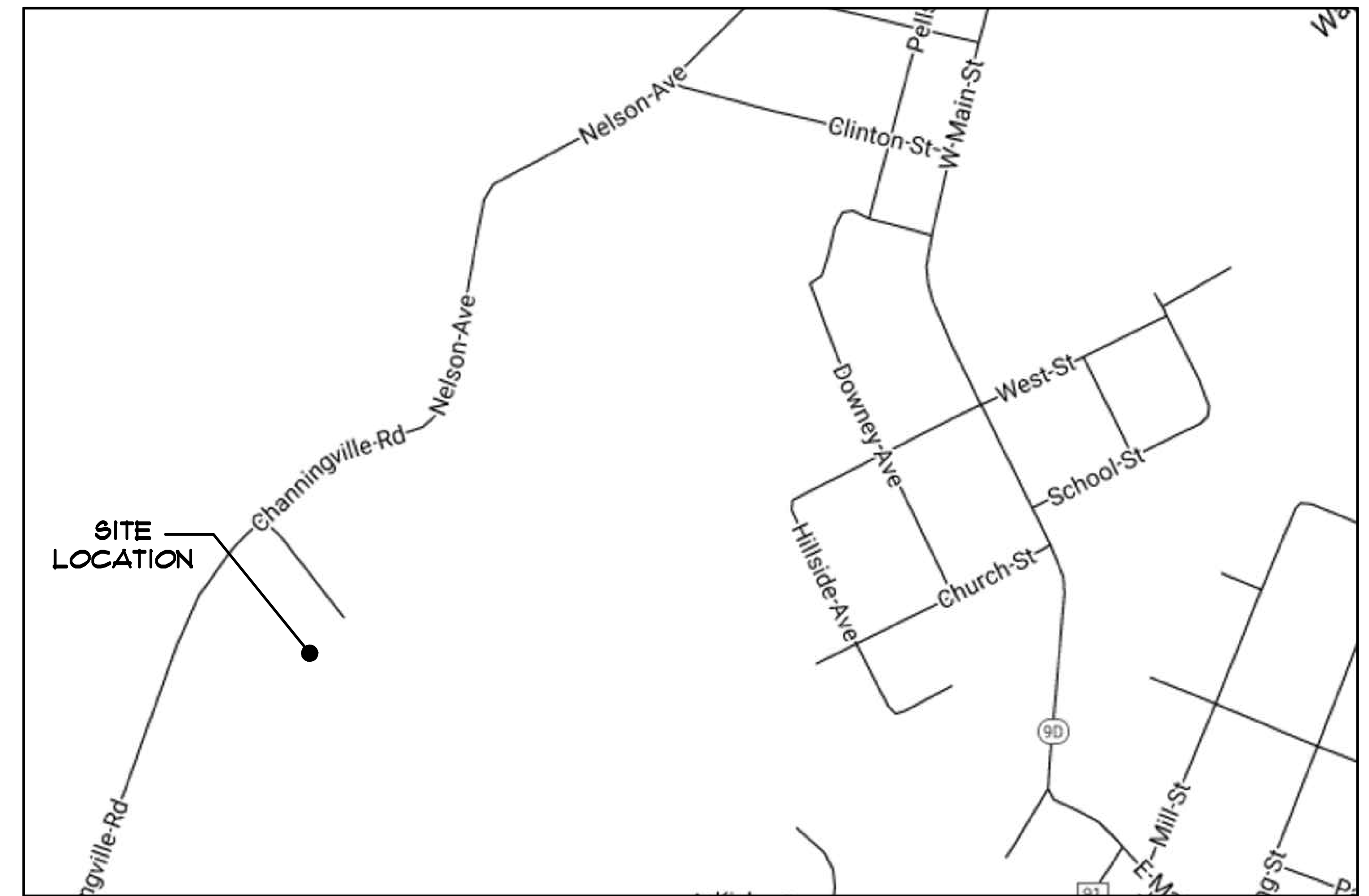
BUCKINGHAM PROPERTIES

NELSON AVENUE

VILLAGE OF WAPPINGERS FALLS, NEW YORK 12590

FIRE DISTRICT:	NEW HAMBURG FIRE DISTRICT 15 CHANNINGVILLE RAOD WAPPINGERS FALLS, NEW YORK 12590
SCHOOL DISTRICT:	WAPPINGERS CENTRAL SCHOOL DISTRICT 167 MYERS CORNERS ROAD WAPPINGERS FALLS, NEW YORK 12590
OWNER:	MR. EDWARD COHEN BUCKINGHAM PROPERTIES 657 E MAIN STREET, MT. KISCO, NY TEL: 914-666-7700
SEWER DISTRICT:	VILLAGE OF WAPPINGERS FALLS, SEWER DEPARTMENT 2582 SOUTH AVENUE, WAPPINGERS FALLS, NY 12590
WATER DISTRICT:	VILLAGE OF WAPPINGERS FALLS, WATER DISTRICT 2582 SOUTH AVENUE, WAPPINGERS FALLS, NY 12590



SITE LOCATION MAP
N.T.S.

SITE DATA INFORMATION

TAX IDENTIFICATION NUMBER:	134601-6158-13-071325-0000
ZONE:	RMU - RESIDENTIAL MIXED USE
USE:	MULTI FAMILY DWELLING
ACREAGE:	13.42 AC. 584,575.2 S.F.

FRONTAGE & SETBACK REQUIREMENTS:

	REQUIRED	PROVIDED
MINIMUM LOT WIDTH	50 FEET	483 FEET
MAXIMUM LOT COVERAGE	40 PERCENT	30.55 PERCENT +/-
MAXIMUM HEIGHT PRINCIPAL BLDG.	65 FEET	38 FEET
MAXIMUM HEIGHT ACCESSORY BLDG.	2 STORIES	1 STORY
MINIMUM YARD SETBACK FOR PRINCIPAL BLDG.	15 FEET	162 FEET +/-
FRONT SETBACK SECONDARY	15 FEET	N/A FEET +/-
SIDE SETBACK 0 FT MIN.	12 FEET MAX	85 FEET +/-
REAR SETBACK	10 FEET	72 FEET +/-
MINIMUM YARDS FOR ACCESSORY BLDG.		
FRONT SETBACK PRINCIPAL	20 FEET	78 FEET +/-
FRONT SETBACK SECONDARY	5 FEET	N/A FEET +/-
SIDE SETBACK	5 FEET	499 FEET +/-

PARKING REQUIREMENTS:

	REQUIRED	PROVIDED
140 (1) BEDROOM APARTMENTS	140 SPACES	140 SPACES
60 (2) BEDROOM APARTMENTS	120 SPACES	122 SPACES
(1) CLUBHOUSE	N/A	9 SPACES
TOTAL PROVIDED=		271 SPACES
*HANDICAP PARKING	8 SPACES	9 SPACES

*TOTAL PROVIDED PARKING SPACES INCLUDES 9 HANDICAP SPACES

SYMBOL KEY

(24)	EXISTING CONTOUR	DI	EXISTING STORM DRAIN MANHOLE
24	PROPOSED CONTOUR	DI	PROPOSED STORM DRAIN MANHOLE
x (24.21)	EXISTING SPOT ELEVATION	MH	EXISTING SANITARY MANHOLE
x 24.71	PROPOSED SPOT ELEVATION	MH	PROPOSED SANITARY MANHOLE
FFE	FINISHED FLOOR ELEVATION		PROPOSED HYDRANT AND VALVE
TW/BW	TOP OF WALL/BOTTOM OF WALL	CIP	CAST IRON PIPE
TC/BC	TOP OF CURB/BOTTOM OF CURB	RCP	REINFORCED CONCRETE PIPE
TS/BS	TOP OF STAIR/BOTTOM OF STAIR	CMP	CORRUGATED METAL PIPE
BF	BOTTOM OF FOOTING	VCP	VITRIFIED CLAY PIPE
HP/LP	HIGH POINT/LOW POINT	PVC	POLYVINYL CHLORIDE (PLASTIC) PIPE
HPS	HIGH POINT OF SWALE	STA. 0 + 00	STATION POINT
TF OR RE	TOP OF FRAME OR RIM ELEVATION	PL	PROPERTY LINE
INV. EL.	INVERT ELEVATION	CLL	CONTRACT LIMIT LINE
CB	EXISTING CATCH BASIN	℄	CENTER LINE
CB	PROPOSED CATCH BASIN	℄	CENTER LINE OF SWALE
ST	PROPOSED STORM PIPE	W	PROPOSED WATER MAIN
		SAN	PROPOSED SANITARY SEWER LINE
		F/M	PROPOSED SANITARY FORCE MAIN

REQUIRES 2 WORKING DAYS NOTICE PRIOR TO START OF ANY UNDERGROUND WORK
Dig Safely. New York
www.digsafelynewyork.com

The undersigned owners of the property hereon state that they are familiar with the enclosed plans, its contents, and its legends and hereby consent to all said terms and conditions as stated.

____

SCHEDULE OF DRAWINGS

SHEET NO.	DRAWING NO.	TITLE
1	CS-1	COVER SHEET
2	BS-1	BOUNDARY + TOPOGRAPHIC SURVEY
3	DP-1	DEMOLITION PLAN
4	SL-1	SITE LAYOUT AND MATERIALS PLAN
5	SG-1	SITE GRADING PLAN
6	SU-1	SITE UTILITY PLAN
7	PL-1	PLANTING PLAN
8	LP-1	LIGHTING PLAN
9	EC-1	EROSION CONTROL PLAN
10	EC-2	EROSION CONTROL PLAN NOTES
11	ST-1	STORM DRAINAGE PROFILES
12	ST-2	STORM DRAINAGE PROFILES
13	SS-1	SANITARY SEWER PROFILES
14	WP-1	WATERLINE PROFILES
15	SD-1	SITE DETAILS
16	SD-2	SITE DETAILS
17	SD-3	SITE DETAILS
18	WE-1	RETAINING WALL ELEVATIONS
19	EE-1	EXTERIOR ELEVATION & FLOOR PLAN

NO.	DATE	BY	CHKED	DESCRIPTION

REVISIONS

CHARLES P. MAY & ASSOCIATES, P.C.
DESIGN PROFESSIONALS
367 Windsor Highway, New Windsor, New York 12553, 845-567-3030
1073 Main Street, Suite 203, Fishkill, New York 12524, 845-896-2747
charlespmayassoc@aol.com

BUCKINGHAM PROPERTIES
NELSON AVENUE
VILLAGE OF WAPPINGERS FALLS
DUTCHESS COUNTY, NEW YORK
TAX MAP ID. NO. 134601-6158-13-071325

DATE	DRAWN	CHECKED
03-12-2019	MJN	CPM

SCALE N.T.S.

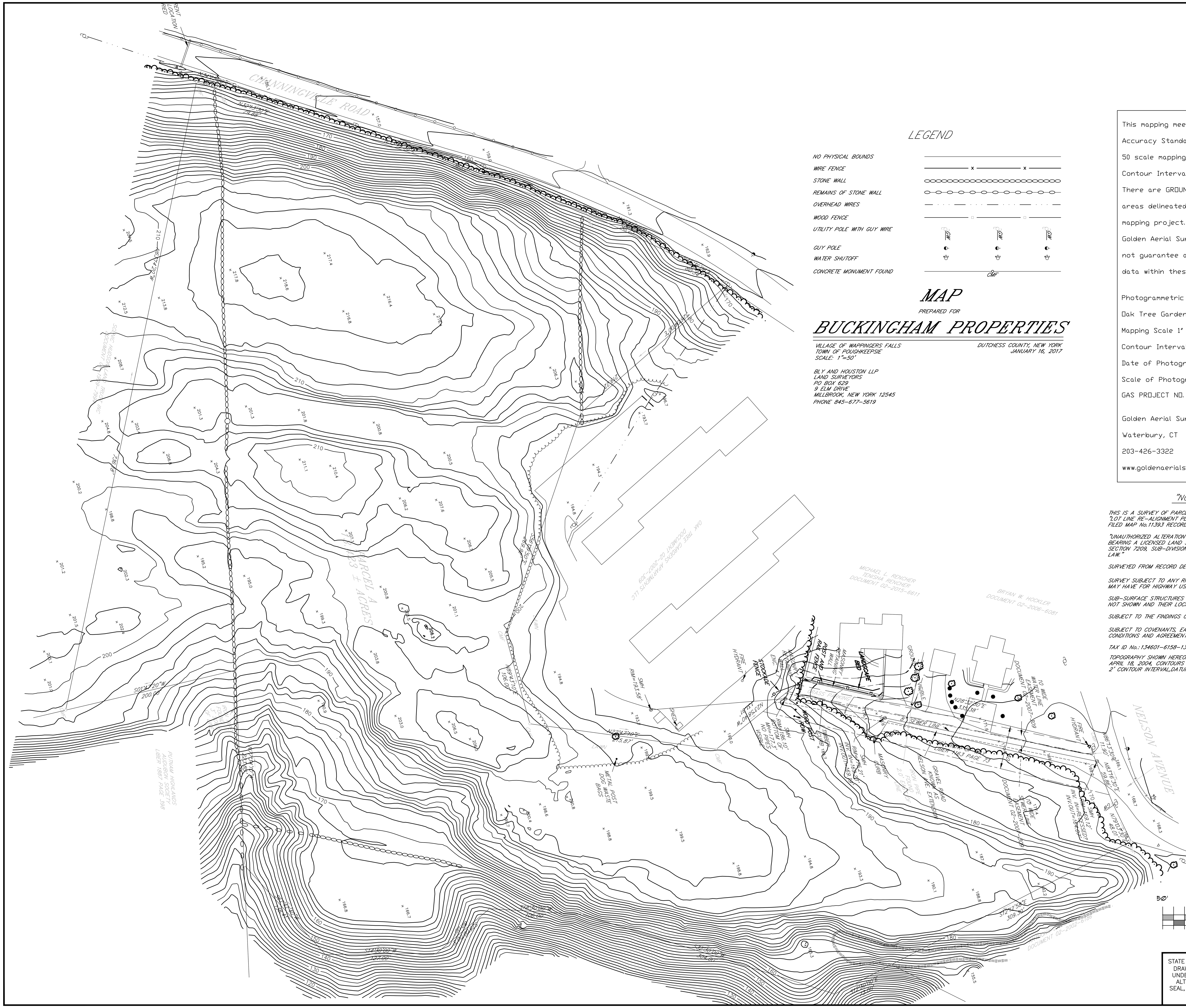
SHEET TITLE
COVER SHEET

PROJECT NUMBER 2016-04

CS-1
DRAWING NUMBER

SHEET 1 OF 15

Drawing Name: C:\PROJECTS\BUCKINGHAM PROPERTIES\SITE PLAN DRAWING FILES\00 SHEET DRAWINGS\01_CS-1.DWG Date: 03/12/19 Time: 10:53 AM
Referenced Drawings: None



LEGEND

NO PHYSICAL BOUNDS	
WIRE FENCE	
STONE WALL	
REMAINS OF STONE WALL	
OVERHEAD WIRES	
WOOD FENCE	
UTILITY POLE WITH GUY WIRE	GW GW GW
GUY POLE	
WATER SHUTOFF	WSO WSO WSO
CONCRETE MONUMENT FOUND	CMF

MAP

PREPARED FOR

BUCKINGHAM PROPERTIES

VILLAGE OF WAPPINGERS FALLS
TOWN OF POUGHKEEPSIE
SCALE: 1"=50'

DUTCHESS COUNTY, NEW YORK
JANUARY 16, 2017

BLY AND HOUSTON LLP
LAND SURVEYORS
PO BOX 629
9 ELM DRIVE
MILLBROOK, NEW YORK 12545
PHONE 845-677-5619

This mapping meets National Map Accuracy Standards for Class II 50 scale mapping with a 2' Contour Interval.

There are GROUND NOT VISIBLE areas delineated within this mapping project.

Golden Aerial Surveys, Inc. does not guarantee accuracy of any data within these areas.

Photogrammetric Mapping of 19 acres

Oak Tree Gardens Wappingers Falls, NY

Mapping Scale 1" = 50'

Contour Interval 2'

Date of Photography 04-18-2004

Scale of Photography 1" = 500'

GAS PROJECT NO. 16-096

Golden Aerial Surveys, Inc.

Waterbury, CT 06708

203-426-3322

www.goldenaerialsurveys.com

"NOTES"

THIS IS A SURVEY OF PARCEL A AS SHOWN ON A MAP ENTITLED "LOT LINE RE-ALIGNMENT PLAT FOR A. SIDOTE & E. COHEN" FILED MAP No.11393 RECORDED APRIL 26, 2002

"UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYORS SEAL IS A VIOLATION OF SECTION 7209, SUB-DIVISION 2, OF THE NEW YORK STATE EDUCATION LAW."

SURVEYED FROM RECORD DESCRIPTION AND AS IN POSSESSION.

SURVEY SUBJECT TO ANY RIGHT, TITLE OR INTEREST THE PUBLIC MAY HAVE FOR HIGHWAY USE.

SUB-SURFACE STRUCTURES NOT VISIBLE OR READILY APPARENT ARE NOT SHOWN AND THEIR LOCATION AND EXTENT ARE NOT CERTIFIED.

SUBJECT TO THE FINDINGS OF AN ACCURATE ABSTRACT OF TITLE.

SUBJECT TO COVENANTS, EASEMENTS, RESTRICTIONS, CONDITIONS AND AGREEMENTS OF RECORD.

TAX ID No.:134601-6158-13-071325-00

TOPOGRAPHY SHOWN HEREON TAKEN FROM AERIAL PHOTOGRAPHY DATED APRIL 18, 2004, CONTOURS GENERATED BT GOLDEN AERIAL SURVEYS, INC. 2' CONTOUR INTERVAL,DATUM APPROXIMATE USGS.

STATE OF NEW YORK · BRIAN M. HOUSTON · LICENSED LAND SURVEYOR · No. 050288

BRIAN M. HOUSTON L.S. No. 50288

50' 0 50' 100' 150' 200'

SCALE: 1" = 50'-0"

REVISIONS

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DESIGN PROFESSIONALS
367 Windsor Highway New Windsor, New York 12553 845-567-3030
1073 Main Street, Suite 203 Fishkill, New York 12524 845-896-2747
charlespmayassoc@aol.com

BUCKINGHAM PROPERTY MANAGMENT
CHANNINGVILLE RD & NELSON AVE
VILLAGE OF WAPPINGERS FALLS
DUTCHESS COUNTY, NEW YORK
TAX MAP ID. NO. 134601-6158-13-071325

DATE	DRAWN	CHECKED
03-12-2019	MJN	CPM

SCALE AS NOTED

SHEET TITLE
BOUNDARY + TOPOGRAHIC SURVEY

PROJECT NUMBER
2016-04

BS-1
DRAWING NUMBER

Drawing Name: C:\PROJECTS\BUCKINGHAM PROPERTIES\SITE PLAN DRAWING FILES\00 SHEET DRAWINGS\02_BS-1.DWG Date: 03/12/19 Time: 10:56 AM
Referenced Drawings: DigSafe Distribution_Box_9Hole FILL GateValve SepticTank_1000Gal SiltFence SwaleDetail Trench_Absorption Water_HouseConnection

DEMOLITION PLAN

SCALE: 1" = 50'-0"

NOTE:

PRIOR TO COMMENCEMENT OF CLEARING AND GRUBBING, ALL EROSION CONTROL DEVICES MUST BE IN PLACE AS SHOWN ON DRAWING EC-1.

IN ADDITION, A MEETING WITH THE DESIGN ENGINEER AND THE CONTRACTOR MUST OCCUR TO VERIFY THAT THE PROPER EROSION CONTROL MEASURES HAVE BEEN IMPLEMENTED ACCORDING TO THE EC-1 PLAN.

REVISIONS TO PHASING PLAN MUST BE SUBMITTED TO DESIGN ENGINEER FOR REVIEW.

A NEW PHASE SHOULD NOT BE CLEARED AND GRUBBED UNTIL PREVIOUS PHASE HAS BEEN STABILIZED.

LEGEND

EACH PHASE AREA TO BE REMOVED SHALL NOT EXCEED 5 ACRES

NOTE:

ALL ITEMS TO BE REMOVED SHALL BE DISPOSED OF BY THE CONTRACTOR IN AN AUTHORIZED MANNER IN ACCORDANCE WITH STATE, FEDERAL AND LOCAL REGULATIONS.

50' 0 50' 100' 150' 200'

SCALE: 1" = 50'-0"

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REVISIONS

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VILLAGE OF WAPPINGERS FALLS
DUTCHESS COUNTY, NEW YORK
TAX MAP ID. NO. 134601-6158-13-071325

DATE	DRAWN	CHECKED
03-12-2019	VA	CPM

SCALE: AS NOTED

SHEET TITLE: DEMOLITION PLAN

PROJECT NUMBER: 2016-04

DP-1

DRAWING NUMBER

SHEET 3 OF 15

Drawing Name: C:\PROJECTS\BUCKINGHAM PROPERTIES\SITE PLAN DRAWING FILES\00 SHEET DRAWINGS\03_DP-1.DWG Date: 03/12/19 Time: 10:59 AM
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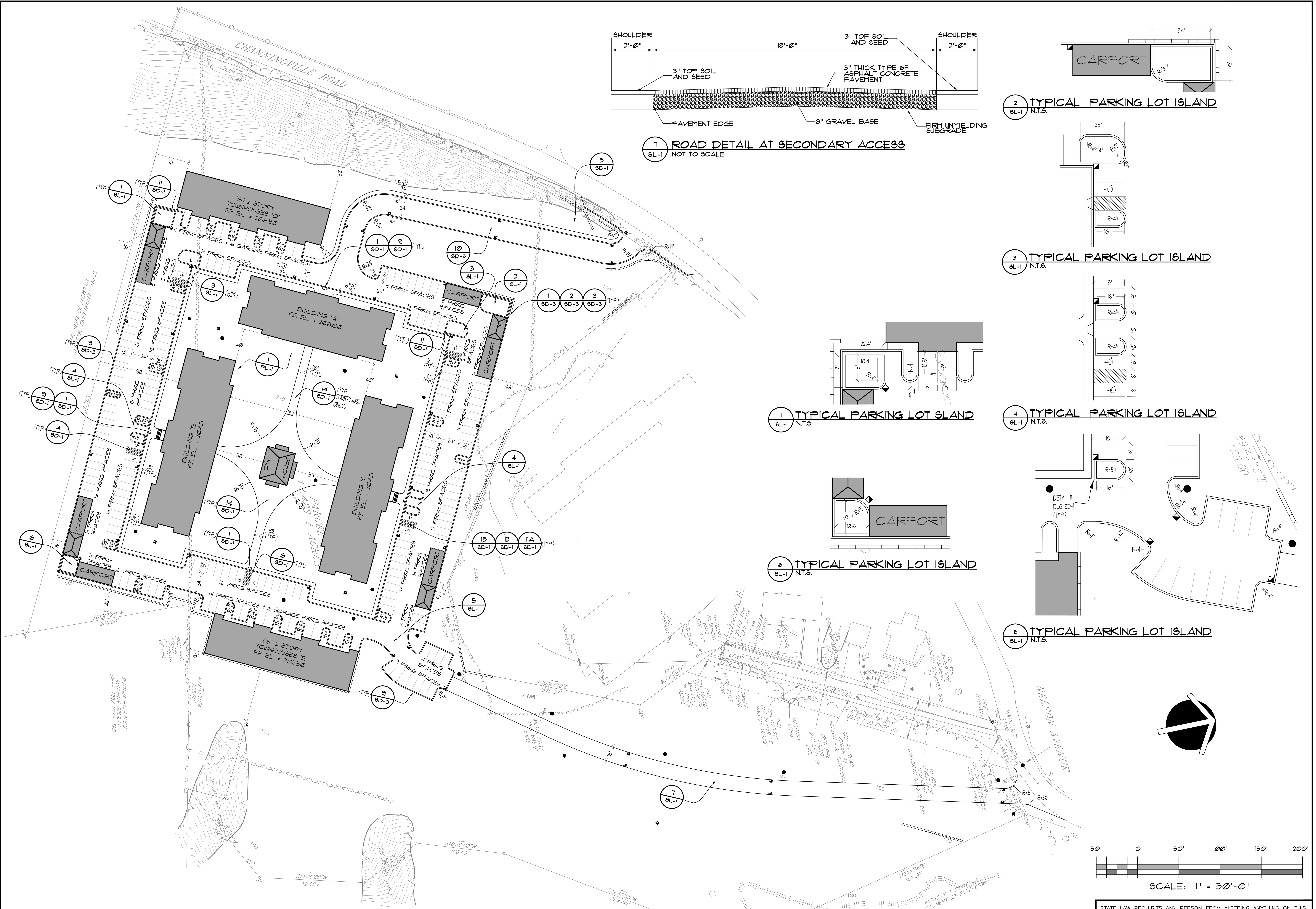

STATE LAW PROHIBITS ANY PERSON FROM ALTERING ANYTHING ON THIS DRAWING AND/OR THE ACCOMPANYING SPECIFICATION, UNLESS IT IS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL. WHERE SUCH ALTERATIONS ARE MADE THE LICENSED PROFESSIONAL MUST SIGN, SEAL, DATE, AND DESCRIBE THE FULL EXTENT OF THE ALTERATION ON THE DRAWING AND/OR IN THE SPECIFICATION.

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION

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VILLAGE OF WAPPINGERS FALLS
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TAX MAP ID. NO. 134601-6158-13-011325

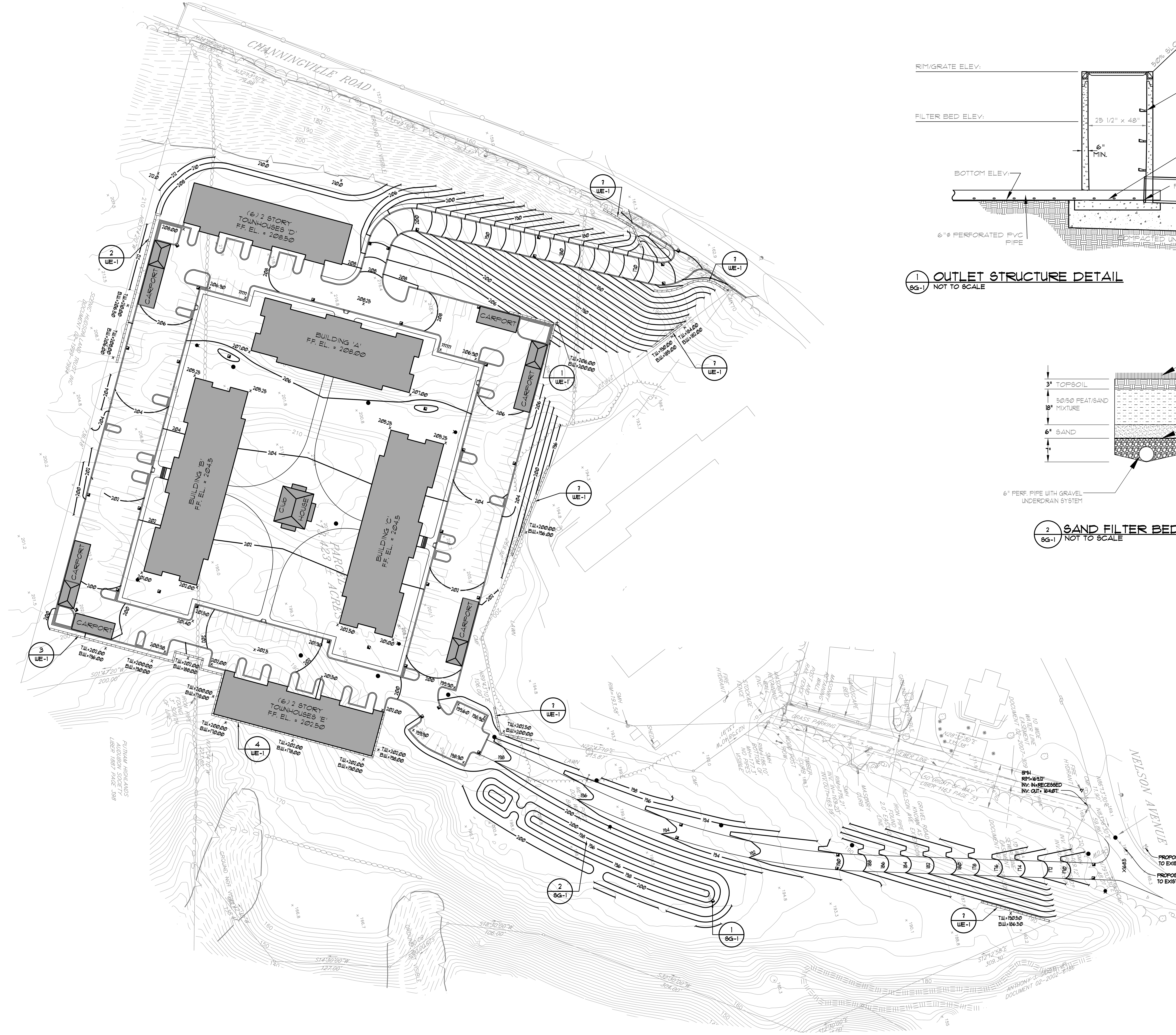
DATE	DRAWN	CHECKED
03-12-2019	SJC	CPM

SCALE: AS NOTED

SHEET TITLE
SITE LAYOUT AND MATERIALS PLAN

PROJECT NUMBER
2016-04

SL-1
DRAWING NUMBER
SHEET 4 OF 15



1 SG-1 **OUTLET STRUCTURE DETAIL**
NOT TO SCALE

2 SG-1 **SAND FILTER BED SECTION**
NOT TO SCALE

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charlespmayassoc@aol.com

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VILLAGE OF WAPPINGERS FALLS
DUTCHESS COUNTY, NEW YORK
TAX MAP ID. NO. 134601-6158-13-071325

DATE	DRAWN	CHECKED
03-12-2019	SJC	CPM

SCALE: AS NOTED

SHEET TITLE: SITE GRADING PLAN

PROJECT NUMBER: 2016-04

SG-1

DRAWING NUMBER

SHEET 5 OF 19

Drawing Name: C:\PROJECTS\BUCKINGHAM PROPERTIES\SITE PLAN DRAWING FILES\00 SHEET DRAWINGS\05_SG-1.DWG Date: 03/12/19 Time: 1:20 PM
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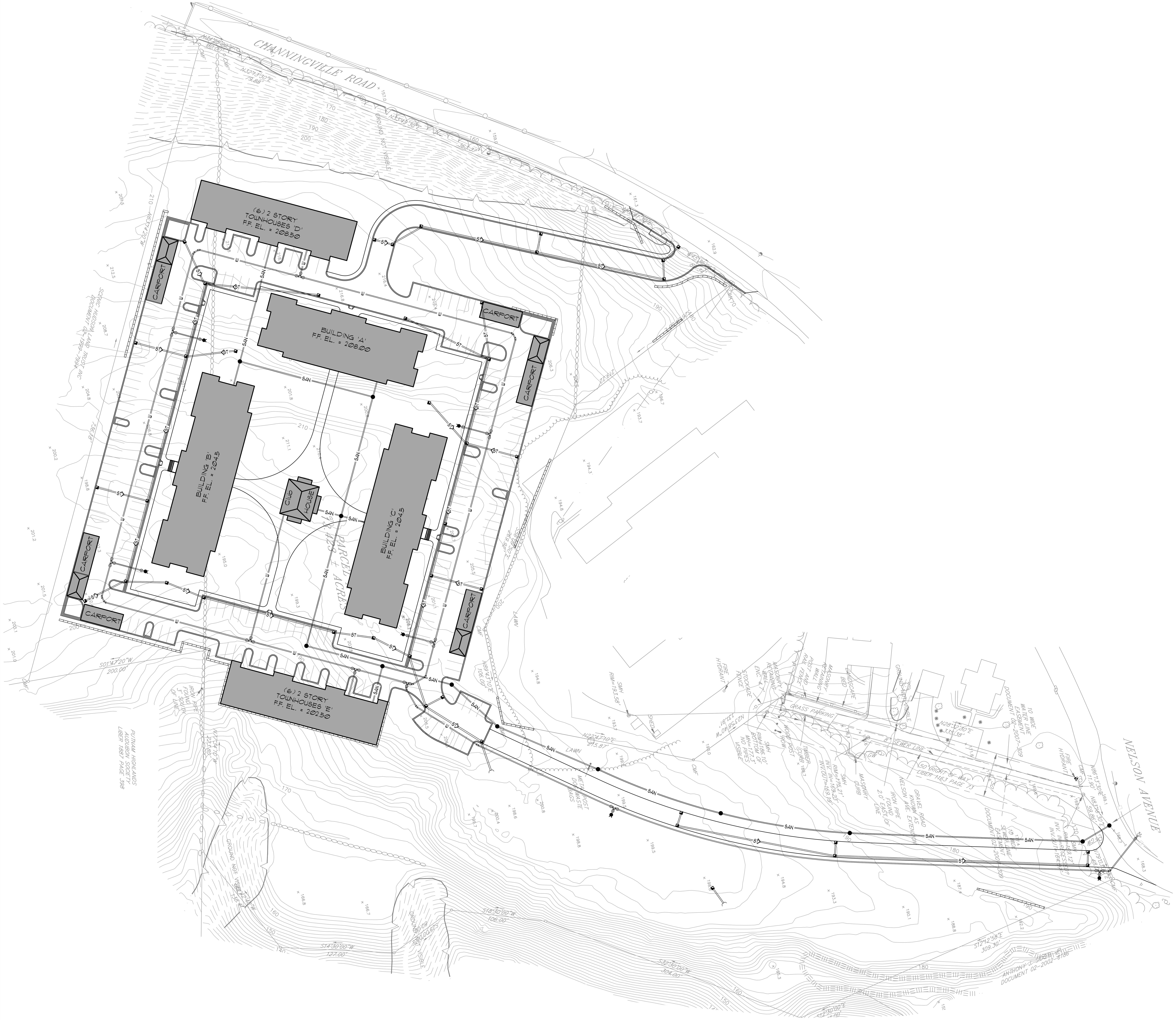

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DATE	DRAWN	CHECKED
03-12-2019	MJN	CPM

SCALE: AS NOTED

SHEET TITLE
SITE UTILITY LAYOUT PLAN

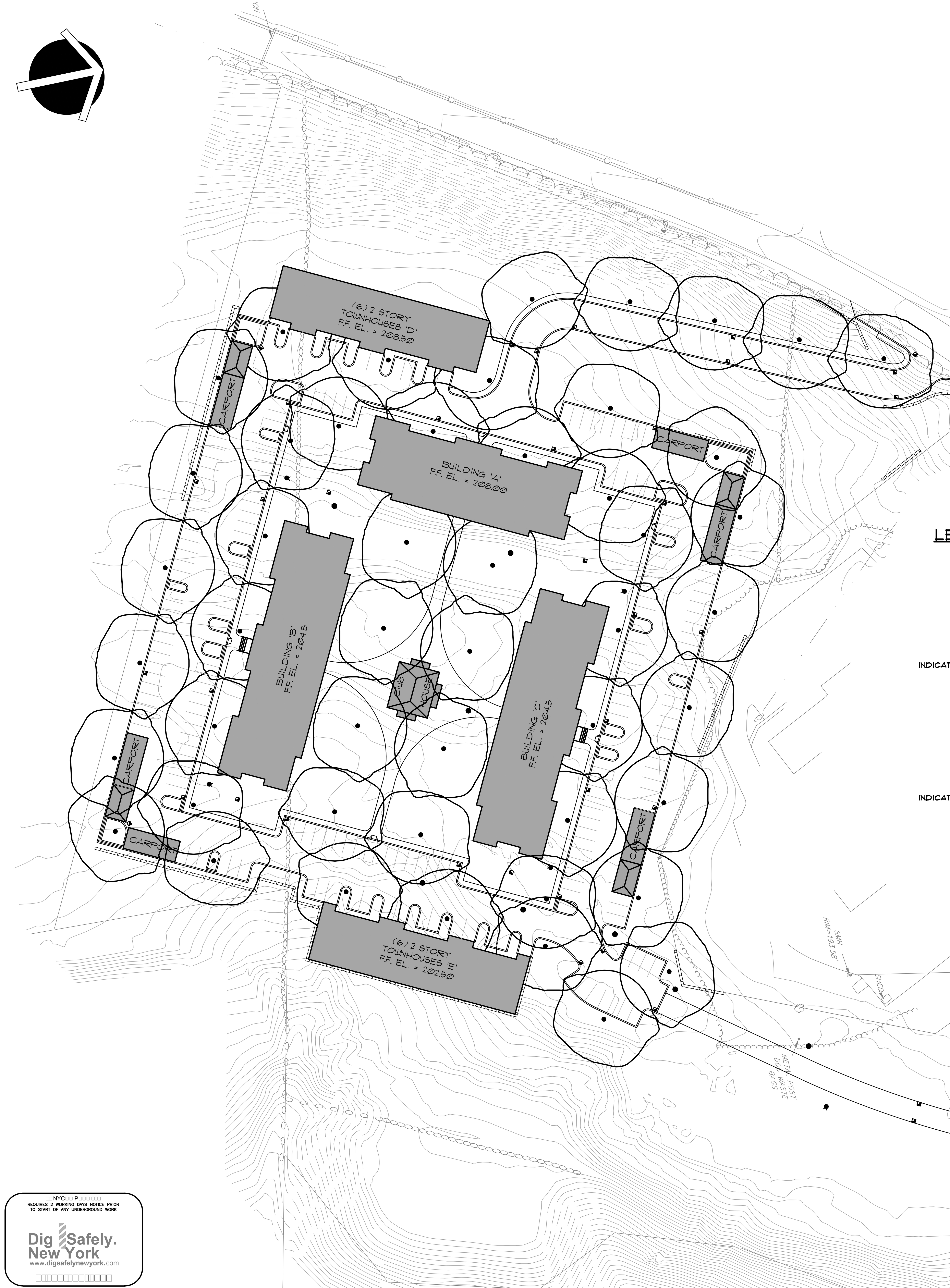
50' 0 50' 100' 150' 200'
SCALE: 1" = 50'-0"

STATE LAW PROHIBITS ANY PERSON FROM ALTERING ANYTHING ON THIS DRAWING AND/OR THE ACCOMPANYING SPECIFICATION. UNLESS IT IS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL. WHERE SUCH ALTERATIONS ARE MADE THE LICENSED PROFESSIONAL MUST SIGN, SEAL, DATE, AND DESCRIBE THE FULL EXTENT OF THE ALTERATION ON THE DRAWING AND/OR IN THE SPECIFICATION.

PROJECT NUMBER
2016-04

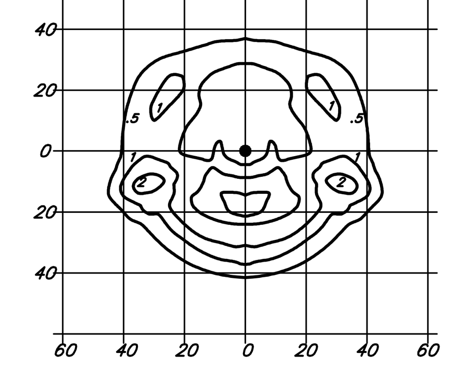
SU-1
DRAWING NUMBER

SHEET 6 OF 15



LIGHTING PLAN

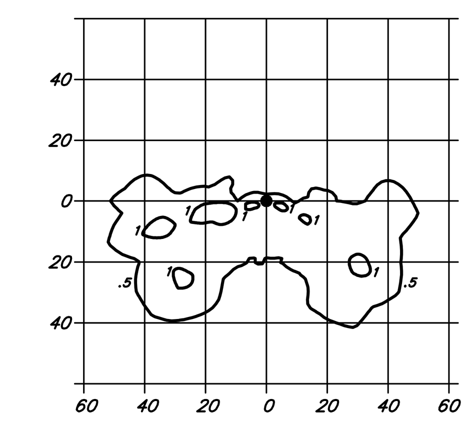
SCALE: 1" = 50'-0"



TYPICAL LUMINAIRE 150W ISOLUX PATTERN DISTRIBUTION A'

SCALE: 1" = 50'-0"

LIGHT LOSS FACTOR = 0.83
LUMENS PER LAMP = 13000
TOTAL LAMP LUMENS = 13000
MOUNTING HEIGHT = 13.50 FT
MAXIMUM CALCULATED VALUE = 3.04 Fc
ARRANGEMENT: SINGLE

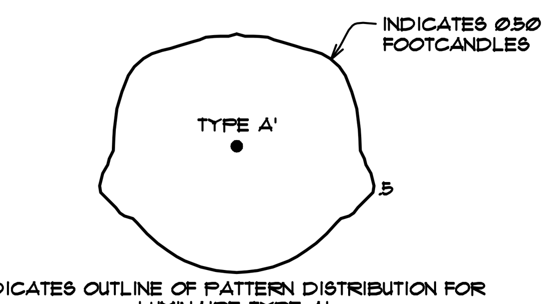


TYPICAL LUMINAIRE 150W ISOLUX PATTERN DISTRIBUTION B'

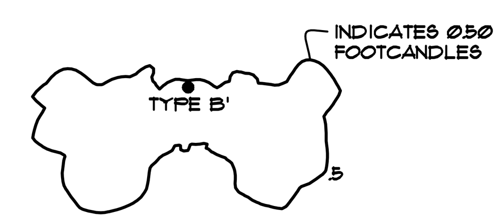
SCALE: 1" = 50'-0"

LIGHT LOSS FACTOR = 0.83
LUMENS PER LAMP = 13000
TOTAL LAMP LUMENS = 13000
MOUNTING HEIGHT = 13.50 FT
MAXIMUM CALCULATED VALUE = 1.36 Fc
ARRANGEMENT: SINGLE

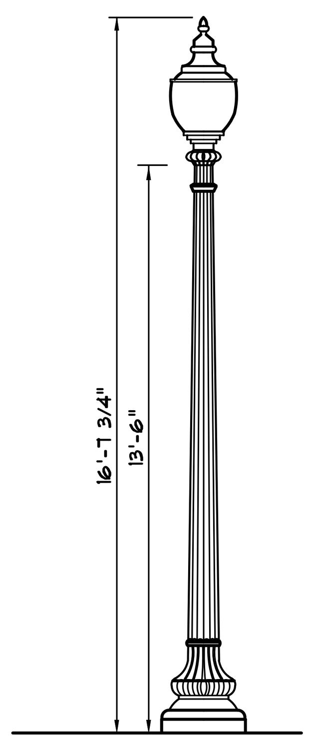
LEGEND:



INDICATES OUTLINE OF PATTERN DISTRIBUTION FOR LUMINAIRE TYPE A'



INDICATES OUTLINE OF PATTERN DISTRIBUTION FOR LUMINAIRE TYPE B'

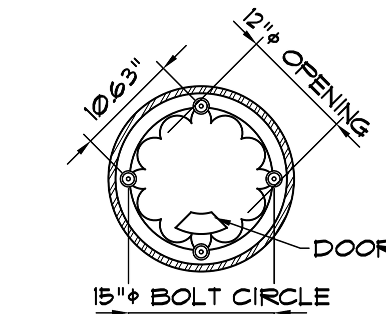


TYPICAL LUMINAIRE

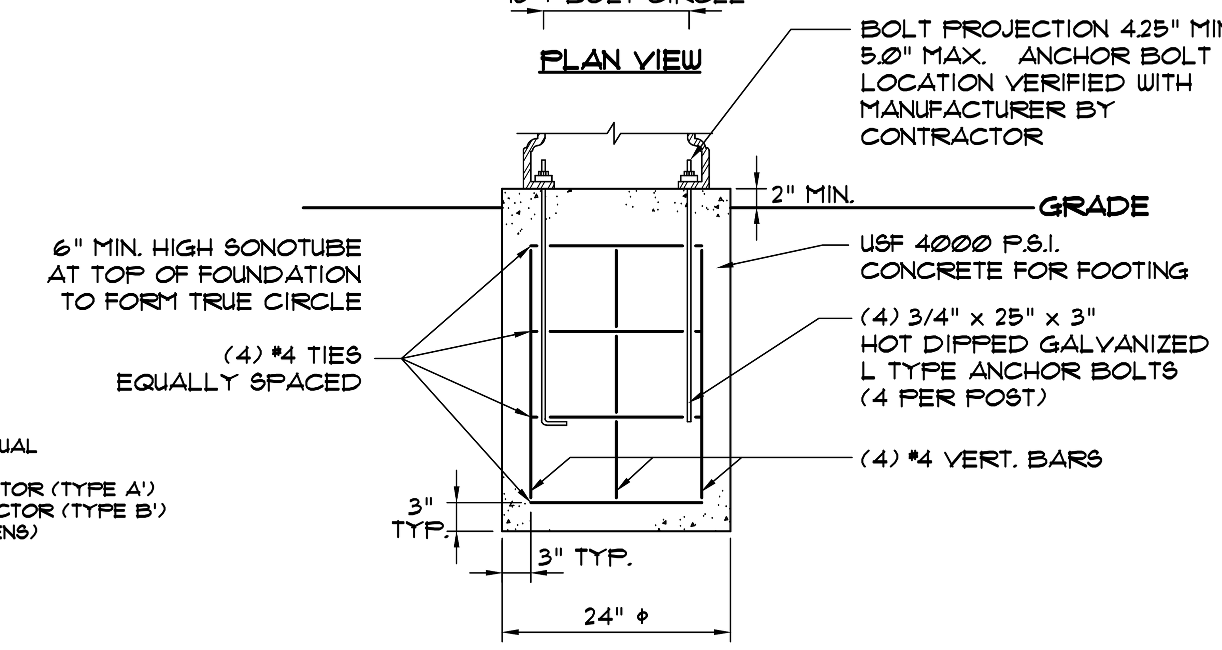
SCALE: 3/8" = 1'-0"

LUMINAIRE BY PHILIPS HADCO LIGHTING, OR EQUAL
R34 POST TOP WIDE BODY GLOBE FIXTURE
TYPE III REFRACTIVE GLOBE WITH NO REFLECTOR (TYPE A')
TYPE III REFRACTIVE GLOBE WITH HSS REFLECTOR (TYPE B')
150W CLEAR MH LAMP (APPROX. 13,000 LUMENS)
MOUNTED ON 12'-0" TALL POLE
(APPROX. 13.5 FT TO LAMP CENTER)

ORDER INFORMATION:
KATHLEEN WATEROUS, SPECIFICATION SALES
VBC LIGHTING, LLC
WEB: WWW.VERTEX-NY.COM
CELL: 845-332-0649
TELE: 518-456-7142, FAX: 518-456-7968
4 AIRLINE DRIVE, SUITE 203, ALBANY, N.Y. 12205



PLAN VIEW

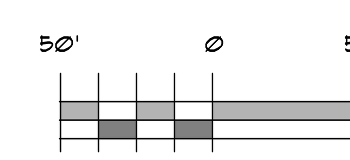


CONCRETE FOOTING

NOT TO SCALE

NOTES:

- SUITABLE BACKFILL COMPACTED IN 12" LIFTS TO OPTIMUM DENSITY AROUND ENTIRE CIRCUMFERENCE.
- DEPTH OF FOOTING TO EXTEND BELOW FROST LINE (TYP.).
- SUITABLE COMPACTED SUBGRADE WITH MINIMUM BEARING CAPACITY OF 2,000 P.S.F. SOIL CONDITION AND BEARING CAPACITY TO BE VERIFIED IN FIELD.
- REINFORCING STEEL BARS SHALL BE A MINIMUM ASTM A615 GRADE 60 AND SHALL BE FIELD WIRED IN PLACE.



SCALE: 1" = 50'-0"

REVISIONS				
NO.	DATE	BY	CHKED	DESCRIPTION

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DESIGN PROFESSIONALS
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New Windsor, New York 12553 Fishkill, New York 12524
845 - 567 - 3030 845 - 896 - 2747
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DUTCHESS COUNTY, NEW YORK
TAX MAP ID. NO. 134601-6158-13-071325

DATE	DRAWN	CHECKED
03-12-2019	SJC	CPM

SCALE: AS NOTED

SHEET TITLE
LIGHTING PLAN

PROJECT NUMBER
2016-04

LP-1
DRAWING NUMBER

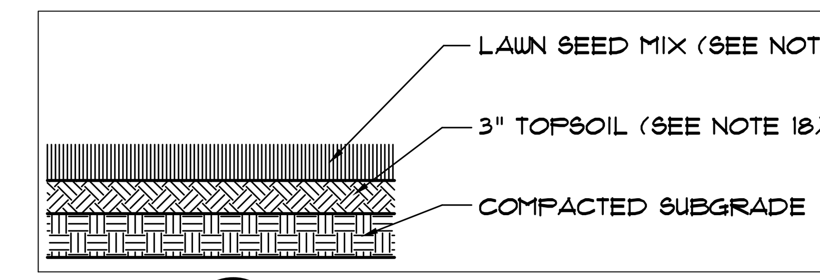
SHEET 8 OF 15

Drawing Name: C:\PROJECTS\BUCKINGHAM PROPERTIES\SITE PLAN DRAWING FILES\00 SHEET DRAWINGS\08_LP-1.DWG Date: 03/12/19 Time: 11:11 AM
Referenced Drawings: DigSafe Distribution_Box_9Hole FILL GateValve SepticTank_1000Gal SiltFence SwaleDetail Trench_Absorption Water_HouseConnection

PLANT LIST

KEY	QTY.	SCIENTIFIC NAME	COMMON NAME	SIZE	REMARKS	MAXIMUM HEIGHT
AG	13	ACER RUBRUM "OCTOBER GLORY"	OCTOBER GLORY "RED MAPLE"	3-1/2" CAL.	B&B	30' HGT.'
MS	16	MALUS SNOWDRIFT	SNOWDRIFT CRABAPPLE	2-1/2" CAL.	B&B	18' HGT.'
SG	30	SPIREA BUMALDA "GOLD FLAME"	GOLD FLAME SPIREA	2' TO 3' HGT.	B&B	3' HGT.
TB	152	TAXUS BACCATA REPANDENS	SPREADING ENGLISH YEW	2' TO 3' HGT.	B&B	3' HGT.
TE	34	THUJA OCCIDENTALIS "EMERALD"	THUJA EMERALD GREEN	4' TO 6' HGT.	B&B	14' HGT.
ZS	15	ZELKOVA SERRATA "GREEN VASE"	GREEN VASE ZELKOVA	3-1/2" CAL.	B&B	50' HGT.

SEE SHEET SD-3 FOR EVERGREEN, SHRUB AND TREE PLANTING DETAILS.



1 / PL-1 **DETAIL FOR SEEDING**
NOT TO SCALE

GENERAL NOTES:

1. THIS PLAN FOR PLANTING USE ONLY. IT IS NOT TO BE USED FOR CONSTRUCTION.
2. CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS AND NOTIFY THE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES.
3. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS GOVERNING THE WORK. CONTRACTOR SHALL COORDINATE WORK WITH APPLICABLE AGENCIES AND/OR UTILITY COMPANIES.
4. CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES ON SITE BEFORE PLANTING.
5. EXISTING TREES SHOWN ON PLAN THAT ARE TO BE RETAINED SHALL BE FLAGGED AND PROTECTED AS NECESSARY.
6. THE CONTRACTOR SHALL NOT STOCKPILE MATERIALS UNDER THE DRIP LINE OF EXISTING TREES.
7. WHERE DAMAGE AND/OR LOSS OF EXISTING TREES IS ATTRIBUTED TO STOCKPILING, EXCAVATING, OR NEGLIGENCE ON BEHALF OF THE CONTRACTOR, AS DETERMINED BY THE LANDSCAPE ARCHITECT, THE CONTRACTOR SHALL REPLACE SUCH TREES WITH TREES EQUIVALENT IN CALIPER TO EXISTING TREE.
8. THE CONTRACTOR SHALL USE EXTREME CARE IN PROTECTING ALL PAVEMENT, FENCES, WALLS, EQUIPMENT, PLANT MATERIAL, ETC., FROM DAMAGE. ANY ITEMS DAMAGED OR DESTROYED SHALL BE REPAIRED OR REPLACED AT THE DISCRETION AND SATISFACTION OF THE LANDSCAPE ARCHITECT AT THE CONTRACTOR'S EXPENSE.
9. CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE OR NEGATIVELY AFFECT ADJACENT PROPERTIES. SHOULD DESTRUCTION OCCUR, CONTRACTOR IS RESPONSIBLE FOR RESTORATION AT HIS OWN EXPENSE, AS DETERMINED BY THE LANDSCAPE ARCHITECT.
10. ALL PLANT MATERIALS ARE TO BE INSPECTED AND APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO PLANTING. SPECIMENS MAY REQUIRE SELECTION AND/OR INSPECTION FOR APPROVAL AT THE NURSERY BY THE LANDSCAPE ARCHITECT. THE LANDSCAPE ARCHITECT SHALL REJECT ANY MATERIAL WHICH DOES NOT REPRESENT SPECIES AS OUTLINED IN PLANT LIST.
11. PLANT SIZES GIVEN ARE A MINIMUM RANGE OF SIZES. AT LEAST 65% OF THE MATERIAL SHALL BE OF A SIZE WITHIN THE UPPER HALF OF THE RANGE OR LARGER.
12. ALL PLANT MATERIAL TO BE VIGOROUS, FREE OF INJURY OR DEFECTS. ALL PLANT MATERIAL TO BE TRUE REPRESENTATIVES FOR THEIR SPECIES.
13. NO SUBSTITUTION SHALL BE ACCEPTED UNLESS AUTHORIZED BY THE LANDSCAPE ARCHITECT.
14. PLANTS SHALL BEAR SAME RELATIONSHIP TO FINISHED GRADE AS IT BORE TO GRADE OF NURSERY.
15. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING QUANTITIES SHOWN ON THE PLANS AND MUST INSTALL MATERIAL IN A WORKMANSHIP MANNER.
16. ALL B&B MATERIAL IS TO HAVE BALL PLANT SIZE RELATIONSHIP AS SPECIFIED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
17. PLANTING SEASON <u>SPRING</u> - MARCH 1 TO MAY 15 - DECIDUOUS
    APRIL 1 TO JUNE 1 - EVERGREENS
    <u>FALL</u> - AUGUST 15 TO OCTOBER 15 - EVERGREENS
    SEPTEMBER 15 TO NOV. 15 - DECIDUOUS

    IF SUMMER PLANTING IS NECESSARY, SPRAY ALL SHRUBS WITH ANTI-DESICCANT SPRAY - ONCE AT NURSERY AND AGAIN AT TIME OF PLANTING.
18. TOPSOIL TO BE FURNISHED FOR THIS WORK SHALL BE A NATURAL FERTILE SOIL, CAPABLE OF SUSTAINING VIGOROUS PLANT GROWTH. IT SHALL BE OF UNIFORM COMPOSITION THROUGHOUT AND WITHOUT ADMIXTURE OF SUBSOIL, AND SHALL BE FREE OF STONES, LUMPS, PLANTS OR THEIR ROOTS, STICKS AND OTHER EXTRANEOUS MATTER. TOPSOIL SHALL HAVE ACIDITY RANGE OF 5.0 TO pH 7.0 AND SHALL CONTAIN NOT LESS THAN 5% ORGANIC MATTER AS DETERMINED BY LOSS OF IGNITION OF MOISTURE-FREE SAMPLES DRIED AT 100°C. THE TOPSOIL SHALL BE SCREENED.

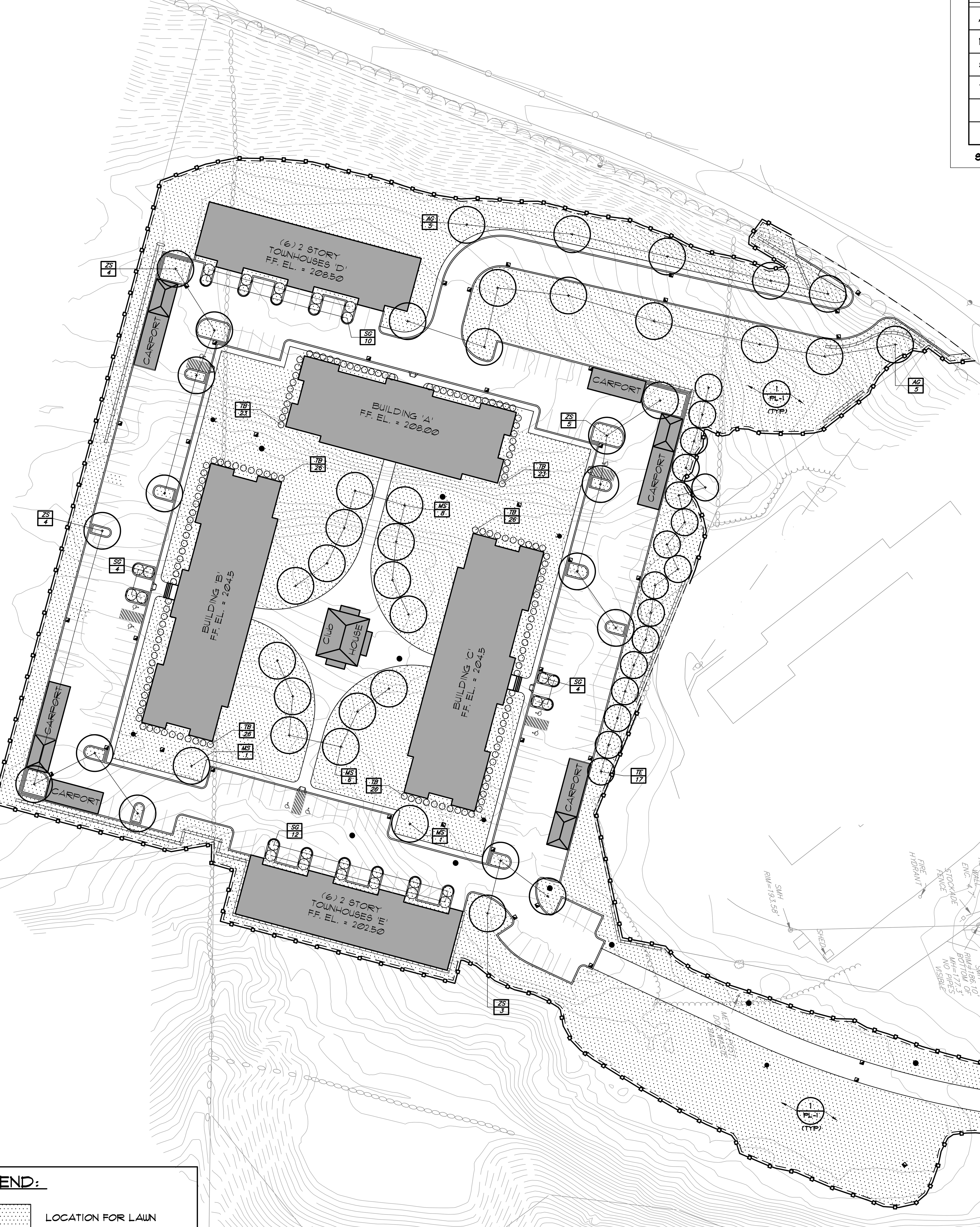
    CONTRACTOR SHALL SUBMIT A CHEMICAL AND MECHANICAL ANALYSIS FOR APPROVAL BY THE LANDSCAPE ARCHITECT.

    IF REQUIRED, TOPSOIL SHALL BE AMENDED TO MEET ABOVE STATED REQUIREMENTS.
19. COMMERCIAL FERTILIZER, 10-6-4, SHALL BE APPLIED AT THE RATE OF 25 LBS. PER 1000 S.F. AND WORKED LIGHTLY INTO THE TOP 3" OF TOPSOIL FOR LAWN AREAS WHICH ARE DISTURBED.
20. MANURE SHALL BE WELL ROTTED HORSE OR COW MANURE AND SHALL BE INCORPORATED INTO THE TOPSOIL FOR SHRUB AND TREE PLANTINGS AT THE RATE OF 2 CY MANURE TO 7 CY TOPSOIL.
21. CONTRACTOR SHALL PRUNE ALL EXISTING PLANT MATERIAL INDICATED TO REMAIN. PAINT ALL MAJOR CUTS 1/2" DIAMETER AND GREATER.
22. ALL PLANTS AND ENTIRE SHRUB BEDS TO RECEIVE 2" LAYER OF COMMERCIAL HORTICULTURAL PEAT MOSS AND A TOP DRESS OF 1-1/2" OF SPHAGNUM CHUNKS. A MULCH AND PEAT MOSS SAMPLE MUST BE SUBMITTED FOR APPROVAL BY THE LANDSCAPE ARCHITECT.
23. ALL DISTURBED AREAS TO BE SEEDED ARE TO RECEIVE 3" MINIMUM LAYER OF TOPSOIL. SEE PLANTING DETAILS FOR TOPSOIL REQUIREMENT FOR TREES AND SHRUBS.
24. SEED MIX SHALL BE AS FOLLOWS:

<u>LAWN MIX:</u>	PROPORTION <u>BY WEIGHT</u>	MINIMUM <u>GERMINATION</u>	MINIMUM <u>PURITY</u>
TOUCHDOWN KENTUCKY BLUE	20%	80%	98%
REBEL II FESCUE	60%	85%	98%
PERENNIAL RYEGRASS	20%	85%	98%

SEEDING RATE SHALL BE 5 LB. PER 1000 S.F.

25. ALL DISTURBED AREAS NOT SHOWN AS PLANTED OR SEEDED ARE TO BE TOPSOILED AND SEEDED OR RETURNED TO THEIR ORIGINAL STATE BEFORE DISTURBANCES AS DIRECTED BY THE LANDSCAPE ARCHITECT.
26. ALL AREAS NOT RELATED TO DEVELOPMENT ARE TO REMAIN IN THEIR NATURAL STATE AND PROTECTED.
27. NO SHEARED EVERGREEN MATERIAL WILL BE ACCEPTED. ALL EVERGREENS MUST BE OF A NATURAL CHARACTER.
28. <u>GUARANTEE</u>: ALL PLANTS SHALL BE GUARANTEED TO REMAIN ALIVE AND HEALTHY FOR THE FULL TWELVE (12) MONTH PERIOD. REPLACEMENTS SHALL BE GUARANTEED AN ADDITIONAL TWELVE (12) MONTHS.
29. <u>INSPECTION FOR BEGINNING THE GUARANTEE PERIOD</u>: INSPECTION OF THE PLANTING WORK, TO DETERMINE ITS COMPLETION FOR BEGINNING THE GUARANTEE PERIOD, WILL BE MADE BY THE LANDSCAPE ARCHITECT UPON NOTICE REQUESTING SUCH INSPECTION BY THE CONTRACTOR AT LEAST SEVEN (7) DAYS PRIOR TO THE ANTICIPATED DATE. ALL PLANTING MUST BE ALIVE AND HEALTHY IN ORDER TO BE CONSIDERED COMPLETE.
30. <u>FINAL INSPECTION AND REPLACEMENTS</u>: INSPECTION OF THE PLANTING TO DETERMINE ITS FINAL ACCEPTANCE WILL BE MADE AT THE CONCLUSION OF THE GUARANTEE PERIOD BY THE LANDSCAPE ARCHITECT. NO PLANTS WILL BE ACCEPTED UNLESS THEY ARE ALIVE AND HEALTHY. THE CONTRACTOR SHALL REPLACE ANY PLANTS WHICH ARE DEAD OR, IN THE OPINION OF THE LANDSCAPE ARCHITECT, ARE IN AN UNHEALTHY OR UNSIGHTLY CONDITION, AND/OR HAVE LOST THEIR NATURAL SHAPE DUE TO DEAD BRANCHES. THE COST OF SUCH REPLACEMENT(S) SHALL BE BORNE BY THE CONTRACTOR AND SHALL BE INCLUDED IN THE BID PRICE FOR THIS SECTION OF THE WORK.



LEGEND:

LOCATION FOR LAWN

INDICATES KEY

INDICATES QUANTITIES

NOTE: QUANTITIES IN PLANT LIST PREVAIL OVER QUANTITIES ON PLAN

PROPERTY LINE

PLANTING PLAN

SCALE: 1" = 50'-0"

50' 0 50' 100' 150' 200'

SCALE: 1" = 50'-0"

Dig Safely. New York
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NO.	DATE	BY	CHKED	DESCRIPTION

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BUCKINGHAM PROPERTY MANAGMENT
CHANNINGVILLE RD & NELSON AVE
VILLAGE OF WAPPINGERS FALLS
DUTCHESS COUNTY, NEW YORK
TAX MAP ID. NO. 134601-6158-13-071325

DATE	DRAWN	CHECKED
03-12-2019	SJC	CPM

SCALE: AS NOTED

SHEET TITLE
PLANTING PLAN

PROJECT NUMBER 2016-04

PL-1
DRAWING NUMBER

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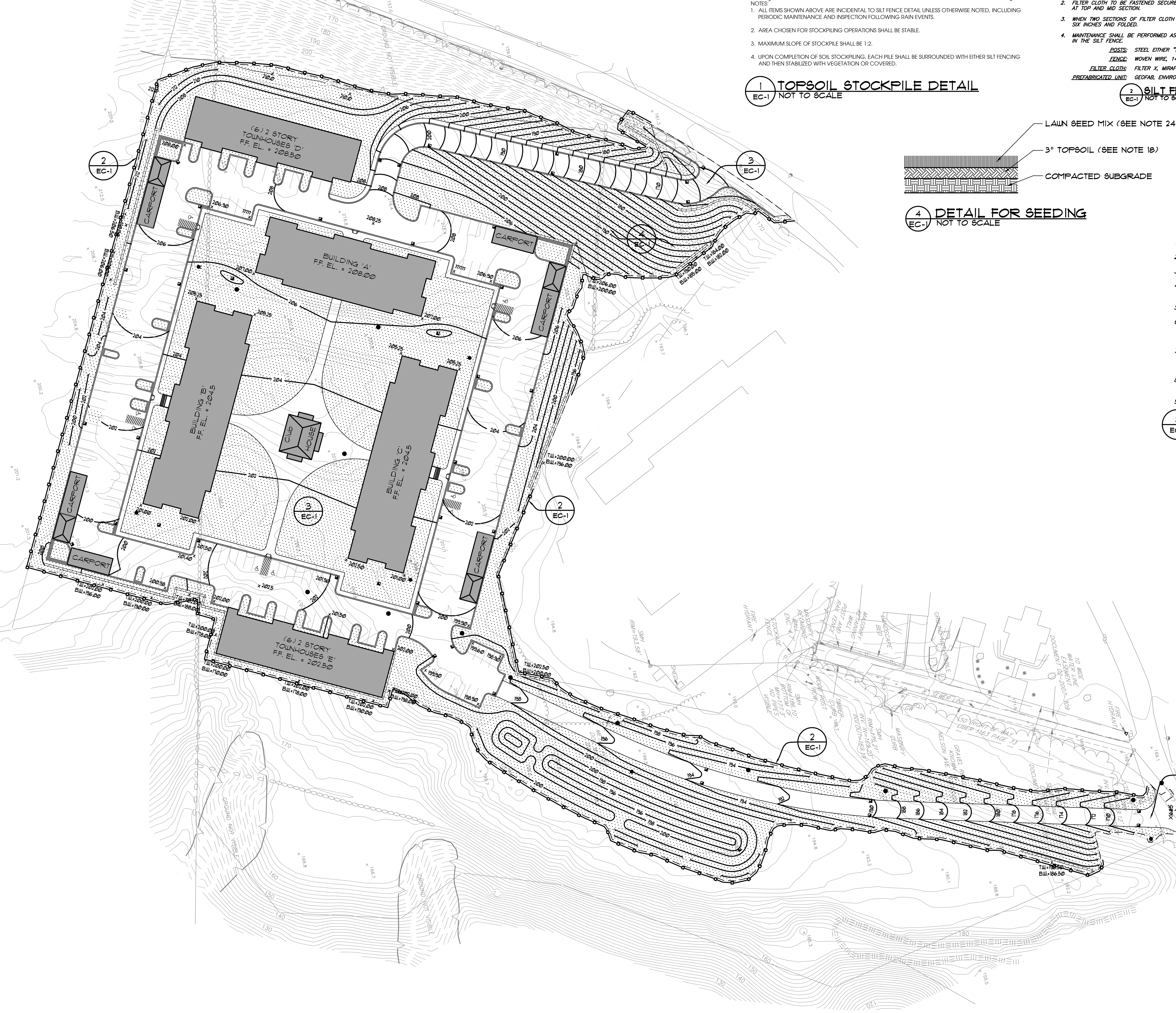
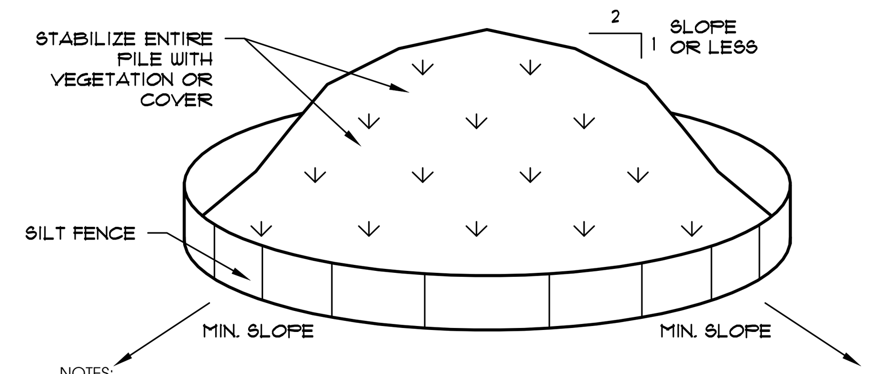
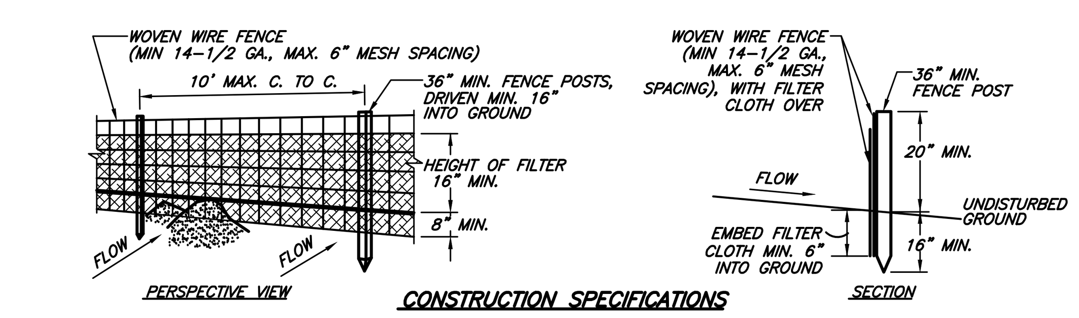




NOTES:

1. ALL ITEMS SHOWN ABOVE ARE INCIDENTAL TO SILT FENCE DETAIL UNLESS OTHERWISE NOTED, INCLUDING PERIODIC MAINTENANCE AND INSPECTION FOLLOWING RAIN EVENTS.
2. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE STABLE.
3. MAXIMUM SLOPE OF STOCKPILE SHALL BE 1:2.
4. UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE SURROUNDED WITH EITHER SILT FENCING AND THEN STABILIZED WITH VEGETATION OR COVERED.

1/EC-1 TOPSOIL STOCKPILE DETAIL
NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

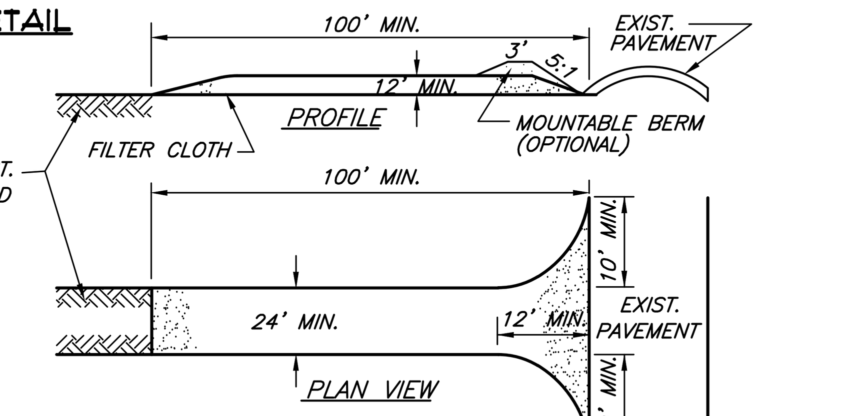
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

POSTS: STEEL EITHER "T" OR "U" TYPE OR 2" HARDWOOD
FENCE: WOVEN WIRE, 14-1/2 GA., 6" MAX. MESH OPENINGS
FILTER CLOTH: FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUAL
PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL

2/EC-1 SILT FENCE DETAIL
NOT TO SCALE

LAWN SEED MIX (SEE NOTE 24)
3" TOPSOIL (SEE NOTE 18)
COMPACTED SUBGRADE

4/EC-1 DETAIL FOR SEEDING
NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – NOT LESS THAN 100 FEET.
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – TWENTY-FIVE (25) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARDS CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

3/EC-1 STABILIZED CONSTRUCTION ENTRANCE DETAIL
NOT TO SCALE

GENERAL NOTES:

1. ALL DISTURBED AREAS TO BE SEEDED ARE TO RECEIVE 3" MINIMUM LAYER OF TOPSOIL. SEE PLANTING DETAILS FOR TOPSOIL REQUIREMENT FOR TREES AND SHRUBS.
2. SEED MIX SHALL BE AS FOLLOWS:

		BY WEIGHT	MINIMUM GERMINATION	MINIMUM PURITY
LAWN MIX:	PROPORTION	20%	80%	98%
		60%	85%	98%
		20%	85%	98%

TOUCHDOWN KENTUCKY BLUE
REBEL II FESCUE
PERENNIAL RYEGRASS

SEEDING RATE SHALL BE 5 LB. PER 1000 S.F.

3. ALL DISTURBED AREAS NOT SHOWN AS PLANTED OR SEEDED ARE TO BE TOPSOILED AND SEEDED OR RETURNED TO THEIR ORIGINAL STATE BEFORE DISTURBANCES AS DIRECTED BY THE LANDSCAPE ARCHITECT.
4. ALL AREAS NOT RELATED TO DEVELOPMENT ARE TO REMAIN IN THEIR NATURAL STATE AND PROTECTED.
5. THERE WILL BE NO SLOPES GRATER THAN 33%

50' 0 50' 100' 150' 200'

SCALE: 1" = 50'-0"

REVISIONS

NO.	DATE	BY	CHKED	DESCRIPTION

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VILLAGE OF WAPPINGERS FALLS
DUTCHESS COUNTY, NEW YORK
TAX MAP ID. NO. 134601-6158-13-071325

DATE	DRAWN	CHECKED
03-12-2019	SJC	CPM

SCALE: AS NOTED

SHEET TITLE: ERISION CONTROL PLAN

PROJECT NUMBER: 2016-4

DRAWING NUMBER: EC-1

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Referenced Drawings: DigSafe Distribution_Box_9Hole FILL GateValve SepticTank_1000Gal SiltFence SwaleDetail Trench_Absorption Water_HouseConnection

SOIL EROSION & SEDIMENT CONTROL NOTES:

1. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES TO BE INSTALLED PRIOR TO ANY MAJOR SOIL DISTURBANCE, OR IN THEIR PROPER SEQUENCE, AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.

2. ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN 30 DAYS, AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL IMMEDIATELY RECEIVE A TEMPORARY SEEDING. IF THE SEASON PREVENTS THE ESTABLISHMENT OF A TEMPORARY COVER, THE DISTURBED AREAS WILL BE MULCHED WITH STRAW, OR EQUIVALENT MATERIAL, AT A RATE OF 2 TONS PER ACRE, ACCORDING TO STATE STANDARDS.

3. IN AREAS WHERE SOIL DISTURBANCE ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED, THE APPLICATION OF SOIL STABILIZATION MEASURES MUST BE INITIATED BY THE END OF THE NEXT BUSINESS DAY AND COMPLETED WITHIN FOURTEEN (14) DAYS FROM THE DATE THE CURRENT SOIL DISTURBANCE ACTIVITY CEASED. FOR CONSTRUCTION SITES THAT DIRECTLY DISCHARGE TO ONE OF THE 303(d) SEGMENTS LISTED IN APPENDIX E OR IS LOCATED IN ONE OF THE WATERSHEDS LISTED IN APPENDIX C, THE APPLICATION OF SOIL STABILIZATION MEASURES MUST BE INITIATED BY THE END OF THE NEXT BUSINESS DAY AND COMPLETED WITHIN SEVEN (7) DAYS FROM THE DATE THE CURRENT SOIL DISTURBANCE ACTIVELY CEASED. SEE APPENDIX A FOR DEFINITION OF TEMPORARILY CEASED.

4. ALL WORK IS TO BE DONE IN ACCORDANCE WITH THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW YORK.

5. A SUB-BASE COURSE WILL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING AND INSTALLATION OF IMPROVEMENTS IN ORDER TO STABILIZE STREETS, ROADS, DRIVEWAYS AND PARKING AREAS. IN AREAS WHERE NO UTILITIES ARE PRESENT, THE SUB-BASE SHALL BE INSTALLED WITHIN 15 DAYS OF THE PRELIMINARY GRADING.

6. IMMEDIATELY FOLLOWING INITIAL DISTURBANCE OR ROUGH GRADING, ALL CRITICAL AREAS SUBJECT TO EROSION WILL RECEIVE A TEMPORARY SEEDING IN COMBINATION WITH STRAW MULCH OR A SUITABLE EQUIVALENT, AT A RATE OF 2 TONS PER ACRE, ACCORDING TO STATE STANDARDS.

7. ANY STEEP SLOPES RECEIVING PIPELINE INSTALLATION WILL BE BACK FILLED AND STABILIZED DAILY, AS THE INSTALLATION PROCEEDS (SLOPES GREATER THAN 3:1).

8. IN ACCORDANCE WITH THE STANDARD FOR PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION, ANY SOIL HAVING A Ph OF 4 OR LESS OR CONTAINING IRON SULFIDES SHALL BE COVERED WITH A MINIMUM OF 12 INCHES OF SOIL HAVING A Ph OF 5 OR MORE, AND NO IRON SULFIDE PRIOR TO SEEDBED PREPARATION.

9. AT THE TIME WHEN THE SITE PREPARATION FOR PERMANENT VEGETATIVE STABILIZATION IS GOING TO BE ACCOMPLISHED, ANY SOIL THAT WILL NOT PROVIDE A SUITABLE ENVIRONMENT TO SUPPORT ADEQUATE VEGETATIVE GROUND COVER, SHALL BE REMOVED OR TREATED IN A WAY THAT WILL PERMANENTLY ADJUST THE CONDITIONS AND RENDER IT SUITABLE FOR VEGETATIVE GROUND COVER. IF THE REMOVAL OR TREATMENT OF THE SOIL WILL NOT PROVIDE SUITABLE CONDITIONS, NON-VEGETATIVE MEANS OF PERMANENT GROUND STABILIZATION WILL HAVE TO BE EMPLOYED.

10. CONDUIT OUTLET PROTECTION MUST BE INSTALLED AT ALL REQUIRED OUTFALLS PRIOR TO THE DRAINAGE SYSTEM BECOMING OPERATIONAL.

