
Future Volume (vph)	98	117	94	190	356	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	12	16	10	10
Grade (%)	3%			1%	1%	
Storage Length (ft)		0	85		0	75
Storage Lanes		0	1		1	1
Taper Length (ft)			130		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		1.00			
Frt	0.927					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1786	0	1744	2060	1627	1485
Flt Permitted			0.616		0.950	
Satd. Flow (perm)	1786	0	1130	2060	1627	1485
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	107					267
Link Speed (mph)	35			35	30	
Link Distance (ft)	518			589	836	
Travel Time (s)	10.1			11.5	19.0	
Confl. Peds. (#/hr)		1	1			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	2%	3%	4%	3%	1%
Adj. Flow (vph)	104	124	100	202	379	351
Shared Lane Traffic (%)						
Lane Group Flow (vph)	228	0	100	202	379	351
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	10	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.94	0.94	1.01	0.85	1.10	1.10
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		2	2	2	2
Detector Template	NYS DOT		NYS DOT	NYS DOT	NYS DOT	NYS DOT
Leading Detector (ft)	78		78	78	78	78
Trailing Detector (ft)	-10		-10	-10	-10	-10
Detector 1 Position(ft)	-10		-10	-10	-10	-10
Detector 1 Size(ft)	40		40	40	40	40
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	4.0		4.0	4.0	4.0	4.0
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)	38		38	38	38	38
Detector 2 Size(ft)	40		40	40	40	40
Detector 2 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex



Lanes, Volumes, Timings  
5: Connector Road & NY 138

2021-BD-PM

10/25/2018

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Channel						
Detector 2 Extend (s)	4.0		4.0	4.0	4.0	4.0
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	6			2	4	
Permitted Phases			2			4
Detector Phase	6		2	2	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	5.0	5.0
Minimum Split (s)	15.0		15.0	15.0	10.0	10.0
Total Split (s)	45.0		45.0	45.0	35.0	35.0
Total Split (%)	56.3%		56.3%	56.3%	43.8%	43.8%
Maximum Green (s)	40.0		40.0	40.0	30.0	30.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0		4.0	4.0	4.0	4.0
Recall Mode	Min		Min	Min	None	None
v/c Ratio	0.37		0.29	0.33	0.53	0.44
Control Delay	9.3		15.4	14.1	11.2	4.1
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	9.3		15.4	14.1	11.2	4.1
Queue Length 50th (ft)	19		16	33	51	9
Queue Length 95th (ft)	74		58	95	125	47
Internal Link Dist (ft)	438			509	756	
Turn Bay Length (ft)			85			75
Base Capacity (vph)	1675		1056	1924	1280	1225
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	0.14		0.09	0.10	0.30	0.29

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 39.7

Natural Cycle: 40

Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Connector Road & NY 138

↖ Ø2	↗ Ø4
45 s	35 s
→ Ø6	
45 s	

# HCM 6th Signalized Intersection Summary

## 5: Connector Road & NY 138











2021-BD-PM





10/25/2018

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↗	↖	↗
Traffic Volume (veh/h)	98	117	94	190	356	330
Future Volume (veh/h)	98	117	94	190	356	330
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1875	1875	1850	1908	1850	1879
Adj Flow Rate, veh/h	104	124	100	202	379	351
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	4	3	1
Cap, veh/h	241	287	438	590	710	642
Arrive On Green	0.31	0.31	0.31	0.31	0.40	0.40
Sat Flow, veh/h	778	928	1139	1908	1762	1593
Grp Volume(v), veh/h	0	228	100	202	379	351
Grp Sat Flow(s),veh/h/ln	0	1706	1139	1908	1762	1593
Q Serve(g_s), s	0.0	3.7	2.7	2.8	5.7	5.9
Cycle Q Clear(g_c), s	0.0	3.7	6.4	2.8	5.7	5.9
Prop In Lane		0.54	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	528	438	590	710	642
V/C Ratio(X)	0.00	0.43	0.23	0.34	0.53	0.55
Avail Cap(c_a), veh/h	0	1963	1396	2196	1520	1375
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	9.6	12.1	9.3	7.9	7.9
Incr Delay (d2), s/veh	0.0	0.8	0.4	0.5	0.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.1	0.5	0.9	1.6	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	10.4	12.5	9.8	8.8	9.0
LnGrp LOS	A	B	B	A	A	A
Approach Vol, veh/h	228			302	730	
Approach Delay, s/veh	10.4			10.7	8.9	
Approach LOS	B			B	A	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		15.8		19.0		15.8
Change Period (Y+Rc), s		5.0		5.0		5.0
Max Green Setting (Gmax), s		40.0		30.0		40.0
Max Q Clear Time (g_c+I1), s		8.4		7.9		5.7
Green Ext Time (p_c), s		2.4		6.2		1.8
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			9.6			
HCM 6th LOS			A			

