McGOEY, HAUSER and EDSALL
CONSULTING ENGINEERS D.P.C.

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TOWN OF NEWBURGH
PLANNING BOARD
TECHNICAL REVIEW COMMENTS

PROJECT:	**LAKESIDE SENIOR HOUSING**
PROJECT NO.:	**19-06**
PROJECT LOCATION:	**SECTION 86, BLOCK 1, LOT 39.22 & 39.23**
REVIEW DATE:	**30 MAY 2019**
MEETING DATE:	**6 JUNE 2019**
PROJECT REPRESENTATIVE:	**MAURI ARCHITECTS, P.C./ JAY DIESING, R.A.**

1. The Applicants have provided an amendment to the Stormwater Pollution Prevention Plan to address the minor increase in impervious services proposed for the clubhouse.

2. The trees in the area of the proposed projects were cleared based on a permit issued by the Town of Newburgh Building Department in order to avoid impacts to bat species.

3. Orange County Planning referral was prepared and submitted by this office. The response was no significant regional or county impacts advisory comments were received.

4. Status of receipt of a City of Newburgh flow acceptance letter should be addressed. No approvals can be granted until the City of Newburgh flow acceptance letter for the modified flow of approximately 1200 gallons per day has been provided.

Respectfully submitted,

McGoey, Hauser and Edsall
Consulting Engineers, D.P.C.

_____
Patrick J. Hines
Principal
PJH/lcr

MARTIN J DIESING AIA
RICHARD K TOMPKINS AIA

May 14, 2019

Mr. John Ewasutyn, Chairman
Town of Newburgh Planning Board
308 Gardnertown Road
Newburgh, NY 12550

RE: Lakeside Senior Apartments
Town of Newburgh Project # 2019-06

Dear Chairman Ewasutyn,

Enclosed for your review are revised Site Plans, Exterior Elevations and an amended SWPPP for the above referenced project. These have been updated in response to comments at our previous Planning Board appearance and comments from the Board's consultants.

Our office is in receipt of a Technical Review Comment Letter from McGoey, Hauser and Edsall Consulting Engineers, DPC dated March 1, 2019. The following are the comments and our responses:

1. *The project is before the Board to add a Clubhouse, pool, pavilion and recreational courts on the south side of the project. The Applicant's representatives are requested to evaluate potential impacts to the existing stormwater management facilities from the increased runoff. An existing bio-retention area exists immediately North of the proposed recreation facilities.*

   The identified bio-retention area has been expanded for the increased run-off and the Site Plans and SWPPP have been amended to reflect the impact of the proposed Clubhouse and other facilities.

2. *If water or sewer facilities are included in the Clubhouse a sewer flow acceptance letter increase from the City of Newburgh is required.*

   Please find attached an amended sewer flow calculation letter from Medenbach & Eggers for submission to the Town and City of Newburgh Engineering Departments for approval.

3. *Existing groundcover in the area should be identified. Project previously had a clearing restriction related to threatened and endangered bat species.*

A tree clearing permit was approved and issued by the Building Department. Trees in the new limit of disturbance area were cut prior to the March 31 restriction. No stump removal or grading was performed.

4. *The project proposes revisions to the architectural review of the proposed senior living structures. These should be reviewed with the Board.*

   No response required.

5. *The amended site plan requires submission to Orange County Planning.*

   Please refer to OCDP comments and our responses below.

Our office is also in receipt of a Comment Letter from David Church, AICP Commissioner of Planning - Orange County Department of Planning dated March 13, 2019. The following are the comments and our responses:

1. *<u>Previous Referrals:</u> The project site is only marginally within the 500' distance requirement from NYS Route 17K, and as such, the previous application for site plan approval of the senior housing complex was not referred to this office. The Planning Department's primary concerns for the overall project would have been stormwater management and road access. Stormwater management plans were reviewed by the Town Planning Board and the New York State Department of Environmental Conservation and deemed to be sufficient; the proposed road access was likewise reviewed by the Town Planning Board and deemed to be sufficient. We will accept these findings.*

   No response required.

2. *<u>Stormwater Management:</u> The proposed addition of recreational buildings will add minimal stormwater runoff to the already-approved stormwater management system. We advise the Tow that although the measures proposed for the additional stormwater appear to be sufficient, the stormwater management system may need additional facilities or area in order to accommodate the increase in impervious surface.*

   Please refer to MH&E, DPC comment #1 and our response above.

I look forward to continuing our discussion regarding this project with you and the Planning Board at the next meeting. If you have any questions, or would like to discuss the project prior to the meeting, please don't hesitate to contact me.

Sincerely,

Jay Diesing, RA AIA

Medenbach & Eggers

Civil Engineering and Land Surveying P.C.
4305 US Highway 209
Stone Ridge, New York
12484-5620

Barry Medenbach, P.E.
N.Y.Lic.No.60142
N.J.Lic.No.27646

Phone (845) 687-0047
Fax (845) 687-4783
www.mecels.com

William R. Eggers L.S.
N.Y.Lic.No.49785

April 24, 2019

Town of Newburgh Engineer
Jim Osborne, P.E.
1496 Route 300
Newburgh, NY 12550

Re: Lakeside Senior – Waste flow requirements for 102 apartment units and club house situated at lakeside Road. Tax map numbers: 86-1-39.22 & 39.23.

Dear Jim,

As required by Planning Board consultant Patrick Hines, P.E. following are calculations for proposed waste water from the above project to acquire a "City of Newburgh Flow Acceptance Letter."

Project Description:

The project was previously approved for 102 apartment units with an average daily flow of 11,220 gallons per day. See the attached Lakeside Senior - Waste flow requirement letter dated March 13, 2017. The proposal is to add a club house for the apartment residents and their quests.

The club house area will have a total occupancy of approximately 120 occupants between the pool, pavilion area, and the interior area of clubhouse building. Using the New York State Department of Environmental Conservation (NYSDEC) design standard of 10 gallons per day per swimmer and occupant will produce 1,200 gallons per day. The total average daily flow for the complete facility would be increased to 12,420 gallons per day.

Yours truly,

Barry Medenbach, P.E.

Cc: Planning Board Chairman, John Ewasutyn
Pat Hines, P.E

Attached:
2017 03 13 Lakeside Senior – Waste flow requirements letter

CITY OF NEWBURGH

Office of the Engineer
83 Broadway, Newburgh, New York 12550
(845) 569-7448 / Fax (845) 569-7349
www.cityofnewburgh-ny.gov

Jason C. Morris, PE
City Engineer
Jmorris@cityofnewburgh-ny.gov

March 27, 2017

James W. Osborne, PE
Town Engineer
Town of Newburgh
1496 Route 300
Newburgh, NY 12550

Re: Crossroads S.D. – City/Town of Newburgh Intermunicipal Agreement
Lakeside Senior Residential Site Plan –Sewer Connection Approval (11,220 gpd)
Tax Map No. 86-1-39.22 & 39.23

Mr. Osborne,

Pursuant to the terms and conditions of the City-Town of Newburgh Intermunicipal Sewer Agreement dated May 6, 2004, permission is hereby granted for a sewer connection to the Town of Newburgh's sewer main to service the proposed Lakeside Senior Residential Site Plan project consisting of 102 units proposed along Lakeside Road in the Town of Newburgh. The anticipated sewer flow increase of 11,220gpd from this connection will be counted toward the 3.8 million gallons per day capacity allocated to the Town, as stated in the City-Town Sewer Agreement.

Please notify this office via email when sewer flows from this new connection are to commence. If you have any questions regarding this approval, please contact this office at your convenience.

Sincerely,

Jason C. Morris, PE
City Engineer

cc: Michael Ciaravino, City Manager
Michelle Kelson, Corporation Counsel
George Garrison, DPW Superintendent
Michael Batz, Severn Trent Services
Gil Piaquadio, Town Supervisor
John Platt, DPW Commissioner
Mark Taylor, Town Attorney
Barry Medenbach, PE, Medenbach & Eggers

TOWN OF NEWBURGH

1496 Route 300, Newburgh, New York 12550

March 20, 2017

Mr. Jason Morris
City of Newburgh Engineer
83 Broadway
Newburgh, NY 12550

RE: S \ **CROSSROADS S.D. – CITY OF NEWBURGH INTERMUNICIPAL SEWER AGREEMENT (Lakeside Senior Residential Site Plan)**

Dear Mr. Morris:

Per the requirements of the above referenced Agreement, I am requesting approval for a new sewer connection to the Crossroads Sewer District. The Lakeside Senior Site Plan consists of 102 senior rental apartments as described in the attached 13 March 2017 letter from Barry Medenbach. The projected sewage flow for this project is 11,220 gallons per day.

If you have any questions, please feel free to contact me. I look forward to your reply.

Respectfully,

James W. Osborne
Town Engineer

JWO/id
Attachment
cc: G. Piaquadio, Supervisor
M. Taylor, Attorney
J. Guido, Sewer Supt. (CAMO)
J. Ewasutyn, P.B. Chairman
P. Hines, MH&E
B. Medenbach, M&E

Medenbach & Eggers

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N.J.Lic.No.27646

William R. Eggers L.S.
N.Y.Lic.No.49785

2017

March 13, 2017

Town of Newburgh Engineer
Jim Osborne, P.E.
308 Gardnertown Road
Newburgh, NY 12550

Re: Lakeside Senior – Waste flow requirements for 102 units situated at lakeside Road. Tax map numbers: 86-1-39.22 & 39.23.

Dear Jim,

As required by Planning Board consultant Patrick Hines, P.E. following are calculations for proposed waste water from the above project to acquire a "City of Newburgh Flow Acceptance Letter."

Project Description:

The proposed senior housing project is to provide 120 rental units in three buildings located behind the Four Points Sheraton Hotel on a Right of Way (ROW) off Lakeside Road. Sewerage will be provided by an on-site duplex grinder pump station that will collect sewage by gravity from the three buildings and then pump the sewage along the ROW approximately 1400 feet to the existing 4" force main in Lakeside Road that connects to the force main along Route 17R approximately 800 feet to the west.

The buildings will contain 72 two bedroom and 30 one bedroom apartments for a total of 174 bedrooms. Using the New York State Department of Environmental Conservation (NYSDEC) design standards of 110 gallons per day per bedroom will produce 19,140 gallons per day. This assumes a population of 348, two per bedroom. However, the project is age restricted and it is anticipated one bedroom in the two bedroom units will be used as a guest room, office space or craft room and the population will be substantially less than 348 and more likely 204. This assures guests using the 2nd bedroom would equal the apartment with single residence. Therefore, we estimate the average population of 204 and the average daily flow would be 11,220 gallons per day.

Please let us know if this is acceptable for the Flow Acceptance Letter.

Yours truly,

Barry Medenbach, P.E.