*PLEASE NOTE THAT SOME OF THE ABOVE REQUIREMENTS MAY NOT APPLY. THE DESIGN ENGINEER HAS THE ABILITY TO MODIFY NOTES AS APPLICABLE.

- IF COMPOST AMENDMENT IS REQUIRED, 2 TO 4 INCHES OF SCREENED COMPOST WILL BE INCORPORATED INTO THE SOIL.
- PRIOR TO APPLICATION OF THE DEEP-RIPPING AND DE-COMPACTION, THE DEPTH TO BEDROCK OR NATURALLY OCCURRING HARDPAN SHOULD BE KNOWN SO THAT THE DEPTH OF TILLAGE BE ADJUSTED ACCORDING TO THOSE RESTRICTIVE DEPTHS.
- SOILS WITH A SLOPE THAT EXCEEDS 10 PERCENT WILL NOT HAVE FULL SOIL RESTORATION WITH DEEP-RIPPING AND DE-COMPACTION DUE TO POTENTIAL FOR EROSION FROM TILLED SOIL.
- ANY SOIL TILLAGE (DEEP OR SHALLOW) WILL NOT BE DONE ON SOILS THAT ARE EXCESSIVELY WET, AS THIS WILL DAMAGE THE SOIL.
- ANY TILLAGE WILL NOT BE DONE WITHIN APPROXIMATELY 10 FEET OF THE DRIP LINE OF ANY EXISTING ESTABLISHED TREES.
- ANY LARGE STONES THAT ARE UNEARTHED DURING TILLAGE SHOULD BE REMOVED FROM THE SURFACE PRIOR TO FINAL SURFACE PREPARATION AND VEGETATION ESTABLISHMENT.
- ONCE SOIL RESTORATION IS DONE IN AN AREA, CONSTRUCTION FENCING SHOULD BE INSTALLED TO PREVENT TRAFFIC FROM DRIVING ON THE RESTORED AREAS.

GENERAL REQUIREMENTS FOR OWNERS OR OPERATORS WITH PERMIT COVERAGE

1. THE OWNER OR OPERATOR SHALL MAINTAIN A COPY OF THE GENERAL PERMIT (GP-0-15-002), NOI, NOI ACKNOWLEDGMENT LETTER, SWPPP, MS4 SWPPP ACCEPTANCE FORM, INSPECTION REPORTS, AND ALL DOCUMENTATION NECESSARY TO DEMONSTRATE ELIGIBILITY WITH THIS PERMIT AT THE CONSTRUCTION SITE UNTIL ALL DISTURBED AREAS HAVE ARCHIVED FINAL STABILIZATION AND THE NOT HAS BEEN SUBMITTED TO THE DEPARTMENT. THE DOCUMENTS MUST BE MAINTAINED IN A SECURE LOCATION, SUCH AS JOB TRAILER, ON-SITE CONSTRUCTION OFFICE, OR MAILBOX WITH LOCK. THE SECURE LOCATION MUST BE ACCESSIBLE DURING NORMAL BUSINESS HOURS TO AN INDIVIDUAL PERFORMING A COMPLIANCE INSPECTION.

2. FOR CONSTRUCTION ACTIVITIES THAT ARE SUBJECT TO THE REQUIREMENTS OF A REGULATED, TRADITIONAL LAND USE CONTROL MS4, THE OWNER OR OPERATOR SHALL NOTIFY THE REGULATED, TRADITIONAL LAND USE CONTROL MS4 IN WRITING OF ANY PLANNED AMENDMENTS OR MODIFICATIONS TO THE POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICE COMPONENT OF THE SWPPP REQUIRED BY PART III.A 4 AND 5 OF THIS PERMIT. UNLESS OTHERWISE NOTIFIED BY THE REGULATED, TRADITIONAL LAND USE CONTROL MS4, THE OWNER OR OPERATOR SHALL HAVE THE SWPPP AMENDMENTS OR MODIFICATIONS REVIEWED AND ACCEPTED BY THE REGULATED, TRADITIONAL LAND USE CONTROL MS4 PRIOR TO COMMENCING CONSTRUCTION OF THE PORT-CONSTRUCTION STORMWATER MANAGEMENT PRACTICE.

3. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITY, THE OWNER OR OPERATOR MUST IDENTIFY THE CONTRACTOR(S) AND SUBCONTRACTOR(S) THAT WILL BE RESPONSIBLE FOR INSTALLING, CONSTRUCTING, REPAIRING, REPLACING, INSPECTING AND MAINTAINING THE EROSION AND SEDIMENT CONTROL PRACTICES INCLUDED IN THE SWPPP; AND THE CONTRACTOR(S) AND SUBCONTRACTOR(S) THAT WILL BE RESPONSIBLE FOR CONSTRUCTING THE POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES INCLUDED IN THE SWPPP. THE OWNER OR OPERATOR SHALL HAVE EACH OF THE CONTRACTORS AND SUBCONTRACTORS IDENTIFY AT LEAST ONE PERSON FROM THEIR COMPANY THAT WILL BE RESPONSIBLE FOR THE IMPLEMENTATION OF THE SWPPP. THIS PERSON SHALL BE KNOWN AS THE TRAINED CONTRACTOR. THE OWNER OR OPERATOR SHALL ENSURE THAT AT LEAST ONE TRAINED CONTRACTOR IS ON SITE ON A DAILY BASIS WHEN SOIL DISTURBANCE ACTIVITIES ARE BEING PREFORMED.

   THE OWNER OR OPERATOR SHALL HAVE EACH OF THE CONTRACTORS AND SUBCONTRACTORS IDENTIFIED ABOVE SIGN A COPY OF THE FOLLOWING CERTIFICATION STATEMENT BELOW BEFORE THEY COMMENCE ANY CONSTRUCTION ACTIVITY:

   "I HEREBY CERTIFY UNDER PENALTY OF LAW THAT I UNDERSTAND AND AGREE TO COMPLY WITH THE TERMS AND CONDITIONS OF THE SWPPP AND AGREE TO IMPLEMENT AND CORRECTIVE ACTIONS IDENTIFIED BY THE QUALIFIED INSPECTOR DURING A SITE INSPECTION. I ALSO UNDERSTAND THAT THE OWNER OR OPERATOR MUST COMPLY WITH THE TERMS AND CONDITIONS OF THE MOST CURRENT VERSION OF THE NEW YORK STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM ("SPDES") GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES AND THAT IT IS UNLAWFUL FOR ANY PERSON TO CAUSE OR CONTRIBUTE TO A VIOLATION OF WATER QUALITY STANDARDS. FURTHERMORE, I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, THAT I DO NOT BELIEVE TO BE TRUE, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS"

   IN ADDITION TO PROVIDING THE CERTIFICATION STATEMENT ABOVE, THE CERTIFICATION PAGE MUST ALSO IDENTIFY THE SPECIFIC ELEMENTS OF THE SWPPP THAT EACH CONTRACTOR AND SUBCONTRACTOR WILL BE RESPONSIBLE FOR AND INCLUDE THE NAME AND TITLE OF THE PERSON PROVIDING THE SIGNATURE; NAME AND TITLE IF THE TRAINED CONTRACTOR RESPONSIBLE FOR SWPPP IMPLEMENTATION; THE NAME, ADDRESS, AND TELEPHONE NUMBER OF THE CONTRACTING FIRM; THE ADDRESS (OR OTHER IDENTIFYING DESCRIPTION) OF THE SITE; AND THE DATE THE CERTIFICATION STATEMENT IS SIGNED. THE OWNER OR OPERATOR SHALL ATTACHED THE CERTIFICATION STATEMENT(S) TO THE COPY OF SWPPP THAT IS MAINTAINED AT THE CONSTRUCTION SITE. IF NEW OR ADDITIONAL CONTRACTORS ARE HIRED TO IMPLEMENT MEASURES IDENTIFIED IN THE SWPPP AFTER CONSTRUCTION HAS COMMENCED, THEY MUST ALSO SIGN THE CERTIFICATION STATEMENT AND PROVIDE THE INFORMATION LISTED ABOVE.

   PER §66-6.K(1): WITH IN 10 DAYS AFTER INSTALLATION OF ALL EROSION CONTROL PLAN MEASURES, THE APPLICANT SHALL SUBMIT TO THE BUILDING INSPECTOR A LETTER FROM A QUALIFIED PROFESSIONAL WHO DESIGNED THE PLAN FOR THE APPLICANT/LAND OWNER STATING THAT ALL EROSION CONTROL MEASURES HAVE BEEN CONSTRUCTED AND INSTALLED IN COMPLIANCE WITH THE APPROVED PLAN(S).

SOIL RESTORATION:

EXCESSIVELY COMPACTED AREAS AND AREAS OF CUT AND FILL ON THE PROJECT SITE WILL HAVE SOIL RESTORATION APPLIED AS NEED AND AS SPECIFIED BELOW:

TYPE OF DISTURBANCE	SOIL RESTORATION REQUIRED	EXAMPLE
1. MINIMAL DISTURBANCE	RESTORATION NOT PERMITTED	PRESERVATION OF NATURAL FEATURES
2. AREAS WHERE TOPSOIL IS STRIPPED ONLY – NO CHANGE IN GRADE	RESTORATION NOT REQUIRED	CLEARING AND GRUBBING
3. AREA OF CUT AND FILL	HSG A&B, APPLY 6 IN. OF TOPSOIL	HSG C&D AERATE AND APPLY 6 IN. OF SOIL
4. HEAVY TRAFFIC AREAS ONSITE (ESPECIALLY IN A ZONE 5-25 FEET AROUND BUILDINGS, BUT NOT WITHIN A 5 FOOT PERIMETER AROUND FOUNDATION WALLS)	HSG A&B, AERATE AND APPLY 6 IN. OF TOPSOIL	HSG C&G, APPLY FULL SOIL RESTORATION
5. AREAS WHERE RUN-OFF REDUCTION AND/OR INFILTRATION PRACTICES ARE APPLIED	RESTORATION NOT REQUIRED BUT MAY BE APPLIED TO ENHANCE THE REDUCTION SPECIFIED FOR APPROPRIATE PRACTICES	KEEP CONSTRUCTION EQUIPMENT FROM CROSSING THESE AREAS TO PROTECT NEWLY INSTALLED PRACTICE FROM ANY ONGOING CONSTRUCTION ACTIVITIES, CONSTRUCT A SINGLE PHASE OPERATION

- IF COMPOST AMENDMENT IS REQUIRED, 2 TO 4 INCHES OF SCREENED COMPOST WILL BE INCORPORATED INTO THE SOIL.
- PRIOR TO APPLICATION OF THE DEEP-RIPPING AND DE-COMPACTION, THE DEPTH TO BEDROCK OR NATURALLY OCCURRING HARDPAN SHOULD BE KNOWN SO THAT THE DEPTH OF TILLAGE BE ADJUSTED ACCORDING TO THOSE RESTRICTIVE DEPTHS.
- SOILS WITH A SLOPE THAT EXCEEDS 10 PERCENT WILL NOT HAVE FULL SOIL RESTORATION WITH DEEP-RIPPING AND DE-COMPACTION DUE TO POTENTIAL FOR EROSION FROM TILLED SOIL.
- AY SOIL TILLAGE (DEEP OR SHALLOW) WILL NOT BE DONE ON SOILS THAT ARE EXCESSIVELY WET, AS THIS WILL DAMAGE THE SOIL.
- ANY TILLAGE WILL NOT BE DONE WITHIN APPROXIMATELY 10 FEET OF THE DRIP LINE OF ANY EXISTING ESTABLISHED TREES.
- ANY LARGE STONES THAT ARE UNEARTHED DURING TILLAGE SHOULD BE REMOVED FROM THE SURFACE PRIOR TO FINAL SURFACE PREPARATION AND VEGETATION ESTABLISHMENT.
- ONCE SOIL RESTORATION IS DONE IN AN AREA, CONSTRUCTION FENCING SHOULD BE INSTALLED TO PREVENT TRAFFIC FROM DRIVING ON THE RESTORED AREAS.

CONSTRUCTION ACTIVITY AND SEQUENCE SCHEDULING

	ACTIVITIES	START DATE	END DATE	MAINTENANCE ACTION
A.	PRE-CONSTRUCTION ACTIONS			
1.	Obtain plan approval and applicable permits	12/06/18	02/06/19	None Required
2.	Conduct pre-construction meeting one week prior to starting to work.	12/10/18	02/17/19	None Required
3.	Flag the limits of disturbance for existing resource protection.	12/12/18	02/17/19	Review Periodically
4.	Install perimeter silt fences	12/17/18	02/17/19	Check every 7 days or after storm events of 0.5 inches.
5.	Install temporary gravel exit/ entrance.	12/18/18	02/18/19	Review Periodically.
B.	SITE GRADING ACTIVITIES			
1.	Begin site clearing and grubbing operations.	12/20/18	02/25/19	None Required
2.	Begin overall site grading and topsoil stripping.	12/25/18	02/27/19	None Required
3.	Establish topsoil stockpiles	12/27/18	02/29/19	Review Periodically
4.	Install silt fence around the stockpiles and temporarily stabilize the stockpiles with erosion control.	12/30/18	02/31/19	Check every 7 days or after storm events of 0.5 inches.
5.	Disturbed areas where construction areas where construction will cease for more than 14 days will be stabilized with erosion control.	01/04/19	03/10/19	Review Periodically
6.	Dust control is not expected to be a concern due to the limited area of disturbance and the short time of exposure.	01/05/19	03/05/19	Review periodically to determine if sprinkling is necessary.
C.	INFRASTRUCTURE			
1.	Locate combined staging and materials storage area.	01/07/19	03/07/19	Review periodically to assure that materials are stored in an orderly manner.
2.	Install temporary sanitary facilities, if necessary.	01/08/19	03/08/19	Review periodically.
3.	Install dumpsters for the site.	01/09/19	03/09/19	Schedule waste collection at appropriate intervals.
4.	Prepare pavement subgrade for driveway and sidewalks.	01/10/19	03/14/19	Review installation of silt fence prior to preparation of subgrade.
D.	BUILDING CONSTRUCTION			
1.	Locate temporary concrete washout area, or chute washout box must be mounted to the ready mix truck.	01/12/19	03/12/19	Remove hardened concrete weekly.
2.	Begin the fine grading of the site areas at the building and along driveways, parking and sidewalk locations.	01/15/19	03/20/19	Review installation of silt fence prior to preparation of fine grading activities every 7 days and after storm events of 0.5 inches
3.	Begin construction of building foundation and building structural components until completion.	01/10/19	03/30/19	Review installation of all Silt fence every 7 days and after storm events of 0.5 Refer to soil and erosion control notes weekly for implementation of BMP's
E.	FINAL STABLIZATION			
1.	Remove erosion control devices and finalize pavement activities.	01/15/18	03/16/19	Review installation of all silt fence every 7 days and after storm events of 0.5 inches Refer to soil and erosion control notes weekly for implementation of BMP'S
2.	Remove temporary concrete washout pit. Not necessary if chute washout box connected to ready mix truck.	01/16/19	03/16/19	Review periodically.
3.	Remove all erosion control devices and stabilize areas disturbed by the removal with erosion control.	01/18/19	03/18/19	Review installation of all erosion control devices every 7 days or after storm events of 0.5 inches.
4.	Prepare final seeding and top soiling as necessary. Locations with steep slopes should have erosion control devices to remain in place.	01/19/19	03/19/19	Review installation of all erosion control devices every 7 days or after storm events of 0.5 inches.
5.	Monitor stabilized areas until final stabilization is achieved.	01/20/19	03/15/19	Refer to soil and erosion notes for implementation of BMP's.

NOTE: DATES SHOWN ARE PRELIMINARY ESTIMATIONS OF ACTUAL ACTIVITIES.

EROSION AND SEDIMENT CONTROL MAINTENANCE PLAN

PRACTICE	DURATION	MAINTENANCE REQUIRED	MAINTENANCE FREQUENCY	RESPONSIBLE PARTY
Stabilized Construction Entrance	Temporary	Replacement of gravel when voids are full.	As sediment fills the voids of the aggregate or every two weeks. (whichever occurs first)	Contractor
Silt Fence	Temporary	Replace upon identification of damaged materials and when sediment reaches 0.5 ft deep at the fence.	Inspect daily and after each runoff event.	Contractor
Topsoil	Permanent	Re-dress rutted or eroded areas.	Inspect daily and after each runoff event throughout duration of the project.	Contractor
Protecting Vegetation During Construction	Temporary	Reset/repair when ripped, downed, or otherwise comprised.	Inspect daily and after each runoff event.	Contractor
Seeding	Temporary/ Permanent	Reseed bare spots, water to establish growth, keep free of vehicular travel.	Weekly until stabilization occurs.	Contractor/ Owner.
Mulching	Temporary	Reapply to bare spots and maintain appropriate density of cover until stabilized.	Inspect daily and after each runoff event.	Contractor
Soil Restoration	Temporary	once restored, keep free of vehicular traffic and other activities that cause compaction or rutting.	Daily throughout construction	Contractor
Dust Control	Temporary	N/A	Thoughout dry weather periods until site is stabilized.	Contractor
Equipment Laydown Areas	Temporary	N/A	Inspect daily and after each runoff event.	Contractor
Temporary Stockpiles	Temporary	Ensure appropriate side slopes and functioning perimeter barriers.	Weekly	Contractor
Concrete Washout	Temporary	Remove hardened concrete area when 75% capacity is reached	Weekly	Contractor

NOTE: Within 10 days after installation of all erosion control plan measures, the applicant shall submit to the Building Inspector a letter from the qualified professional who designed the plan for the applicant/owner stating that all erosion control measures have been constructed and installed in compliance with the approved plan(s).

GOOD HOUSEKEEPING POLLUTION PREVENTION MEASURES

The following best management practices (BMP) should be implemented to ensure the proper storage and disposal of construction site wastes:

1. Designate waste collection areas that do not receive significant runoff from upland areas that are not adjacent to water bodies.
2. Waste containers should be covered.
3. Waste collection should be scheduled at appropriate intervals to prevent overfilling of containers.
4. All maintenance and washing of vehicles shall be conducted off-site.
5. Any spills should be cleaned up immediately and disposed of in accordance with state and local codes.
6. Contractor should have adequate spill prevention materials (i.e., absorbent pads, brooms, etc.) on site.
7. Any petroleum products stored on-site should be placed in curb/diked areas.
8. In the event of spill occurrence, the actions outlined in the NYSDEC's May 1, 1996 Technical Field Guidance for Spill Reporting and Initial Notification Requirements shall be implemented.
9. Disposal of hazardous waste (non-petroleum) should be conducted as follows:
   a. In accordance with local hazardous waste management authorities, and State and Federal regulations.
   b. Containers should be emptied prior to disposal.
   c. Product labels from containers should not be removed.
   d. All hazardous waste containers should be stored in a dry curbed/like area per environmental regulations.
   e. All sanitary waste generated on-site should be disposed of in accordance with local and State regulations.
   f. Pesticides and fertilizers should be stored in a dry, curb/diked area.
   g. Manufacturer's application rates should be adhered to, and pesticides shall be applied by licensed or certified personnel where applicable.
   h. All storage areas and waste containers should be included in the regular inspection program of the site.
10. Potential wastes and products that may be stored on-site include grubbing wastes, packaging materials, building materials paints and thinners, cleaning solvents, pesticides, petroleum products and fertilizers are all subject to good housekeeping best management practices.

REQUIRES 2 WORKING DAYS NOTICE PRIOR TO START OF ANY UNDERGROUND WORK

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REVISIONS				
NO.	DATE	BY	CHKED	DESCRIPTION

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BUCKINGHAM PROPERTY MANAGMENT
CHANNINGVILLE RD & NELSON AVE
VILLAGE OF WAPPINGERS FALLS
DUTCHESS COUNTY, NEW YORK
TAX MAP ID. NO. 134601-6158-13-071325

DATE	DRAWN	CHECKED
03-12-2019	MJN	CPM

SCALE: AS NOTED

SHEET TITLE: ERISION CONTROL PLAN NOTES

PROJECT NUMBER: 2016-04

EC-2
DRAWING NUMBER

SHEET 10 OF 15

Drawing Name: C:\PROJECTS\BUCKINGHAM PROPERTIES\SITE PLAN DRAWING FILES\00 SHEET DRAWINGS\10_EC-2.DWG Date: 03/12/19 Time: 11:17 AM
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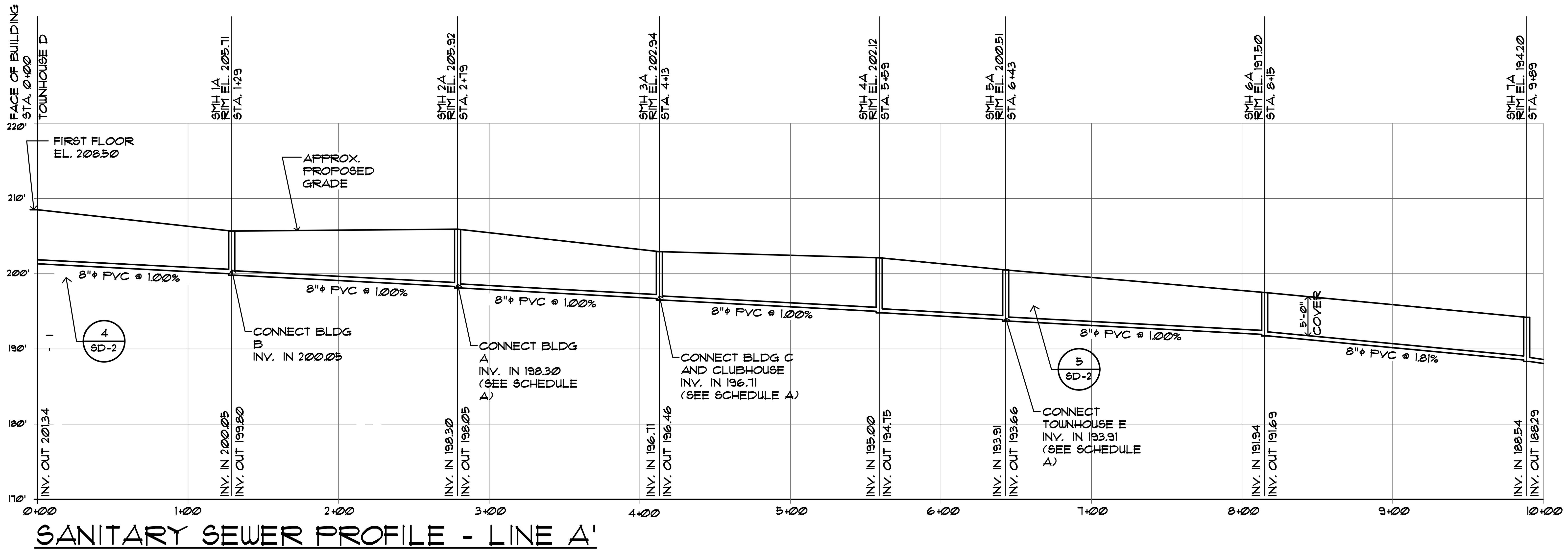
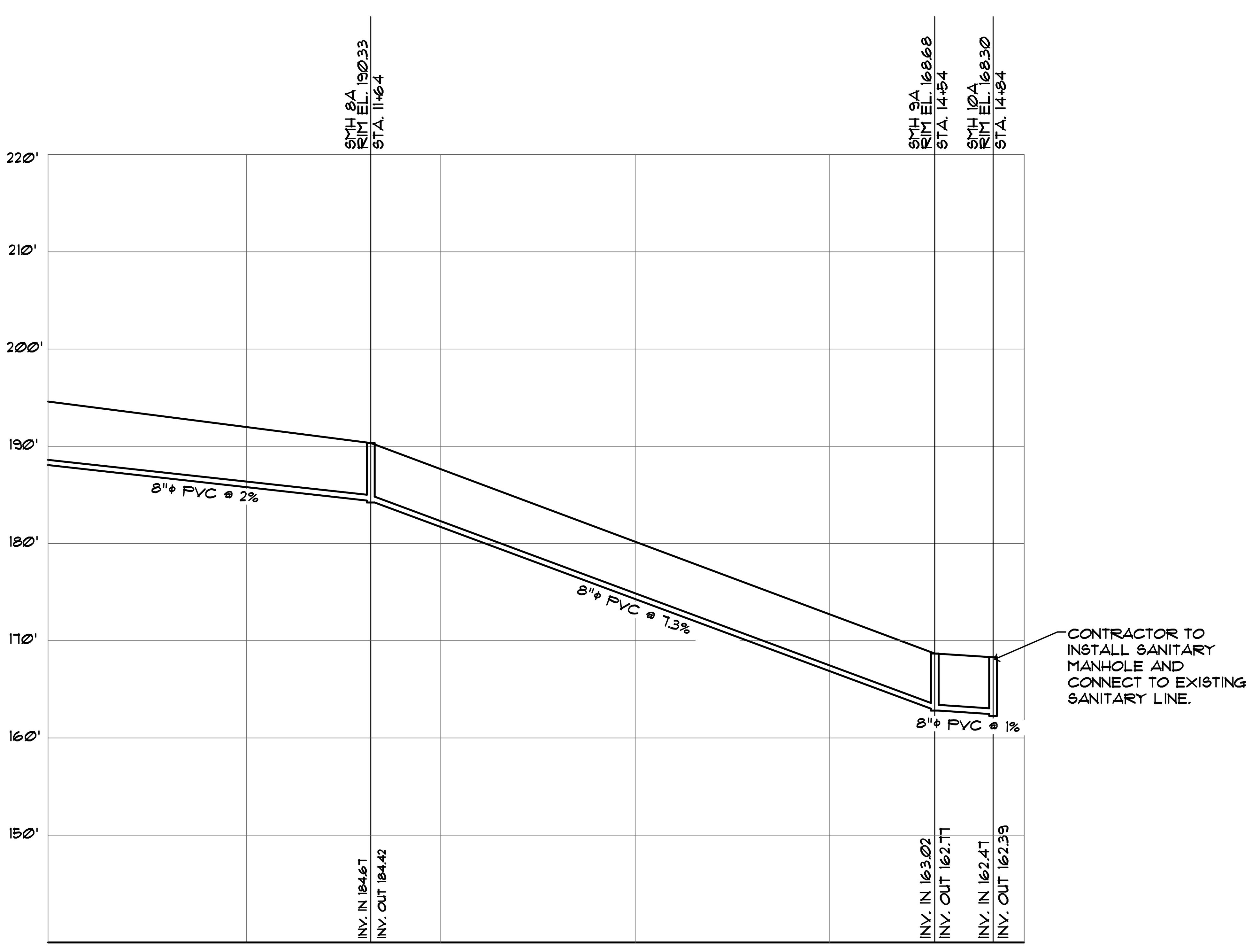


SANITARY SEWER PROFILE - LINE A'

SCALE: HORIZ: 1"=50' VERT: 1"=10'



SANITARY SEWER PROFILE - LINE A'

SCALE: HORIZ: 1"=50' VERT: 1"=10'

SCHEDULE A

BUILDING A

INV. OUT - 198.30
INV. IN - 198.05
SLOPE - 2%
PIPE SIZE - 8"ϕ PVC

BUILDING B

INV. OUT - 200.50
INV. IN - 200.05
SLOPE - 2%
PIPE SIZE - 8"ϕ PVC

BUILDING C

INV. OUT - 197.21
INV. IN - 196.71
SLOPE - 2%
PIPE SIZE - 8"ϕ PVC

TOWNHOUSE D

INV. OUT - 201.34
INV. IN - 200.05
SLOPE - 2%
PIPE SIZE - 8"ϕ PVC

NOTE: IN LOCATIONS WHERE A MINIMUM SEPARATION OF 18" CANNOT BE ACHIEVED BETWEEN WATER AND SEWER PIPES, THE INTERSECTION SHALL BE ENCASED IN CONCRETE, AS DIRECTED BY THE ENGINEER.

REVISIONS

NO.	DATE	BY	CHKED	DESCRIPTION
1	13-28-14	PKG	CPM	Revised as per

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BUCKINGHAM PROPERTIES
NELSON AVENUE
VILLAGE OF WAPPINGERS FALLS
DUTCHESS COUNTY, NEW YORK
TAX MAP ID. NO. 134601-6158-13-071325

DATE	DRAWN	CHECKED
03-12-2019	WA	CPM

SCALE: N.T.S.

SHEET TITLE
SANITARY SEWER PROFILES

PROJECT NUMBER
2016-04

SS-1
DRAWING NUMBER

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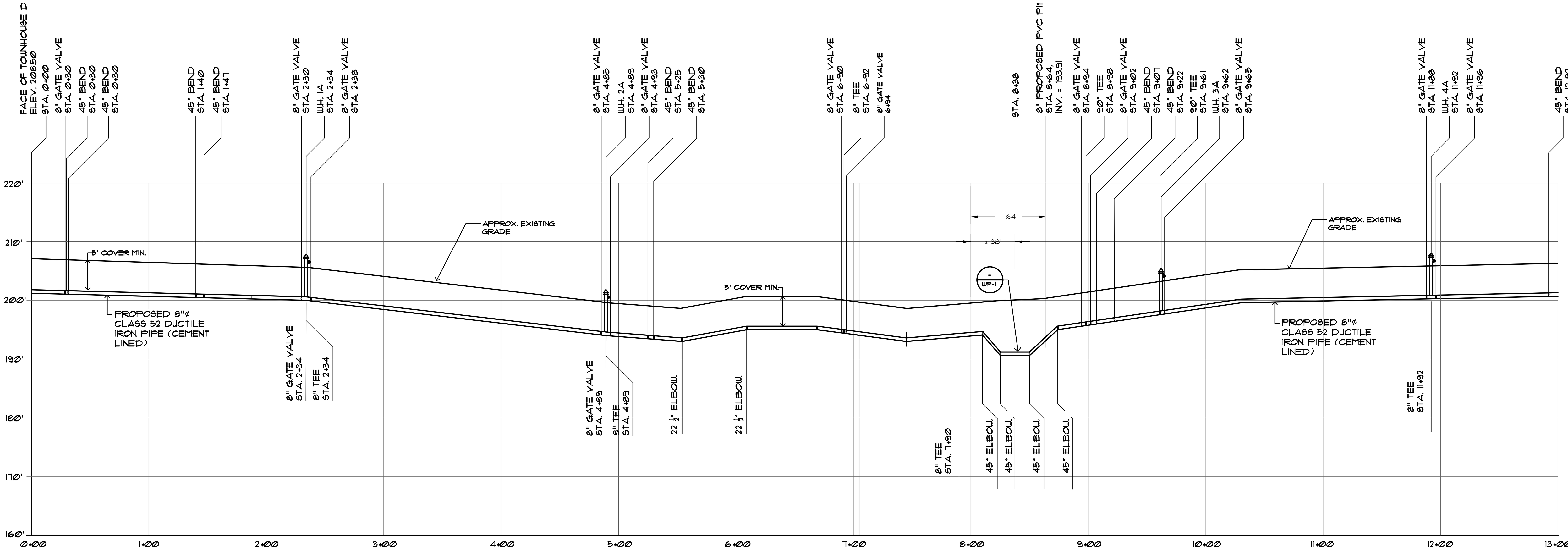
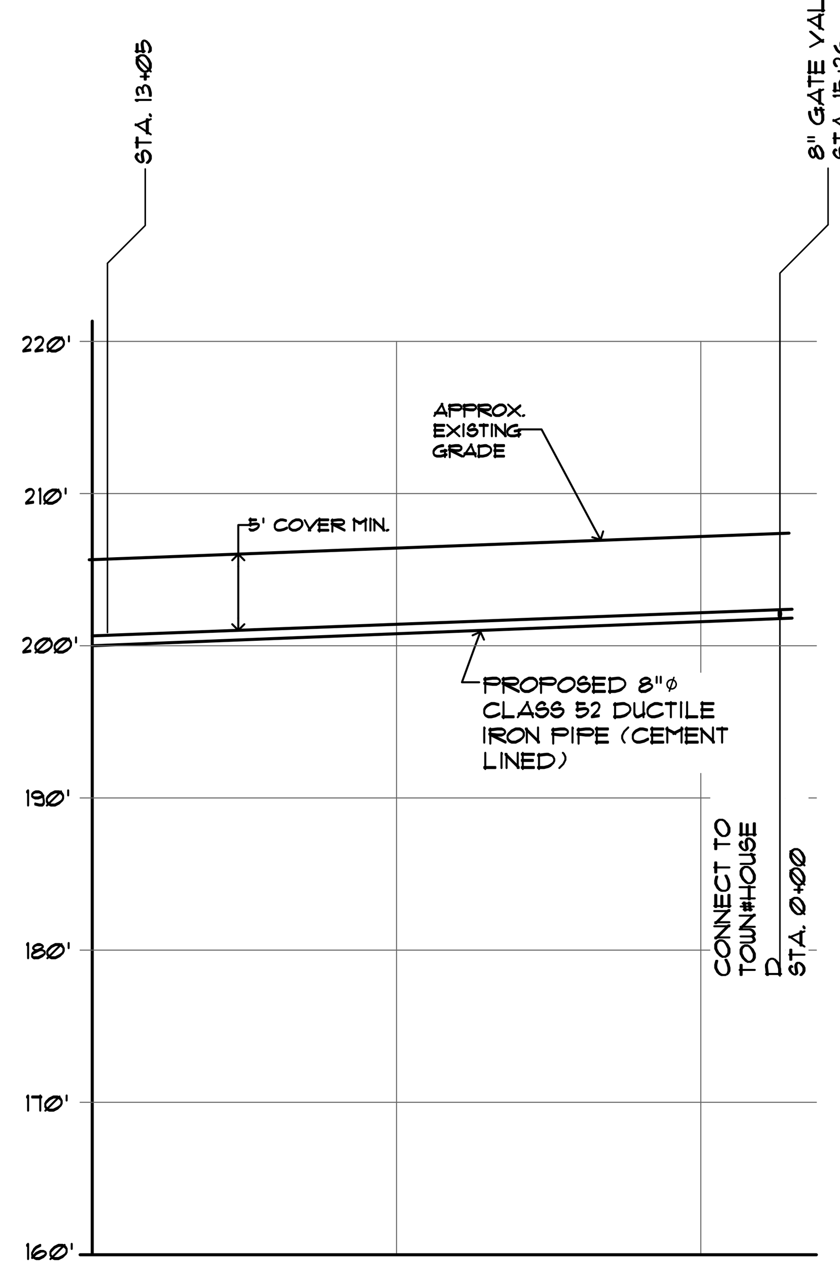


WATERLINE "B"

SCALE: HORIZ: 1"=40' VERT: 1"=10'



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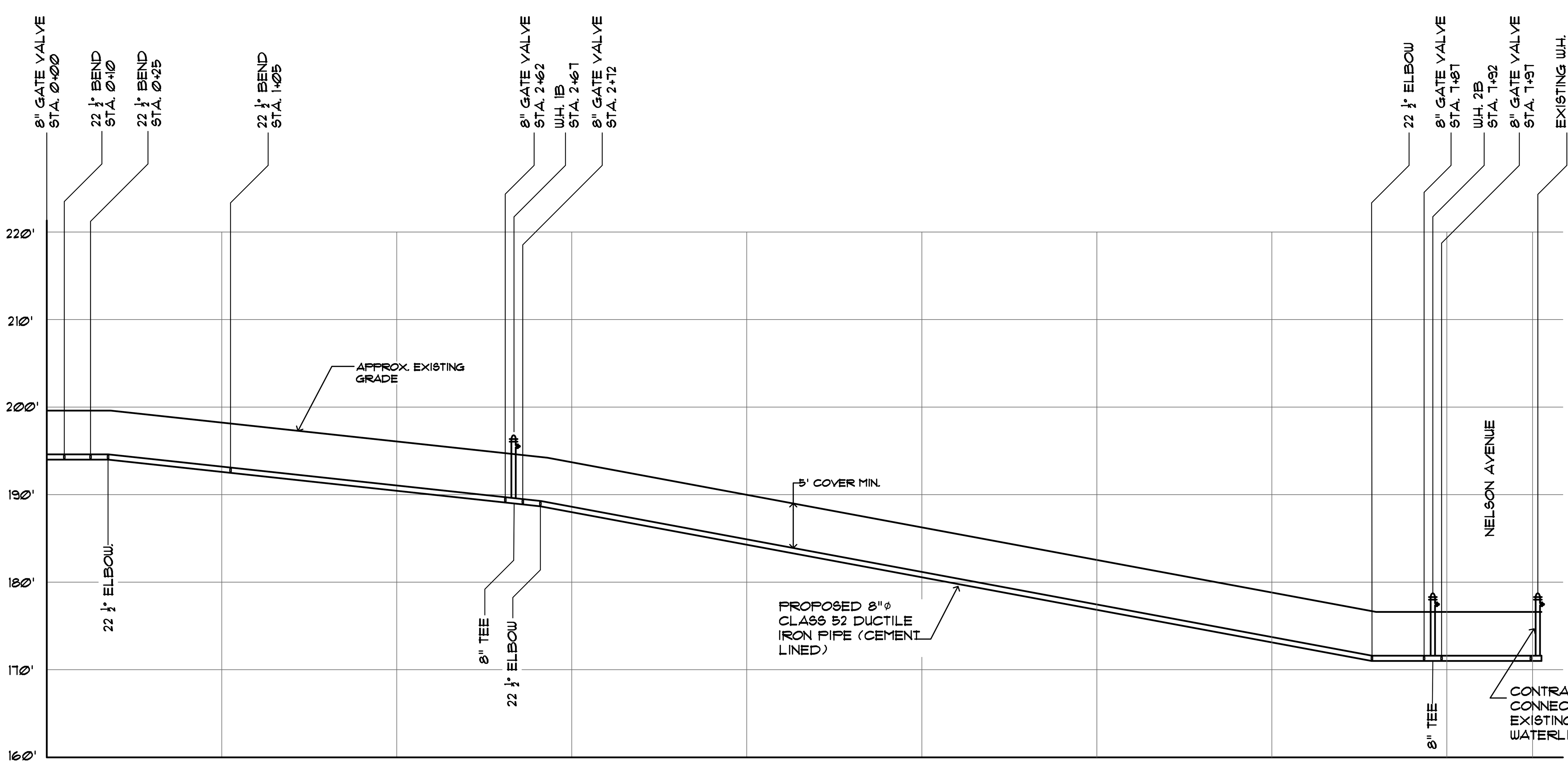

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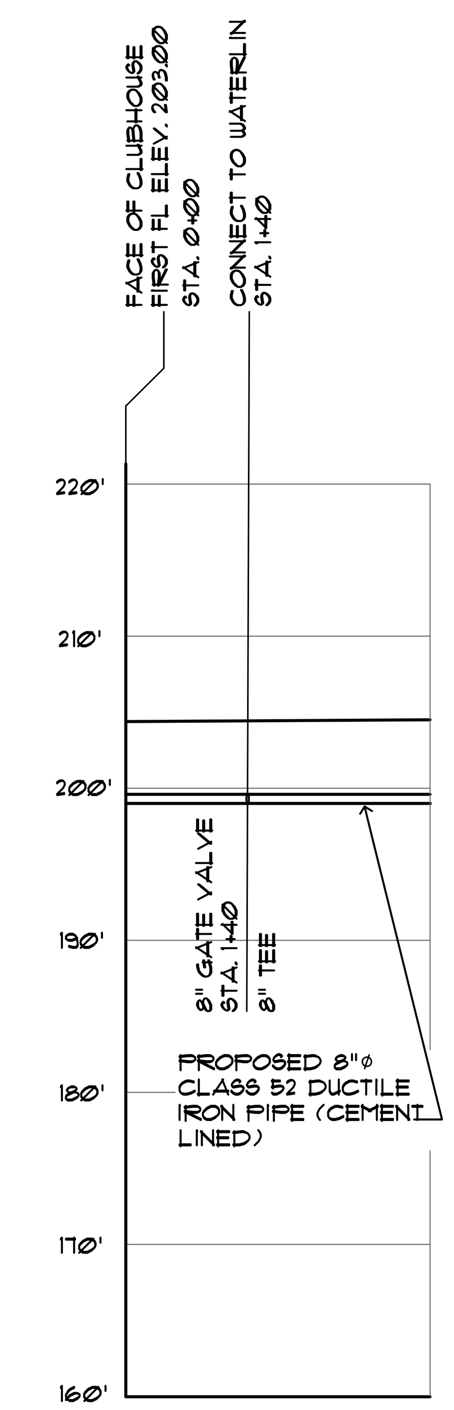

WATERLINE "C"

SCALE: HORIZ: 1"=40' VERT: 1"=10'

NOTE: IN LOCATIONS WHERE A MINIMUM SEPARATION OF 18" CANNOT BE ACHIEVED BETWEEN WATER AND SEWER PIPES, THE INTERSECTION SHALL BE ENCASED IN CONCRETE, AS DIRECTED BY THE ENGINEER.

REVISIONS

NO.	DATE	BY	CHKED	DESCRIPTION
1	03-28-14	PKG	CPM	Added watermain

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BUCKINGHAM PROPERTIES
NELSON AVENUE
VILLAGE OF WAPPINGERS FALLS
DUTCHESS COUNTY, NEW YORK
TAX MAP ID. NO. 134601-6158-13-071325

DATE	DRAWN	CHECKED
03-12-2019	WA	CPM

SCALE: N.T.S.

SHEET TITLE
WATERLINE PROFILES

PROJECT NUMBER
2016-04

WP-1
DRAWING NUMBER

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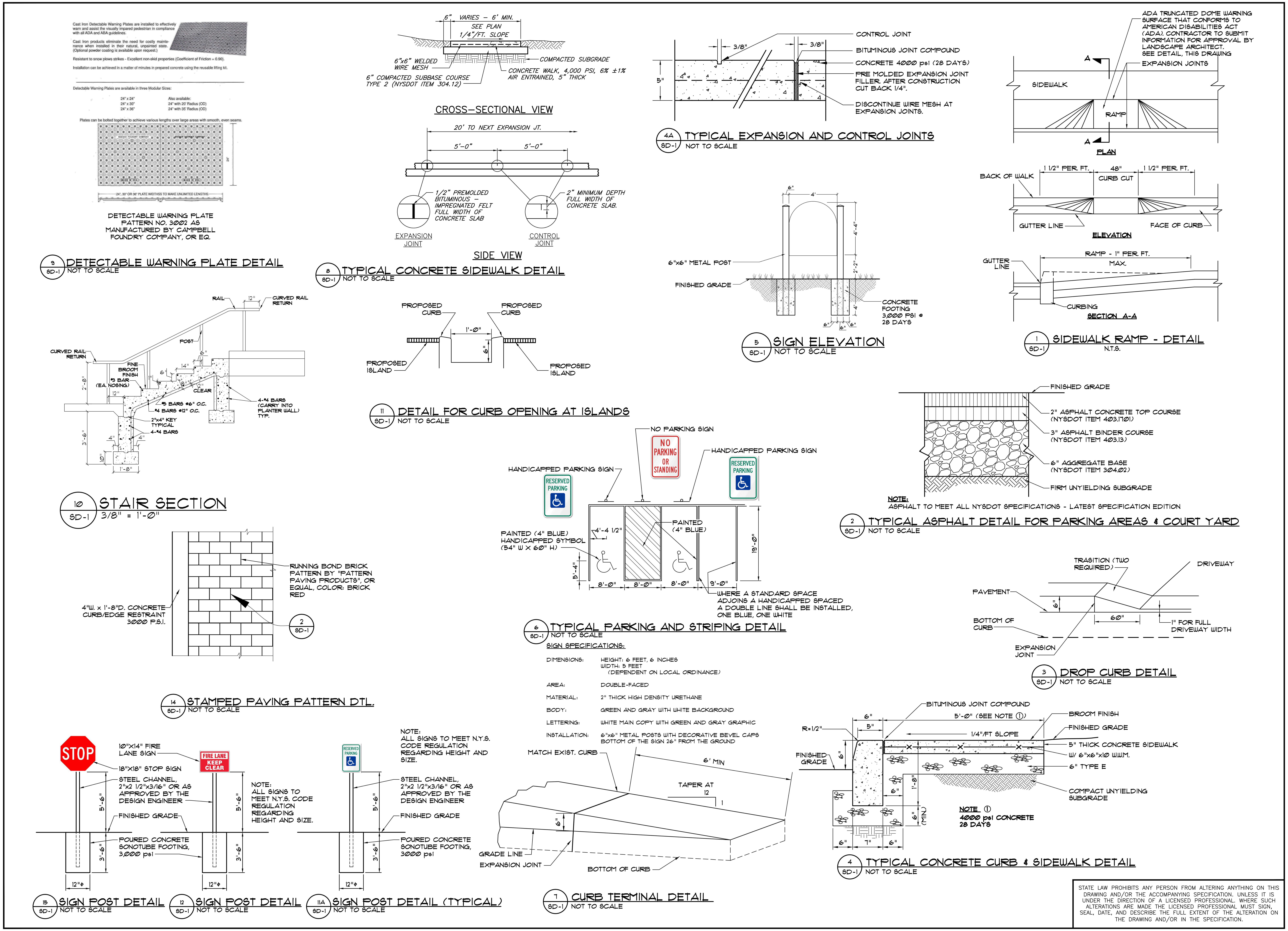

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DUTCHESS COUNTY, NEW YORK
TAX MAP ID. NO. 134601-6158-13-071325

DATE	DRAWN	CHECKED
03-12-2019	MJN	CPM

SCALE: AS NOTED

SHEET TITLE

SITE DETAILS

PROJECT NUMBER 2016-04

SD-1

DRAWING NUMBER

SHEET 15 OF 19

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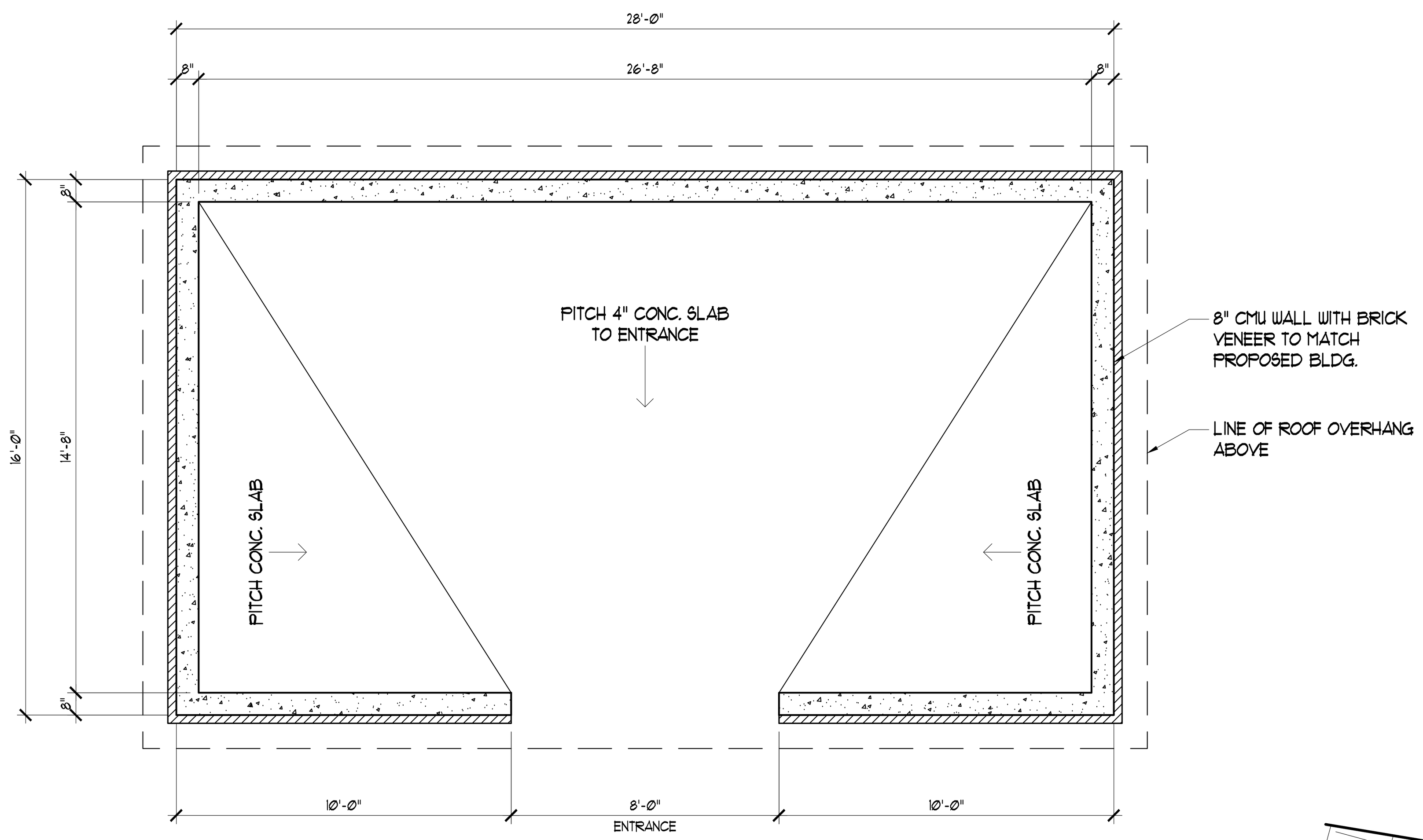
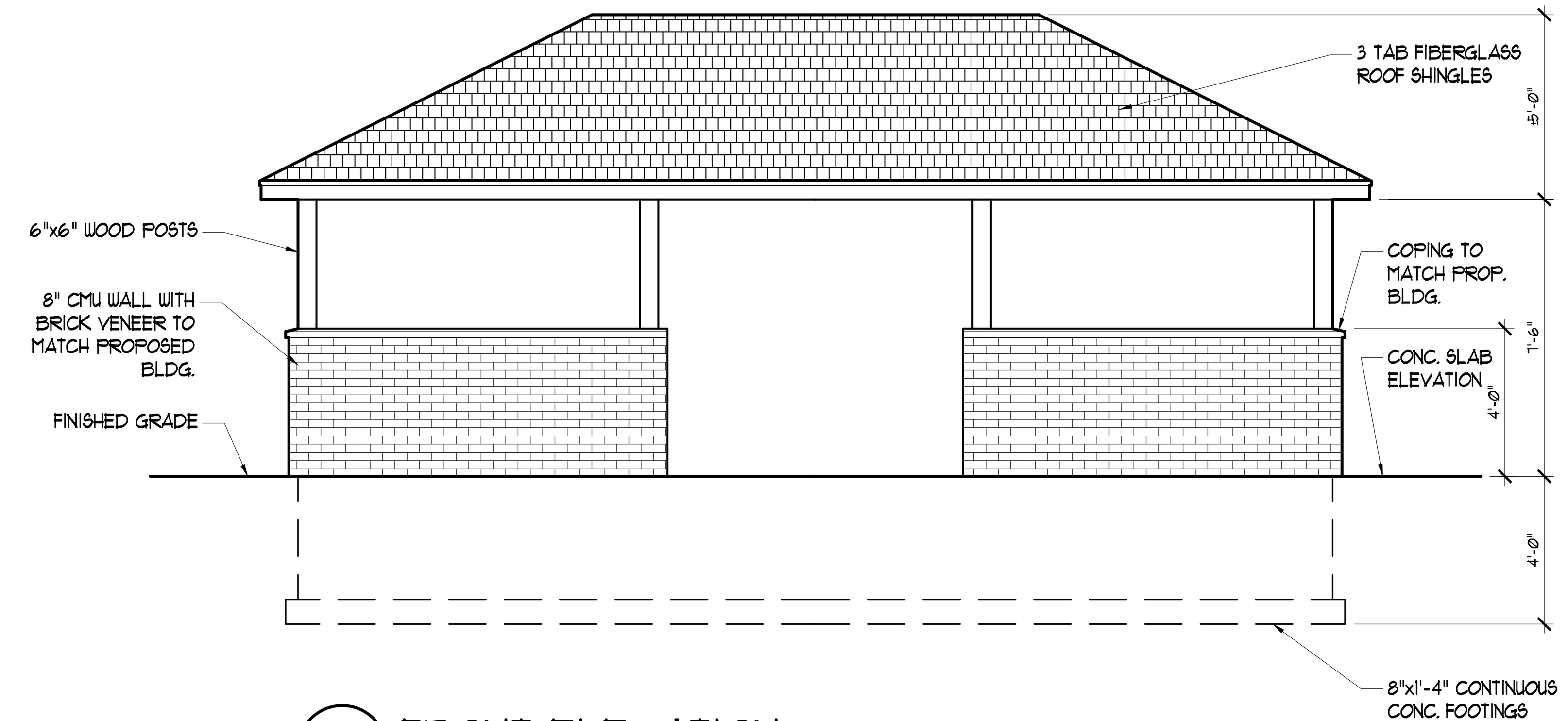
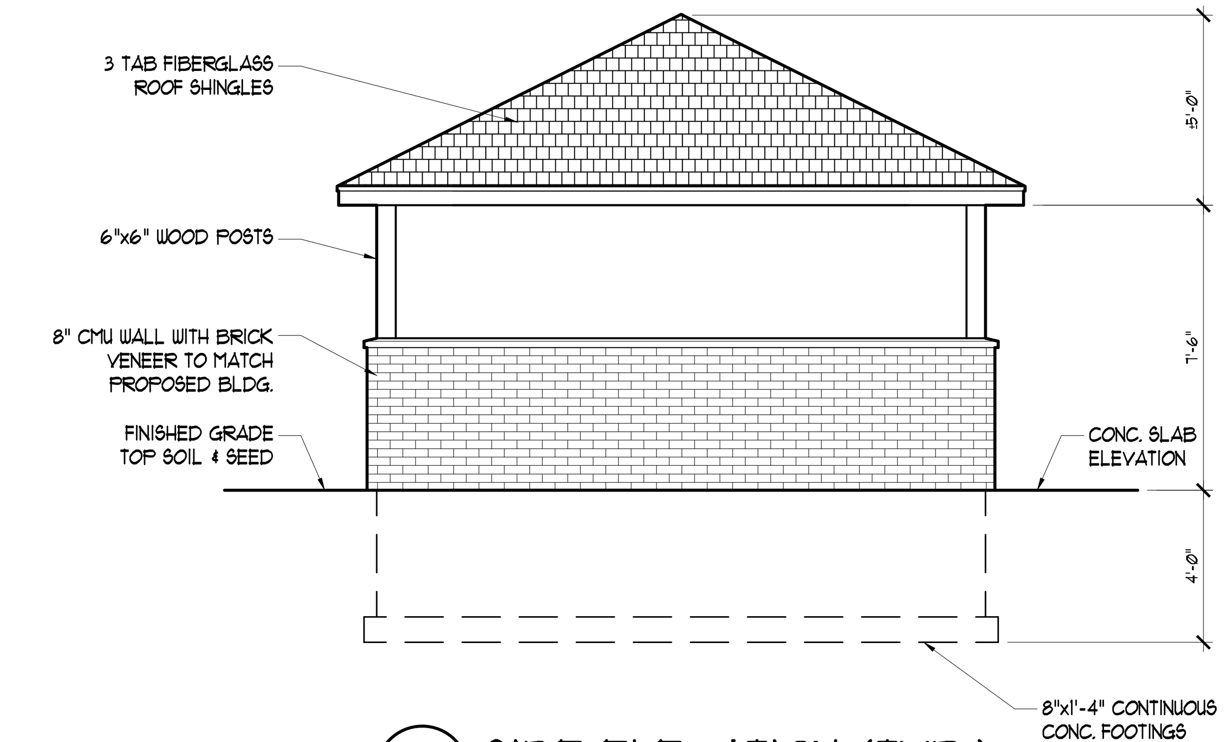


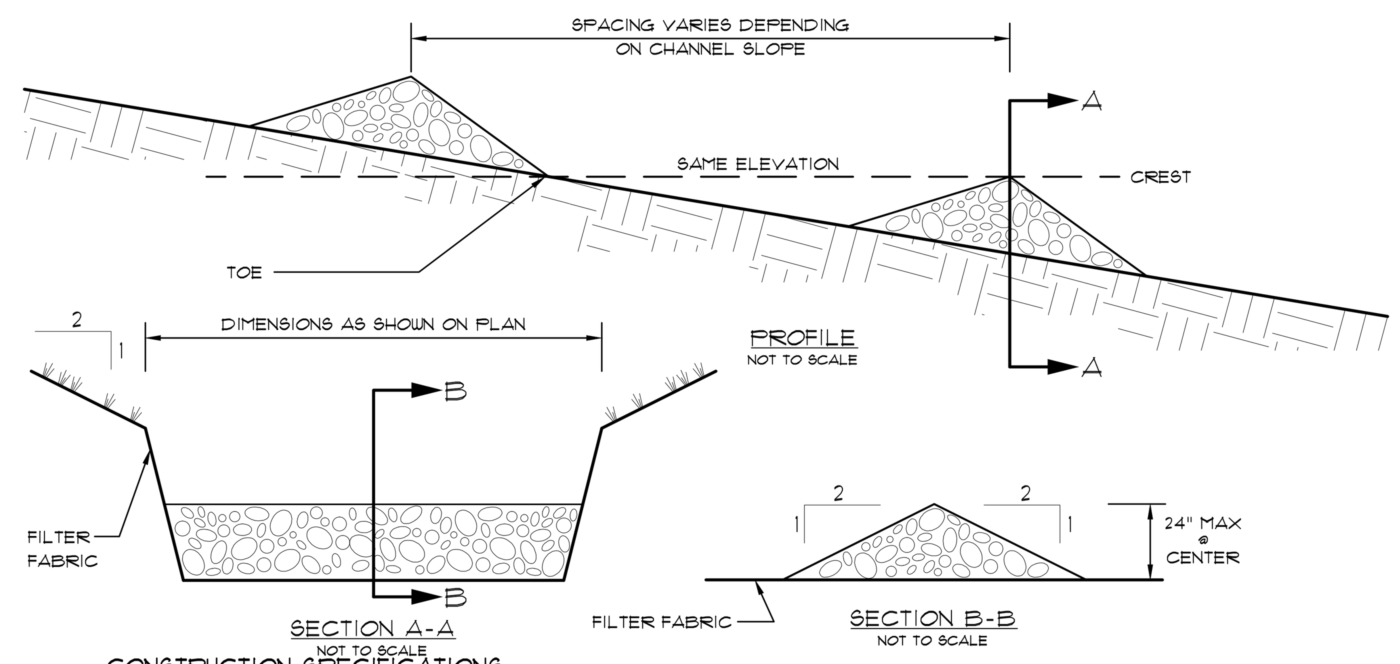
1 / SD-3 REFUSE ENCLOSURE PLAN
SCALE: 1/4"=1'-0"



2 / SD-3 FRONT ELEVATION
SCALE: 1/4"=1'-0"



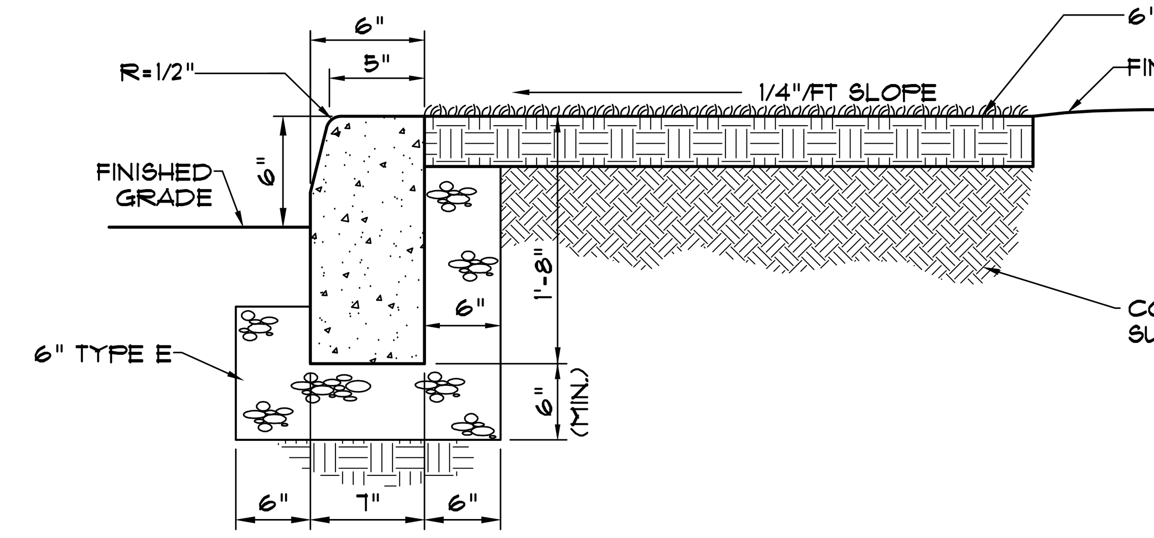
3 / SD-3 SIDE ELEVATION (TYP.)
SCALE: 1/4"=1'-0"



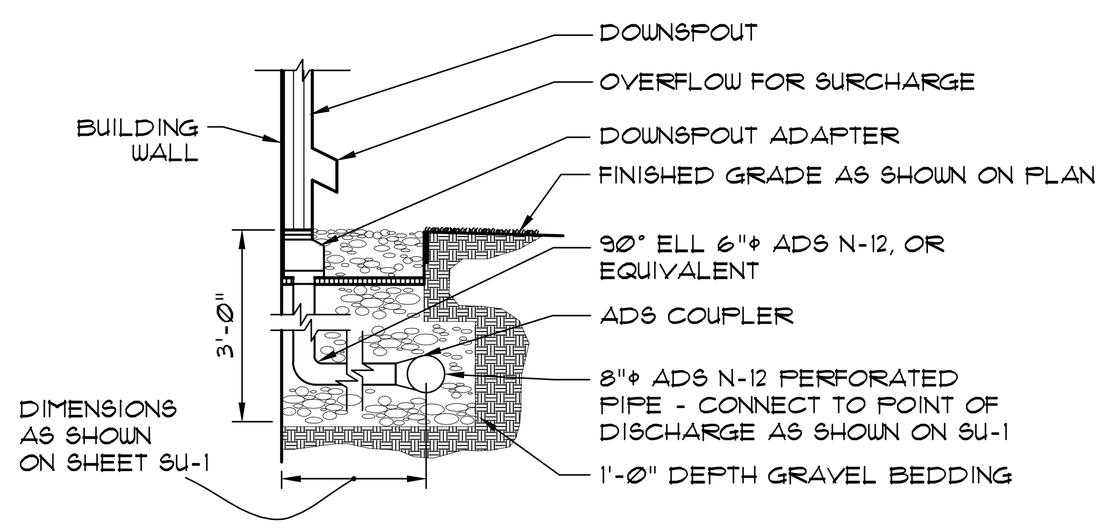
CONSTRUCTION SPECIFICATIONS:

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES, AND LOCATIONS SHOWN IN THE PLAN.
2. SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONES.
6. CHECK DAMS ARE TO BE INSTALLED IMMEDIATELY UPON INITIATION OF CONSTRUCTION.

7 / SD-3 CHECK DAM DETAIL
NOT TO SCALE



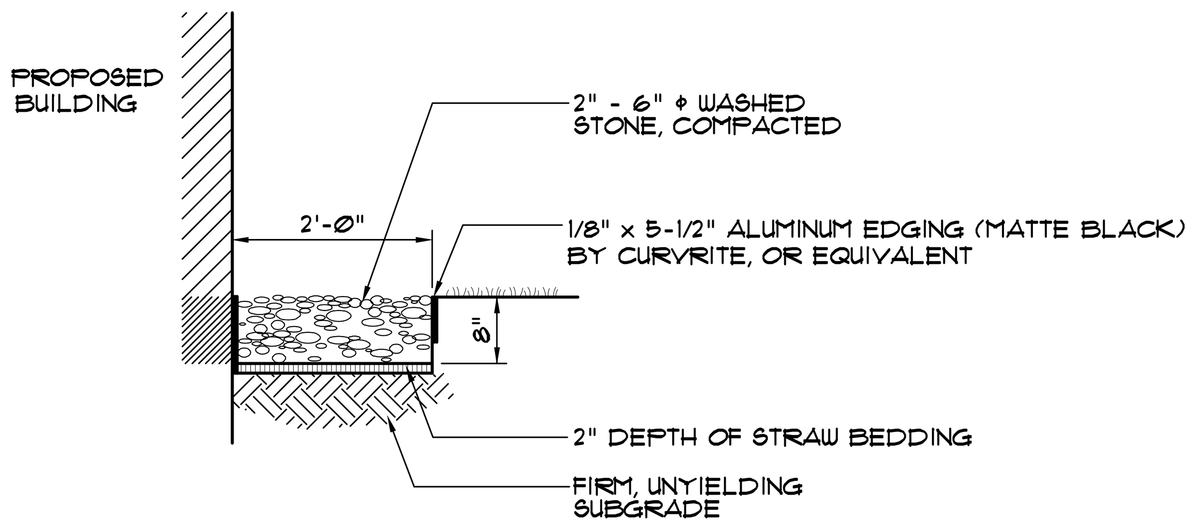
9 / SD-3 TYPICAL CONCRETE CURB DETAIL
NOT TO SCALE



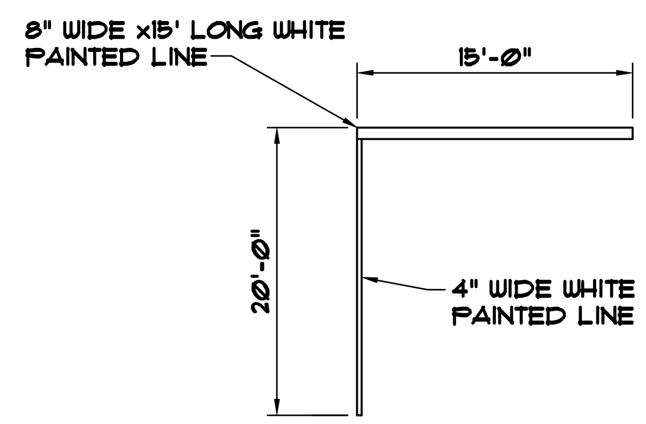
5 / SD-3 ROOF DRAIN CONNECTION
NOT TO SCALE

NOTE:

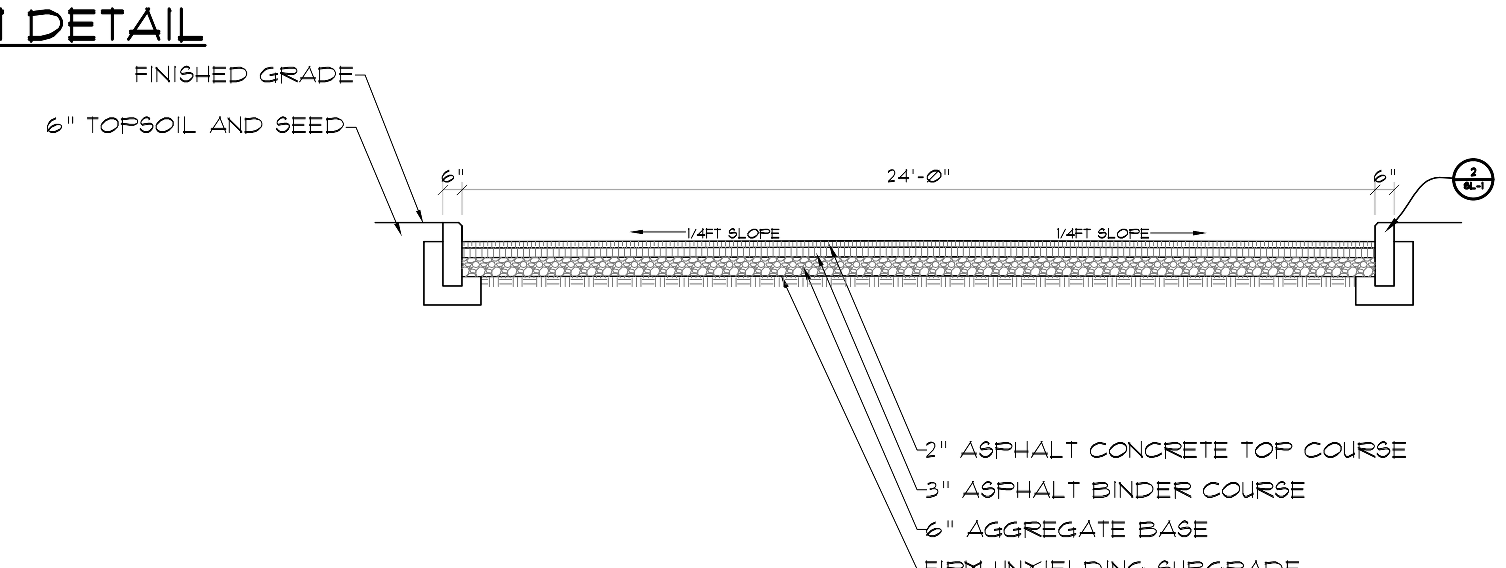
1. DOWNSPOUT ADAPTER, 90° ELL, COUPLER AND CORRUGATED POLYETHYLENE PIPE (CPP) TO BE ADVANCED DRAINAGE SYSTEMS, OR EQUAL.
2. COORDINATE ROOF DRAIN WITH DRIP EDGE DETAIL 6/SD-3.



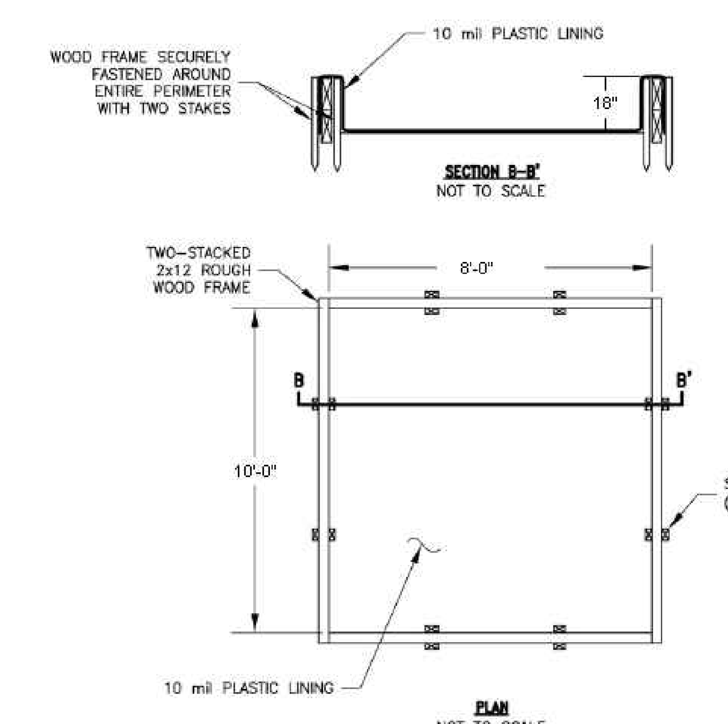
6 / SD-3 DRIP EDGE DETAIL
NOT TO SCALE



8 / SD-3 STOP LINE STRIPING DETAIL
NOT TO SCALE



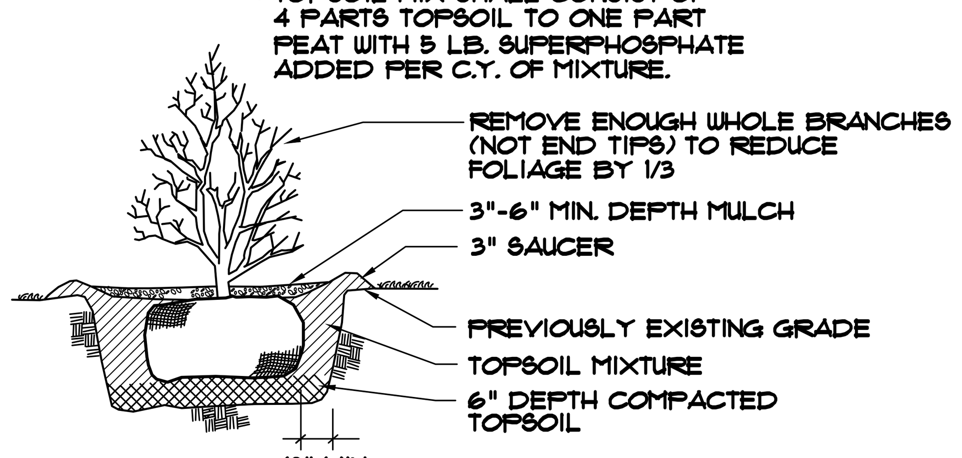
10 / SD-3 TYPICAL DETAIL FOR ROADWAY
N.T.S.



11 / SD-3 CONCRETE WASHOUT BOX DETAIL
NOT TO SCALE

NOTE:

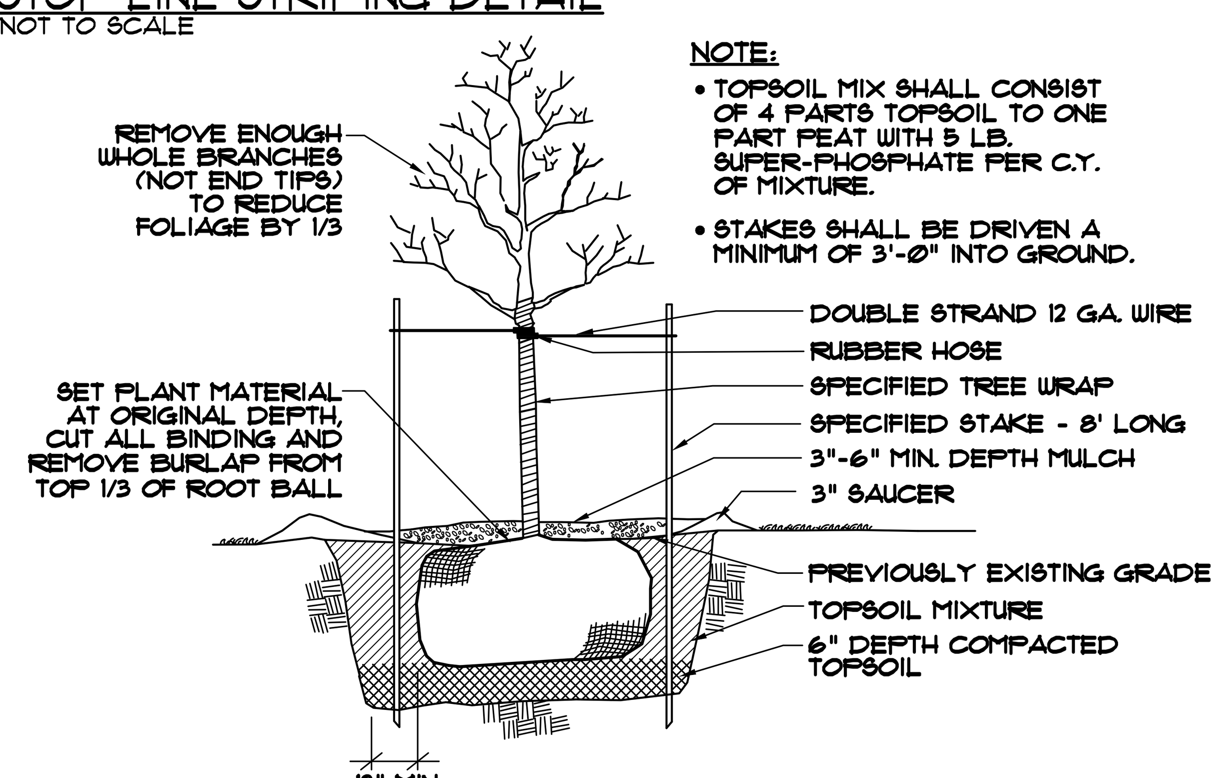
- PLANT SHALL BE SET AT ORIGINAL DEPTH, ALL BINDING CUT, AND BURLAP REMOVED FROM TOP 1/3 OF ROOT BALL.
- TOPSOIL MIX SHALL CONSIST OF 4 PARTS TOPSOIL TO ONE PART PEAT WITH 5 LB. SUPERPHOSPHATE ADDED PER C.Y. OF MIXTURE.



SHRUB PLANTING DETAIL
NOT TO SCALE

NOTE:

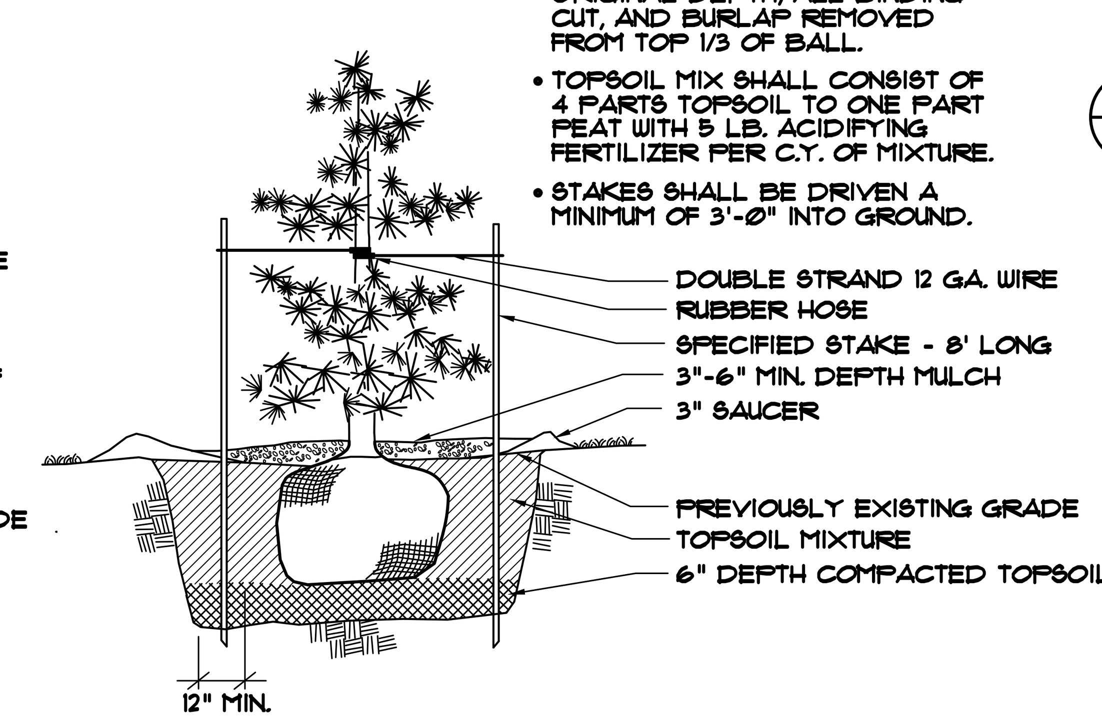
- TOPSOIL MIX SHALL CONSIST OF 4 PARTS TOPSOIL TO ONE PART PEAT WITH 5 LB. SUPER-PHOSPHATE PER C.Y. OF MIXTURE.
- STAKES SHALL BE DRIVEN A MINIMUM OF 3'-0" INTO GROUND.