Lanes, Volumes, Timings  
1: NY 22 & Connector Road

2021-BD-SAT  
10/25/2018










						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	42	102	126	284	128	63
Future Volume (vph)	42	102	126	284	128	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%		-2%			0%
Storage Length (ft)	0	200		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.906			
Flt Protected	0.950					0.968
Satd. Flow (prot)	1761	1591	1688	0	0	1746
Flt Permitted	0.950					0.968
Satd. Flow (perm)	1761	1591	1688	0	0	1746
Link Speed (mph)	30		55			55
Link Distance (ft)	836		1411			503
Travel Time (s)	19.0		17.5			6.2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	2%	3%	3%	8%	0%
Adj. Flow (vph)	45	109	134	302	136	67
Shared Lane Traffic (%)						
Lane Group Flow (vph)	45	109	436	0	0	203
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection						
Int Delay, s/veh	3.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	42	102	126	284	128	63
Future Vol, veh/h	42	102	126	284	128	63
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	200	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-1	-	-2	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	2	3	3	8	0
Mvmt Flow	45	109	134	302	136	67
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	624	285	0	0	436	0
Stage 1	285	-	-	-	-	-
Stage 2	339	-	-	-	-	-
Critical Hdwy	6.23	6.12	-	-	4.18	-
Critical Hdwy Stg 1	5.23	-	-	-	-	-
Critical Hdwy Stg 2	5.23	-	-	-	-	-
Follow-up Hdwy	3.527	3.318	-	-	2.272	-
Pot Cap-1 Maneuver	463	760	-	-	1092	-
Stage 1	773	-	-	-	-	-
Stage 2	733	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	403	760	-	-	1092	-
Mov Cap-2 Maneuver	403	-	-	-	-	-
Stage 1	673	-	-	-	-	-
Stage 2	733	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	11.8	0	5.9			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 403 760 1092	-	-		
HCM Lane V/C Ratio	-	- 0.111 0.143 0.125	-	-		
HCM Control Delay (s)	-	- 15 10.5 8.8	-	0		
HCM Lane LOS	-	- C B A A	-	-		
HCM 95th %tile Q(veh)	-	- 0.4 0.5 0.4	-	-		






Lanes, Volumes, Timings  
2: NY 22 & Anderson Lane

2021-BD-SAT  
10/25/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	7	7	224	5	1	183
Future Volume (vph)	7	7	224	5	1	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	12	12	12	12
Grade (%)	4%		-2%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.932		0.997			
Flt Protected	0.976					
Satd. Flow (prot)	1530	0	1895	0	0	1845
Flt Permitted	0.976					
Satd. Flow (perm)	1530	0	1895	0	0	1845
Link Speed (mph)	30		55			55
Link Distance (ft)	519		503			117
Travel Time (s)	11.8		6.2			1.5
Confl. Bikes (#/hr)				3		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	14%	0%	1%	0%	100%	3%
Adj. Flow (vph)	7	7	236	5	1	193
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	241	0	0	194
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	11		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.07	1.07	0.99	0.99	0.99	0.99
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection

Int Delay, s/veh 0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	7	224	5	1	183
Future Vol, veh/h	7	7	224	5	1	183
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	4	-	-2	-	-	-1
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	14	0	1	0	100	3
Mvmt Flow	7	7	236	5	1	193

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	434	239	0
Stage 1	239	-	-
Stage 2	195	-	-
Critical Hdwy	7.34	6.6	-
Critical Hdwy Stg 1	6.34	-	-
Critical Hdwy Stg 2	6.34	-	-
Follow-up Hdwy	3.626	3.3	-
Pot Cap-1 Maneuver	506	784	-
Stage 1	733	-	-
Stage 2	776	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	505	784	-
Mov Cap-2 Maneuver	505	-	-
Stage 1	732	-	-
Stage 2	776	-	-










Approach	WB	NB	SB
HCM Control Delay, s	11	0	0
HCM LOS	B		




Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	614	914
HCM Lane V/C Ratio	-	-	0.024	0.001
HCM Control Delay (s)	-	-	11	8.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Lanes, Volumes, Timings  
3: NY 22 & Site Driveway A