Cc: Planning Board Chairman, John Ewasutyn
Pat Hines, P.E

AMENDED

Stormwater Pollution Prevention Plan

For

Lakeside Senior Housing

Situate:

21 Lakeside Rd.
Town of Newburgh
Orange County, New York

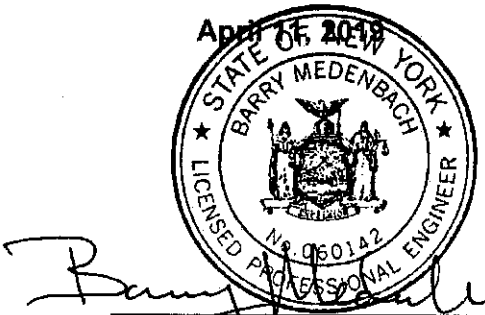
Prepared for:

Hudson Place at Lakeside, LLC
PO Box 14
Bridgehampton, NY 11932

Prepared by:

Medenbach and Eggers
Civil Engineering and Land Surveying, PC
4305 US Highway 209
Stone Ridge, New York
Ph: 845-687-0047

April 11, 2019



Barry Medenbach P.E.
NY Lic. No. 60142

Stormwater Pollution Prevention Plan (SWPPP) Amended
Lakeside Senior Housing

Index

Appendices:

Project Change:

The Lakeside Senior Housing is an authorized 102-unit Senior Housing Development within three 3-story buildings that is currently under construction. This report is to amend the original SWPPP dated July 6, 2017 that has coverage under SPDES general permit for Storm Water Discharges from CONSTRUCION ACTIVITY General Permit No. GP-0-15-002. The permit identification number for this site is NYR11D874. The project is now proposing to include a 1,700 SF. club house with an outside pool, tennis court and pavilion at the south end of the site near the driveway entrance. The club house, pool, tennis court and pavilion will increase the impervious surfaces area by 0.19 acres and increase the total disturbance of the site by 0.57 acres. The additional impervious cover increases the percentage impervious cover over the entire site to 19.7%. To treat the increase in impervious cover we are proposing to expand Bioretention #1 and install two new catch basins to direct stormwater water for treatment. Below are the tables that have been revised from the current SWPPP dated July 6, 2017 due to the increase of impervious cover from the proposed club house, pool, tennis court and pavilion. Attached are the revised Water Quality Volume Calculations in Appendix A.

The larger Bioretention #1 will mitigate the impacts of the proposed development for runoff quantity and quality improvements to remove pollutants from the stormwater before it is discharged on site into and ACOE wetland.

The intent of this amended plan is to prepare the calculations and sizing of the sites drainage system as part of a Storm Water Pollution Prevention Plan (SWPPP) that meet standards of design for Storm water Management Practices (SMP) of the State of New York in accordance with National Pollutant Discharge Elimination System (NPDES).

When the revised practices are constructed they will reduce all post-development peak flows from the site to less than peak development rates. Therefore, there will be no negative impacts on downstream waters or adjacent lands caused by increased peak flow rates.

Revised from section 1.4:

1.4 Changes in Cover Estimates:

The following are estimates of the proposed development.

Total project area:	19.23 acres
Approximate construction site area to be disturbed:	6.95 acres
Percentage impervious area before construction:	5.3%
Runoff coefficient before construction:	CN = 85
Percentage impervious area after construction:	19.7%
Runoff coefficient after construction	CN = 90
Future impervious cover	3.79 acres
Conservation of natural areas	9.25 acres

Revised Pre and Post-development Runoff Rate Comparison from Section 4.1.2:

The table below shows the change in post-development runoff rates to the ACOE Wetlands. Detailed HydroCAD calculations for the revisions are in Appendix B and replace the E14_077 Lakeside Post HydroCAD calculations.

Discharge to ACOE wetlands going under Lakeside Road			
Storm	**Pre-development (cfs)**	**Post-development (cfs)**	**% Change**
1 Year	3.83	**2.62**	**-31.6%**
10 Year	13.07	**11.16**	**- 14.6%**
100 Year	29.19	**29.17**	**- 0.1%**

Revised Runoff Reduction Volume and Water Quality Volume table from Section 4.2:

Runoff Reduction Volume and Water Quality Volume			
Required WQv (cubic feet)	**Provided Storage of WQV (cubic feet)**	**Required Runoff Reduction Volume (cubic feet)**	**Provided Runoff Reduction Volume (cubic feet)**
19,810	25,320	4,586	6,747

Revised Bio-Retention Zone Design Parameters from Section 4.4.1:

Bio-Retention Zone Design Parameters				
	Required WQV (cubic feet)	**Required Area of Filter Bed (square feet)**	**Provided Storage of WQV (cubic feet)**	**Provided Area of Filter Bed (square feet)**
Bio-retention Zone 1	2,630	2,192	3,120	2,600
Bio-retention Zone 2	4,228	3,036	6,300	4,500

Appendix A

Revised Water Quality Volume Calculations

Version 1.7 Total Water Quality Volume Calculation
Last Updated: 10/02/2015 WQv(acre-feet) = [(P)(Rv)(A)] /12

Is this project subject to Chapter 10 of the NYS Design Manual (i.e. WQv is equal to post-development 1 year runoff volume)?.....	

Design Point:	Newburgh	
P=	1.40	*inch*

Breakdown of Subcatchments

Catchment Number	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Rv	WQv *(ft^3)*	Description
1	9.74	3.79	39%	0.40	19,810	
2	9.49	0.00	0%	0.05	2,411	
3						
4						
5						
6						
7						
8						
9						
10						
Subtotal (1-30)	19.23	3.79	20%	0.23	**22,221**	**Subtotal 1**
Total	19.23	3.79	20%	0.23	**22,221**	**Initial WQv**

Identify Runoff Reduction Techniques By Area

Technique	Total Contributing Area *(Acre)*	Contributing Impervious Area *(Acre)*	Notes
Conservation of Natural Areas	0.00	0.00	*minimum 10,000 sf*
Riparian Buffers	9.49	0.00	*maximum contributing length 75 feet to 150 feet*
Filter Strips	0.00	0.00	
Tree Planting	0.00	0.00	*Up to 100 sf directly connected impervious area may be subtracted per tree*
Total	**9.49**	**0.00**	

Recalculate WQv after application of Area Reduction Techniques

	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Runoff Coefficient Rv	WQv *(ft^3)*
"<<Initial WQv"	19.23	3.79	20%	0.23	22,221
Subtract Area	-9.49	0.00			
WQv adjusted after Area Reductions	**9.74**	**3.79**	39%	0.40	19,810
Disconnection of Rooftops		0.00			
Adjusted WQv after Area Reduction and Rooftop Disconnect	9.74	3.79	39%	0.40	**19,810**
WQv reduced by Area Reduction techniques					2,411

Minimum RRv

Enter the Soils Data for the site		
Soil Group	Acres	S
A		55%
B		40%
C	9.74	30%
D	**9.49**	20%
Total Area	19.23	
Calculate the Minimum RRv		
S =	**0.25**	
Impervious =	3.79	*acre*
Precipitation	1.4	*in*
Rv	0.95	
Minimum RRv	**4,586**	***ft3***
	0.11	af

Infiltrating Bioretention Worksheet

(For use on HSG A or B Soils without underdrains)

WQv ≤ VSM + VDL + (DP x ARG)

VSM = ARG x DSM x nSM

VDL (optional) = ARG x DDL x nDL

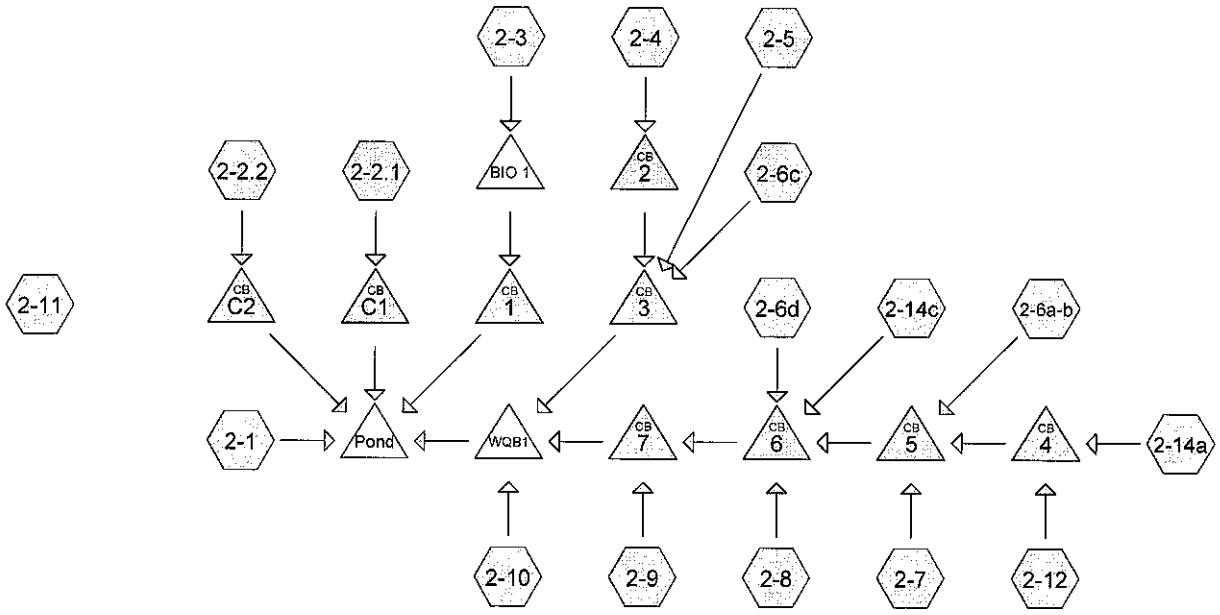
Design Point:	**Newburgh**						
Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Precipitation** *(in)*	**Description**
3	0.81	0.53	0.65	0.64	2629.94	1.40	Bio-retention #1
Enter Impervious Area Reduced by Disconnection of			65%	0.64	2,630	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.						*ft^3*	

Infiltrating Bioretention Parameters				
Treatment Volume	WQv	2,630	*ft^3*	
Enter depth of soil Media	DSM	2.50	*ft*	*2.5 - 4 ft*
Enter depth of drainage	DDL	0.50	*ft*	*≥ 0.5 ft*
Enter ponding depth above surface	DP	0.5	*ft*	*≤ 0.5*
Enter porosity of Soil Media	nSM	0.20		*≥20%*
Enter porosity of Drainage	nDL	0.40		*≥ 40%*
Required Bioretention Area	ARG	2192	*sf*	
Bioretention Area Provided		2600	*ft2*	
Native Soil Infiltration Rate		0.50	*in/hr*	*Okay*
Are you using underdrains?		No		
Total Volume Provided		3,120	*ft^3*	*Sum of storage Volume Provided in each layer*

Determine Runoff Reduction			
Runoff Reduction	**2,496**	***ft^3***	***This is 80% of storage volume provided or WQv whichever is less***
Volume Treated	134	*ft^3*	*This is the portion of the WQv that is not reduced in the practice*
Sizing √	*OK*		*Check to be sure Area provided ≥ Af*

Appendix B

Revised HydroCAD Calculations



Subcat Reach Pond Link

Drainage Diagram for E18 021 Hudson Place at Lakeside Post
Prepared by Medenbach & Eggers 4/11/2019