TREE PLANTING DETAIL
NOT TO SCALE

NOTE:

- PLANT SHALL BE SET AT ORIGINAL DEPTH, ALL BINDING CUT, AND BURLAP REMOVED FROM TOP 1/3 OF BALL.
- TOPSOIL MIX SHALL CONSIST OF 4 PARTS TOPSOIL TO ONE PART PEAT WITH 5 LB. ACIDIFYING FERTILIZER PER C.Y. OF MIXTURE.
- STAKES SHALL BE DRIVEN A MINIMUM OF 3'-0" INTO GROUND.



EVERGREEN PLANTING DETAIL
NOT TO SCALE

REVISIONS

NO.	DATE	BY	CHKED	DESCRIPTION

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DATE	DRAWN	CHECKED
03-12-2019	MJN	CPM

SCALE: AS NOTED

SHEET TITLE

SITE DETAILS

PROJECT NUMBER
2016-04

SD-3
DRAWING NUMBER

Drawing Name: C:\PROJECTS\BUCKINGHAM PROPERTIES\SITE PLAN DRAWING FILES\00 SHEET DRAWINGS\17_SD-3.DWG Date: 03/12/19 Time: 11:39 AM
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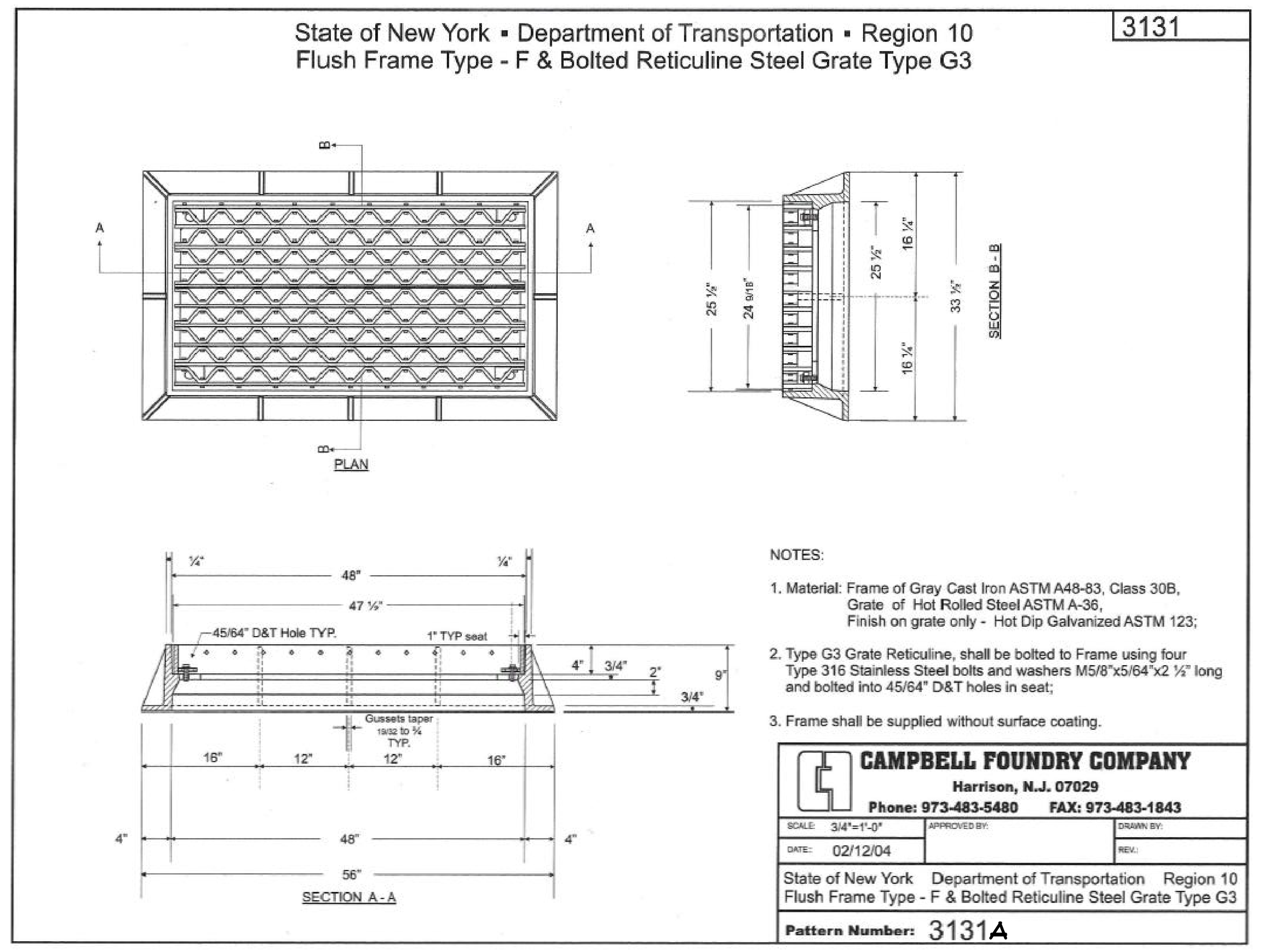
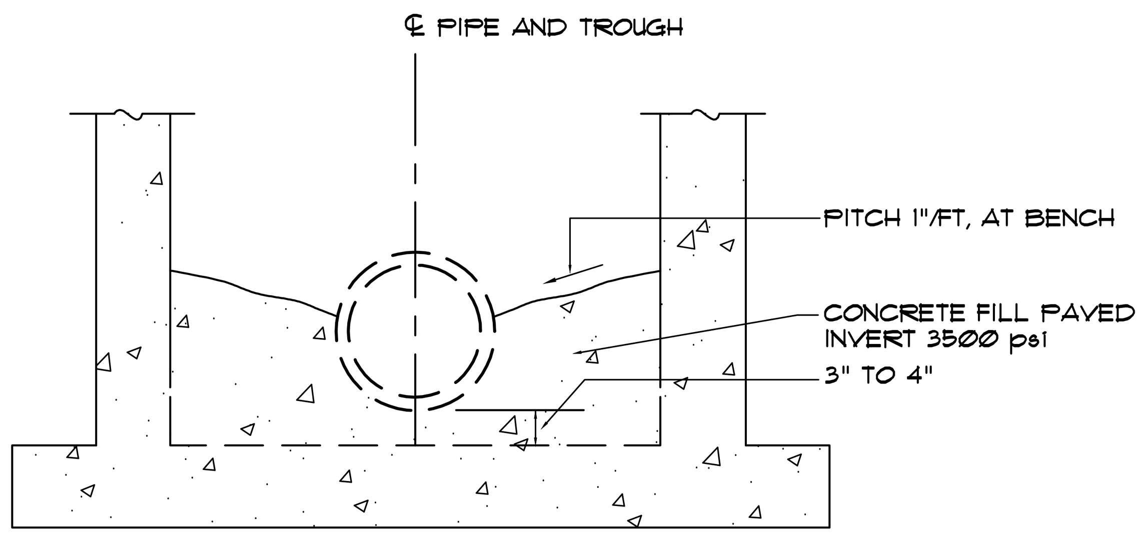
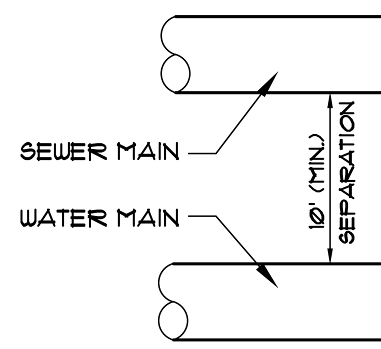


1 / SD-2 RETICULINE STEEL FRAME & GRATE DTL.
NOT TO SCALE



2 / SD-2 SECTION THRU TYPICAL MANHOLE
N.T.S.



3 / SD-2 WATER - SEWER HORIZONTAL SEPARATION DETAIL
N.T.S.

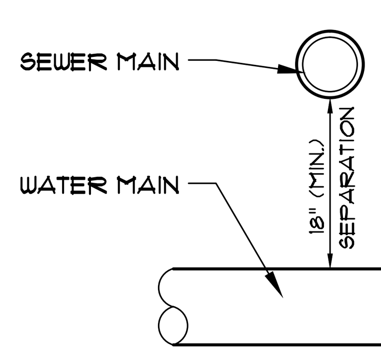
SEWER - WATER SEPARATION NOTES

1. WHEN IT IS IMPOSSIBLE TO MAINTAIN PROPER HORIZONTAL OR VERTICAL SEPARATION AS SHOWN, THE SEWER SHALL BE DESIGNED AND CONSTRUCTED EQUAL TO THE WATER MAIN, AND SHALL BE PRESSURE TESTED TO ASSURE WATERTIGHTNESS PRIOR TO BACKFILLING.
2. A FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED BELOW THE STORM/SEWER MAIN.
3. BEDDING MATERIAL SHALL BE INCREASED TO 12" BELOW THE LENGTH OF WATER MAIN PIPE FOR 10' ON EITHER SIDE OF THE CROSSING.
4. TWO LAYERS OF CAUTION TRACER TAPE SHALL BE PLACED 18" MINIMUM ABOVE STORM SEWER MAINS.

NOTES

SEPARATION DISTANCE BETWEEN WATER MAINS AND STORM/SEWER MAINS SHALL BE 10' HORIZONTAL AND 18" AT CROSSINGS. THESE SEPARATION DISTANCES MUST BE MAINTAINED UNLESS SPECIFICALLY SHOWN AND INDICATED OTHERWISE ON THE PLANS. THE PREFERRED CROSSING OPTION IS FOR THE WATER MAIN TO BE CONSTRUCTED ABOVE STORM/SEWER MAINS.

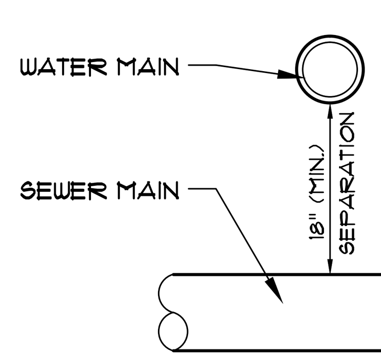
DEFLECT WATER MAIN IN AN ARC BENEATH THE SEWER LINE. DO NOT USE FITTINGS TO DEFLECT THE WATER MAIN.



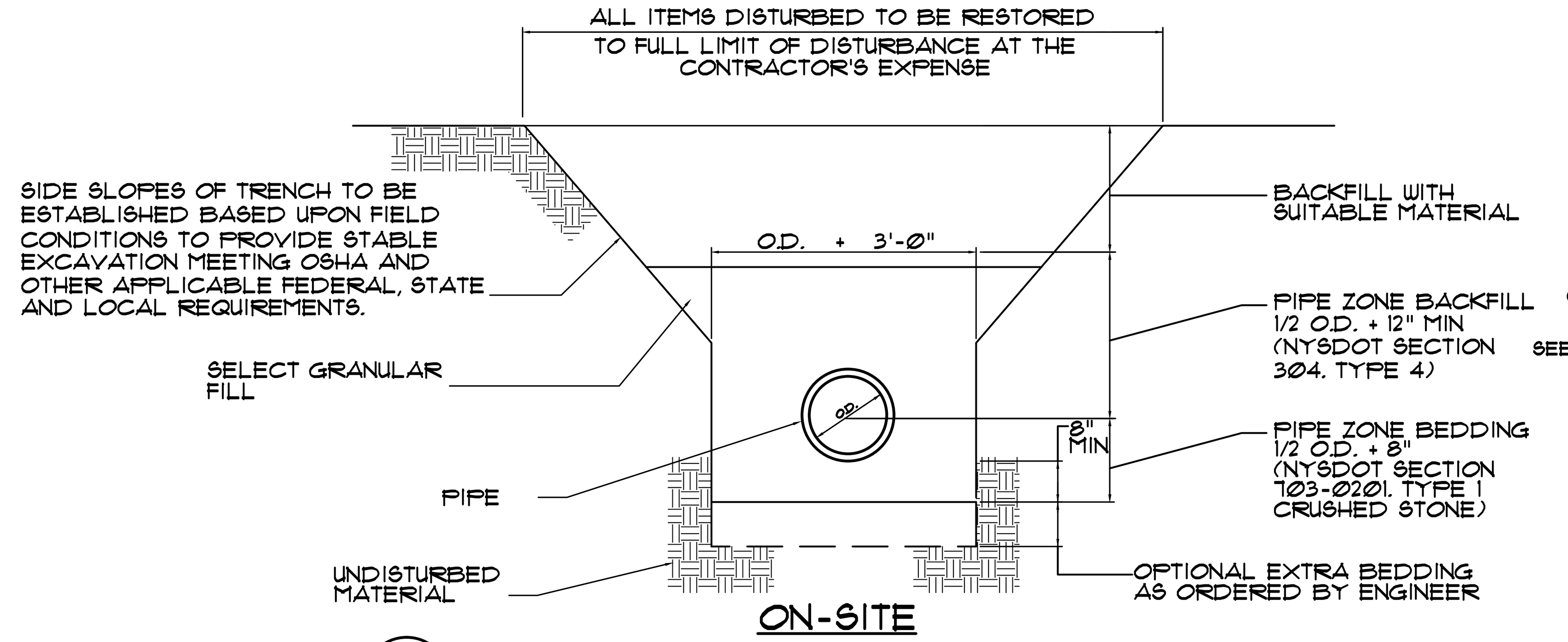
4 / SD-2 SEWER OVER WATER VERTICAL SEPARATION DETAIL
N.T.S.

WATER OVER SEWER SEPARATION NOTES

1. ONE FULL LENGTH OF SEWER PIPE SHALL BE INSTALLED SO THAT BOTH JOINTS WILL BE AS FAR FROM THE WATER MAIN AS POSSIBLE (10' MIN.).
2. CONTRACTOR SHALL PROVIDE STRUCTURAL SUPPORT FOR EXISTING WATER MAIN OVER THE ENTIRE TRENCH WIDTH TO PREVENT DAMAGE TO THE WATER MAIN.
3. WATER TIGHT JOINTS WHERE WATERLINES ARE CROSSED ABOVE OR BELOW.

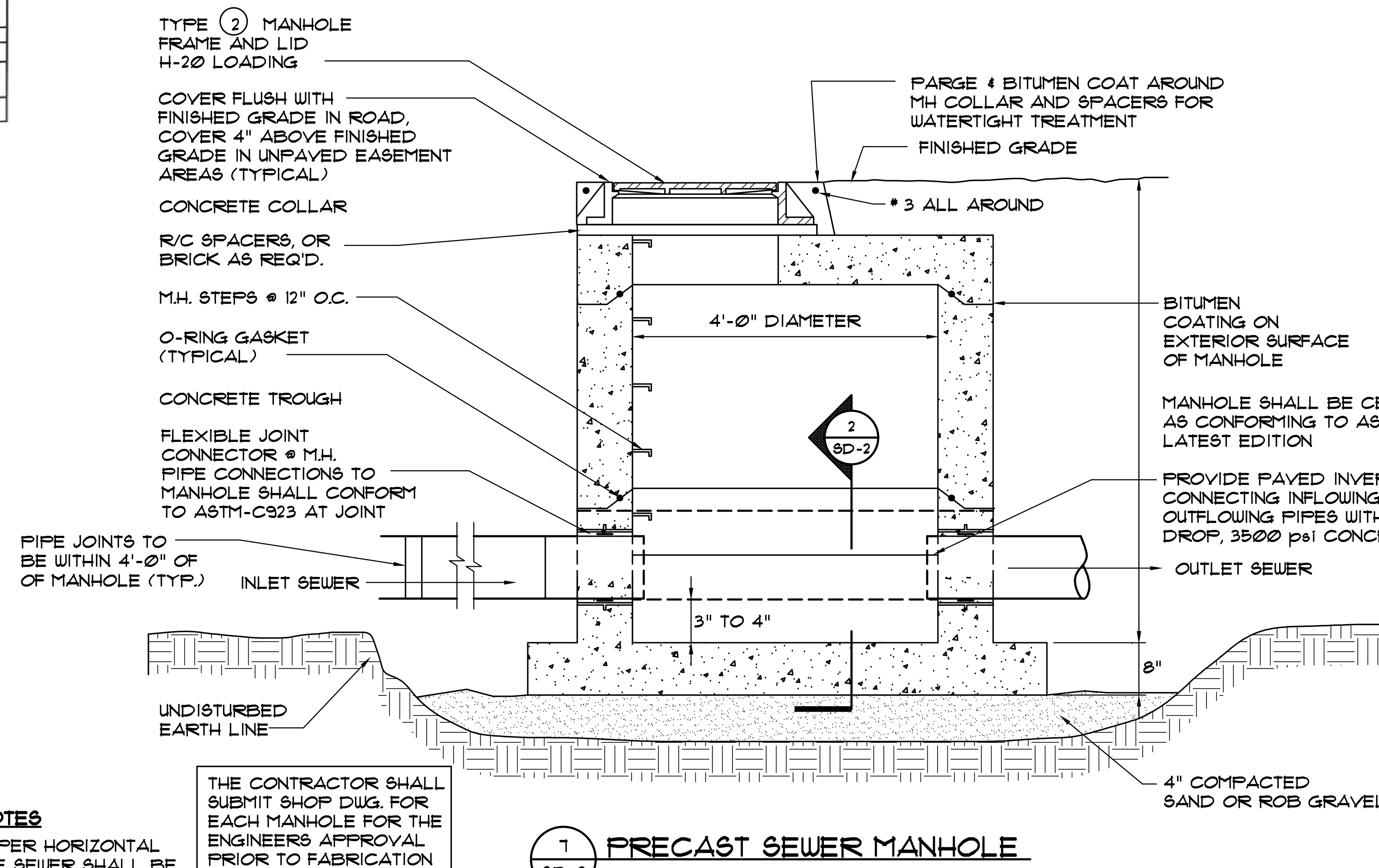


5 / SD-2 WATER OVER SEWER VERTICAL SEPARATION DETAIL
N.T.S.

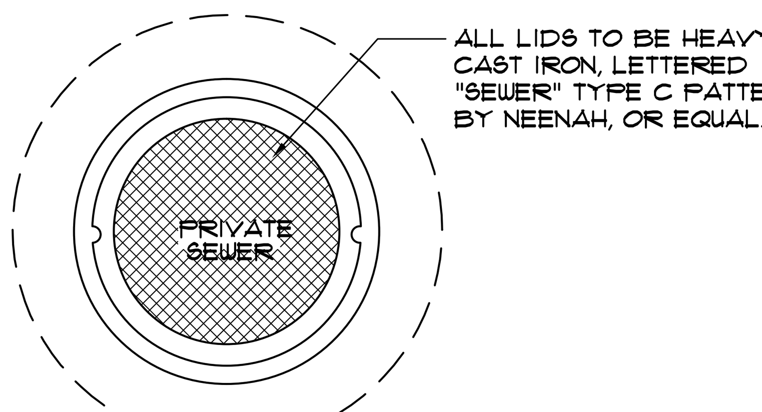


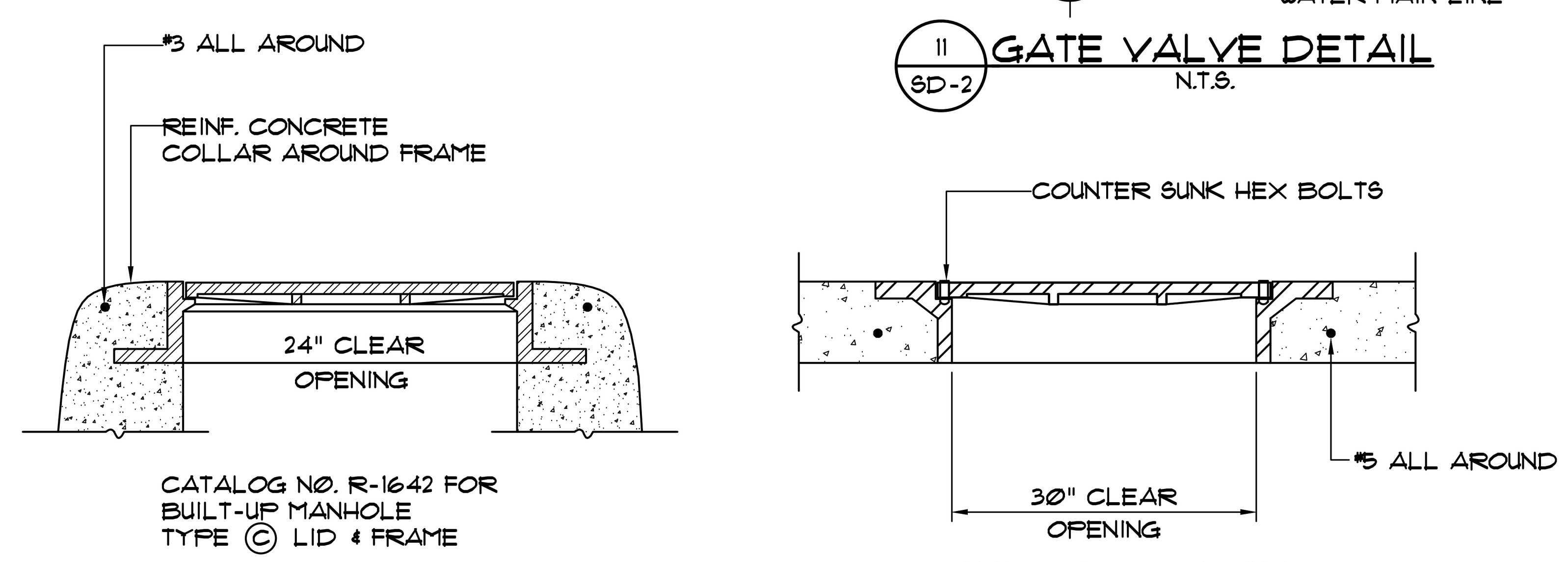
6 / SD-2 TYPICAL TRENCH DETAIL FOR STORMWATER
NOT TO SCALE

NOTE: MINIMUM COVER 2'-0"

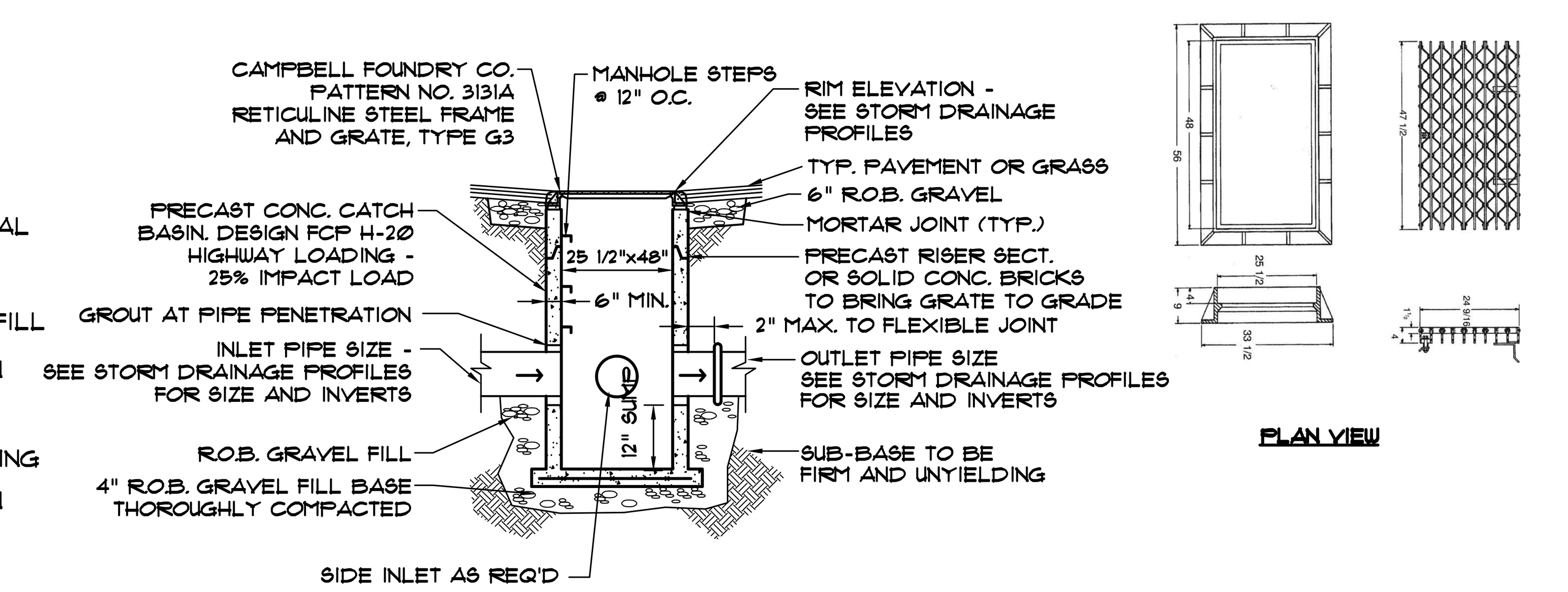


7 / SD-2 PRECAST SEWER MANHOLE
N.T.S.

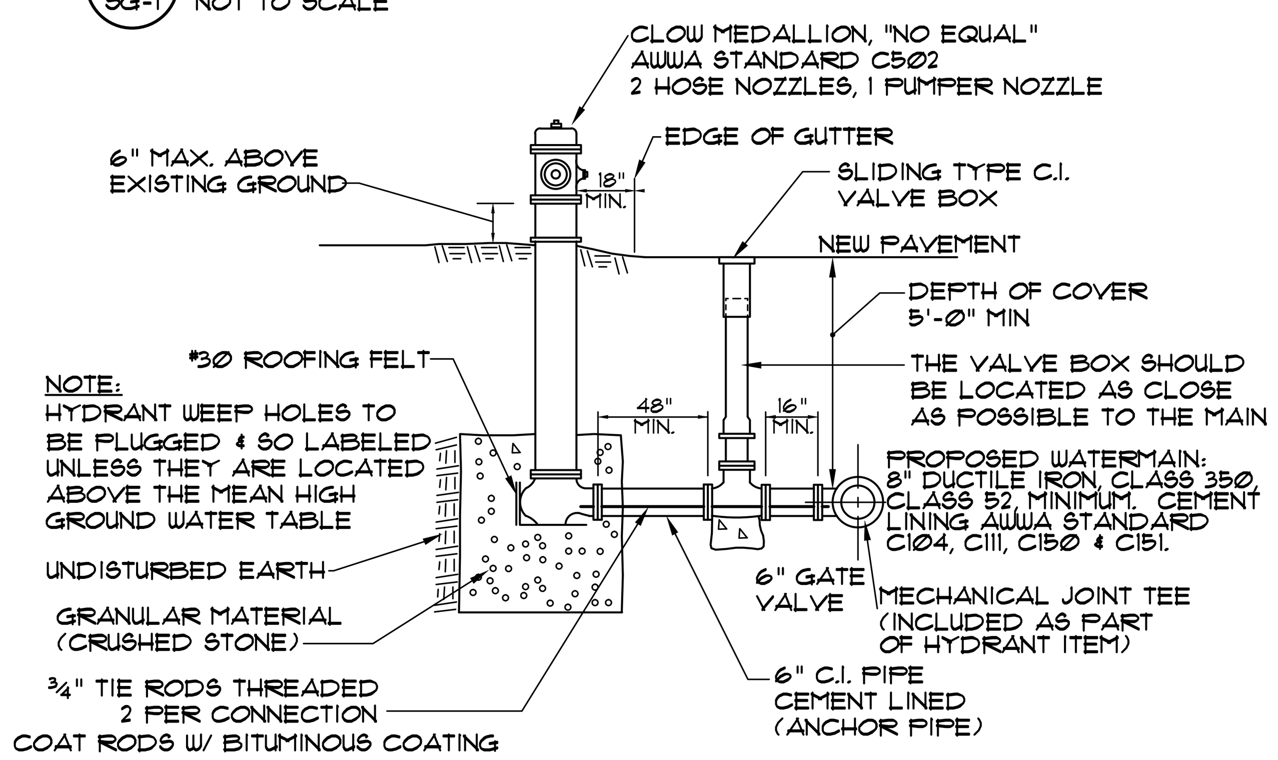




8 / SD-2 MANHOLE LID & FRAME DETAILS
N.T.S.

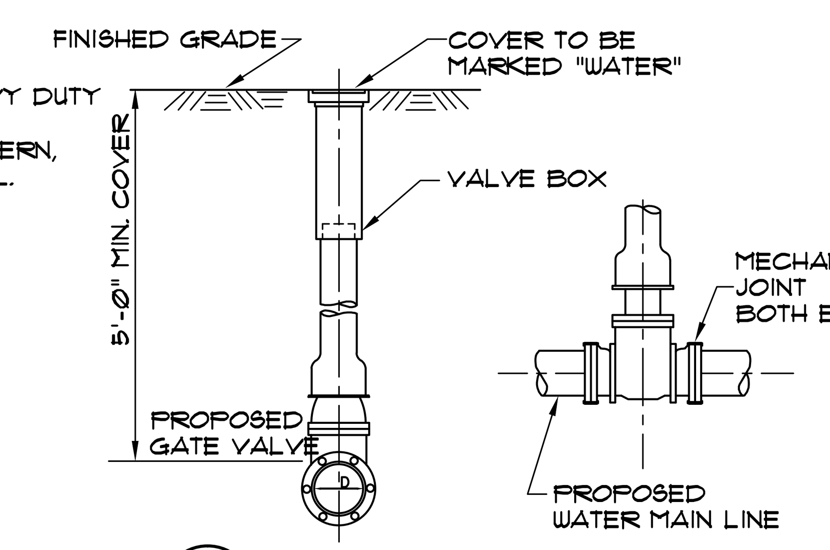


1A / SG-1 TYP. CATCH BASIN DETAIL
NOT TO SCALE

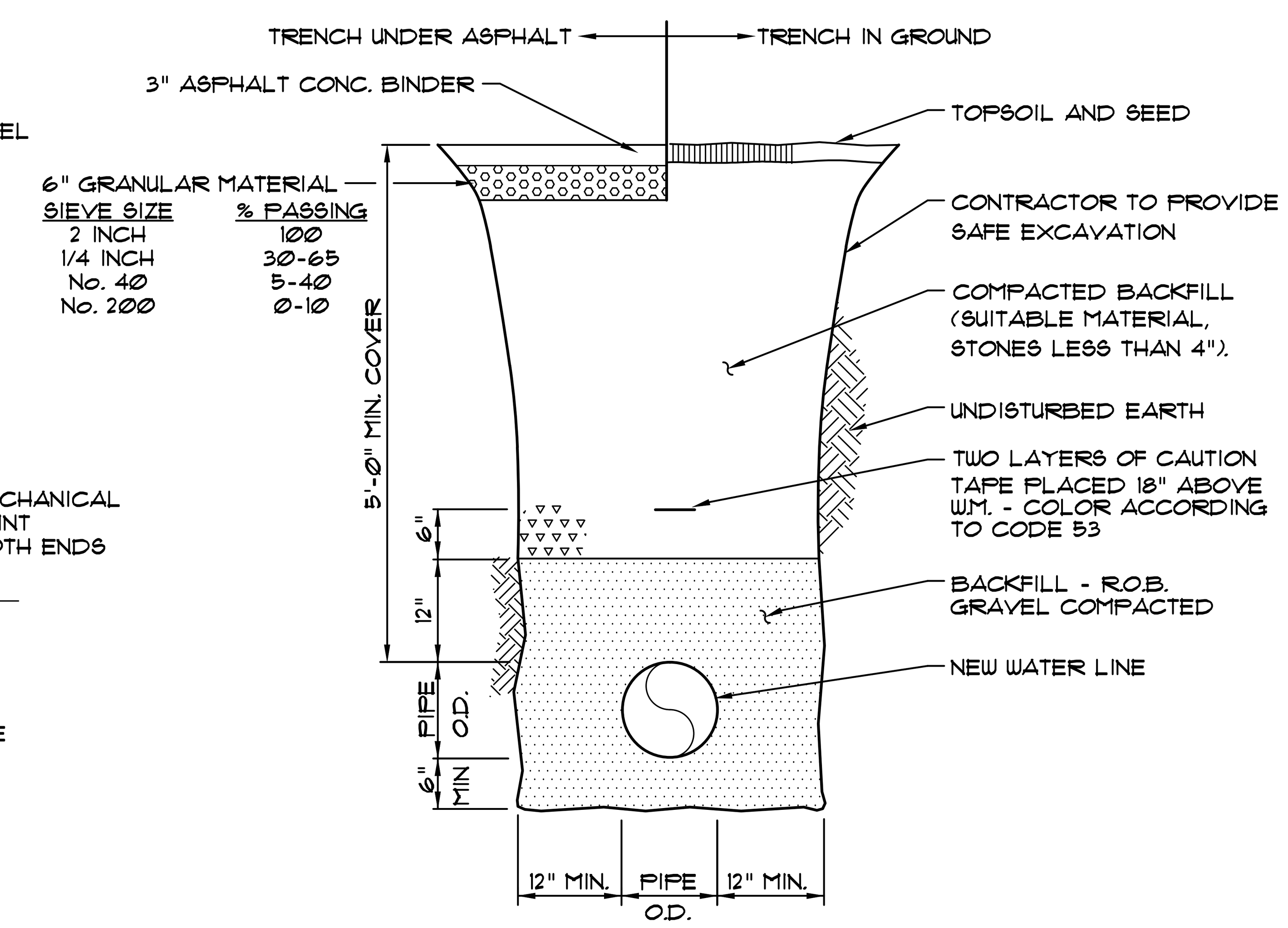


NOTES
1. ALL FLANGES ON FIRE HYDRANT LEG TO BE MECHANICAL JOINT RETAINING TYPE OF FLANGES
2. THE USE OF CONCRETE THRUST BLOCKS FOR THE PURPOSE OF RESTRAINING HYDRANTS, TEES & ELBOWS IS PROHIBITED. ONLY RESTRAINING GLANDS OR TIE RODS, OR BOTH MAYBE USED AT CHANGES OF DIRECTION FOR FIRE HYDRANTS AND WATER MAINS.

10 / SD-2 FIRE HYDRANT ASSEMBLY COMPLETE
N.T.S.



11 / SD-2 GATE VALVE DETAIL
N.T.S.



6" GRANULAR MATERIAL

SIEVE SIZE	% PASSING
2 INCH	100
1/4 INCH	30-65
No. 40	5-40
No. 200	0-10

12 / SD-2 TYPICAL WATER MAIN & SPRINKLER LINE TRENCH DETAIL
NOT TO SCALE

NOTE: ALL WATER MAINS TO BE DUCTILE IRON CLASS 52 CEMENT-LINED AND BITUMINOUS COATED

REVISIONS

NO.	DATE	BY	CHKED	DESCRIPTION

CHARLES P. MAY & ASSOCIATES, P.C.
DESIGN PROFESSIONALS
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BUCKINGHAM PROPERTIES
NELSON AVENUE
VILLAGE OF WAPPINGERS FALLS
DUTCHESS COUNTY, NEW YORK
TAX MAP ID. NO. 134601-6158-13-071325

DATE	DRAWN	CHECKED
03-12-2019	MJN	CPM

SCALE: AS NOTED

SHEET TITLE
SITE DETAILS

PROJECT NUMBER
2016-04

SD-2
DRAWING NUMBER
SHEET 16 OF 19

Drawing Name: C:\PROJECTS\BUCKINGHAM PROPERTIES\SITE PLAN DRAWING FILES\00 SHEET DRAWINGS\16_SD-2.DWG Date: 03/12/19 Time: 11:32 AM
Referenced Drawings: DigSafe

THE FOLLOWING REQUIREMENTS APPLY TO ALL RETAINING WALLS ON THE SITE:

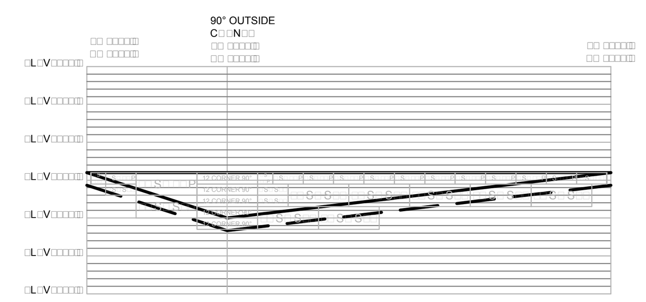
DESIGN FOR THE RETAINING WALL SHOWN HEREON SHALL BE PREPARED BY A NYS LICENSED PROFESSIONAL STRUCTURAL/GEOTECHNIC ENGINEER AND SUBMITTED TO THE VILLAGE BUILDING INSPECTOR AND VILLAGE ENGINEER FOR RECORD PRIOR TO CONSTRUCTION. SUCH DESIGN DRAWINGS (OR SHOP DRAWINGS) SHALL BEAR THE STAMP AND SIGNATURE OF SUCH ENGINEER, AND SHALL BE SPECIFIC FOR THE SITE AND SPECIFIC TO THE RETAINING WALL SYSTEM TO BE UTILIZED AND SHALL CONSIDER ALL APPROPRIATE AND NECESSARY POSSIBLE LOADINGS AND CONDITIONS RELATED TO THIS PROJECT.

THE AFOREMENTIONED DESIGN AND DETAILS SHALL CONSIDER / IDENTIFY / INCLUDE, BUT SHALL NOT BE LIMITED TO: SIGNED AND SEALED DESIGN CALCULATIONS, COMPLETE AND SPECIFIC CONSTRUCTION PLANS AND DETAILS FOR EACH WALL, APPROPRIATE SIZING FOR DRAINAGE SYSTEM TO HANDLE INTENSE STORM CONDITIONS, MAINTENANCE ABILITY TO CLEAN STORMWATER PIPING SYSTEMS, APPROPRIATE BACKFILL MATERIAL SUFFICIENT POROSITY TO ALLOW FREE DRAINING OF WATER, EVALUATE POTENTIAL FAILURE BY INTERNAL/EXTERNAL FAILURE MECHANISMS, GLOBAL FAILURE OR OTHER POTENTIAL FAILURES, AND SEISMIC DESIGN CONSIDERATIONS.

IF THE WALL OR WALLS ARE TIERED WALLS, THE DESIGN SHALL INCLUDE AN ANALYSIS OF THE MINIMUM SPACING OF WALLS TO ALLOW THE INDIVIDUAL WALLS TO ACT AS INDIVIDUAL WALLS BASED ON THE SPECIFIC SITE AND CONSTRUCTION CONDITIONS. IF THE WALLS ARE TO BE PLACED CLOSER THAN THE SAME, THE SPECIFIC DESIGN SHALL CONSIDER THE LOADS SUPERIMPOSED BY ONE WALL TO THE OTHER.

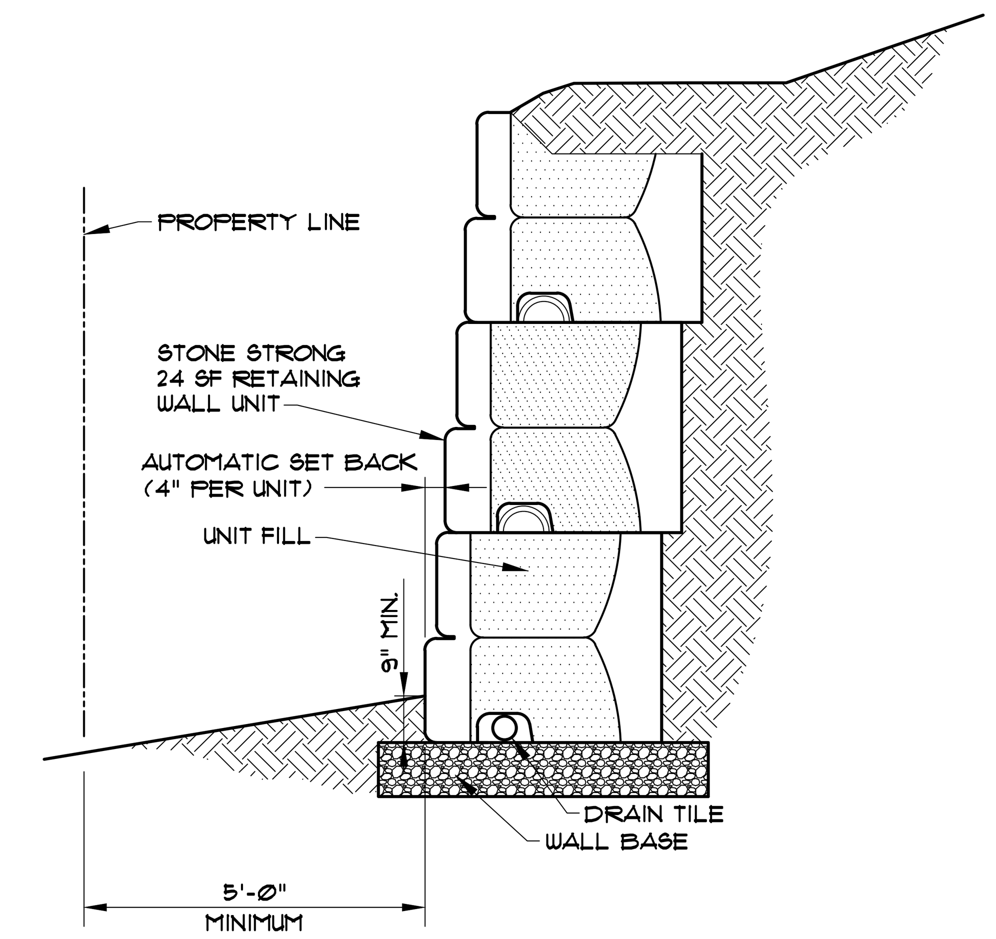
DURING CONSTRUCTION, THE WORK MUST BE INSPECTED BY A NYS LICENSED PROFESSIONAL ENGINEER WHO SHALL PROVIDE WRITTEN VERIFICATION TO THE VILLAGE INSPECTOR AND VILLAGE ENGINEER, PRIOR TO THE REQUEST FOR A CERTIFICATE OF OCCUPANCY, THAT HE/SHE HAS PERSONALLY INSPECTED THE WORK, AND THE INSTALLATION IS IN COMPLIANCE WITH THE DESIGN DRAWINGS AND MANUFACTURER'S INSTALLATION RECOMMENDATIONS.

IF DEEMED NECESSARY BY THE DESIGN ENGINEER AND/OR THE VILLAGE, THIRD PARTY TESTING WILL BE PERFORMED REGARDING MATERIAL COMPACTION, FILL QUALITY, ETC. A COPY OF ALL SUCH TESTING RECORDS SHALL BE PROVIDED TO THE VILLAGE BUILDING DEPARTMENT FOR RECORD.



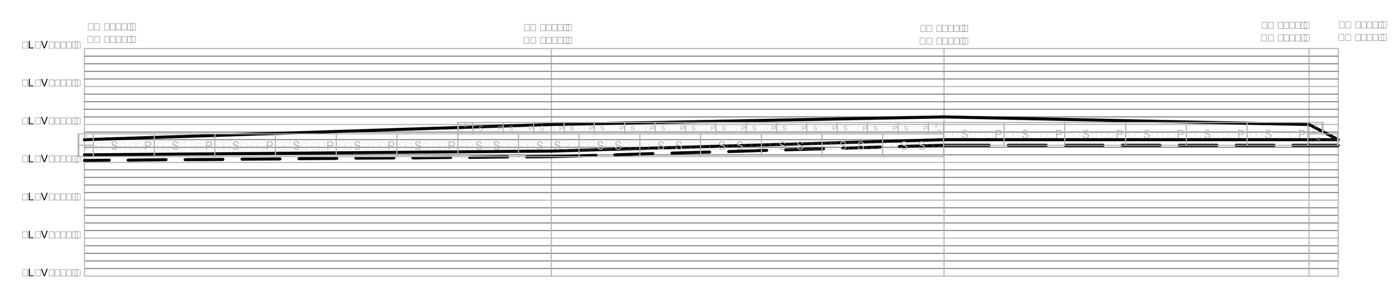
1 / WE-1 RETAINING WALL ELEVATION

SCALE: HORIZ: 1"=20' VERT: 1"=20'



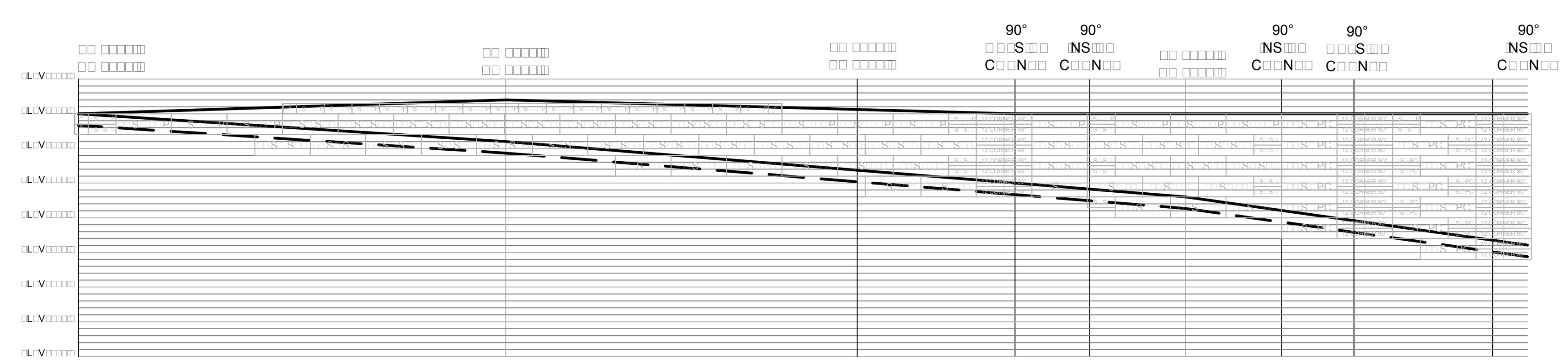
- / WE-1 24 SF TYPICAL GRAVITY WALL CROSS SECTION

NOT TO SCALE



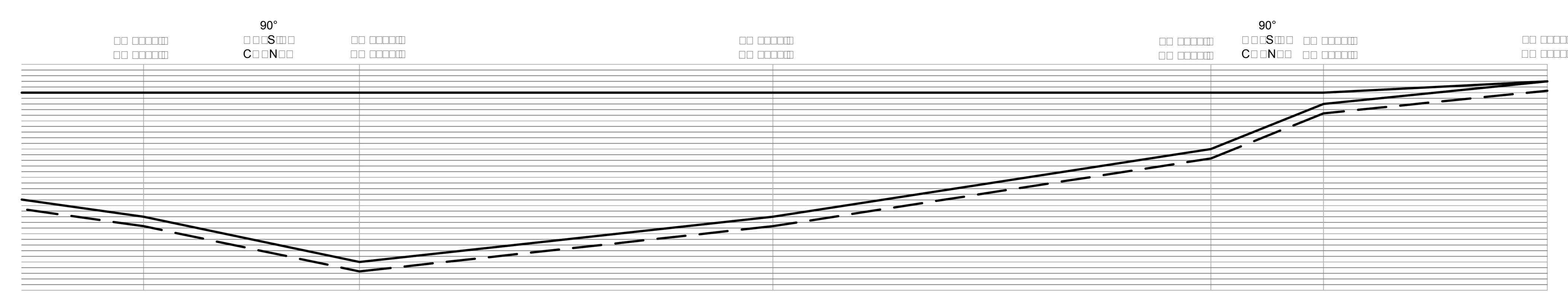
2 / WE-1 RETAINING WALL ELEVATION

SCALE: HORIZ: 1"=20' VERT: 1"=20'



3 / WE-1 RETAINING WALL ELEVATION

SCALE: HORIZ: 1"=10' VERT: 1"=10'



4 / WE-1 RETAINING WALL ELEVATION

SCALE: HORIZ: 1"=10' VERT: 1"=10'

NOTE: WALL ELEVATIONS ARE FOR BIDDING PURPOSES ONLY. DESIGN DRAWINGS SHALL BE PREPARED BY LHV PRECAST, INC.

REVISIONS

NO.	DATE	BY	CHKED	DESCRIPTION

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DESIGN PROFESSIONALS
367 Windsor Highway, New Windsor, New York 12553, 845-567-3030
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BUCKINGHAM PROPERTIES
NELSON AVENUE
VILLAGE OF WAPPINGERS FALLS
DUTCHESS COUNTY, NEW YORK
TAX MAP ID. NO. 134601-6153-13-071325

DATE	DRAWN	CHECKED
03-12-2019	MVA	CPM

SCALE: AS NOTED

SHEET TITLE
RETAINING WALL ELEVATIONS

PROJECT NUMBER
2016-04

WE-1
DRAWING NUMBER

Drawing Name: C:\PROJECTS\BUCKINGHAM PROPERTIES\SITE PLAN DRAWING FILES\00 SHEET DRAWINGS\18_WE-1.DWG Date: 03/12/19 Time: 1:16 PM
Referenced Drawings: DigSafe

FLOOR PLAN

SCALE: 1/8" = 1'-0"

ELEVATION PLAN

SCALE: 1/8" = 1'-0"

REVISIONS				
NO.	DATE	BY	CHKD	DESCRIPTION

CHARLES P. MAY & ASSOCIATES, P.C.

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1073 Main Street, Suite 203
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BUCKINGHAM PROPERTIES

NELSON AVENUE
VILLAGE OF WAPPINGERS FALLS
DUTCHESS COUNTY, NEW YORK
TAX MAP ID. NO. 134601-6158-13-071325

DATE	DRAWN	CHECKED
03-12-2019	MJN	CPM

SCALE AS NOTED

SHEET TITLE

EXTERIOR ELEVATION & FLOOR PLAN

PROJECT NUMBER

2016-04

EE-1

DRAWING NUMBER

SHEET 19 OF 19

Traffic Impact Study

Buckingham Properties

Channingville Road and Nelson Avenue
Village of Wappingers Falls, Dutchess County, New York

January 27, 2017
Revised April 6, 2017

Prepared For

Buckingham Property Management, Inc.
657 Main Street
Mount Kisco, NY 10549

Prepared By

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MC Project No. 16003191A

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I. INTRODUCTION

A. PROJECT DESCRIPTION AND LOCATION (Figure No. 1)

This report has been prepared to evaluate the potential traffic impacts associated with the proposed Buckingham Properties residential development, which is planned to be developed on property located east of Channingville Road and Nelson Avenue approximately 1,300 feet south of Clinton Street in the Village of Wappingers Falls, Dutchess County, New York. The site is proposed to consist of 200 residential apartment units. As shown on Figure No. 1, access to the development is proposed to be provided via a new driveway connection to Nelson Avenue approximately 1,300 feet south of the Clinton Street and Nelson Avenue intersection. In addition, access to the development will be provided via a second new driveway connection to Channingville Road approximately 1,000 feet north of the Channingville Road and Jordan Street intersection.

A Design Year of 2022 has been utilized in completing the traffic analysis in order to evaluate future traffic conditions associated with this proposed development.

B. SCOPE OF STUDY

This study has been prepared to identify current and future traffic operating conditions on the surrounding roadway network and to assess the potential traffic impacts of the proposed Buckingham Properties Development.

All available traffic count data for the study area intersections were obtained from previous reports prepared by our office. These data were supplemented with new traffic counts collected by representatives of Maser Consulting, P.A. Together these data were utilized to establish the Year 2017 Existing Traffic Volumes representing existing traffic conditions in the vicinity of the site.

The Year 2017 Existing Traffic Volumes were then projected to the 2022 Design Year to take into account background traffic growth as well as any other potential or approved developments in the area.

Estimates were then made of the potential traffic that the proposed development would generate during each of the peak hours (see Section III-B for further discussion). These volumes were then added to the roadway system based on anticipated arrival and departure distributions and combined with the Year 2022 No-Build Traffic Volumes resulting in the Year 2022 Build Traffic Volumes.

The Existing, No-Build and Build Traffic Volumes were then compared to roadway capacities based on the procedures from the Highway Capacity Manual to determine existing and future Levels of Service and operating conditions. Recommendations for improvements were made where necessary to serve the existing and/or future traffic volumes.

II. EXISTING ROADWAY AND TRAFFIC DESCRIPTIONS

A. DESCRIPTION OF EXISTING ROADWAYS

As shown on Figure No. 1, the proposed Buckingham Properties Development will be accessed from Nelson Avenue via a new driveway connection to be located approximately 1,300 feet south of the Clinton Street and Nelson Avenue intersection as well as a second site access driveway connection to Channingville Road approximately 1,000 feet north of the Channingville Road and Jordan Street intersection. The following is a brief description of the roadways located within the study area. In addition, Section III-F provides a further description of the existing geometrics, traffic control and a summary of the existing and future Levels of Service and any recommended improvements for each of the study area intersections. Appendix "D" contains copies of the capacity analyses, which indicate the existing geometrics (including lane widths) and other characteristics for each of the individual intersections studied.

1. Channingville Road/Nelson Avenue
   Channingville Road/Nelson Avenue is a two lane roadway under the Village of Wappingers Falls jurisdiction to the north and under the Town of Poughkeepsie jurisdiction to the south. The roadway originates at a "T" intersection with Reed Avenue and traversing northeast, terminating at a "T" intersection with Delavergne Avenue. The roadway mainly serves residential land uses and one fire station as well as providing access to the New Hamburg Metro-North Train Station. The roadway consists of one lane in each direction and a posted speed limit of 30 mph. The roadway pavement is generally in good condition both in the Village of Wappinger and the Town of Poughkeepsie with the exception of the section of the roadway between the Town/Village Line north to Clinton Street where pavement cracking and some potholes exist.

2. NYS Route 9D (W. Main Street)
   NYS Route 9D is classified as a Principal Arterial Other Roadway under New York State Department of Transportation (NYSDOT) jurisdiction. The roadway generally consists of one travel lane per direction in the immediate area that traverses in a north/south direction through Putnam and Southern Dutchess County. South of the site, the roadway provides access to I-84 as well as U.S. Route 9 to the North and east. The posted speed limit is 30 mph and sidewalks are provided along both sides

of the roadway. The roadway pavement is generally in good condition with the study area.

3. Delavergne Avenue
Delavergne Avenue is a two lane roadway under the Village of Wappingers Falls jurisdiction between NYS Route 9D and the Village line approximately 550 ft. west of Nelson Avenue. Beyond the Village line the roadway is under the jurisdiction of the Town of Poughkeepsie. Delavergne Avenue originates at a “T” intersection with NYS Route 9D and traversing west, terminating at a “T” intersection with Sheafe Road. The roadway mainly serves residential land uses along with some commercial land uses closer to the intersection with NYS Route 9D. The posted speed limit is 25 mph and sidewalks are provided along both sides of the roadway closer to the intersection with NYS Route 9D. The roadway pavement is generally in good condition with the study area.

4. Clinton Street
Clinton Street is a two lane roadway under the Village of Wappingers Falls jurisdiction originating at a “T” intersection with NYS Route 9D and traversing west, terminating at a “T” intersection with Nelson Avenue. The north side of the street serves mainly residential uses while the south side of the street provides access to St. Mary’s Church and its school. The posted speed limit is 20 mph and sidewalks are provided along both sides of the roadway. On street parking is permitted on the north side of the roadway. It should be noted that between Saturday at 4:30 PM and Sunday at 1:30 PM, Clinton Street is one-way westbound in order to accommodate church services and parking. The roadway pavement is generally in good condition with the study area.

5. Reed Avenue
Reed Avenue is a two lane roadway under the jurisdiction of the Town of Poughkeepsie, originating at a “T” intersection with Main Street/Channingville Road and traversing west, terminating at a “T” intersection with Stone Street. The roadway mainly serves residential land uses and has approximately 10-foot travel lanes with a posted speed limit of 30 mph. The roadway pavement is generally in good condition with the study area.

B. <u>YEAR 2017 EXISTING TRAFFIC VOLUMES</u> (Figures No. 2. and 3)

Manual turning movement traffic counts were collected by representatives of Maser Consulting, P.A. on January 5, 2017, January 11, 2017 and January 12, 2017 during the weekday AM and PM peak periods. These traffic volume data were used to determine the existing traffic volume conditions at the study area intersections. Based on this information, the Year 2017 Existing Traffic Volumes were established for the Weekday Peak AM and Weekday Peak PM Hours at the following study area intersections:

- Delavergne Avenue and NYS Route 9D/W. Main Street
- Clinton Street and NYS Route 9D/W. Main Street
- Nelson Avenue and Clinton Street
- Channingville Road/Main Street and Reed Avenue

Based upon a review of the traffic counts, the peak hours were generally identified as follows:

- Weekday Peak AM Hour 7:30 AM – 8:30 AM
- Weekday Peak PM Hour 4:30 PM – 5:30 PM

The resulting Year 2017 Existing Traffic Volumes are shown on Figures No. 2 and 3 for the Weekday Peak AM Hour and Weekday Peak PM Hour, respectively.

III. EVALUATION OF FUTURE TRAFFIC CONDITIONS

A. <u>YEAR 2022 NO-BUILD TRAFFIC VOLUMES</u> (Figure No. 4 and 5)

The Year 2017 Existing Traffic Volumes were increased by a growth factor of 2.0% per year to account for general background growth in the area. This growth factor is considered conservatively high based on historical data from NYSDOT, which indicates a lower historical growth level. However, this conservative growth rate was used in order to account for traffic from any other potential or approved developments in the area that could impact the traffic in the study area. The resulting Year 2022 No-Build Traffic Volumes are shown on Figures No. 4 and 5 for the Weekday Peak AM and Weekday Peak PM Hours, respectively.

B. <u>SITE GENERATED TRAFFIC VOLUMES</u> (Tables No. 1)

Estimates of the amount of traffic to be generated by the proposed development during each of the peak hours were developed based on information published by the Institute of Transportation Engineers (ITE) as contained in their report entitled “Trip Generation”, 9th Edition, 2012, based on Land Use Category – 220 – Apartment. Table No. 1 summarizes the trip generation rates and corresponding site generated traffic volumes for the Weekday Peak AM and Peak PM Hours. It should be noted that due to the site’s proximity to the Hamburg Metro North Train Station, it is anticipated that a significant portion of trips may be destined to and from the train station as commuter traffic. However, since the site is in excess of one (1) mile from the train and there are no pedestrian facilities provided along Channingville Road, it is expected that the majority of these trips would likely be vehicular trips and therefore no credit for mass transit trips has been taken in the analysis.

C. <u>ARRIVAL AND DEPARTURE DISTRIBUTIONS</u> (Figures No. 6 and 7)

Arrival and departure distributions were established to assign the site generated traffic volumes to the surrounding roadway network. Based on a review of the Existing Traffic Volumes and the expected travel patterns on the surrounding roadway network and proposed internal roadway layout and access connections, the distributions were identified. The anticipated arrival and departure distributions are shown on Figures No. 6 and 7, respectively.

D. <u>2022 BUILD CONDITIONS TRAFFIC VOLUMES</u> (Figures No. 8 through 11)

The site generated traffic volumes were assigned to the roadway network based on the arrival and departure distributions referenced above. The resulting site generated traffic volumes for each of the study area intersections are shown on Figures No. 8 and 9 for each of the peak hours, respectively. The site generated traffic volumes were then added to the Year 2022 No-Build Traffic Volumes to obtain the Year 2022 Build Traffic Volumes. The resulting Year 2022 Build Traffic Volumes are shown on Figures No. 10 and 11 for the Weekday Peak AM and Weekday Peak PM Hours, respectively.

E. <u>DESCRIPTION OF ANALYSIS PROCEDURES</u>

It was necessary to perform capacity analyses to determine existing and future traffic operating conditions at the study area intersections. The following is a brief description of the analysis method utilized in this report:

- <u>Signalized Intersection Capacity Analysis</u>
  The capacity analysis for a signalized intersection was performed in accordance with the procedures described in the *2010 Highway Capacity Manual*, published by the Transportation Research Board. The terminology used in identifying traffic flow conditions is Levels of Service. A Level of Service "A" represents the best condition and a Level of Service "F" represents the worst condition. A Level of Service "C" is generally used as a design standard while a Level of Service "D" is acceptable during peak periods. A Level of Service "E" represents an operation near capacity. In order to identify an intersection's Level of Service, the average amount of vehicle delay is computed for each approach to the intersection as well as for the overall intersection.

- Unsignalized Intersection Capacity Analysis
  The unsignalized intersection capacity analysis method utilized in this report was also performed in accordance with the procedures described in the *2010 Highway Capacity Manual*. The procedure is based on total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line. The average total delay for any particular critical movement is a function of the service rate or capacity of the approach and the degree of saturation. In order to identify the Level of Service, the average amount of vehicle delay is computed for each critical movement to the intersection.

Additional information concerning signalized and unsignalized Levels of Service can be found in Appendix “C” of this report.

F. RESULTS OF ANALYSIS (Table No. 2)

Capacity analyses, which take into consideration appropriate truck percentages, pedestrian activity, roadway grades and other factors, were performed at the study area intersections utilizing the procedures described above to determine the Levels of Service and average vehicle delays. Summarized below are a description of the existing geometrics, traffic control and a summary of the existing and future Levels of Service as well as any recommended improvements.

Table No. 2 summarizes the results of the capacity analysis for the 2017 Existing, 2022 No-Build and 2022 Build Conditions. Appendix “D” contains copies of the capacity analysis which also indicate the existing geometrics (including lane widths) and other characteristics for each of the individual intersections studied.

1. Delavergne Avenue and NYS Route 9D
   Delavergne Avenue intersects with NYS Route 9D at a signalized “T” shaped intersection. All approaches consist of one travel lane and each approach has sidewalks on both sides of the roadway. A crosswalk is provided in the north/south direction crossing Delavergne Avenue; however the signalized intersection does not have a separate pedestrian phase.

Capacity analysis was conducted for this intersection utilizing the 2017 Existing Traffic Volumes. The analysis results indicate that the intersection is currently operating at an overall Level of Service “A” during the AM and PM Peak Hours.

The capacity analysis was recomputed using the 2022 No-Build and Build Traffic volumes. These results indicate that the intersection is expected to operate at an overall Level of Service “B” during the AM and PM Peak Hours under No-Build and Build conditions.

2. Clinton Street and NYS Route 9D

Clinton Street intersects with NYS Route 9D at an unsignalized “T” shaped intersection controlled by a “Stop” sign on the Clinton Street approach. All approaches to the intersection consist of one lane and sight distances are good for all approaches. Each approach has sidewalks on both sides of the roadway and a crosswalk is provided in the north/south direction crossing Clinton Street.

Capacity analysis was conducted for this intersection utilizing the 2017 Existing Traffic Volumes. The analysis results indicate that the intersection is currently operating at a Level of Service “C” or better during AM Peak Hour and a Level of Service “D” or better during the PM Peak Hour.

The capacity analysis was recomputed using the 2022 No-Build and Build Traffic volumes. Under the No-Build scenario, the results indicate that the intersection is expected to continue to operate at a Level of Service “C” or better during the AM Peak Hour while a Level of Service “E” or better will be experienced during the PM Peak Hour. Under the Build scenario, the results indicate that the intersection is expected to operate at a Level of Service “D” or better during the AM Peak Hour while a Level of Service “E” or better will be experienced during the PM Peak Hour.

It should be noted that the eastbound left turn movement is the movement that experiences the highest delay for both the No-Build and Build conditions at this location. However, the presence of the traffic signal at the NYS Route 9D and Delavergne Avenue intersection provides some gaps along NYS Route 9D which should help accommodate the eastbound left turn movement for the NYS Route 9D and Clinton Street intersection. Furthermore, although this intersection will most likely not meet traffic signal warrants, a separate analysis was completed as a signalized intersection under No-Build and Build scenarios. The analysis results indicate that the intersection would operate at an overall Level of Service “A” for both the time periods during No-Build and Build scenarios if it was signalized. Under this condition, the eastbound left turn approach would improve to a Level of Service "C" for both time periods during No-Build and Build scenarios. The intersection could be monitored in the future if necessary to determine if signalization would be warranted.

3. Nelson Avenue and Clinton Street
Clinton Street intersects with Nelson Avenue at an unsignalized "T" shaped all-way stop intersection. All approaches to the intersection consist of one lane and sight distances are good for all approaches. There are sidewalks on both sides of Clinton Street as well as on the east side of Nelson Avenue.

Capacity analysis was conducted for this intersection utilizing the 2017 Existing Traffic Volumes. The analysis results indicate that the intersection is currently operating at a Level of Service "A" during the AM and PM Peak Hours.

The capacity analysis was recomputed using the 2022 No-Build and Build Traffic volumes. These results indicate that the intersection is expected to continue to operate at a Level of Service "A" during the AM and PM Peak Hours across both the No-Build and Build scenarios.

4. Channingville Road/Main Street and Reed Avenue
Reed Avenue intersects with Channingville Road/Main Street at an unsignalized "T" shaped intersection controlled by a "Stop" sign on the Reed Avenue approach. All approaches to the intersection consist of one lane and sight distances are good for all approaches.

Capacity analysis was conducted for this intersection utilizing the 2017 Existing Traffic Volumes. The analysis results indicate that the intersection is currently operating at a Level of Service "B" or better during the AM and PM Peak Hours.

The capacity analysis was recomputed using the 2022 No-Build and Build Traffic volumes. These results indicate that the intersection is expected to continue to operate at a Level of Service "B" or better during both the AM and PM Peak Hours across both the No-Build and Build scenarios.

5. Nelson Avenue and North Site Access
   The northern Site Access driveway is proposed to intersect with Nelson Avenue at an unsignalized “T” shaped intersection approximately 1,300 feet south of the Clinton Street and Nelson Avenue intersection. All approaches to the intersection will consist of one lane and sight distances are good for all approaches.

   The required sight distance for this site access connection is 335 feet and according to field review, the sight distance provided is approximately 420 feet in the north direction and 410 feet in the south direction. However, to achieve greater sight distances, clearing and pruning of the vegetation from both approaches is recommended.

   Capacity analysis was conducted for this intersection utilizing the 2022 Build Traffic Volumes. These results indicate that the intersection is expected to operate at a Level of Service “A” during the AM and PM Peak Hours. It is recommended that the driveway approach to the intersection be “stop” sign controlled and that “Intersection Ahead” sings be posted on the main road.

6. Channingville Road and South Site Access
   The southern Site Access driveway is proposed to intersect with Channingville Road at an unsignalized “T” shaped intersection approximately 1,000 feet north of the Channingville Road and Jordan Street intersection. All approaches to the intersection will consist of one lane and sight distances are good for all approaches.

   The required sight distance for this site access connection is 335 feet and according to field review, the sight distance provided is approximately 350 feet in the north direction and 1000 feet in the south direction. However, to achieve greater sight distances, clearing and pruning of the vegetation from both approaches is recommended.

   Capacity analysis was conducted for this intersection utilizing the 2022 Build Traffic Volumes. These results indicate that the intersection is expected to operate at a Level of Service “A” during the AM and PM Peak Hours. It is recommended that the driveway approach to the intersection be “stop” sign controlled and that “Intersection Ahead” sings be posted on the main road.

IV. SUMMARY AND CONCLUSION

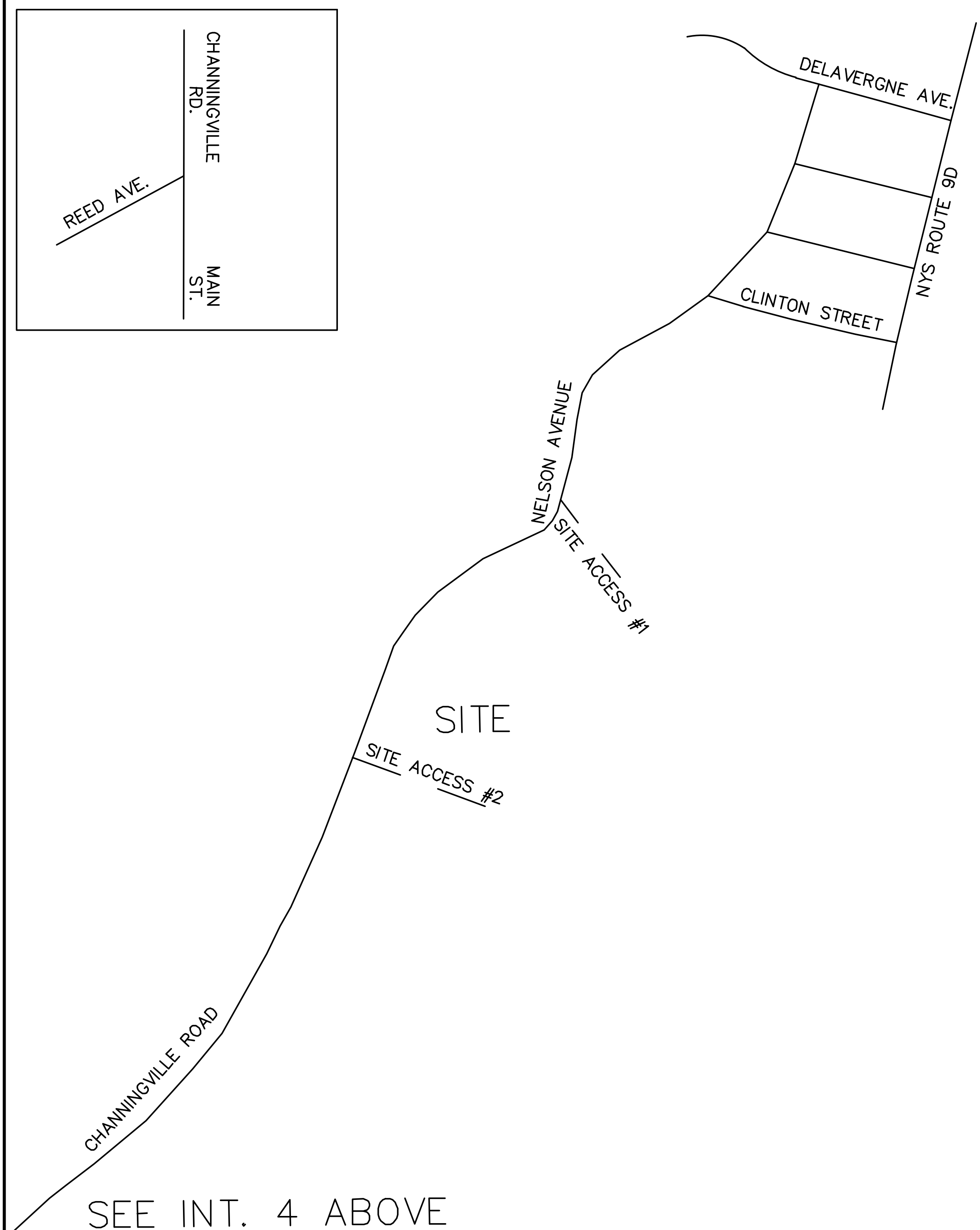
Similar Levels of Service and delays will be experienced at the area intersections under the future No-Build and Build Conditions as indicated in the above analysis. The Buckingham Properties Development's traffic is not expected to result in any significant impact in traffic operating conditions on the roadways in the vicinity of the site. The site access driveway connections should be constructed to maximize sight distances entering and exiting each location which may require clearing/pruning of vegetation along the site frontage. In addition, the NYS Route 9D and Clinton Street intersection could be monitored in the future if necessary to determine if signalization would be warranted.

It should also be noted that the additional traffic generated by the proposed development is not expected to significantly impact roadway pavement conditions in the vicinity of the site as the majority of the traffic volume will be passenger vehicles. As previously indicated the roadway pavement for each of the study area roadways is generally considered to be in good condition with the exception of the section of Nelson Avenue between the Village of Wappinger/Town of Poughkeepsie line and Clinton Street where pavement cracking and some potholes exist. This section of roadway may need to be repaired and/or resurfaced in the near future regardless of the proposed development as part of regular roadway maintenance. However, any impacts to the area roadways as a result of construction activities should be repaired upon completion of the development.