2021-BD-SAT

10/25/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	16	5	214	17	5	168
Future Volume (vph)	16	5	214	17	5	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12	12
Grade (%)	-12%		1%			-2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.966		0.990			
Flt Protected	0.964					0.998
Satd. Flow (prot)	1938	0	1854	0	0	1827
Flt Permitted	0.964					0.998
Satd. Flow (perm)	1938	0	1854	0	0	1827
Link Speed (mph)	30		55			55
Link Distance (ft)	183		117			236
Travel Time (s)	4.2		1.5			2.9
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	1%	0%	0%	5%
Adj. Flow (vph)	18	6	240	19	6	189
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	0	259	0	0	195
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	13		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.89	0.89	1.01	1.01	0.99	0.99
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					










Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	5	214	17	5	168
Future Vol, veh/h	16	5	214	17	5	168
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-12	-	1	-	-	-2
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	1	0	0	5
Mvmt Flow	18	6	240	19	6	189
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	451	250	0	0	259	0
Stage 1	250	-	-	-	-	-
Stage 2	201	-	-	-	-	-
Critical Hdwy	4	5	-	-	4.1	-
Critical Hdwy Stg 1	3	-	-	-	-	-
Critical Hdwy Stg 2	3	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	770	863	-	-	1317	-
Stage 1	941	-	-	-	-	-
Stage 2	958	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	766	863	-	-	1317	-
Mov Cap-2 Maneuver	766	-	-	-	-	-
Stage 1	936	-	-	-	-	-
Stage 2	958	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.7	0		0.2		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-		787	1317	
HCM Lane V/C Ratio	-	-		0.03	0.004	
HCM Control Delay (s)	-	-		9.7	7.7	
HCM Lane LOS	-	-		A	A	
HCM 95th %tile Q(veh)	-	-		0.1	0	



Lanes, Volumes, Timings  
4: NY 22 & Site Driveway B




2021-BD-SAT

10/25/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	18	7	196	23	6	155
Future Volume (vph)	18	7	196	23	6	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	12	12	12	12
Grade (%)	-12%		1%			2%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.961		0.986			
Flt Protected	0.966					0.998
Satd. Flow (prot)	1932	0	1848	0	0	1791
Flt Permitted	0.966					0.998
Satd. Flow (perm)	1932	0	1848	0	0	1791
Link Speed (mph)	30		55			55
Link Distance (ft)	182		236			636
Travel Time (s)	4.1		2.9			7.9
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	1%	0%	0%	5%
Adj. Flow (vph)	20	8	220	26	7	174
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	0	246	0	0	181
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	13		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.89	0.89	1.01	1.01	1.01	1.01
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					

Intersection

Int Delay, s/veh 0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	7	196	23	6	155
Future Vol, veh/h	18	7	196	23	6	155
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-12	-	1	-	-	2
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	1	0	0	5
Mvmt Flow	20	8	220	26	7	174












Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	421	233	0
Stage 1	233	-	-
Stage 2	188	-	-
Critical Hdwy	4	5	-
Critical Hdwy Stg 1	3	-	-
Critical Hdwy Stg 2	3	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	785	877	-
Stage 1	947	-	-
Stage 2	962	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	780	877	-
Mov Cap-2 Maneuver	780	-	-
Stage 1	941	-	-
Stage 2	962	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	0.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	805	1332
HCM Lane V/C Ratio	-	-	0.035	0.005
HCM Control Delay (s)	-	-	9.6	7.7
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Lanes, Volumes, Timings  
5: Connector Road & NY 138