Area Listing (all nodes)

Area (acres)	CN	Description (subcats)
5.296	72	Woods/grass comb., Good, HSG C (2-1,2-11,2-2.1,2-2.2,2-3)
2.715	74	>75% Grass cover, Good, HSG C (2-10,2-12,2-2.1,2-2.2,2-5,2-7,2-8,2-9)
0.876	89	Gravel roads, HSG C (2-2.1,2-2.2)
3.246	98	Paved parking & roofs (2-10,2-12,2-14a,2-14c,2-2.1,2-2.2,2-3,2-4,2-5,2-6a-b,2-6c,2-6d,2-7,2-8
12.132		

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2-1: 2-1 Runoff Area=24,000 sf Runoff Depth=0.64"
Flow Length=40' Slope=0.1000 '/' Tc=3.6 min CN=72 Runoff=0.39 cfs 0.029 af

Subcatchment 2-10: 2-10 Runoff Area=15,216 sf Runoff Depth=0.77"
Tc=6.0 min CN=75 Runoff=0.29 cfs 0.022 af

Subcatchment 2-11: 2-11 Runoff Area=19,231 sf Runoff Depth=0.64"
Flow Length=75' Slope=0.1000 '/' Tc=8.9 min CN=72 Runoff=0.26 cfs 0.023 af

Subcatchment 2-12: 2-12 Runoff Area=7,326 sf Runoff Depth=2.06"
Flow Length=132' Tc=2.4 min CN=94 Runoff=0.45 cfs 0.029 af

Subcatchment 2-14a: 2-14a Runoff Area=3,459 sf Runoff Depth=2.47"
Tc=5.0 min CN=98 Runoff=0.21 cfs 0.016 af

Subcatchment 2-14c: 2-14c Runoff Area=3,459 sf Runoff Depth=2.47"
Tc=5.0 min CN=98 Runoff=0.21 cfs 0.016 af

Subcatchment 2-2.1: 2-2.1 Runoff Area=242,997 sf Runoff Depth=0.92"
Flow Length=951' Tc=53.8 min CN=78 Runoff=2.40 cfs 0.428 af

Subcatchment 2-2.2: 2-2.2 Runoff Area=35,686 sf Runoff Depth=1.27"
Flow Length=525' Tc=5.3 min CN=84 Runoff=1.25 cfs 0.087 af

Subcatchment 2-3: 2-3 Runoff Area=87,039 sf Runoff Depth=0.92"
Flow Length=537' Tc=28.5 min CN=78 Runoff=1.19 cfs 0.153 af

Subcatchment 2-4: 2-4 Runoff Area=7,182 sf Runoff Depth=2.47"
Flow Length=340' Tc=1.7 min CN=98 Runoff=0.50 cfs 0.034 af

Subcatchment 2-5: 2-5 Runoff Area=14,005 sf Runoff Depth=2.06"
Flow Length=150' Slope=0.0130 '/' Tc=2.0 min CN=94 Runoff=0.87 cfs 0.055 af

Subcatchment 2-6a-b: 2-6a-b Runoff Area=6,917 sf Runoff Depth=2.47"
Tc=7.5 min CN=98 Runoff=0.39 cfs 0.033 af

Subcatchment 2-6c: 2-6c Runoff Area=3,459 sf Runoff Depth=2.47"
Tc=5.0 min CN=98 Runoff=0.21 cfs 0.016 af

Subcatchment 2-6d: 2-6d Runoff Area=3,459 sf Runoff Depth=2.47"
Tc=5.0 min CN=98 Runoff=0.21 cfs 0.016 af

Subcatchment 2-7: 2-7 Runoff Area=29,800 sf Runoff Depth=0.92"
Flow Length=339' Tc=36.9 min CN=78 Runoff=0.36 cfs 0.052 af

Subcatchment 2-8: 2-8 Runoff Area=9,868 sf Runoff Depth=2.36"
Flow Length=188' Slope=0.0130 '/' Tc=2.4 min CN=97 Runoff=0.66 cfs 0.045 af

Subcatchment 2-9: 2-9 Runoff Area=15,382 sf Runoff Depth=2.16"
Flow Length=183' Slope=0.0160 '/' Tc=2.1 min CN=95 Runoff=0.98 cfs 0.063 af

Pond 1: Catch Basin 1 Peak Elev=500.75' Inflow=0.00 cfs 0.000 af
18.0" x 75.0' Culvert Outflow=0.00 cfs 0.000 af

Pond 2: Catch Basin 2 Peak Elev=503.87' Inflow=0.50 cfs 0.034 af
15.0" x 195.0' Culvert Outflow=0.50 cfs 0.034 af

Pond 3: Catch Basin 3 Peak Elev=503.12' Inflow=1.55 cfs 0.105 af
15.0" x 110.0' Culvert Outflow=1.55 cfs 0.105 af

Pond 4: Catch Basin 4 Peak Elev=502.85' Inflow=0.64 cfs 0.045 af
18.0" x 40.0' Culvert Outflow=0.64 cfs 0.045 af

Pond 5: Catch Basin 5 Peak Elev=502.96' Inflow=1.05 cfs 0.130 af
18.0" x 40.0' Culvert Outflow=1.05 cfs 0.130 af

Pond 6: Catch Basin 6 Peak Elev=503.16' Inflow=2.09 cfs 0.208 af
18.0" x 40.0' Culvert Outflow=2.09 cfs 0.208 af

Pond 7: Catch Basin 7 Peak Elev=503.42' Inflow=3.04 cfs 0.271 af
18.0" x 10.0' Culvert Outflow=3.04 cfs 0.271 af

Pond BIO 1: Bio-Retention Zone #1 Peak Elev=504.14' Storage=2,088 cf Inflow=1.19 cfs 0.153 af
Discarded=0.28 cfs 0.153 af Primary=0.00 cfs 0.000 af Outflow=0.28 cfs 0.153 af

Pond C1: Road Culvert Storage Peak Elev=501.65' Inflow=2.40 cfs 0.428 af
24.0" x 150.0' Culvert Outflow=2.40 cfs 0.428 af

Pond C2: Road Culvert Storage Peak Elev=505.11' Inflow=1.25 cfs 0.087 af
Outflow=1.25 cfs 0.087 af

Pond Pond: Existing Pond Peak Elev=496.47' Storage=29,970 cf Inflow=2.62 cfs 0.689 af
Outflow=0.00 cfs 0.000 af

Pond WQB1: Water Quality Basin #1 Peak Elev=501.95' Storage=13,652 cf Inflow=4.78 cfs 0.399 af
Primary=0.13 cfs 0.145 af Secondary=0.00 cfs 0.000 af Outflow=0.13 cfs 0.145 af

Total Runoff Area = 12.132 ac Runoff Volume = 1.120 af Average Runoff Depth = 1.11"
73.24% Pervious Area = 8.886 ac 26.76% Impervious Area = 3.246 ac

Subcatchment 2-1: 2-1

Runoff = 0.39 cfs @ 12.07 hrs, Volume= 0.029 af, Depth= 0.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year Rainfall=2.70"

Area (sf)	CN	Description
24,000	72	Woods/grass comb., Good, HSG C
24,000		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	40	0.1000	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.25"

Subcatchment 2-10: 2-10

Runoff = 0.29 cfs @ 12.10 hrs, Volume= 0.022 af, Depth= 0.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year Rainfall=2.70"

Area (sf)	CN	Description
14,416	74	>75% Grass cover, Good, HSG C
800	98	Paved parking & roofs
15,216	75	Weighted Average
14,416		Pervious Area
800		Impervious Area

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

Subcatchment 2-11: 2-11

Runoff = 0.26 cfs @ 12.14 hrs, Volume= 0.023 af, Depth= 0.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year Rainfall=2.70"

Area (sf)	CN	Description
19,231	72	Woods/grass comb., Good, HSG C
19,231		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	75	0.1000	0.14		**Sheet Flow, 1** Woods: Light underbrush n= 0.400 P2= 3.25"

Subcatchment 2-12: 2-12

Runoff = 0.45 cfs @ 12.04 hrs, Volume= 0.029 af, Depth= 2.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year Rainfall=2.70"

Area (sf)	CN	Description
6,226	98	Paved parking & roofs
1,100	74	>75% Grass cover, Good, HSG C
7,326	94	Weighted Average
1,100		Pervious Area
6,226		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	15	0.4000	0.27		**Sheet Flow, 1** Grass: Dense n= 0.240 P2= 3.25"
1.5	117	0.0170	1.34		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 3.25"
2.4	132	Total			

Subcatchment 2-14a: 2-14a

Runoff = 0.21 cfs @ 12.07 hrs, Volume= 0.016 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year Rainfall=2.70"

Area (sf)	CN	Description
3,459	98	Paved parking & roofs
3,459		Impervious Area

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

Subcatchment 2-14c: 2-14c

Runoff = 0.21 cfs @ 12.07 hrs, Volume= 0.016 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year Rainfall=2.70"

Area (sf)	CN	Description
3,459	98	Paved parking & roofs
3,459		Impervious Area

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

Subcatchment 2-2.1: 2-2.1

Runoff = 2.40 cfs @ 12.79 hrs, Volume= 0.428 af, Depth= 0.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year Rainfall=2.70"

Area (sf)	CN	Description
112,752	72	Woods/grass comb., Good, HSG C
41,752	98	Paved parking & roofs
68,605	74	>75% Grass cover, Good, HSG C
19,888	89	Gravel roads, HSG C
242,997	78	Weighted Average
201,245		Pervious Area
41,752		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.9	150	0.0100	0.06		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.25"
3.6	150	0.0100	0.70		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
3.6	150	0.0100	0.70		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
2.2	150	0.0260	1.13		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
2.0	150	0.0330	1.27		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
2.5	150	0.0400	1.00		**Shallow Concentrated Flow, Trees** Woodland Kv= 5.0 fps
1.0	51	0.0350	0.87	8.72	**Channel Flow, Swale** Area= 10.0 sf Perim= 31.0' r= 0.32' n= 0.150 Sheet flow over Short Grass
53.8	951	Total			

Subcatchment 2-2.2: 2-2.2

Runoff = 1.25 cfs @ 12.08 hrs, Volume= 0.087 af, Depth= 1.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year Rainfall=2.70"

Area (sf)	CN	Description
9,156	72	Woods/grass comb., Good, HSG C
18,265	89	Gravel roads, HSG C
3,500	98	Paved parking & roofs
4,765	74	>75% Grass cover, Good, HSG C
35,686	84	Weighted Average
32,186		Pervious Area
3,500		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.05		**Sheet Flow, parking** Smooth surfaces n= 0.011 P2= 3.25"
1.7	250	0.0150	2.49		**Shallow Concentrated Flow, Yard** Paved Kv= 20.3 fps
0.6	75	0.1600	2.00		**Shallow Concentrated Flow, Yard** Woodland Kv= 5.0 fps
1.4	100	0.0300	1.21		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
5.3	525	Total			