BUCKINGHAM PROPERTIES

APPENDIX A

FIGURES



NOTE: LINE DIAGRAM NOT TO SCALE

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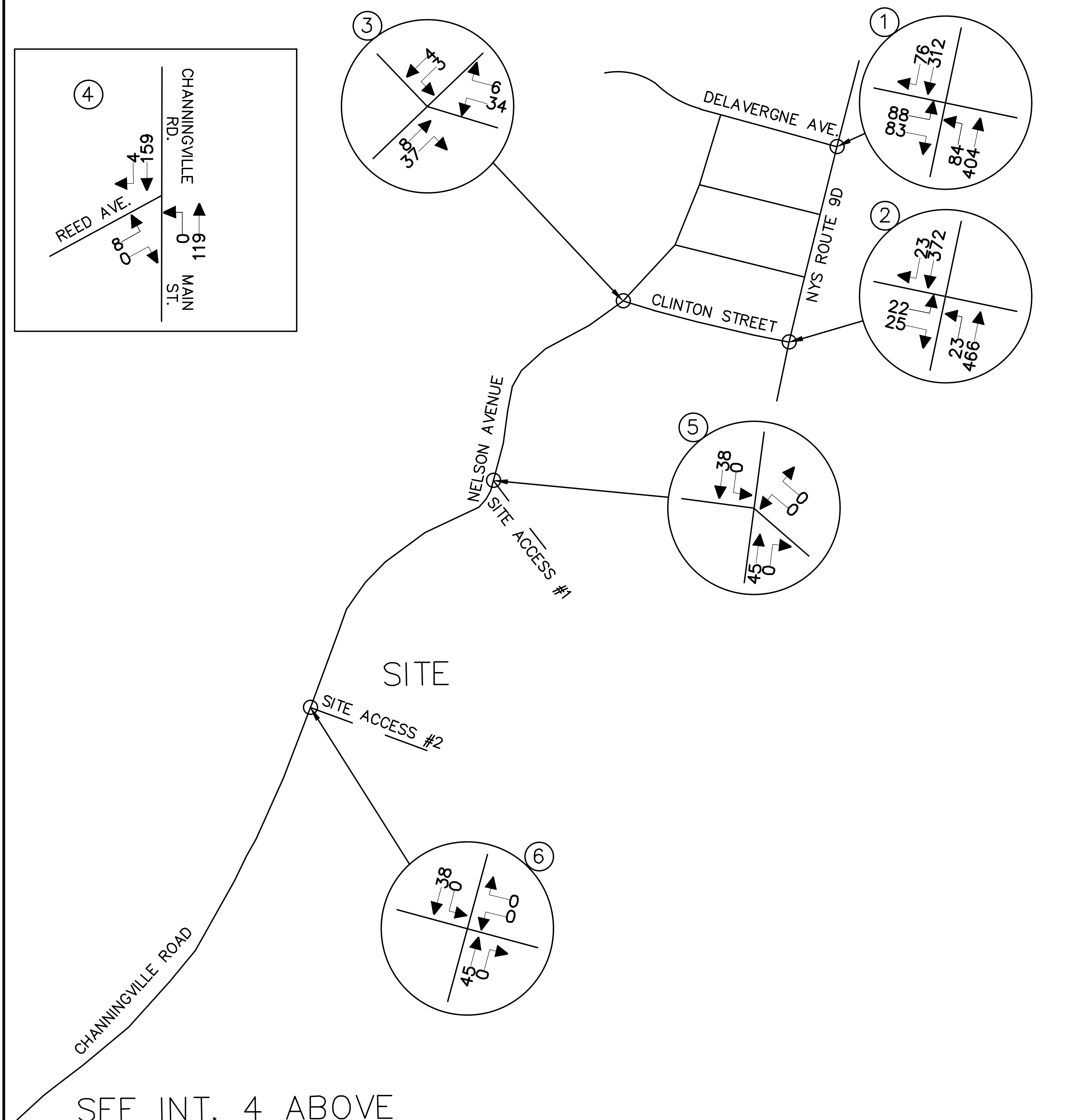
BUCKINGHAM PROPERTIES
VILLAGE OF WAPPINGERS FALLS, DUTCHESS COUNTY, NY

SITE LOCATION MAP

JOB NUMBER:	DATE:
16003191A	1/25/2017
FIGURE NUMBER:	
1	



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BUCKINGHAM PROPERTIES
VILLAGE OF WAPPINGERS FALLS, DUTCHESS COUNTY, NY

2017 EXISTING TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR

JOB NUMBER:	DATE:
16003191A	1/25/2017
FIGURE NUMBER:	
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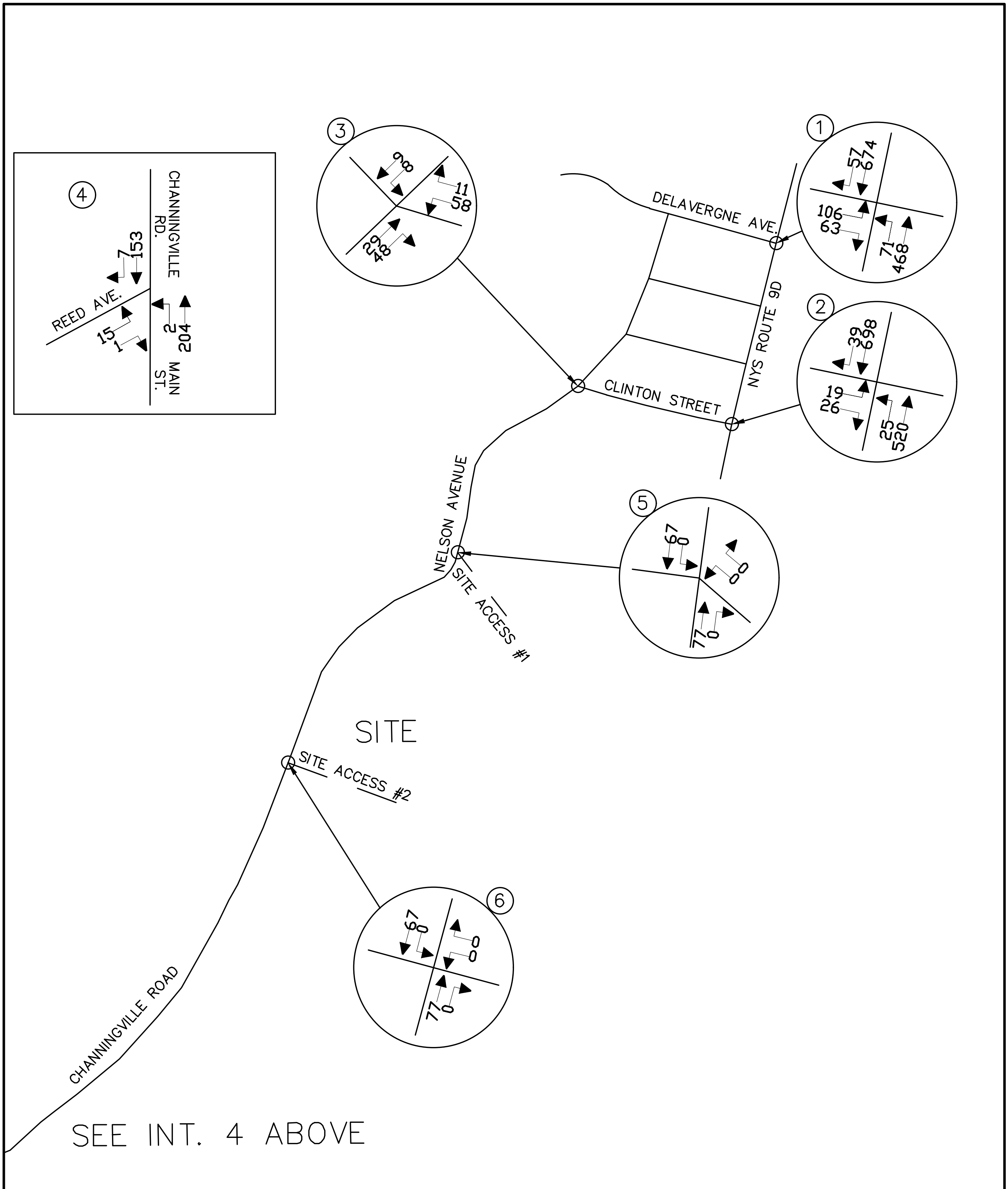

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BUCKINGHAM PROPERTIES
VILLAGE OF WAPPINGERS FALLS, DUTCHESS COUNTY, NY

2017 EXISTING TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR

JOB NUMBER:	DATE:
16003191A	1/25/2017
FIGURE NUMBER:	
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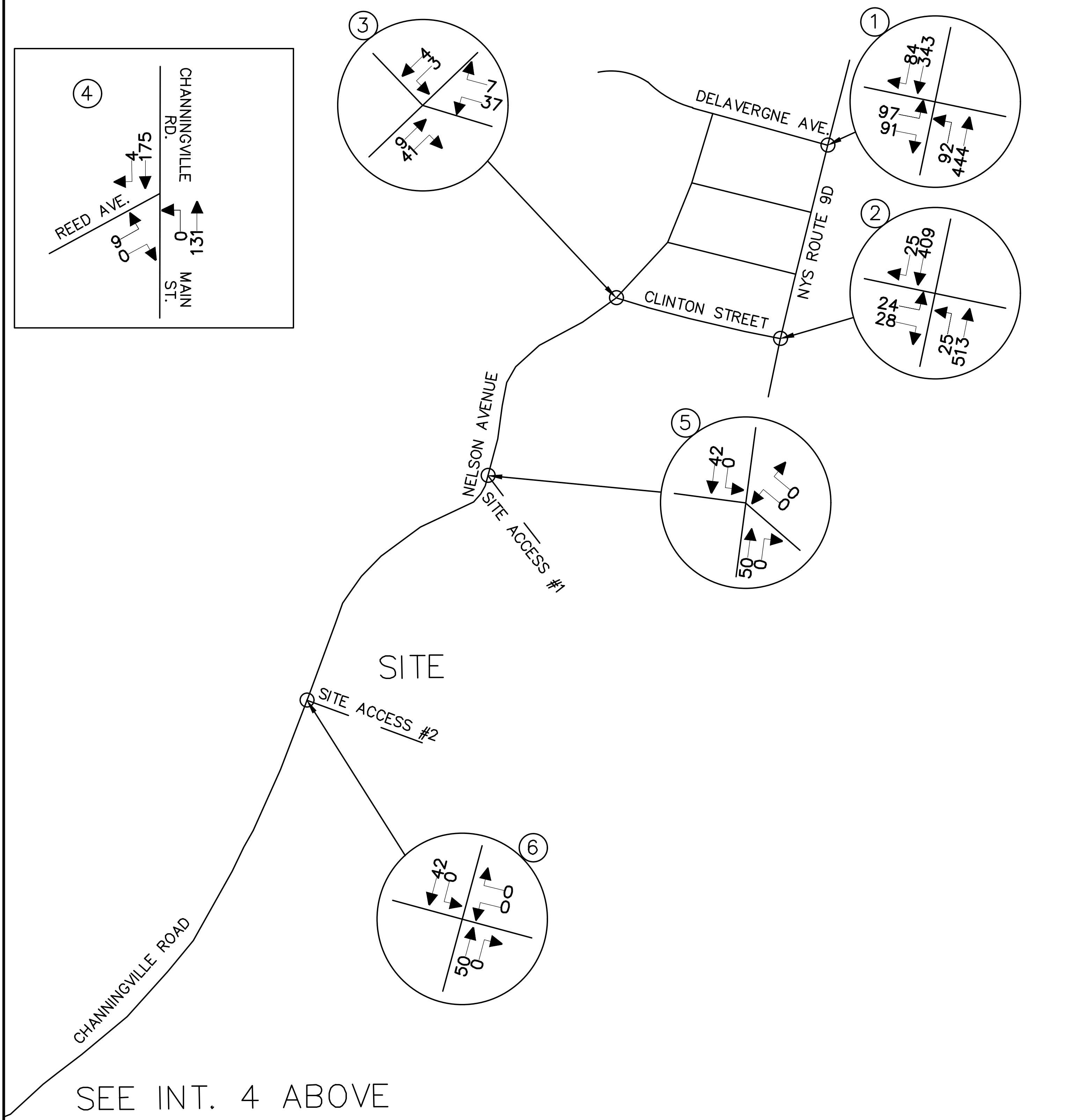

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BUCKINGHAM PROPERTIES
VILLAGE OF WAPPINGERS FALLS, DUTCHESS COUNTY, NY

2022 NO BUILD TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR

JOB NUMBER:	DATE:
16003191A	1/25/2017
FIGURE NUMBER:	
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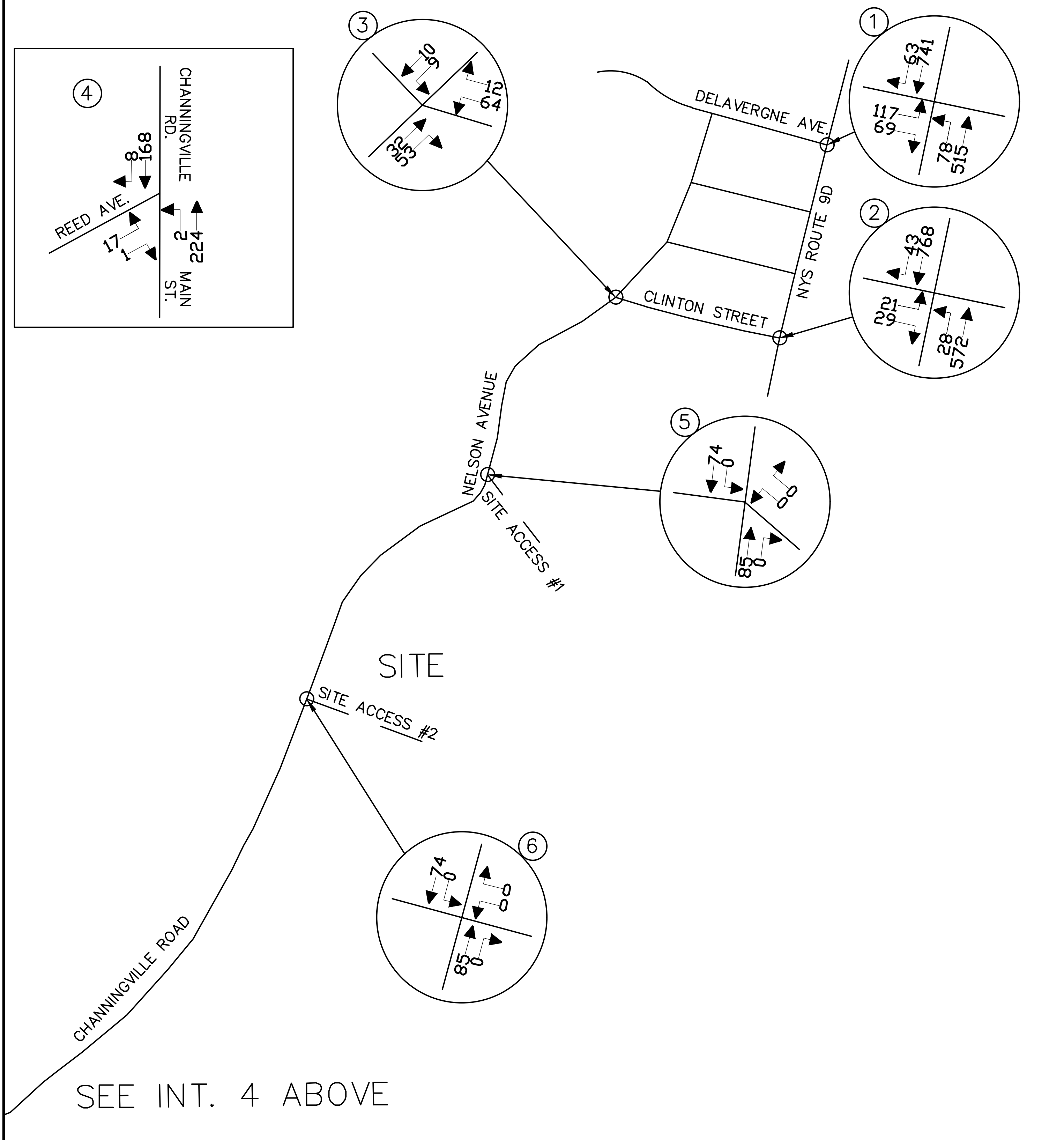

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2022 NO BUILD TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR

JOB NUMBER:	DATE:
16003191A	1/25/2017
FIGURE NUMBER:	
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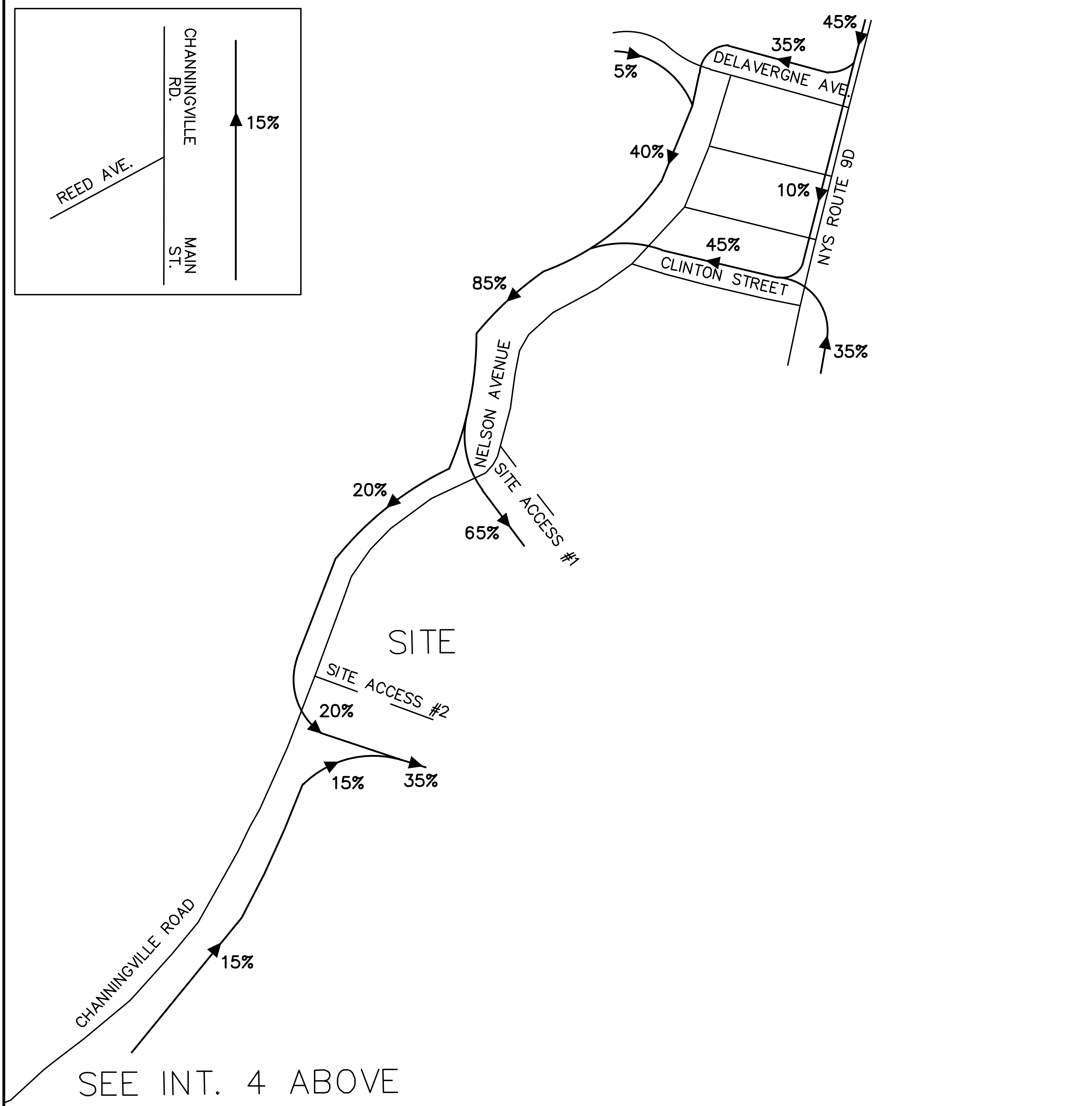

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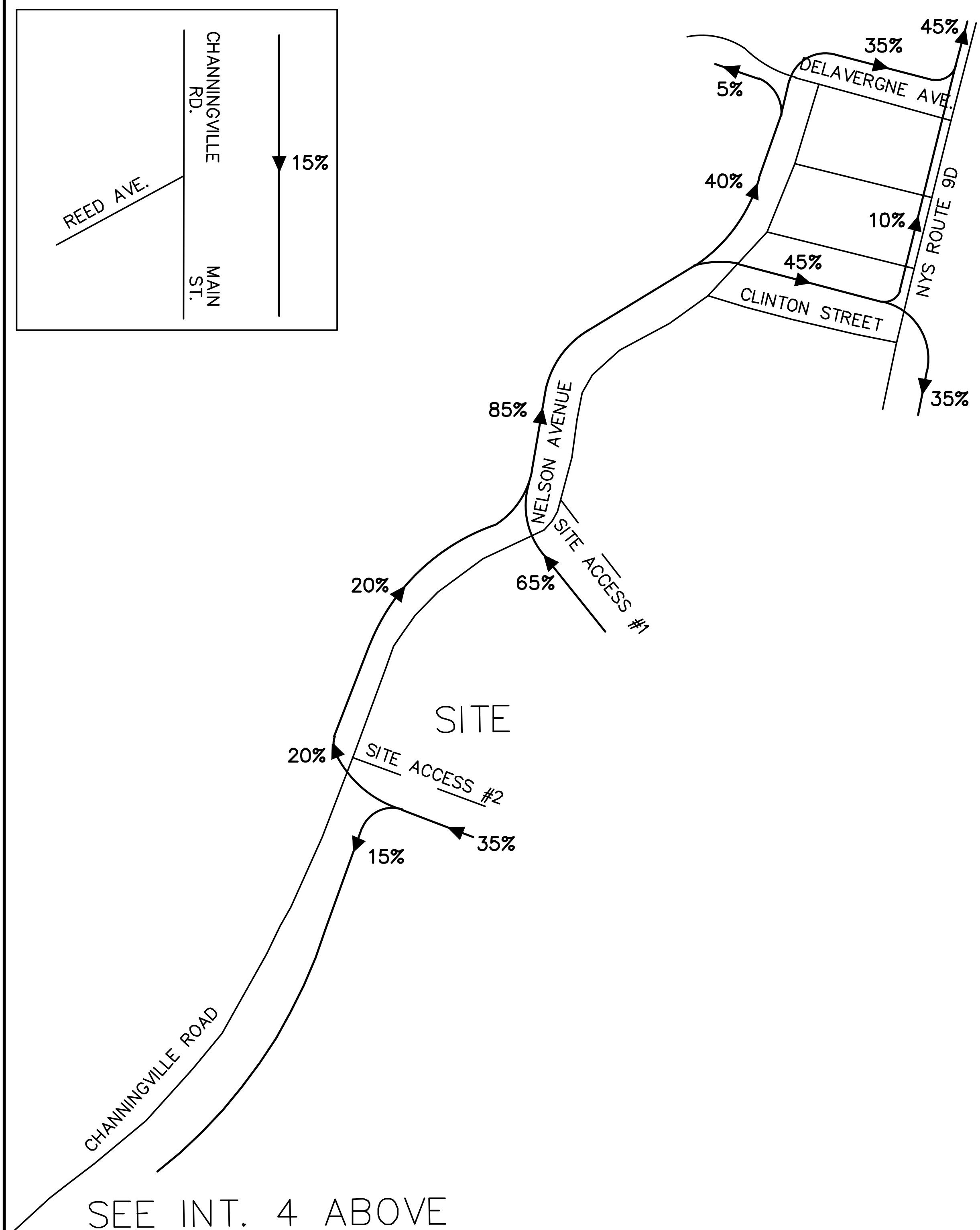
BUCKINGHAM PROPERTIES
VILLAGE OF WAPPINGERS FALLS, DUTCHESS COUNTY, NY

ARRIVAL DISTRIBUTION
(EXPRESSED AS A %)

JOB NUMBER:	DATE:
16003191A	1/25/2017
FIGURE NUMBER:	
6	



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BUCKINGHAM PROPERTIES
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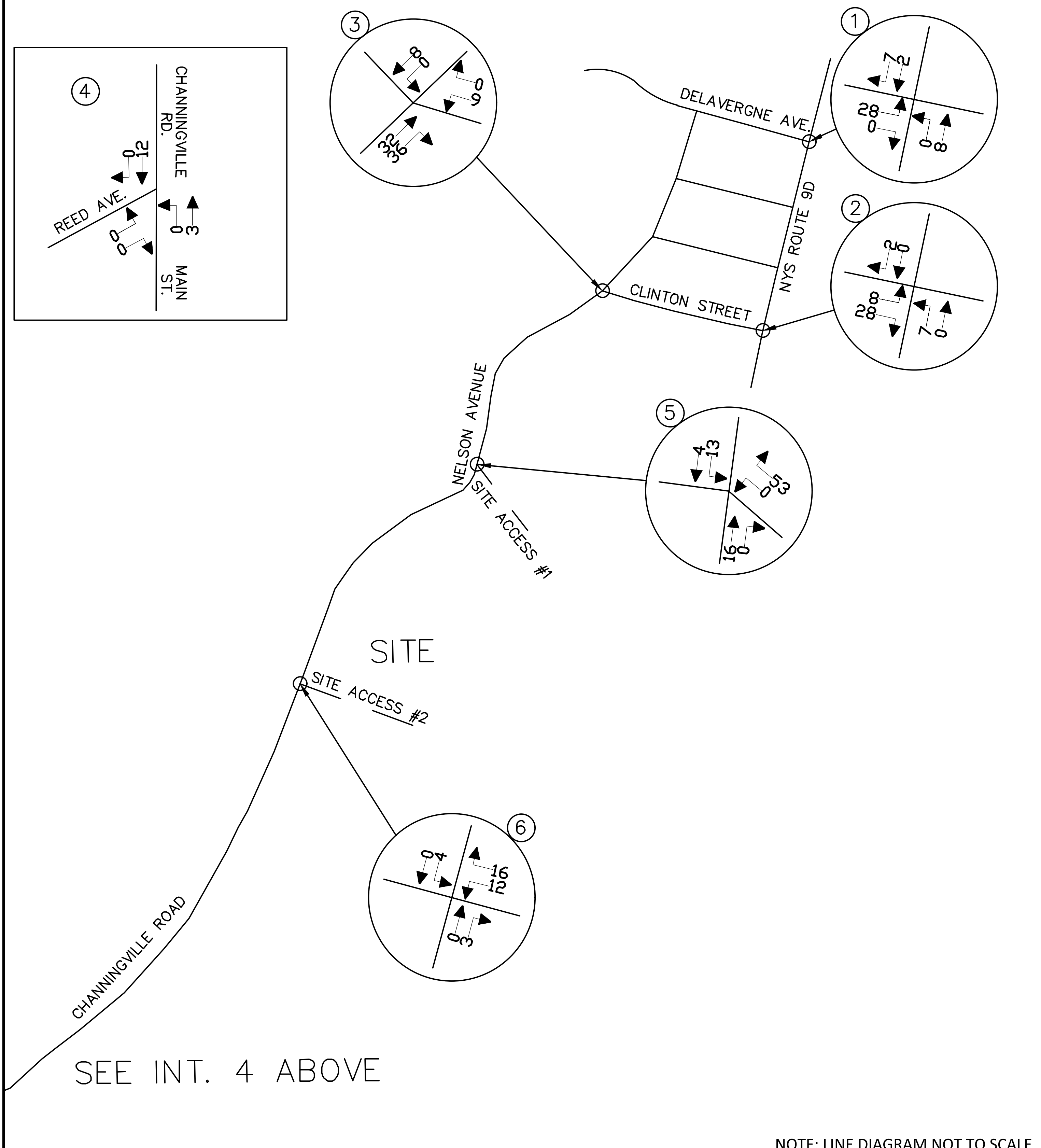
DEPARTURE DISTRIBUTION
(EXPRESSED AS A %)

JOB NUMBER:	DATE:
16003191A	1/25/2017
FIGURE NUMBER:	
7	



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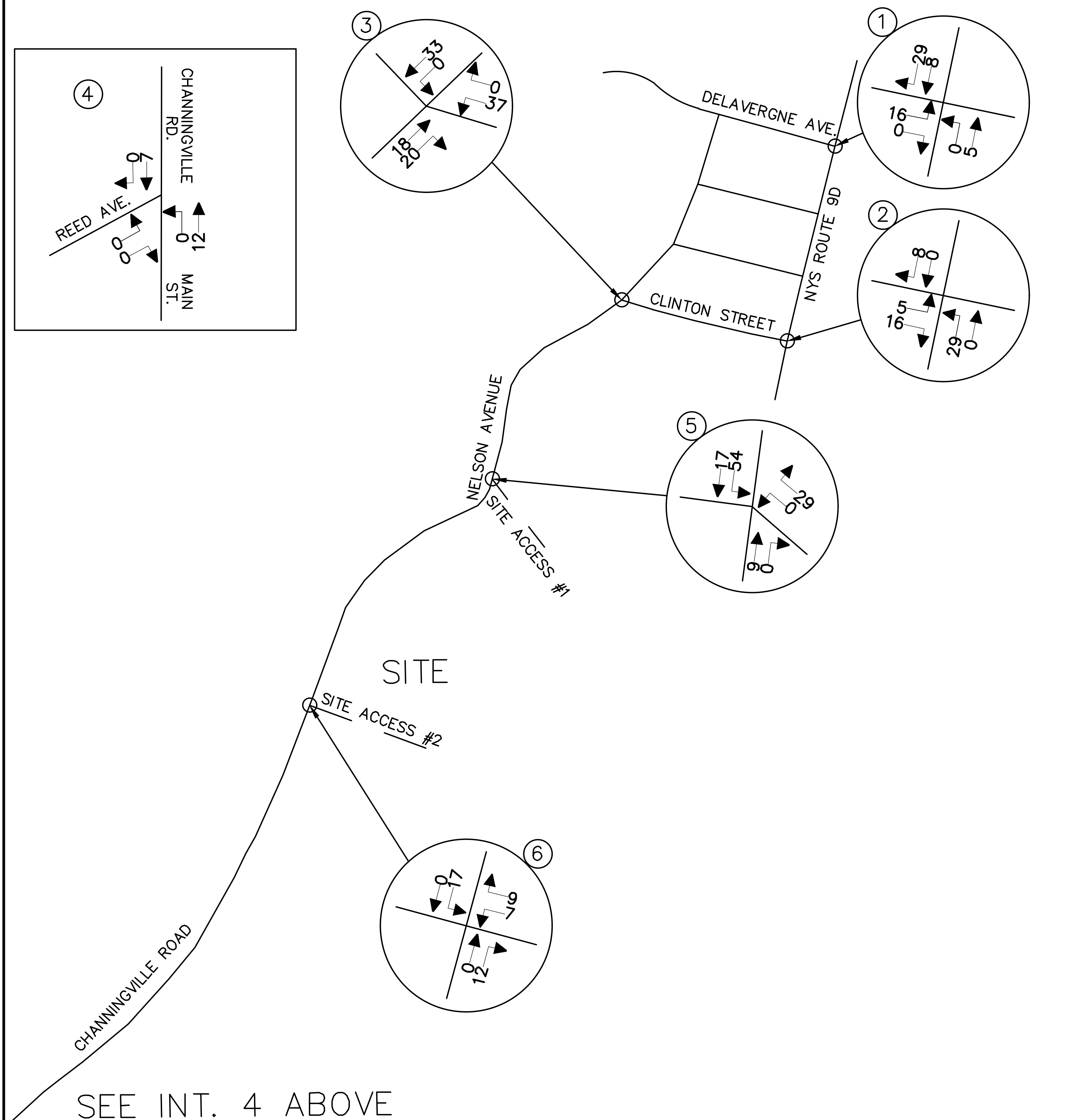
BUCKINGHAM PROPERTIES
VILLAGE OF WAPPINGERS FALLS, DUTCHESS COUNTY, NY

SITE GENERATED TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR

JOB NUMBER:	DATE:
16003191A	1/25/2017
FIGURE NUMBER:	
8	



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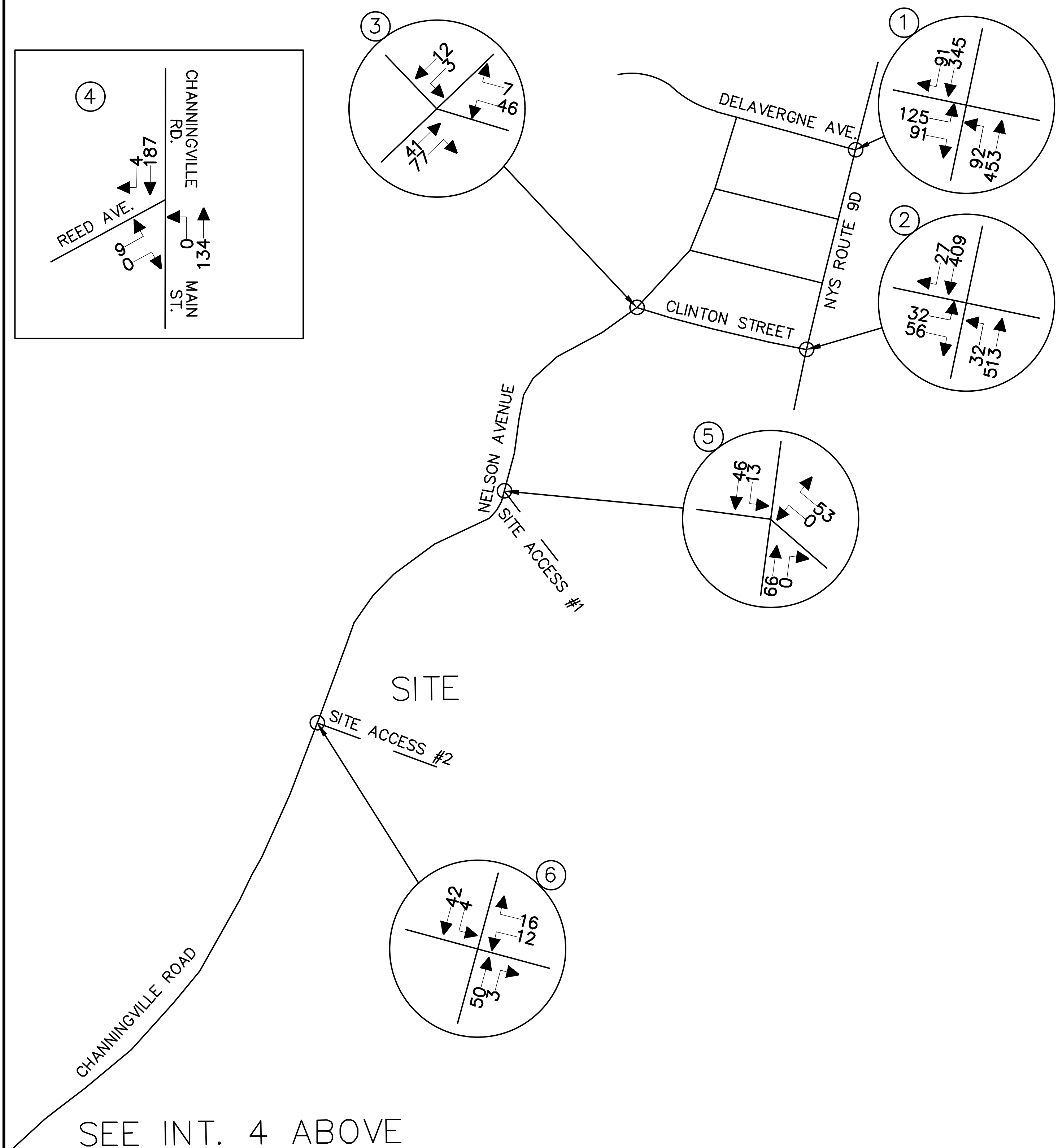
BUCKINGHAM PROPERTIES
VILLAGE OF WAPPINGERS FALLS, DUTCHESS COUNTY, NY

SITE GENERATED TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR

JOB NUMBER:	DATE:
16003191A	1/25/2017
FIGURE NUMBER:	
9	



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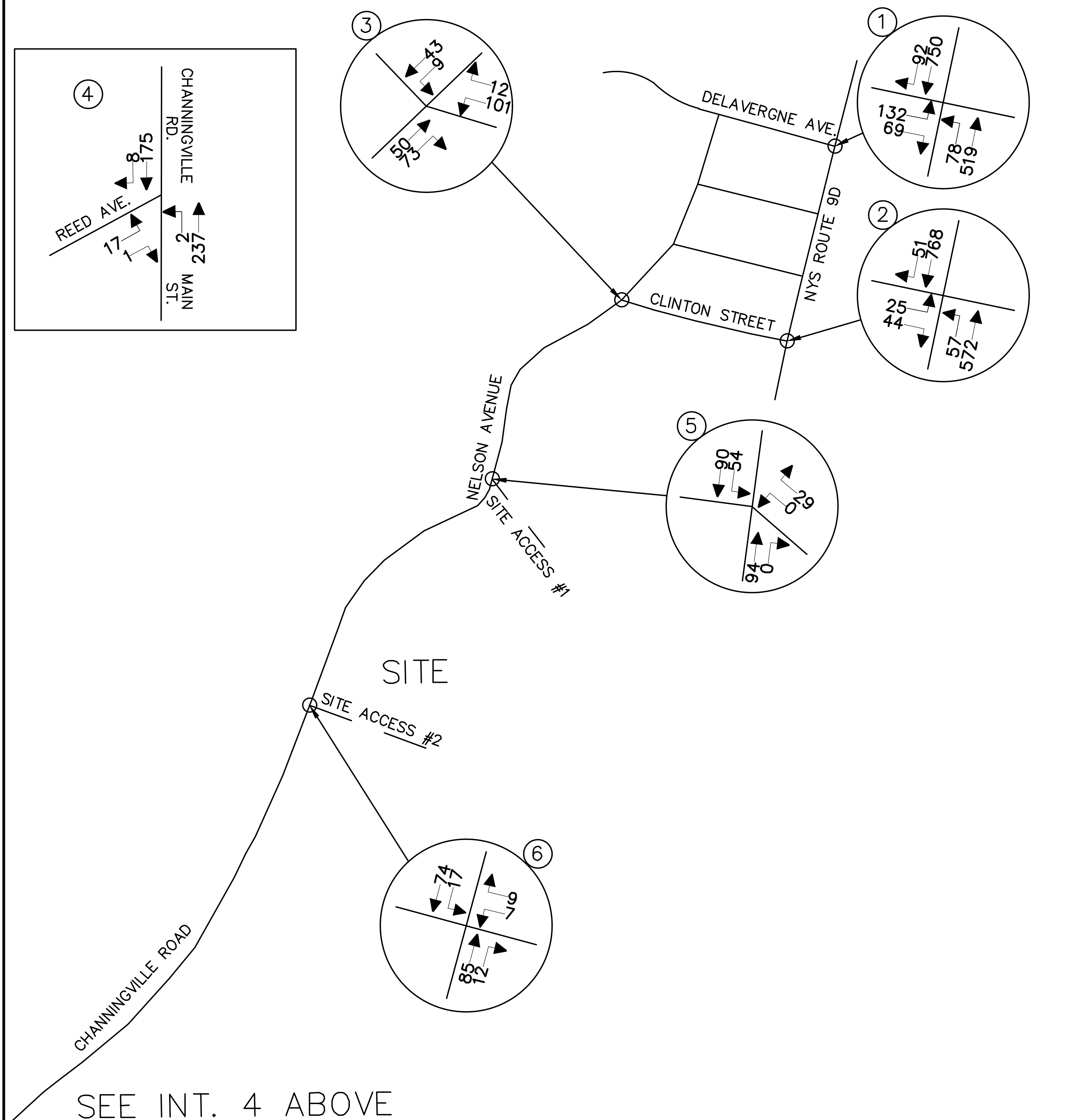
BUCKINGHAM PROPERTIES
VILLAGE OF WAPPINGERS FALLS, DUTCHESS COUNTY, NY

2022 BUILD TRAFFIC VOLUMES
WEEKDAY PEAK AM HOUR

JOB NUMBER:	DATE:
16003191A	1/25/2017
FIGURE NUMBER:	
10	



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BUCKINGHAM PROPERTIES
VILLAGE OF WAPPINGERS FALLS, DUTCHESS COUNTY, NY

2022 BUILD TRAFFIC VOLUMES
WEEKDAY PEAK PM HOUR

JOB NUMBER:	DATE:
16003191A	1/25/2017
FIGURE NUMBER:	
11	

BUCKINGHAM PROPERTIES

APPENDIX B

TABLES

TABLE NO. 1

HOURLY TRIP GENERATION RATES (HTGR) AND ANTICIPATED SITE GENERATED TRAFFIC VOLUMES

BUCKINGHAM PROPERTIES VILLAGE OF WAPPINGERS FALLS, DUTCHESS COUNTY, NEW YORK	ENTRY		EXIT	
	HTGR[1]	VOLUME	HTGR[1]	VOLUME
RESIDENTIAL (200 APARTMENT UNITS)				
PEAK AM HIGHWAY HOUR	0.16	32	0.40	80
PEAK PM HIGHWAY HOUR	0.40	80	0.28	56

NOTES:

1) THE HOURLY TRIP GENERATION RATES (HTGR) ARE BASED ON DATA PUBLISHED BY THE INSTITUTE OF TRANSPORTATION ENGINEERS (ITE) AS CONTAINED IN THE TRIP GENERATION HANDBOOK, 10TH EDITION, 2017. ITE LAND USE CODE - 220 - MULTIFAMILY HOUSING (LOW-RISE).

TABLE NO. 2

LEVEL OF SERVICE SUMMARY TABLE

				2017 EXISTING		2022 NO BUILD		2022 BUILD	
				AM	PM	AM	PM	AM	PM
1	DELAVERGNE AVENUE & NYS ROUTE 9D	**SIGNALIZED**							
	DELAVERGNE AVENUE	EB	LR	C [26.6]	C [26.3]	C [26.5]	C [26.2]	C [26.4]	C [26.2]
		EB APPROACH		C [26.6]	C [26.3]	C [26.5]	C [26.2]	C [26.4]	C [26.2]
	NYS ROUTE 9D	NB	LT	A [6.5]	A [6.2]	A [7.7]	A [9.2]	A [8.9]	B [12.1]
		NB APPROACH		A [6.5]	A [6.2]	A [7.7]	A [9.2]	A [8.9]	B [12.1]
	NYS ROUTE 9D	SB	TR	A [5.4]	A [7.3]	A [6.2]	A [9.0]	A [7.0]	B [10.5]
		SB APPROACH		A [5.4]	A [7.3]	A [6.2]	A [9.0]	A [7.0]	B [10.5]
		OVERALL		**A [9.4]**	**A [9.2]**	**B [10.3]**	**B [11.2]**	**B [11.4]**	**B [13.1]**
2	CLINTON STREET & NYS ROUTE 9D	**UNSIGNALIZED**							
	CLINTON STREET	EB	LR	C [20.1]	D [28.4]	C [23.4]	E [36.6]	D [27.7]	E [46.9]
	NYS ROUTE 9D	NB	LT	A [9.2]	A [9.7]	A [9.4]	B [10.1]	A [9.5]	B [10.4]
	W/ TRAFFIC SIGNAL								
	CLINTON STREET	EB	LR	-	-	C [29.9]	C [25.8]	C [28.4]	C [26.2]
		EB APPROACH		-	-	C [29.9]	C [25.8]	C [28.4]	C [26.2]
	NYS ROUTE 9D	NB	LT	-	-	A [3.8]	A [3.6]	A [5.3]	A [4.3]
		NB APPROACH		-	-	A [3.8]	A [3.6]	A [5.3]	A [4.3]
	NYS ROUTE 9D	SB	TR	-	-	A [3.6]	A [5.9]	A [4.9]	A [6.5]
		SB APPROACH		-	-	A [3.6]	A [5.9]	A [4.9]	A [6.5]
		OVERALL		-	-	**A [5.6]**	**A [5.7]**	**A [7.8]**	**A [6.6]**
3	NELSON AVENUE & CLINTON STREET	**UNSIGNALIZED**							
	CLINTON STREET	WB	LR	A [8.4]	A [7.8]	A [8.4]	A [7.9]	A [8.9]	A [8.7]
	NELSON AVENUE	NEB	TR	A [7.0]	A [7.3]	A [7.0]	A [7.4]	A [7.7]	A [8.1]
	NELSON AVENUE	SWB	LT	A [7.3]	A [7.4]	A [7.3]	A [7.5]	A [7.4]	A [8.0]
		OVERALL		**A [7.7]**	**A [7.5]**	**A [7.7]**	**A [7.6]**	**A [8.1]**	**A [8.3]**
4	CHANNINGVILLE ROAD/MAIN STREET & REED AVENUE	**UNSIGNALIZED**							
	REED AVENUE	EB	LR	B [12.2]	B [13.0]	B [12.7]	B [13.7]	B [13.0]	B [14.1]
	MAIN STREET	NB	LT	A [0.0]	A [7.6]	A [0.0]	A [7.7]	A [0.0]	A [7.7]
5	NELSON AVENUE & SITE ACCESS #1	**UNSIGNALIZED**							
	SITE ACCESS #1	NW	LR	-	-	-	-	A [8.9]	A [8.9]
	NELSON AVENUE	SB	LT	-	-	-	-	A [7.4]	A [7.5]
6	CHANNINGVILLE ROAD & SITE ACCESS #2	**UNSIGNALIZED**							
	SITE ACCESS #2	WB	LR	-	-	-	-	A [8.9]	A [9.3]
	CHANNINGVILLE ROAD	SB	LT	-	-	-	-	A [7.3]	A [7.5]

NOTES:

1) THE ABOVE REPRESENTS THE LEVEL OF SERVICE AND VEHICLE DELAY IN SECONDS, C [16.2], FOR EACH KEY APPROACH OF THE UNSIGNALIZED INTERSECTIONS AS WELL AS FOR EACH APPROACH AND THE OVERALL INTERSECTION FOR THE SIGNALIZED INTERSECTIONS. SEE APPENDIX "C" FOR A DESCRIPTION OF THE LEVELS OF SERVICE.

BUCKINGHAM PROPERTIES

APPENDIX C

LEVEL OF SERVICE STANDARDS

LEVEL OF SERVICE STANDARDS

LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

Level of Service (LOS) can be characterized for the entire intersection, each intersection approach, and each lane group. Control delay alone is used to characterize LOS for the entire intersection or an approach. Control delay and volume-to-capacity (v/c) ratio are used to characterize LOS for a lane group. Delay quantifies the increase in travel time due to traffic signal control. It is also a measure of driver discomfort and fuel consumption. The volume-to-capacity ratio quantifies the degree to which a phase's capacity is utilized by a lane group.

LOS A describes operations with a control delay of 10 s/veh or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.

LOS B describes operations with control delay between 10 and 20 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.

LOS C describes operations with control delay between 20 and 35 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate.

LOS D describes operations with control delay between 35 and 55 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long.

LOS E describes operations with control delay between 55 and 80 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long.

LOS F describes operations with control delay exceeding 80 s/veh or a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long.

A lane group can incur a delay less than 80 s/veh when the volume-to-capacity ratio exceeds 1.0. This condition typically occurs when the cycle length is short, the signal progression is favorable, or both. As a result, both the delay and volume-to-capacity ratio are considered when lane group LOS is established. A ratio of 1.0 or more indicates that cycle capacity is fully utilized and represents failure from a capacity perspective (just as delay in excess of 80 s/veh represents failure from a delay perspective).

The Level of Service Criteria for signalized intersections are given in Exhibit 18-4 from the *2010 Highway Capacity Manual* published by the Transportation Research Board.

Exhibit 18-4

	LOS by Volume-to-Capacity Ratio	
Control Delay (s/veh)	**v/c ≤1.0**	**v/c >1.0**
≤10	A	F
>10-20	B	F
>20-35	C	F
>35-55	D	F
>55-80	E	F
>80	F	F

For approach-based and intersection wide assessments, LOS is defined solely by control delay.

LEVEL OF SERVICE CRITERIA
FOR TWO-WAY STOP-CONTROLLED (TWSC) UNSIGNALIZED INTERSECTIONS

Level of Service (LOS) for a two-way stop-controlled (TWSC) intersection is determined by the computed or measured control delay. For motor vehicles, LOS is determined for each minor-street movement (or shared movement) as well as major-street left turns. LOS is not defined for the intersection as a whole or for major-street approaches.

The Level of Service Criteria for TWSC unsignalized intersections are given in Exhibit 19-1 from the *2010 Highway Capacity Manual* published by the Transportation Research Board.

Exhibit 19-1

	LOS by Volume-to-Capacity Ratio	
Control Delay (s/veh)	**v/c ≤1.0**	**v/c >1.0**
0-10	A	F
>10-15	B	F
>15-25	C	F
>25-35	D	F
>35-50	E	F
>50	F	F

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 for the intersection as a whole.

As Exhibit 19-1 notes, LOS F is assigned to the movement if the volume-to-capacity ratio for the movement exceeds 1.0, regardless of the control delay.

The Level of Service Criteria for unsignalized intersections are somewhat different from the criteria for signalized intersections.

LEVEL OF SERVICE CRITERIA
FOR ALL-WAY STOP-CONTROLLED (AWSC) UNSIGNALIZED INTERSECTIONS

The Levels of Service (LOS) for all-way stop-controlled (AWSC) intersections are given in Exhibit 20-2. As the exhibit notes, LOS F is assigned if the volume-to-capacity (v/c) ratio of a lane exceeds 1.0, regardless of the control delay. For assessment of LOS at the approach and intersection levels, LOS is based solely on control delay.

The Level of Service Criteria for AWSC unsignalized intersections are given in Exhibit 20-2 from the *2010 Highway Capacity Manual* published by the Transportation Research Board.

Exhibit 20-2

	LOS by Volume-to-Capacity Ratio	
Control Delay (s/veh)	**v/c ≤1.0**	**v/c >1.0**
0-10	A	F
>10-15	B	F
>15-25	C	F
>25-35	D	F
>35-50	E	F
>50	F	F

For approaches and intersection wide assessment, LOS is defined solely by control delay.

BUCKINGHAM PROPERTIES

APPENDIX D

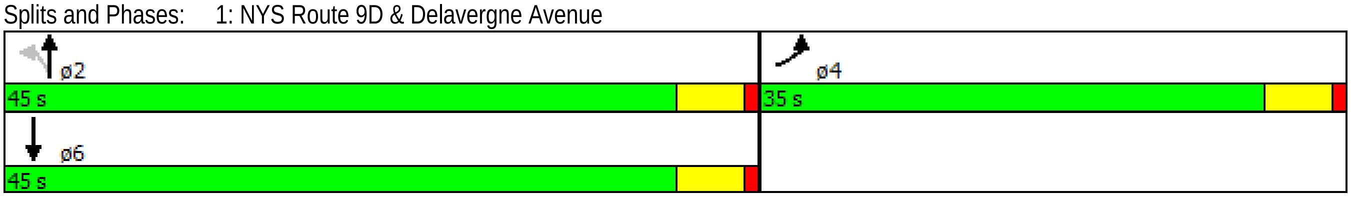
CAPACITY ANALYSIS

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	88	83	84	404	312	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.934				0.974	
Flt Protected	0.975			0.991		
Satd. Flow (prot)	1573	0	0	1781	1684	0
Flt Permitted	0.975			0.864		
Satd. Flow (perm)	1573	0	0	1553	1684	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	68				22	
Link Speed (mph)	30			30	30	
Link Distance (ft)	318			1043	324	
Travel Time (s)	7.2			23.7	7.4	
Peak Hour Factor	0.84	0.84	0.83	0.83	0.89	0.89
Heavy Vehicles (%)	3%	14%	11%	4%	11%	8%
Adj. Flow (vph)	105	99	101	487	351	85
Shared Lane Traffic (%)						
Lane Group Flow (vph)	204	0	0	588	436	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.02	1.02	1.01	1.01	0.99	0.99
Turning Speed (mph)	15	9	15			9
Number of Detectors	1		1	1	1	
Detector Template			Left			
Leading Detector (ft)	40		20	0	0	
Trailing Detector (ft)	0		0	0	0	
Detector 1 Position(ft)	0		0	0	0	
Detector 1 Size(ft)	40		20	0	0	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	6.0		10.0	10.0	10.0	
Minimum Split (s)	11.0		15.0	15.0	15.0	
Total Split (s)	35.0		45.0	45.0	45.0	
Total Split (%)	43.8%		56.3%	56.3%	56.3%	
Maximum Green (s)	30.0		40.0	40.0	40.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.0			5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		0.2	0.2	0.2	
Recall Mode	None		Max	Max	Max	
v/c Ratio	0.64			0.57	0.39	
Control Delay	25.2			8.9	6.1	
Queue Delay	0.0			0.0	0.0	
Total Delay	25.2			8.9	6.1	
Queue Length 50th (ft)	45			90	52	
Queue Length 95th (ft)	92			188	124	
Internal Link Dist (ft)	238			963	244	
Turn Bay Length (ft)						
Base Capacity (vph)	821			1036	1131	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.25			0.57	0.39	

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 60.1	
Natural Cycle: 45	
Control Type: Semi Act-Uncoord	

Splits and Phases: 1: NYS Route 9D & Delavergne Avenue



Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	204	588	436
v/c Ratio	0.64	0.57	0.39
Control Delay	25.2	8.9	6.1
Queue Delay	0.0	0.0	0.0
Total Delay	25.2	8.9	6.1
Queue Length 50th (ft)	45	90	52
Queue Length 95th (ft)	92	188	124
Internal Link Dist (ft)	238	963	244
Turn Bay Length (ft)			
Base Capacity (vph)	821	1036	1131
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.25	0.57	0.39

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	88	83	84	404	312	76
Number	7	14	5	2	6	16
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
Adj Sat Flow, veh/h/ln	1727	1872	1890	1797	1729	1910
Adj Flow Rate, veh/h	105	99	101	487	351	85
Adj No. of Lanes	0	0	0	1	1	0
Peak Hour Factor	0.84	0.84	0.83	0.83	0.89	0.89
Percent Heavy Veh, %	0	0	4	4	11	11
Cap, veh/h	129	122	206	938	903	219
Arrive On Green	0.16	0.16	0.67	0.67	0.67	0.67
Sat Flow, veh/h	797	751	202	1400	1346	326
Grp Volume(v), veh/h	205	0	588	0	0	436
Grp Sat Flow(s),veh/h/ln	1555	0	1602	0	0	1672
Q Serve(g_s), s	7.6	0.0	0.2	0.0	0.0	6.9
Cycle Q Clear(g_c), s	7.6	0.0	9.6	0.0	0.0	6.9
Prop In Lane	0.51	0.48	0.17			0.19
Lane Grp Cap(c), veh/h	252	0	1145	0	0	1121
V/C Ratio(X)	0.81	0.00	0.51	0.00	0.00	0.39
Avail Cap(c_a), veh/h	782	0	1145	0	0	1121
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	24.1	0.0	4.8	0.0	0.0	4.4
Incr Delay (d2), s/veh	2.5	0.0	1.6	0.0	0.0	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	3.4	0.0	5.1	0.0	0.0	3.5
LnGrp Delay(d),s/veh	26.6	0.0	6.5	0.0	0.0	5.4
LnGrp LOS	C		A			A
Approach Vol, veh/h	205			588	436	
Approach Delay, s/veh	26.6			6.5	5.4	
Approach LOS	C			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		14.7		45.0		
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		0.0		9.6		0.0		
Green Ext Time (p_c), s		0.0		0.4		0.0		

Intersection Summary		
HCM 2010 Ctrl Delay		9.4
HCM 2010 LOS		A

Notes

User approved volume balancing among the lanes for turning movement.

Two Way Analysis cannot be performed on Signalized Intersection.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	22	25	23	466	372	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%			3%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.928				0.992	
Flt Protected	0.977			0.998		
Satd. Flow (prot)	1338	0	0	1729	1787	0
Flt Permitted	0.977			0.998		
Satd. Flow (perm)	1338	0	0	1729	1787	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	904			139	1043	
Travel Time (s)	20.5			3.2	23.7	
Peak Hour Factor	0.62	0.62	0.95	0.95	0.83	0.83
Heavy Vehicles (%)	20%	34%	50%	6%	6%	6%
Adj. Flow (vph)	35	40	24	491	448	28
Shared Lane Traffic (%)						
Lane Group Flow (vph)	75	0	0	515	476	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.01	1.01	1.02	1.02	0.99	0.99
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	22	25	23	466	372	23
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, %	2	-	-	3	-1	-
Peak Hour Factor	62	62	95	95	83	83
Heavy Vehicles, %	20	34	50	6	6	6
Mvmt Flow	35	40	24	491	448	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1001	462	476	0	-	0
Stage 1	462	-	-	-	-	-
Stage 2	539	-	-	-	-	-
Critical Hdwy	7	6.74	4.6	-	-	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.68	3.606	2.65	-	-	-
Pot Cap-1 Maneuver	223	525	877	-	-	-
Stage 1	568	-	-	-	-	-
Stage 2	518	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	215	525	877	-	-	-
Mov Cap-2 Maneuver	215	-	-	-	-	-
Stage 1	568	-	-	-	-	-
Stage 2	498	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.1	0.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	877	-	313	-	-
HCM Lane V/C Ratio	0.028	-	0.242	-	-
HCM Control Delay (s)	9.2	0	20.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.9	-	-

Lane Group	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	34	6	8	37	3	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%		-4%			0%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.980		0.889			
Flt Protected	0.959					0.982
Satd. Flow (prot)	1263	0	1390	0	0	1866
Flt Permitted	0.959					0.982
Satd. Flow (perm)	1263	0	1390	0	0	1866
Link Speed (mph)	30		30			30
Link Distance (ft)	904		626			620
Travel Time (s)	20.5		14.2			14.1
Peak Hour Factor	0.59	0.59	0.80	0.80	0.88	0.88
Heavy Vehicles (%)	46%	0%	10%	27%	0%	0%
Adj. Flow (vph)	58	10	10	46	3	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	68	0	56	0	0	8
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	1.02	1.02	0.97	0.97	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Stop

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	WBU	WBL	WBR	NEU	NET	NER	SWU	SWL	SWT
Vol, veh/h	0	34	6	0	8	37	0	3	4
Peak Hour Factor	0.92	0.59	0.59	0.92	0.80	0.80	0.92	0.88	0.88
Heavy Vehicles, %	2	46	0	2	10	27	2	0	0
Mvmt Flow	0	58	10	0	10	46	0	3	5
Number of Lanes	0	1	0	0	1	0	0	0	1

Approach	WB	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	1	1
Conflicting Approach Left	NE		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SW	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.4	7	7.3
HCM LOS	A	A	A

Lane	NELn1	WBLn1	SWLn1
Vol Left, %	0%	85%	43%
Vol Thru, %	18%	0%	57%
Vol Right, %	82%	15%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	45	40	7
LT Vol	0	34	3
Through Vol	8	0	4
RT Vol	37	6	0
Lane Flow Rate	56	68	8
Geometry Grp	1	1	1
Degree of Util (X)	0.058	0.092	0.009
Departure Headway (Hd)	3.701	4.874	4.147
Convergence, Y/N	Yes	Yes	Yes
Cap	957	737	854
Service Time	1.765	2.893	2.218
HCM Lane V/C Ratio	0.059	0.092	0.009
HCM Control Delay	7	8.4	7.3
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.2	0.3	0

Two Way Analysis cannot be performed on an All Way Stop Intersection.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	8	0	0	119	159	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	9%			6%	-12%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.997	
Flt Protected	0.950					
Satd. Flow (prot)	1724	0	0	1722	1929	0
Flt Permitted	0.950					
Satd. Flow (perm)	1724	0	0	1722	1929	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	572			413	453	
Travel Time (s)	13.0			9.4	10.3	
Peak Hour Factor	0.67	0.67	0.68	0.68	0.77	0.77
Heavy Vehicles (%)	0%	0%	0%	7%	3%	50%
Adj. Flow (vph)	12	0	0	175	206	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	0	0	175	211	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.06	1.06	1.04	1.04	0.93	0.93
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	8	0	0	119	159	4
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, %	9	-	-	6	-12	-
Peak Hour Factor	67	67	68	68	77	77
Heavy Vehicles, %	0	0	0	7	3	50
Mvmt Flow	12	0	0	175	206	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	384	209	212	0	-	0
Stage 1	209	-	-	-	-	-
Stage 2	175	-	-	-	-	-
Critical Hdwy	8.2	7.1	4.1	-	-	-
Critical Hdwy Stg 1	7.2	-	-	-	-	-
Critical Hdwy Stg 2	7.2	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	514	794	1370	-	-	-
Stage 1	748	-	-	-	-	-
Stage 2	788	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	514	794	1370	-	-	-
Mov Cap-2 Maneuver	514	-	-	-	-	-
Stage 1	748	-	-	-	-	-
Stage 2	788	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.2	0	0
HCM LOS	B		

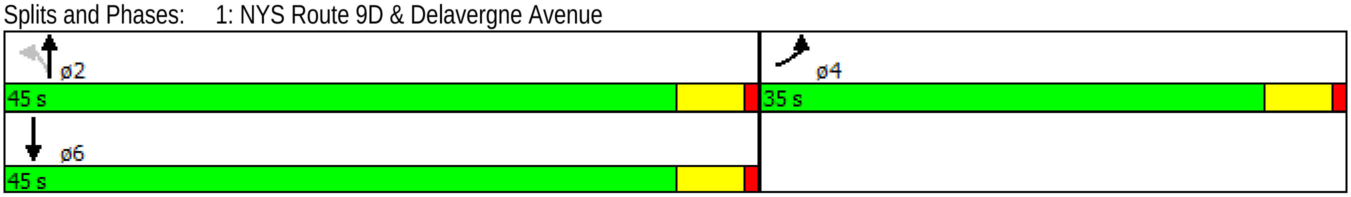
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1370	-	514	-	-
HCM Lane V/C Ratio	-	-	0.023	-	-
HCM Control Delay (s)	0	-	12.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	106	63	71	468	674	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.949				0.990	
Flt Protected	0.970			0.993		
Satd. Flow (prot)	1723	0	0	1843	1853	0
Flt Permitted	0.970			0.813		
Satd. Flow (perm)	1723	0	0	1509	1853	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	43				8	
Link Speed (mph)	30			30	30	
Link Distance (ft)	318			1043	324	
Travel Time (s)	7.2			23.7	7.4	
Peak Hour Factor	0.88	0.88	0.87	0.87	0.93	0.93
Heavy Vehicles (%)	0%	0%	1%	2%	2%	2%
Adj. Flow (vph)	120	72	82	538	725	61
Shared Lane Traffic (%)						
Lane Group Flow (vph)	192	0	0	620	786	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.02	1.02	1.01	1.01	0.99	0.99
Turning Speed (mph)	15	9	15			9
Number of Detectors	1		1	1	1	
Detector Template	Left		Left			
Leading Detector (ft)	40		20	6	6	
Trailing Detector (ft)	0		0	0	0	
Detector 1 Position(ft)	0		0	0	0	
Detector 1 Size(ft)	40		20	6	6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	6.0		10.0	10.0	10.0	
Minimum Split (s)	11.0		15.0	15.0	15.0	
Total Split (s)	35.0		45.0	45.0	45.0	
Total Split (%)	43.8%		56.3%	56.3%	56.3%	
Maximum Green (s)	30.0		40.0	40.0	40.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.0			5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		0.2	0.2	0.2	
Recall Mode	None		Max	Max	Max	
v/c Ratio	0.61			0.61	0.63	
Control Delay	26.3			9.6	9.2	
Queue Delay	0.0			0.0	0.0	
Total Delay	26.3			9.6	9.2	
Queue Length 50th (ft)	50			100	127	
Queue Length 95th (ft)	102			221	287	
Internal Link Dist (ft)	238			963	244	
Turn Bay Length (ft)						
Base Capacity (vph)	886			1010	1243	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.22			0.61	0.63	

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 59.9	
Natural Cycle: 45	
Control Type: Semi Act-Uncoord	

Splits and Phases: 1: NYS Route 9D & Delavergne Avenue



Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	192	620	786
v/c Ratio	0.61	0.61	0.63
Control Delay	26.3	9.6	9.2
Queue Delay	0.0	0.0	0.0
Total Delay	26.3	9.6	9.2
Queue Length 50th (ft)	50	100	127
Queue Length 95th (ft)	102	221	287
Internal Link Dist (ft)	238	963	244
Turn Bay Length (ft)			
Base Capacity (vph)	886	1010	1243
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.22	0.61	0.63

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	106	63	71	468	674	57
Number	7	14	5	2	6	16
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
Adj Sat Flow, veh/h/ln	1872	1872	1890	1856	1872	1910
Adj Flow Rate, veh/h	120	72	82	538	725	61
Adj No. of Lanes	0	0	0	1	1	0
Peak Hour Factor	0.88	0.88	0.87	0.87	0.93	0.93
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	152	91	160	985	1168	98
Arrive On Green	0.14	0.14	0.69	0.69	0.69	0.69
Sat Flow, veh/h	1061	636	132	1437	1703	143
Grp Volume(v), veh/h	193	0	620	0	0	786
Grp Sat Flow(s),veh/h/ln	1706	0	1569	0	0	1847
Q Serve(g_s), s	6.4	0.0	0.9	0.0	0.0	13.6
Cycle Q Clear(g_c), s	6.4	0.0	14.5	0.0	0.0	13.6
Prop In Lane	0.62	0.37	0.13			0.08
Lane Grp Cap(c), veh/h	244	0	1145	0	0	1266
V/C Ratio(X)	0.79	0.00	0.54	0.00	0.00	0.62
Avail Cap(c_a), veh/h	877	0	1145	0	0	1266
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	24.2	0.0	4.4	0.0	0.0	5.0
Incr Delay (d2), s/veh	2.2	0.0	1.8	0.0	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.0	5.2	0.0	0.0	7.6
LnGrp Delay(d),s/veh	26.3	0.0	6.2	0.0	0.0	7.3
LnGrp LOS	C		A			A
Approach Vol, veh/h	193			620	786	
Approach Delay, s/veh	26.3			6.2	7.3	
Approach LOS	C			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		13.4		45.0		
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		16.5		8.4		15.6		
Green Ext Time (p_c), s		0.3		0.4		0.3		

Intersection Summary		
HCM 2010 Ctrl Delay		9.2
HCM 2010 LOS		A

Notes

User approved volume balancing among the lanes for turning movement.

Two Way Analysis cannot be performed on Signalized Intersection.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	19	26	25	520	698	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%			3%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.922				0.993	
Flt Protected	0.979			0.998		
Satd. Flow (prot)	1665	0	0	1828	1842	0
Flt Permitted	0.979			0.998		
Satd. Flow (perm)	1665	0	0	1828	1842	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	904			139	1043	
Travel Time (s)	20.5			3.2	23.7	
Peak Hour Factor	0.87	0.87	0.97	0.97	0.89	0.89
Heavy Vehicles (%)	2%	2%	6%	2%	3%	2%
Adj. Flow (vph)	22	30	26	536	784	44
Shared Lane Traffic (%)						
Lane Group Flow (vph)	52	0	0	562	828	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.01	1.01	1.02	1.02	0.99	0.99
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	19	26	25	520	698	39
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, %	2	-	-	3	-1	-
Peak Hour Factor	87	87	97	97	89	89
Heavy Vehicles, %	2	2	6	2	3	2
Mvmt Flow	22	30	26	536	784	44

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1394	806	828	0	-	0
Stage 1	806	-	-	-	-	-
Stage 2	588	-	-	-	-	-
Critical Hdwy	6.82	6.42	4.16	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.254	-	-	-
Pot Cap-1 Maneuver	134	365	786	-	-	-
Stage 1	402	-	-	-	-	-
Stage 2	520	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	128	365	786	-	-	-
Mov Cap-2 Maneuver	128	-	-	-	-	-
Stage 1	402	-	-	-	-	-
Stage 2	496	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	28.4	0.4	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	786	-	205	-	-
HCM Lane V/C Ratio	0.033	-	0.252	-	-
HCM Control Delay (s)	9.7	0	28.4	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0.1	-	1	-	-

Lane Group	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	58	11	29	48	8	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%		-4%			0%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.979		0.916			
Flt Protected	0.959					0.977
Satd. Flow (prot)	1700	0	1699	0	0	1856
Flt Permitted	0.959					0.977
Satd. Flow (perm)	1700	0	1699	0	0	1856
Link Speed (mph)	30		30			30
Link Distance (ft)	904		626			620
Travel Time (s)	20.5		14.2			14.1
Peak Hour Factor	0.82	0.82	0.66	0.66	0.61	0.61
Heavy Vehicles (%)	4%	0%	2%	6%	0%	0%
Adj. Flow (vph)	71	13	44	73	13	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	84	0	117	0	0	28
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	1.02	1.02	0.97	0.97	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Stop

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	WBU	WBL	WBR	NEU	NET	NER	SWU	SWL	SWT
Vol, veh/h	0	58	11	0	29	48	0	8	9
Peak Hour Factor	0.92	0.82	0.82	0.92	0.66	0.66	0.92	0.61	0.61
Heavy Vehicles, %	2	4	0	2	2	6	2	0	0
Mvmt Flow	0	71	13	0	44	73	0	13	15
Number of Lanes	0	1	0	0	1	0	0	0	1

Approach	WB	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	1	1
Conflicting Approach Left	NE		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SW	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7.8	7.3	7.4
HCM LOS	A	A	A

Lane	NELn1	WBLn1	SWLn1
Vol Left, %	0%	84%	47%
Vol Thru, %	38%	0%	53%
Vol Right, %	62%	16%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	77	69	17
LT Vol	0	58	8
Through Vol	29	0	9
RT Vol	48	11	0
Lane Flow Rate	117	84	28
Geometry Grp	1	1	1
Degree of Util (X)	0.121	0.1	0.033
Departure Headway (Hd)	3.729	4.291	4.232
Convergence, Y/N	Yes	Yes	Yes
Cap	953	831	838
Service Time	1.785	2.339	2.298
HCM Lane V/C Ratio	0.123	0.101	0.033
HCM Control Delay	7.3	7.8	7.4
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.4	0.3	0.1

Two Way Analysis cannot be performed on an All Way Stop Intersection.

BUCKINGHAM PROPERTIES

APPENDIX C

LEVEL OF SERVICE STANDARDS

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	15	1	2	204	153	7
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, %	9	-	-	6	-12	-
Peak Hour Factor	67	67	87	87	78	78
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	22	1	2	234	196	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	440	201	205	0	-	0
Stage 1	201	-	-	-	-	-
Stage 2	239	-	-	-	-	-
Critical Hdwy	8.2	7.1	4.1	-	-	-
Critical Hdwy Stg 1	7.2	-	-	-	-	-
Critical Hdwy Stg 2	7.2	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	464	804	1378	-	-	-
Stage 1	758	-	-	-	-	-
Stage 2	715	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	463	804	1378	-	-	-
Mov Cap-2 Maneuver	463	-	-	-	-	-
Stage 1	758	-	-	-	-	-
Stage 2	714	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13	0.1	0
HCM LOS	B		

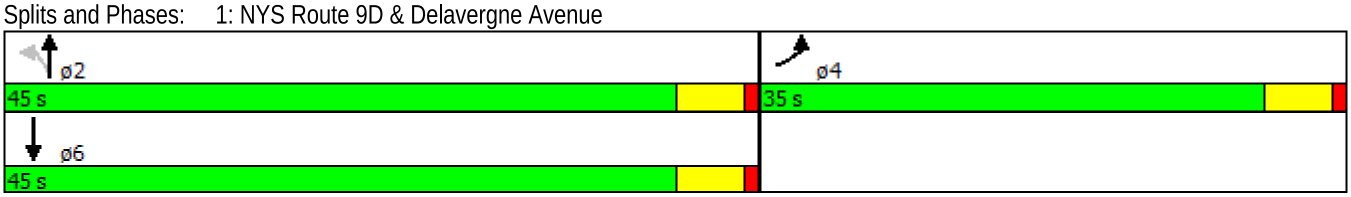
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1378	-	476	-	-
HCM Lane V/C Ratio	0.002	-	0.05	-	-
HCM Control Delay (s)	7.6	0	13	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	97	91	92	444	343	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.935				0.974	
Flt Protected	0.975			0.991		
Satd. Flow (prot)	1575	0	0	1781	1684	0
Flt Permitted	0.975			0.850		
Satd. Flow (perm)	1575	0	0	1527	1684	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	68				22	
Link Speed (mph)	30			30	30	
Link Distance (ft)	318			1043	324	
Travel Time (s)	7.2			23.7	7.4	
Peak Hour Factor	0.84	0.84	0.83	0.83	0.89	0.89
Heavy Vehicles (%)	3%	14%	11%	4%	11%	8%
Adj. Flow (vph)	115	108	111	535	385	94
Shared Lane Traffic (%)						
Lane Group Flow (vph)	223	0	0	646	479	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.02	1.02	1.01	1.01	0.99	0.99
Turning Speed (mph)	15	9	15			9
Number of Detectors	1		1	1	1	
Detector Template	Left		Left			
Leading Detector (ft)	40		20	6	6	
Trailing Detector (ft)	0		0	0	0	
Detector 1 Position(ft)	0		0	0	0	
Detector 1 Size(ft)	40		20	6	6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	6.0		10.0	10.0	10.0	
Minimum Split (s)	11.0		15.0	15.0	15.0	
Total Split (s)	35.0		45.0	45.0	45.0	
Total Split (%)	43.8%		56.3%	56.3%	56.3%	
Maximum Green (s)	30.0		40.0	40.0	40.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.0			5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		0.2	0.2	0.2	
Recall Mode	None		Max	Max	Max	
v/c Ratio	0.67			0.64	0.43	
Control Delay	26.4			10.9	6.8	
Queue Delay	0.0			0.0	0.0	
Total Delay	26.4			10.9	6.8	
Queue Length 50th (ft)	53			113	63	
Queue Length 95th (ft)	102			235	149	
Internal Link Dist (ft)	238			963	244	
Turn Bay Length (ft)						
Base Capacity (vph)	813			1007	1118	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.27			0.64	0.43	

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 60.9	
Natural Cycle: 50	
Control Type: Semi Act-Uncoord	

Splits and Phases: 1: NYS Route 9D & Delavergne Avenue



Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	223	646	479
v/c Ratio	0.67	0.64	0.43
Control Delay	26.4	10.9	6.8
Queue Delay	0.0	0.0	0.0
Total Delay	26.4	10.9	6.8
Queue Length 50th (ft)	53	113	63
Queue Length 95th (ft)	102	235	149
Internal Link Dist (ft)	238	963	244
Turn Bay Length (ft)			
Base Capacity (vph)	813	1007	1118
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.27	0.64	0.43

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	97	91	92	444	343	84
Number	7	14	5	2	6	16
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
Adj Sat Flow, veh/h/ln	1728	1872	1890	1797	1729	1910
Adj Flow Rate, veh/h	115	108	111	535	385	94
Adj No. of Lanes	0	0	0	1	1	0
Peak Hour Factor	0.84	0.84	0.83	0.83	0.89	0.89
Percent Heavy Veh, %	0	0	4	4	11	11
Cap, veh/h	140	131	203	914	887	217
Arrive On Green	0.17	0.17	0.66	0.66	0.66	0.66
Sat Flow, veh/h	799	750	202	1385	1344	328
Grp Volume(v), veh/h	224	0	646	0	0	479
Grp Sat Flow(s),veh/h/ln	1555	0	1587	0	0	1672
Q Serve(g_s), s	8.4	0.0	3.1	0.0	0.0	8.3
Cycle Q Clear(g_c), s	8.4	0.0	12.3	0.0	0.0	8.3
Prop In Lane	0.51	0.48	0.17			0.20
Lane Grp Cap(c), veh/h	272	0	1117	0	0	1103
V/C Ratio(X)	0.82	0.00	0.58	0.00	0.00	0.43
Avail Cap(c_a), veh/h	770	0	1117	0	0	1103
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	24.1	0.0	5.5	0.0	0.0	4.9
Incr Delay (d2), s/veh	2.4	0.0	2.2	0.0	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	6.4	0.0	0.0	4.1
LnGrp Delay(d),s/veh	26.5	0.0	7.7	0.0	0.0	6.2
LnGrp LOS	C		A			A
Approach Vol, veh/h	224			646	479	
Approach Delay, s/veh	26.5			7.7	6.2	
Approach LOS	C			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		15.6		45.0		
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		14.3		10.4		10.3		
Green Ext Time (p_c), s		0.3		0.4		0.3		

Intersection Summary			
HCM 2010 Ctrl Delay			10.3
HCM 2010 LOS			B

Notes

User approved volume balancing among the lanes for turning movement.

Two Way Analysis cannot be performed on Signalized Intersection.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	24	28	25	513	409	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%			3%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.928				0.992	
Flt Protected	0.977			0.998		
Satd. Flow (prot)	1338	0	0	1729	1787	0
Flt Permitted	0.977			0.998		
Satd. Flow (perm)	1338	0	0	1729	1787	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	904			139	1043	
Travel Time (s)	20.5			3.2	23.7	
Peak Hour Factor	0.62	0.62	0.95	0.95	0.83	0.83
Heavy Vehicles (%)	20%	34%	50%	6%	6%	6%
Adj. Flow (vph)	39	45	26	540	493	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	84	0	0	566	523	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.01	1.01	1.02	1.02	0.99	0.99
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	24	28	25	513	409	25
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, %	2	-	-	3	-1	-
Peak Hour Factor	62	62	95	95	83	83
Heavy Vehicles, %	20	34	50	6	6	6
Mvmt Flow	39	45	26	540	493	30

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1101	508	523	0	-	0
Stage 1	508	-	-	-	-	-
Stage 2	593	-	-	-	-	-
Critical Hdwy	7	6.74	4.6	-	-	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.68	3.606	2.65	-	-	-
Pot Cap-1 Maneuver	192	492	839	-	-	-
Stage 1	538	-	-	-	-	-
Stage 2	486	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	184	492	839	-	-	-
Mov Cap-2 Maneuver	184	-	-	-	-	-
Stage 1	538	-	-	-	-	-
Stage 2	465	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.4	0.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	839	-	278	-	-
HCM Lane V/C Ratio	0.031	-	0.302	-	-
HCM Control Delay (s)	9.4	0	23.4	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	1.2	-	-

Lane Group	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	37	7	9	41	3	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%		-4%			0%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.978		0.889			
Flt Protected	0.960					0.982
Satd. Flow (prot)	1267	0	1390	0	0	1866
Flt Permitted	0.960					0.982
Satd. Flow (perm)	1267	0	1390	0	0	1866
Link Speed (mph)	30		30			30
Link Distance (ft)	904		626			620
Travel Time (s)	20.5		14.2			14.1
Peak Hour Factor	0.59	0.59	0.80	0.80	0.88	0.88
Heavy Vehicles (%)	46%	0%	10%	27%	0%	0%
Adj. Flow (vph)	63	12	11	51	3	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	75	0	62	0	0	8
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	1.02	1.02	0.97	0.97	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Stop

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	WBU	WBL	WBR	NEU	NET	NER	SWU	SWL	SWT
Vol, veh/h	0	37	7	0	9	41	0	3	4
Peak Hour Factor	0.92	0.59	0.59	0.92	0.80	0.80	0.92	0.88	0.88
Heavy Vehicles, %	2	46	0	2	10	27	2	0	0
Mvmt Flow	0	63	12	0	11	51	0	3	5
Number of Lanes	0	1	0	0	1	0	0	0	1

Approach	WB	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	1	1
Conflicting Approach Left	NE		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SW	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.4	7	7.3
HCM LOS	A	A	A

Lane	NELn1	WBLn1	SWLn1
Vol Left, %	0%	84%	43%
Vol Thru, %	18%	0%	57%
Vol Right, %	82%	16%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	50	44	7
LT Vol	0	37	3
Through Vol	9	0	4
RT Vol	41	7	0
Lane Flow Rate	62	75	8
Geometry Grp	1	1	1
Degree of Util (X)	0.064	0.101	0.009
Departure Headway (Hd)	3.714	4.878	4.164
Convergence, Y/N	Yes	Yes	Yes
Cap	953	736	849
Service Time	1.784	2.898	2.241
HCM Lane V/C Ratio	0.065	0.102	0.009
HCM Control Delay	7	8.4	7.3
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.2	0.3	0

Two Way Analysis cannot be performed on an All Way Stop Intersection.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	9	0	0	131	175	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	9%			6%	-12%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.997	
Flt Protected	0.950					
Satd. Flow (prot)	1724	0	0	1722	1930	0
Flt Permitted	0.950					
Satd. Flow (perm)	1724	0	0	1722	1930	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	572			413	453	
Travel Time (s)	13.0			9.4	10.3	
Peak Hour Factor	0.67	0.67	0.68	0.68	0.77	0.77
Heavy Vehicles (%)	0%	0%	0%	7%	3%	50%
Adj. Flow (vph)	13	0	0	193	227	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	0	0	193	232	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.06	1.06	1.04	1.04	0.93	0.93
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	9	0	0	131	175	4
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, %	9	-	-	6	-12	-
Peak Hour Factor	67	67	68	68	77	77
Heavy Vehicles, %	0	0	0	7	3	50
Mvmt Flow	13	0	0	193	227	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	423	230	232	0	-	0
Stage 1	230	-	-	-	-	-
Stage 2	193	-	-	-	-	-
Critical Hdwy	8.2	7.1	4.1	-	-	-
Critical Hdwy Stg 1	7.2	-	-	-	-	-
Critical Hdwy Stg 2	7.2	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	479	769	1348	-	-	-
Stage 1	725	-	-	-	-	-
Stage 2	767	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	479	769	1348	-	-	-
Mov Cap-2 Maneuver	479	-	-	-	-	-
Stage 1	725	-	-	-	-	-
Stage 2	767	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.7	0	0
HCM LOS	B		

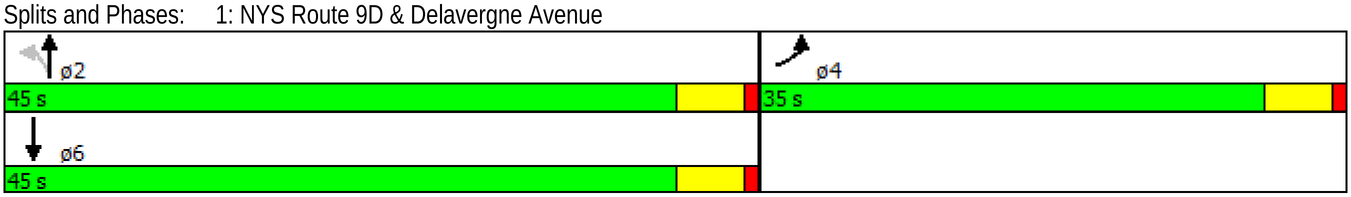
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1348	-	479	-	-
HCM Lane V/C Ratio	-	-	0.028	-	-
HCM Control Delay (s)	0	-	12.7	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	97	91	92	444	343	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.935				0.974	
Flt Protected	0.975			0.991		
Satd. Flow (prot)	1575	0	0	1781	1684	0
Flt Permitted	0.975			0.850		
Satd. Flow (perm)	1575	0	0	1527	1684	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	68				22	
Link Speed (mph)	30			30	30	
Link Distance (ft)	318			1043	324	
Travel Time (s)	7.2			23.7	7.4	
Peak Hour Factor	0.84	0.84	0.83	0.83	0.89	0.89
Heavy Vehicles (%)	3%	14%	11%	4%	11%	8%
Adj. Flow (vph)	115	108	111	535	385	94
Shared Lane Traffic (%)						
Lane Group Flow (vph)	223	0	0	646	479	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.02	1.02	1.01	1.01	0.99	0.99
Turning Speed (mph)	15	9	15			9
Number of Detectors	1		1	1	1	
Detector Template	Left		Left			
Leading Detector (ft)	40		20	6	6	
Trailing Detector (ft)	0		0	0	0	
Detector 1 Position(ft)	0		0	0	0	
Detector 1 Size(ft)	40		20	6	6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	6.0		10.0	10.0	10.0	
Minimum Split (s)	11.0		15.0	15.0	15.0	
Total Split (s)	35.0		45.0	45.0	45.0	
Total Split (%)	43.8%		56.3%	56.3%	56.3%	
Maximum Green (s)	30.0		40.0	40.0	40.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.0			5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		0.2	0.2	0.2	
Recall Mode	None		Max	Max	Max	
v/c Ratio	0.67			0.64	0.43	
Control Delay	26.4			10.9	6.8	
Queue Delay	0.0			0.0	0.0	
Total Delay	26.4			10.9	6.8	
Queue Length 50th (ft)	53			113	63	
Queue Length 95th (ft)	102			235	149	
Internal Link Dist (ft)	238			963	244	
Turn Bay Length (ft)						
Base Capacity (vph)	813			1007	1118	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.27			0.64	0.43	

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 60.9	
Natural Cycle: 50	
Control Type: Semi Act-Uncoord	

Splits and Phases: 1: NYS Route 9D & Delavergne Avenue



Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	223	646	479
v/c Ratio	0.67	0.64	0.43
Control Delay	26.4	10.9	6.8
Queue Delay	0.0	0.0	0.0
Total Delay	26.4	10.9	6.8
Queue Length 50th (ft)	53	113	63
Queue Length 95th (ft)	102	235	149
Internal Link Dist (ft)	238	963	244
Turn Bay Length (ft)			
Base Capacity (vph)	813	1007	1118
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.27	0.64	0.43

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	97	91	92	444	343	84
Number	7	14	5	2	6	16
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
Adj Sat Flow, veh/h/ln	1728	1872	1890	1797	1729	1910
Adj Flow Rate, veh/h	115	108	111	535	385	94
Adj No. of Lanes	0	0	0	1	1	0
Peak Hour Factor	0.84	0.84	0.83	0.83	0.89	0.89
Percent Heavy Veh, %	0	0	4	4	11	11
Cap, veh/h	140	131	203	914	887	217
Arrive On Green	0.17	0.17	0.66	0.66	0.66	0.66
Sat Flow, veh/h	799	750	202	1385	1344	328
Grp Volume(v), veh/h	224	0	646	0	0	479
Grp Sat Flow(s),veh/h/ln	1555	0	1587	0	0	1672
Q Serve(g_s), s	8.4	0.0	3.1	0.0	0.0	8.3
Cycle Q Clear(g_c), s	8.4	0.0	12.3	0.0	0.0	8.3
Prop In Lane	0.51	0.48	0.17			0.20
Lane Grp Cap(c), veh/h	272	0	1117	0	0	1103
V/C Ratio(X)	0.82	0.00	0.58	0.00	0.00	0.43
Avail Cap(c_a), veh/h	770	0	1117	0	0	1103
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	24.1	0.0	5.5	0.0	0.0	4.9
Incr Delay (d2), s/veh	2.4	0.0	2.2	0.0	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	6.4	0.0	0.0	4.1
LnGrp Delay(d),s/veh	26.5	0.0	7.7	0.0	0.0	6.2
LnGrp LOS	C		A			A
Approach Vol, veh/h	224			646	479	
Approach Delay, s/veh	26.5			7.7	6.2	
Approach LOS	C			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		15.6		45.0		
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		14.3		10.4		10.3		
Green Ext Time (p_c), s		0.3		0.4		0.3		

Intersection Summary			
HCM 2010 Ctrl Delay			10.3
HCM 2010 LOS			B

Notes
User approved volume balancing among the lanes for turning movement.