2021-BD-SAT  
10/25/2018

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	51	100	107	157	245	258
Future Volume (vph)	51	100	107	157	245	258
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	12	16	10	10
Grade (%)	3%			1%	1%	
Storage Length (ft)		0	85		0	75
Storage Lanes		0	1		1	1
Taper Length (ft)			130		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					1.00	
Frt	0.911					0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1795	0	1796	2121	1612	1456
Flt Permitted			0.657		0.950	
Satd. Flow (perm)	1795	0	1242	2121	1610	1456
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	104					269
Link Speed (mph)	35			35	30	
Link Distance (ft)	518			589	836	
Travel Time (s)	10.1			11.5	19.0	
Confl. Peds. (#/hr)					1	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	1%	0%	1%	4%	3%
Adj. Flow (vph)	53	104	111	164	255	269
Shared Lane Traffic (%)						
Lane Group Flow (vph)	157	0	111	164	255	269
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	10	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.94	0.94	1.01	0.85	1.10	1.10
Turning Speed (mph)		9	15		15	9
Number of Detectors	2		2	2	2	2
Detector Template	NYS DOT		NYS DOT	NYS DOT	NYS DOT	NYS DOT
Leading Detector (ft)	78		78	78	78	78
Trailing Detector (ft)	-10		-10	-10	-10	-10
Detector 1 Position(ft)	-10		-10	-10	-10	-10
Detector 1 Size(ft)	40		40	40	40	40
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	4.0		4.0	4.0	4.0	4.0
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)	38		38	38	38	38
Detector 2 Size(ft)	40		40	40	40	40
Detector 2 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex

Peak Saturday Midday Hour (12:15 - 1:15)  
JMC 16124

Synchro 10 Report  
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Lanes, Volumes, Timings  
5: Connector Road & NY 138

2021-BD-SAT  
10/25/2018

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Channel						
Detector 2 Extend (s)	4.0		4.0	4.0	4.0	4.0
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	6			2	4	
Permitted Phases			2			4
Detector Phase	6		2	2	4	4
Switch Phase						
Minimum Initial (s)	10.0		10.0	10.0	5.0	5.0
Minimum Split (s)	15.0		15.0	15.0	10.0	10.0
Total Split (s)	45.0		45.0	45.0	35.0	35.0
Total Split (%)	56.3%		56.3%	56.3%	43.8%	43.8%
Maximum Green (s)	40.0		40.0	40.0	30.0	30.0
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0		5.0	5.0	5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	4.0		4.0	4.0	4.0	4.0
Recall Mode	Min		Min	Min	None	None
v/c Ratio	0.24		0.27	0.23	0.43	0.38
Control Delay	5.5		11.7	10.4	10.6	3.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	5.5		11.7	10.4	10.6	3.2
Queue Length 50th (ft)	6		14	20	30	0
Queue Length 95th (ft)	38		49	62	82	30
Internal Link Dist (ft)	438			509	756	
Turn Bay Length (ft)			85			75
Base Capacity (vph)	1756		1213	2072	1431	1322
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	0.09		0.09	0.08	0.18	0.20

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 34.2

Natural Cycle: 40

Control Type: Actuated-Uncoordinated

Splits and Phases: 5: Connector Road & NY 138

↖ Ø2	↗ Ø4
45 s	35 s
→ Ø6	
45 s	



# HCM 6th Signalized Intersection Summary

## 5: Connector Road & NY 138

2021-BD-SAT  
10/25/2018

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↗	↖	↗
Traffic Volume (veh/h)	51	100	107	157	245	258
Future Volume (veh/h)	51	100	107	157	245	258
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1890	1890	1894	1954	1835	1850
Adj Flow Rate, veh/h	53	104	111	164	255	269
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	0	1	4	3
Cap, veh/h	188	369	563	645	595	533
Arrive On Green	0.33	0.33	0.33	0.33	0.34	0.34
Sat Flow, veh/h	570	1119	1245	1954	1747	1568
Grp Volume(v), veh/h	0	157	111	164	255	269
Grp Sat Flow(s),veh/h/ln	0	1689	1245	1954	1747	1568
Q Serve(g_s), s	0.0	2.1	2.2	1.9	3.4	4.1
Cycle Q Clear(g_c), s	0.0	2.1	4.3	1.9	3.4	4.1
Prop In Lane		0.66	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	557	563	645	595	533
V/C Ratio(X)	0.00	0.28	0.20	0.25	0.43	0.50
Avail Cap(c_a), veh/h	0	2228	1795	2579	1729	1551
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	7.5	9.1	7.4	7.7	8.0
Incr Delay (d2), s/veh	0.0	0.4	0.2	0.3	0.7	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.5	0.4	0.5	0.9	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	7.9	9.3	7.7	8.4	9.0
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h	157			275	524	
Approach Delay, s/veh	7.9			8.4	8.7	
Approach LOS	A			A	A	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		15.0		15.3		15.0
Change Period (Y+Rc), s		5.0		5.0		5.0
Max Green Setting (Gmax), s		40.0		30.0		40.0
Max Q Clear Time (g_c+I1), s		6.3		6.1		4.1
Green Ext Time (p_c), s		2.1		4.3		1.2
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			8.5			
HCM 6th LOS			A			