Subcatchment 2-3: 2-3

Runoff = 1.19 cfs @ 12.44 hrs, Volume= 0.153 af, Depth= 0.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year Rainfall=2.70"

Area (sf)	CN	Description
65,539	72	Woods/grass comb., Good, HSG C
21,500	98	Paved parking & roofs
87,039	78	Weighted Average
65,539		Pervious Area
21,500		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.4	150	0.0500	0.12		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.25"
2.3	140	0.0420	1.02		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
1.2	142	0.0100	2.03		**Shallow Concentrated Flow, Parking area** Paved Kv= 20.3 fps
0.6	35	0.0200	0.99		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
4.0	70	0.0010	0.29	3.60	**Channel Flow,** Area= 12.5 sf Perim= 26.0' r= 0.48' n= 0.100 Very weedy reaches w/pools
28.5	537	Total			

Subcatchment 2-4: 2-4

Runoff = 0.50 cfs @ 12.02 hrs, Volume= 0.034 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year Rainfall=2.70"

Area (sf)	CN	Description
7,182	98	Paved parking & roofs
7,182		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	100	0.0400	1.83		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 3.25"
0.4	150	0.0800	5.74		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.4	90	0.0375	3.93		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
1.7	340	Total			

Subcatchment 2-5: 2-5

Runoff = 0.87 cfs @ 12.03 hrs, Volume= 0.055 af, Depth= 2.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year Rainfall=2.70"

Area (sf)	CN	Description
11,500	98	Paved parking & roofs
2,505	74	>75% Grass cover, Good, HSG C
14,005	94	Weighted Average
2,505		Pervious Area
11,500		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	150	0.0130	1.27		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 3.25"

Subcatchment 2-6a-b: 2-6a-b

Runoff = 0.39 cfs @ 12.10 hrs, Volume= 0.033 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year Rainfall=2.70"

Area (sf)	CN	Description
6,917	98	Paved parking & roofs
6,917		Impervious Area

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

Subcatchment 2-6c: 2-6c

Runoff = 0.21 cfs @ 12.07 hrs, Volume= 0.016 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year Rainfall=2.70"

Area (sf)	CN	Description
3,459	98	Paved parking & roofs
3,459		Impervious Area

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

Subcatchment 2-6d: 2-6d

Runoff = 0.21 cfs @ 12.07 hrs, Volume= 0.016 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year Rainfall=2.70"

Area (sf)	CN	Description
3,459	98	Paved parking & roofs
3,459		Impervious Area

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

Subcatchment 2-7: 2-7

Runoff = 0.36 cfs @ 12.55 hrs, Volume= 0.052 af, Depth= 0.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year Rainfall=2.70"

Area (sf)	CN	Description
5,002	98	Paved parking & roofs
24,798	74	>75% Grass cover, Good, HSG C
29,800	78	Weighted Average
24,798		Pervious Area
5,002		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.4	150	0.0500	0.12		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.25"
15.8	100	0.0420	0.11		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.25"
0.7	89	0.0100	2.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
36.9	339	Total			

Subcatchment 2-8: 2-8

Runoff = 0.66 cfs @ 12.03 hrs, Volume= 0.045 af, Depth= 2.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year Rainfall=2.70"

Area (sf)	CN	Description
9,500	98	Paved parking & roofs
368	74	>75% Grass cover, Good, HSG C
9,868	97	Weighted Average
368		Pervious Area
9,500		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	188	0.0130	1.32		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 3.25"

Subcatchment 2-9: 2-9

Runoff = 0.98 cfs @ 12.03 hrs, Volume= 0.063 af, Depth= 2.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year Rainfall=2.70"

Area (sf)	CN	Description
13,682	98	Paved parking & roofs
1,700	74	>75% Grass cover, Good, HSG C
15,382	95	Weighted Average
1,700		Pervious Area
13,682		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	183	0.0160	1.43		**Sheet Flow, Parking** Smooth surfaces n= 0.011 P2= 3.25"

Pond 1: Catch Basin 1

Inflow Area = 1.998 ac, Inflow Depth = 0.00" for 1 Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 500.75' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	500.75'	**18.0" x 75.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 499.75' S= 0.0133 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=500.75' (Free Discharge)
↑**1=Culvert** (Controls 0.00 cfs)

Pond 2: Catch Basin 2

Inflow Area = 0.165 ac, Inflow Depth = 2.47" for 1 Year event
Inflow = 0.50 cfs @ 12.02 hrs, Volume= 0.034 af
Outflow = 0.50 cfs @ 12.02 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min
Primary = 0.50 cfs @ 12.02 hrs, Volume= 0.034 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 503.87' @ 12.02 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	503.50'	**15.0" x 195.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 502.50' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.50 cfs @ 12.02 hrs HW=503.87' (Free Discharge)
↑**1=Culvert** (Barrel Controls 0.50 cfs @ 2.42 fps)

Pond 3: Catch Basin 3

Inflow Area = 0.566 ac, Inflow Depth = 2.24" for 1 Year event
Inflow = 1.55 cfs @ 12.03 hrs, Volume= 0.105 af
Outflow = 1.55 cfs @ 12.03 hrs, Volume= 0.105 af, Atten= 0%, Lag= 0.0 min
Primary = 1.55 cfs @ 12.03 hrs, Volume= 0.105 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 503.12' @ 12.03 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	502.50'	**15.0" x 110.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 501.60' S= 0.0082 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=1.55 cfs @ 12.03 hrs HW=503.12' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 1.55 cfs @ 3.73 fps)

Pond 4: Catch Basin 4

Inflow Area = 0.248 ac, Inflow Depth = 2.19" for 1 Year event
Inflow = 0.64 cfs @ 12.04 hrs, Volume= 0.045 af
Outflow = 0.64 cfs @ 12.04 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.0 min
Primary = 0.64 cfs @ 12.04 hrs, Volume= 0.045 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 502.85' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	502.50'	**18.0" x 40.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 502.00' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.64 cfs @ 12.04 hrs HW=502.85' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 0.64 cfs @ 2.02 fps)

Pond 5: Catch Basin 5

Inflow Area = 1.090 ac, Inflow Depth = 1.43" for 1 Year event
Inflow = 1.05 cfs @ 12.06 hrs, Volume= 0.130 af
Outflow = 1.05 cfs @ 12.06 hrs, Volume= 0.130 af, Atten= 0%, Lag= 0.0 min
Primary = 1.05 cfs @ 12.06 hrs, Volume= 0.130 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 502.96' @ 12.06 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	502.50'	**18.0" x 40.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 502.00' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=1.05 cfs @ 12.06 hrs HW=502.96' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 1.05 cfs @ 2.30 fps)

Pond 6: Catch Basin 6

Inflow Area = 1.476 ac, Inflow Depth = 1.69" for 1 Year event
Inflow = 2.09 cfs @ 12.05 hrs, Volume= 0.208 af
Outflow = 2.09 cfs @ 12.05 hrs, Volume= 0.208 af, Atten= 0%, Lag= 0.0 min
Primary = 2.09 cfs @ 12.05 hrs, Volume= 0.208 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 503.16' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	502.50'	**18.0" x 40.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 502.00' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=2.09 cfs @ 12.05 hrs HW=503.16' (Free Discharge)
↑**1=Culvert** (Barrel Controls 2.09 cfs @ 4.07 fps)

Pond 7: Catch Basin 7

Inflow Area = 1.829 ac, Inflow Depth = 1.78" for 1 Year event
Inflow = 3.04 cfs @ 12.04 hrs, Volume= 0.271 af
Outflow = 3.04 cfs @ 12.04 hrs, Volume= 0.271 af, Atten= 0%, Lag= 0.0 min
Primary = 3.04 cfs @ 12.04 hrs, Volume= 0.271 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 503.42' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	502.50'	**18.0" x 10.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 502.35' S= 0.0150 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=3.03 cfs @ 12.04 hrs HW=503.42' (Free Discharge)
↑**1=Culvert** (Barrel Controls 3.03 cfs @ 3.80 fps)

Pond BIO 1: Bio-Retention Zone #1

Inflow Area = 1.998 ac, Inflow Depth = 0.92" for 1 Year event
Inflow = 1.19 cfs @ 12.44 hrs, Volume= 0.153 af
Outflow = 0.28 cfs @ 13.34 hrs, Volume= 0.153 af, Atten= 77%, Lag= 54.2 min
Discarded = 0.28 cfs @ 13.34 hrs, Volume= 0.153 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 504.14' @ 13.34 hrs Surf.Area= 2,981 sf Storage= 2,088 cf

Plug-Flow detention time= 69.5 min calculated for 0.153 af (100% of inflow)
Center-of-Mass det. time= 69.5 min (949.3 - 879.8)

Volume	Invert	Avail.Storage	Storage Description
#1	500.75'	14,283 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
500.75	2,600	40.0	0	0
501.50	2,600	20.0	390	390
504.00	2,600	20.0	1,300	1,690
504.01	2,600	100.0	26	1,716
504.50	4,000	100.0	1,617	3,333
505.00	6,600	100.0	2,650	5,983
506.00	10,000	100.0	8,300	14,283

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**4.000 in/hr Soil Exfiltration over Surface area**
#2	Primary	504.50'	**2.50' x 3.00' Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Discarded OutFlow Max=0.28 cfs @ 13.34 hrs HW=504.14' (Free Discharge)
↑**1=Soil Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=500.75' (Free Discharge)
↑**2=Orifice/Grate** (Controls 0.00 cfs)

Pond C1: Road Culvert Storage

Inflow Area = 5.578 ac, Inflow Depth = 0.92" for 1 Year event
Inflow = 2.40 cfs @ 12.79 hrs, Volume= 0.428 af
Outflow = 2.40 cfs @ 12.79 hrs, Volume= 0.428 af, Atten= 0%, Lag= 0.0 min
Primary = 2.40 cfs @ 12.79 hrs, Volume= 0.428 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 501.65' @ 12.79 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	501.00'	**24.0" x 150.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 499.75' S= 0.0083 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=2.40 cfs @ 12.79 hrs HW=501.65' (Free Discharge)
↑**1=Culvert** (Barrel Controls 2.40 cfs @ 4.08 fps)

Pond C2: Road Culvert Storage

Inflow Area = 0.819 ac, Inflow Depth = 1.27" for 1 Year event
Inflow = 1.25 cfs @ 12.08 hrs, Volume= 0.087 af
Outflow = 1.25 cfs @ 12.08 hrs, Volume= 0.087 af, Atten= 0%, Lag= 0.0 min
Primary = 1.25 cfs @ 12.08 hrs, Volume= 0.087 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 505.11' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	501.75'	**15.0" x 40.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 500.25' S= 0.0375 '/' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior
#2 Device 1 505.00' **2.50' x 2.50' Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Primary OutFlow Max=1.24 cfs @ 12.08 hrs HW=505.11' (Free Discharge)
↑**1=Culvert** (Passes 1.24 cfs of 9.78 cfs potential flow)
↑**2=Orifice/Grate** (Weir Controls 1.24 cfs @ 1.10 fps)