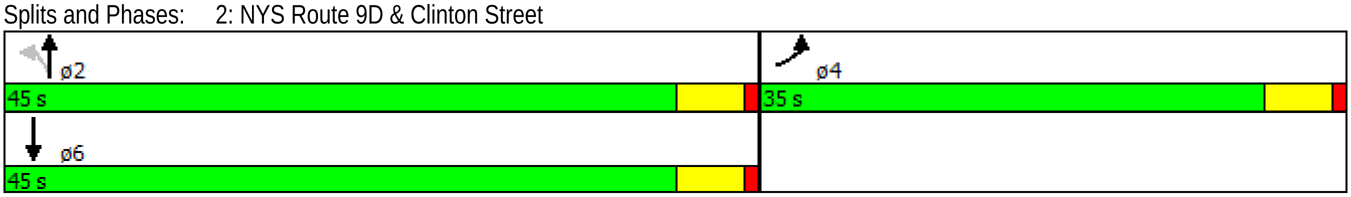
Two Way Analysis cannot be performed on Signalized Intersection.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	24	28	25	513	409	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%			3%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.928				0.992	
Flt Protected	0.977			0.998		
Satd. Flow (prot)	1338	0	0	1729	1787	0
Flt Permitted	0.977			0.970		
Satd. Flow (perm)	1338	0	0	1681	1787	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	45				5	
Link Speed (mph)	30			30	30	
Link Distance (ft)	904			139	1043	
Travel Time (s)	20.5			3.2	23.7	
Peak Hour Factor	0.62	0.62	0.95	0.95	0.83	0.83
Heavy Vehicles (%)	20%	34%	50%	6%	6%	6%
Adj. Flow (vph)	39	45	26	540	493	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	84	0	0	566	523	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.01	1.01	1.02	1.02	0.99	0.99
Turning Speed (mph)	15	9	15			9
Number of Detectors	1		1	1	1	
Detector Template	Left		Left			
Leading Detector (ft)	40		20	6	6	
Trailing Detector (ft)	0		0	0	0	
Detector 1 Position(ft)	0		0	0	0	
Detector 1 Size(ft)	40		20	6	6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	6.0		10.0	10.0	10.0	
Minimum Split (s)	11.0		15.0	15.0	15.0	
Total Split (s)	35.0		45.0	45.0	45.0	
Total Split (%)	43.8%		56.3%	56.3%	56.3%	
Maximum Green (s)	30.0		40.0	40.0	40.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.0			5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		0.2	0.2	0.2	
Recall Mode	None		Max	Max	Max	
v/c Ratio	0.42			0.44	0.38	
Control Delay	19.7			5.1	4.5	
Queue Delay	0.0			0.0	0.0	
Total Delay	19.7			5.1	4.5	
Queue Length 50th (ft)	12			60	51	
Queue Length 95th (ft)	26			139	102	
Internal Link Dist (ft)	824			59	963	
Turn Bay Length (ft)						
Base Capacity (vph)	711			1278	1359	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.12			0.44	0.38	

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 58.2	
Natural Cycle: 40	
Control Type: Semi Act-Uncoord	

Splits and Phases: 2: NYS Route 9D & Clinton Street



Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	84	566	523
v/c Ratio	0.42	0.44	0.38
Control Delay	19.7	5.1	4.5
Queue Delay	0.0	0.0	0.0
Total Delay	19.7	5.1	4.5
Queue Length 50th (ft)	12	60	51
Queue Length 95th (ft)	26	139	102
Internal Link Dist (ft)	824	59	963
Turn Bay Length (ft)			
Base Capacity (vph)	711	1278	1359
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.12	0.44	0.38

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	24	28	25	513	409	25
Number	7	14	5	2	6	16
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
Adj Sat Flow, veh/h/ln	1475	1881	1872	1733	1801	1910
Adj Flow Rate, veh/h	39	45	26	540	493	30
Adj No. of Lanes	0	0	0	1	1	0
Peak Hour Factor	0.62	0.62	0.95	0.95	0.83	0.83
Percent Heavy Veh, %	0	0	6	6	6	6
Cap, veh/h	48	56	93	1224	1238	75
Arrive On Green	0.08	0.08	0.74	0.74	0.74	0.74
Sat Flow, veh/h	606	700	33	1663	1681	102
Grp Volume(v), veh/h	85	0	566	0	0	523
Grp Sat Flow(s),veh/h/ln	1322	0	1696	0	0	1783
Q Serve(g_s), s	3.4	0.0	0.0	0.0	0.0	5.9
Cycle Q Clear(g_c), s	3.4	0.0	7.0	0.0	0.0	5.9
Prop In Lane	0.46	0.53	0.05			0.06
Lane Grp Cap(c), veh/h	105	0	1318	0	0	1313
V/C Ratio(X)	0.81	0.00	0.43	0.00	0.00	0.40
Avail Cap(c_a), veh/h	730	0	1318	0	0	1313
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	24.6	0.0	2.8	0.0	0.0	2.7
Incr Delay (d2), s/veh	5.4	0.0	1.0	0.0	0.0	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	1.4	0.0	3.5	0.0	0.0	3.1
LnGrp Delay(d),s/veh	29.9	0.0	3.8	0.0	0.0	3.6
LnGrp LOS	C		A			A
Approach Vol, veh/h	85			566	523	
Approach Delay, s/veh	29.9			3.8	3.6	
Approach LOS	C			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		9.3		45.0		
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		9.0		5.4		7.9		
Green Ext Time (p_c), s		0.2		0.1		0.2		

Intersection Summary		
HCM 2010 Ctrl Delay		5.6
HCM 2010 LOS		A

Notes

User approved volume balancing among the lanes for turning movement.

Two Way Analysis cannot be performed on Signalized Intersection.

Lane Group	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	37	7	9	41	3	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%		-4%			0%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.978		0.889			
Flt Protected	0.960					0.982
Satd. Flow (prot)	1267	0	1390	0	0	1866
Flt Permitted	0.960					0.982
Satd. Flow (perm)	1267	0	1390	0	0	1866
Link Speed (mph)	30		30			30
Link Distance (ft)	904		626			620
Travel Time (s)	20.5		14.2			14.1
Peak Hour Factor	0.59	0.59	0.80	0.80	0.88	0.88
Heavy Vehicles (%)	46%	0%	10%	27%	0%	0%
Adj. Flow (vph)	63	12	11	51	3	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	75	0	62	0	0	8
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	1.02	1.02	0.97	0.97	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Stop

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	WBU	WBL	WBR	NEU	NET	NER	SWU	SWL	SWT
Vol, veh/h	0	37	7	0	9	41	0	3	4
Peak Hour Factor	0.92	0.59	0.59	0.92	0.80	0.80	0.92	0.88	0.88
Heavy Vehicles, %	2	46	0	2	10	27	2	0	0
Mvmt Flow	0	63	12	0	11	51	0	3	5
Number of Lanes	0	1	0	0	1	0	0	0	1

Approach	WB	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	1	1
Conflicting Approach Left	NE		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SW	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.4	7	7.3
HCM LOS	A	A	A

Lane	NELn1	WBLn1	SWLn1
Vol Left, %	0%	84%	43%
Vol Thru, %	18%	0%	57%
Vol Right, %	82%	16%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	50	44	7
LT Vol	0	37	3
Through Vol	9	0	4
RT Vol	41	7	0
Lane Flow Rate	62	75	8
Geometry Grp	1	1	1
Degree of Util (X)	0.064	0.101	0.009
Departure Headway (Hd)	3.714	4.878	4.164
Convergence, Y/N	Yes	Yes	Yes
Cap	953	736	849
Service Time	1.784	2.898	2.241
HCM Lane V/C Ratio	0.065	0.102	0.009
HCM Control Delay	7	8.4	7.3
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.2	0.3	0

Two Way Analysis cannot be performed on an All Way Stop Intersection.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	9	0	0	131	175	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	9%			6%	-12%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.997	
Flt Protected	0.950					
Satd. Flow (prot)	1724	0	0	1722	1930	0
Flt Permitted	0.950					
Satd. Flow (perm)	1724	0	0	1722	1930	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	572			413	453	
Travel Time (s)	13.0			9.4	10.3	
Peak Hour Factor	0.67	0.67	0.68	0.68	0.77	0.77
Heavy Vehicles (%)	0%	0%	0%	7%	3%	50%
Adj. Flow (vph)	13	0	0	193	227	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	0	0	193	232	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.06	1.06	1.04	1.04	0.93	0.93
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	9	0	0	131	175	4
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, %	9	-	-	6	-12	-
Peak Hour Factor	67	67	68	68	77	77
Heavy Vehicles, %	0	0	0	7	3	50
Mvmt Flow	13	0	0	193	227	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	423	230	232	0	-	0
Stage 1	230	-	-	-	-	-
Stage 2	193	-	-	-	-	-
Critical Hdwy	8.2	7.1	4.1	-	-	-
Critical Hdwy Stg 1	7.2	-	-	-	-	-
Critical Hdwy Stg 2	7.2	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	479	769	1348	-	-	-
Stage 1	725	-	-	-	-	-
Stage 2	767	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	479	769	1348	-	-	-
Mov Cap-2 Maneuver	479	-	-	-	-	-
Stage 1	725	-	-	-	-	-
Stage 2	767	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1348	-	479	-	-
HCM Lane V/C Ratio	-	-	0.028	-	-
HCM Control Delay (s)	0	-	12.7	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

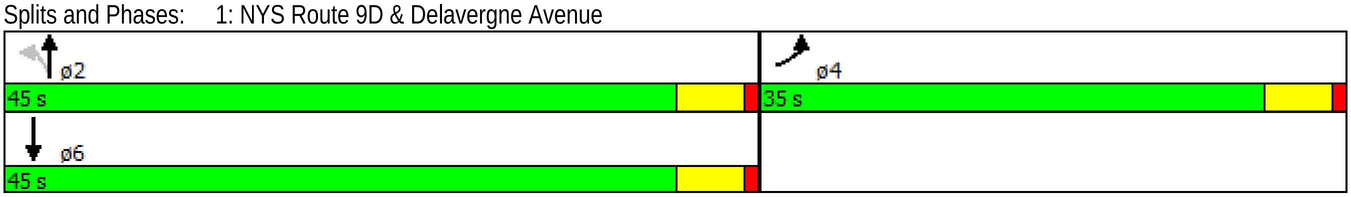
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	117	69	78	515	741	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.950				0.989	
Flt Protected	0.969			0.993		
Satd. Flow (prot)	1723	0	0	1843	1851	0
Flt Permitted	0.969			0.706		
Satd. Flow (perm)	1723	0	0	1310	1851	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	42				8	
Link Speed (mph)	30			30	30	
Link Distance (ft)	318			1043	324	
Travel Time (s)	7.2			23.7	7.4	
Peak Hour Factor	0.88	0.88	0.87	0.87	0.93	0.93
Heavy Vehicles (%)	0%	0%	1%	2%	2%	2%
Adj. Flow (vph)	133	78	90	592	797	68
Shared Lane Traffic (%)						
Lane Group Flow (vph)	211	0	0	682	865	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.02	1.02	1.01	1.01	0.99	0.99
Turning Speed (mph)	15	9	15			9
Number of Detectors	1		1	1	1	
Detector Template	Left		Left			
Leading Detector (ft)	40		20	6	6	
Trailing Detector (ft)	0		0	0	0	
Detector 1 Position(ft)	0		0	0	0	
Detector 1 Size(ft)	40		20	6	6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	6.0		10.0	10.0	10.0	
Minimum Split (s)	11.0		15.0	15.0	15.0	
Total Split (s)	35.0		45.0	45.0	45.0	
Total Split (%)	43.8%		56.3%	56.3%	56.3%	
Maximum Green (s)	30.0		40.0	40.0	40.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.0			5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		0.2	0.2	0.2	
Recall Mode	None		Max	Max	Max	
v/c Ratio	0.64			0.79	0.70	
Control Delay	27.6			17.5	11.4	
Queue Delay	0.0			0.0	0.0	
Total Delay	27.6			17.5	11.4	
Queue Length 50th (ft)	57			142	160	
Queue Length 95th (ft)	112			#403	367	
Internal Link Dist (ft)	238			963	244	
Turn Bay Length (ft)						
Base Capacity (vph)	877			867	1229	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.24			0.79	0.70	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 60.5
Natural Cycle: 60
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: NYS Route 9D & Delavergne Avenue



Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	211	682	865
v/c Ratio	0.64	0.79	0.70
Control Delay	27.6	17.5	11.4
Queue Delay	0.0	0.0	0.0
Total Delay	27.6	17.5	11.4
Queue Length 50th (ft)	57	142	160
Queue Length 95th (ft)	112	#403	367
Internal Link Dist (ft)	238	963	244
Turn Bay Length (ft)			
Base Capacity (vph)	877	867	1229
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.24	0.79	0.70

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	117	69	78	515	741	63
Number	7	14	5	2	6	16
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
Adj Sat Flow, veh/h/ln	1872	1872	1890	1856	1872	1910
Adj Flow Rate, veh/h	133	78	90	592	797	68
Adj No. of Lanes	0	0	0	1	1	0
Peak Hour Factor	0.88	0.88	0.87	0.87	0.93	0.93
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	166	98	145	855	1150	98
Arrive On Green	0.16	0.16	0.68	0.68	0.68	0.68
Sat Flow, veh/h	1071	628	113	1266	1701	145
Grp Volume(v), veh/h	212	0	682	0	0	865
Grp Sat Flow(s),veh/h/ln	1707	0	1379	0	0	1846
Q Serve(g_s), s	7.1	0.0	4.8	0.0	0.0	16.9
Cycle Q Clear(g_c), s	7.1	0.0	21.7	0.0	0.0	16.9
Prop In Lane	0.63	0.37	0.13			0.08
Lane Grp Cap(c), veh/h	265	0	1000	0	0	1248
V/C Ratio(X)	0.80	0.00	0.68	0.00	0.00	0.69
Avail Cap(c_a), veh/h	865	0	1000	0	0	1248
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	24.1	0.0	5.4	0.0	0.0	5.9
Incr Delay (d2), s/veh	2.1	0.0	3.8	0.0	0.0	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.0	6.5	0.0	0.0	9.5
LnGrp Delay(d),s/veh	26.2	0.0	9.2	0.0	0.0	9.0
LnGrp LOS	C		A			A
Approach Vol, veh/h	212			682	865	
Approach Delay, s/veh	26.2			9.2	9.0	
Approach LOS	C			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		14.2		45.0		
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		23.7		9.1		18.9		
Green Ext Time (p_c), s		0.4		0.4		0.4		

Intersection Summary		
HCM 2010 Ctrl Delay		11.2
HCM 2010 LOS		B

Notes

User approved volume balancing among the lanes for turning movement.

Two Way Analysis cannot be performed on Signalized Intersection.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	21	29	28	572	768	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%			3%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.922				0.993	
Flt Protected	0.979			0.998		
Satd. Flow (prot)	1665	0	0	1828	1842	0
Flt Permitted	0.979			0.998		
Satd. Flow (perm)	1665	0	0	1828	1842	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	904			139	1043	
Travel Time (s)	20.5			3.2	23.7	
Peak Hour Factor	0.87	0.87	0.97	0.97	0.89	0.89
Heavy Vehicles (%)	2%	2%	6%	2%	3%	2%
Adj. Flow (vph)	24	33	29	590	863	48
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	0	0	619	911	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.01	1.01	1.02	1.02	0.99	0.99
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	21	29	28	572	768	43
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, %	2	-	-	3	-1	-
Peak Hour Factor	87	87	97	97	89	89
Heavy Vehicles, %	2	2	6	2	3	2
Mvmt Flow	24	33	29	590	863	48

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1534	887	911	0	-	0
Stage 1	887	-	-	-	-	-
Stage 2	647	-	-	-	-	-
Critical Hdwy	6.82	6.42	4.16	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.254	-	-	-
Pot Cap-1 Maneuver	108	327	731	-	-	-
Stage 1	365	-	-	-	-	-
Stage 2	485	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	102	327	731	-	-	-
Mov Cap-2 Maneuver	102	-	-	-	-	-
Stage 1	365	-	-	-	-	-
Stage 2	456	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	36.6	0.5	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	731	-	170	-	-
HCM Lane V/C Ratio	0.039	-	0.338	-	-
HCM Control Delay (s)	10.1	0	36.6	-	-
HCM Lane LOS	B	A	E	-	-
HCM 95th %tile Q(veh)	0.1	-	1.4	-	-

Lane Group	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	64	12	32	53	9	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%		-4%			0%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.978		0.916			
Flt Protected	0.960					0.976
Satd. Flow (prot)	1700	0	1699	0	0	1854
Flt Permitted	0.960					0.976
Satd. Flow (perm)	1700	0	1699	0	0	1854
Link Speed (mph)	30		30			30
Link Distance (ft)	904		626			620
Travel Time (s)	20.5		14.2			14.1
Peak Hour Factor	0.82	0.82	0.66	0.66	0.61	0.61
Heavy Vehicles (%)	4%	0%	2%	6%	0%	0%
Adj. Flow (vph)	78	15	48	80	15	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	93	0	128	0	0	31
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	1.02	1.02	0.97	0.97	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Stop

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	WBU	WBL	WBR	NEU	NET	NER	SWU	SWL	SWT
Vol, veh/h	0	64	12	0	32	53	0	9	10
Peak Hour Factor	0.92	0.82	0.82	0.92	0.66	0.66	0.92	0.61	0.61
Heavy Vehicles, %	2	4	0	2	2	6	2	0	0
Mvmt Flow	0	78	15	0	48	80	0	15	16
Number of Lanes	0	1	0	0	1	0	0	0	1

Approach	WB	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	1	1
Conflicting Approach Left	NE		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SW	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7.9	7.4	7.5
HCM LOS	A	A	A

Lane	NELn1	WBLn1	SWLn1
Vol Left, %	0%	84%	47%
Vol Thru, %	38%	0%	53%
Vol Right, %	62%	16%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	85	76	19
LT Vol	0	64	9
Through Vol	32	0	10
RT Vol	53	12	0
Lane Flow Rate	129	93	31
Geometry Grp	1	1	1
Degree of Util (X)	0.134	0.111	0.037
Departure Headway (Hd)	3.745	4.317	4.256
Convergence, Y/N	Yes	Yes	Yes
Cap	947	825	832
Service Time	1.811	2.373	2.332
HCM Lane V/C Ratio	0.136	0.113	0.037
HCM Control Delay	7.4	7.9	7.5
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.5	0.4	0.1

Two Way Analysis cannot be performed on an All Way Stop Intersection.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	17	1	2	224	168	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	9%			6%	-12%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.995				0.994	
Flt Protected	0.954					
Satd. Flow (prot)	1722	0	0	1807	1964	0
Flt Permitted	0.954					
Satd. Flow (perm)	1722	0	0	1807	1964	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	572			413	453	
Travel Time (s)	13.0			9.4	10.3	
Peak Hour Factor	0.67	0.67	0.87	0.87	0.78	0.78
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	25	1	2	257	215	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	0	0	259	225	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.06	1.06	1.04	1.04	0.93	0.93
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	17	1	2	224	168	8
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, %	9	-	-	6	-12	-
Peak Hour Factor	67	67	87	87	78	78
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	25	1	2	257	215	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	483	221	226	0	-	0
Stage 1	221	-	-	-	-	-
Stage 2	262	-	-	-	-	-
Critical Hdwy	8.2	7.1	4.1	-	-	-
Critical Hdwy Stg 1	7.2	-	-	-	-	-
Critical Hdwy Stg 2	7.2	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	429	779	1354	-	-	-
Stage 1	735	-	-	-	-	-
Stage 2	690	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	428	779	1354	-	-	-
Mov Cap-2 Maneuver	428	-	-	-	-	-
Stage 1	735	-	-	-	-	-
Stage 2	689	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.7	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1354	-	439	-	-
HCM Lane V/C Ratio	0.002	-	0.061	-	-
HCM Control Delay (s)	7.7	0	13.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

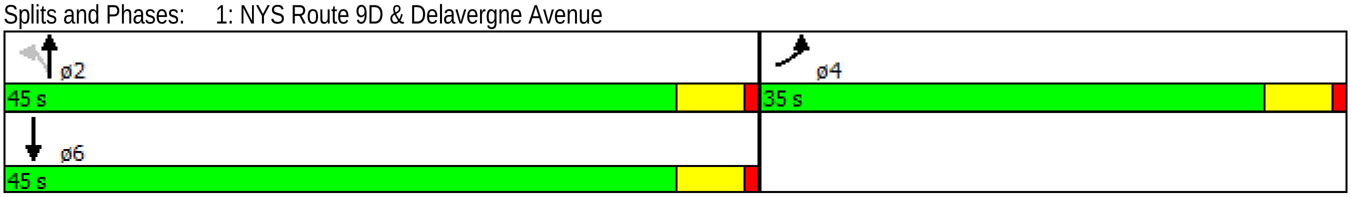
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	117	69	78	515	741	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.950				0.989	
Flt Protected	0.969			0.993		
Satd. Flow (prot)	1723	0	0	1843	1851	0
Flt Permitted	0.969			0.706		
Satd. Flow (perm)	1723	0	0	1310	1851	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	42				8	
Link Speed (mph)	30			30	30	
Link Distance (ft)	318			1043	324	
Travel Time (s)	7.2			23.7	7.4	
Peak Hour Factor	0.88	0.88	0.87	0.87	0.93	0.93
Heavy Vehicles (%)	0%	0%	1%	2%	2%	2%
Adj. Flow (vph)	133	78	90	592	797	68
Shared Lane Traffic (%)						
Lane Group Flow (vph)	211	0	0	682	865	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.02	1.02	1.01	1.01	0.99	0.99
Turning Speed (mph)	15	9	15			9
Number of Detectors	1		1	1	1	
Detector Template	Left		Left			
Leading Detector (ft)	40		20	6	6	
Trailing Detector (ft)	0		0	0	0	
Detector 1 Position(ft)	0		0	0	0	
Detector 1 Size(ft)	40		20	6	6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	6.0		10.0	10.0	10.0	
Minimum Split (s)	11.0		15.0	15.0	15.0	
Total Split (s)	35.0		45.0	45.0	45.0	
Total Split (%)	43.8%		56.3%	56.3%	56.3%	
Maximum Green (s)	30.0		40.0	40.0	40.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.0			5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		0.2	0.2	0.2	
Recall Mode	None		Max	Max	Max	
v/c Ratio	0.64			0.79	0.70	
Control Delay	27.6			17.5	11.4	
Queue Delay	0.0			0.0	0.0	
Total Delay	27.6			17.5	11.4	
Queue Length 50th (ft)	57			142	160	
Queue Length 95th (ft)	112			#403	367	
Internal Link Dist (ft)	238			963	244	
Turn Bay Length (ft)						
Base Capacity (vph)	877			867	1229	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.24			0.79	0.70	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 60.5
Natural Cycle: 60
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: NYS Route 9D & Delavergne Avenue



Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	211	682	865
v/c Ratio	0.64	0.79	0.70
Control Delay	27.6	17.5	11.4
Queue Delay	0.0	0.0	0.0
Total Delay	27.6	17.5	11.4
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Queue Length 95th (ft)	112	#403	367
Internal Link Dist (ft)	238	963	244
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Base Capacity (vph)	877	867	1229
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.24	0.79	0.70

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	117	69	78	515	741	63
Number	7	14	5	2	6	16
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
Adj Sat Flow, veh/h/ln	1872	1872	1890	1856	1872	1910
Adj Flow Rate, veh/h	133	78	90	592	797	68
Adj No. of Lanes	0	0	0	1	1	0
Peak Hour Factor	0.88	0.88	0.87	0.87	0.93	0.93
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	166	98	145	855	1150	98
Arrive On Green	0.16	0.16	0.68	0.68	0.68	0.68
Sat Flow, veh/h	1071	628	113	1266	1701	145
Grp Volume(v), veh/h	212	0	682	0	0	865
Grp Sat Flow(s),veh/h/ln	1707	0	1379	0	0	1846
Q Serve(g_s), s	7.1	0.0	4.8	0.0	0.0	16.9
Cycle Q Clear(g_c), s	7.1	0.0	21.7	0.0	0.0	16.9
Prop In Lane	0.63	0.37	0.13			0.08
Lane Grp Cap(c), veh/h	265	0	1000	0	0	1248
V/C Ratio(X)	0.80	0.00	0.68	0.00	0.00	0.69
Avail Cap(c_a), veh/h	865	0	1000	0	0	1248
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	24.1	0.0	5.4	0.0	0.0	5.9
Incr Delay (d2), s/veh	2.1	0.0	3.8	0.0	0.0	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.0	6.5	0.0	0.0	9.5
LnGrp Delay(d),s/veh	26.2	0.0	9.2	0.0	0.0	9.0
LnGrp LOS	C		A			A
Approach Vol, veh/h	212			682	865	
Approach Delay, s/veh	26.2			9.2	9.0	
Approach LOS	C			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		14.2		45.0		
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		23.7		9.1		18.9		
Green Ext Time (p_c), s		0.4		0.4		0.4		

Intersection Summary			
HCM 2010 Ctrl Delay			11.2
HCM 2010 LOS			B

Notes

User approved volume balancing among the lanes for turning movement.

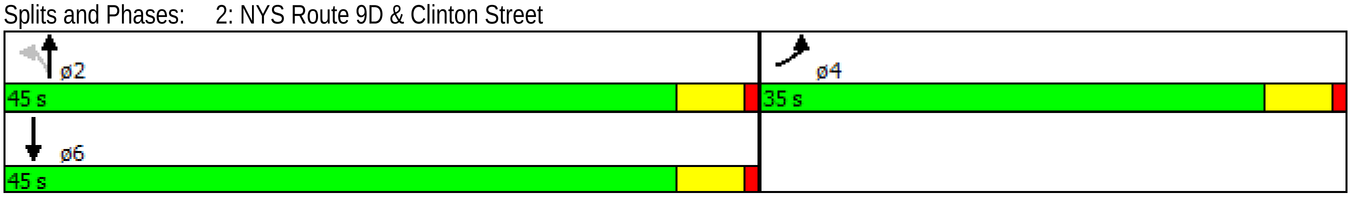
Two Way Analysis cannot be performed on Signalized Intersection.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	21	29	28	572	768	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%			3%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.922				0.993	
Flt Protected	0.979			0.998		
Satd. Flow (prot)	1665	0	0	1828	1842	0
Flt Permitted	0.979			0.946		
Satd. Flow (perm)	1665	0	0	1733	1842	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	33				5	
Link Speed (mph)	30			30	30	
Link Distance (ft)	904			139	1043	
Travel Time (s)	20.5			3.2	23.7	
Peak Hour Factor	0.87	0.87	0.97	0.97	0.89	0.89
Heavy Vehicles (%)	2%	2%	6%	2%	3%	2%
Adj. Flow (vph)	24	33	29	590	863	48
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	0	0	619	911	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.01	1.01	1.02	1.02	0.99	0.99
Turning Speed (mph)	15	9	15			9
Number of Detectors	1		1	1	1	
Detector Template	Left		Left			
Leading Detector (ft)	40		20	6	6	
Trailing Detector (ft)	0		0	0	0	
Detector 1 Position(ft)	0		0	0	0	
Detector 1 Size(ft)	40		20	6	6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	6.0		10.0	10.0	10.0	
Minimum Split (s)	11.0		15.0	15.0	15.0	
Total Split (s)	35.0		45.0	45.0	45.0	
Total Split (%)	43.8%		56.3%	56.3%	56.3%	
Maximum Green (s)	30.0		40.0	40.0	40.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.0			5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		0.2	0.2	0.2	
Recall Mode	None		Max	Max	Max	
v/c Ratio	0.27			0.43	0.60	
Control Delay	16.8			4.1	5.9	
Queue Delay	0.0			0.0	0.0	
Total Delay	16.8			4.1	5.9	
Queue Length 50th (ft)	7			67	124	
Queue Length 95th (ft)	33			134	251	
Internal Link Dist (ft)	824			59	963	
Turn Bay Length (ft)						
Base Capacity (vph)	879			1429	1519	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.06			0.43	0.60	

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 57.9	
Natural Cycle: 50	
Control Type: Semi Act-Uncoord	

Splits and Phases: 2: NYS Route 9D & Clinton Street



Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	57	619	911
v/c Ratio	0.27	0.43	0.60
Control Delay	16.8	4.1	5.9
Queue Delay	0.0	0.0	0.0
Total Delay	16.8	4.1	5.9
Queue Length 50th (ft)	7	67	124
Queue Length 95th (ft)	33	134	251
Internal Link Dist (ft)	824	59	963
Turn Bay Length (ft)			
Base Capacity (vph)	879	1429	1519
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.06	0.43	0.60

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	21	29	28	572	768	43
Number	7	14	5	2	6	16
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
Adj Sat Flow, veh/h/ln	1844	1881	1872	1831	1855	1910
Adj Flow Rate, veh/h	24	33	29	590	863	48
Adj No. of Lanes	0	0	0	1	1	0
Peak Hour Factor	0.87	0.87	0.97	0.97	0.89	0.89
Percent Heavy Veh, %	0	0	2	2	3	3
Cap, veh/h	44	61	97	1290	1302	72
Arrive On Green	0.06	0.06	0.75	0.75	0.75	0.75
Sat Flow, veh/h	681	936	35	1725	1741	97
Grp Volume(v), veh/h	58	0	619	0	0	911
Grp Sat Flow(s),veh/h/ln	1645	0	1760	0	0	1838
Q Serve(g_s), s	1.8	0.0	0.0	0.0	0.0	13.2
Cycle Q Clear(g_c), s	1.8	0.0	6.9	0.0	0.0	13.2
Prop In Lane	0.41	0.57	0.05			0.05
Lane Grp Cap(c), veh/h	107	0	1387	0	0	1375
V/C Ratio(X)	0.54	0.00	0.45	0.00	0.00	0.66
Avail Cap(c_a), veh/h	923	0	1387	0	0	1375
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	24.2	0.0	2.6	0.0	0.0	3.4
Incr Delay (d2), s/veh	1.6	0.0	1.0	0.0	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	3.7	0.0	0.0	7.3
LnGrp Delay(d),s/veh	25.8	0.0	3.6	0.0	0.0	5.9
LnGrp LOS	C		A			A
Approach Vol, veh/h	58			619	911	
Approach Delay, s/veh	25.8			3.6	5.9	
Approach LOS	C			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		8.5		45.0		
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		8.9		3.8		15.2		
Green Ext Time (p_c), s		0.3		0.1		0.3		

Intersection Summary		
HCM 2010 Ctrl Delay		5.7
HCM 2010 LOS		A

Notes

User approved volume balancing among the lanes for turning movement.

Two Way Analysis cannot be performed on Signalized Intersection.

Lane Group	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	64	12	32	53	9	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%		-4%			0%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.978		0.916			
Flt Protected	0.960					0.976
Satd. Flow (prot)	1700	0	1699	0	0	1854
Flt Permitted	0.960					0.976
Satd. Flow (perm)	1700	0	1699	0	0	1854
Link Speed (mph)	30		30			30
Link Distance (ft)	904		626			620
Travel Time (s)	20.5		14.2			14.1
Peak Hour Factor	0.82	0.82	0.66	0.66	0.61	0.61
Heavy Vehicles (%)	4%	0%	2%	6%	0%	0%
Adj. Flow (vph)	78	15	48	80	15	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	93	0	128	0	0	31
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	1.02	1.02	0.97	0.97	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Stop

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	WBU	WBL	WBR	NEU	NET	NER	SWU	SWL	SWT
Vol, veh/h	0	64	12	0	32	53	0	9	10
Peak Hour Factor	0.92	0.82	0.82	0.92	0.66	0.66	0.92	0.61	0.61
Heavy Vehicles, %	2	4	0	2	2	6	2	0	0
Mvmt Flow	0	78	15	0	48	80	0	15	16
Number of Lanes	0	1	0	0	1	0	0	0	1

Approach	WB	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	1	1
Conflicting Approach Left	NE		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SW	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7.9	7.4	7.5
HCM LOS	A	A	A

Lane	NELn1	WBLn1	SWLn1
Vol Left, %	0%	84%	47%
Vol Thru, %	38%	0%	53%
Vol Right, %	62%	16%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	85	76	19
LT Vol	0	64	9
Through Vol	32	0	10
RT Vol	53	12	0
Lane Flow Rate	129	93	31
Geometry Grp	1	1	1
Degree of Util (X)	0.134	0.111	0.037
Departure Headway (Hd)	3.745	4.317	4.256
Convergence, Y/N	Yes	Yes	Yes
Cap	947	825	832
Service Time	1.811	2.373	2.332
HCM Lane V/C Ratio	0.136	0.113	0.037
HCM Control Delay	7.4	7.9	7.5
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.5	0.4	0.1

Two Way Analysis cannot be performed on an All Way Stop Intersection.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	17	1	2	224	168	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	9%			6%	-12%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.995				0.994	
Flt Protected	0.954					
Satd. Flow (prot)	1722	0	0	1807	1964	0
Flt Permitted	0.954					
Satd. Flow (perm)	1722	0	0	1807	1964	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	572			413	453	
Travel Time (s)	13.0			9.4	10.3	
Peak Hour Factor	0.67	0.67	0.87	0.87	0.78	0.78
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	25	1	2	257	215	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	0	0	259	225	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.06	1.06	1.04	1.04	0.93	0.93
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	17	1	2	224	168	8
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, %	9	-	-	6	-12	-
Peak Hour Factor	67	67	87	87	78	78
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	25	1	2	257	215	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	483	221	226	0	-	0
Stage 1	221	-	-	-	-	-
Stage 2	262	-	-	-	-	-
Critical Hdwy	8.2	7.1	4.1	-	-	-
Critical Hdwy Stg 1	7.2	-	-	-	-	-
Critical Hdwy Stg 2	7.2	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	429	779	1354	-	-	-
Stage 1	735	-	-	-	-	-
Stage 2	690	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	428	779	1354	-	-	-
Mov Cap-2 Maneuver	428	-	-	-	-	-
Stage 1	735	-	-	-	-	-
Stage 2	689	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.7	0.1	0
HCM LOS	B		

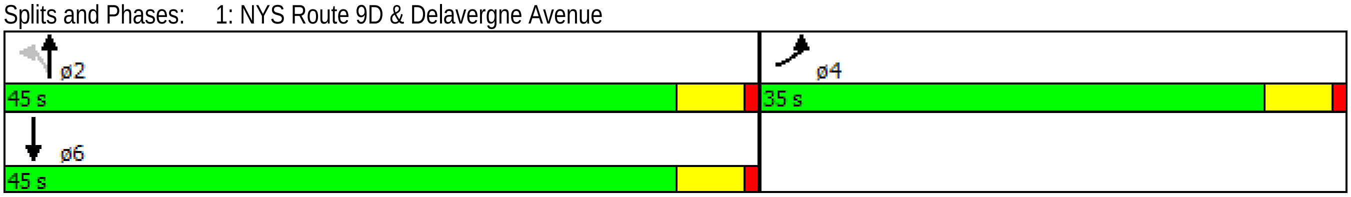
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1354	-	439	-	-
HCM Lane V/C Ratio	0.002	-	0.061	-	-
HCM Control Delay (s)	7.7	0	13.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	125	91	92	453	345	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.943				0.972	
Flt Protected	0.972			0.992		
Satd. Flow (prot)	1594	0	0	1783	1682	0
Flt Permitted	0.972			0.849		
Satd. Flow (perm)	1594	0	0	1526	1682	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	52				24	
Link Speed (mph)	30			30	30	
Link Distance (ft)	318			1043	324	
Travel Time (s)	7.2			23.7	7.4	
Peak Hour Factor	0.84	0.84	0.83	0.83	0.89	0.89
Heavy Vehicles (%)	3%	14%	11%	4%	11%	8%
Adj. Flow (vph)	149	108	111	546	388	102
Shared Lane Traffic (%)						
Lane Group Flow (vph)	257	0	0	657	490	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.02	1.02	1.01	1.01	0.99	0.99
Turning Speed (mph)	15	9	15			9
Number of Detectors	1		1	1	1	
Detector Template	Left		Left			
Leading Detector (ft)	40		20	6	6	
Trailing Detector (ft)	0		0	0	0	
Detector 1 Position(ft)	0		0	0	0	
Detector 1 Size(ft)	40		20	6	6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	6.0		10.0	10.0	10.0	
Minimum Split (s)	11.0		15.0	15.0	15.0	
Total Split (s)	35.0		45.0	45.0	45.0	
Total Split (%)	43.8%		56.3%	56.3%	56.3%	
Maximum Green (s)	30.0		40.0	40.0	40.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.0			5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		0.2	0.2	0.2	
Recall Mode	None		Max	Max	Max	
v/c Ratio	0.71			0.67	0.45	
Control Delay	29.8			12.9	8.0	
Queue Delay	0.0			0.0	0.0	
Total Delay	29.8			12.9	8.0	
Queue Length 50th (ft)	72			133	74	
Queue Length 95th (ft)	126			273	173	
Internal Link Dist (ft)	238			963	244	
Turn Bay Length (ft)						
Base Capacity (vph)	792			976	1085	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.32			0.67	0.45	

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 62.8	
Natural Cycle: 55	
Control Type: Semi Act-Uncoord	

Splits and Phases: 1: NYS Route 9D & Delavergne Avenue



Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	257	657	490
v/c Ratio	0.71	0.67	0.45
Control Delay	29.8	12.9	8.0
Queue Delay	0.0	0.0	0.0
Total Delay	29.8	12.9	8.0
Queue Length 50th (ft)	72	133	74
Queue Length 95th (ft)	126	273	173
Internal Link Dist (ft)	238	963	244
Turn Bay Length (ft)			
Base Capacity (vph)	792	976	1085
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.32	0.67	0.45

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	125	91	92	453	345	91
Number	7	14	5	2	6	16
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
Adj Sat Flow, veh/h/ln	1739	1872	1890	1797	1730	1910
Adj Flow Rate, veh/h	149	108	111	546	388	102
Adj No. of Lanes	0	0	0	1	1	0
Peak Hour Factor	0.84	0.84	0.83	0.83	0.89	0.89
Percent Heavy Veh, %	0	0	4	4	11	11
Cap, veh/h	178	129	195	887	851	224
Arrive On Green	0.20	0.20	0.64	0.64	0.64	0.64
Sat Flow, veh/h	911	660	198	1378	1321	347
Grp Volume(v), veh/h	258	0	657	0	0	490
Grp Sat Flow(s),veh/h/ln	1577	0	1576	0	0	1669
Q Serve(g_s), s	9.8	0.0	5.2	0.0	0.0	9.2
Cycle Q Clear(g_c), s	9.8	0.0	14.4	0.0	0.0	9.2
Prop In Lane	0.58	0.42	0.17			0.21
Lane Grp Cap(c), veh/h	308	0	1082	0	0	1074
V/C Ratio(X)	0.84	0.00	0.61	0.00	0.00	0.46
Avail Cap(c_a), veh/h	761	0	1082	0	0	1074
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	24.1	0.0	6.3	0.0	0.0	5.6
Incr Delay (d2), s/veh	2.3	0.0	2.5	0.0	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	7.1	0.0	0.0	4.6
LnGrp Delay(d),s/veh	26.4	0.0	8.9	0.0	0.0	7.0
LnGrp LOS	C		A			A
Approach Vol, veh/h	258			657	490	
Approach Delay, s/veh	26.4			8.9	7.0	
Approach LOS	C			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		17.1		45.0		
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		16.4		11.8		11.2		
Green Ext Time (p_c), s		0.3		0.5		0.3		

Intersection Summary		
HCM 2010 Ctrl Delay		11.4
HCM 2010 LOS		B

Notes

User approved volume balancing among the lanes for turning movement.

Two Way Analysis cannot be performed on Signalized Intersection.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	32	56	32	513	409	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%			3%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.914				0.992	
Flt Protected	0.982			0.997		
Satd. Flow (prot)	1310	0	0	1718	1787	0
Flt Permitted	0.982			0.997		
Satd. Flow (perm)	1310	0	0	1718	1787	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	904			139	1043	
Travel Time (s)	20.5			3.2	23.7	
Peak Hour Factor	0.62	0.62	0.95	0.95	0.83	0.83
Heavy Vehicles (%)	20%	34%	50%	6%	6%	6%
Adj. Flow (vph)	52	90	34	540	493	33
Shared Lane Traffic (%)						
Lane Group Flow (vph)	142	0	0	574	526	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.01	1.01	1.02	1.02	0.99	0.99
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	32	56	32	513	409	27
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, %	2	-	-	3	-1	-
Peak Hour Factor	62	62	95	95	83	83
Heavy Vehicles, %	20	34	50	6	6	6
Mvmt Flow	52	90	34	540	493	33

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1116	509	525	0	-	0
Stage 1	509	-	-	-	-	-
Stage 2	607	-	-	-	-	-
Critical Hdwy	7	6.74	4.6	-	-	-
Critical Hdwy Stg 1	6	-	-	-	-	-
Critical Hdwy Stg 2	6	-	-	-	-	-
Follow-up Hdwy	3.68	3.606	2.65	-	-	-
Pot Cap-1 Maneuver	187	491	837	-	-	-
Stage 1	537	-	-	-	-	-
Stage 2	477	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	176	491	837	-	-	-
Mov Cap-2 Maneuver	176	-	-	-	-	-
Stage 1	537	-	-	-	-	-
Stage 2	449	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.7	0.6	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	837	-	297	-	-
HCM Lane V/C Ratio	0.04	-	0.478	-	-
HCM Control Delay (s)	9.5	0	27.7	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0.1	-	2.4	-	-

Lane Group	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	46	7	41	77	3	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%		-4%			0%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.982		0.912			
Flt Protected	0.958					0.991
Satd. Flow (prot)	1259	0	1459	0	0	1883
Flt Permitted	0.958					0.991
Satd. Flow (perm)	1259	0	1459	0	0	1883
Link Speed (mph)	30		30			30
Link Distance (ft)	904		626			620
Travel Time (s)	20.5		14.2			14.1
Peak Hour Factor	0.59	0.59	0.80	0.80	0.88	0.88
Heavy Vehicles (%)	46%	0%	10%	27%	0%	0%
Adj. Flow (vph)	78	12	51	96	3	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	90	0	147	0	0	17
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	1.02	1.02	0.97	0.97	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Stop

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	WBU	WBL	WBR	NEU	NET	NER	SWU	SWL	SWT
Vol, veh/h	0	46	7	0	41	77	0	3	12
Peak Hour Factor	0.92	0.59	0.59	0.92	0.80	0.80	0.92	0.88	0.88
Heavy Vehicles, %	2	46	0	2	10	27	2	0	0
Mvmt Flow	0	78	12	0	51	96	0	3	14
Number of Lanes	0	1	0	0	1	0	0	0	1

Approach	WB	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	1	1
Conflicting Approach Left	NE		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SW	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.9	7.7	7.4
HCM LOS	A	A	A

Lane	NELn1	WBLn1	SWLn1
Vol Left, %	0%	87%	20%
Vol Thru, %	35%	0%	80%
Vol Right, %	65%	13%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	118	53	15
LT Vol	0	46	3
Through Vol	41	0	12
RT Vol	77	7	0
Lane Flow Rate	148	90	17
Geometry Grp	1	1	1
Degree of Util (X)	0.158	0.126	0.02
Departure Headway (Hd)	3.849	5.062	4.329
Convergence, Y/N	Yes	Yes	Yes
Cap	915	704	832
Service Time	1.944	3.124	2.329
HCM Lane V/C Ratio	0.162	0.128	0.02
HCM Control Delay	7.7	8.9	7.4
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.6	0.4	0.1

Two Way Analysis cannot be performed on an All Way Stop Intersection.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	9	0	0	134	187	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	9%			6%	-12%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.997	
Flt Protected	0.950					
Satd. Flow (prot)	1724	0	0	1722	1932	0
Flt Permitted	0.950					
Satd. Flow (perm)	1724	0	0	1722	1932	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	572			413	453	
Travel Time (s)	13.0			9.4	10.3	
Peak Hour Factor	0.67	0.67	0.68	0.68	0.77	0.77
Heavy Vehicles (%)	0%	0%	0%	7%	3%	50%
Adj. Flow (vph)	13	0	0	197	243	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	0	0	197	248	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.06	1.06	1.04	1.04	0.93	0.93
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	9	0	0	134	187	4
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, %	9	-	-	6	-12	-
Peak Hour Factor	67	67	68	68	77	77
Heavy Vehicles, %	0	0	0	7	3	50
Mvmt Flow	13	0	0	197	243	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	442	245	248	0	-	0
Stage 1	245	-	-	-	-	-
Stage 2	197	-	-	-	-	-
Critical Hdwy	8.2	7.1	4.1	-	-	-
Critical Hdwy Stg 1	7.2	-	-	-	-	-
Critical Hdwy Stg 2	7.2	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	462	751	1330	-	-	-
Stage 1	708	-	-	-	-	-
Stage 2	762	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	462	751	1330	-	-	-
Mov Cap-2 Maneuver	462	-	-	-	-	-
Stage 1	708	-	-	-	-	-
Stage 2	762	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1330	-	462	-	-
HCM Lane V/C Ratio	-	-	0.029	-	-
HCM Control Delay (s)	0	-	13	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (vph)	66	0	13	46	0	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%			-2%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected				0.989		
Satd. Flow (prot)	1872	0	0	1861	1611	0
Flt Permitted				0.989		
Satd. Flow (perm)	1872	0	0	1861	1611	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	250			586	262	
Travel Time (s)	5.7			13.3	6.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	0	14	50	0	58
Shared Lane Traffic (%)						
Lane Group Flow (vph)	72	0	0	64	58	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
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)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3.2

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Vol, veh/h	66	0	13	46	0	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	-2	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	72	0	14	50	0	58

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	72	0	150	72
Stage 1	-	-	-	-	72	-
Stage 2	-	-	-	-	78	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1528	-	842	990
Stage 1	-	-	-	-	951	-
Stage 2	-	-	-	-	945	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1528	-	834	990
Mov Cap-2 Maneuver	-	-	-	-	834	-
Stage 1	-	-	-	-	951	-
Stage 2	-	-	-	-	936	-

Approach	NB	SB	NW
HCM Control Delay, s	0	1.6	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBT	NBR	NWLn1	SBL	SBT
Capacity (veh/h)	-	-	990	1528	-
HCM Lane V/C Ratio	-	-	0.058	0.009	-
HCM Control Delay (s)	-	-	8.9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	12	16	50	3	4	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%		5%			-3%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.923		0.993			
Flt Protected	0.979					0.996
Satd. Flow (prot)	1683	0	1803	0	0	1883
Flt Permitted	0.979					0.996
Satd. Flow (perm)	1683	0	1803	0	0	1883
Link Speed (mph)	30		30			30
Link Distance (ft)	372		1071			363
Travel Time (s)	8.5		24.3			8.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	17	54	3	4	46
Shared Lane Traffic (%)						
Lane Group Flow (vph)	30	0	57	0	0	50
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	1.00	1.00	1.03	1.03	0.98	0.98
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	2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	12	16	50	3	4	42
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, %	0	-	5	-	-	-3
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	17	54	3	4	46

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	110	56	0	0	58	0
Stage 1	56	-	-	-	-	-
Stage 2	54	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	887	1011	-	-	1546	-
Stage 1	967	-	-	-	-	-
Stage 2	969	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	884	1011	-	-	1546	-
Mov Cap-2 Maneuver	884	-	-	-	-	-
Stage 1	967	-	-	-	-	-
Stage 2	966	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0.6
HCM LOS	A		

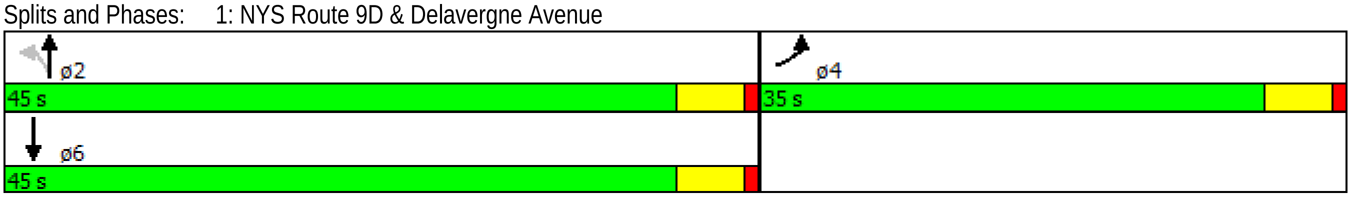
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	952	1546	-
HCM Lane V/C Ratio	-	-	0.032	0.003	-
HCM Control Delay (s)	-	-	8.9	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	125	91	92	453	345	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.943				0.972	
Flt Protected	0.972			0.992		
Satd. Flow (prot)	1594	0	0	1783	1682	0
Flt Permitted	0.972			0.849		
Satd. Flow (perm)	1594	0	0	1526	1682	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	52				24	
Link Speed (mph)	30			30	30	
Link Distance (ft)	318			1043	324	
Travel Time (s)	7.2			23.7	7.4	
Peak Hour Factor	0.84	0.84	0.83	0.83	0.89	0.89
Heavy Vehicles (%)	3%	14%	11%	4%	11%	8%
Adj. Flow (vph)	149	108	111	546	388	102
Shared Lane Traffic (%)						
Lane Group Flow (vph)	257	0	0	657	490	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.02	1.02	1.01	1.01	0.99	0.99
Turning Speed (mph)	15	9	15			9
Number of Detectors	1		1	1	1	
Detector Template	Left		Left			
Leading Detector (ft)	40		20	6	6	
Trailing Detector (ft)	0		0	0	0	
Detector 1 Position(ft)	0		0	0	0	
Detector 1 Size(ft)	40		20	6	6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	6.0		10.0	10.0	10.0	
Minimum Split (s)	11.0		15.0	15.0	15.0	
Total Split (s)	35.0		45.0	45.0	45.0	
Total Split (%)	43.8%		56.3%	56.3%	56.3%	
Maximum Green (s)	30.0		40.0	40.0	40.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.0			5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		0.2	0.2	0.2	
Recall Mode	None		Max	Max	Max	
v/c Ratio	0.71			0.67	0.45	
Control Delay	29.8			12.9	8.0	
Queue Delay	0.0			0.0	0.0	
Total Delay	29.8			12.9	8.0	
Queue Length 50th (ft)	72			133	74	
Queue Length 95th (ft)	126			273	173	
Internal Link Dist (ft)	238			963	244	
Turn Bay Length (ft)						
Base Capacity (vph)	792			976	1085	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.32			0.67	0.45	

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 62.8	
Natural Cycle: 55	
Control Type: Semi Act-Uncoord	

Splits and Phases: 1: NYS Route 9D & Delavergne Avenue



Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	257	657	490
v/c Ratio	0.71	0.67	0.45
Control Delay	29.8	12.9	8.0
Queue Delay	0.0	0.0	0.0
Total Delay	29.8	12.9	8.0
Queue Length 50th (ft)	72	133	74
Queue Length 95th (ft)	126	273	173
Internal Link Dist (ft)	238	963	244
Turn Bay Length (ft)			
Base Capacity (vph)	792	976	1085
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.32	0.67	0.45

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	125	91	92	453	345	91
Number	7	14	5	2	6	16
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
Adj Sat Flow, veh/h/ln	1739	1872	1890	1797	1730	1910
Adj Flow Rate, veh/h	149	108	111	546	388	102
Adj No. of Lanes	0	0	0	1	1	0
Peak Hour Factor	0.84	0.84	0.83	0.83	0.89	0.89
Percent Heavy Veh, %	0	0	4	4	11	11
Cap, veh/h	178	129	195	887	851	224
Arrive On Green	0.20	0.20	0.64	0.64	0.64	0.64
Sat Flow, veh/h	911	660	198	1378	1321	347
Grp Volume(v), veh/h	258	0	657	0	0	490
Grp Sat Flow(s),veh/h/ln	1577	0	1576	0	0	1669
Q Serve(g_s), s	9.8	0.0	5.2	0.0	0.0	9.2
Cycle Q Clear(g_c), s	9.8	0.0	14.4	0.0	0.0	9.2
Prop In Lane	0.58	0.42	0.17			0.21
Lane Grp Cap(c), veh/h	308	0	1082	0	0	1074
V/C Ratio(X)	0.84	0.00	0.61	0.00	0.00	0.46
Avail Cap(c_a), veh/h	761	0	1082	0	0	1074
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	24.1	0.0	6.3	0.0	0.0	5.6
Incr Delay (d2), s/veh	2.3	0.0	2.5	0.0	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	7.1	0.0	0.0	4.6
LnGrp Delay(d),s/veh	26.4	0.0	8.9	0.0	0.0	7.0
LnGrp LOS	C		A			A
Approach Vol, veh/h	258			657	490	
Approach Delay, s/veh	26.4			8.9	7.0	
Approach LOS	C			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		17.1		45.0		
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		16.4		11.8		11.2		
Green Ext Time (p_c), s		0.3		0.5		0.3		

Intersection Summary			
HCM 2010 Ctrl Delay			11.4
HCM 2010 LOS			B

Notes

User approved volume balancing among the lanes for turning movement.

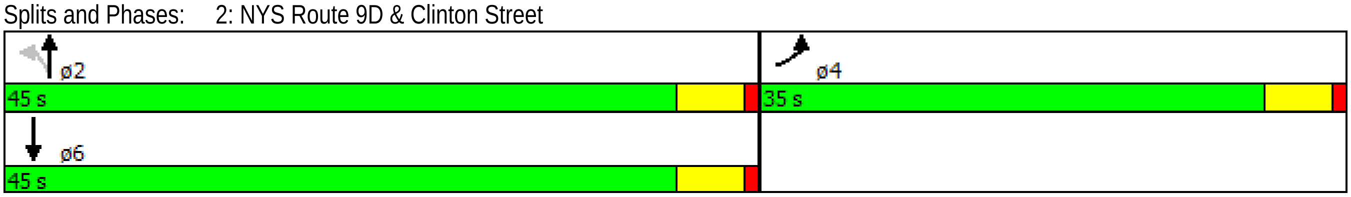
Two Way Analysis cannot be performed on Signalized Intersection.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	32	56	32	513	409	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%			3%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.914				0.992	
Flt Protected	0.982			0.997		
Satd. Flow (prot)	1310	0	0	1718	1787	0
Flt Permitted	0.982			0.958		
Satd. Flow (perm)	1310	0	0	1651	1787	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	90				6	
Link Speed (mph)	30			30	30	
Link Distance (ft)	904			139	1043	
Travel Time (s)	20.5			3.2	23.7	
Peak Hour Factor	0.62	0.62	0.95	0.95	0.83	0.83
Heavy Vehicles (%)	20%	34%	50%	6%	6%	6%
Adj. Flow (vph)	52	90	34	540	493	33
Shared Lane Traffic (%)						
Lane Group Flow (vph)	142	0	0	574	526	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.01	1.01	1.02	1.02	0.99	0.99
Turning Speed (mph)	15	9	15			9
Number of Detectors	1		1	1	1	
Detector Template	Left		Left			
Leading Detector (ft)	40		20	6	6	
Trailing Detector (ft)	0		0	0	0	
Detector 1 Position(ft)	0		0	0	0	
Detector 1 Size(ft)	40		20	6	6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	6.0		10.0	10.0	10.0	
Minimum Split (s)	11.0		15.0	15.0	15.0	
Total Split (s)	35.0		45.0	45.0	45.0	
Total Split (%)	43.8%		56.3%	56.3%	56.3%	
Maximum Green (s)	30.0		40.0	40.0	40.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.0			5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		0.2	0.2	0.2	
Recall Mode	None		Max	Max	Max	
v/c Ratio	0.56			0.46	0.39	
Control Delay	19.3			5.9	5.0	
Queue Delay	0.0			0.0	0.0	
Total Delay	19.3			5.9	5.0	
Queue Length 50th (ft)	17			66	55	
Queue Length 95th (ft)	30			168	119	
Internal Link Dist (ft)	824			59	963	
Turn Bay Length (ft)						
Base Capacity (vph)	714			1236	1339	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.20			0.46	0.39	

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 58.7	
Natural Cycle: 40	
Control Type: Semi Act-Uncoord	

Splits and Phases: 2: NYS Route 9D & Clinton Street



Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	142	574	526
v/c Ratio	0.56	0.46	0.39
Control Delay	19.3	5.9	5.0
Queue Delay	0.0	0.0	0.0
Total Delay	19.3	5.9	5.0
Queue Length 50th (ft)	17	66	55
Queue Length 95th (ft)	30	168	119
Internal Link Dist (ft)	824	59	963
Turn Bay Length (ft)			
Base Capacity (vph)	714	1236	1339
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.20	0.46	0.39

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	32	56	32	513	409	27
Number	7	14	5	2	6	16
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
Adj Sat Flow, veh/h/ln	1460	1881	1872	1723	1801	1910
Adj Flow Rate, veh/h	52	90	34	540	493	33
Adj No. of Lanes	0	0	0	1	1	0
Peak Hour Factor	0.62	0.62	0.95	0.95	0.83	0.83
Percent Heavy Veh, %	0	0	6	6	6	6
Cap, veh/h	62	108	99	1126	1159	78
Arrive On Green	0.13	0.13	0.69	0.69	0.69	0.69
Sat Flow, veh/h	470	813	47	1622	1670	112
Grp Volume(v), veh/h	143	0	574	0	0	526
Grp Sat Flow(s),veh/h/ln	1293	0	1670	0	0	1782
Q Serve(g_s), s	6.2	0.0	0.0	0.0	0.0	7.4
Cycle Q Clear(g_c), s	6.2	0.0	8.8	0.0	0.0	7.4
Prop In Lane	0.36	0.63	0.06			0.06
Lane Grp Cap(c), veh/h	171	0	1225	0	0	1236
V/C Ratio(X)	0.84	0.00	0.47	0.00	0.00	0.43
Avail Cap(c_a), veh/h	673	0	1225	0	0	1236
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	24.4	0.0	4.0	0.0	0.0	3.8
Incr Delay (d2), s/veh	4.0	0.0	1.3	0.0	0.0	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	2.4	0.0	4.6	0.0	0.0	3.9
LnGrp Delay(d),s/veh	28.4	0.0	5.3	0.0	0.0	4.9
LnGrp LOS	C		A			A
Approach Vol, veh/h	143			574	526	
Approach Delay, s/veh	28.4			5.3	4.9	
Approach LOS	C			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		12.6		45.0		
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		10.8		8.2		9.4		
Green Ext Time (p_c), s		0.2		0.3		0.2		

Intersection Summary		
HCM 2010 Ctrl Delay		7.8
HCM 2010 LOS		A

Notes

User approved volume balancing among the lanes for turning movement.

Two Way Analysis cannot be performed on Signalized Intersection.

Lane Group	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	46	7	41	77	3	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%		-4%			0%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.982		0.912			
Flt Protected	0.958					0.991
Satd. Flow (prot)	1259	0	1459	0	0	1883
Flt Permitted	0.958					0.991
Satd. Flow (perm)	1259	0	1459	0	0	1883
Link Speed (mph)	30		30			30
Link Distance (ft)	904		626			620
Travel Time (s)	20.5		14.2			14.1
Peak Hour Factor	0.59	0.59	0.80	0.80	0.88	0.88
Heavy Vehicles (%)	46%	0%	10%	27%	0%	0%
Adj. Flow (vph)	78	12	51	96	3	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	90	0	147	0	0	17
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	1.02	1.02	0.97	0.97	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Stop

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	WBU	WBL	WBR	NEU	NET	NER	SWU	SWL	SWT
Vol, veh/h	0	46	7	0	41	77	0	3	12
Peak Hour Factor	0.92	0.59	0.59	0.92	0.80	0.80	0.92	0.88	0.88
Heavy Vehicles, %	2	46	0	2	10	27	2	0	0
Mvmt Flow	0	78	12	0	51	96	0	3	14
Number of Lanes	0	1	0	0	1	0	0	0	1

Approach	WB	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	1	1
Conflicting Approach Left	NE		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SW	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.9	7.7	7.4
HCM LOS	A	A	A

Lane	NELn1	WBLn1	SWLn1
Vol Left, %	0%	87%	20%
Vol Thru, %	35%	0%	80%
Vol Right, %	65%	13%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	118	53	15
LT Vol	0	46	3
Through Vol	41	0	12
RT Vol	77	7	0
Lane Flow Rate	148	90	17
Geometry Grp	1	1	1
Degree of Util (X)	0.158	0.126	0.02
Departure Headway (Hd)	3.849	5.062	4.329
Convergence, Y/N	Yes	Yes	Yes
Cap	915	704	832
Service Time	1.944	3.124	2.329
HCM Lane V/C Ratio	0.162	0.128	0.02
HCM Control Delay	7.7	8.9	7.4
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.6	0.4	0.1

Two Way Analysis cannot be performed on an All Way Stop Intersection.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	9	0	0	134	187	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	9%			6%	-12%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.997	
Flt Protected	0.950					
Satd. Flow (prot)	1724	0	0	1722	1932	0
Flt Permitted	0.950					
Satd. Flow (perm)	1724	0	0	1722	1932	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	572			413	453	
Travel Time (s)	13.0			9.4	10.3	
Peak Hour Factor	0.67	0.67	0.68	0.68	0.77	0.77
Heavy Vehicles (%)	0%	0%	0%	7%	3%	50%
Adj. Flow (vph)	13	0	0	197	243	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	0	0	197	248	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.06	1.06	1.04	1.04	0.93	0.93
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	9	0	0	134	187	4
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, %	9	-	-	6	-12	-
Peak Hour Factor	67	67	68	68	77	77
Heavy Vehicles, %	0	0	0	7	3	50
Mvmt Flow	13	0	0	197	243	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	442	245	248	0	-	0
Stage 1	245	-	-	-	-	-
Stage 2	197	-	-	-	-	-
Critical Hdwy	8.2	7.1	4.1	-	-	-
Critical Hdwy Stg 1	7.2	-	-	-	-	-
Critical Hdwy Stg 2	7.2	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	462	751	1330	-	-	-
Stage 1	708	-	-	-	-	-
Stage 2	762	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	462	751	1330	-	-	-
Mov Cap-2 Maneuver	462	-	-	-	-	-
Stage 1	708	-	-	-	-	-
Stage 2	762	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1330	-	462	-	-
HCM Lane V/C Ratio	-	-	0.029	-	-
HCM Control Delay (s)	0	-	13	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (vph)	66	0	13	46	0	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%			-2%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected				0.989		
Satd. Flow (prot)	1872	0	0	1861	1611	0
Flt Permitted				0.989		
Satd. Flow (perm)	1872	0	0	1861	1611	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	250			586	262	
Travel Time (s)	5.7			13.3	6.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	0	14	50	0	58
Shared Lane Traffic (%)						
Lane Group Flow (vph)	72	0	0	64	58	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
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)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3.2

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Vol, veh/h	66	0	13	46	0	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	-2	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	72	0	14	50	0	58

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	72	0	150	72
Stage 1	-	-	-	-	72	-
Stage 2	-	-	-	-	78	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1528	-	842	990
Stage 1	-	-	-	-	951	-
Stage 2	-	-	-	-	945	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1528	-	834	990
Mov Cap-2 Maneuver	-	-	-	-	834	-
Stage 1	-	-	-	-	951	-
Stage 2	-	-	-	-	936	-

Approach	NB	SB	NW
HCM Control Delay, s	0	1.6	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBT	NBR	NWLn1	SBL	SBT
Capacity (veh/h)	-	-	990	1528	-
HCM Lane V/C Ratio	-	-	0.058	0.009	-
HCM Control Delay (s)	-	-	8.9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	12	16	50	3	4	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%		5%			-3%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.923		0.993			
Flt Protected	0.979					0.996
Satd. Flow (prot)	1683	0	1803	0	0	1883
Flt Permitted	0.979					0.996
Satd. Flow (perm)	1683	0	1803	0	0	1883
Link Speed (mph)	30		30			30
Link Distance (ft)	372		1071			363
Travel Time (s)	8.5		24.3			8.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	17	54	3	4	46
Shared Lane Traffic (%)						
Lane Group Flow (vph)	30	0	57	0	0	50
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	1.00	1.00	1.03	1.03	0.98	0.98
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	2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	12	16	50	3	4	42
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, %	0	-	5	-	-	-3
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	17	54	3	4	46

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	110	56	0	0	58	0
Stage 1	56	-	-	-	-	-
Stage 2	54	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	887	1011	-	-	1546	-
Stage 1	967	-	-	-	-	-
Stage 2	969	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	884	1011	-	-	1546	-
Mov Cap-2 Maneuver	884	-	-	-	-	-
Stage 1	967	-	-	-	-	-
Stage 2	966	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	952	1546	-
HCM Lane V/C Ratio	-	-	0.032	0.003	-
HCM Control Delay (s)	-	-	8.9	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

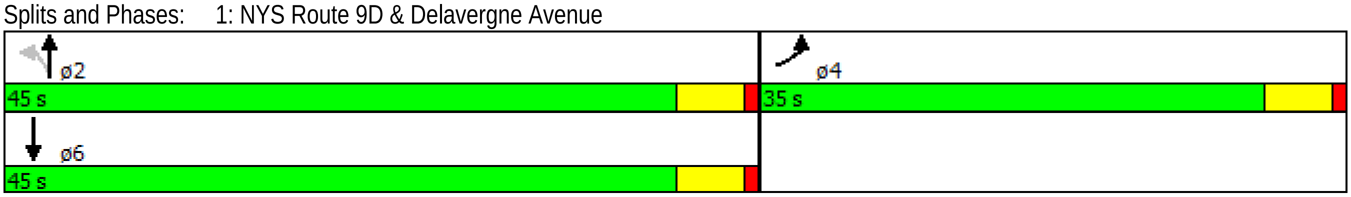
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	132	69	78	519	750	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.954				0.985	
Flt Protected	0.968			0.993		
Satd. Flow (prot)	1728	0	0	1843	1844	0
Flt Permitted	0.968			0.649		
Satd. Flow (perm)	1728	0	0	1204	1844	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	37				11	
Link Speed (mph)	30			30	30	
Link Distance (ft)	318			1043	324	
Travel Time (s)	7.2			23.7	7.4	
Peak Hour Factor	0.88	0.88	0.87	0.87	0.93	0.93
Heavy Vehicles (%)	0%	0%	1%	2%	2%	2%
Adj. Flow (vph)	150	78	90	597	806	99
Shared Lane Traffic (%)						
Lane Group Flow (vph)	228	0	0	687	905	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.02	1.02	1.01	1.01	0.99	0.99
Turning Speed (mph)	15	9	15			9
Number of Detectors	1		1	1	1	
Detector Template	Left		Left			
Leading Detector (ft)	40		20	6	6	
Trailing Detector (ft)	0		0	0	0	
Detector 1 Position(ft)	0		0	0	0	
Detector 1 Size(ft)	40		20	6	6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	6.0		10.0	10.0	10.0	
Minimum Split (s)	11.0		15.0	15.0	15.0	
Total Split (s)	35.0		45.0	45.0	45.0	
Total Split (%)	43.8%		56.3%	56.3%	56.3%	
Maximum Green (s)	30.0		40.0	40.0	40.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.0			5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		0.2	0.2	0.2	
Recall Mode	None		Max	Max	Max	
v/c Ratio	0.66			0.87	0.75	
Control Delay	28.9			25.7	13.5	
Queue Delay	0.0			0.0	0.0	
Total Delay	28.9			25.7	13.5	
Queue Length 50th (ft)	66			169	183	
Queue Length 95th (ft)	123			#447	#467	
Internal Link Dist (ft)	238			963	244	
Turn Bay Length (ft)						
Base Capacity (vph)	866			787	1210	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.26			0.87	0.75	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 61.3
Natural Cycle: 60
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: NYS Route 9D & Delavergne Avenue



Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	228	687	905
v/c Ratio	0.66	0.87	0.75
Control Delay	28.9	25.7	13.5
Queue Delay	0.0	0.0	0.0
Total Delay	28.9	25.7	13.5
Queue Length 50th (ft)	66	169	183
Queue Length 95th (ft)	123	#447	#467
Internal Link Dist (ft)	238	963	244
Turn Bay Length (ft)			
Base Capacity (vph)	866	787	1210
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.26	0.87	0.75

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	132	69	78	519	750	92
Number	7	14	5	2	6	16
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
Adj Sat Flow, veh/h/ln	1872	1872	1890	1856	1872	1910
Adj Flow Rate, veh/h	150	78	90	597	806	99
Adj No. of Lanes	0	0	0	1	1	0
Peak Hour Factor	0.88	0.88	0.87	0.87	0.93	0.93
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	186	97	134	785	1092	134
Arrive On Green	0.17	0.17	0.67	0.67	0.67	0.67
Sat Flow, veh/h	1122	583	99	1176	1636	201
Grp Volume(v), veh/h	229	0	687	0	0	905
Grp Sat Flow(s),veh/h/ln	1712	0	1275	0	0	1837
Q Serve(g_s), s	7.7	0.0	8.0	0.0	0.0	19.4
Cycle Q Clear(g_c), s	7.7	0.0	27.3	0.0	0.0	19.4
Prop In Lane	0.66	0.34	0.13			0.11
Lane Grp Cap(c), veh/h	284	0	919	0	0	1226
V/C Ratio(X)	0.81	0.00	0.75	0.00	0.00	0.74
Avail Cap(c_a), veh/h	857	0	919	0	0	1226
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	24.1	0.0	6.5	0.0	0.0	6.5
Incr Delay (d2), s/veh	2.1	0.0	5.5	0.0	0.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	10.2	0.0	0.0	10.9
LnGrp Delay(d),s/veh	26.2	0.0	12.1	0.0	0.0	10.5
LnGrp LOS	C		B			B
Approach Vol, veh/h	229			687	905	
Approach Delay, s/veh	26.2			12.1	10.5	
Approach LOS	C			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		14.9		45.0		
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		29.3		9.7		21.4		
Green Ext Time (p_c), s		0.4		0.4		0.4		

Intersection Summary		
HCM 2010 Ctrl Delay		13.1
HCM 2010 LOS		B

Notes

User approved volume balancing among the lanes for turning movement.

Two Way Analysis cannot be performed on Signalized Intersection.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	25	44	57	572	768	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%			3%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.914				0.992	
Flt Protected	0.982			0.995		
Satd. Flow (prot)	1655	0	0	1819	1840	0
Flt Permitted	0.982			0.995		
Satd. Flow (perm)	1655	0	0	1819	1840	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	904			139	1043	
Travel Time (s)	20.5			3.2	23.7	
Peak Hour Factor	0.87	0.87	0.97	0.97	0.89	0.89
Heavy Vehicles (%)	2%	2%	6%	2%	3%	2%
Adj. Flow (vph)	29	51	59	590	863	57
Shared Lane Traffic (%)						
Lane Group Flow (vph)	80	0	0	649	920	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.01	1.01	1.02	1.02	0.99	0.99
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	25	44	57	572	768	51
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, %	2	-	-	3	-1	-
Peak Hour Factor	87	87	97	97	89	89
Heavy Vehicles, %	2	2	6	2	3	2
Mvmt Flow	29	51	59	590	863	57

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1599	892	920	0	-	0
Stage 1	892	-	-	-	-	-
Stage 2	707	-	-	-	-	-
Critical Hdwy	6.82	6.42	4.16	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.254	-	-	-
Pot Cap-1 Maneuver	98	324	726	-	-	-
Stage 1	363	-	-	-	-	-
Stage 2	452	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	86	324	726	-	-	-
Mov Cap-2 Maneuver	86	-	-	-	-	-
Stage 1	363	-	-	-	-	-
Stage 2	397	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	46.9	0.9	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	726	-	162	-	-
HCM Lane V/C Ratio	0.081	-	0.49	-	-
HCM Control Delay (s)	10.4	0	46.9	-	-
HCM Lane LOS	B	A	E	-	-
HCM 95th %tile Q(veh)	0.3	-	2.3	-	-

Lane Group	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	101	12	50	73	9	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%		-4%			0%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.985		0.920			
Flt Protected	0.957					0.991
Satd. Flow (prot)	1703	0	1708	0	0	1883
Flt Permitted	0.957					0.991
Satd. Flow (perm)	1703	0	1708	0	0	1883
Link Speed (mph)	30		30			30
Link Distance (ft)	904		626			620
Travel Time (s)	20.5		14.2			14.1
Peak Hour Factor	0.82	0.82	0.66	0.66	0.61	0.61
Heavy Vehicles (%)	4%	0%	2%	6%	0%	0%
Adj. Flow (vph)	123	15	76	111	15	70
Shared Lane Traffic (%)						
Lane Group Flow (vph)	138	0	187	0	0	85
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	1.02	1.02	0.97	0.97	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Stop

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	8.3
Intersection LOS	A

Movement	WBU	WBL	WBR	NEU	NET	NER	SWU	SWL	SWT
Vol, veh/h	0	101	12	0	50	73	0	9	43
Peak Hour Factor	0.92	0.82	0.82	0.92	0.66	0.66	0.92	0.61	0.61
Heavy Vehicles, %	2	4	0	2	2	6	2	0	0
Mvmt Flow	0	123	15	0	76	111	0	15	70
Number of Lanes	0	1	0	0	1	0	0	0	1

Approach	WB	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	1	1
Conflicting Approach Left	NE		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SW	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.7	8.1	8
HCM LOS	A	A	A

Lane	NELn1	WBLn1	SWLn1
Vol Left, %	0%	89%	17%
Vol Thru, %	41%	0%	83%
Vol Right, %	59%	11%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	123	113	52
LT Vol	0	101	9
Through Vol	50	0	43
RT Vol	73	12	0
Lane Flow Rate	186	138	85
Geometry Grp	1	1	1
Degree of Util (X)	0.208	0.178	0.106
Departure Headway (Hd)	4.012	4.662	4.46
Convergence, Y/N	Yes	Yes	Yes
Cap	898	770	806
Service Time	2.024	2.682	2.475
HCM Lane V/C Ratio	0.207	0.179	0.105
HCM Control Delay	8.1	8.7	8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.8	0.6	0.4

Two Way Analysis cannot be performed on an All Way Stop Intersection.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	17	1	2	237	175	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	9%			6%	-12%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.995				0.994	
Flt Protected	0.954					
Satd. Flow (prot)	1722	0	0	1807	1964	0
Flt Permitted	0.954					
Satd. Flow (perm)	1722	0	0	1807	1964	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	572			413	453	
Travel Time (s)	13.0			9.4	10.3	
Peak Hour Factor	0.67	0.67	0.87	0.87	0.78	0.78
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	25	1	2	272	224	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	0	0	274	234	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.06	1.06	1.04	1.04	0.93	0.93
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	17	1	2	237	175	8
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, %	9	-	-	6	-12	-
Peak Hour Factor	67	67	87	87	78	78
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	25	1	2	272	224	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	506	229	235	0	-	0
Stage 1	229	-	-	-	-	-
Stage 2	277	-	-	-	-	-
Critical Hdwy	8.2	7.1	4.1	-	-	-
Critical Hdwy Stg 1	7.2	-	-	-	-	-
Critical Hdwy Stg 2	7.2	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	411	770	1344	-	-	-
Stage 1	726	-	-	-	-	-
Stage 2	674	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	410	770	1344	-	-	-
Mov Cap-2 Maneuver	410	-	-	-	-	-
Stage 1	726	-	-	-	-	-
Stage 2	673	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.1	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1344	-	421	-	-
HCM Lane V/C Ratio	0.002	-	0.064	-	-
HCM Control Delay (s)	7.7	0	14.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (vph)	94	0	54	90	0	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%			-2%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected				0.982		
Satd. Flow (prot)	1872	0	0	1848	1611	0
Flt Permitted				0.982		
Satd. Flow (perm)	1872	0	0	1848	1611	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	250			586	262	
Travel Time (s)	5.7			13.3	6.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	102	0	59	98	0	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	102	0	0	157	32	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
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)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.5

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Vol, veh/h	94	0	54	90	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	-2	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	102	0	59	98	0	32

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	102	0	317	102
Stage 1	-	-	-	-	102	-
Stage 2	-	-	-	-	215	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1490	-	676	953
Stage 1	-	-	-	-	922	-
Stage 2	-	-	-	-	821	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1490	-	648	953
Mov Cap-2 Maneuver	-	-	-	-	648	-
Stage 1	-	-	-	-	922	-
Stage 2	-	-	-	-	787	-

Approach	NB	SB	NW
HCM Control Delay, s	0	2.8	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBT	NBR	NWLn1	SBL	SBT
Capacity (veh/h)	-	-	953	1490	-
HCM Lane V/C Ratio	-	-	0.033	0.039	-
HCM Control Delay (s)	-	-	8.9	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	7	9	85	12	17	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%		5%			-3%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.925		0.983			
Flt Protected	0.978					0.991
Satd. Flow (prot)	1685	0	1785	0	0	1874
Flt Permitted	0.978					0.991
Satd. Flow (perm)	1685	0	1785	0	0	1874
Link Speed (mph)	30		30			30
Link Distance (ft)	372		1071			363
Travel Time (s)	8.5		24.3			8.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	10	92	13	18	80
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	105	0	0	98
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	1.00	1.00	1.03	1.03	0.98	0.98
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	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	7	9	85	12	17	74
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, %	0	-	5	-	-	-3
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	10	92	13	18	80

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	216	99	0	0	105	0
Stage 1	99	-	-	-	-	-
Stage 2	117	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	772	957	-	-	1486	-
Stage 1	925	-	-	-	-	-
Stage 2	908	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	762	957	-	-	1486	-
Mov Cap-2 Maneuver	762	-	-	-	-	-
Stage 1	925	-	-	-	-	-
Stage 2	896	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	1.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	861	1486	-
HCM Lane V/C Ratio	-	-	0.02	0.012	-
HCM Control Delay (s)	-	-	9.3	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	132	69	78	519	750	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.954				0.985	
Flt Protected	0.968			0.993		
Satd. Flow (prot)	1728	0	0	1843	1844	0
Flt Permitted	0.968			0.649		
Satd. Flow (perm)	1728	0	0	1204	1844	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	37				11	
Link Speed (mph)	30			30	30	
Link Distance (ft)	318			1043	324	
Travel Time (s)	7.2			23.7	7.4	
Peak Hour Factor	0.88	0.88	0.87	0.87	0.93	0.93
Heavy Vehicles (%)	0%	0%	1%	2%	2%	2%
Adj. Flow (vph)	150	78	90	597	806	99
Shared Lane Traffic (%)						
Lane Group Flow (vph)	228	0	0	687	905	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.02	1.02	1.01	1.01	0.99	0.99
Turning Speed (mph)	15	9	15			9
Number of Detectors	1		1	1	1	
Detector Template	Left		Left			
Leading Detector (ft)	40		20	6	6	
Trailing Detector (ft)	0		0	0	0	
Detector 1 Position(ft)	0		0	0	0	
Detector 1 Size(ft)	40		20	6	6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	6.0		10.0	10.0	10.0	
Minimum Split (s)	11.0		15.0	15.0	15.0	
Total Split (s)	35.0		45.0	45.0	45.0	
Total Split (%)	43.8%		56.3%	56.3%	56.3%	
Maximum Green (s)	30.0		40.0	40.0	40.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.0			5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		0.2	0.2	0.2	
Recall Mode	None		Max	Max	Max	
v/c Ratio	0.66			0.87	0.75	
Control Delay	28.9			25.7	13.5	
Queue Delay	0.0			0.0	0.0	
Total Delay	28.9			25.7	13.5	
Queue Length 50th (ft)	66			169	183	
Queue Length 95th (ft)	123			#447	#467	
Internal Link Dist (ft)	238			963	244	
Turn Bay Length (ft)						
Base Capacity (vph)	866			787	1210	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.26			0.87	0.75	

Intersection Summary

Area Type: Other

Cycle Length: 80

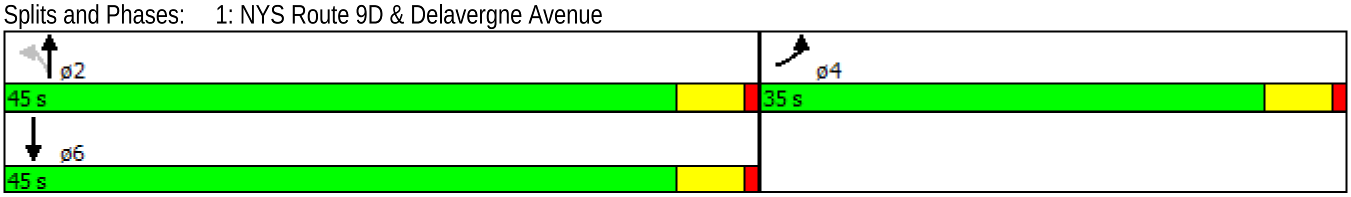
Actuated Cycle Length: 61.3

Natural Cycle: 60

Control Type: Semi Act-Uncoord

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: NYS Route 9D & Delavergne Avenue



Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	228	687	905
v/c Ratio	0.66	0.87	0.75
Control Delay	28.9	25.7	13.5
Queue Delay	0.0	0.0	0.0
Total Delay	28.9	25.7	13.5
Queue Length 50th (ft)	66	169	183
Queue Length 95th (ft)	123	#447	#467
Internal Link Dist (ft)	238	963	244
Turn Bay Length (ft)			
Base Capacity (vph)	866	787	1210
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.26	0.87	0.75

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	132	69	78	519	750	92
Number	7	14	5	2	6	16
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
Adj Sat Flow, veh/h/ln	1872	1872	1890	1856	1872	1910
Adj Flow Rate, veh/h	150	78	90	597	806	99
Adj No. of Lanes	0	0	0	1	1	0
Peak Hour Factor	0.88	0.88	0.87	0.87	0.93	0.93
Percent Heavy Veh, %	0	0	2	2	2	2
Cap, veh/h	186	97	134	785	1092	134
Arrive On Green	0.17	0.17	0.67	0.67	0.67	0.67
Sat Flow, veh/h	1122	583	99	1176	1636	201
Grp Volume(v), veh/h	229	0	687	0	0	905
Grp Sat Flow(s),veh/h/ln	1712	0	1275	0	0	1837
Q Serve(g_s), s	7.7	0.0	8.0	0.0	0.0	19.4
Cycle Q Clear(g_c), s	7.7	0.0	27.3	0.0	0.0	19.4
Prop In Lane	0.66	0.34	0.13			0.11
Lane Grp Cap(c), veh/h	284	0	919	0	0	1226
V/C Ratio(X)	0.81	0.00	0.75	0.00	0.00	0.74
Avail Cap(c_a), veh/h	857	0	919	0	0	1226
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	24.1	0.0	6.5	0.0	0.0	6.5
Incr Delay (d2), s/veh	2.1	0.0	5.5	0.0	0.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	10.2	0.0	0.0	10.9
LnGrp Delay(d),s/veh	26.2	0.0	12.1	0.0	0.0	10.5
LnGrp LOS	C		B			B
Approach Vol, veh/h	229			687	905	
Approach Delay, s/veh	26.2			12.1	10.5	
Approach LOS	C			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		14.9		45.0		
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		29.3		9.7		21.4		
Green Ext Time (p_c), s		0.4		0.4		0.4		

Intersection Summary			
HCM 2010 Ctrl Delay			13.1
HCM 2010 LOS			B

Notes

User approved volume balancing among the lanes for turning movement.