Pond Pond: Existing Pond

Inflow Area = 11.691 ac, Inflow Depth > 0.71" for 1 Year event
Inflow = 2.62 cfs @ 12.74 hrs, Volume= 0.689 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 496.47' @ 48.00 hrs Surf.Area= 71,615 sf Storage= 29,970 cf

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	496.00'	1,328,750 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
496.00	55,000	1,900.0	0	0	55,000
498.00	139,810	2,309.0	188,333	188,333	192,056
500.00	181,423	2,690.0	320,331	508,664	343,703
502.00	204,288	2,950.0	385,485	894,149	460,532
504.00	230,578	3,150.0	434,601	1,328,750	557,808

Device	Routing	Invert	Outlet Devices
#1	Primary	504.50'	**Custom Weir/Orifice, C= 2.62**
			Head (feet) 0.00 1.00 1.50 2.00
			Width (feet) 143.00 150.00 155.00 170.00

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=496.00' (Free Discharge)
↑**1=Custom Weir/Orifice** (Controls 0.00 cfs)

Pond WQB1: Water Quality Basin #1

Inflow Area = 2.744 ac, Inflow Depth = 1.75" for 1 Year event
Inflow = 4.78 cfs @ 12.04 hrs, Volume= 0.399 af
Outflow = 0.13 cfs @ 17.09 hrs, Volume= 0.145 af, Atten= 97%, Lag= 303.0 min
Primary = 0.13 cfs @ 17.09 hrs, Volume= 0.145 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 501.95' @ 17.09 hrs Surf.Area= 6,744 sf Storage= 13,652 cf

Plug-Flow detention time= 636.7 min calculated for 0.145 af (36% of inflow)

Center-of-Mass det. time= 489.7 min (1,282.9 - 793.2)

Volume	Invert	Avail.Storage	Storage Description
#1	497.00'	31,756 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
497.00	900	0	0	900
498.00	1,450	1,164	1,164	1,463
500.00	2,500	3,903	5,067	2,559
501.50	5,500	5,854	10,921	5,577
502.00	6,900	3,093	14,014	6,984
504.00	11,000	17,741	31,756	11,137

Device	Routing	Invert	Outlet Devices
#1	Primary	500.50'	**18.0" x 30.0' long Culvert** CPP, mitered to conform to fill, Ke= 0.700 Outlet Invert= 500.00' S= 0.0167 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	501.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	503.00'	**4.00' W x 1.00' H Vert. Primary Overflow** C= 0.600
#4	Secondary	503.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.13 cfs @ 17.09 hrs HW=501.95' (Free Discharge)
└**1=Culvert** (Passes 0.13 cfs of 6.31 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.13 cfs @ 2.73 fps)
  └**3=Primary Overflow** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=497.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2-1: 2-1 Runoff Area=24,000 sf Runoff Depth=2.20"
Flow Length=40' Slope=0.1000 '/' Tc=3.6 min CN=72 Runoff=1.53 cfs 0.101 af

Subcatchment 2-10: 2-10 Runoff Area=15,216 sf Runoff Depth=2.45"
Tc=6.0 min CN=75 Runoff=1.00 cfs 0.071 af

Subcatchment 2-11: 2-11 Runoff Area=19,231 sf Runoff Depth=2.20"
Flow Length=75' Slope=0.1000 '/' Tc=8.9 min CN=72 Runoff=1.02 cfs 0.081 af

Subcatchment 2-12: 2-12 Runoff Area=7,326 sf Runoff Depth=4.31"
Flow Length=132' Tc=2.4 min CN=94 Runoff=0.90 cfs 0.060 af

Subcatchment 2-14a: 2-14a Runoff Area=3,459 sf Runoff Depth=4.76"
Tc=5.0 min CN=98 Runoff=0.40 cfs 0.032 af

Subcatchment 2-14c: 2-14c Runoff Area=3,459 sf Runoff Depth=4.76"
Tc=5.0 min CN=98 Runoff=0.40 cfs 0.032 af

Subcatchment 2-2.1: 2-2.1 Runoff Area=242,997 sf Runoff Depth=2.71"
Flow Length=951' Tc=53.8 min CN=78 Runoff=7.46 cfs 1.261 af

Subcatchment 2-2.2: 2-2.2 Runoff Area=35,686 sf Runoff Depth=3.27"
Flow Length=525' Tc=5.3 min CN=84 Runoff=3.20 cfs 0.223 af

Subcatchment 2-3: 2-3 Runoff Area=87,039 sf Runoff Depth=2.71"
Flow Length=537' Tc=28.5 min CN=78 Runoff=3.68 cfs 0.452 af

Subcatchment 2-4: 2-4 Runoff Area=7,182 sf Runoff Depth=4.76"
Flow Length=340' Tc=1.7 min CN=98 Runoff=0.94 cfs 0.065 af

Subcatchment 2-5: 2-5 Runoff Area=14,005 sf Runoff Depth=4.31"
Flow Length=150' Slope=0.0130 '/' Tc=2.0 min CN=94 Runoff=1.74 cfs 0.115 af

Subcatchment 2-6a-b: 2-6a-b Runoff Area=6,917 sf Runoff Depth=4.76"
Tc=7.5 min CN=98 Runoff=0.74 cfs 0.063 af

Subcatchment 2-6c: 2-6c Runoff Area=3,459 sf Runoff Depth=4.76"
Tc=5.0 min CN=98 Runoff=0.40 cfs 0.032 af

Subcatchment 2-6d: 2-6d Runoff Area=3,459 sf Runoff Depth=4.76"
Tc=5.0 min CN=98 Runoff=0.40 cfs 0.032 af

Subcatchment 2-7: 2-7 Runoff Area=29,800 sf Runoff Depth=2.71"
Flow Length=339' Tc=36.9 min CN=78 Runoff=1.12 cfs 0.155 af

Subcatchment 2-8: 2-8 Runoff Area=9,868 sf Runoff Depth=4.65"
Flow Length=188' Slope=0.0130 '/' Tc=2.4 min CN=97 Runoff=1.25 cfs 0.088 af

Subcatchment 2-9: 2-9 Runoff Area=15,382 sf Runoff Depth=4.42"
Flow Length=183' Slope=0.0160 '/' Tc=2.1 min CN=95 Runoff=1.93 cfs 0.130 af

Pond 1: Catch Basin 1 Peak Elev=501.52' Inflow=2.76 cfs 0.135 af
18.0" x 75.0' Culvert Outflow=2.76 cfs 0.135 af

Pond 2: Catch Basin 2 Peak Elev=504.02' Inflow=0.94 cfs 0.065 af
15.0" x 195.0' Culvert Outflow=0.94 cfs 0.065 af

Pond 3: Catch Basin 3 Peak Elev=503.42' Inflow=3.02 cfs 0.212 af
15.0" x 110.0' Culvert Outflow=3.02 cfs 0.212 af

Pond 4: Catch Basin 4 Peak Elev=503.00' Inflow=1.26 cfs 0.092 af
18.0" x 40.0' Culvert Outflow=1.26 cfs 0.092 af

Pond 5: Catch Basin 5 Peak Elev=503.19' Inflow=2.21 cfs 0.310 af
18.0" x 40.0' Culvert Outflow=2.21 cfs 0.310 af

Pond 6: Catch Basin 6 Peak Elev=503.51' Inflow=4.17 cfs 0.460 af
18.0" x 40.0' Culvert Outflow=4.17 cfs 0.460 af

Pond 7: Catch Basin 7 Peak Elev=503.93' Inflow=6.03 cfs 0.590 af
18.0" x 10.0' Culvert Outflow=6.03 cfs 0.590 af

Pond BIO 1: Bio-Retention Zone #1 Peak Elev=504.68' Storage=4,137 cf Inflow=3.68 cfs 0.452 af
Discarded=0.46 cfs 0.317 af Primary=2.76 cfs 0.135 af Outflow=3.21 cfs 0.452 af

Pond C1: Road Culvert Storage Peak Elev=502.22' Inflow=7.46 cfs 1.261 af
24.0" x 150.0' Culvert Outflow=7.46 cfs 1.261 af

Pond C2: Road Culvert Storage Peak Elev=505.21' Inflow=3.20 cfs 0.223 af
Outflow=3.20 cfs 0.223 af

Pond Pond: Existing Pond Peak Elev=497.29' Storage=101,715 cf Inflow=11.16 cfs 2.336 af
Outflow=0.00 cfs 0.000 af

Pond WQB1: Water Quality Basin #1 Peak Elev=503.19' Storage=23,535 cf Inflow=9.82 cfs 0.874 af
Primary=1.33 cfs 0.617 af Secondary=0.00 cfs 0.000 af Outflow=1.33 cfs 0.617 af

Total Runoff Area = 12.132 ac Runoff Volume = 2.991 af Average Runoff Depth = 2.96"
73.24% Pervious Area = 8.886 ac 26.76% Impervious Area = 3.246 ac

Subcatchment 2-1: 2-1

Runoff = 1.53 cfs @ 12.06 hrs, Volume= 0.101 af, Depth= 2.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=5.00"

Area (sf)	CN	Description
24,000	72	Woods/grass comb., Good, HSG C
24,000		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	40	0.1000	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.25"

Subcatchment 2-10: 2-10

Runoff = 1.00 cfs @ 12.09 hrs, Volume= 0.071 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=5.00"

Area (sf)	CN	Description
14,416	74	>75% Grass cover, Good, HSG C
800	98	Paved parking & roofs
15,216	75	Weighted Average
14,416		Pervious Area
800		Impervious Area

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

Subcatchment 2-11: 2-11

Runoff = 1.02 cfs @ 12.13 hrs, Volume= 0.081 af, Depth= 2.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=5.00"

Area (sf)	CN	Description
19,231	72	Woods/grass comb., Good, HSG C
19,231		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	75	0.1000	0.14		**Sheet Flow, 1** Woods: Light underbrush n= 0.400 P2= 3.25"

Subcatchment 2-12: 2-12

Runoff = 0.90 cfs @ 12.03 hrs, Volume= 0.060 af, Depth= 4.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=5.00"

Area (sf)	CN	Description
6,226	98	Paved parking & roofs
1,100	74	>75% Grass cover, Good, HSG C
7,326	94	Weighted Average
1,100		Pervious Area
6,226		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	15	0.4000	0.27		**Sheet Flow, 1** Grass: Dense n= 0.240 P2= 3.25"
1.5	117	0.0170	1.34		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 3.25"
2.4	132	Total			

Subcatchment 2-14a: 2-14a

Runoff = 0.40 cfs @ 12.07 hrs, Volume= 0.032 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=5.00"

Area (sf)	CN	Description
3,459	98	Paved parking & roofs
3,459		Impervious Area

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

Subcatchment 2-14c: 2-14c

Runoff = 0.40 cfs @ 12.07 hrs, Volume= 0.032 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=5.00"

Area (sf)	CN	Description
3,459	98	Paved parking & roofs
3,459		Impervious Area

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

Subcatchment 2-2.1: 2-2.1

Runoff = 7.46 cfs @ 12.73 hrs, Volume= 1.261 af, Depth= 2.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=5.00"

Area (sf)	CN	Description
112,752	72	Woods/grass comb., Good, HSG C
41,752	98	Paved parking & roofs
68,605	74	>75% Grass cover, Good, HSG C
19,888	89	Gravel roads, HSG C
242,997	78	Weighted Average
201,245		Pervious Area
41,752		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.9	150	0.0100	0.06		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.25"
3.6	150	0.0100	0.70		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
3.6	150	0.0100	0.70		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
2.2	150	0.0260	1.13		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
2.0	150	0.0330	1.27		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
2.5	150	0.0400	1.00		**Shallow Concentrated Flow, Trees** Woodland Kv= 5.0 fps
1.0	51	0.0350	0.87	8.72	**Channel Flow, Swale** Area= 10.0 sf Perim= 31.0' r= 0.32' n= 0.150 Sheet flow over Short Grass
53.8	951	Total			

Subcatchment 2-2.2: 2-2.2

Runoff = 3.20 cfs @ 12.08 hrs, Volume= 0.223 af, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=5.00"

Area (sf)	CN	Description
9,156	72	Woods/grass comb., Good, HSG C
18,265	89	Gravel roads, HSG C
3,500	98	Paved parking & roofs
4,765	74	>75% Grass cover, Good, HSG C
35,686	84	Weighted Average
32,186		Pervious Area
3,500		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.05		**Sheet Flow, parking** Smooth surfaces n= 0.011 P2= 3.25"
1.7	250	0.0150	2.49		**Shallow Concentrated Flow, Yard** Paved Kv= 20.3 fps
0.6	75	0.1600	2.00		**Shallow Concentrated Flow, Yard** Woodland Kv= 5.0 fps
1.4	100	0.0300	1.21		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
5.3	525	Total			

Subcatchment 2-3: 2-3

Runoff = 3.68 cfs @ 12.39 hrs, Volume= 0.452 af, Depth= 2.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=5.00"

Area (sf)	CN	Description
65,539	72	Woods/grass comb., Good, HSG C
21,500	98	Paved parking & roofs
87,039	78	Weighted Average
65,539		Pervious Area
21,500		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.4	150	0.0500	0.12		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.25"
2.3	140	0.0420	1.02		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
1.2	142	0.0100	2.03		**Shallow Concentrated Flow, Parking area** Paved Kv= 20.3 fps
0.6	35	0.0200	0.99		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
4.0	70	0.0010	0.29	3.60	**Channel Flow,** Area= 12.5 sf Perim= 26.0' r= 0.48' n= 0.100 Very weedy reaches w/pools
28.5	537	Total			

Subcatchment 2-4: 2-4

Runoff = 0.94 cfs @ 12.02 hrs, Volume= 0.065 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=5.00"

Area (sf)	CN	Description
7,182	98	Paved parking & roofs
7,182		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	100	0.0400	1.83		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 3.25"
0.4	150	0.0800	5.74		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.4	90	0.0375	3.93		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
1.7	340	Total			

Subcatchment 2-5: 2-5

Runoff = 1.74 cfs @ 12.03 hrs, Volume= 0.115 af, Depth= 4.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=5.00"

Area (sf)	CN	Description
11,500	98	Paved parking & roofs
2,505	74	>75% Grass cover, Good, HSG C
14,005	94	Weighted Average
2,505		Pervious Area
11,500		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	150	0.0130	1.27		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 3.25"

Subcatchment 2-6a-b: 2-6a-b

Runoff = 0.74 cfs @ 12.10 hrs, Volume= 0.063 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=5.00"

Area (sf)	CN	Description
6,917	98	Paved parking & roofs
6,917		Impervious Area

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

Subcatchment 2-6c: 2-6c

Runoff = 0.40 cfs @ 12.07 hrs, Volume= 0.032 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=5.00"

Area (sf)	CN	Description
3,459	98	Paved parking & roofs
3,459		Impervious Area

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

Subcatchment 2-6d: 2-6d

Runoff = 0.40 cfs @ 12.07 hrs, Volume= 0.032 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=5.00"

Area (sf)	CN	Description
3,459	98	Paved parking & roofs
3,459		Impervious Area

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

Subcatchment 2-7: 2-7

Runoff = 1.12 cfs @ 12.51 hrs, Volume= 0.155 af, Depth= 2.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=5.00"

Area (sf)	CN	Description
5,002	98	Paved parking & roofs
24,798	74	>75% Grass cover, Good, HSG C
29,800	78	Weighted Average
24,798		Pervious Area
5,002		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.4	150	0.0500	0.12		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.25"
15.8	100	0.0420	0.11		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.25"
0.7	89	0.0100	2.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
36.9	339	Total			

Subcatchment 2-8: 2-8

Runoff = 1.25 cfs @ 12.03 hrs, Volume= 0.088 af, Depth= 4.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=5.00"

Area (sf)	CN	Description
9,500	98	Paved parking & roofs
368	74	>75% Grass cover, Good, HSG C
9,868	97	Weighted Average
368		Pervious Area
9,500		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	188	0.0130	1.32		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 3.25"

Subcatchment 2-9: 2-9

Runoff = 1.93 cfs @ 12.03 hrs, Volume= 0.130 af, Depth= 4.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Rainfall=5.00"

Area (sf)	CN	Description
13,682	98	Paved parking & roofs
1,700	74	>75% Grass cover, Good, HSG C
15,382	95	Weighted Average
1,700		Pervious Area
13,682		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	183	0.0160	1.43		**Sheet Flow, Parking** Smooth surfaces n= 0.011 P2= 3.25"

Pond 1: Catch Basin 1

Inflow Area = 1.998 ac, Inflow Depth = 0.81" for 10 Year event
Inflow = 2.76 cfs @ 12.55 hrs, Volume= 0.135 af
Outflow = 2.76 cfs @ 12.55 hrs, Volume= 0.135 af, Atten= 0%, Lag= 0.0 min
Primary = 2.76 cfs @ 12.55 hrs, Volume= 0.135 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 501.52' @ 12.55 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	500.75'	**18.0" x 75.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 499.75' S= 0.0133 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=2.76 cfs @ 12.55 hrs HW=501.52' (Free Discharge)
↑**1=Culvert** (Inlet Controls 2.76 cfs @ 3.00 fps)

Pond 2: Catch Basin 2

Inflow Area = 0.165 ac, Inflow Depth = 4.76" for 10 Year event
Inflow = 0.94 cfs @ 12.02 hrs, Volume= 0.065 af
Outflow = 0.94 cfs @ 12.02 hrs, Volume= 0.065 af, Atten= 0%, Lag= 0.0 min
Primary = 0.94 cfs @ 12.02 hrs, Volume= 0.065 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 504.02' @ 12.02 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	503.50'	**15.0" x 195.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 502.50' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.94 cfs @ 12.02 hrs HW=504.02' (Free Discharge)
↑**1=Culvert** (Barrel Controls 0.94 cfs @ 2.88 fps)

Pond 3: Catch Basin 3

Inflow Area = 0.566 ac, Inflow Depth = 4.50" for 10 Year event
Inflow = 3.02 cfs @ 12.03 hrs, Volume= 0.212 af
Outflow = 3.02 cfs @ 12.03 hrs, Volume= 0.212 af, Atten= 0%, Lag= 0.0 min
Primary = 3.02 cfs @ 12.03 hrs, Volume= 0.212 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 503.42' @ 12.03 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	502.50'	**15.0" x 110.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 501.60' S= 0.0082 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=3.02 cfs @ 12.03 hrs HW=503.42' (Free Discharge)
↑**1=Culvert** (Barrel Controls 3.02 cfs @ 4.34 fps)

Pond 4: Catch Basin 4

Inflow Area = 0.248 ac, Inflow Depth = 4.45" for 10 Year event
Inflow = 1.26 cfs @ 12.04 hrs, Volume= 0.092 af
Outflow = 1.26 cfs @ 12.04 hrs, Volume= 0.092 af, Atten= 0%, Lag= 0.0 min
Primary = 1.26 cfs @ 12.04 hrs, Volume= 0.092 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 503.00' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	502.50'	**18.0" x 40.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 502.00' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=1.26 cfs @ 12.04 hrs HW=503.00' (Free Discharge)
↑**1=Culvert** (Inlet Controls 1.26 cfs @ 2.42 fps)

Pond 5: Catch Basin 5

Inflow Area = 1.090 ac, Inflow Depth = 3.41" for 10 Year event
Inflow = 2.21 cfs @ 12.07 hrs, Volume= 0.310 af
Outflow = 2.21 cfs @ 12.07 hrs, Volume= 0.310 af, Atten= 0%, Lag= 0.0 min
Primary = 2.21 cfs @ 12.07 hrs, Volume= 0.310 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 503.19' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	502.50'	**18.0" x 40.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 502.00' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=2.21 cfs @ 12.07 hrs HW=503.19' (Free Discharge)
↑**1=Culvert** (Barrel Controls 2.21 cfs @ 4.12 fps)

Pond 6: Catch Basin 6

Inflow Area = 1.476 ac, Inflow Depth = 3.74" for 10 Year event
Inflow = 4.17 cfs @ 12.05 hrs, Volume= 0.460 af
Outflow = 4.17 cfs @ 12.05 hrs, Volume= 0.460 af, Atten= 0%, Lag= 0.0 min
Primary = 4.17 cfs @ 12.05 hrs, Volume= 0.460 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 503.51' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	502.50'	**18.0" x 40.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 502.00' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=4.17 cfs @ 12.05 hrs HW=503.51' (Free Discharge)
↑**1=Culvert** (Barrel Controls 4.17 cfs @ 4.67 fps)

Pond 7: Catch Basin 7

Inflow Area = 1.829 ac, Inflow Depth = 3.87" for 10 Year event
Inflow = 6.03 cfs @ 12.04 hrs, Volume= 0.590 af
Outflow = 6.03 cfs @ 12.04 hrs, Volume= 0.590 af, Atten= 0%, Lag= 0.0 min
Primary = 6.03 cfs @ 12.04 hrs, Volume= 0.590 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 503.93' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	502.50'	**18.0" x 10.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 502.35' S= 0.0150 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=6.03 cfs @ 12.04 hrs HW=503.93' (Free Discharge)
↑**1=Culvert** (Barrel Controls 6.03 cfs @ 4.46 fps)

Pond BIO 1: Bio-Retention Zone #1

Inflow Area = 1.998 ac, Inflow Depth = 2.71" for 10 Year event
Inflow = 3.68 cfs @ 12.39 hrs, Volume= 0.452 af
Outflow = 3.21 cfs @ 12.55 hrs, Volume= 0.452 af, Atten= 13%, Lag= 9.4 min
Discarded = 0.46 cfs @ 12.55 hrs, Volume= 0.317 af
Primary = 2.76 cfs @ 12.55 hrs, Volume= 0.135 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 504.68' @ 12.55 hrs Surf.Area= 4,936 sf Storage= 4,137 cf