Two Way Analysis cannot be performed on Signalized Intersection.

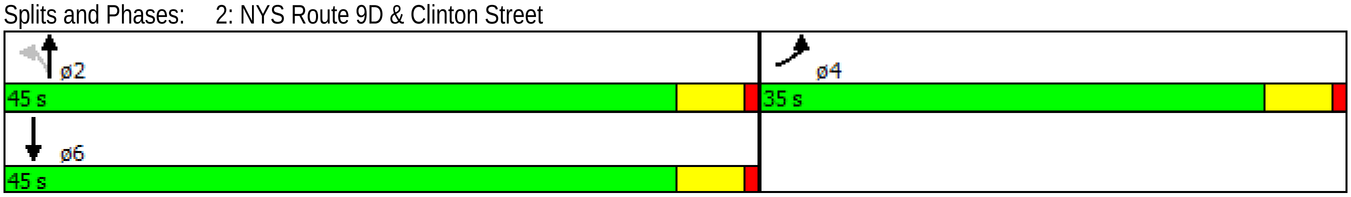
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	25	44	57	572	768	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	2%			3%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.914				0.992	
Flt Protected	0.982			0.995		
Satd. Flow (prot)	1655	0	0	1819	1840	0
Flt Permitted	0.982			0.875		
Satd. Flow (perm)	1655	0	0	1600	1840	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)	51				6	
Link Speed (mph)	30			30	30	
Link Distance (ft)	904			139	1043	
Travel Time (s)	20.5			3.2	23.7	
Peak Hour Factor	0.87	0.87	0.97	0.97	0.89	0.89
Heavy Vehicles (%)	2%	2%	6%	2%	3%	2%
Adj. Flow (vph)	29	51	59	590	863	57
Shared Lane Traffic (%)						
Lane Group Flow (vph)	80	0	0	649	920	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.01	1.01	1.02	1.02	0.99	0.99
Turning Speed (mph)	15	9	15			9
Number of Detectors	1		1	1	1	
Detector Template	Left		Left			
Leading Detector (ft)	40		20	6	6	
Trailing Detector (ft)	0		0	0	0	
Detector 1 Position(ft)	0		0	0	0	
Detector 1 Size(ft)	40		20	6	6	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Detector Phase	4		2	2	6	
Switch Phase						
Minimum Initial (s)	6.0		10.0	10.0	10.0	
Minimum Split (s)	11.0		15.0	15.0	15.0	
Total Split (s)	35.0		45.0	45.0	45.0	
Total Split (%)	43.8%		56.3%	56.3%	56.3%	
Maximum Green (s)	30.0		40.0	40.0	40.0	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Yellow Time (s)	4.0		4.0	4.0	4.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lost Time Adjust (s)	0.0			0.0	0.0	
Total Lost Time (s)	5.0			5.0	5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		0.2	0.2	0.2	
Recall Mode	None		Max	Max	Max	
v/c Ratio	0.35			0.53	0.65	
Control Delay	16.1			5.8	7.4	
Queue Delay	0.0			0.0	0.0	
Total Delay	16.1			5.8	7.4	
Queue Length 50th (ft)	9			76	127	
Queue Length 95th (ft)	40			167	270	
Internal Link Dist (ft)	824			59	963	
Turn Bay Length (ft)						
Base Capacity (vph)	877			1230	1416	
Starvation Cap Reductn	0			0	0	
Spillback Cap Reductn	0			0	0	
Storage Cap Reductn	0			0	0	
Reduced v/c Ratio	0.09			0.53	0.65	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 58.3
Natural Cycle: 50
Control Type: Semi Act-Uncoord

Splits and Phases: 2: NYS Route 9D & Clinton Street



Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	80	649	920
v/c Ratio	0.35	0.53	0.65
Control Delay	16.1	5.8	7.4
Queue Delay	0.0	0.0	0.0
Total Delay	16.1	5.8	7.4
Queue Length 50th (ft)	9	76	127
Queue Length 95th (ft)	40	167	270
Internal Link Dist (ft)	824	59	963
Turn Bay Length (ft)			
Base Capacity (vph)	877	1230	1416
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.09	0.53	0.65

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	25	44	57	572	768	51
Number	7	14	5	2	6	16
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
Adj Sat Flow, veh/h/ln	1844	1881	1872	1828	1855	1910
Adj Flow Rate, veh/h	29	51	59	590	863	57
Adj No. of Lanes	0	0	0	1	1	0
Peak Hour Factor	0.87	0.87	0.97	0.97	0.89	0.89
Percent Heavy Veh, %	0	0	2	2	3	3
Cap, veh/h	46	80	134	1158	1270	84
Arrive On Green	0.08	0.08	0.74	0.74	0.74	0.74
Sat Flow, veh/h	585	1028	84	1570	1721	114
Grp Volume(v), veh/h	81	0	649	0	0	920
Grp Sat Flow(s),veh/h/ln	1633	0	1654	0	0	1835
Q Serve(g_s), s	2.6	0.0	0.0	0.0	0.0	14.3
Cycle Q Clear(g_c), s	2.6	0.0	7.8	0.0	0.0	14.3
Prop In Lane	0.36	0.63	0.09			0.06
Lane Grp Cap(c), veh/h	127	0	1292	0	0	1353
V/C Ratio(X)	0.64	0.00	0.50	0.00	0.00	0.68
Avail Cap(c_a), veh/h	904	0	1292	0	0	1353
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	24.3	0.0	2.9	0.0	0.0	3.7
Incr Delay (d2), s/veh	2.0	0.0	1.4	0.0	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	4.3	0.0	0.0	7.9
LnGrp Delay(d),s/veh	26.2	0.0	4.3	0.0	0.0	6.5
LnGrp LOS	C		A			A
Approach Vol, veh/h	81			649	920	
Approach Delay, s/veh	26.2			4.3	6.5	
Approach LOS	C			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		9.2		45.0		
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		9.8		4.6		16.3		
Green Ext Time (p_c), s		0.4		0.1		0.4		

Intersection Summary		
HCM 2010 Ctrl Delay		6.6
HCM 2010 LOS		A

Notes

User approved volume balancing among the lanes for turning movement.

Two Way Analysis cannot be performed on Signalized Intersection.

Lane Group	WBL	WBR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	101	12	50	73	9	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	3%		-4%			0%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.985		0.920			
Flt Protected	0.957					0.991
Satd. Flow (prot)	1703	0	1708	0	0	1883
Flt Permitted	0.957					0.991
Satd. Flow (perm)	1703	0	1708	0	0	1883
Link Speed (mph)	30		30			30
Link Distance (ft)	904		626			620
Travel Time (s)	20.5		14.2			14.1
Peak Hour Factor	0.82	0.82	0.66	0.66	0.61	0.61
Heavy Vehicles (%)	4%	0%	2%	6%	0%	0%
Adj. Flow (vph)	123	15	76	111	15	70
Shared Lane Traffic (%)						
Lane Group Flow (vph)	138	0	187	0	0	85
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	1.02	1.02	0.97	0.97	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Stop			Stop

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	8.3
Intersection LOS	A

Movement	WBU	WBL	WBR	NEU	NET	NER	SWU	SWL	SWT
Vol, veh/h	0	101	12	0	50	73	0	9	43
Peak Hour Factor	0.92	0.82	0.82	0.92	0.66	0.66	0.92	0.61	0.61
Heavy Vehicles, %	2	4	0	2	2	6	2	0	0
Mvmt Flow	0	123	15	0	76	111	0	15	70
Number of Lanes	0	1	0	0	1	0	0	0	1

Approach	WB	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	1	1
Conflicting Approach Left	NE		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SW	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.7	8.1	8
HCM LOS	A	A	A

Lane	NELn1	WBLn1	SWLn1
Vol Left, %	0%	89%	17%
Vol Thru, %	41%	0%	83%
Vol Right, %	59%	11%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	123	113	52
LT Vol	0	101	9
Through Vol	50	0	43
RT Vol	73	12	0
Lane Flow Rate	186	138	85
Geometry Grp	1	1	1
Degree of Util (X)	0.208	0.178	0.106
Departure Headway (Hd)	4.012	4.662	4.46
Convergence, Y/N	Yes	Yes	Yes
Cap	898	770	806
Service Time	2.024	2.682	2.475
HCM Lane V/C Ratio	0.207	0.179	0.105
HCM Control Delay	8.1	8.7	8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.8	0.6	0.4

Two Way Analysis cannot be performed on an All Way Stop Intersection.

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	17	1	2	237	175	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	9%			6%	-12%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.995				0.994	
Flt Protected	0.954					
Satd. Flow (prot)	1722	0	0	1807	1964	0
Flt Permitted	0.954					
Satd. Flow (perm)	1722	0	0	1807	1964	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	572			413	453	
Travel Time (s)	13.0			9.4	10.3	
Peak Hour Factor	0.67	0.67	0.87	0.87	0.78	0.78
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	25	1	2	272	224	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	0	0	274	234	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
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	1.06	1.06	1.04	1.04	0.93	0.93
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	17	1	2	237	175	8
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, %	9	-	-	6	-12	-
Peak Hour Factor	67	67	87	87	78	78
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	25	1	2	272	224	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	506	229	235	0	-	0
Stage 1	229	-	-	-	-	-
Stage 2	277	-	-	-	-	-
Critical Hdwy	8.2	7.1	4.1	-	-	-
Critical Hdwy Stg 1	7.2	-	-	-	-	-
Critical Hdwy Stg 2	7.2	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	411	770	1344	-	-	-
Stage 1	726	-	-	-	-	-
Stage 2	674	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	410	770	1344	-	-	-
Mov Cap-2 Maneuver	410	-	-	-	-	-
Stage 1	726	-	-	-	-	-
Stage 2	673	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.1	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1344	-	421	-	-
HCM Lane V/C Ratio	0.002	-	0.064	-	-
HCM Control Delay (s)	7.7	0	14.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (vph)	94	0	54	90	0	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-1%			-2%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected				0.982		
Satd. Flow (prot)	1872	0	0	1848	1611	0
Flt Permitted				0.982		
Satd. Flow (perm)	1872	0	0	1848	1611	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	250			586	262	
Travel Time (s)	5.7			13.3	6.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	102	0	59	98	0	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	102	0	0	157	32	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
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)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.5

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Vol, veh/h	94	0	54	90	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	-2	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	102	0	59	98	0	32

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	102	0	317	102
Stage 1	-	-	-	-	102	-
Stage 2	-	-	-	-	215	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1490	-	676	953
Stage 1	-	-	-	-	922	-
Stage 2	-	-	-	-	821	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1490	-	648	953
Mov Cap-2 Maneuver	-	-	-	-	648	-
Stage 1	-	-	-	-	922	-
Stage 2	-	-	-	-	787	-

Approach	NB	SB	NW
HCM Control Delay, s	0	2.8	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBT	NBR	NWLn1	SBL	SBT
Capacity (veh/h)	-	-	953	1490	-
HCM Lane V/C Ratio	-	-	0.033	0.039	-
HCM Control Delay (s)	-	-	8.9	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	7	9	85	12	17	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%		5%			-3%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.925		0.983			
Flt Protected	0.978					0.991
Satd. Flow (prot)	1685	0	1785	0	0	1874
Flt Permitted	0.978					0.991
Satd. Flow (perm)	1685	0	1785	0	0	1874
Link Speed (mph)	30		30			30
Link Distance (ft)	372		1071			363
Travel Time (s)	8.5		24.3			8.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	10	92	13	18	80
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	105	0	0	98
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	1.00	1.00	1.03	1.03	0.98	0.98
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	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	7	9	85	12	17	74
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, %	0	-	5	-	-	-3
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	10	92	13	18	80

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	216	99	0	0	105	0
Stage 1	99	-	-	-	-	-
Stage 2	117	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	772	957	-	-	1486	-
Stage 1	925	-	-	-	-	-
Stage 2	908	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	762	957	-	-	1486	-
Mov Cap-2 Maneuver	762	-	-	-	-	-
Stage 1	925	-	-	-	-	-
Stage 2	896	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	1.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	861	1486	-
HCM Lane V/C Ratio	-	-	0.02	0.012	-
HCM Control Delay (s)	-	-	9.3	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

MASER
CONSULTING P.A.

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February 2, 2018

VIA EMAIL

Ms. Nancy A. Clark, P.E.
KC Engineering & Land Surveying, P.C.
56 Main Street
Poughkeepsie, NY 12601

Re: Buckingham Properties Project Review
Village of Wappingers Falls, NY
MC Project No. 16003191A

Dear Ms. Clark:

The following items are in response to the letter from you to Chairperson Tom Morris and the Village of Wappingers Falls Planning Board dated January 2, 2018. The items are numbered according to your review comments regarding the Traffic Impact Study.

Traffic Impact Study Prepared by Maser Consulting, P.A.

19. On the report cover and within the narrative, the project name for this report should match the project name for this application.

    Response: ***The name on the report cover and within the narrative has been changed to "Buckingham Properties" to match the project name for the application (see attached).***

20. In Section II Existing Roadway and Traffic Descriptions, the Village boundary is not correctly referenced to Channingville Road, DeLavergne Avenue, and Reed Avenue. The Applicant's Consultant is to review Dutchess County Real Parcel Access Mapping for the location of the Village boundary.

Response: ***The descriptions of the Village boundary in the report referenced to Channingville Road, DeLavergne Avenue and Reed Avenue are all consistent with the information provided by the Dutchess County Real Parcel Access Map. Attached is a screenshot from the Dutchess County Real Parcel Access Map depicting the Village boundary.***

21. In Appendix B, Table No. 1, the Applicant's Consultant is to check the math (and significant figures) and correct the Entry and Exit Volume number. Three of the reported numbers are off by 1.

Response: ***The trip generation rates provided in the report, are indicated to two decimal places and the computed trips are also rounded up to the next whole vehicle number which leads to the 1 vehicle variation for both the Peak AM and PM Highway hours. The higher whole number was used in order to provide a more conservative estimate.***

22. In Appendix B, Table No. 2, the Level of Service (LOS) results are summarized. For the 2022 Buildout Condition, afternoon peak Level of Service at NYS Route 9D drops from LOS A to LOS B. Both LOS A and LOS B are good. Also, for the 2022 Buildout Condition, morning peak for Clinton Street eastbound (EB) drops from LOS C to LOS D. LOS C is generally used as a design standard, and LOS D is acceptable during peak periods. The results of the Traffic Impact Analysis indicates that the project's traffic is not expected to result in any significant impact in traffic operating conditions on the roadways in the vicinity of the site.

Response: ***Comment noted, and we are in agreement.***

23. The Traffic Analysis Report indicates that the site access driveway connections should be constructed to maximize sight distances entering and exiting each location which may require clearing/pruning of vegetation along the site frontage. The Applicant's Consultant is to consider this during development of the design.

Response: ***Comment noted. The details will be provided in the final site plan.***

24. In addition to the LOS service review, the Applicant is to also consider conditions of the existing roadways and potential impact of additional traffic on the existing conditions.

Response: ***Comment noted. See Table S-1 for additional information.***

If you have any questions regarding the above, please do not hesitate to contact us.

Very truly yours,

MASER CONSULTING P.A.

Philip J. Grealy, Ph.D., P.E.
Principal/Department Manager

PJG/ces
Enclosures
cc:

r:\projects\2016\16003191a_oak trees gardens\correspondence\out\180201pjg_clark r2c ltr.docx

TABLE NO. 1

HOURLY TRIP GENERATION RATES (HTGR) AND ANTICIPATED SITE GENERATED TRAFFIC VOLUMES

BUCKINGHAM PROPERTIES VILLAGE OF WAPPINGERS FALLS, DUTCHESS COUNTY, NEW YORK	ENTRY		EXIT	
	HTGR[1]	VOLUME	HTGR[1]	VOLUME
RESIDENTIAL (200 APARTMENT UNITS)				
PEAK AM HIGHWAY HOUR	0.16	32	0.40	80
PEAK PM HIGHWAY HOUR	0.40	80	0.28	56

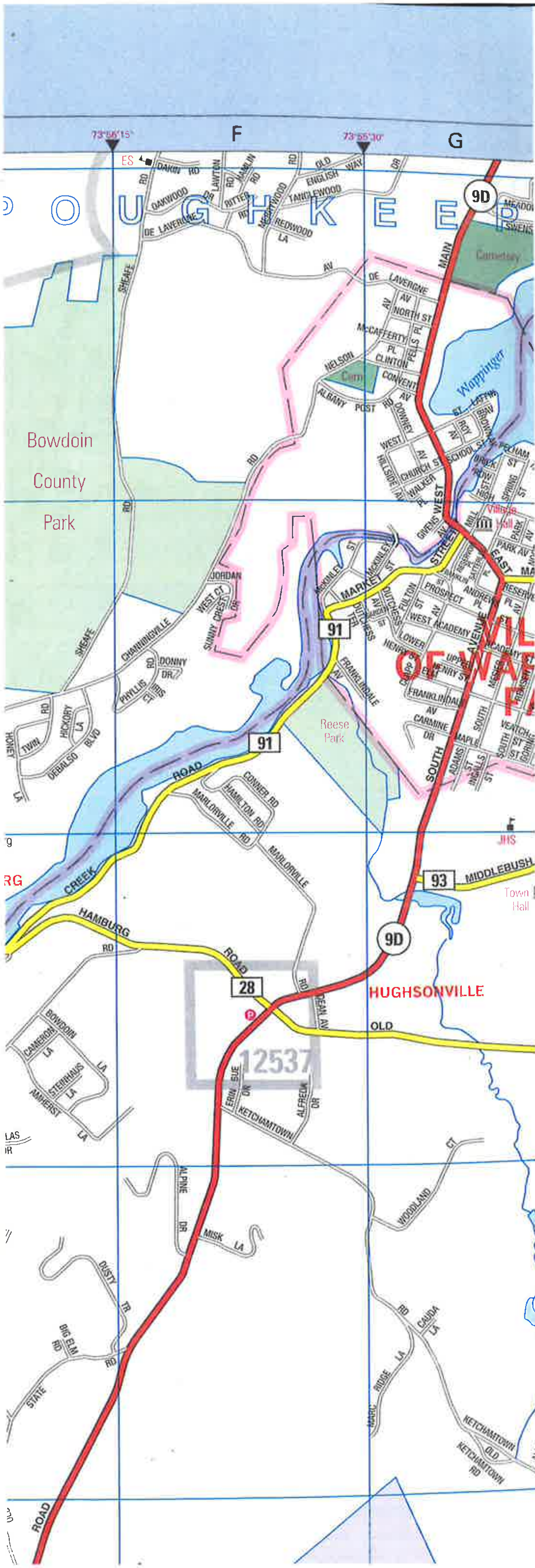
NOTES:

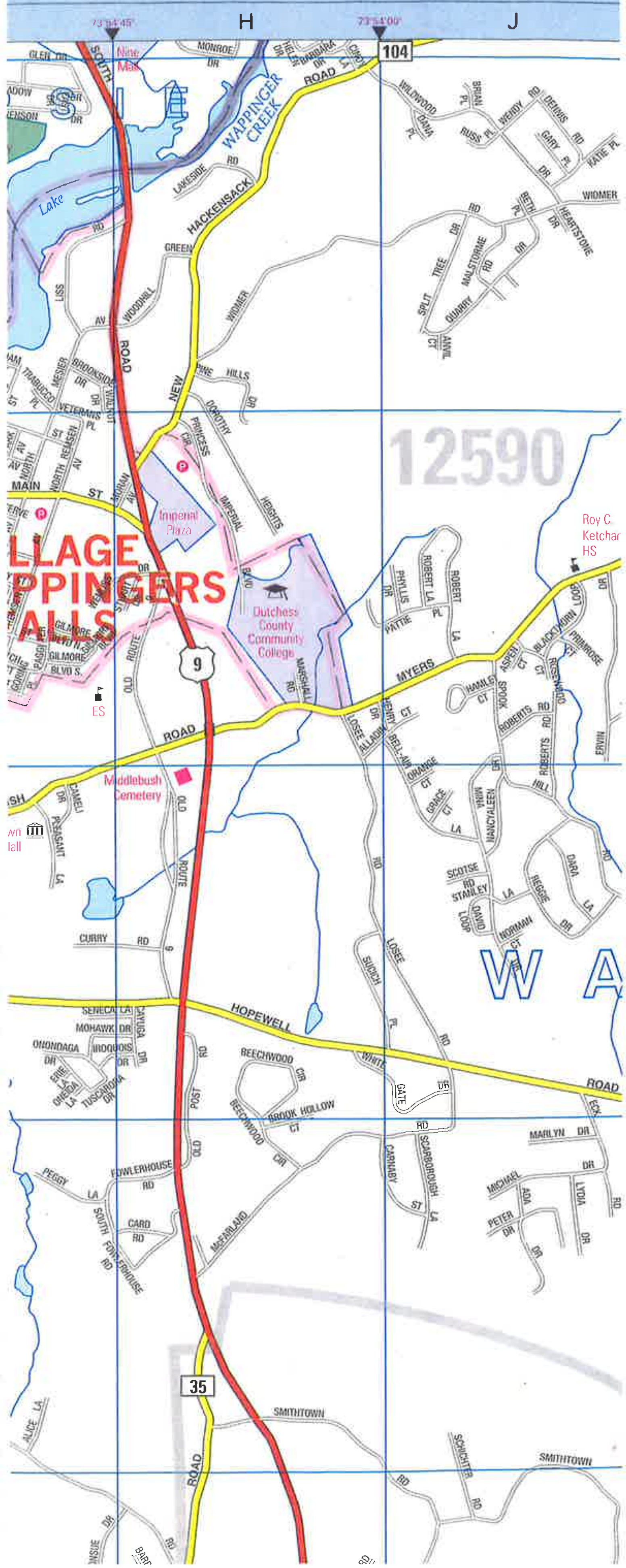
1) THE HOURLY TRIP GENERATION RATES (HTGR) ARE BASED ON DATA PUBLISHED BY THE INSTITUTE OF TRANSPORTATION ENGINEERS (ITE) AS CONTAINED IN THE TRIP GENERATION HANDBOOK, 10TH EDITION, 2017. ITE LAND USE CODE - 220 - MULTIFAMILY HOUSING (LOW-RISE).

POUGHKEEPSIE
LAWTON RD
BRIAN RD
MERRYWOOD RD
PEEKABOO LN
NELSON AV
WAPPINGERS FALLS VILLAGE - POK
WAPPINGERS FALLS VILLAGE - WAPP
W MAIN ST
E MAIN ST
SOUTH AV
ADAMS ST
LISS RD
ROUTE 9D
HONEY LN
MAIN ST
REID RD
ROBERT LN
SPOOK HILL RD
QUARRY DR
HELEN DR
IMPERIAL BLVD
MARSHALL RD

Tip

Quickly estimate distance:
Each grid box represents approximately 0.65 mi. horizontally by 0.86 mi. vertically.





HUDSON VALLEY
Cultural Resource Consultants, Ltd.
3 Lyons Drive Poughkeepsie, NY 12601
914-456-3698 · 845-702-0869

March 5, 2018

Mr. Charles May
982 Main St,
Fishkill, NY 12524

Re: Buckingham Properties Cultural Resource Report
Comprehensive Review and Recommendations
On Previously Completed Cultural Resource Survey
Channingville Road, Wappingers Falls, NY

Dear Mr. May,

On March 5, 2018 Hudson Valley Cultural Resource Consultants (HVCRC) completed a review of the potential impacts on cultural resources within the proposed Buckingham Properties site, located on the southeastern side of Channingville Road in the Village of Wappingers Falls, Dutchess County, New York. The review focused primarily on a Cultural Resource Survey completed by CITY/SCAPE Cultural Interpretations in January 1989, for the former Rockledge Project, which is now the Buckingham Properties site. This review was completed to evaluate the previous work completed, determine if the report complied with the 1994 New York Archaeological Council (NYAC) Standards and the 2005 Office of Parks, Recreation and Historic Preservation Standards (OPRHP) standards, and if cultural resources will be impacted by the proposed undertaking.

The Buckingham Properties project consists of the construction of four multi-family buildings in a courtyard style layout, with associated parking in the southern portion of the property. This courtyard area will be accessed by an entrance road that leads from the intersection of Channingville Road and Nelsonville Road, south and southwest to the proposed residential structures. This entrance drive is located to the east of an apartment complex (Oak Tree Garden Apartments) fronting along Channingville Road. A second entrance will be from Channingville Road in the southern portion of the property.

A significant portion of the project area is steeply sloped. The slopes descend east from Channingville Road, toward Wappingers Lake and Wappingers Creek. A large level terrace is located adjacent to Channingville Road. The proposed Area of Potential Effect (APE) is located on this large terrace.

In 1989, a comprehensive cultural resource report was prepared by CITY/SCAPE that documents the historic and prehistoric settings, the environmental conditions and former land use of the property. The report identifies the area as being sensitive for precontact sites, and as having low potential for historic sites. In October and November of 1988, a Phase 1B archaeological survey was completed within the property boundaries. A total of 32 shovel tests were completed across the level areas of the 13.4 acre parcel, in particular, the level terrace in the western portion of the parcel. No testing was completed along the steep slopes in the eastern portion of the site.

The results of the Phase 1B survey indicated that there were no Native American or Precontact archaeological sites identified within the boundaries of the property. The Phase 1B survey did identify two stone features, one believed to be a retaining wall and the other a dwelling foundation in the northern portion of the APE (marked by the letters A and B on the Field Reconnaissance Map, Figure 2). The report states that these features were not identified on any of the historic maps reviewed for the Cultural Resource Survey.

In March of 2018, HVCRC reviewed the USGS topographical maps in an attempt to determine an age for these foundations. A structure first appears in the location of the identified stone features in 1965. This structure is not shown on the preceding 1947 topographical map, but is shown on the subsequent 1981 topographical map (Figure 1). However, there are no features visible in this location on the 1970 aerial image of the project area (Figure 3). Based on this review, the stone features likely date to the mid twentieth century. These features are located outside of the current Buckingham Properties Area of Potential Effect (APE), and will not be impacted by the proposed undertaking. If the proposed APE changes additional investigations of these features will be warranted.

In addition, the 1989 site assessment identified a large area east of the Oak Tree Garden Apartment, as having been graded and filled. The shovel tests completed as part of the Phase 1B survey identified mottled soils mixed with brick, concrete and metal pipe fragments. A review of the historic aerials confirms that this area has been previously disturbed. On the 1970s aerial image this area is shown as having been cleared and graded.

The CITY/SCAPE report indicates that the Buckingham Properties site is located within close proximity to the National Register Listed Wappingers Falls Multiple Resource Area (historic district). The report indicates that there may be potential adverse visual impacts to the historic district, particularly during the winter months when the deciduous trees are bare of foliage. The report recommends that the project sponsor plant a screen of evergreen trees on the eastern edge of the parcel to mitigate any visual impacts to the nearby historic district.

A review of the site files housed in the OPRHP GIS system CRIS (Cultural Resource Information System) was completed to establish whether any new historic properties or archaeological sites have been identified adjacent to the project area. Multiple cultural resource surveys have been completed within the general vicinity of the Buckingham Properties project area over the past three decades, however none have identified significant cultural resources adjacent to the boundaries of the Buckingham Properties project area.

The previously completed Cultural Resource Survey complies with the 1994 NYAC, and 2005 OPRHP standards for cultural resource investigations. Based on the results of the previously completed Cultural Resource Survey and the review of the historic maps, aerials, and OPRHP site files, it is the opinion of Hudson Valley Cultural Resource Consultants that no further archaeological investigations of the property are warranted.

With regard to the visual impacts to the nearby National Register Historic District, HVCRC concurs with the recommendation that vegetation be planted and maintained to mitigate the adverse visual impact to this historic property.

Sincerely,

Beth Selig

Beth Selig, President
Hudson Valley Cultural Resource Consultants

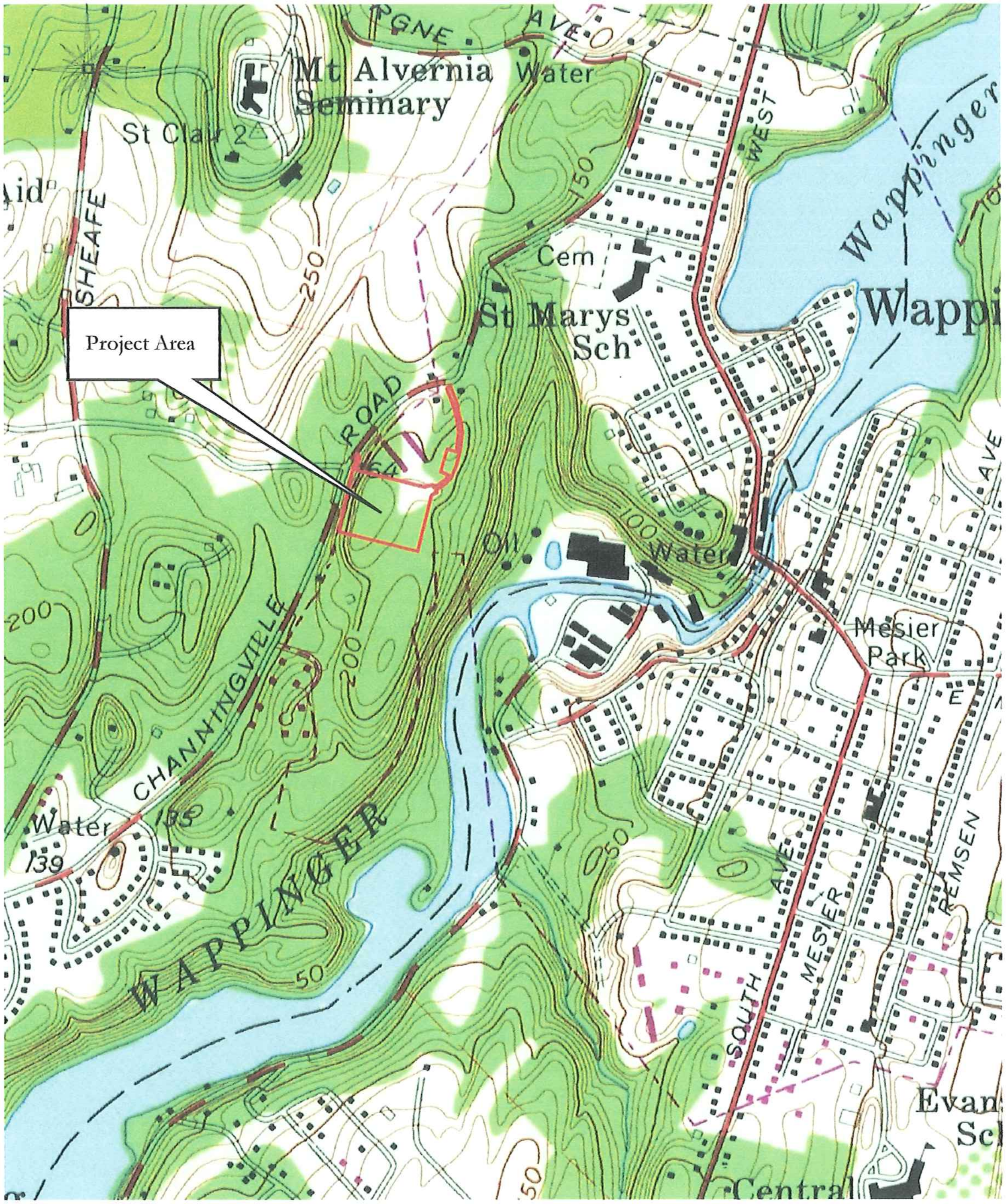


Figure 1: 1981 USGS Topographical Map. Wappingers Falls Quadrangle. Scale:1"=1120'

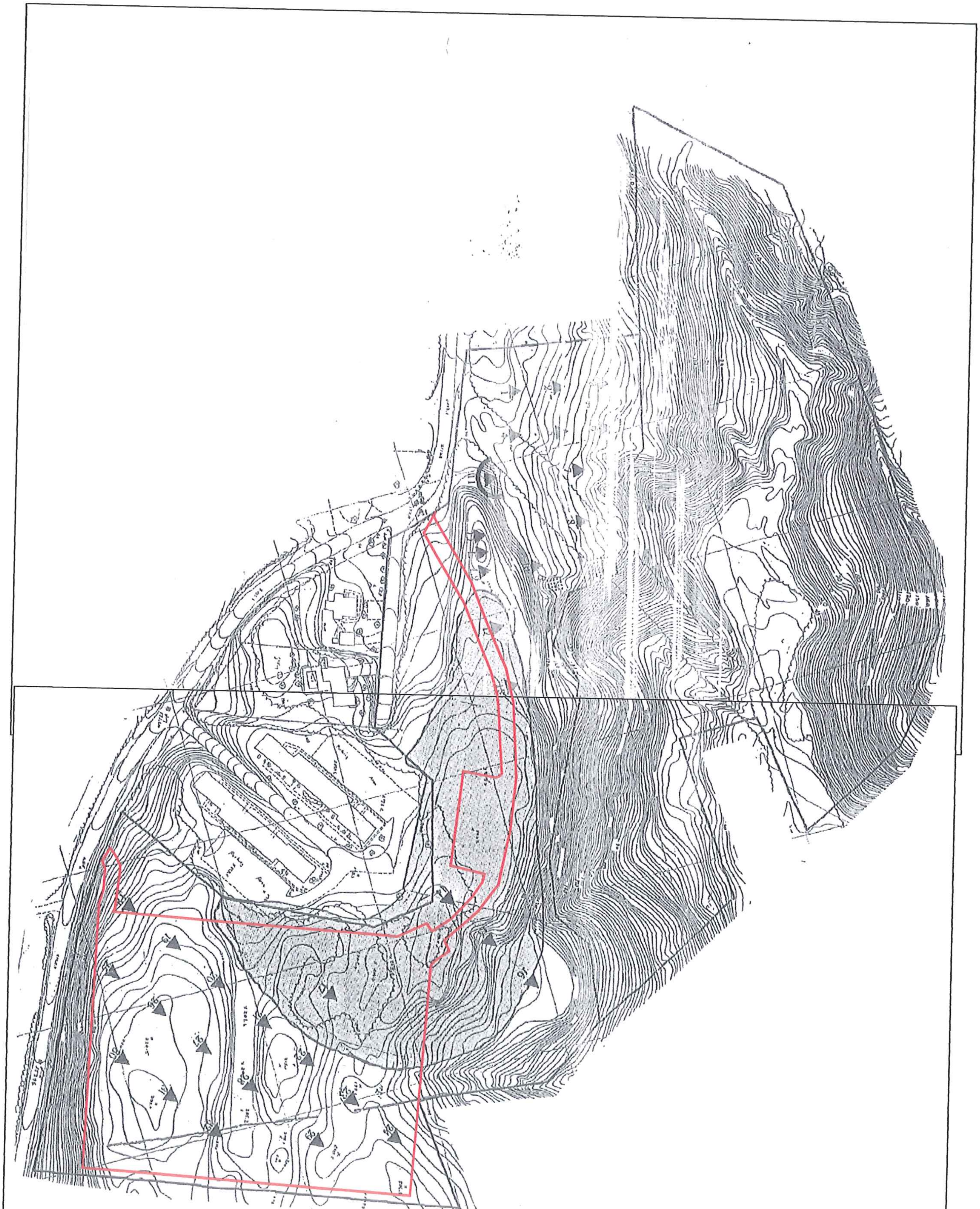


Figure 3: 1970 Aerial Image of the showing the location of the project area. Source: Dutchess County Parcel Access. Scale: 1"=270'

BUCKINGHAM CULTURAL RESOURCE REPORT

Prepared by :

CITY/SCAPE
Cultural Interpretations
Brooklyn, New York
January 1989

Edited by:
Charles P. May Associates
1073 Main Street
Fishkill, New York 12524
January 2018

Reviewed by:

HUDSON VALLEY
Cultural Resource
Consultants , Ltd
31 Lyons Drive
Poughkeepsie , New York

BUCKINGHAM CULTURAL RESOURCES
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Buckingham Project Cultural Resources Report

Introduction

A, Background and Purpose

The purpose of this report is to document the potential cultural resources on or adjacent to the site of a proposed project in the Village of Wappingers Falls,Dutchess County, New York.

Cultural resources can consist of prehistoric archaeological remains as well as historic archaeological and architectural remains. In order to identify cultural resources on the subject property documentary research and a walkover of the site were completed. Documentary research consisted of a review of existing documents pertinent to prehistoric and historic land use on and near the subject property. That research included a review of documentation housed at The New-York Historical Society, the New York Public Library, the Adriance Memorial Library in Poughkeepsie, New York, the Grennell Library in Wappingers Falls, and at the State Museum in Albany. Records held by the Dutchess County Clerks Office were also examined.

Also consulted were architectural and archaeological site files and previously completed cultural resource reports held at the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP} in Albany. Finally, persons knowledgeable of local land use history and prehistory were contacted.

As a first step in the evaluation process, a survey of the site was conducted by the author of the report, whose background is in historic preservation and open space planning. The purpose of this survey was to identify in the existing site setting any cultural features such as structures., building ruins, artifacts, or landscape elements. No standing structures were noted on the site. One foundation was found, and another may be present. The extent of prior ground disturbance which may have affected existing or potential cultural resources is described in the archaeological report.

B. Project Description

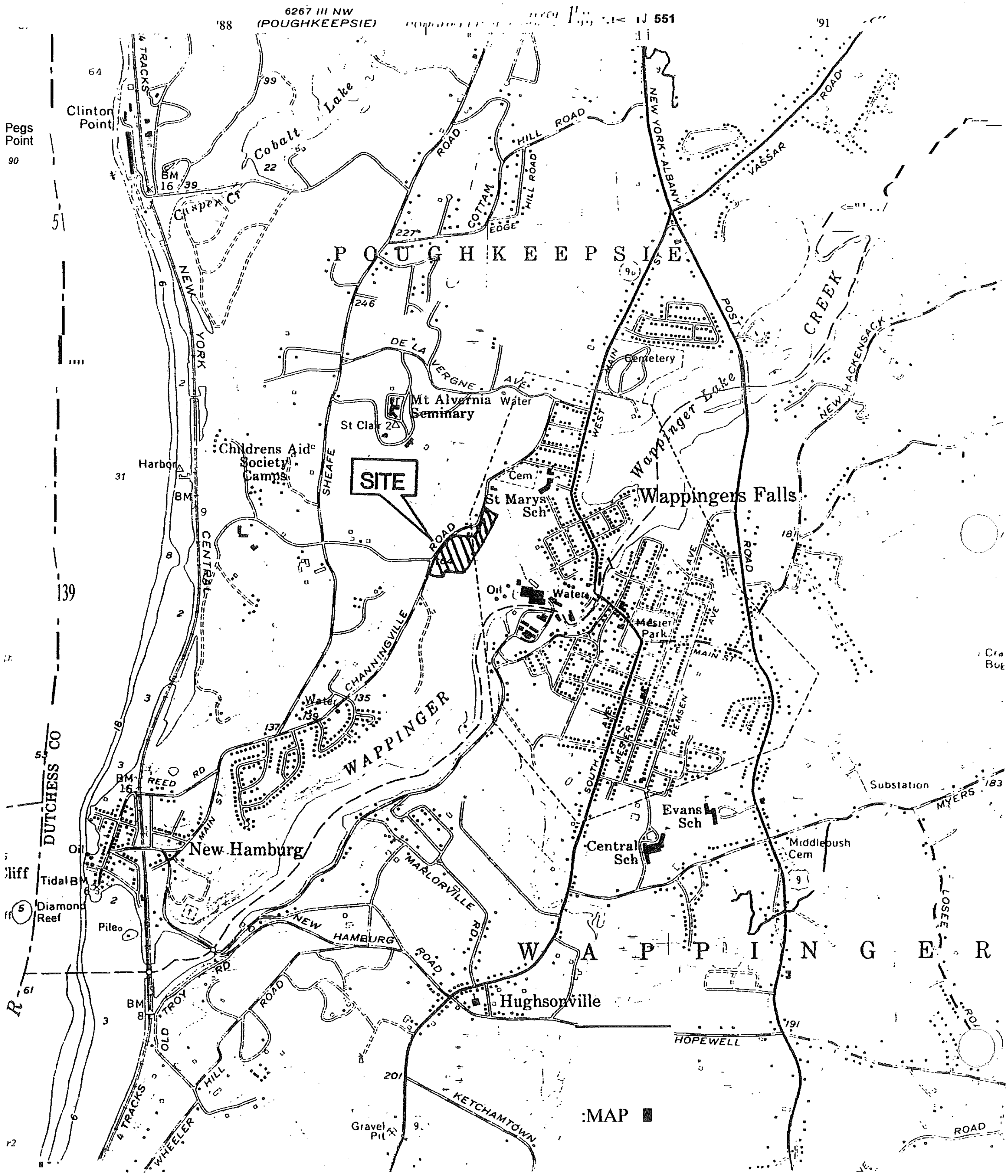
The *Buckingham* site is located in the Village of Wappingers Falls , Dutchess County, New York. [Map 1] It is located on the south side of Channingville Road. Channingville, the former name of that portion of the Village of Wappingers Falls which is located on the north side of Wappingers Creek, was incorporated into the Village of Wappingers Falls in 1871. The name of this road changes to Nelson Avenue at the Village of Wappingers Falls line. According to records on file at the County Clerk's Office in Poughkeepsie, New York, the site is currently owned by Oak Tree Gardens Inc. The address is E. 657 Main Street Mt. Kisco, New York 10549.

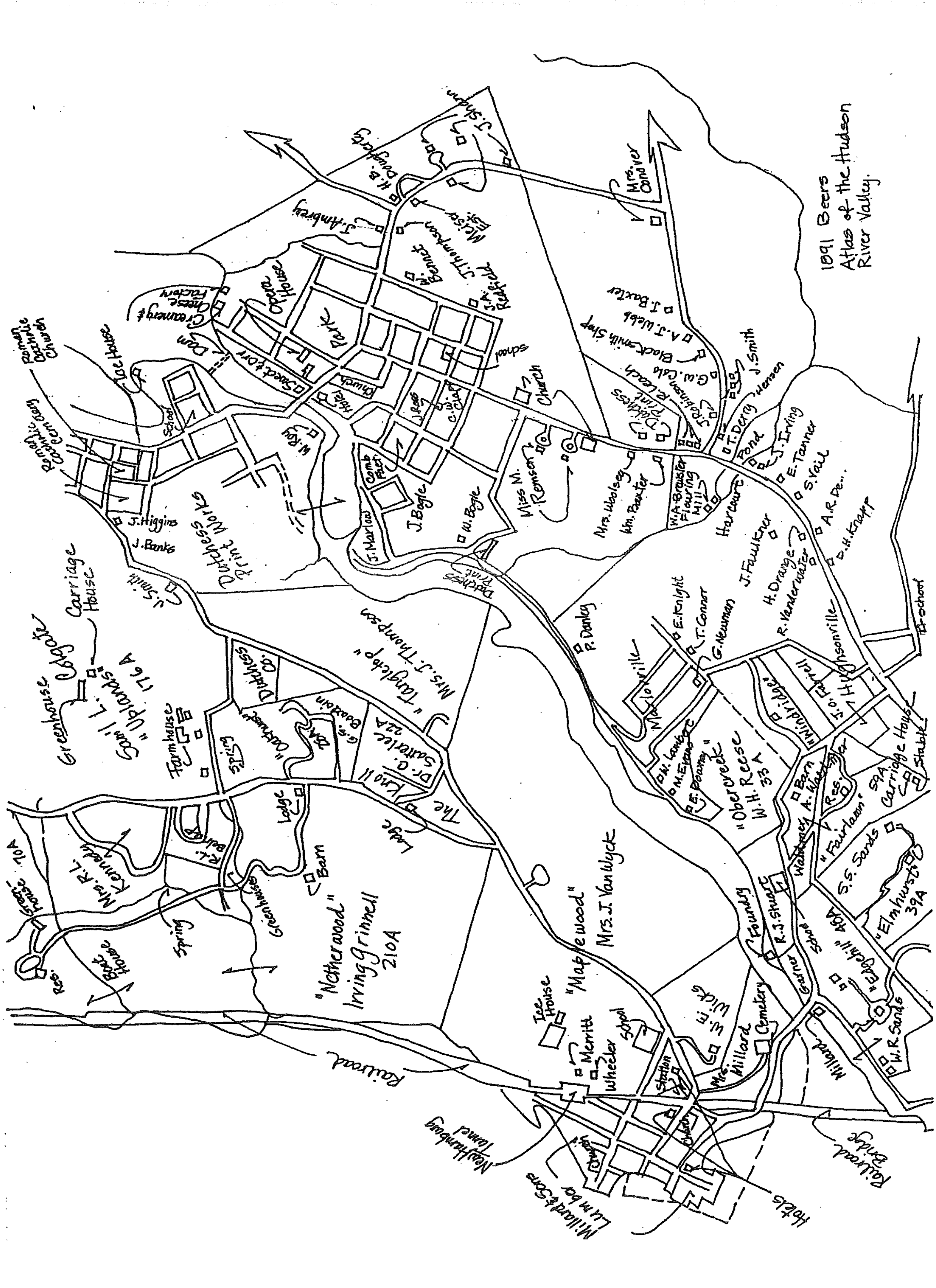
It appears that in 1965 the land was owned by Charles A. Doerr and that prior to that it had belonged to the Del Basso family, but that information was not confirmed by an examination of the deeds located in the Dutchess County Clerk's Office in Poughkeepsie" To assist in locating the property, in 1891 the land is shown on the *Atlas of the Hudson River Valley from New York City to Troy* as the property of Mrs. J. Thompson. It is the north portion of an estate called "Tangletop."[1] [Map 2]

---

1. F. W. Beers. *Atlas of the Hudson River Valley from New York City to Troy, including a section of about Eight Miles in Width* Watson & Co.:NY. 1891.

WA


6267 III NW
(POUGHKEEPSIE)
'88
551
'91
SITE
4 TRACKS
Clinton Point
Pegs Point
Cobalt Lake
Casper Cr
BM 16
NEW YORK CENTRAL
ROAD
HILL ROAD
COTTAM
EDGE HILL ROAD
NEW YORK-ALBANY
VASSAR ROAD
POUGHKEEPSIE
POST ROAD
CREEK
DE LA VERGNE AVE
Cemetery
Mt Alvernia Seminary
Water
St Clair
Childrens Aid Society Camps
Harbor
SHEAFE ROAD
Wappinger Lake
NEW HACKENSACK
Cem
St Marys Sch
Wappingers Falls
WEST MAIN ST
Oil
Water
Mesier Park
E MAIN ST
AVE
REMSEN
CHANNINGVILLE ROAD
WAPPINGER
Water
DUTCHESS CO
REED RD
MAIN ST
SOUTH AVE
MESIER AVE
Substation
MYERS
Evans Sch
Central Sch
Middlebush Cem
New Hamburg
Oil
Tidal BM
Diamond Reef
Pile
MARLORVILLE RD
NEW HAMBURG ROAD
LOSEE
W A P P I N G E R
TROY RD
OLD HILL ROAD
BM 8
Hughsonville
HOPEWELL
KETCHAMTOWN
ROAD
4 TRACKS
WHEELER
Gravel Pit
:MAP



1891 Beers Atlas of the Hudson River Valley.
Mrs. Conover
J. Shapman
H. B. Daugherty
J. Ambrey
Meister Estate
J. Thompson
W. Bennett
J. Reifsnider
Opera House
Park
Creamery & Cheese Factory
Roman Catholic Church
Dam
Sheddon
Ice House
Hotel
Church
Roman Catholic Cemetery
School
W. Ray
J. Ross
C. W. Clark
Church
school
Comb Fact.
J. Marlow
J. Bogle
W. Bogle
Miss M. Remsen
Dutchess Print Works
J. Higgins
J. Banks
J. Smith
Dutchess Print
Mrs. Woolsey
Wm. Baxter
W. A. Brewster Flouring Mill
J. Robinson
R. Leach
G. W. Cole
Blacksmith Shop
A. J. Webb
J. Baxter
J. Smith
T. Derry
Hensen
Pond
J. Irving
E. Tanner
S. Vail
Harcourt
J. Faulkner
H. Drange
R. Vanderwater
D. H. Knapp
School
E. Knight
T. Conner
G. Newman
R. Danley
Matteawan
Hughsonville
Greenhouse
Colgate
Carriage House
Farmhouse
Sam'l L. "Uplands" 176 A
Mrs. J. Thompson "Tangletop"
Dutchess Co.
Spring
"Oatmeal"
G. S. Boughton
Dr. O. Satterlee 22 A
The Knoll
Lodge
R. L. Belknap
Mrs. R. L. Kennedy
Green House 10 A
Boat House
Spring
Greenhouses
Barn
"Netherwood" Irving Grinnell 210 A
"Maplewood" Mrs. J. Van Wyck
N. Lambert
M. Evans
E. Downey
"Obercreek" W. H. Reese 33 A
"Windrift"
Barn
Res.
A. Waterbury
"Fairlawn" 59 A
Carriage House
Stable
S. S. Sands
"Elmhurst" 39 A
Foundry
R. J. Stuart
Garner
School
Ice House
Merritt
Wheeler
School
E. Wicks
Mrs. Millard
Cemetery
Millard
W. R. Sands
Station
Railroad
New Hamburg Tunnel
Millard & Sons Lumber
Hotels
Railroad Bridge

:MAP 2

C. Research Methodology

A cultural resources survey requires the completion of three tasks. They include a literature search and sensitivity study, infield investigations, and report preparation. A literature search was completed to identify any known or potential archaeological or architectural resources within or near the *Buckingham* area. As noted above, this research included a review of documents held various libraries and historical institutions.

Also, as noted above, the archaeological site files of the Office of Parks, Recreation and Historic Preservation (OPRJIP) in Albany were examined, and the New York State Museum was contacted regarding pertinent archaeological site file information.

From this research a sensitivity analysis of the site was completed. This identifies known cultural resources and predicts the potential for the occurrence of as undocumented :resources. The result of this analysis indicates that the site has not previously been identified as having prehistoric archaeological significance, but that several prehistoric archaeological sites exist in close proximity to the *Buckingham* site. These include a site on the banks of the Wappinge:rs Creek near the Duchess Bleachery, three sites in Bowdoin Park, and one quarry site identified hv Parker as being located just above the New Hamburg railroad tunneL [2] It is entirely possible, indeed likely, that there are others sites along the shores of the river and the Wappingers Creek.

The *Buckingham* site was then surveyed. The purpose of this walk over was to identify in the existing setting any existing cultural features such as structures, building ruins, artifacts, or landscape elements. Also noted was the extent of prior ground disturbance which may have affected existing or potential cultural features. It should be noted that archaeological testing or excavation was not completed as part of this initial survey; however, archaeological testing was undertaken after the completion of the historical research. The results of that investigation are found in Section N.D.2. and Appendix J. While there are no standing structures on the *Buckingham* site, there are at least two foundations. These were investigated as part of the archaeological survey, but nothing of significance was found. In addition, the *Buckingham* site, overlooks the Wappingers Falls Multiple Resource Area, which is listed on the National Register of Historic Places. Included in the Wappingers Falls Multiple Resource Area is the Duchess Bleachery and numerous houses associated with this industrial complex.

The final report is organized in the following manner: first, a section which describes the environmental setting of the site, this includes discussion of the geography and physical characteristics of the area; second, a section describing the prehistoric context of the area; third, a narrative of the history of the area; finally, the conclusions and recommendations are presented.

2. Arthur Parker. "The Archaeological History of New York." *New York State Museum Bulletin.* No. 237-238. Albany, NY, 1920.

ENVIRONMENTAL SETTING

In order to create a context for previous cultural activities and occupation it is necessary to include some description of the environmental setting, past and present. Through the action of natural forces as well as human intervention, the prehistoric and historic setting of a site can vary considerably from the present.

In general, the topography of much of the project area is steep, although the land abutting Channingville Road is flat. The land adjoining the site drops off to the east to the flood plain of the Wappingers Creek where the Duchess Bleachery is located. As mentioned above, the Duchess Bleachery and much of the Village of Wappingers Falls is listed on the National Register of Historic Places as part of the Wappingers Falls Multiple Resource Area.

According to sources consulted the climate of the Dutchess County region is classified as north temperate, which includes cold winters and cool summers.

The Hudson Valley region is described as lying in the New England Upland Physiographic Province, being a northern extension of the Great Appalachian Valley. The site itself is within the Hudson Hills Subdivision, also known as the Hudson Highlands.[3] The Highlands are emnp,ose d. of the Precambrian basement rock of New York State. Over this bedrock glaciers advanced and retreated creating the more familiar features of the terrain. Most recently, during the Wisconsin glaciation, the area was covered by a sheet of ice several thousand feet thick. As it retreated, contouring the land and smoothing off mountain tops, it left behind a mantle of sediment.

Following the retreat of the last glacier, a large proglacial lake, called Lake Hudson, covered much of the Hudson Valley below the Highlands, while Lake .Albany, at a slightly later date, filled the valley from north of the Highlands to Troy.[4] Into these lakes, rushed streams which poured deposits of sand and silt across the lake beds. Much of the character of the soils in Dutchess County is the result of these deposits. One indication of the nature of these deposits may be seen in the clay beds which line the banks of the Hudson River.

The *Buckingham* site, which is on high ground, was, in all probability never covered by Lake Hudson, but it and the surrounding area, including the Wappingers Creek, would· have ·been influenced by the volume of water carried by the streams which passed through it and the glacial till left behind by the retreating ice.

Pollen cores taken from boggy areas and former lake beds indicate a good deal about the climate and the flora of the Dutchess County area just after the retreat of the Wisconsin glacier. Immediately following the withdrawal of ice from this part of the state, the region was dominated by arctic or tundra-like vegetation. Large game animals, such as the mammoth and mastodon, roamed these expanses of grass and low-growing shrubs. It was at this time, approximately 12,000 years ago, that archaeologists say man first entered the Hudson Valley.

The tundra was succeeded by a landscape characterized by herbs and grasses, shrubs, and open conifer parkland with some areas supporting spruce, pine, fir and birch forest. The

---

3. John H. Thompson, ed. *Geography of New York State.* Syracuse University Press: Syracuse, NY. 1977.

4. Proglaciallakes are those bodies of water which were formed as a result of the action of the glaciers. Some, as in the case of the lake associated with the Dutchess Quarry site, were quite small and shallow, while others, like Lake Albany and Lake Hudson, which filled the Hudson River Valley, were very large. Both Lake Albany and Lake Hudson had drained prior to about 12,000 B. C., when the darn south of the Highlands was breached. The precise confJ.gUration of these lakes and their time period is a matter (If some dispute, some experts contending that Lake Albany post-dated Lake Hudson and that it did not reach south of Kingston.

nature of this landscape changed again about 10,000 years ago, when spruce forest became dominant. Another change occurred about 7,000 years ago, when, as temperatures increased, this spruce forest was succeeded by a mixture of conifers and deciduous trees. These trees were, in turn, replaced by oak, hemlock, beech, and, before the blight in the 1930's killed them, chestnuts. In the Northeast these trees are components of the climax forest.

The archaeological history of man in the Hudson Valley will be further addressed in the second section of this report, but some comment on their relationship to the land is appropriate here. We have been taught that the native people of North America are believed had little impact on the land, but, if European records are to be believed, it is obvious that the Indians of the pre-Contact period manipulated and significantly altered the landscape through clearing and burning. Their land management techniques, however, were not restricted to agriculture. Adriaen van de:r Danek in 1655 reported that

> *The Indians have a yearly custom (which some of our Christians have also adopted) of burning the woods, plains and meadows in the fall of the year, when the leaves have fallen, and when the grass and vegetable substances are dry. Those places which are then passed over are fired in the spring in April. This practice is named by us and the Indians 'bush-burning,,, which is done for several reasons" First to*
>
> *frightens away the game. Secondly, to thin out and clear the woods of all dead substances and grass, which grow better the ensuing spring. Thirdly, to circumscribe and enclose the game within the lines of the fires, when it is more easily tracked over the burned parts of the woods.* [5]

Early European records of visits to New England indicate that the areas along the coast were clear of underbrush and that large inland areas were treeless. In the Hudson Valley, early 17th century writers report dense forests filled with tangled undergrowth, but they also describe Indian corn and other vegetables growing in cleared fields and orchards with apple, peach and pear trees. Despite these occasional openings in the forest, it was not until the coming of Europeans into the Hudson Valley that wholesale clearing was undertaken.

Initially, the Dutch who came to the Hudson Valley did so, not as farmers, but as traders. It was the abundance of beaver and other game that attracted them. In Dutchess County, many years passed between the granting of patents to merchants in New York City and the establishment of farmers on the land. Eventually, patent land was sold or leased to farmers, who quickly cleared the forest, sending the timber to the sawmills established by the landlords.[6] The glacial debris which dotted the new fields became the stone walls which often served to outline patent divisions and property lines.[7]

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5. Quoted in Julian H. Salomon. "Munsee and Mahican: Indians of Dutchet>s County.• *Dutchess County Historical Society Yearbook:* 68. Poughkeepsie: NY. 1983.

6. The importance of mills to the development of the Hudson Valley is emphasized by almost every writer in the 19th and early 20th century. In many cases mills were the prerogative of the landlord. Such was the case for many years on Catharyna Rombout Brett's land, to the south, where she sold land with the provision that no mills would be built. For many years she protected her monopoly on the grinding of flour at her grist mill and the processing of trees into lumber at her sawmill, both located at the mouth of Fishkill Creek.

7. The stone walls which cut diagonally across the Town of La Grange and along the line between East Fishkill and Beekman are clear evidence of the 17th century division between the Rombout Patent, in which East Fishkill is located, and the Beekman Patent. These walls can be clearly seen on aerial survey;; of Dutchess C

The land surrounding the*Buckingham* site was one of the areas acquired in the early 18th century by Adolphus Brewer, who operated a flouring mill on the Wappingers Creek. 1776 he sold his land to Peter Meiser, a merchant from New York City.

From the beginning the land south and west of the *Buckingham* site was used. as agricultural land, while the land along the Wappingers Creek was used for mill operations. At first the mills sawed lumber and ground local grain, but with the passing of years, the nature of the mill operations changed. The nature of that change will be discussed below.

Prehistoric Settlement

In recent years much information has been gathered on the· settlement patterns of the Native Americans in the Hudson Valley; however, the conclusions drawn from this information remain open to interpretation. The material related to the Hudson Valley presented below is a synthesis of the research of William Ritchie, Robert Funk, Bert Salwen and others.[8] [Figure 1 and2]

Paleo-Indian Stage (c.10,500 - 8,000 B.C.)

Archaeologists have identified the presence ·of man in the Hudson Valley b{ approximately the. year 10,580 B.C. at the time that the last glacier withdrew from the valley. *As* previously noted, the post-glacial landscape was tundra-like, the colonizing grasses, sedges and herbs supporting a variety of "big" and small game animals. Among the fauna was mastodon, mammoth, giant beaver, giant ground sloth, and horseiall of which became extinct, as well as caribou, musk-ox and bison which persist in modern time. [0]

Paleo-Indians, as these small bands of nomadic hunters and gatherers are called by archaeologists, appear to have entered the previously uninhabited northeast from the south and west.[11] Their sites, identified primarily by the characteristic fluted Clovis javelin or spear points, are found all over North America.[12] It has traditionally been assumed that these bands of men and women were strictly "big game" hunters; however, that assumption has been called into question by the discovery of fish, bird, small mammal bones and some plant remains found in association with Paleo-Indian sites. It now seems likely that in addition to the large animals that

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8. *William* A. Ritchie. *The Archaeology of New York State.* [revised edition] Harbor Hill Books: Harrison. NY. 1980 and *An Introduction to Hudson VaJJey Prehistory.* New York State Museum and Science Service Bulletin No. 367. Albany: NY. 1958; Robert Funk. *Recent Contributions to Hudson VaJJey Prehistory.* New York State Museum Memoir 22. Albany: NY. 1976; Bert Salwen. "Post-Glacial Environments and Cultural Change in the Hudson River Basin.• *Man in the Northeast:10.* 1975.

9. This site, located in Orange County, New York, is to date the earliest recorded site in the Northeast Although it is extremely early, it is unlikely that it is unique.

10. Horses, of course, exist in modem time, but the horses of the Pleistocene era died out, as did the mammoth. The horses we know were brought to North America by the Spanish.

1L Their probable path is determined in part by the types of foreign flint which are found at their sites. In New York State, sites have contained "exotic" flints from areas in Pennsylvania and Ohio, hence the assumption that they entered southeastern New York State from those directions. It should be noted, that while Funk (1976) spends some time discussing the various possible migration routes, he also mentions the alternate hypothesis which suggests that the fluted point culture originated in the Northeast rather than having been brought here from elsewhere.

12. Sites have been identified on the High Plains, the foothills of the Rocky Mountains, the Colorado Plateau and the deserts of New Mexico and Arizona. Here in New York State, the culturally diagnostic fluted Clovis points have been found at Port Mobile on Staten Island, the Piping Rockshelter on the Croton River, as well as at the Dutchess Quarry Site in Orange County and the West Athens Hill Site in Greene County.

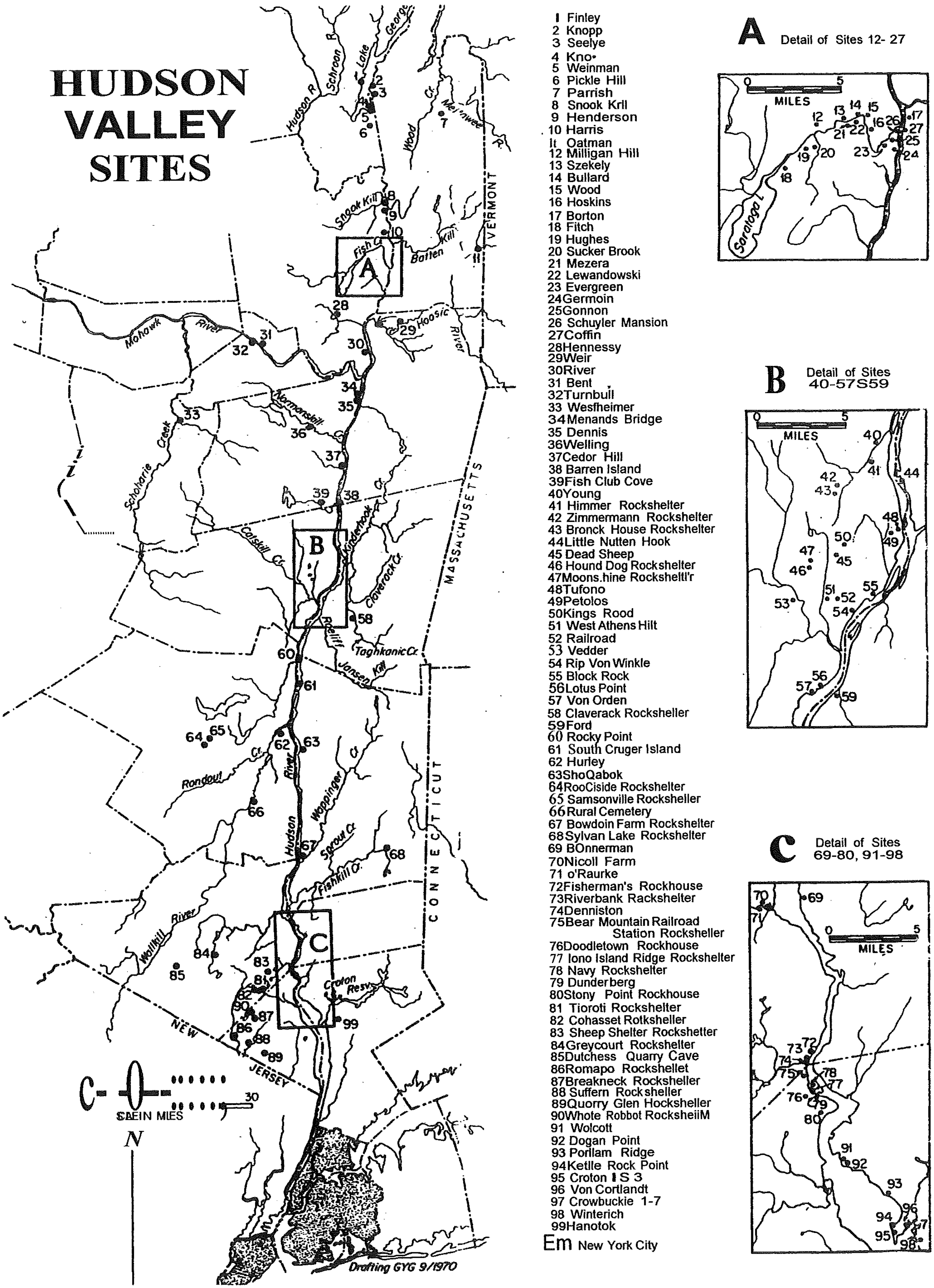

FIGURE 1 ARCHAEOLOGICAT. SITES IN THE HUDSON VALLEY (FUNK 1976).

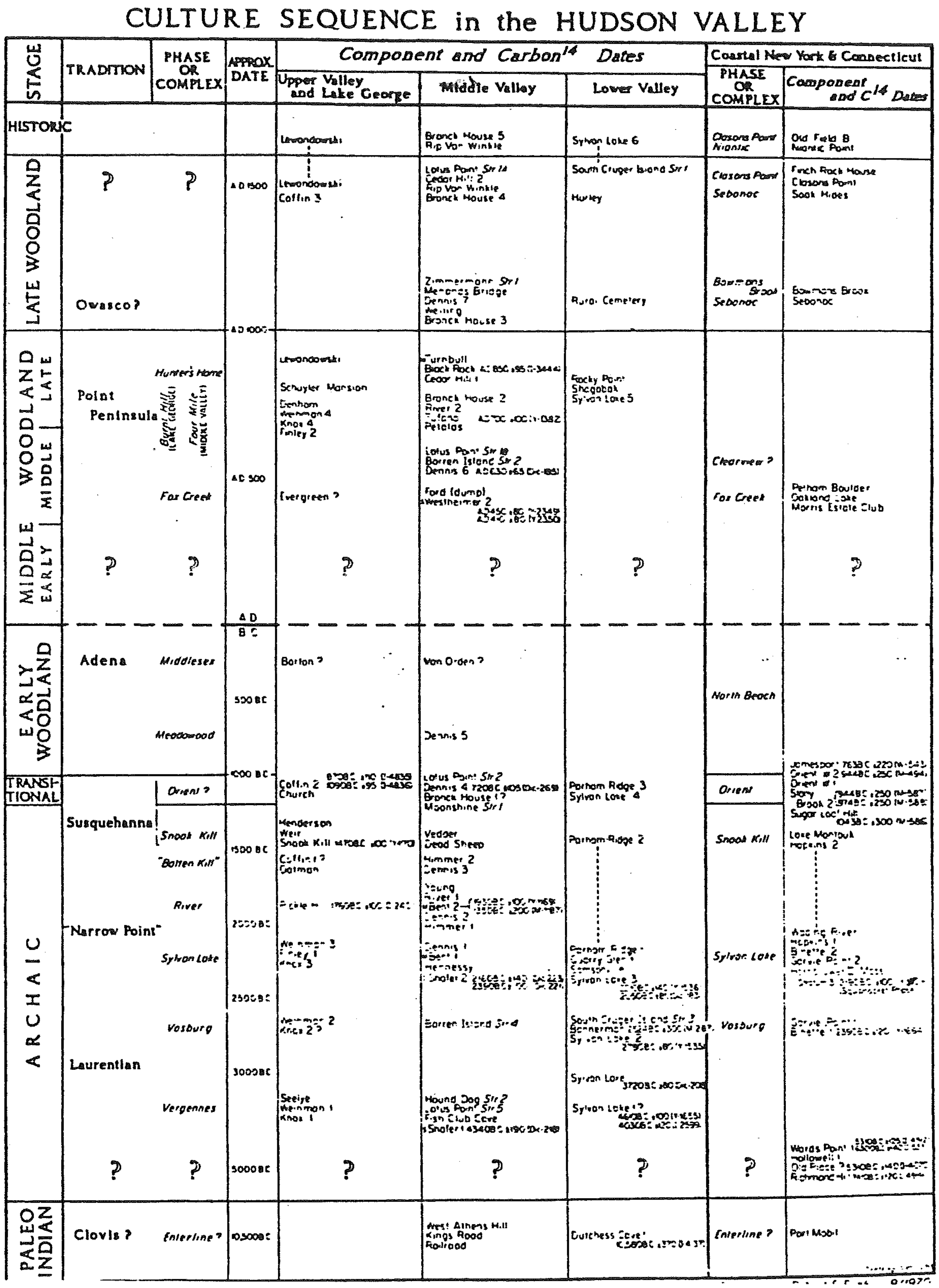

FIGURE 2 CULTURAL SEQUENCE IN THE HUDSON VALLEY (FUNK 1976)

comprised their principal food source, they also hunted small game and probably collected a variety of plants which they processed for food.[13]

Characteristically Paleo-Indian sites are found along major waterways such as the Hudson River, where a number of sites have been found in Greene County and illster County. Frequently these sites are associated with sources of stone, as is the case on one site in Greene County where a quarry-workshop complex has been excavated. More frequently, the sites appear to have been temporary campsites. These are located where it would be possible to watch for game as it moved across the landscape. However, sites have also been found on flood plains or along migration routes.

Among the Paleo-Indian sites in this vicinity, the Dutchess Quarry :rockshelter, located between Florida and Goshen in Orange County, is notable because of the association of the Clmis point with the bones of caribou. "vVhile animal :remains and projectile points have been found in other areas of the country, this is the only known such site in the Northeast. The site is located some distance west of the Hudson River, on the edge of what would have been at the time a shallow proglacial lake. While Dutchess Quarry appears to have been used onbriefly in Paleo-Indian time, it represents the earliest known evidence of man in the Northeast.[4]

To date no Paleo-Indian sites have been officially recorded in Dutchess County, however, the physiographical setting of sites discovered in Greene, Orange, and Westchester County can be found in Dutchess County, making it entirely possible that such sites existing here as well.[15]

Archaic Stage (8,000 • 1,500 B.C.)

The Archaic period in New York State is better represented than the Paleo-Indian. It is divided into four stages: the Early Archaic (8,000- 6,000 B.C.); the Middle Archaic (6,000- 4,000 B.C.); the Late Archaic (4,000- 1,700 B.C.); and the Terminal Archaic (1,700- 1,000 B.C.). These stages are characterized by a number of phases, which need not concern us here, except to recognize that the various phases :represent :regional manifestations of the widespread Laurentian culture.[16]

In many important respects, the nature of life in the Archaic period was little different from the nomadic lives lived by the men and women of the Paleo-Indian period; however, during the time span of the Archaic, significant changes in the environment occurred. *As* mentioned above, the tundra-like landscape gave way, first to the spruce forest and then to a forest composed of various conifers, hemlocks, and hardwoods. This biological association is called the Lake Forest culture.[17] It was in the hardwood forest areas, rather than in the pine and hemlock

13. Funk makes the point that there is no hard evidence that Paleo-Indians hunted mastodon or mammoth, and that it is probable that caribou was their mainstay as the white-tail deer was to later groups.

14. The possibility remains great that many sites of early man have been inundated by the rising oceans. According to Salwen, 11,000 years ago the Atlantic seacoast was 20 to 30 miles south and east of its present position. [Salwen. Man in the Northeast. 1975]

15. According to Dutchess County. archaeologists, one fmd along the Hudson River has been made. The report of this fmd is not yet available.

16. The chronology presented in this report is based on Funk; Salwen dates the Archaic in the Northeast as 7,000 to 1,000 B.C. Both Funk and Salwen, in works written in the 1970s, indicated that there was a hiatus of approximately 4000 years between the Paleo-Indian period and the Late Archaic stages in the Hudson Valley. By the end of the decade, new evidence had established Archaic man in Pennsylvania, New York, New England, and Canada between 10,000 and 3700 B.C.- a 4000 year hiatus had disappeared.

17. Lake Forest culture refers to the typical plant life of the area, not to the faunal or human components.

forests, that evidence of man is found. This is because the hardwood forests supported the types of foods, including acorns and grasses, needed by the animals hunted by Archaic man.

Like the Paleo-Indian culture, evidence of Archaic man is found ·throughout North America. *As* noted above, in New York State the culture is identified as Laurentian by William Ritchie, for many years State Archaeologist. In eastern New York this culture is then broken down into a series of phases: Vergennes, Vosburg, Sylvan Lake, River and Snook Kill. [18] Although there are growing indications that Archaic Indians fished and collected shellfish, his major food source was the white-tail deer. Agriculture was unknown to them, and, indeed, remained unknown until Late Woodland times (1000- 1600 A.D.). [19] They did, however, gather wild vegetables and fruits. Diagnostic traits, meaning those cultural traits which may be used to identify a group, include·the lack of pottery and the smoking pipe. Ritchie describes Archaic people as highly mobile, although there is evidence that at some periods they may have used central base camps from which small bands of men and women moved to seasonal camps.[20] It is hypothesized that this loosely knit group was headed by a chief or, perhaps, a shaman, who guided them in an advisory capacity. In addition to this simple social system, evidence indicates a developing sense of territoriality. This is based on the discrete, regional quality of the phases mentioned above.[21] In all probability the territories related to water sheds.

In the Hudson Valley, the Early Archaic is represented by only a few campsites, which appear to have been small and temporary. On the Hudson River to the north and south of the Town of Poughkeepsie, there are three sites: South Cruger Island, just south of Tivoli, Shagbark, located in Hyde Park, and Bannerman's Island, south of Beacon. South Cruger Island is particularly interesting in that it contains a group of burials, each of which is protected by a heavy stone slab.[22]

Comparing the various sites, Ritchie draws a picture of a people engaged in seasonal activities along the river and adjacent forest upland, with small temporary camps associated with the streams which empty into the Hudson.[23]

The Middle Archaic period saw another change in the landscape as the coniferous forest was replaced by deciduous trees beginning in approximately 6,000 B.C. While sites of this period in the Hudson Valley are not numerous, those that exist are usually located on well-drained, low-lying terraces adjacent to the river or on the ridges which over-looked the river. One of great importance, which does not conform to either of these patterns, is located south of the *Rockledge* site in the Town of Beekman.[24] The Sylvan Lake site provides evidence of Archaic inhabitation; both the Vergennes (c. 4,500 - 2,500 B.C.) and Vosburg (c. 3,400 - 2,400 B.C.) phases of the Laurentian culture being represented. Vosburg artifacts have also been recovered at the site in Hyde Park, at Bannerman's Island, and at South Cruger Island. Materials associated with the Middle Archaic have also been recovered from a rockshelter in Bowdoin Park just to the west of

18. Vergennes is not well represented in the lower Hudson Valley, while River is found on]y in the upper Hudson Valley. Snook Kill is primarily a northern Hudson River Valley phenomenon, although some evidence of Snook Kill has been found at Shagbark in Hyde Park. Vosburg and Sylvan Lake are, however, well represented.