Plug-Flow detention time= 73.1 min calculated for 0.451 af (100% of inflow)
Center-of-Mass det. time= 73.1 min (921.0 - 848.0)

Volume	Invert	Avail.Storage	Storage Description
#1	500.75'	14,283 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
500.75	2,600	40.0	0	0
501.50	2,600	20.0	390	390
504.00	2,600	20.0	1,300	1,690
504.01	2,600	100.0	26	1,716
504.50	4,000	100.0	1,617	3,333
505.00	6,600	100.0	2,650	5,983
506.00	10,000	100.0	8,300	14,283

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**4.000 in/hr Soil Exfiltration over Surface area**
#2	Primary	504.50'	**2.50' x 3.00' Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Discarded OutFlow Max=0.46 cfs @ 12.55 hrs HW=504.68' (Free Discharge)
↑**1=Soil Exfiltration** (Exfiltration Controls 0.46 cfs)

Primary OutFlow Max=2.74 cfs @ 12.55 hrs HW=504.68' (Free Discharge)
↑**2=Orifice/Grate** (Weir Controls 2.74 cfs @ 1.39 fps)

Pond C1: Road Culvert Storage

Inflow Area = 5.578 ac, Inflow Depth = 2.71" for 10 Year event
Inflow = 7.46 cfs @ 12.73 hrs, Volume= 1.261 af
Outflow = 7.46 cfs @ 12.73 hrs, Volume= 1.261 af, Atten= 0%, Lag= 0.0 min
Primary = 7.46 cfs @ 12.73 hrs, Volume= 1.261 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 502.22' @ 12.73 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	501.00'	**24.0" x 150.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 499.75' S= 0.0083 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=7.46 cfs @ 12.73 hrs HW=502.22' (Free Discharge)
↑**1=Culvert** (Barrel Controls 7.46 cfs @ 5.33 fps)

Pond C2: Road Culvert Storage

Inflow Area = 0.819 ac, Inflow Depth = 3.27" for 10 Year event
Inflow = 3.20 cfs @ 12.08 hrs, Volume= 0.223 af
Outflow = 3.20 cfs @ 12.08 hrs, Volume= 0.223 af, Atten= 0%, Lag= 0.0 min
Primary = 3.20 cfs @ 12.08 hrs, Volume= 0.223 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 505.21' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	501.75'	**15.0" x 40.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 500.25' S= 0.0375 '/' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior
#2 Device 1 505.00' **2.50' x 2.50' Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Primary OutFlow Max=3.19 cfs @ 12.08 hrs HW=505.21' (Free Discharge)
↑—**1=Culvert** (Passes 3.19 cfs of 9.95 cfs potential flow)
↑—**2=Orifice/Grate** (Weir Controls 3.19 cfs @ 1.50 fps)

Pond Pond: Existing Pond

Inflow Area = 11.691 ac, Inflow Depth > 2.40" for 10 Year event
Inflow = 11.16 cfs @ 12.68 hrs, Volume= 2.336 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 497.29' @ 48.00 hrs Surf.Area= 105,292 sf Storage= 101,715 cf

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	496.00'	1,328,750 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
496.00	55,000	1,900.0	0	0	55,000
498.00	139,810	2,309.0	188,333	188,333	192,056
500.00	181,423	2,690.0	320,331	508,664	343,703
502.00	204,288	2,950.0	385,485	894,149	460,532
504.00	230,578	3,150.0	434,601	1,328,750	557,808

Device	Routing	Invert	Outlet Devices
#1	Primary	504.50'	**Custom Weir/Orifice, C= 2.62** Head (feet) 0.00 1.00 1.50 2.00 Width (feet) 143.00 150.00 155.00 170.00

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=496.00' (Free Discharge)
↑—**1=Custom Weir/Orifice** (Controls 0.00 cfs)

Pond WQB1: Water Quality Basin #1

Inflow Area = 2.744 ac, Inflow Depth = 3.82" for 10 Year event
Inflow = 9.82 cfs @ 12.04 hrs, Volume= 0.874 af
Outflow = 1.33 cfs @ 12.99 hrs, Volume= 0.617 af, Atten= 86%, Lag= 57.0 min
Primary = 1.33 cfs @ 12.99 hrs, Volume= 0.617 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 503.19' @ 12.99 hrs Surf.Area= 9,216 sf Storage= 23,535 cf

Plug-Flow detention time= 564.7 min calculated for 0.617 af (71% of inflow)

Center-of-Mass det. time= 469.3 min (1,250.5 - 781.1)

Volume	Invert	Avail.Storage	Storage Description
#1	497.00'	31,756 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
497.00	900	0	0	900
498.00	1,450	1,164	1,164	1,463
500.00	2,500	3,903	5,067	2,559
501.50	5,500	5,854	10,921	5,577
502.00	6,900	3,093	14,014	6,984
504.00	11,000	17,741	31,756	11,137

Device	Routing	Invert	Outlet Devices
#1	Primary	500.50'	**18.0" x 30.0' long Culvert** CPP, mitered to conform to fill, Ke= 0.700 Outlet Invert= 500.00' S= 0.0167 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	501.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	503.00'	**4.00' W x 1.00' H Vert. Primary Overflow** C= 0.600
#4	Secondary	503.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=1.32 cfs @ 12.99 hrs HW=503.19' (Free Discharge)
- **1=Culvert** (Passes 1.32 cfs of 10.45 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 0.30 cfs @ 6.02 fps)
  - **3=Primary Overflow** (Orifice Controls 1.03 cfs @ 1.38 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=497.00' (Free Discharge)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2-1: 2-1 Runoff Area=24,000 sf Runoff Depth=5.14"
Flow Length=40' Slope=0.1000 '/' Tc=3.6 min CN=72 Runoff=3.61 cfs 0.236 af

Subcatchment 2-10: 2-10 Runoff Area=15,216 sf Runoff Depth=5.50"
Tc=6.0 min CN=75 Runoff=2.24 cfs 0.160 af

Subcatchment 2-11: 2-11 Runoff Area=19,231 sf Runoff Depth=5.14"
Flow Length=75' Slope=0.1000 '/' Tc=8.9 min CN=72 Runoff=2.40 cfs 0.189 af

Subcatchment 2-12: 2-12 Runoff Area=7,326 sf Runoff Depth=7.78"
Flow Length=132' Tc=2.4 min CN=94 Runoff=1.57 cfs 0.109 af

Subcatchment 2-14a: 2-14a Runoff Area=3,459 sf Runoff Depth=8.26"
Tc=5.0 min CN=98 Runoff=0.69 cfs 0.055 af

Subcatchment 2-14c: 2-14c Runoff Area=3,459 sf Runoff Depth=8.26"
Tc=5.0 min CN=98 Runoff=0.69 cfs 0.055 af

Subcatchment 2-2.1: 2-2.1 Runoff Area=242,997 sf Runoff Depth=5.85"
Flow Length=951' Tc=53.8 min CN=78 Runoff=16.00 cfs 2.722 af

Subcatchment 2-2.2: 2-2.2 Runoff Area=35,686 sf Runoff Depth=6.58"
Flow Length=525' Tc=5.3 min CN=84 Runoff=6.25 cfs 0.449 af

Subcatchment 2-3: 2-3 Runoff Area=87,039 sf Runoff Depth=5.85"
Flow Length=537' Tc=28.5 min CN=78 Runoff=7.88 cfs 0.975 af

Subcatchment 2-4: 2-4 Runoff Area=7,182 sf Runoff Depth=8.26"
Flow Length=340' Tc=1.7 min CN=98 Runoff=1.60 cfs 0.113 af

Subcatchment 2-5: 2-5 Runoff Area=14,005 sf Runoff Depth=7.78"
Flow Length=150' Slope=0.0130 '/' Tc=2.0 min CN=94 Runoff=3.05 cfs 0.208 af

Subcatchment 2-6a-b: 2-6a-b Runoff Area=6,917 sf Runoff Depth=8.26"
Tc=7.5 min CN=98 Runoff=1.26 cfs 0.109 af

Subcatchment 2-6c: 2-6c Runoff Area=3,459 sf Runoff Depth=8.26"
Tc=5.0 min CN=98 Runoff=0.69 cfs 0.055 af

Subcatchment 2-6d: 2-6d Runoff Area=3,459 sf Runoff Depth=8.26"
Tc=5.0 min CN=98 Runoff=0.69 cfs 0.055 af

Subcatchment 2-7: 2-7 Runoff Area=29,800 sf Runoff Depth=5.85"
Flow Length=339' Tc=36.9 min CN=78 Runoff=2.39 cfs 0.334 af

Subcatchment 2-8: 2-8 Runoff Area=9,868 sf Runoff Depth=8.14"
Flow Length=188' Slope=0.0130 '/' Tc=2.4 min CN=97 Runoff=2.15 cfs 0.154 af

Subcatchment 2-9: 2-9 Runoff Area=15,382 sf Runoff Depth=7.90"
Flow Length=183' Slope=0.0160 '/' Tc=2.1 min CN=95 Runoff=3.35 cfs 0.232 af

Pond 1: Catch Basin 1 Peak Elev=502.20' Inflow=7.18 cfs 0.523 af
18.0" x 75.0' Culvert Outflow=7.18 cfs 0.523 af

Pond 2: Catch Basin 2 Peak Elev=504.19' Inflow=1.60 cfs 0.113 af
15.0" x 195.0' Culvert Outflow=1.60 cfs 0.113 af

Pond 3: Catch Basin 3 Peak Elev=503.91' Inflow=5.23 cfs 0.377 af
15.0" x 110.0' Culvert Outflow=5.23 cfs 0.377 af

Pond 4: Catch Basin 4 Peak Elev=503.18' Inflow=2.19 cfs 0.164 af
18.0" x 40.0' Culvert Outflow=2.19 cfs 0.164 af

Pond 5: Catch Basin 5 Peak Elev=503.49' Inflow=4.06 cfs 0.607 af
18.0" x 40.0' Culvert Outflow=4.06 cfs 0.607 af

Pond 6: Catch Basin 6 Peak Elev=504.01' Inflow=7.40 cfs 0.870 af
18.0" x 40.0' Culvert Outflow=7.40 cfs 0.870 af

Pond 7: Catch Basin 7 Peak Elev=504.81' Inflow=10.63 cfs 1.102 af
18.0" x 10.0' Culvert Outflow=10.63 cfs 1.102 af

Pond BIO 1: Bio-Retention Zone #1 Peak Elev=504.84' Storage=5,001 cf Inflow=7.88 cfs 0.975 af
Discarded=0.53 cfs 0.452 af Primary=7.18 cfs 0.523 af Outflow=7.71 cfs 0.975 af

Pond C1: Road Culvert Storage Peak Elev=503.12' Inflow=16.00 cfs 2.722 af
24.0" x 150.0' Culvert Outflow=16.00 cfs 2.722 af

Pond C2: Road Culvert Storage Peak Elev=505.33' Inflow=6.25 cfs 0.449 af
Outflow=6.25 cfs 0.449 af

Pond Pond: Existing Pond Peak Elev=498.30' Storage=231,267 cf Inflow=29.17 cfs 5.309 af
Outflow=0.00 cfs 0.000 af