19. There is some dispute concerning the time when agriculture began in the Northeast. Ritchie does not fmd firnl evidence for it until the Middle Woodland period (approximately 1000 A.D.), at the earliest. Other, including Salwen, appear to believe that agriculture did not develop until just prior to or even at the time of European contact (1600 A.D.).

20. William Ritchie. *The Archaeology of New York Stale.* 1980.

21. For example, the Lamoka culture is strongly association with central New York, but is not found in the Hudson Valley, where for the same general time period the Vosburg Phase has been identified.

22. William Ritchie. *An Introduction to Hudson Valley Prehistory.* 1958. p. 62.

23. *Ibid.*, p. 82.

24. Funk, *Recent Contributions to Hudson Valley Prehistory.* 1976.

the *Buckingham* site.[25] Another rockshelter and an open site along the shore of the Hudson River are also found in Bowdoin Park. Artifacts excavated at the open site are associated with the later Woodland Period. The fact that artifacts from different periods and different cultures are found on the same sites indicates that those spots considered hospitable by earlier groups of people were reused by later groups. This fact has led to the destruction of many archaeological sites, especially those along rivers and streams, since Europeans often settled on the same locations.

With the advent of the Late Archaic period, sites in the Lower Hudson Valley become more numerous, reflecting, it is thought, a substantial increase in the population and more established settlement patterns. Once again, evidence from Sylvan Lake, which contributes its name to one of the Late Archaic phases (c. 2,500 - 1,500 B.C.), attests to a well-defined culture in the region. Ritchie describes the typical setting of such sites as situated on "a high, level, well-drained, sandy or gravelly river or stream terrace."[26]

The Transitional Stage (c. 1,500 - 1,000 B.C.

The Archaic period in.the Hudson Valley was followed, according to Ritchie and Funk, by the Transitional stage. Chief among the characteristics which separate the Transitional from the earlier period is the use of stone pots.[27] Made of soapstone and extremely bulky, these pots were later replaced by ceramic vessels of various kinds. Evidence of this stage in the Hudson Valley has also been found at the Sylvan Lake Rockshelter.

Like the people of the Late Archaic, the sites selected by the people in this time period were frequently on high bluffs and on low-lying sites along the Hudson River. The weight of the -stone pots suggests the use of water transport, probably the canoe. The depth of the water needed for a canoe may explain their absence from the smaller inland streams and·lakeside camps. According to Funk, Transitional groups also tended to avoid the inland rockshelters, although his excavation of Transitional period artifacts at Sylvan Lake calls this conclusion into question.

The Woodland Stage(.1000 B.C.- 1500 A.D.)

The Woodland Stage, like the Archaic, is divided into several substages, including the Early Woodland Stage (c. 1000-760 B.C.), the Middle Woodland State (c. 760 B.C. - 400 A.D.), and the Late Woodland Stage (c. 400- 1500 A.D.).

The characteristic details of each of the stages need not concern us, except to note that, in addition to the reliance by archaeologists on the form of projectile points, the presence of fired clay ceramics, which replaced the heavier soapstone vessels of the Transitional Period, is a diagnostic indicator for the Woodland Period. Archaeologists use the variations in the decoration of these ceramic wares as a means to identify different groups during this period. It was also during this period that the bow came into use.

Unlike many of their predecessors, the sites used by this group of people tend to be away from the major waterways. Located on inland streams, the sites selected are frequently on high

25. Communication with the Bowdoin Park historian and discussion with one of the archaeologists associated with the excavation.

26. William Ritchie. *The Archaeology of New York State.* 1980. p. 136.

27. Salwen does not identifY the appearance of stone pots as a separate stage, but refers to it as the end of the Archaic Stage.

bluffs. In the later period there is some evidence for palisaded villages.[28] Around these sites, on the alluvial plain of nearby streams, the Indian fields were located, Horticulture, although practiced in other parts of North America at an earlier date, does not appear in this area until c. 1000 AD. The requirements of the cultivation of maize, beans, and squash created a marked change in the pattern of land use and the selection of locations for villages. It was no longer necessary for the entire group to move from place to place following a seasonal round of migration fueled by fluctuating sources of food. Even if some men continued to travel to the back-country camps to hunt and fish, the women, children and older men of the tribe would have remained to tend the crops on which they increasingly relied.

In central and western New York State, the Late Woodland stage is known as the Owasco; however, despite years of investigation, Ritchie has found no evidence for the Owasco culture in the Hudson Valley. As he stated, it was as though "little known occupants of the Hudson Valley barred the Owasco people and their culture from the former's domain."[29] It is assumed, although not absolutely proved, that the "little known occupants" were members of the Algonquin language group who had entered this area from the south and west. Funk reports that he has found nothing in his investigations to disprove Ritchie's suggestion.

Contact Period (1600 • 1750 A.D.)

While acknowledging the 'little known occupants," it is generally assumed that there was a cultural continuity between the Indians living in the Hudson Valley in the Late Woodland period prior to the arrival of Europeans in the early 17th century and the tribes described by the Dutch and English in their early records. While archaeologists are extremely careful about the inferences they draw from the evidence presented, it seems reasonable to believe that the Wappinger Indians, members of the Algonquian language group that lived in the Hudson Valley, .and from whom much of the land along the east side of the Hudson River was purchased had been the inhabitants of the area for many, many generations.

The Contact period in the Hudson Valley is dated from the first authenticated voyage up the Hudson River by Henry Hudson in 1609.[30] His mate, Robert Juet, kept a log of the journey, noting that on September 29, 1609 the *Half Moon* dropped anchor off land identified as present-day Beacon, where they were greeted by Indians in canoes who brought pumpkin, maize and tobacco which they exchanged for trinkets and "firewater." Estimates of the population, always a difficult business at best, indicate that at the point of contact there may have been several thousand Indians in this area.[31] If this is correct, it is not particularly surprising that the Indians greeted the Europeans without fear. Fourteen years later the Dutch arrived, bringing with them diseases and technology which destroyed the Indian populations of the Hudson Valley.[32]

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28. Various reasons for this apparent desire to hold and maintain protected positions are advanced, including the idea that an increase in population and the needs of an agricultural based economy, such as access to cleared fields, created territorial friction between various tribes.

29. Cited in Funk (1976) p. 300.

30. Giovanni da Verrazano sailed into New York harbor in 1524, and Estevan Gomez is presumed to have done so the following year, but neither of these explorers ascended the river.

31. Salwen postulates a population of between 62,000 and 68,900 in the Hudson River Basin. with the number of Wappinger Indians being approximately 15,000 *[Man in the Nonheast:* 1975}.

32. According to some estimates, by 1774 there were no more. than 300 Indians left in the Hudson Valley. Some had moved to Pennsylvania, Maryland, Delaware, Ohio, and to western New York State, but far more were dead of disease.

History of the Site

The first men to inhabit the Town of Poughkeepsie may well have camped along the Hudson River at the mouth of the Wappingers Creek as the last vestiges of the Wisconsin glacier receded from the upper Hudson Valley. As noted above, archaeologist have not yet located any Paleo-Indian sites in the immediate vicinity of the Wappingers, but there is no reason to believe that early man would not been found here as well as at the sites which have been found to the north.[33] There are, however, a number of Archaic sites, including two rockshelters in Bowdoin Park. Located in the Town of Poughkeepsie, Bowdoin Park, is just to the west of the *Rockledge* site. Parker mentions an Indian burial site Within the Village of Wappingers Falls, as well as a village and quarry site at New Hamburg, but the age of these sites is not determined.[34] In any event, we know that the area was well used by Indians into historical times for in 1609 Robert Juet, Henry Hudson's first mate, recorded their presence in the area off Beacon. There, he wrote in his journal on September 29, 1609, Hudson's ship anchored, and members of the crew exchanged trinkets and "fire water" for pumpkins, maize, and tobacco, which the Indians brought out to the *Half Moon* in their canoes.

While we are learning more about the culture of the Indians who lived in the Hudson Valley, in a very real sense they remain unknown prior to the arrival of the Europeans. For this reason, the history of the *Rockledge* site properly begins with the formation and subsequent divisions of the land in Dutchess County into patents.

The *Buckingham* site, which is located on the north side of Wappingers Creek, falls within the 1683 Rombout Patent. [Map 3] The history of that patent and its subsequent divisions is described below.

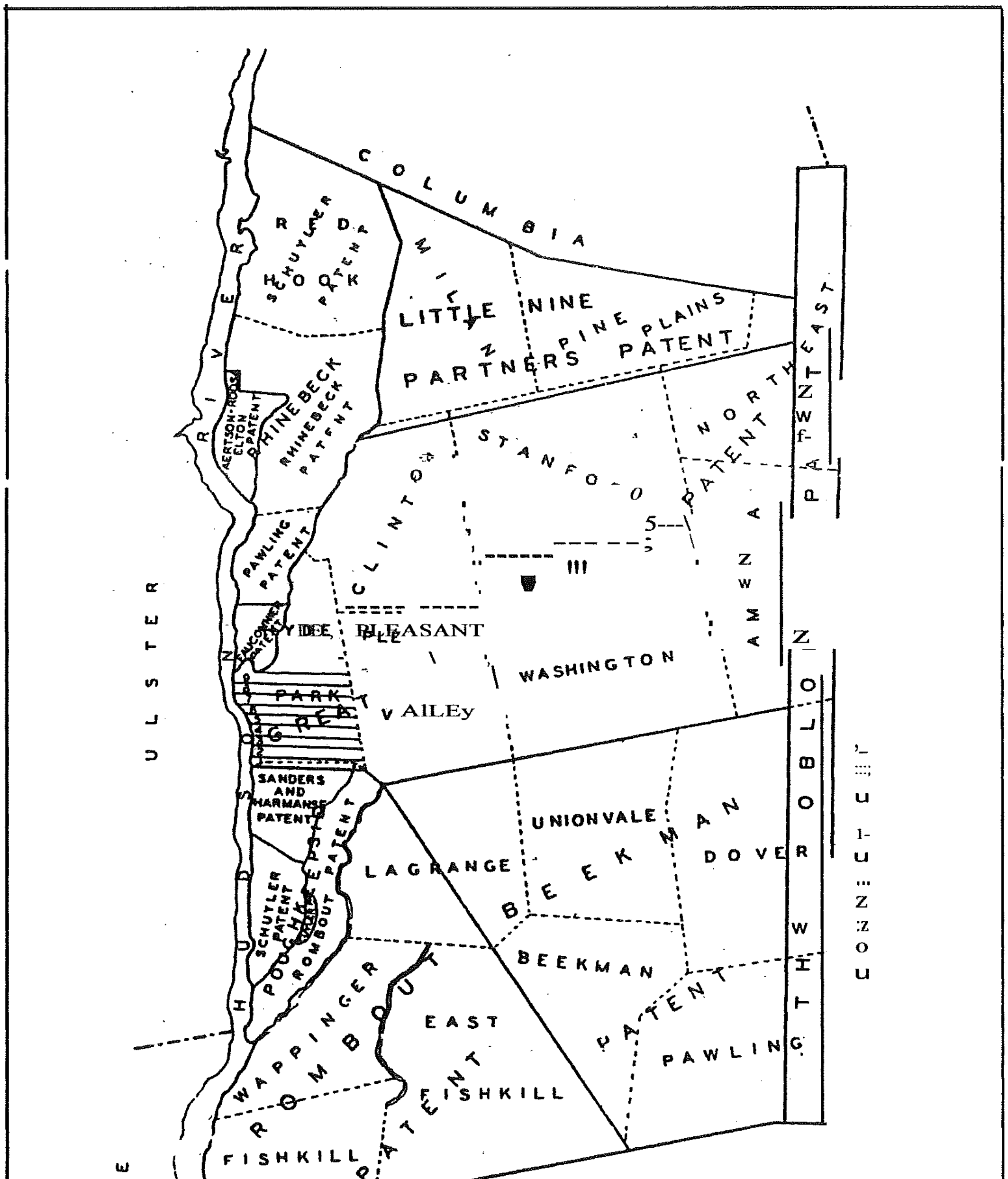
The land included in the Rombout Patent was originally under the control of the Wappinger Indians. [Map 4] Living on the east side of the Hudson River, the Wappinger Indians were members of the Delaware (Lenni Lenape) tribe and belonged to the confederacy of the Five Nations. The Wappinger Indians were numerous within their tribal boundaries, which were described in 1720 by the Wappinger sachem, King Ninham, as the territory on the east side of the Hudson River, reaching from city of New York to "about the middle of Beekman's Patent." The upper patent line ran along the present southern edge of Red Hook. Their villages and seasonal campsites dotted the river edge and the shores of its tributaries. Tradition. has it that when ships traveling from New York (New Amsterdam) to Albany (Fort Orange) anchored their boats along the shore, the Wappinger Indians would trade furs for the merchandise carried by the Europeans. Unlike some of the Indian tribes along the west side river, the relations of the Wappinger Indians with the Europeans were peaceful.

The Rombout Patent dates from February 8, 1682/3, when Francis Rombout and Gulian Verplanck, fur traders and merchants in New York City, were granted a license from the Colonial Governor Thomas Dongan (representing King James ID to purchase land from the Wappinger Indians.[35] The negotiations resulted in the purchase of 85,000 acres of land, and on August 8, 1683, the Indians and agents of Rombout and Verplanck signed a deed of sale

33. William A. Ritchie, *The Archaeology of New York State.* 1980. There is a quarry site in Greene County near the village of Coxsackie and another site at West Athens, alSo in Greene County.

34. Arthur. C. Parker, "The Archaeological Histocy of New York." *New York State Museum Bulletin.* The University of the State of New York: Albany. 1922. p. 548.

35. The license to purchase land is dated 1682, with the year 1683 in parentheses. Until 1752 the new year began in March rather than on the fli"St of January. As a consequence, in historical material dates prior to 1752 are frequently indicated as, for example, 1682/3.



Map of Dutclm;.County

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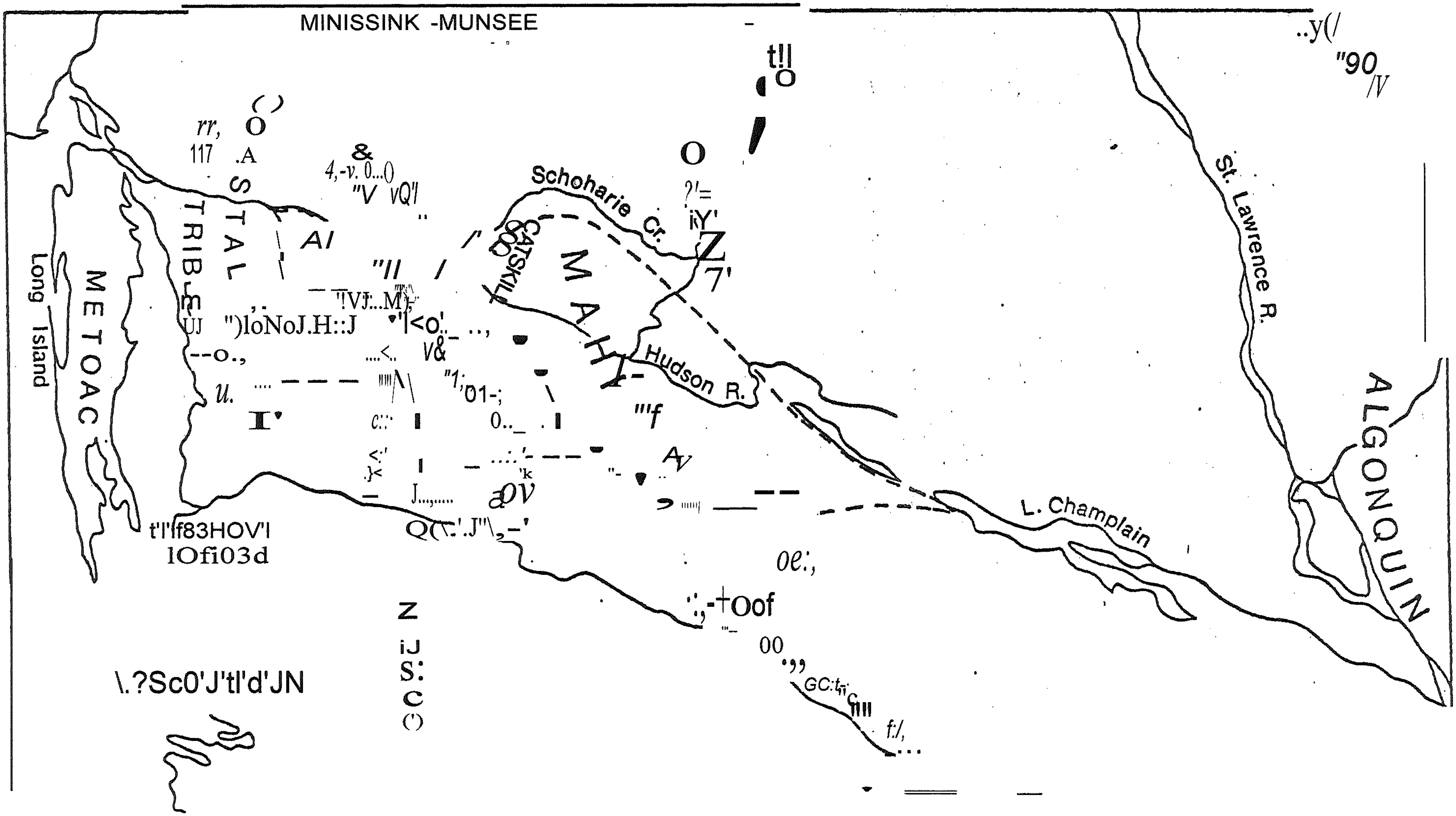
MAP3



THE TERRITORIES OF THE HUDSON RIVER INDIANS AND THEIR NEIGHBORS c. 1600 A. D.

extinguishing the Indian claim to the land.[36] At the time of the sale, a survey was taken of the land encompassed in the patent, but it seems that further internal division was sketchy or, perhaps, non-existent. The very description of the boundaries of the patent were later open to interpretation. Briefly, the survey described the lands as on the:

> *East side of the Hudson's River, at the north side of the High Land's, Beginning from the South side of A Creek Called the fresh Kill, and by the Indians Matteawan, and from thence Northward along said Hudson's River, five hundd Rodd bljong the Great Wappins Kill, called by the Indians Mawenawasigh, being the Northerly Bounds, and from thence into the Woods fouer Houres going, always Keeping five hundd Rodd Distant from North Side of said Wapinges Creeke, however it Runns. . .* [37]

The patent then continued, describing the line along the "fresh Kill" into the woods at the foot of the high hills which marked the southern boundary, with the easterly line being, as it was in the north, determined by "going into the Woods" for four hours, or, as it was later determined by a court of law, sixteen English miles.

The sale was registered on October 17, 1685, but by that time Gulian Verplanck had dead.[38] The following year his widow remarried, and she and her new husband, Johannas Kip, administered the Verplanck property on behalf of Gulian Verplanck's minor children until March 26, 1695, when an undivided one-third of the Rombout Patent was conveyed to Gulian Verplanck I's eldest son, Samuel Verplanck, and his siblings.

Just after Gulian Verplanck's death, Stephanus Van Cortlandt, a New York merchant and business associate of Rombout and Verplanck, joined Kip and Rombout as a one-third partner in the Rombout Patent.

No further division, in the legal sense, took place until in 1707 when Catharyna Rombout Brett, the only surviving child of Francis Rombout, and her husband, Roger Brett, requested the Supreme Court in New York City to permit the partition of the patent among the partners. The request was granted, the order for partition being dated March 15, 1708.

When the necessary land survey was completed, the Bretts took possession of the southern third of the property, the heirs of Gulian Verplanck held the middle section, and the widow of Stephanus Van Cortlandt, Gertrude Van Rensselaer Van Cortlandt, owned the northern third. [Map 5]

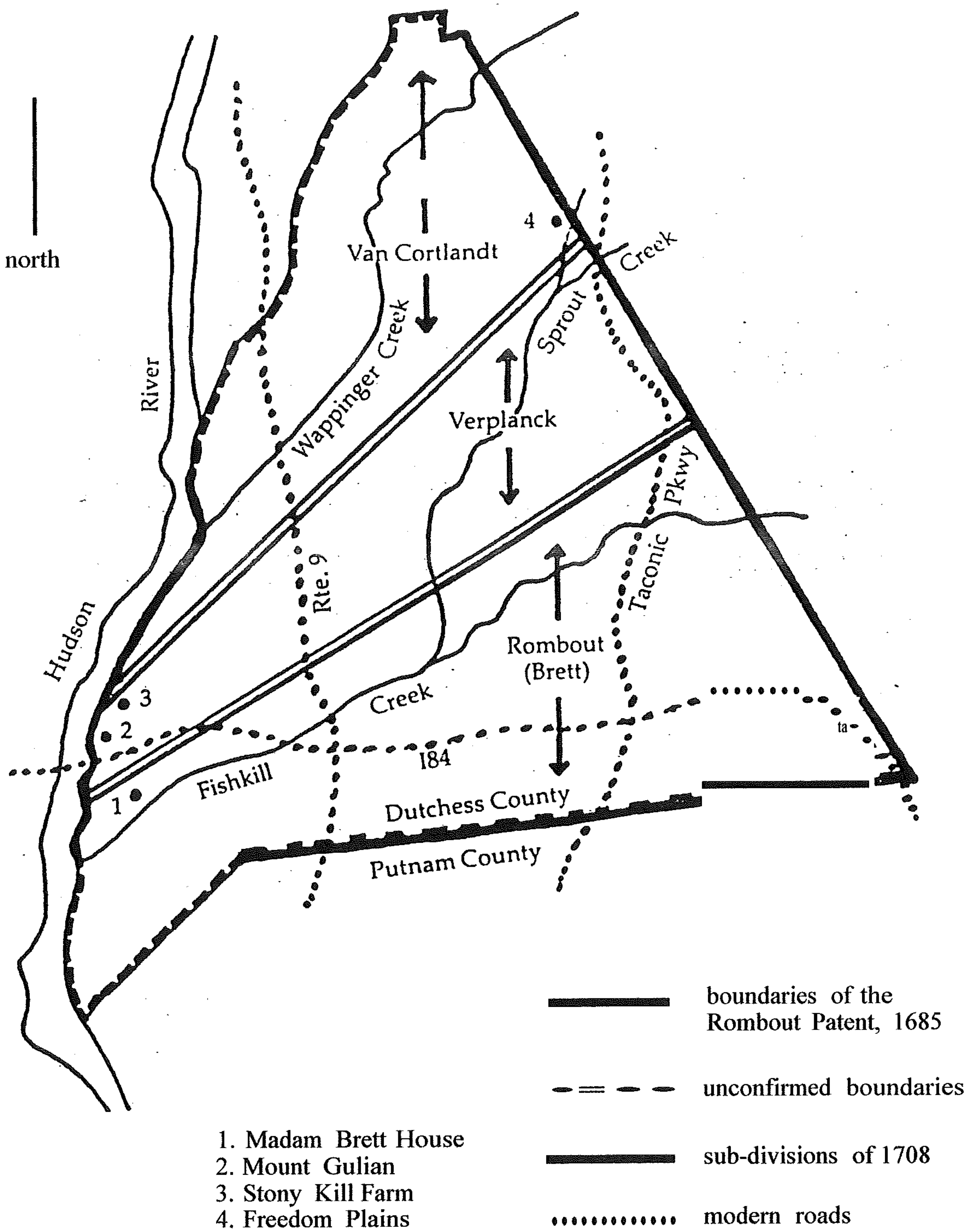
In 1695, the Rombout Patent was heavily forested, with virtually no settlement, although a 1685 map of the Hudson Valley shows some signs of settlement at the mouth of the Wappingers Creek.[39] A map prepared in 1689 by John Holwell shows the forests, open plains, Indian wigwams, and the house of"ye Frenchman's,"which was located at the site of present-day

36. The Dutch were not as particular about the establishment of patroonships on land to which the owners did not have clear title as were the English. The English insisted on extinguishing the Indian title to the land before they would fmalize the grant to the European purchasers. The negotiations and signing of documents were part of this process.

37. Henry Cassidy. "The Rombout Patent." *Collections of the Dutchess County Historical Society:* 11. 1985. page 13.

38. He died on April 23, 1684 at the age of 47 years.

39. 1854 copy of a Dutch Map of"De Nord River . . .," dated 1685 [Map Room of the New York Public Library].



MAP OF THE ROMBOUT PATENT AND ITS SUBDIVISIONS.

New Hamburg.[40] [Map 6] During these years, the Rombout Patent was intended as a place to trap beaver and other fur bearing animals, not as a place of settlement. That changed when, in 1708, Catharyna Rombout Brett and her husband, Roger Brett, requested partition of the patent.

The Bretts, who had been married in 1703, had by 1708 decided to leave New York and settle in Dutchess County. For this reason, they wished to have a legal division of the property.

Following the partition, the Bretts went to live at the mouth of the Fishkill Creek, where they built a house in 1709. Despite the fact that not long after their removal to Dutchess County, Roger Brett was drowned when he fell from a river sloop, Catharyna Brett and her three sons remained. *As* part of her improvement of the property, she built a grist mill, the first in the area. She also made the decision to actively settle her land, inviting families from Long Island, including Van Wycks, Brinkerhoff's, and Hasbroucks, among others, to purchase land and establish farms. Her decision to sell land created a very different pattern of land use on her property, as compared to the Verplanck and Van Cortlandt land, where the policy was to lease. the land. Madam Brett, as she was known, led an active life, supervising her farms and grist mill until her death in 1763.[41]

The settlers on the Verplanck and Van Cortlandt portions of the Rombout Patents were tenant fanners. Although they lived on the land and made improvements to it, the land remained the property of the landlord. The.lease, one of which is described below, was fairly standard. On May 1, 1751, Henry Philip and his wife Deborah signed a lease for a 250 acre farm, The rent for this property was six pounds anll two couple of fowls, payable on May 1, along with all taxes. The lease stipulated, however, that for the first six years the rent was forgiven, provided that the tenant agreed to build "one framed or stone dwelling house of at least eighteen foot square with a Lento on one end thereof, with one framed Barn, all to be well shingled."[42]

The tenant was also, within the first year, to establish stone landmarks at the corners of the property, and to show those landmarks to his children once a year. In the event that he did not have children, he was to show them to his servants, slaves, and one or two neighbors. He was also to set up "a nursery of fruit trees, to be some Apples, Pears, Cherries, & Peaches ... of forty foot square."[43] He was, in addition, to set out an Apple orchard of at least one hundred trees. These trees would be provided by the landlord, in return for which the landlord was to receive the fruit of three trees. The tenant agreed not to cut or dispose of wood, timber, stone or dung from his farm, and to keep six acres in meadow for grass and hay. He was also to be prepared to work for the landlord for one day a year, and to bring his wagon and team.

As administrative units, the patents were superceded in 1683 by counties. That is not to say that the nature of the ownership of the land changed, only that the political administration was altered. On November 1 of that year, the legislature divided the Province of New York into twelve counties.[44] Dutchess County was one of them. Originally Dutchess County included the territory of present day Putnam County as well as the southern portion of Columbia County. Its boundaries were defined as from Roellaff Jansen's Kill on the north to the boundary of

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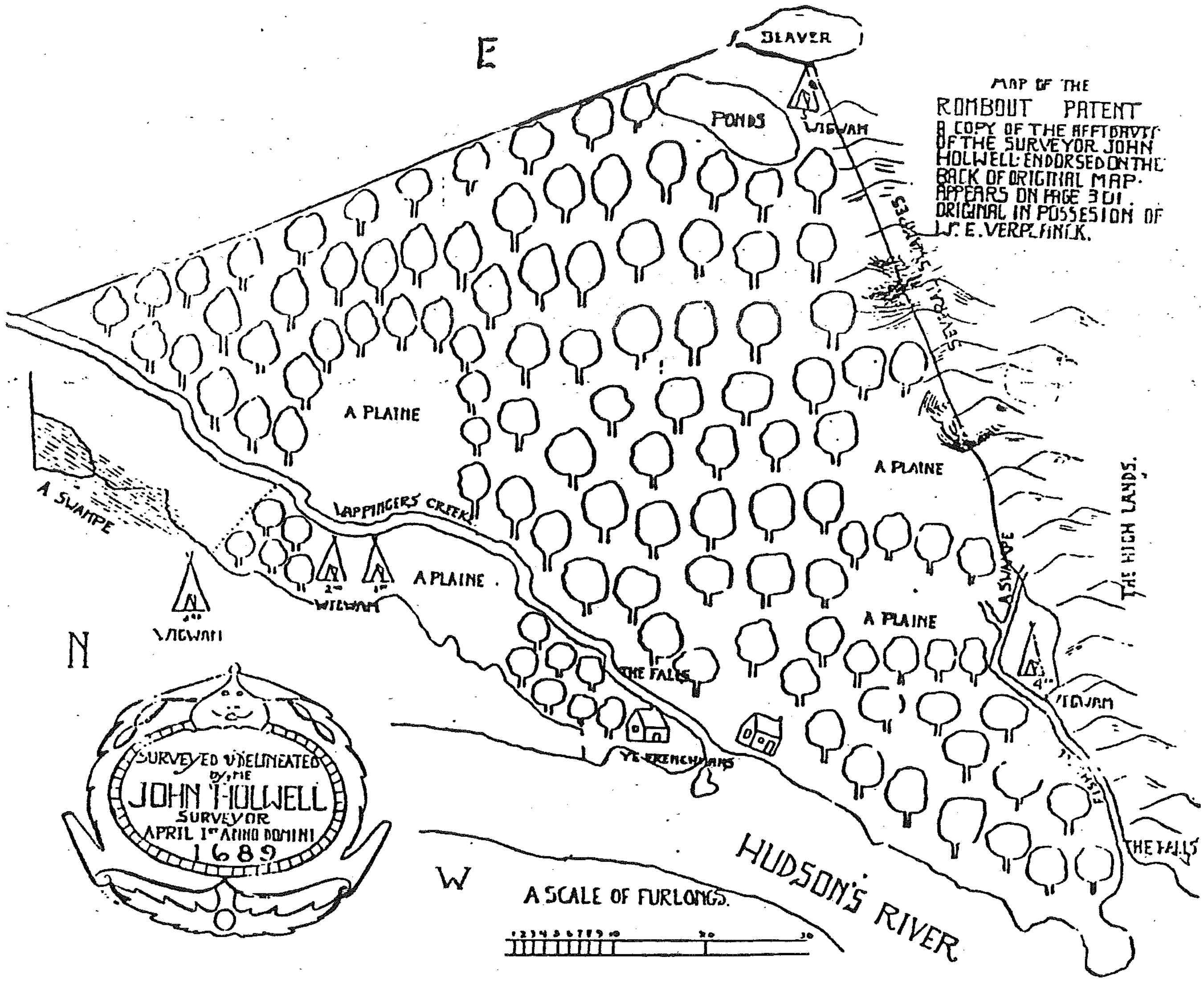
40. The map, which is drawn.on parchment, is in The New-York Historical Society.

41. Frank Hasbrouck, ed. *The History of Dutchess County. SA.* Matthieu: Poughkeepsie, NY. 1909. *AB* is frequently the case with early dates, there is some uncertainty whether she died in 1763 o,1764. One source gives the date as 1764, but William Edward VerPlanck, who wrote the history of the Town of Fishkill for Hasbrouck's book, states that her will was proved on March 14, 1763.

42. William Edward VerPlanck. *op.cit.* p. 109.

43. *loc. cit.*

44. Dutchess County was one of the original counties established by the English on that date. The others included: Albany, Cornwall (now part of Maine), Dukes (now in Massachusetts), Kings, New York, Orange, Queens, Richmond, Suffolk, Ulster and Westchester.



-fkl- JOHN HOLWELL'S MAP OF THE ROMBOUT PATENT- 1689.

Westchester County on the south. This boundary was also the northern boundary of the Van Cortlandt Manor. The eastern boundary was defined as a line running twenty miles into the woods from the banks of the Hudson River. At the time that the county was laid out, it was presumed to be uninhabited by any European settlers. For this reason, it was considered for administrative purposes to be part of Ulster County, and it was there that the freeholders of Dutchess County went to cast their ballots in provincial elections.

Population remained sparse for many years. In 1703, when the Colonial Assembly established the King's Highway, which was described as leading from the northern end of King's Bridge on the Harlem River to the ferry at Fort Crailo across the Hudson River from Albany, there were still so few inhabitants in Dutchess County that the residents were only required to maintain a path. through the woods wide enough for a man on horseback. It was not until 1723 that they were required to build and maintain their portion of the highway to the same standards a.S the rest of the roadway.

It was not until 1713 that there was sufficient population in the county to warrant a seat in the Colonial Assembly.[45] Poughkeepsie was chosen as the county seat.

In 1719 the county was divided into three wards: the Northern, which extended from Roellaff Jansen's Kill to Esopus Island off Hyde Park, the Middle, from Esopus Island south to the Wappingers Creek, and the Southern, from Wappingers Creek to the We hester border. In 1737 the county was further divided into seven precincts: Beekman, Charlotte, Crom Elbow, North, Poughkeepsie, Rhinebeck and South East. As the population grew, these precincts were divided into smaller administrative units. The *Rockledge* site fell within the Middle Ward, and then within the Poughkeepsie Precinct.

The history of Dutchess during the Revolution is complex, and it does not directly bear on the *Rockledge* property, except in so far as the tenant farmers and small landowners in Dutchess were encouraged to support the goals of the Revolution by the belief that a break with England would enlarge the franchise and make create a: climate in which they might own the land which they worked for the wealthy landlords, almost all ofwhom resided in New York City. Their hopes were not immediately fulfilled, but by the 19th century the worst of the abuses had ceased.

The history of the Town of Poughkeepsie, whose boundaries are the same as those of the 18th century precinct of Poughkeepsie, begins on March 7, 1788 when it was designated a town by the state legislature.[46] According to James H. Smith, the· early history of the town has remained obscure, and it is not until 1850 that it is possible to iden:tify the Buckingham property with the land then owned by William (or perhaps Widow) Phillips.[47] Eight years later the land belonged to J. Thompson.[4] In 1864, Lloyd's *Topographical Map of the Hudson River,* also shows the land as the property of J. Thompson, and it remained in the same family at least until the end of the 19th century.[49]

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45. In that year there were 445 people and 29 slaves in the county.

46. Despite its relationship to the Village of Wappingers Falls (most of which lies in the Town of Wappingers), the *Rockledge* site is in the Town of Poughkeepsie.

47. J. C. Sidney. *Map of Dutchess County from original Surveys.* John E. Gillet: NY. 1850.

48. F. W. Beers. *Atlas of New York and VICinity.* F. W. Beers, A. D. Ellis, & C. G. Soule: NY. 1867 and O. W. Gray & Sons. *New illustrated Atlas of Dutchess County, New York.* Reading Publishing House: Reading, PA. 1876.

More recently the land has been owned by Charles A. Doerr, who sold some or all of it in 1966.[50]

From an examination of the maps and atlases of Dutchess County and from reading of the various county histories, it does not appear that the *Buckingham* site was associated with the Village of Wappingers Falls or its main industry, the Duchess Bleachery. It would appear that it was more closely related to New Hamburg and the summer residences which grew up around that hamlet. [Maps 7-9]

New Hamburg, which was formerly called Wappinger Creek, is located at the mouth of Wappingers Creek, and has served as a railroad stop of the New York Central line. The railroad had an important impact on the life of Dutchess County, beginning with the New York & Harlem Railroad which was built along the eastern side of the county. Work began on the road in 1832, which was operating in Dutchess County by 1845. The Hudson River Railroad followed in 1849. Other lines, like the roads, crossed the county from Fishkill Landing to New England.

Although settlement had taken place at New Hamburg in the 17th century, the hamlet grew in. proniinence during the years when the river was the north-south transportation corridor of the valley. In addition, a ferry, connecting the east.bank with Marlborough in Ulster County, drew people traveling east and west. By 1810, New Hamburg had two docks, many business, and a good deal of river boat traffic. By 1824, it was described as a "busy little village," with "a handsome collection of houses," a landing, and "an extensive store."[51] In 1887, the hamlet consisted of two churches, a chapel, a public school, one private school, three hotels, five stores, two shoe shops, two blacksmith shops, one wagon shop, a cooper shop, and a lumber and coal business.[52] It also had three lime kilns and a limestone quarry which supplied the kilns in New Hamburg and some at Poughkeepsie. Its population was about 500 people.

As agriculture was drawn away from the Hudson Valley to the Midwest and transportation improved, Dutchess County began to attract people from New York City who sought a county house. An examination of the maps and atlases of the 19th century indicate that there were a number of estates and houses surrounding New Hamburg with names like *Highcliff, Netherwood, Pleasant Hill, Homewood,* and *The Grange.* By 1891, *Tangletop,* the home of Mrs. J. Thompson was among them. 53 *As* may be seen from an examination of the 1891 map, these estates often included the outbuildings associated with farming. Indeed, much of this land continued to be farmed until the late 30's and 40's.

The people who, in the late 19th and early 20th century, sought week-end and summer houses have now become families who are looking for affordable year-round homes. This change is not, however, a new phenomenon, for in 1937 the authors of the Dutchess County portion of the Federal Writers' Project noted that improved roads and the decrease in the value of farm products in New York City had led to city people buying up land, with the result that"... gradual suburbanization of Dutchess is in: progress." 4 The disappearance of the large estates,

49. Lloyd's *Topographical Map of the Hudson River.* J. T: Lloyd: NY. 1864 and F. W. Beers. *Atlas of the Hudson River Valley from New York Cily to lToy, including a Section of about Eight Miles in Wulth.* Watson & Co.: NY. 1891.

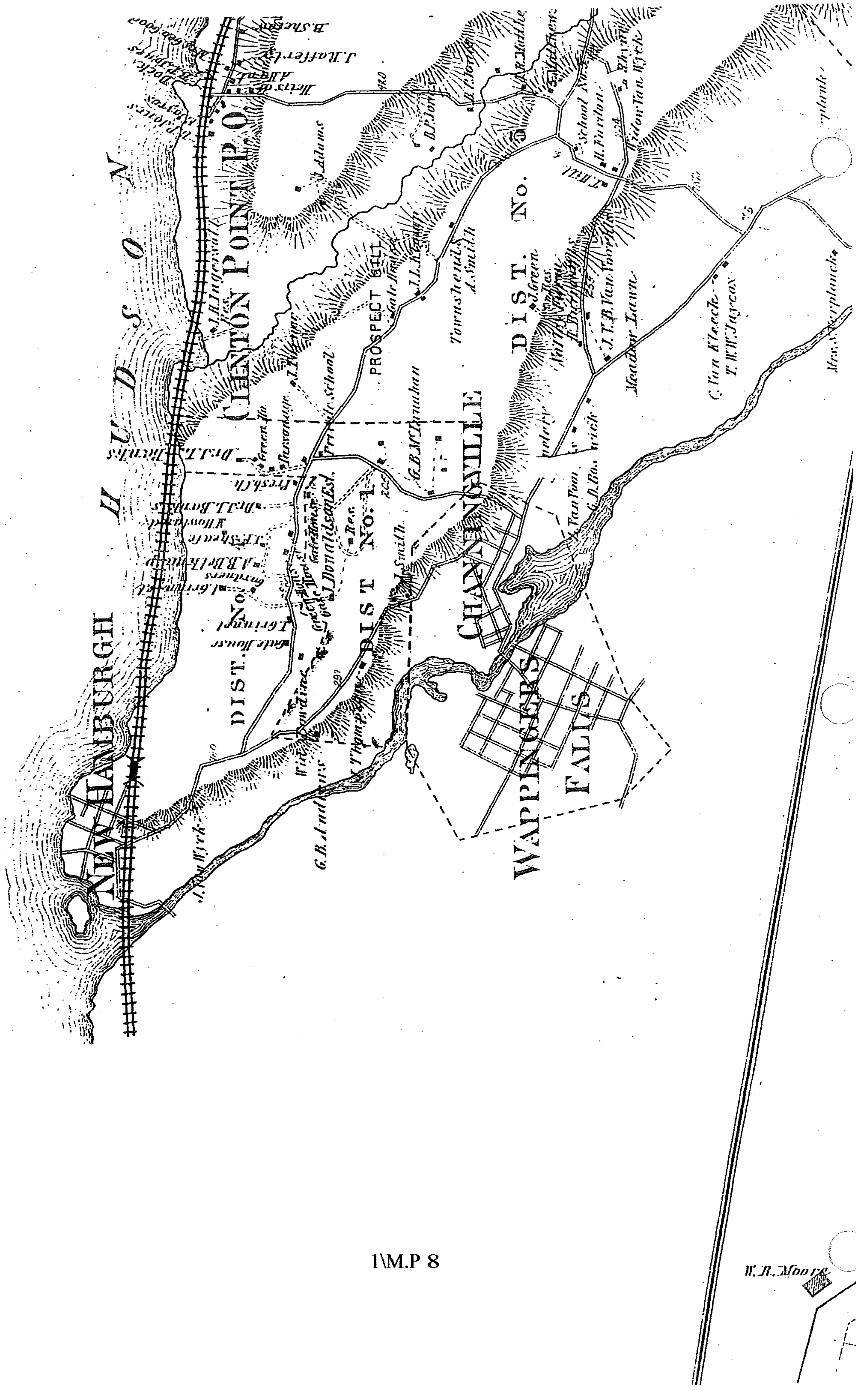
50. The records in the County Clerk's Office in Poughkeepsie indicate that the land was sold in two parcels. A number of apartment buildings were built on the northwest portion of the site. The southeast portion of the site is the *Rockledge* property.

5L Spofford's *Gazetteer of New York State.* 1824. quoted in James H. Smith, op. cit., p. 369.

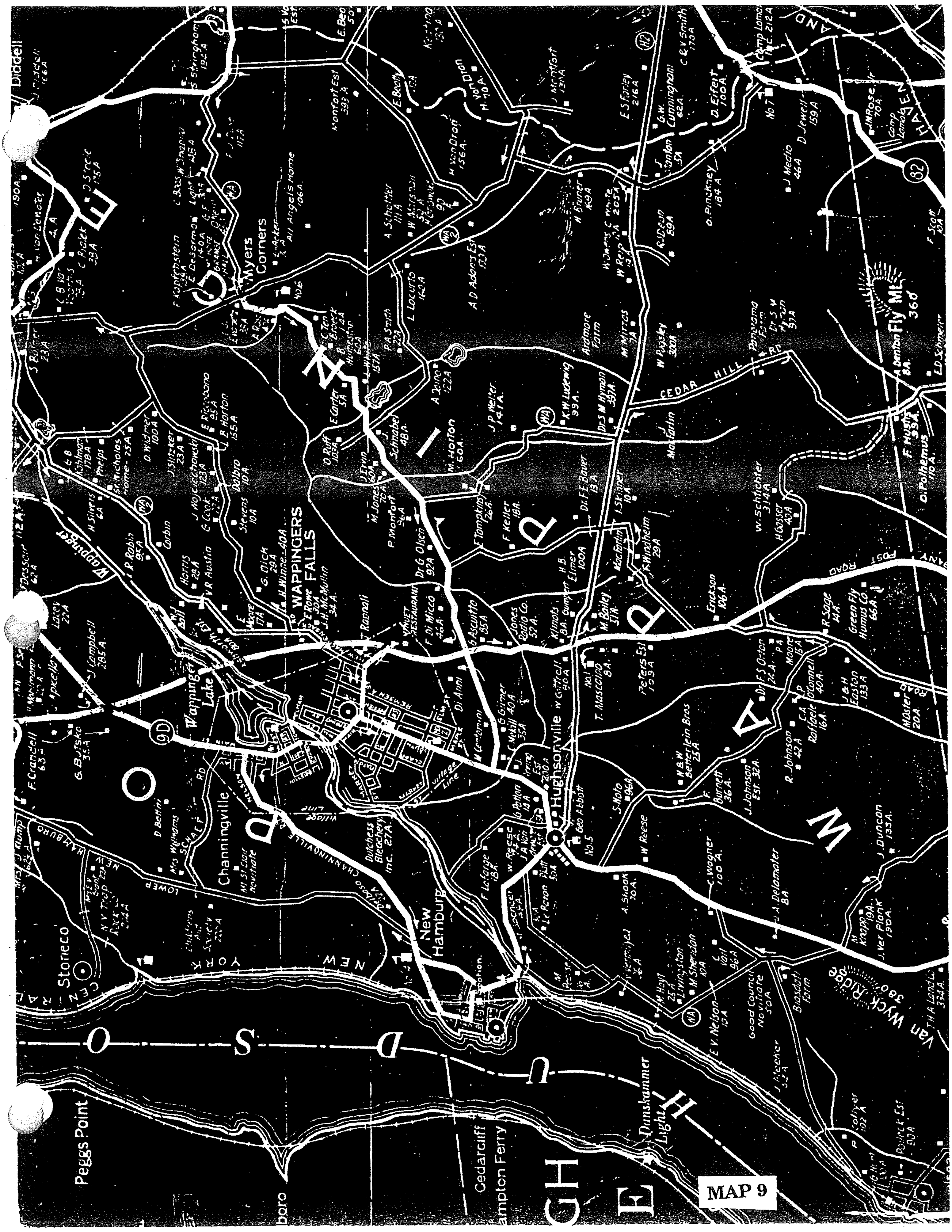
52. James H. Smith, *op. cit.*

53" F. W. Beers. *Atlas of the Hudson River Valley from New York City to Troy, including a Section of about Eight Miles in Wulth.* Watson & Co.: NY. 189L

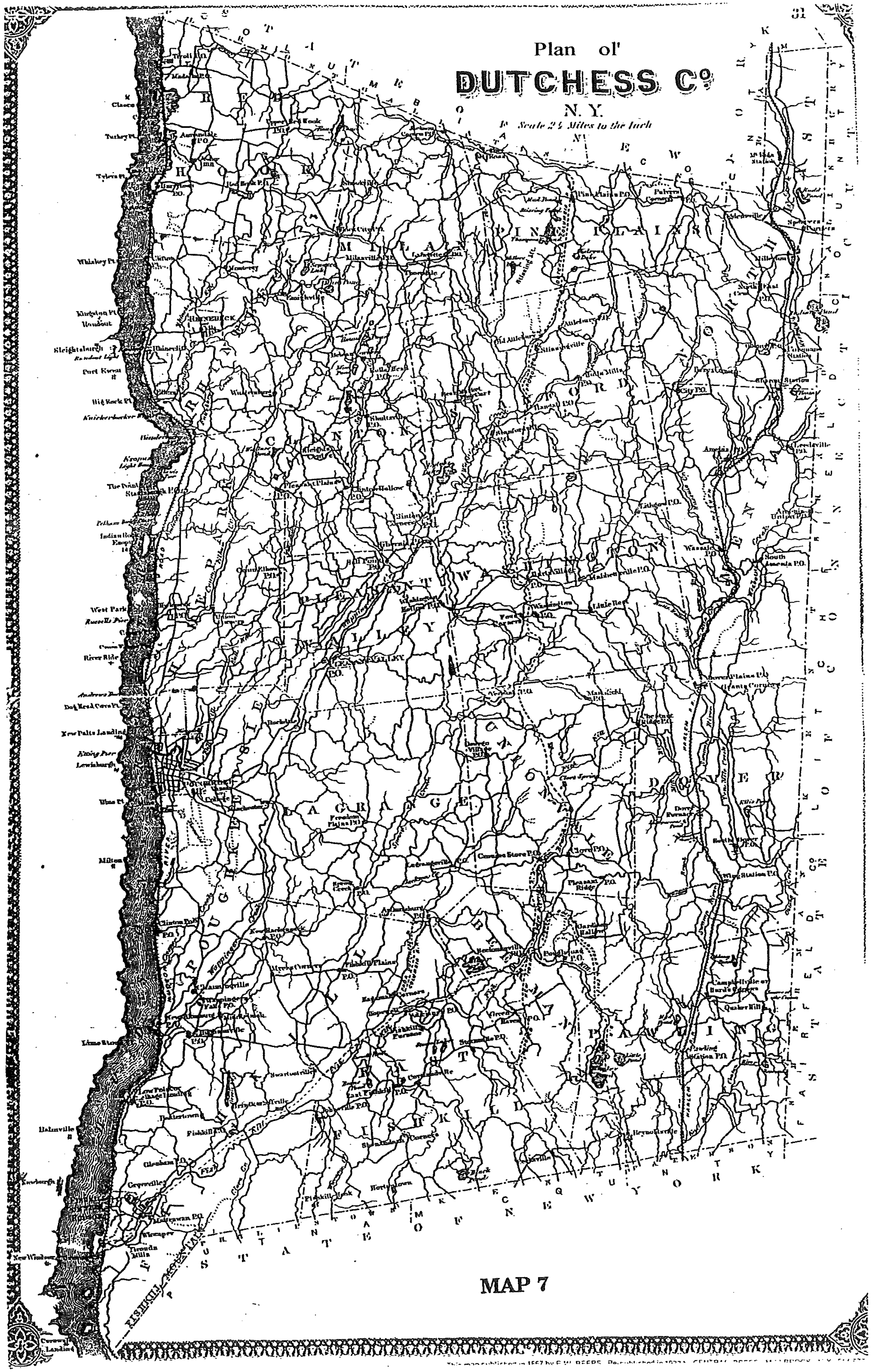
54. Federal Writers' Project. *Dutchess County, New York.* William Penn Association of Philadelphia: PA.. 1937.


HUDSON
NEW HAMBURGH
CLINTON POINT P.O.
DIST. No. 1
PROSPECT HILL
CHANNINGVILLE
WAPPINGERS FALLS
DIST. No.
Meadow Lawn
W. R. Moore

1\M.P 8


WAPPINGERS FALLS
Wappinger Lake
Myers Corners
Channingville
Hughsonville
New Hamburg
Fly Mt.
Van Wyck Ridge
Danskammer Light
Peggs Point
Cedarcliff
Storieco
CEDAR HILL RD
POST ROAD

MAP 9


Plan of
DUTCHESS Co
N.Y.
Scale 2½ Miles to the Inch
RED HOOK
MILAN
PINE PLAINS
NORTH EAST
RHINEBECK
STANFORD
CLINTON
AMENIA
HYDE PARK
WASHINGTON
PLEASANT VALLEY
UNION VALE
DOVER
LAGRANGE
POUGHKEEPSIE
BEEKMAN
PAWLING
EAST FISHKILL
FISHKILL
STATE OF NEW YORK

MAP 7


VILLAGE OF WAPPINGERS FALLS TOWN OF POUGHKEEPSIE
VILLAGE OF WAPPINGERS FALLS TOWN
TOWN OF POUGHKEEPSIE
TOWN OF WAPPINGER

M.AP10

along with their houses, barns, carriage houses, conservatories, greenhouses and other outbuildings, and the proliferation of small one-family homes, has gradually changed the New Hamburg area.

Other changes have taken place in Dutchess County during the last forty years. The industries which had been the backbone of the county's prosperity dwindled. Brickyards fell into disuse, lime kilns disappeared, and agriculture land grew back to trees. Today development throughout Dutchess County is replacing those trees with houses and shopping centers.

The other community associated with the *Buckingham* site is the village of Wappingers Falls, whichlies primarily along the south or east side ofWappingers Creek. The majority of the village is located in the Town of Wappinger, which was erected from the Town of Fishkill in
1875, but about one-third of Wappingers Falls, previously known as Channingville, is in the Town of Poughkeepsie. Channingville was incorporated into the Village of Wappingers Falls in 1871. In 1882 it contained a school, ten small stores,[55] the North American hotel, the Empire Overall Manufactocy, established in 1878, the Fancy Dye Works, which was part of the Duchess Company, a wagon shop, a blacksmith shop, three tailor shops, two bakeries, one photographer, one undertaker, two builders, and Eagan's Opera House. Channingville boasted one physician, who, with the Roman Catholic priest, played an important role in the community during the epidemics that periodically swept the village. Its large Irish population, which had come to work in the mills which lined Wappingers Creek and on the railroad, was served by a Roman Catholic Church, the only church in the community.

The north and south portions of the village of Wappingers Falls are connected by a bridge, established at the falls of the Wappingers Creek. The falls, which are over 75 feet high, drop through a steep gorge, inaking them a logical place to establish the saw mills and grist mills that were so essential to the earlier settlers of Dutchess County. As mentioned above, by about 1738 Adolphus Brewer had built a grist or flour mill there. It was this mill which he sold, along with extensive acreage, to the Meisers in 1776.[56] A second flouring mill, which was also purchased by the Meisers, was nearby. The buildings on these two sites burned or were torn down and replaced by new buildings a number of times during the ensuing years. The chronology of these changes will be discussed below.

In 1780 the Marquis De Chastellux, who served in the American Revolution under Rochambeau, saw the mills on the Wappingers Creek as he traveled from Fishkill Landing [Beacon] to Poughkeepsie. He wrote:

> *There I halted a few minutes to consider, under different points of view, the charming landscape formed by this river, as well from its cascade, which is roaring and picturesque, as from the groups of trees and rocks, which combined with a number of saw-mills and furnaces, compose the most capricious and romantic prospect.*[57]

Despite the Marquis' assertion that Wappingers Falls contained saw mills and furnaces, no mention of these industrial buildings is found in the early histories of Wappingers Falls.

55. The stores included: a druggist, six grocers, a general merchant, a stationer and tobacconist, and a stove dealer and plumber.

56. The Meiser family left New York City in 1776 after the British gained control of the city following the defeat of the American troops at the Battle of Long Island.

57. Marquis De Chastellux. *Travels in North America in the Years 1780, 1781 and 1782.* G. B. J. Robinson: London. 1787.

According to a newspaper report of 1878, at the time of De Chastellux's visit, Wappingers Falls consisted of the Meiser Homestead, which still stands in Meiser Park, the flour mill operated by the Meiser family, and several buildings at a spot called Clump's Corners. [58]

The development of industry at Wappingers Falls was, of course, dictated by the falls themselves, but the timing of that development was related to a number of political and economic facts. America before the Revolution was basically an agrarian country. There were men who were merchants, but they imported and exported goods, they did not manufacture them. There were cabinetmakers and shipbuilders, silversmiths and clockmakers, blacksmiths and shoemakers, but of these men were craftsmen not the owners of factories. In fact, early in this nation's history there was a distinct prejudice against factories and the men and women who worked in them. This was reflected in the attitudes of Thomas Jefferson, who wrote to John Jay in 1785 that "I consider the class of artificers as the panders of vice and the instruments by which the liberties of a country are generally overturned.

Although he continued to believe that the proper future of America was as a nation of farmers, by 1791 he had come to realize the country could be severely hampered in its development if it had to rely solely on foreign manufactured goods. This realization, strengthened by the Embargo Act and the War of 1812, led him to conclude: "Experience has taught me that manufacturers are now as necessary to our independence as to our comfort. eo It is against this backdrop that the industrial development of Wappingers Falls took place.

The earliest mills on Wappingers Creek of which we have historical record were, as previously mentioned, the flouring mill of Adolphus Brewer, which he sold to the Meiser family, and a second flouring mill, whose owner is unknown prior to the Meiser ownership. De Chastellux also mentioned saw mills and furnaces, one of which may have been located at New Hamburg. Early in the 19th century these flouring mills were converted to use as textile mills by Englishmen with knowledge of the industry. This was a marked contrast to the years prior to the American Revolution when England had forbidden the export of industrial technology to its colonies, thereby ensuring that the colonies had to purchase goods produced in the mother country. England did not approve of her textile manufacturers emigrating to America to establish the industry here, but young men, like Samuel Slater, who had apprenticed in the textile mills, did come, bringing their knowledge and know-how with them.

The establishment of the textile industry in America began in Rhode Island, where Samuel Slater, with the financial backing of the Browns and Almys of Providence, converted a fulling mill to cotton production in 1789. This early success was followed by other textile factories in Rhode Island, Massachusetts and New Hampshire. The siting of these factories was determined by the water supply rather than by the resident population. This meant that the work force required to operate the mill had to be drawn from outside the immediate community. Housing became a critical issue for the factory owners, who found a solution to the problem in the creation of the factory town. These towns were based on English examples, which is not surprising considering that most of the early mills were established by Englishmen. The details of the arrangement of the factories and the housing provided by the company varied, depending, for example, on the water source and topography, but in each case the factory owners, who often controlled all the industrial processes and businesses in the town, also owned the houses in which the factory workers lived.

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58. James H. Smith, *op. cit.* p. 494.

59. Letter from Thomas Jefferson to John Jay, August 23, 1785. Quoted in William H. Pierson, Jr. *American Buildings and Their Architects: Technology and the Picturesque. The Corporate and the Early Gotllic Styles.* Doubleday & Company: Garden City, NY. 1978. p. 30.

60./oc. cit.

Wappingers Falls is an example of a factory town. Here we see individually owned mills converted from one use to another and then gradually gathered under the single ownership of the Duchess Company. Once the Duchess Company had acquired the various mills needed to produce cotton, bleach it, dye it, and dcy it, the owners of the company. began building housing for their workers, their managers, and their superintendent. Duchess Company referred to the textile manufacture facilities, but there were other companies which operated the rental properties and the comple.X water works which powered the plants. Alongside the mills and the houses grew the businesses and services required by the community -but, based on tlie historical development of Wappingers Falls, it seems clear that these developments were driven by the mills.

In Wappingers Falls, one of the earliest textile mills in the state was being built by 1819. In that year John Gnans and Benjamin DeLavergne purchased one of the Meiser flouring mills along with land located on both sides of the stream. After the purchase, the tvvo men divided the property, with Gnans taking the land on the north side of the stream where he built a cotton factory. Made of stone, this building escaped the fires which periodically swept industrial areas, continuing in existence until 1840 when a freshet swept it away. This site was then purchased by Thomas Garner, a principal in the Duchess Company. It became the site of the Duchess Company dye-house.

Benjamin DeLavergl1e retained the land on the south (or east) side of Wappingers Creek, which included the flouring mill.[61] At first he rented the mill to Joshua Halleck, but by 1824 the mill was operated by DeLavergne's grandson, who purchased the mill from his grand-father in 1829. In that same year, James Ingham, an Englishman from Manchester, rented the mill, converting it into a textile printworks. It is said that this was the first printworks in the country. Ingham bought the building from DeLavergne in 1835. Later that year he and his partner sold the printworks to Thomas Garner, representing the Duchess Company.

The second mill belonging to the Meiser family was the one located on the site of the Adolphus Brewer flouring mill. As noted above, this mill had been replaced by Peter Meiser after his purchase of the property in 1776. Sometime after 1827, the Meiser mill was purchased by Benjamin Clapp, who had come to Wappingers Falls from Norton, Massachusetts. It is not clear whether he replaced the flour mill or merely enlarged it, creating a three story structure. The first floor housed a factory which produced mahogany veneering. The second floor was the location of the Cook & Low comb factory. The drying rooms of the printworks occupied the third floor. This building, which burned in 1832, was rebuilt by Clapp the following year. Shortly after the rebuilding, Clapp constructed a second building immediately to the south. Both these buildings, which were built parallel to the stream, were part of the Franklindale Cotton Mill. In 1844, the Franklindale Cotton Mill was purchased by the Duchess Company and the north and south sections joined by a central addition. This water-powered mill contained 10,000 spindles capable of producing 250,000 yards of cloth per week.

Thus by 1844 Thomas Garner had acquired a mill to spin cotton and buildings in which that cotton cloth could be bleached, printed, and dried. By 1850 these factories and their associated buildings had became officially consolidated into the Duchess Company, which gradually abandoned the old mill sites in the gorge,[62] replacing them with a series of long, low brick buildings at the base of the falls. These new buildings were all destroyed in a great fire in the 1870s. The Duchess Company rebuilt on the same site, introducing new technology, including the penstock, which brought the water from Wappingers Lake to the factory buildings. It was at this time that the Duchess Company stop producing cloth, specializing instead in the bleaching and dyeing of cloth which had been made elsewhere. The printworks closed in 1909,

61. This was not the flour mill which the Meiser's built on the site of Brewer's mill.

62. The foundations of some of these buildings may still be discerned in the Wappingers Creek gorge.

but the bleachery, now located in a large brick factory building on the north side of Wappingers Creek, continued to operate until1955 when it too closed its doors.

The Clinton Company, which was a separate component of the Duchess Company, had two important functions: first to operate the complex water-words which powered the machinery in the factories, and second, to supervise the rental housing provided by the company to the families of its employees. By providing housing for the families of its employees, the Duchess Company was emulating the British system of hiring entire families rather than single men and women as was done in mill towns like Lowell in Massachusetts. Most of the houses that remains consist of two family tenement buildings, although a number of houses designed for larger numbers and several houses intended for members of the management of the Duchess Company also remain. These houses, even those of the factory owners and village businessmen, were not screened from the factories, but rather overlooked them. The businessmen of Wappingers Falls did not misunderstand the relationship between their ability to afford the substantial houses which lined the east side of the gorge and the work which went on in the long, low brick buildings below.

The Wappingers Falls Multiple Resource Area

In this portion of the report the material gathered for the National Register Nomination of the Wappingers Falls Multiple Resource Area will be summarized. .As noted above, Wappingers Falls is an example of a factory town, being dependent for its well-being on the 19th century Duchess Company and its later manifestations, the Duchess Printworks and the Duchess Bleachery. As such the village reflects the interests and concerns of the Duchess Company, and its existence in the 1980's as an example of a historic factory village is directly related to the demise of that company in the 1955. If Duchess Bleachery had closed its door earlier or had sold its buildings to another corporation, it is likely that Wappingers Fails would have undergone substantial changes, including, perhaps, substantial urban renewal; however, the economic decline which followed the closing of the Duchess Bleachery ensured that the oldest portions of Wappingers Falls remained relatively unchanged and unscathed by new highways, new shopping centers, and new housing.[63]

Like a number of mill towns in New England, such as Harrisville, New Hampshire, the layout of Wappingers Falls was determined by the topography. The Village of Wappingers Falls is divided by Wappingers Creek, which also is the dividing line between the Town of Wappinger and the Town of Poughkeepsie. The two portions of the village are joined by a bridge across the stream. The Albany Post Road (NYS Route 9D) crosses this bridge before turning sharply north toward Poughkeepsie. The Albany Post Road is crossed by Market Street which follows the Wappingers Creek to the Hudson River at New Hamburg.

According to the National Register Nomination Form,

> *The szting, type, and character of [the] architecture zn the village reflects the economic and social forces which contributed to the historical development of the community. While the creek determined the placement of industrial structures, the graduated topography also provided for echelons of status within the community. With the factory located at the base of the falls, the ornate and stylish residences of the mill owners and businessmen situated on the high ground, and the commercial district and workers' housing sandwiched in between on the hillside east of the creek,*

63. It is reported that the National Biscuit Company, General Electric, and the Ford Motor Company expressed an interest in purchasing the facility, but were rebuffed by the management of the Duchess Bleachery.

the village reflects the economic and social stratification typical of a 19th century industrial village.[64]

The Visual Environment Committee of the Wappingers Falls Chamber of Commerce, working with an architectural historian and others, determined that 135 structures in the Village of Wappingers Falls met the criteria for inclusion in the Wappingers Falls Historic District. [Map 10] Most of these buildings were workers' housing. In addition, it was determined that three properties were worthy of individual inclusion. These were: the Mulhern House (14-16 Market Street) which is described as "a rare intact surviving example of a double workers' residence from Wappingers Falls' early industrial period during the first quarter of the nineteenth century," the Duchess Company Superintendent's Residence (120 Market Street) build in about 1846 and described as "a distinctive example of industrial worker housing in the Picturesque taste" whose "scale, design and location [are] S'flllbolic of t.e role and position of the superintendent in the village industrial society," and the ain Commercial Building (59-61 West Main Street) nominated as "a distinctive example of a Second Empire style freestanding commercial building in the village context."[65]

The only remnant of 18th century Wappingers Falls is the Meiser Homestead. The earliest portion of this building was built by Adolphus Brewer, who, as noted above, built the first mill at the falls in approximately 1738. The house was expanded and embellished by the Meiser family. In its current guise, it is an example of a Hudson River Victorian cottage with gingerbread filigree. The house was sold to the village by the Meiser family in 1892. This building, which stands in Meiser Park, now houses the Town Clerk's Office and the Police Department.

'To the east of Meiser Park is a residential district dating from the 19th century. Here houses of various styles are shaded by tree lined streets, while closer to the stream the business district is separated from the residential area by the library, churches and a fraternal lodge. Today the business district encompasses both sides of the Wappingers Creek, but until the incorporation of the Village of Wappingers Falls in 1871, the north side of the stream, as mentioned above, was a separate village.

Even today it does not take a great deal of imagination to see what the village would have looked like in its heyday. Paintings, lithographs and photographs greatly aid in this effort. There is an 1885 birds-eye view of Wappingers Falls and the Duchess Bleachery which clearly shows the industrial buildings and smokestacks on either side of Wappingers Creek with the neat tenement houses marching up the hill on the east side of the gorge. It also indicates the close relationship between the factory complex and the :residential areas. There have been changes - but many of the industrial buildings remain, including an office building, the power house, pump house, and bridge. The system by which water was delivered to the factory complex is also visible, including the 9-foot diameter penstock. [Map 11]

Based on an examination of other factory towns in the Northeast, one is struck by the integrity of the older sections of Wappingers Falls. Much of the area covered by the Wappingers Fall Multiple Resource Area is visible from the eastern (or southern) edge of the *Buckingham* site. The impact of the proposed development is discussed below.

64. *Wappingers Falls Multiple Resource Area Nomination Form for the National Register of Historic Places.* National Park Service. United States Department of the Interior. 1979. Page 3.

65. *loc cit.*

E. Conclusions and Recommendations

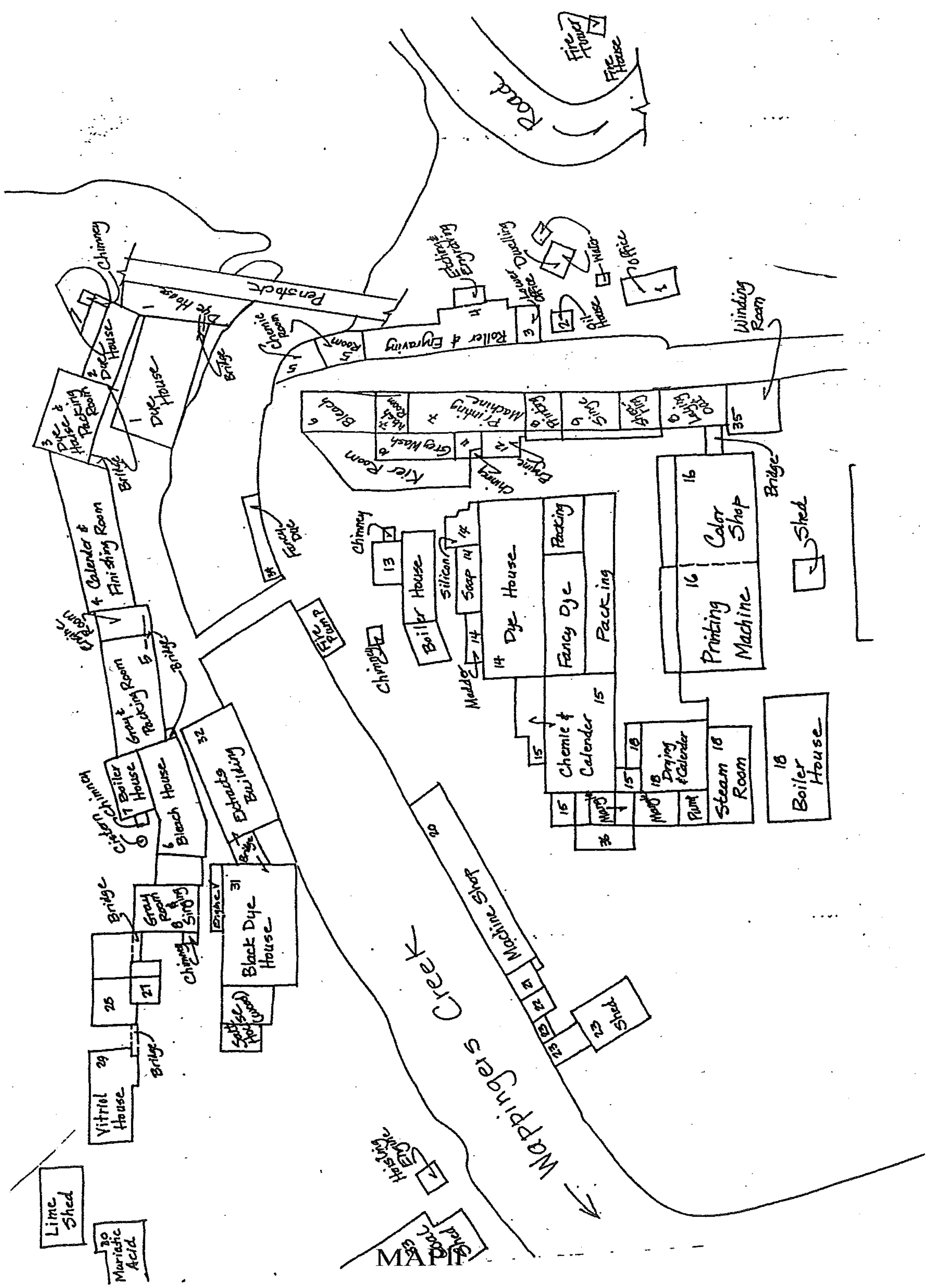
A cultural resources survey has been completed for the *Buckingham* site. The purpose of the survey, as noted in the Introduction was to identify any known or potential cultural resources within the boundaries of the property. Cultural resources are defined as prehistoric archaeological remains and historic, architectural and archaeological features. The survey included documentary research, interviews with knowledgeable persons, and a walkover of the site.

Documentary research revealed the close proximity of a number of prehistoric archaeological sites within a two to three mile radius of the subject property, including two sites mentioned in Parker. The majority of these sites are reported to be on the banks of the Hudson River, but one site is said to be within the boundaries of the Village of Wappingers Falls. It must also be said that with the evidence of num rous finds in the general vicinity, the possibility of - such finds on the subject property ould be considered. To determine the potential for prehistoric archaeological artifacts, a series of shovel tests was performed. The results of this investigation are included in Section IV.D.2. and Appendix J.

With respect to the buildings formerly located on the property, nothing is known of them. The 1891 Atlas indicates that the main house on the. J. Thompson property was situated at the southern end of the site just south of Channingville Road. No structures are indicated in the maps and atlases on the northern portion of the site, although a stone foundation was noted in the field survey. Nothing is known of its history.

In brief, our research has discovered a potential for prehistoric archaeological artifacts on the property. The shovel tests performed as part of this report revealed that much of the site has been substantially disturbed. This reduces the potential for the recovery of prehistoric archaeological artifacts. It is, however, the opinion of EnviroPLan Associates, Inc. that the potential does not preclude the development of the *Buckingham* site. It is the opinion of CITY/SCAPE that none of the historical archaeology (the foundations) on the site precludes development.

With respect to the impact on the Wappingers Falls Multiple Resource Area, the potential for visual impacts on the historic district exists, particularly during the winter season. According to current plans, the proposed development would not be visible from the Duchess Bleachery complex to the east. A drawing indicating the lines of sight from the Duchess Bleachery has been prepared. It is possible that the site would be visible from certain areas of the village during certain times of the year. To avoid this impact it is suggested that the project sponsor plant the eastern edge of the *Buckingham* site with evergreens. These trees would serve as a screen for the surrounding community.


Road
Fire Tower
Fire House
Penstock
Chimney
1 Dye House
2 Dye House
1 Dye House
3 Dye House & Packing Room
Bridge
4 Calender & Finishing Room
Engine Room
5 Gray & Packing Room
7 Boiler House
Cistern
Chimney
6 Bleach House
Gray Room & Singing 8
Chimney
21
25
Bridge
Vitriol House 29
Lime Shed
30 Muriatic Acid
32 Extracts Building
31 Black Dye House
Saddle House (wood)
Hoisting Engine
33 Coal Shed
Wappingers Creek
20 Machine Shop
21
22
23 Shed
Fire Pump
Fancy Dye
Chemic Room
5 Room
Roller & Engraving
Electrical Engraving
Lower Office Dwelling
Oil House
Water
Office
Winding Room
6 Bleach
Wash Room
7 Printing Machine
8 Finishing
9 Singe
Gray Room
10 Winding
35
Gray Wash
Kier Room
Chimney
Engine
Bridge
Chimney
13 Boiler House
Silicon
Soap 14
Madder
Chimney
14 Dye House
Packing
Fancy Dye
Packing
15 Chemic & Calender
15
18 Drying & Calender
Steam 18 Room
18 Boiler House
Paint
36
16 Color Shop
16 Printing Machine
Shed

MAP II

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FIGURES AND MAPS INCLUDED IN rockledge REPORT

MAPS:

1: Rockledge site map.

2: Beer's Atlas of the Hudson Valley - 1891.

3: Map of Dutchess County with 17th and 18th century patents.

4: The territories of the Hudson River Indians and their neighbors c. 1600 A.D.

5: Map of the Rombout Patent and its Subdivisions.

6: Holwell's Map of the Rombout Patent - 1689.

7: Beer's Atlas of Dutchess County - 1867.

8: Gray's Atlas of Dutchess County. New York - 1876.

9: J. H. H. Muirhead's Road Map of Dutchess County, NY - 1929.

10: Dolph & Stewart's Atlas of Dutchess County - 1935.

11: Map of the Wappingers Falls Multiple Resource Area.

FIGURES AND MAPS INCLUDED BUCKINGHAM REPORT

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9: J. H. H. Muirhead's Road Map of Dutchess County, NY- 1929.

10: Dolph & Stewart's Atlas of Dutchess County- 1935.

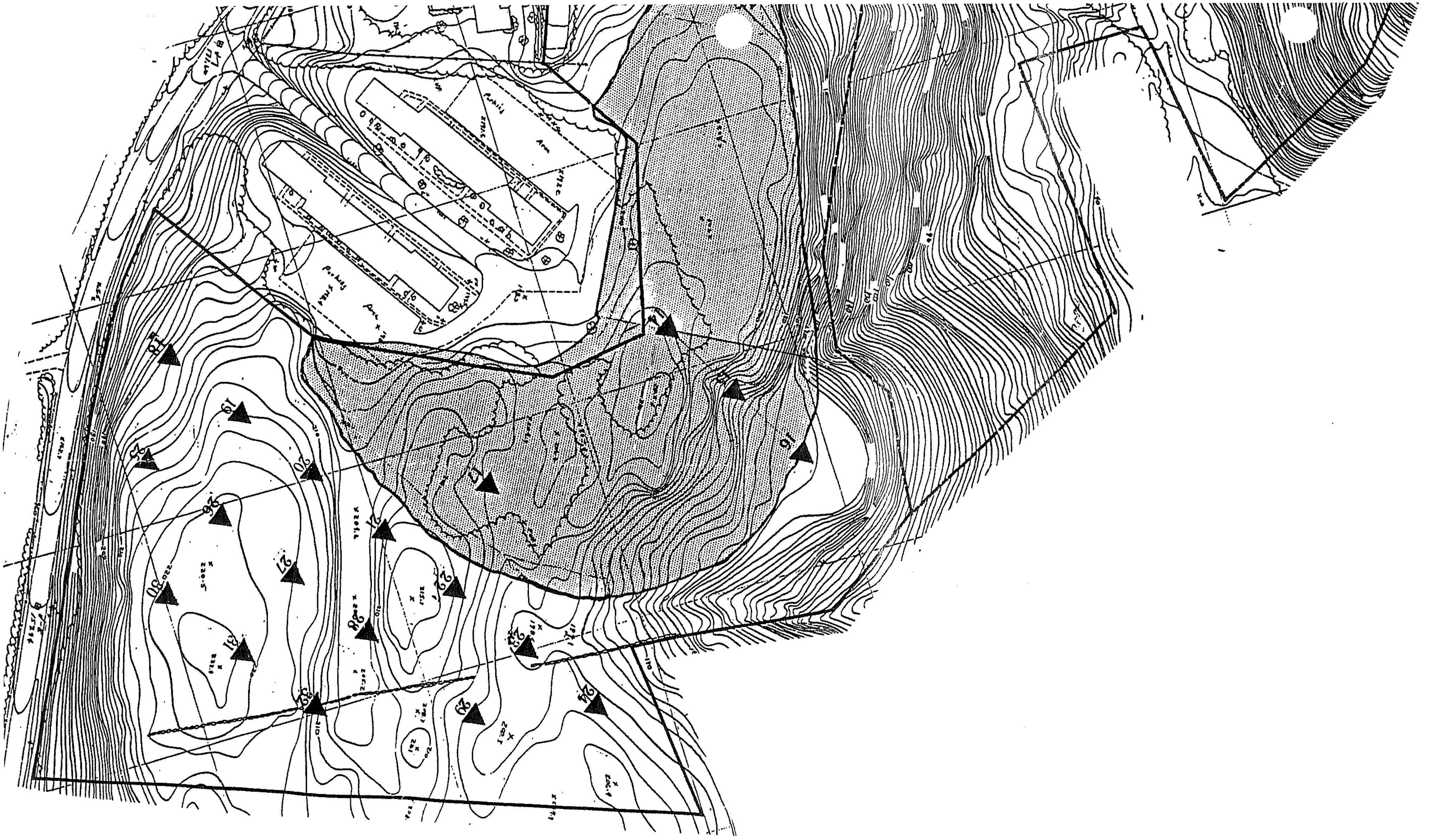
11: Map of the Wappingers Falls Multiple Resource Area.

12: Sanborn's Map of the Duchess Bleachery- 18--.

FIGURES:

1: Location of archaeological sites in the Hudson Valley (Funk 1976). Those mentioned in text are highlighted.

2: Cultural sequence in the Hudson Valley (Funk 1976)..



Rockledge Park Village of Wappingers Falls, Dutchess County EnviroPlan Associates, Inc. One Overocker Road Poughkeepsie, NY 12603	1" = 150'	Figure IV.10 Archaeological Study Area	LEGEND ▲ TEST PIT A FOUNDATION B FOUNDATION ◡ HOUSEHOLD DUMP ▒ FILL AREA

3
6
7
8
2
5
10
1
4
11
12

Archaeological Study : Shovel Test Results

Appendix J
Archaeological Study: Shovel Test Results

Rockledge II

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 2 N400 E750

Date: 10/31/88

Initials:

Eastern edge of property

Location of Test

wood area, East of existing structure

Description of Test Location (Vegetation/Topogrphy etc)

Stratum #	Depth	Soil Type	Cultural Materials
1	0-2"	Black organic sandy silt	ring on end of screw 
2	2-8"	Brown sandy silt with traces of clay	nail
3	8-27	yellowish Brown sandy silt did not hit bedrock	none

Materials Discarded in Field

Comments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

Rockledge II

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 1 N500 E700 — Date: 10/31/88

Eastern edge of property — Initials: EE

Location of Test

wooded area, light brush

Description of Test Location (Vegetation/Topogrphy etc)

Stratum #	Depth	Soil Type	Cultural Materials
1	0-3	Dark Black organic sandy silt	1 small piece of ceramic
2	3-8	Brown sandy silt	none
3	8-14	yellow brown fine sandy silt, with gravel	none

Materials Discarded in Field

hit bedrock at 14"

Comments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

Rockledge II

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 2 N400 E750

Date: 10/31/88

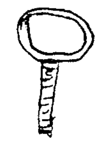
Initials:

Eastern edge of property

Location of Test

wood area, East of existing structures

Description of Test Location (Vegetation/Topogrphy etc)

Stratum #	Depth	Soil Type	Cultural Materials
1	0-2"	Black organic sandy silt	ring on end of screw 
2	2-8"	Brown sandy silt with traces of clay	nail
3	8-27	yellowish Brown sandy silt did not hit bedrock	none

Materials Discarded in Field

Comments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

Rockledge II

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 3 N350 E780

Date: 10/31/88

Initials: EE

eastern edge of property

Location of Test

wooded area covered with layer of leaves

Description of Test Location (Vegetation/Topogrphy etc)

Stratum #	Depth	Soil Type	Cultural Materials
1	0-3	Black organic sandy silt	none
2	3-7	Dark Brown sandy silt	none
3	7-30	yellow/Brown sandy silt with clay	none

Materials Discarded in Field

ments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

Hit Bedrock at 30

Rockledge II

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 4 N400 E750

Date: 10/31/88

Initials: EE

Eastern side of property

Location of Test

wooded area, covered with leaves

Description of Test Location (Vegetation/Topogrphy etc)

Stratum #	Depth	Soil Type	Cultural Materials
1	0-3	Dark Black Organic sandy silt	none
2	3-7	Brown sandy silt	2 pieces ceramic
3	7-34	yellow brown sandy silt	none

Materials Discarded in Field

Comments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

hit Bedrock at 34"

Rockledge II

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 5 N350 E700

Date: 11/2/88

Initials: EE

Wooded area to East of existing apartments

Location of Test

Description of Test Location (Vegetation/Topogrphy etc)

Stratum #	Depth	Soil Type	Cultural Materials
1	0-3	Black organic sandy silt	nail
2	3-10	Brown sandy silt	none
3	10-30"	yellowish Brown Sandy silt with trace clay	none

Materials Discarded in Field

Comments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

Did not hit bedrock

Rockledge II

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 6 N300 E720

Date: 11/2/88

Eastern edge of property

Initials: EE

Location of Test

100' from #5

Description of Test Location (Vegetation/Topogrphy etc)

Wooded area, covered by leaves

Stratum #	Depth	Soil Type	Cultural Materials
1	0-3	Black organic sandy silt	none
2	3-8	Dark Brown sandy silt	none
3	8-25	yellow sandy silt	none

hit Bedrock at 25"

Materials Discarded in Field

Comments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

Rockledge II

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 7 N275 E650

Date: 11/2/87

Initials: EC

East of power line right of way

Location of Test

heavily wooded and overgrown with brush

Description of Test Location (Vegetation/Topogrphy etc)

Stratum #	Depth	Soil Type	Cultural Materials
1	0-3	Black organic sandy silt	none
2	3-10	Brown sandy silt with traces of clay	none
3	10-24	yellowish Brown sandy silt with clay	none

Materials Discarded in Field

hit Bedrock at 24"

Comments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

Rockledge II

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 8

Date: 11/2/88

N250 E600

Initials: EG

in power line right of way - heavily covered w/ brush

Location of Test

Description of Test Location (Vegetation/Topogrphy etc)

Stratum #	Depth	Soil Type	Cultural Materials
1	0-2	Black organic sandy silt	none
2	3-10	Brown sandy silt	none
3	10-27	yellowish sandy clay	none

hit Bedrock at 27"

Materials Discarded in Field

Comments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

Rock Ledge II

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 9 (A)

N200 E575

Date: 11/2/88

Initials: EE

Location of Test

in foundation of old house

Description of Test Location (Vegetation/Topogrphy etc)

near southern end of property

Stratum #	Depth	Soil Type	Cultural Materials
1	0-18"	decayed leaves, soil, rotted dry wall, bricks beer cans, glass shot gun shells	

at 18" hit what was once a Brick floor in the foundation,
there are large stone walls built into the hill side. No other remains of structure.

Materials Discarded in Field

Comments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

Rockledge II

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 10

Date: 11/2/88

N250 E500

Initials: EE

Location of Test
To the North of foundation B

Description of Test Location (Vegetation/Topogrphy etc)

Stratum #	Depth	Soil Type	Cultural Materials
1	0-13	Dark Brown organic looking sandy silt -	

hit Bedrock at 13".
Shovel test was in an area where looked like construction and demolition (C+D) had been dumped over the rock ledge above.

Materials Discarded in Field

Comments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

Rockledge II

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 11 N400 E550

Date: 11/2/88

Household dump

Initials: EC

Location of Test

near a retaining wall - possibly where driveway had once

Description of Test Location (Vegetation/Topogrphy etc)

[illegible]

Stratum #	Depth	Soil Type	Cultural Materials
1	0-18"	decayed leaves and organic matter. Area was a household garbage dump, probably dating to the 1960.	garden tools; glass; ceramic; aluminum cans; jar; wash pots; flower pots; medicine jars; wood; Brick

---

Materials Discarded in Field

---

ments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

Rockledge II

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: R1 N400E550 Date: 11/2/88

Top of ridge located in N.E. area of Initials: E E

Location of Test

to property, 15' to E of shovel test L

Description of Test Location (Vegetation/Topogrphy etc)

Stratum #	Depth	Soil Type	Cultural Materials
1	0-3	Dark Black organic sandy silt	none
2	3-22	Brown sandy silt	none

Bedrock at 22"

Materials Discarded in Field

Comments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

Rock Ledge II

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: L2

Date: 11/2/88

N400 E550

Initials: EE

Location of Test

to the South 5' from test # L, on [illegible]

Description of Test Location (Vegetation/Topogrphy etc)

Stratum #	Depth	Soil Type	Cultural Materials
1	0-2	organic, Black Sandy silt	none
2	2-18	Brown Sandy Silt	none

Bedrock at 18"

Materials Discarded in Field

---

ments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

Rockledge II

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 2

Date: 11/2/88

N400 E550

Initials: EE

Location of Test

Center of ridge in NE area of property

Description of Test Location (Vegetation/Topography etc)

Stratum #	Depth	Soil Type	Cultural Materials
1	0-3	Black organic sandy silt	none
2	3-22	Brown sandy silt	possible hammer stone

Bedrock at 22"

After hammerstone was excavated 2 more shovel test were put in, locating no further artifacts.

Materials Discarded in Field

Comments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

Rockledge II

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 12

Date: 11/2/88

N250 E375

Initials: EE

Location of Test

Description of Test Location (Vegetation/Topogrphy etc)

Stratum #	Depth	Soil Type	Cultural Materials
1	0-1	Dark Brown organic	none
2	1 - 6	Brown/tan sandy silt with trace clay - rock fragments of bedrock, ashes, loose moist	

at 6" hit concrete block - area shows strong evidence of fill.

Materials Discarded in Field

ments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

Pub... [illegible]

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 13

Date: 1/2/88

N150 E 300

Initials: E C

Location of Test

Area E of existing apartment

Description of Test Location (Vegetation/Topogrphy etc)

Stratum #	Depth	Soil Type	Cultural Materials
1	0-1	Black peat	
2	1-24	Brown fine silt mottled with clay, ashes, man made fill	

Bedrock at 24"

Materials Discarded in Field

Comments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 14 Date: 11/2/85

00' South of existing apartments Initials: EE

Location of Test

0 North - Datum

Description of Test Location (Vegetation/Topogrphy etc)

Stratum #	Depth	Soil Type	Cultural Materials
1	0-1	Black organic	
2	1-30"	rock fragments cinder blocks, ashes, clay (manmade fill area)	

Materials Discarded in Field

Comments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

Routledge II

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 15 0 South

Date: 11/7/88

Initials: EC

100' South of S.T. #14

Location of Test

man-made fill area

Description of Test Location (Vegetation/Topogrphy etc)

Stratum #	Depth	Soil Type	Cultural Materials
1	0-1	Black organic	
2 -	0-32	Brown fine sandy silt rock fragments pebbles, cinder blocks	

man made fill

Materials Discarded in Field

Comments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

Rockeledge

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

st #: 16 | Date: 11/2/88
manmade fill area | Initials: EC

cation of Test
S100

scription of Test Location (Vegetation/Topogrphy etc)

ratum #	Depth	Soil Type	Cultural Materials
1	0-1	Organic Black sandy silt	
2	1-3'	Brown sandy silt mottled with Clay, bedrock fragments cinder blocks, concrete bricks, metal pipes manmade fill	

aterials Discarded in Field

ments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

Rock ledge II

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 17
N50 W300

Date: 10/2/88

Initials: EE

---

ocation of Test

---

escription of Test Location (Vegetation/Topogrphy etc)

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tratum #	Depth	Soil Type	Cultural Materials
1	0-1	Black organic sandy silt	
2	1"-3'	Brown fine sandy soil mottled with yellow clay, swing set poles, C&D, lawn chairs, bricks	

man-made fill area

---

laterials Discarded in Field

Comments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

Rockledge II

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

ɔst #: 18

N100 W400

Date: 11/2/88

Initials: EE

ɔcation of Test

top of ridge near road rocky outcroppings

ɛscription of Test Location (Vegetation/Topogrphy etc)

ɛratum #	Depth	Soil Type	Cultural Materials
1	0-3	Black organic	none
2	3-18	Brown/tan sandy silt	none
3	18-32	yellow/tan sandy silt	none

Bedrock at 32"

---

aterials Discarded in Field

---

ments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 19

Date: 11/4/89

N300 400

Initials: EE

---

ocation of Test

wooded area

---

escription of Test Location (Vegetation/Topogrphy etc)

---

tratum #	Depth	Soil Type	Cultural Materials
1	0-3	Organic sandy silt	none
2-	3-15	Brown sandy silt	none
3-	15-29	yellowish Brown sandy silt mixed with Clay	none

Bedrock at 29"

---

aterials Discarded in Field

---

omments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

st #: 20
N200 W400

Date: 11/4/89

Initials: EE

---

ocation of Test
Wooded area

---

escription of Test Location (Vegetation/Topogrphy etc)

---

ratum #	Depth	Soil Type	Cultural Materials
1	0-3	Organic Black Sandy silt	none
2	3-6 1/2	Brown sandy silt	none

Bedrock 6 1/2"

---

aterials Discarded in Field

---

ments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 21 N100 W400

Date: 11/4/89

Initials: EE

---

ocation of Test
Wooded area

---

escription of Test Location (Vegetation/Topogrphy etc)

---

tratum #	Depth	Soil Type	Cultural Materials
1	0-3	Black organic Sandy silt	none
2 -	3-34	Mottled Brown/tan Sandy silt	none

---

laterials Discarded in Field

---

omments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 22

Date: 11/4/89

Initials: EE

NO W 400

Location of Test

Description of Test Location (Vegetation/Topogrphy etc)

Stratum #	Depth	Soil Type	Cultural Materials
1	0-1	Organic Black sandy silt	none
2	1-15	Dark Brown sandy silt	none

Bedrock at 15"

Materials Discarded in Field

Comments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 23

Date: 11/4/89

Initials: EE

S100 W400

---

ocation of Test

---

escription of Test Location (Vegetation/Topogrphy etc)

:ratum #	Depth	Soil Type	Cultural Materials
1	0-1	Black organic sandy silt	none
2	1-20	Brown sandy silt mixed with clay	none

Bedrock at 20"

---

aterials Discarded in Field

---

omments: (Note If Auger Used, X Sample, Etc. - Continue on Back)

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

est #: 24

Date: 11/4/89

Initials: EE

5200 W400

---

ocation of Test

---

escription of Test Location (Vegetation/Topogrphy etc)

---

tratum #	Depth	Soil Type	Cultural Materials
1	0-2	Black organic sandy silt	none
2	2-18	Brown sandy silt	none
3-	18-36	Brown/yellow mottled sandy silt	none

No Bedrock

---

laterials Discarded in Field

---

ments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 25 N350 W500

Date: 11/6/89

Initials: EE

---

ocation of Test

---

escription of Test Location (Vegetation/Topogrphy etc)

---

tratum #	Depth	Soil Type	Cultural Materials
1	0-2	Black Organic Sandy Silt	none
2	2-18	Brown sandy silt	none
3	18-25	Brown/tan sandy silt mixed w/ clay	none

Bedrock at 25"

---

aterials Discarded in Field

---

omments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

...st #: 26   Date: 11/6/89

N250 W500   Initials: EC

...ocation of Test

Wood area

...escription of Test Location (Vegetation/Topogrphy etc)

...ratum #	Depth	Soil Type	Cultural Materials
1	0-2	Black peat	none
2	2-16	Brown sandy silt	none

Bedrock at 16"

...aterials Discarded in Field

...mments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 27

Date: 11/6/89

Initials: EE

N150 W500

---

ocation of Test

---

escription of Test Location (Vegetation/Topogrphy etc)

---

ratum #	Depth	Soil Type	Cultural Materials
1	0-2	Black organic peat	none
2	2-18	Brown sandy silt	none
3	18-25	yellow/Brown mottled sandy silt	none

Bedrock at 25"

---

aterials Discarded in Field

---

omments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

est #: 28
N 50 W500

Date: 11/6/89

Initials: EE

ocation of Test

escription of Test Location (Vegetation/Topogrphy etc)

tratum #	Depth	Soil Type	Cultural Materials
1	0-1	Black peat	
2	1-18	Brown sandy silt	
3	18-36	Brown/tan sandy silt mixed with clay	

Bedrock at 36"

laterials Discarded in Field

ments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 29 S0 W500

Date: 11/6/89

Initials: EE

---

ocation of Test

---

escription of Test Location (Vegetation/Topogrphy etc)

---

ratum #	Depth	Soil Type	Cultural Materials
1	0-2	Black peat	none
2	2-18	Brown sandy silt	none
3	18-25	Brown/tan sandy silt	none

No Bedrock at 25"

---

aterials Discarded in Field

---

omments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

·st #: 30 Date: 11/6/89

N250 W600 Initials: EE

---

ocation of Test

---

escription of Test Location (Vegetation/Topogrphy etc)

---

tratum #	Depth	Soil Type	Cultural Materials
1	0-2	Black peat	none
2	2-15	Brown/tan sandy silt	none
		Bedrock at 15"	none

---

aterials Discarded in Field

---

ments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 31

Date: 11/6/89

Initials: EE

N150 W600

ocation of Test

escription of Test Location (Vegetation/Topogrphy etc)

tratum #	Depth	Soil Type	Cultural Materials
1	0-3	Black organic sandy silt	none
2	3-20	Brown sandy silt	none

Bedrock at 20"

aterials Discarded in Field

omments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

STAGE I ARCHAEOLOGICAL SURVEY
SHOVEL TEST RECORDING FORM

Test #: 32 N50 W600

Date: 11/6/89

Initials: EE

Location of Test

Description of Test Location (Vegetation/Topogrphy etc)

Stratum #	Depth	Soil Type	Cultural Materials
1	0-2	Black organic sandy silt	none
2	2-20	Brown sandy silt	none
3	20-36	Brown/yellow sandy silt mixed with clay	none

No Bedrock at 36"

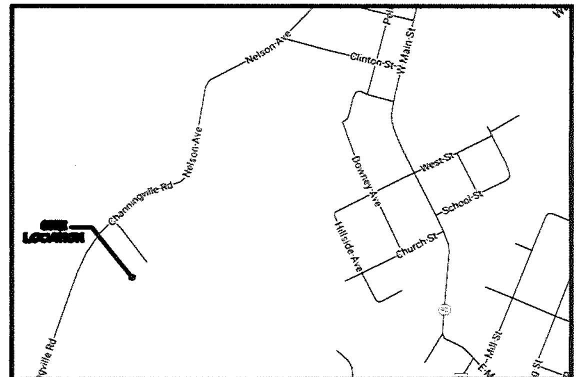
Materials Discarded in Field

Comments: (Note If Auger Used, % Sample, Etc. - Continue on Back)

Informative Plans

BUCKINGHAM PROPERTIES
NELSON AVENUE
VILLAGE OF WAPPINGERS FALLS, NEW YORK 12590

FIRE DISTRICT:	NEW HAMBURG FIRE DISTRICT 15 CHANNINGVILLE RAOD WAPPINGERS FALLS, NEW YORK 12590
SCHOOL DISTRICT:	WAPPINGERS CENTRAL SCHOOL DISTRICT 167 MYERS CORNERS ROAD WAPPINGERS FALLS, NEW YORK 12590
OWNER:	MR. EDWARD COHEN BUCKINGHAM PROPERTIES 657 E MAIN STREET, MT. KISCO, NY TEL: 914-666-7700
SEWER DISTRICT:	VILLAGE OF WAPPINGERS FALLS, SEWER DEPARTMENT 2582 SOUTH AVENUE, WAPPINGERS FALLS, NY 12590
WATER DISTRICT:	VILLAGE OF WAPPINGERS FALLS, WATER DISTRICT 2582 SOUTH AVENUE, WAPPINGERS FALLS, NY 12590



SITE LOCATION MAP
NTS

SITE DATA INFORMATION

TAX IDENTIFICATION NUMBER:	[illegible]
ZONE:	RMU - RESIDENTIAL MIXED USE
USE:	MULTI FAMILY DWELLING
ACREAGE:	[illegible] AC. [illegible] SF.

FRONTAGE & SETBACK REQUIREMENTS:

	REQUIRED	PROVIDED
MINIMUM LOT WIDTH	[illegible] FEET	400 FEET
MAXIMUM LOT COVERAGE	40 PERCENT	[illegible] PERCENT +/-
MAXIMUM HEIGHT PRINCIPAL BLDG.	40 FEET	30 FEET
MAXIMUM HEIGHT ACCESSORY BLDG.	2 STORIES	1 STORY
MINIMUM YARD SETBACK FOR PRINCIPAL BLDG.	[illegible] FEET	[illegible] FEET +/-
FRONT SETBACK SECONDARY	[illegible] FEET	N/A FEET +/-
SIDE SETBACK @ FT MIN.	[illegible] FEET MAX	[illegible] FEET +/-
REAR SETBACK	[illegible] FEET	[illegible] FEET +/-
MINIMUM YARDS FOR ACCESSORY BLDG.		
FRONT SETBACK PRINCIPAL	20 FEET	[illegible] FEET +/-
FRONT SETBACK SECONDARY	5 FEET	N/A FEET +/-
SIDE SETBACK	5 FEET	400 FEET +/-

PARKING REQUIREMENTS:

	REQUIRED	PROVIDED
140 (1) BEDROOM APARTMENTS	140 SPACES	140 SPACES
60 (2) BEDROOM APARTMENTS	[illegible] SPACES	[illegible] SPACES
(1) CLUBHOUSE	N/A	[illegible] SPACES
TOTAL PROVIDED=		[illegible] SPACES
HANDICAP PARKING	[illegible] SPACES	[illegible] SPACES

*TOTAL PROVIDED PARKING SPACES INCLUDES [illegible] HANDICAP SPACES

SYMBOL KEY

340	EXISTING CONTOUR	DI	EXISTING STORM DRAIN MANHOLE
34	PROPOSED CONTOUR	DI	PROPOSED STORM DRAIN MANHOLE
x [illegible]	EXISTING SPOT ELEVATION	MH	EXISTING SANITARY MANHOLE
x [illegible]	PROPOSED SPOT ELEVATION	MH	PROPOSED SANITARY MANHOLE
FFE	FINISHED FLOOR ELEVATION		PROPOSED HYDRANT AND VALVE
TW/BW	TOP OF WALL/BOTTOM OF WALL	CIP	CAST IRON PIPE
TC/BC	TOP OF CURB/BOTTOM OF CURB	RCP	REINFORCED CONCRETE PIPE
TS/BS	TOP OF STAIR/BOTTOM OF STAIR	CMP	CORRUGATED METAL PIPE
BF	BOTTOM OF FOOTING	VCP	VITRIFIED CLAY PIPE
HP/LP	HIGH POINT/LOW POINT	PVC	POLYVINYL CHLORIDE (PLASTIC) PIPE
HPS	HIGH POINT OF SWALE	STA. 0 + 00	STATION POINT
TF OR RE	TOP OF FRAME OR RIM ELEVATION		PROPERTY LINE
INV. EL.	INVERT ELEVATION	CLL	CONTRACT LIMIT LINE
CB	EXISTING CATCH BASIN		CENTER LINE
CB	PROPOSED CATCH BASIN		CENTER LINE OF SWALE
ST	PROPOSED STORM PIPE	W	PROPOSED WATER MAIN
		SAN	PROPOSED SANITARY SEWER LINE
		FM	PROPOSED SANITARY FORCE MAIN

16 NYCRR PART 753

Dig Safely. New York
www.digsafelynewyork.com
1-800-962-7962

The undersigned owners of the property hereon state that they are familiar with the enclosed plans, its contents, and its legends and hereby consent to all said terms and conditions as stated.

SCHEDULE OF DRAWINGS

SHEET NO.	DRAWING NO.	TITLE
1	CS-1	COVER SHEET
2	BS-1	BOUNDARY + TOPOGRAPHIC SURVEY
3	DP-1	DEMOLITION PLAN
4	SL-1	SITE LAYOUT AND MATERIALS PLAN
5	SG-1	SITE GRADING PLAN
6	SU-1	SITE UTILITY PLAN
7	EC-1	EROSION CONTROL PLAN
8	EC-2	EROSION CONTROL PLAN NOTES
9	SD-1	SITE DETAILS
10	SD-2	SITE DETAILS
11	SD-3	SITE DETAILS
12	RE-1	RETAINING WALL ELEVATIONS
13	EE-1	ELEVATION & FLOOR PLAN

REVISIONS

NO.	DATE	BY	CHKD	DESCRIPTION

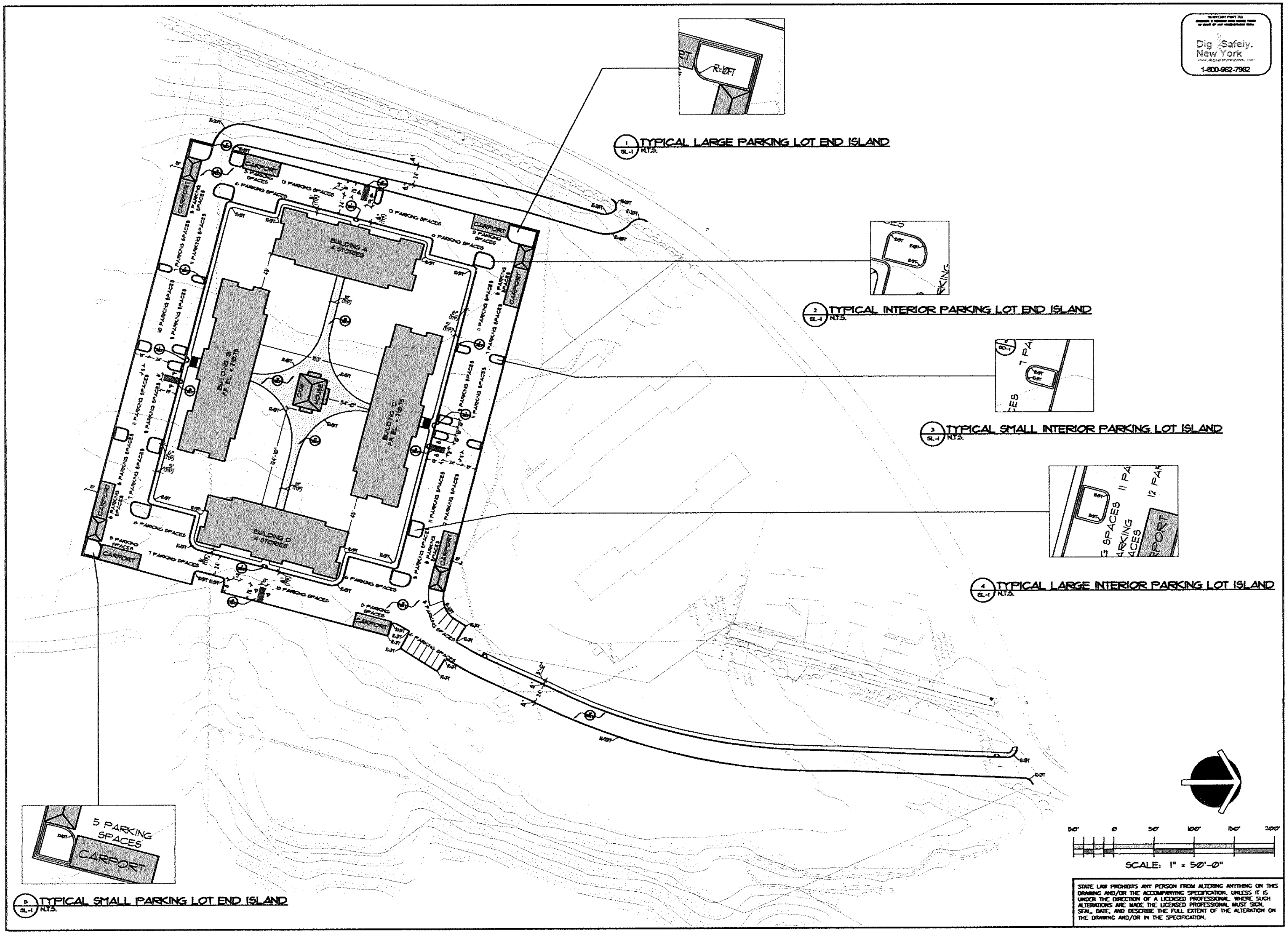
CHARLES P. MAY & ASSOCIATES, P.C.
DESIGN PROFESSIONALS

BUCKINGHAM PROPERTIES
NELSON AVENUE
VILLAGE OF WAPPINGERS FALLS
DUTCHESS COUNTY, NEW YORK
TAX MAP ID. NO. [illegible]

COVER SHEET

CS-1

SHEET 1 OF 13



STATE LAW PROHIBITS ANY PERSON FROM ALTERING ANYTHING ON THIS DRAWING AND/OR THE ACCOMPANYING SPECIFICATION, UNLESS IT IS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL. WHERE SUCH ALTERATIONS ARE MADE THE LICENSED PROFESSIONAL MUST SIGN, SEAL, DATE, AND DESCRIBE THE FULL EXTENT OF THE ALTERATION ON THE DRAWING AND/OR IN THE SPECIFICATION.

REVISIONS				
NO.	DATE	BY	CHK'D	DESCRIPTION

CHARLES P. MAY & ASSOCIATES, P.C.
DESIGN PROFESSIONALS

BUCKINGHAM PROPERTY MANAGMENT
CHANNINGVILLE RD & NELSON AVE
VILLAGE OF WAPPINGERS FALLS
DUTCHESS COUNTY, NEW YORK
TAX MAP ID. NO. 134601-6158-13-071325

DATE	DRAWN	CHECKED
6/4/18	MJK	CPM

SCALE: AS NOTED

SHEET TITLE: SITE LAYOUT AND MATERIALS PLAN

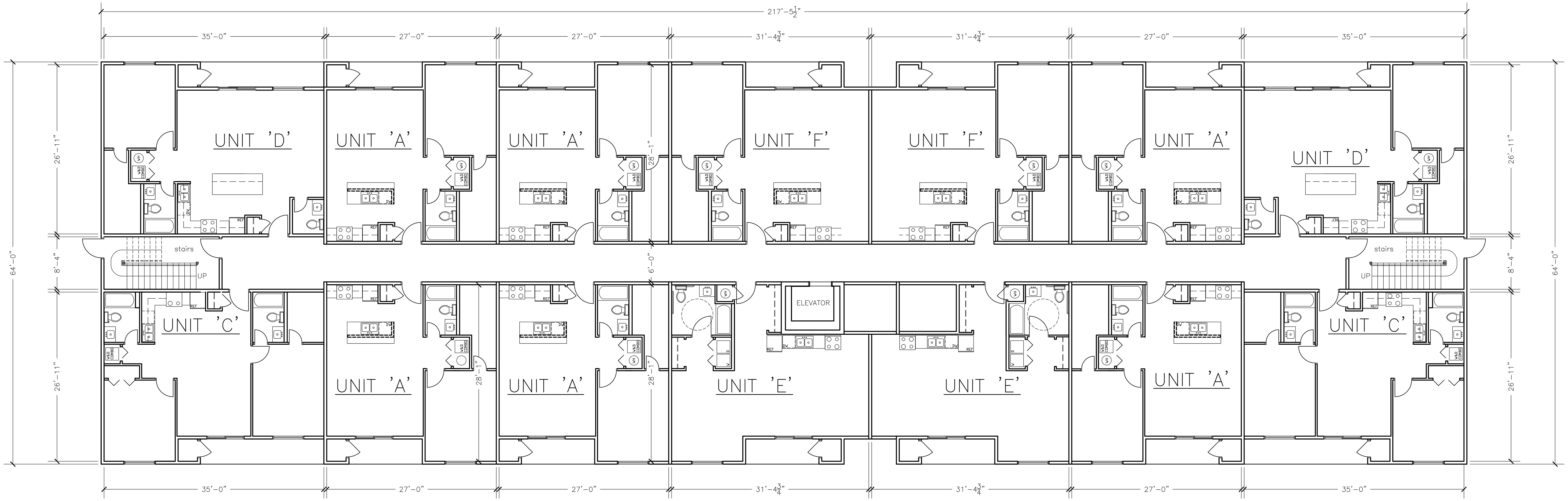
PROJECT NUMBER: 2016-04

SL-1

DRAWING NUMBER

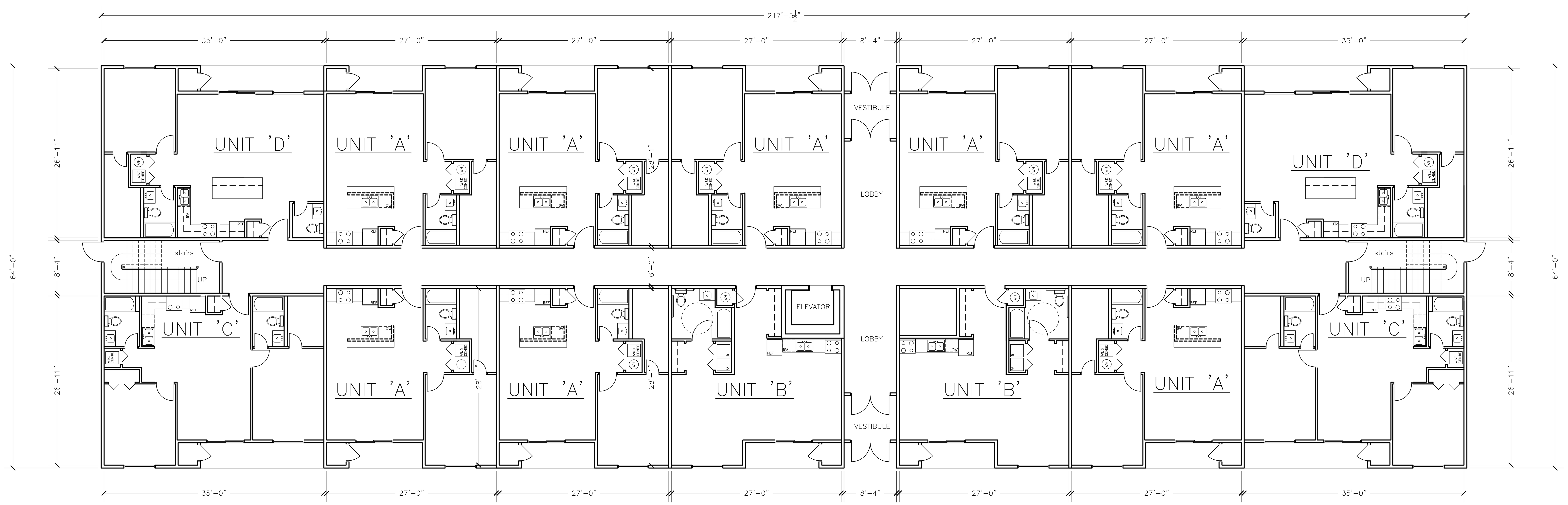
SHEET 4 OF 13

Drawing Name: C:\PROJECTS\BUCKINGHAM PROPERTIES\SHT_SL-1.DWG Date: 07/02/18 Time: 5:21 PM
Referenced Drawings: DigSafe Distribution_Box_9Hole Fill GateValve SepticTank_1000Gal SiltFence SwaleDetail Trench_Absorption Water_HouseConnection



BUILDING 'B' & 'C': 2,3 & 4TH FLOOR

UNIT 'A':6 APTS./UNIT 'C':2 APTS./UNIT 'D':2 APTS./UNIT 'E':2 APTS./UNIT 'F':2 APTS.



BUILDING 'B' & 'C':1ST FLOOR

UNIT 'A':8 APTS./UNIT 'B':2 APTS./UNIT 'C':2 APTS./UNIT 'D':2 APTS.

Drawing Name: C:\PROJECTS\BUCKINGHAM PROPERTIES\NEWBLDGLAYOUT.DWG Date: 03/12/19 Time: 12:15 PM
Referenced Drawings: DigSafe Distribution_Box_9Hole FILL GateValve SepticTank_1000Gal SiltFence SwaleDetail Trench_Absorption Water_HouseConnection

REVISIONS				
NO.	DATE	BY	CHKED	DESCRIPTION

CHARLES P. MAY & ASSOCIATES, P.C.
DESIGN PROFESSIONALS
□ 367 Windsor Highway □ 1073 Main Street, Suite 203
New Windsor, New York 12553 Fishkill, New York 12524
8 4 5 – 5 6 7 – 3 0 3 0 8 4 5 – 8 9 6 – 2 7 4 7
charlespmayassoc@aol.com

BUCKINGHAM PROPERTIES
NELSON AVENUE
VILLAGE OF WAPPINGERS FALLS
DUTCHESS COUNTY, NEW YORK
TAX MAP ID. NO. 134601-6158-13-071325

DATE	DRAWN	CHECKED
12-7-2018	VA	CPM

SCALE 1/8"=1'-0"

SHEET TITLE

BLDG 'B' & 'C' LAYOUT

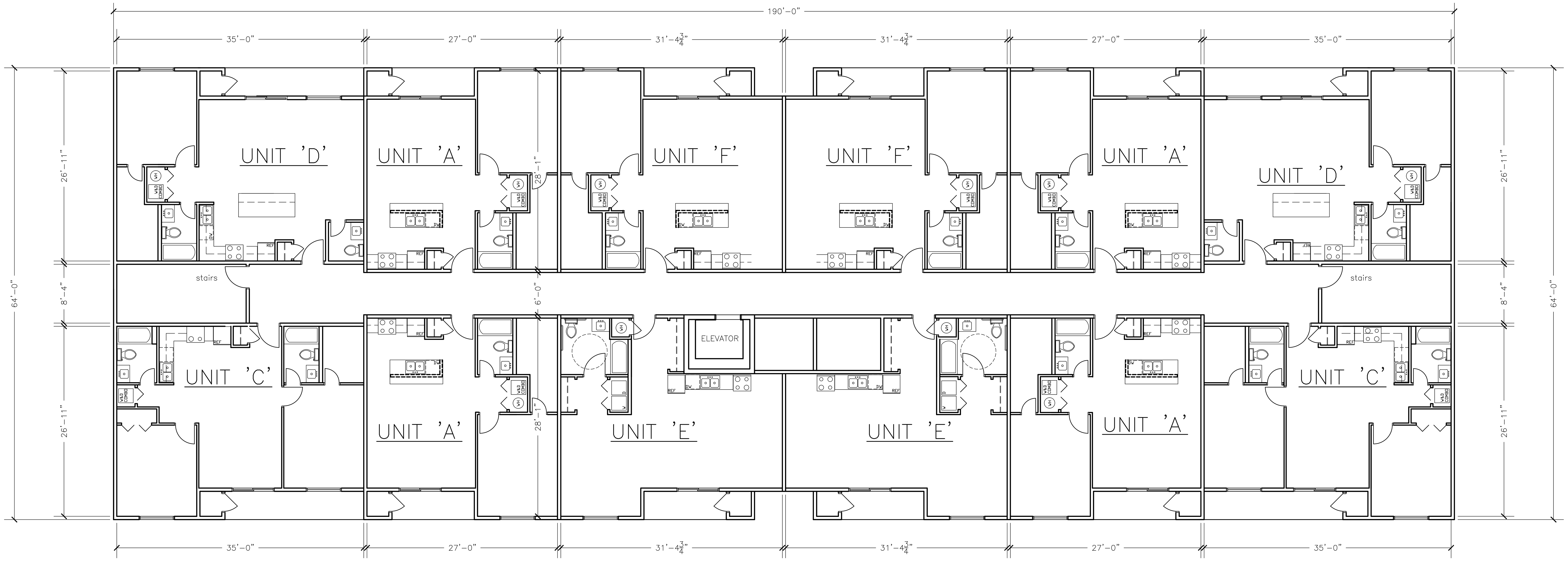
PROJECT NUMBER -

SK-3

DRAWING NUMBER

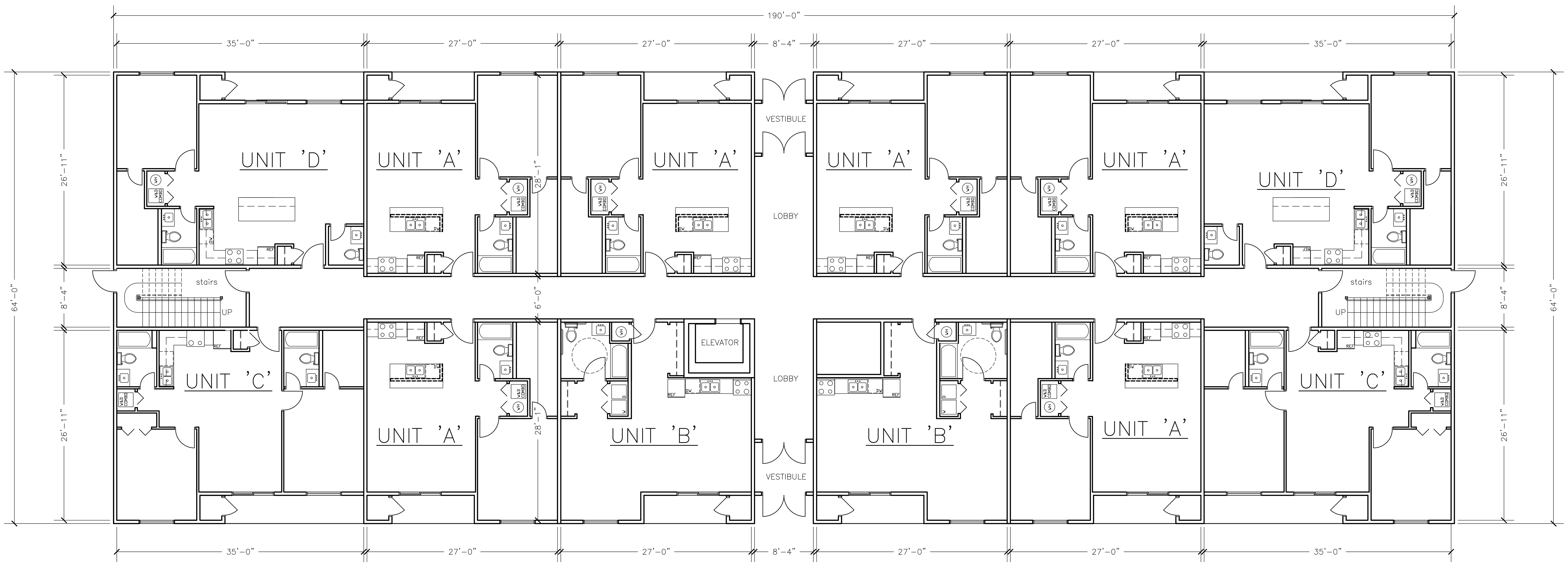
SHEET - OF -

PRE-DESIGN DWG.



BUILDING 'A': 2,3 & 4TH FLOOR

UNIT 'A':4 APTS./UNIT 'C':2 APTS./UNIT 'D':2 APTS./UNIT 'E':2 APTS./UNIT 'F':2 APTS.



BUILDING 'A':1ST FLOOR

UNIT 'A':6 APTS./UNIT 'B':2 APTS./UNIT 'C':2 APTS./UNIT 'D':2 APTS.

Drawing Name: C:\PROJECTS\BUCKINGHAM PROPERTIES\NEWBLDGLAYOUT.DWG Date: 03/12/19 Time: 12:14 PM
Referenced Drawings: DigSafe Distribution_Box_9Hole FILL GateValve SepticTank_1000Gal SiltFence SwaleDetail Trench_Absorption Water_HouseConnection

REVISIONS				
NO.	DATE	BY	CHKED	DESCRIPTION

CHARLES P. MAY & ASSOCIATES, P.C.
DESIGN PROFESSIONALS
367 Windsor Highway, New Windsor, New York 12553, 8 4 5 – 5 6 7 – 3 0 3 0
1073 Main Street, Suite 203, Fishkill, New York 12524, 8 4 5 – 8 9 6 – 2 7 4 7
charlespmayassoc@aol.com

BUCKINGHAM PROPERTIES
NELSON AVENUE
VILLAGE OF WAPPINGERS FALLS
DUTCHESS COUNTY, NEW YORK
TAX MAP ID. NO. 134601-6158-13-071325

DATE	DRAWN	CHECKED
12-7-2018	VA	CPM

SCALE 1/8"=1'-0"

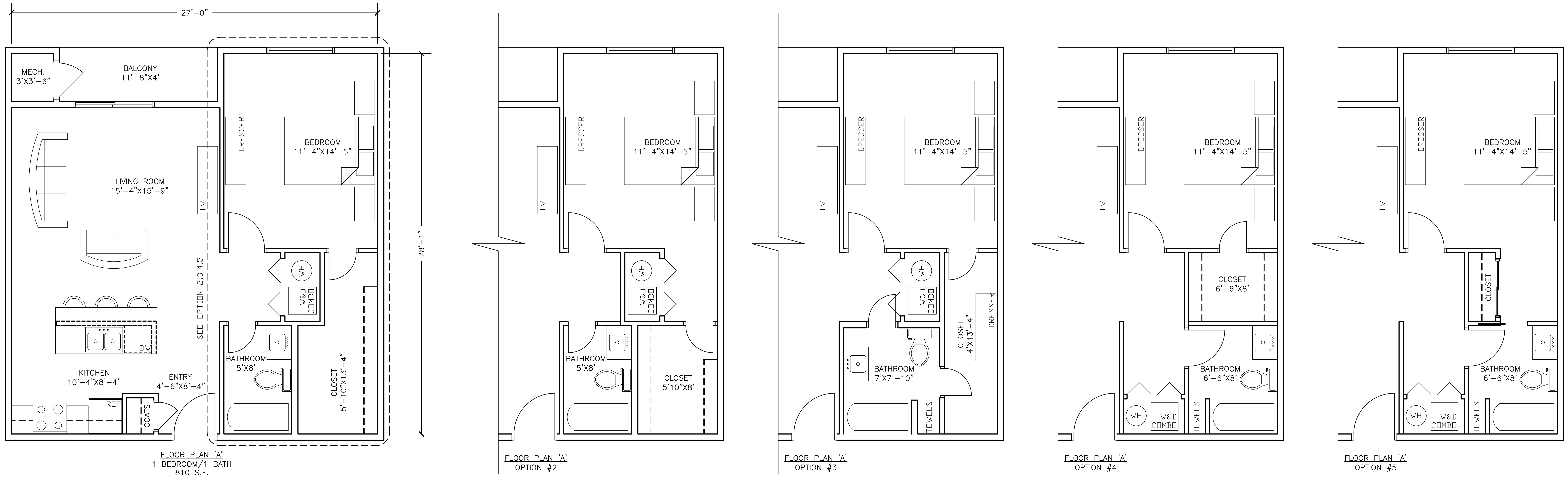
SHEET TITLE
BLDG 'A' LAYOUT

PROJECT NUMBER
-

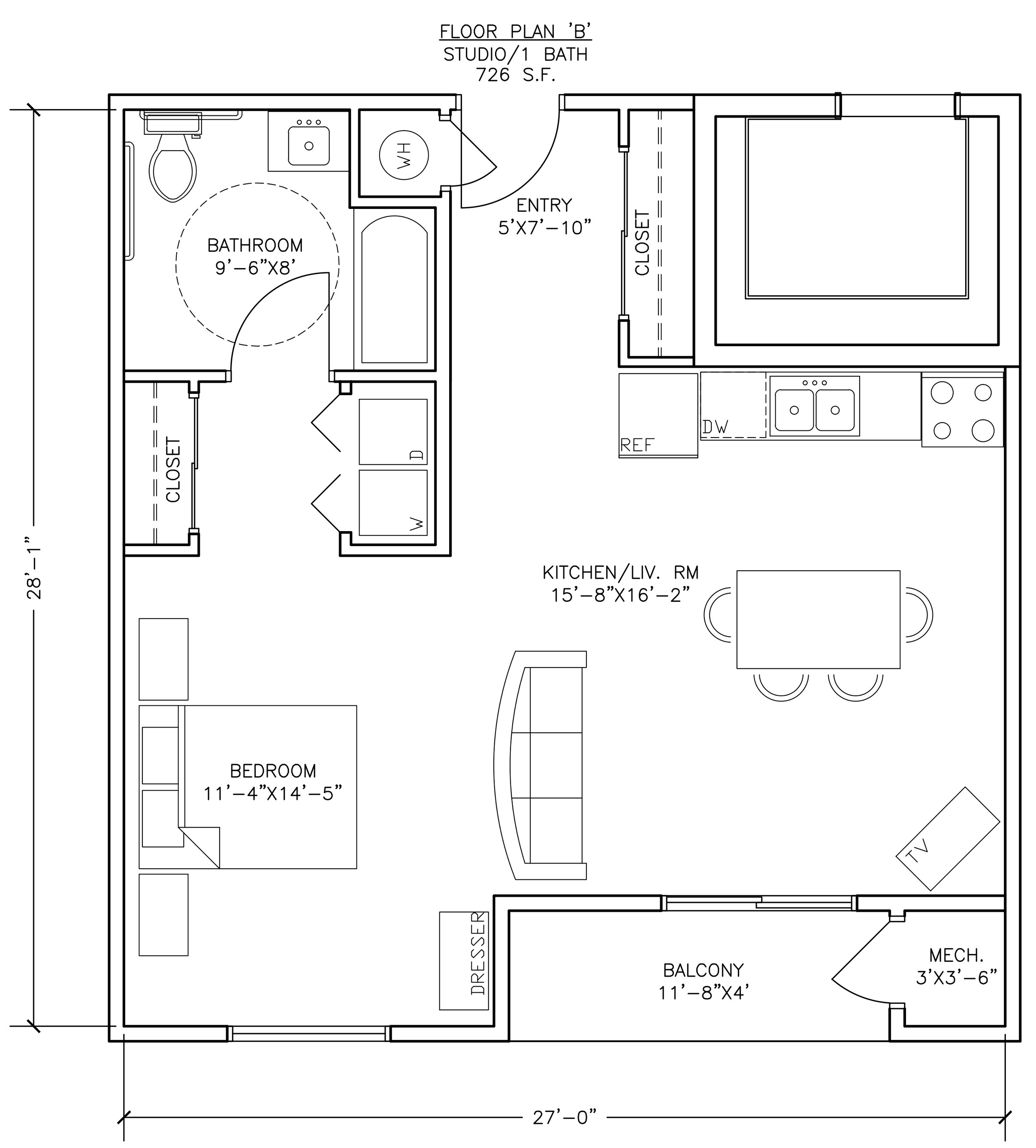
SK-2
DRAWING NUMBER
SHEET - OF -

PRE-DESIGN DWG.

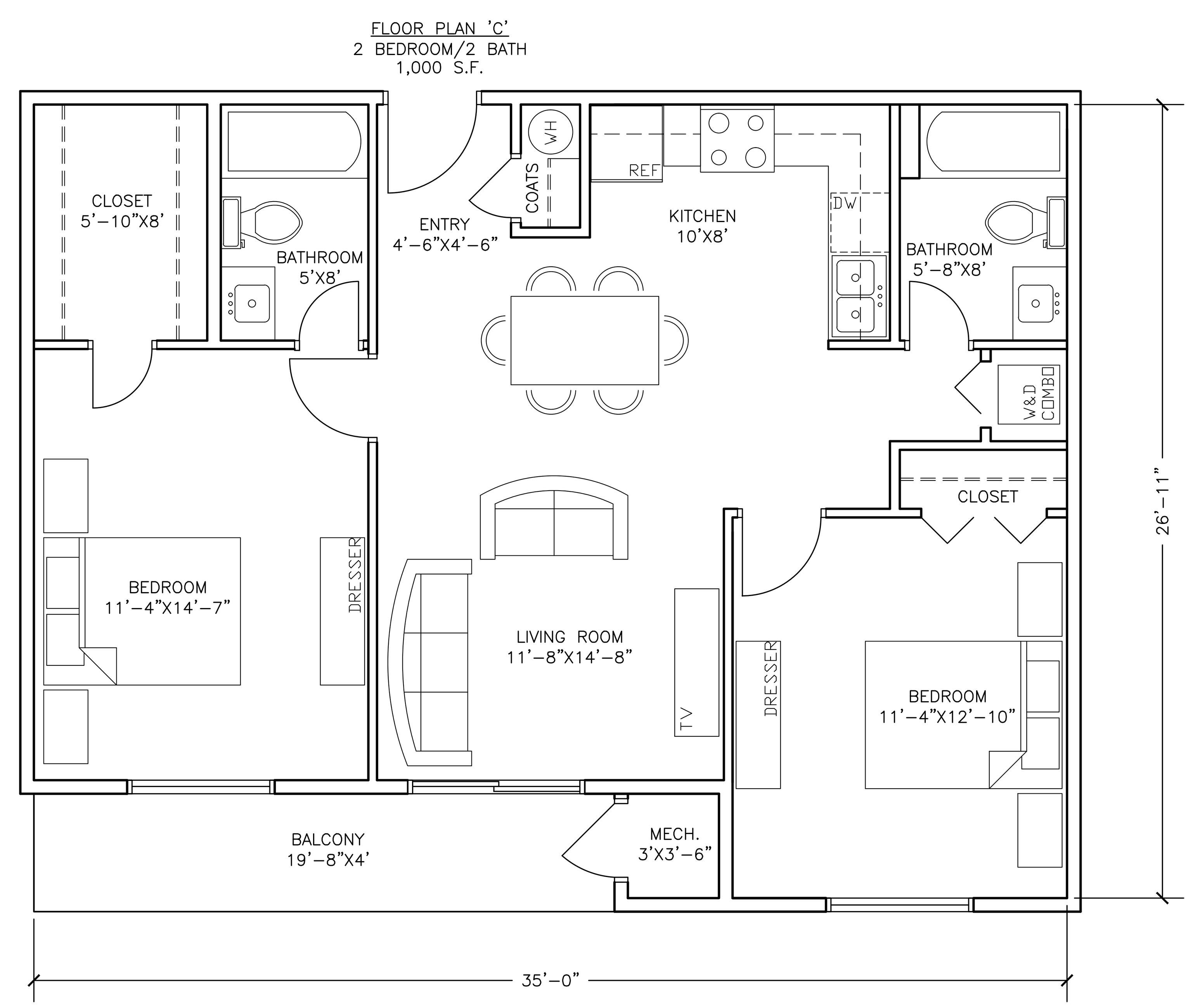
Drawing Name: C:\PROJECTS\BUCKINGHAM PROPERTIES\ONEBEDROOMLAYOUTS.DWG Date: 03/12/19 Time: 12:17 PM
Referenced Drawings: DigSafe Distribution_Box_9Hole FILL GateValve SepticTank_1000Gal SiltFence SwaleDetail Trench_Absorption Water_HouseConnection



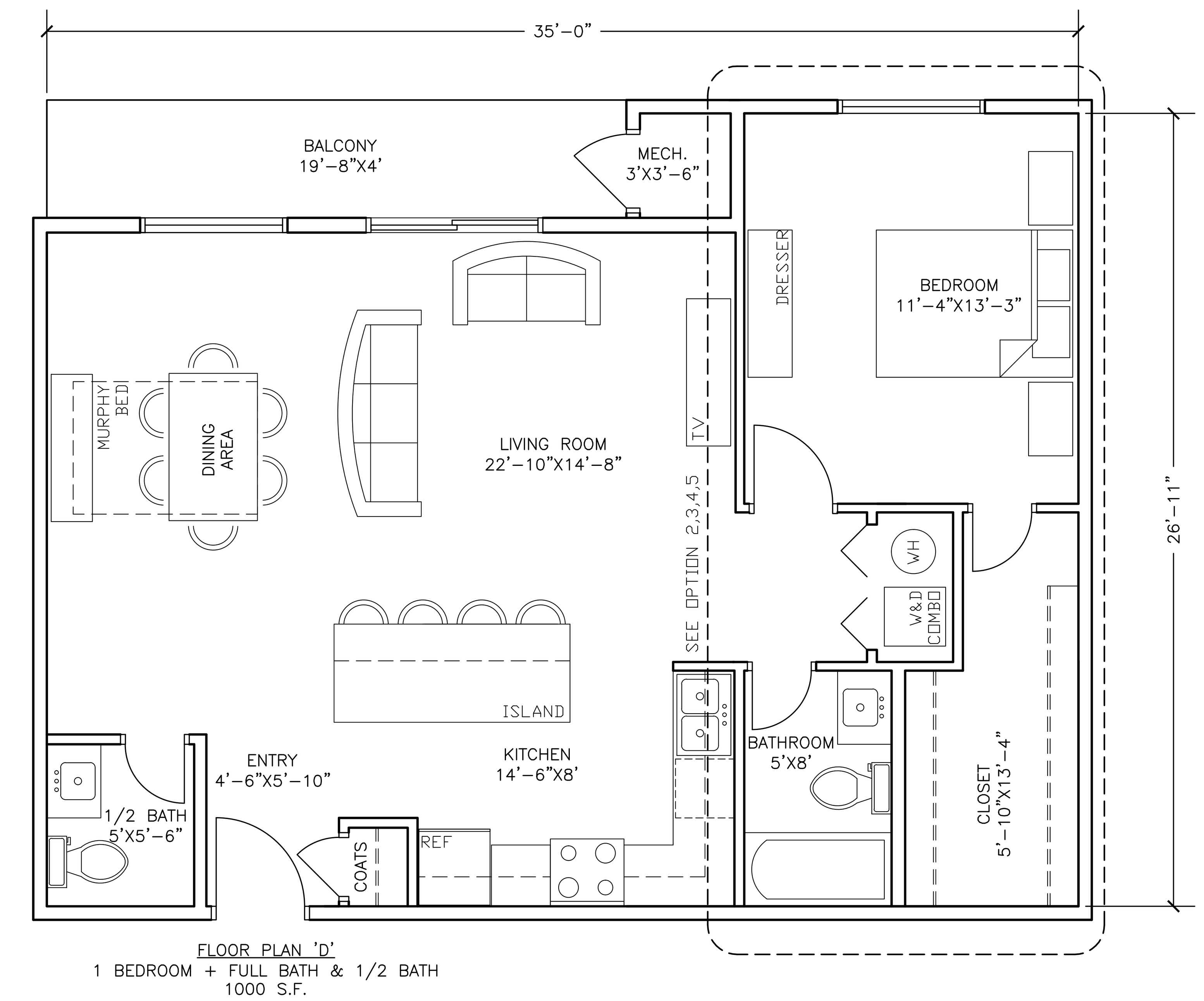
1 SK-1 **FLOOR PLAN UNIT 'A' :1 BEDROOM/1 BATH**
1/4" = 1'-0"



2 SK-1 **FLOOR PLAN UNIT 'B': STUDIO/1 BATH**
1/4" = 1'-0"



3 SK-1 **FLOOR PLAN UNIT 'C': 2 BEDROOM/2 BATH**
1/4" = 1'-0"



4 SK-1 **FLOOR PLAN UNIT 'D': 1 BEDROOM/FULL BATH & 1/2 BATH**
1/4" = 1'-0"

REVISIONS

NO.	DATE	BY	CHKED	DESCRIPTION

CHARLES P. MAY & ASSOCIATES, P.C.

DESIGN PROFESSIONALS

367 Windsor Highway, New Windsor, New York 12553, 845-567-3030 · 1073 Main Street, Suite 203, Fishkill, New York 12524, 845-896-2747
charlespmayassoc@aol.com

BUCKINGHAM PROPERTIES

NELSON AVENUE
VILLAGE OF WAPPINGERS FALLS
DUTCHESS COUNTY, NEW YORK
TAX MAP ID. NO. 134601-6158-13-071325

DATE	DRAWN	CHECKED
12-7-2018	VA	CPM

SCALE AS NOTED

SHEET TITLE
UNIT
FLOOR PLANS

PROJECT NUMBER
2016-04

SK-1
DRAWING NUMBER

SHEET - OF -

PRE-DESIGN DWG.

Full Environmental Assessment Form
Part 1 - Project and Setting

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. 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; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Sponsor Information.

Name of Action or Project: Buckingham Properties		
Project Location (describe, and attach a general location map): The project is located in the Village of Wappingers Falls , Dutchess County New York bordering Channingville Road and Nelson Avenue.		
Brief Description of Proposed Action (include purpose or need): The applicant proposes a 200 unit apartment complex located on 13.42 Acres within the Village of Wappingers Falls New York. The property is presently zoned RMU -Residential Mixed Use while at this time additional information must be submitted before the Planning Board can determine wether variances from the Zoning Law are required.. The site will be comprised of four 4 story buildings 2 buildings with 40 units each 30 (1) Br. and 10 (2) Br. and 2 buildings with 60 units comprised of 40 (1) Br. and 20 (2) Br. The site has sewer and water available to be utilized by the applicant. There will be a connection made to an existing sewer manhole which is located on Nelson Avenue. The sewer flows for the project will eventually discharge into the Tri Municipal Plant located in Wappingers Falls. Water will be provided by the Village Water Department with an anticipated connection made at Nelson Avenue. Static and Dynamic testing of the water line will be necessary to determine the method for providing water for domestic use and for fire fighting. There will be a clubhouse and swimming pool located on the site which will provide recreation activities for the residents of the apartment complex.		
Name of Applicant/Sponsor: Mr. Edward Cohen	Telephone: 914-666-7700 E-Mail: ecohen@buckinghamre.com	
Address: Buckingham Property Management LLC 657 East Main Street		
City/PO: Mount Kisco	State: New York	Zip Code: 10549-3423
Project Contact (if not same as sponsor; give name and title/role): Charles P. May and Associates P. C.	Telephone: 845-896-2747 E-Mail: charlespmayassoc@aol.com	
Address: 1073 Main Street, Suite 203		
City/PO: Fishkill	State: New York	Zip Code: 12524
Property Owner (if not same as sponsor):	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:

RESET FORM

B. Government Approvals

B. Government Approvals Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity		If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Council, Town Board, or Village Board of Trustees	☑Yes☐No	Sewer Connection	November 2018
b. City, Town or Village Planning Board or Commission	☑Yes☐No	Site Plan Approval	November 2018
c. City Council, Town or Village Zoning Board of Appeals	☑Yes☐No	Area variances from the ZBA may be required.	May 2018
d. Other local agencies	☑Yes☐No	Village Water Board for water connection Tri Municipal Sewer for sewer connection	May 2018
e. County agencies	☑Yes☐No	Dutchess County Health Department Sewer System and Municipal and water ,swimming pool.	September 2018
f. Regional agencies	☑Yes☐No	Dutchess County Department of Planning for 239-m review under General Municipal Law	September 2018
g. State agencies	☑Yes☐No	NYSDEC SPEDES Permit for Wastewater NYSDEC SPEDES Permit for Stormwater	September 2018
h. Federal agencies	☐Yes☑No		

i. Coastal Resources.

i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☑Yes☐No

If Yes,

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☐Yes☑No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☑Yes☐No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☑Yes☐No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☑Yes☐No

If Yes, identify the plan(s):

Greenway, Hudson River Valley National Heritage Area, Local Waterfront Revitalization Strategy.

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes☑No

If Yes, identify the plan(s):

RESET FORM

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
RMU Residential Mixed Use

b. Is the use permitted or allowed by a special or conditional use permit? ☑ Yes ☐ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☑ No
If Yes,
i. What is the proposed new zoning for the site? ______

C.4. Existing community services.

a. In what school district is the project site located? Wappingers Central School District 167 Myers Corners Road Wappingers Falls, NY

b. What police or other public protection forces serve the project site?
Village of Wappingers Falls Police Department 2582 South Avenue Wappingers Falls NY

c. Which fire protection and emergency medical services serve the project site?
New Hamburg Fire District 15 Channingville Road Wappingers Falls NY

d. What parks serve the project site?
Bowdoin Park Wappingers Falls NY , Mesier Park, and the Hudson River Valley Greenway Trail.

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)? A 200 unit apartment complex for residential use.

b. a. Total acreage of the site of the proposed action? 13.42 acres
b. Total acreage to be physically disturbed? 9.26 acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 13.42 acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☑ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % ______ Units: ______

d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☑ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)

ii. Is a cluster/conservation layout proposed? ☐ Yes ☑ No
iii. Number of lots proposed? ______
iv. Minimum and maximum proposed lot sizes? Minimum ______ Maximum ______

e. Will proposed action be constructed in multiple phases? ☑ Yes ☐ No
i. If No, anticipated period of construction: 36 months
ii. If Yes:
- Total number of phases anticipated 3
- Anticipated commencement date of phase 1 (including demolition) 09 month 2019 year
- Anticipated completion date of final phase 09 month 2020 year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases:
  Phase one construction will be comprised of roads , parking lots, sewer and water connection. The construction of the buildings may be phased by the construction of two buildings , the clubhouse and pool, then the final phase of the two remaing buildings.

RESET FORM

f. Does the project include new residential uses? ☑Yes ☐No
If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase				80 units of apartments
At completion of all phases				200 units of apartments

g. Does the proposed action include new non-residential construction (including expansions)? ☐Yes ☑No
If Yes,
i. Total number of structures ___________
ii. Dimensions (in feet) of largest proposed structure: ________height; ________width; and _______ length
iii. Approximate extent of building space to be heated or cooled: ______________________ square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☐Yes ☑No
If Yes,
i. Purpose of the impoundment: ___________________
ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☐ Other specify:
____
iii. If other than water, identify the type of impounded/contained liquids and their source.
____
iv. Approximate size of the proposed impoundment. Volume: ____________ million gallons; surface area: ____________ acres
v. Dimensions of the proposed dam or impounding structure: ________ height; _______ length
vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):
____

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? ☐Yes ☑No
(Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite)
If Yes:
i .What is the purpose of the excavation or dredging? ___________________
ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?
- Volume (specify tons or cubic yards): ___________________
- Over what duration of time? ___________________

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.
____
____
iv. Will there be onsite dewatering or processing of excavated materials? ☐Yes ☑No
If yes, describe. ___________________
____
v. What is the total area to be dredged or excavated? ___________________acres
vi. What is the maximum area to be worked at any one time? ___________________ acres
vii. What would be the maximum depth of excavation or dredging? ___________________ feet
viii. Will the excavation require blasting? ☐Yes ☑No
ix. Summarize site reclamation goals and plan: ___________________
____
____

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☐Yes ☑No
If Yes:
i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): ___________________
____

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ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:

iii. Will proposed action cause or result in disturbance to bottom sediments? ☐ Yes ☑ No
If Yes, describe:

iv. Will proposed action cause or result in the destruction or removal of aquatic vegetation? ☐ Yes ☑ No
If Yes:
- acres of aquatic vegetation proposed to be removed
- expected acreage of aquatic vegetation proposed to be removed
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access):
- proposed method of plant removal:
- if chemical/herbicide treatment will be used, specify product(s):

v. Describe any proposed reclamation/mitigation following disturbance:

c. Will the proposed action use, or create a new demand for water? ☑ Yes ☐ No
If Yes:
i. Total anticipated water usage/demand per day: 33,800 gallons/day
ii. Will the proposed action obtain water from an existing public water supply? ☐ Yes ☑ No
If Yes:
- Name of district or service area: Village of Wappingers Falls Water District
- Does the existing public water supply have capacity to serve the proposal? ☑ Yes ☐ No
- Is the project site in the existing district? ☑ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☑ No
- Do existing lines serve the project site? ☐ Yes ☑ No

iii. Will line extension within an existing district be necessary to supply the project? ☑ Yes ☐ No
If Yes:
- Describe extensions or capacity expansions proposed to serve this project:
A water line will be extended from the site to Nelson Avenue existing water line. Capacity expansions are not anticipated at this time.
- Source(s) of supply for the district: Village of Wappingers Falls Water District

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐ Yes ☑ No
If, Yes:
- Applicant/sponsor for new district:
- Date application submitted or anticipated:
- Proposed source(s) of supply for new district:

v. If a public water supply will not be used, describe plans to provide water supply for the project:

vi. If water supply will be from wells (public or private), maximum pumping capacity: _______ gallons/minute.

d. Will the proposed action generate liquid wastes? ☑ Yes ☐ No
If Yes:
i. Total anticipated liquid waste generation per day: 33,800 gallons/day
ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each):
Sanitary wastewater will be generated and conveyed ultimately to the Tri Municipal Waste Water Treatment Facility.

iii. Will the proposed action use any existing public wastewater treatment facilities? ☑ Yes ☐ No
If Yes:
- Name of wastewater treatment plant to be used: Tri Municipal Waste Water Treatment Facility
- Name of district: Village of Wappingers Falls Sewer District
- Does the existing wastewater treatment plant have capacity to serve the project? ☑ Yes ☐ No
- Is the project site in the existing district? ☑ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☑ No

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- Do existing sewer lines serve the project site? ☐Yes ☑No
- Will line extension within an existing district be necessary to serve the project? ☑Yes ☐No

  If Yes:
  - Describe extensions or capacity expansions proposed to serve this project: ______

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐Yes ☑No

If Yes:
- Applicant/sponsor for new district: ______
- Date application submitted or anticipated: ______
- What is the receiving water for the wastewater discharge? ______

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge, or describe subsurface disposal plans):

______

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: ______

---

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☑Yes ☐No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or 4.16 acres (impervious surface)

_____ Square feet or 13.42 acres (parcel size)

ii. Describe types of new point sources. ______

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

On site stormwater management facility will be designed to detain stormwater on site.

- If to surface waters, identify receiving water bodies or wetlands: ______
- Will stormwater runoff flow to adjacent properties? ☑Yes ☐No

iv. Does proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☐Yes ☑No

---

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☑Yes ☐No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

Heavy equipment and delivery trucks will be on- site for construction purposes and will become a source of air emissions.

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

No stationary sources of air emissions will be utilized during construction.

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

No stationary sources of air emissions will be utilized during operations.

---

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐Yes ☑No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐Yes ☐No

ii. In addition to emissions as calculated in the application, the project will generate:
- ______Tons/year (short tons) of Carbon Dioxide (CO_2)
- ______Tons/year (short tons) of Nitrous Oxide (N_2O)
- ______Tons/year (short tons) of Perfluorocarbons (PFCs)
- ______Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- ______Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- ______Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

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h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

If Yes:

i. Estimate methane generation in tons/year (metric): ______

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): ______

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☑Yes ☐No

If Yes:

i. When is the peak traffic expected (Check all that apply): ☑ Morning ☐ Evening ☐ Weekend
☑ Randomly between hours of 0 to 8:30 AM .

ii. For commercial activities only, projected number of semi-trailer truck trips/day: N/A

iii. Parking spaces: Existing 0 Proposed 271 Net increase/decrease 271

iv. Does the proposed action include any shared use parking? ☐Yes ☑No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:
A comprehensive traffic impact study has been provided with this application.which responds to all the above questions.

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐Yes ☑No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐Yes ☑No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☑No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☐Yes ☑No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: ______

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other): ______

iii. Will the proposed action require a new, or an upgrade to, an existing substation? ☐Yes ☑No

l. Hours of operation. Answer all items which apply.

i. During Construction:
- Monday - Friday: 8:00 AM to 5:00 PM
- Saturday: N/A
- Sunday: N/A
- Holidays: N/A

ii. During Operations:
- Monday - Friday: N/A
- Saturday: N/A
- Sunday: N/A
- Holidays: N/A

RESET FORM

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☑ Yes ☐ No

If yes:

i. Provide details including sources, time of day and duration:

Heavy construction equipment will operate during normal working hours 8:00 AM to 5:00 PM.

ii. Will proposed action remove existing natural barriers that could act as a noise barrier or screen? ☑ Yes ☐ No

Describe: Tree removal and proposed grading may result in the decrease of natural noise barriers , notwithstanding the applicant will be providing a planting plan to replenish the vegetation.

n.. Will the proposed action have outdoor lighting? ☑ Yes ☐ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

A lighting plan will be provided at the locations of the parking areas. The height of the luminare will not exceed 15 feet and will have an isolux pattern that will not distribute lighting patterns to the adjoining properties.

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☑ Yes ☐ No

Describe: Trees will be removed that could act as a light barrier will be removed , notwithstanding the applicant will provide a tree planting plan.

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☑ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: ______

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products (185 gallons in above ground storage or an amount in underground storage)? ☐ Yes ☑ No

If Yes:

i. Product(s) to be stored ______

ii. Volume(s) ______ per unit time ______ (e.g., month, year)

iii. Generally describe proposed storage facilities: ______

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☐ Yes ☑ No

If Yes:

i. Describe proposed treatment(s): ______

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☑ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☐ Yes ☑ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: ______ tons per ______ (unit of time)
- Operation : ______ tons per ______ (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: ______
- Operation: ______

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: ______
- Operation: ______

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s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): ____________

ii. Anticipated rate of disposal/processing:

- ________ Tons/month, if transfer or other non-combustion/thermal treatment, or
- ________ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: ____________ years

t. Will proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: ____________

ii. Generally describe processes or activities involving hazardous wastes or constituents: ____________

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: ____________

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: ____________

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility: ____________

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☑ Urban ☑ Industrial ☑ Commercial ☑ Residential (suburban) ☐ Rural (non-farm)
☑ Forest ☐ Agriculture ☐ Aquatic ☑ Other (specify): parkland and religious.

ii. If mix of uses, generally describe:

There are primarily undeveloped lands within the vicinity of the site which are owned by Scenic Hudson Land Trust , Putnam Highlands ,Audubon Society and Order of the Friars. Is it presumed that these lands will not be developed and are forever to be open space and park lands.

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	0.00	4.16	+4.16
• Forested	13.42	9.26	-4.16
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	0.00	0.00	0.00
• Agricultural (includes active orchards, field, greenhouse etc.)	0.00	0.00	0.00
• Surface water features (lakes, ponds, streams, rivers, etc.)	0.00	0.00	0.00
• Wetlands (freshwater or tidal)	0.00	0.00	0.00
• Non-vegetated (bare rock, earth or fill)	0.00	0.00	0.00
• Other Describe: ____________			

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c. Is the project site presently used by members of the community for public recreation? ☐Yes ☑No

i. If Yes: explain: ____________________

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☐Yes ☑No

If Yes,

i. Identify Facilities:

____

____

e. Does the project site contain an existing dam? ☐Yes ☑No

If Yes:

i. Dimensions of the dam and impoundment:

- Dam height: ____________________ feet
- Dam length: ____________________ feet
- Surface area: ____________________ acres
- Volume impounded: ____________________ gallons OR acre-feet

ii. Dam's existing hazard classification: ____________________

iii. Provide date and summarize results of last inspection:

____

____

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐Yes ☑No

If Yes:

i. Has the facility been formally closed? ☐Yes ☐ No

- If yes, cite sources/documentation: ____________________

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:

____

____

iii. Describe any development constraints due to the prior solid waste activities: ____________________

____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐Yes ☑No

If Yes:

i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:

____

____

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☑Yes ☐ No

If Yes:

i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐Yes ☑No

☐ Yes – Spills Incidents database Provide DEC ID number(s): ____________________

☐ Yes – Environmental Site Remediation database Provide DEC ID number(s): ____________________

☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures: ____________________

____

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☑Yes ☐No

If yes, provide DEC ID number(s): 314058:546031.

iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):

Three Star Anodizing is the name of the facility. The on site area has been remediated according to the NYSDEC Environmental Site Remediation Database.

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v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☑ No

- If yes, DEC site ID number: ______
- Describe the type of institutional control (e.g., deed restriction or easement): ______
- Describe any use limitations: ______
- Describe any engineering controls: ______
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☑ No
- Explain: ______

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? 1' to 3' feet

b. Are there bedrock outcroppings on the project site? ☑ Yes ☐ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? 14.5 %

c. Predominant soil type(s) present on project site:

GfB Galaway-Farmington complex	45 %
GfD Galawy-Farmington complex	17 %
FeE Farmington-Rock outcrop	38 %

d. What is the average depth to the water table on the project site? Average: 1.5' to 5' feet

e. Drainage status of project site soils:
- ☑ Well Drained: 42 % of site
- ☑ Moderately Well Drained: 49 % of site
- ☑ Poorly Drained 9 % of site

f. Approximate proportion of proposed action site with slopes:
- ☑ 0-10%: 48 % of site
- ☑ 10-15%: 35 % of site
- ☑ 15% or greater: 17 % of site

g. Are there any unique geologic features on the project site? ☐ Yes ☑ No
If Yes, describe: ______

h. Surface water features.

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☐ Yes ☑ No

ii. Do any wetlands or other waterbodies adjoin the project site? ☐ Yes ☑ No

If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☐ Yes ☑ No

iv. For each identified regulated wetland and waterbody on the project site, provide the following information:
- Streams: Name ______ Classification ______
- Lakes or Ponds: Name ______ Classification ______
- Wetlands: Name ______ Approximate Size ______
- Wetland No. (if regulated by DEC) ______

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐ Yes ☑ No

If yes, name of impaired water body/bodies and basis for listing as impaired: ______

i. Is the project site in a designated Floodway? ☐ Yes ☑ No

j. Is the project site in the 100 year Floodplain? ☐ Yes ☑ No

k. Is the project site in the 500 year Floodplain? ☐ Yes ☑ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☑ Yes ☐ No
If Yes:
i. Name of aquifer: Stratified-Drift Aquifer in the Sprout and Fishkill Creek Valleys.

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m. Identify the predominant wildlife species that occupy or use the project site:

deer, wild turkey , birds.

deer, wild turkey , birds.

deer, wild turkey , birds.

n. Does the project site contain a designated significant natural community? ☐ Yes ☑ No

If Yes:

i. Describe the habitat/community (composition, function, and basis for designation): ____

An endangered speciies report is submitted with this application.

ii. Source(s) of description or evaluation: ____

iii. Extent of community/habitat:

- Currently: ____ acres
- Following completion of project as proposed: ____ acres
- Gain or loss (indicate + or -): ____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☑ Yes ☐ No

Refer to the Threatened and Endangered Species Habitat Suitability Assessment Report by Ecological Solutions dated March 7, 2017

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☑ Yes ☐ No

Refer to Threatened and Endangered Species Habitat Suitability Assessment Report by Ecological Solutions dated March 7, 2017

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐ Yes ☑ No

If yes, give a brief description of how the proposed action may affect that use: ____

Refer to Threatened and Endangered Species Habitat Suitability Assessment Report by Ecological Solutions dated March 7, 2017

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐ Yes ☑ No

If Yes, provide county plus district name/number: ____

b. Are agricultural lands consisting of highly productive soils present? ☐ Yes ☑ No

i. If Yes: acreage(s) on project site? ____

ii. Source(s) of soil rating(s): ____

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐ Yes ☑ No

If Yes:

i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature

ii. Provide brief description of landmark, including values behind designation and approximate size/extent: ____

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐ Yes ☑ No

If Yes:

i. CEA name: ____

ii. Basis for designation: ____

iii. Designating agency and date: ____

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e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on, or has been nominated by the NYS Board of Historic Preservation for inclusion on, the State or National Register of Historic Places? If Yes: *i.* Nature of historic/archaeological resource: ☐ Archaeological Site ☑ Historic Building or District *ii.* Name: Wappingers Falls Historic District. *iii.* Brief description of attributes on which listing is based: The architectural character in the village reflects the economic and social forces which contributed to the historical developemnt of the community.	☑ Yes ☐ No
f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?	☑ Yes ☐ No
g. Have additional archaeological or historic site(s) or resources been identified on the project site? If Yes: *i.* Describe possible resource(s): ______ *ii.* Basis for identification: ______	☐ Yes ☑ No
h. Is the project site within five miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? If Yes: *i.* Identify resource: Wappingers Lake is the official designated local resource. *ii.* Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): Protection of natural resources. *iii.* Distance between project and resource: 0.4 miles.	☑ Yes ☐ No
i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? If Yes: *i.* Identify the name of the river and its designation: ______ *ii.* Is the activity consistent with development restrictions contained in 6NYCRR Part 666?	☐ Yes ☑ No ☐ Yes ☑ No

F. Additional Information
Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification
I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name Charles P. May RLA Date 08/17/18

Signature [signature] Title Project Manager

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VILLAGE OF WAPPINGERS

BUILDING DEPARTMENT
OFFICE OF CODE ENFORCEMENT
OFFICE OF FIRE PREVENTION & INSPECTION
2582 South Avenue
WAPPINGERS FALLS, NY 12590
(845) 297-5277
FAX: (845) 296-0379

January 23, 2018

To: New York State Office of Parks, Recreation and Historic Preservation

Re.: Buckingham Properties – Nelson Avenue and Channingville Road

The Village of Wappingers Falls Planning Board is in receipt of an application for the above referenced project. The Planning Board has made a preliminary determination that it is the most appropriate agency to conduct the State Environmental Quality Review (SEQR) of this project since the anticipated impacts are of primarily local significance. Enclosed please find a copy of the Environmental Assessment Form. The Planning Board requests a response from your office as soon as possible.

Please check all of the boxes below that apply and return this letter to the above address within 30 days.

- [x] We **consent** to the Village of Wappingers FallsPlanning Board serving as Lead Agency on this application.
- [ ] We **do not consent** to the Village of Wappingers Falls Planning Board serving as Lead Agency on this application and wish to contest lead agency designation under the procedures found in 6 NYCRR 617.6(b).
- [ ] Our agency's jurisdiction on this application is as follows:

NYS Office of Parks, Recreation & Historic Preservation
Review by SHPO

- [ ] Potential issues of concern are as follows:

Please provide any additional comments on the reverse side of this letter. If you have any questions please direct them to the contact person named below. Thank you for your attention to this matter.

Contact Person: Mary Ann Loncto, Planning Board Secretary, (845) 297-5277