Pond WQB1: Water Quality Basin #1 Peak Elev=503.71' Storage=28,664 cf Inflow=17.64 cfs 1.639 af
Primary=8.03 cfs 1.320 af Secondary=2.42 cfs 0.061 af Outflow=10.45 cfs 1.380 af

Total Runoff Area = 12.132 ac Runoff Volume = 6.209 af Average Runoff Depth = 6.14"
73.24% Pervious Area = 8.886 ac 26.76% Impervious Area = 3.246 ac

Subcatchment 2-1: 2-1

Runoff = 3.61 cfs @ 12.05 hrs, Volume= 0.236 af, Depth= 5.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Rainfall=8.50"

Area (sf)	CN	Description
24,000	72	Woods/grass comb., Good, HSG C
24,000		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	40	0.1000	0.19		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.25"

Subcatchment 2-10: 2-10

Runoff = 2.24 cfs @ 12.09 hrs, Volume= 0.160 af, Depth= 5.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Rainfall=8.50"

Area (sf)	CN	Description
14,416	74	>75% Grass cover, Good, HSG C
800	98	Paved parking & roofs
15,216	75	Weighted Average
14,416		Pervious Area
800		Impervious Area

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

Subcatchment 2-11: 2-11

Runoff = 2.40 cfs @ 12.13 hrs, Volume= 0.189 af, Depth= 5.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Rainfall=8.50"

Area (sf)	CN	Description
19,231	72	Woods/grass comb., Good, HSG C
19,231		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	75	0.1000	0.14		**Sheet Flow, 1** Woods: Light underbrush n= 0.400 P2= 3.25"

Subcatchment 2-12: 2-12

Runoff = 1.57 cfs @ 12.03 hrs, Volume= 0.109 af, Depth= 7.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Rainfall=8.50"

Area (sf)	CN	Description
6,226	98	Paved parking & roofs
1,100	74	>75% Grass cover, Good, HSG C
7,326	94	Weighted Average
1,100		Pervious Area
6,226		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	15	0.4000	0.27		**Sheet Flow, 1** Grass: Dense n= 0.240 P2= 3.25"
1.5	117	0.0170	1.34		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 3.25"
2.4	132	Total			

Subcatchment 2-14a: 2-14a

Runoff = 0.69 cfs @ 12.07 hrs, Volume= 0.055 af, Depth= 8.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Rainfall=8.50"

Area (sf)	CN	Description
3,459	98	Paved parking & roofs
3,459		Impervious Area

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

Subcatchment 2-14c: 2-14c

Runoff = 0.69 cfs @ 12.07 hrs, Volume= 0.055 af, Depth= 8.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Rainfall=8.50"

Area (sf)	CN	Description
3,459	98	Paved parking & roofs
3,459		Impervious Area

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

Subcatchment 2-2.1: 2-2.1

Runoff = 16.00 cfs @ 12.73 hrs, Volume= 2.722 af, Depth= 5.85"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Rainfall=8.50"

Area (sf)	CN	Description
112,752	72	Woods/grass comb., Good, HSG C
41,752	98	Paved parking & roofs
68,605	74	>75% Grass cover, Good, HSG C
19,888	89	Gravel roads, HSG C
242,997	78	Weighted Average
201,245		Pervious Area
41,752		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.9	150	0.0100	0.06		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.25"
3.6	150	0.0100	0.70		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
3.6	150	0.0100	0.70		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
2.2	150	0.0260	1.13		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
2.0	150	0.0330	1.27		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
2.5	150	0.0400	1.00		**Shallow Concentrated Flow, Trees** Woodland Kv= 5.0 fps
1.0	51	0.0350	0.87	8.72	**Channel Flow, Swale** Area= 10.0 sf Perim= 31.0' r= 0.32' n= 0.150 Sheet flow over Short Grass
53.8	951	Total			

Subcatchment 2-2.2: 2-2.2

Runoff = 6.25 cfs @ 12.08 hrs, Volume= 0.449 af, Depth= 6.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Rainfall=8.50"

Area (sf)	CN	Description
9,156	72	Woods/grass comb., Good, HSG C
18,265	89	Gravel roads, HSG C
3,500	98	Paved parking & roofs
4,765	74	>75% Grass cover, Good, HSG C
35,686	84	Weighted Average
32,186		Pervious Area
3,500		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.05		**Sheet Flow, parking** Smooth surfaces n= 0.011 P2= 3.25"
1.7	250	0.0150	2.49		**Shallow Concentrated Flow, Yard** Paved Kv= 20.3 fps
0.6	75	0.1600	2.00		**Shallow Concentrated Flow, Yard** Woodland Kv= 5.0 fps
1.4	100	0.0300	1.21		**Shallow Concentrated Flow, Yard** Short Grass Pasture Kv= 7.0 fps
5.3	525	Total			

Subcatchment 2-3: 2-3

Runoff = 7.88 cfs @ 12.38 hrs, Volume= 0.975 af, Depth= 5.85"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Rainfall=8.50"

Area (sf)	CN	Description
65,539	72	Woods/grass comb., Good, HSG C
21,500	98	Paved parking & roofs
87,039	78	Weighted Average
65,539		Pervious Area
21,500		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.4	150	0.0500	0.12		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.25"
2.3	140	0.0420	1.02		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
1.2	142	0.0100	2.03		**Shallow Concentrated Flow, Parking area** Paved Kv= 20.3 fps
0.6	35	0.0200	0.99		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
4.0	70	0.0010	0.29	3.60	**Channel Flow,** Area= 12.5 sf Perim= 26.0' r= 0.48' n= 0.100 Very weedy reaches w/pools
28.5	537	Total			

Subcatchment 2-4: 2-4

Runoff = 1.60 cfs @ 12.02 hrs, Volume= 0.113 af, Depth= 8.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Rainfall=8.50"

Area (sf)	CN	Description
7,182	98	Paved parking & roofs
7,182		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	100	0.0400	1.83		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 3.25"
0.4	150	0.0800	5.74		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.4	90	0.0375	3.93		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
1.7	340	Total			

Subcatchment 2-5: 2-5

Runoff = 3.05 cfs @ 12.03 hrs, Volume= 0.208 af, Depth= 7.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Rainfall=8.50"

Area (sf)	CN	Description
11,500	98	Paved parking & roofs
2,505	74	>75% Grass cover, Good, HSG C
14,005	94	Weighted Average
2,505		Pervious Area
11,500		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	150	0.0130	1.27		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 3.25"

Subcatchment 2-6a-b: 2-6a-b

Runoff = 1.26 cfs @ 12.10 hrs, Volume= 0.109 af, Depth= 8.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Rainfall=8.50"

Area (sf)	CN	Description
6,917	98	Paved parking & roofs
6,917		Impervious Area

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

Subcatchment 2-6c: 2-6c

Runoff = 0.69 cfs @ 12.07 hrs, Volume= 0.055 af, Depth= 8.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Rainfall=8.50"

Area (sf)	CN	Description
3,459	98	Paved parking & roofs
3,459		Impervious Area

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

Subcatchment 2-6d: 2-6d

Runoff = 0.69 cfs @ 12.07 hrs, Volume= 0.055 af, Depth= 8.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Rainfall=8.50"

Area (sf)	CN	Description
3,459	98	Paved parking & roofs
3,459		Impervious Area

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

Subcatchment 2-7: 2-7

Runoff = 2.39 cfs @ 12.50 hrs, Volume= 0.334 af, Depth= 5.85"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Rainfall=8.50"

Area (sf)	CN	Description
5,002	98	Paved parking & roofs
24,798	74	>75% Grass cover, Good, HSG C
29,800	78	Weighted Average
24,798		Pervious Area
5,002		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.4	150	0.0500	0.12		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.25"
15.8	100	0.0420	0.11		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.25"
0.7	89	0.0100	2.03		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
36.9	339	Total			

Subcatchment 2-8: 2-8

Runoff = 2.15 cfs @ 12.03 hrs, Volume= 0.154 af, Depth= 8.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Rainfall=8.50"

Area (sf)	CN	Description
9,500	98	Paved parking & roofs
368	74	>75% Grass cover, Good, HSG C
9,868	97	Weighted Average
368		Pervious Area
9,500		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	188	0.0130	1.32		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 3.25"

Subcatchment 2-9: 2-9

Runoff = 3.35 cfs @ 12.03 hrs, Volume= 0.232 af, Depth= 7.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Rainfall=8.50"

Area (sf)	CN	Description
13,682	98	Paved parking & roofs
1,700	74	>75% Grass cover, Good, HSG C
15,382	95	Weighted Average
1,700		Pervious Area
13,682		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	183	0.0160	1.43		**Sheet Flow, Parking** Smooth surfaces n= 0.011 P2= 3.25"

Pond 1: Catch Basin 1

Inflow Area = 1.998 ac, Inflow Depth = 3.14" for 100 Year event
Inflow = 7.18 cfs @ 12.44 hrs, Volume= 0.523 af
Outflow = 7.18 cfs @ 12.44 hrs, Volume= 0.523 af, Atten= 0%, Lag= 0.0 min
Primary = 7.18 cfs @ 12.44 hrs, Volume= 0.523 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 502.20' @ 12.44 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	500.75'	**18.0" x 75.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 499.75' S= 0.0133 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=7.18 cfs @ 12.44 hrs HW=502.20' (Free Discharge)
↑**1=Culvert** (Inlet Controls 7.18 cfs @ 4.10 fps)

Pond 2: Catch Basin 2

Inflow Area = 0.165 ac, Inflow Depth = 8.26" for 100 Year event
Inflow = 1.60 cfs @ 12.02 hrs, Volume= 0.113 af
Outflow = 1.60 cfs @ 12.02 hrs, Volume= 0.113 af, Atten= 0%, Lag= 0.0 min
Primary = 1.60 cfs @ 12.02 hrs, Volume= 0.113 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 504.19' @ 12.02 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	503.50'	**15.0" x 195.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 502.50' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=1.60 cfs @ 12.02 hrs HW=504.19' (Free Discharge)
↑**1=Culvert** (Barrel Controls 1.60 cfs @ 3.31 fps)

Pond 3: Catch Basin 3

Inflow Area = 0.566 ac, Inflow Depth = 7.99" for 100 Year event
Inflow = 5.23 cfs @ 12.03 hrs, Volume= 0.377 af
Outflow = 5.23 cfs @ 12.03 hrs, Volume= 0.377 af, Atten= 0%, Lag= 0.0 min
Primary = 5.23 cfs @ 12.03 hrs, Volume= 0.377 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 503.91' @ 12.03 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	502.50'	**15.0" x 110.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 501.60' S= 0.0082 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=5.23 cfs @ 12.03 hrs HW=503.91' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 5.23 cfs @ 4.26 fps)

Pond 4: Catch Basin 4

Inflow Area =	0.248 ac,	Inflow Depth =	7.93"	for	100 Year event
Inflow =	2.19 cfs @	12.04 hrs, Volume=	0.164 af		
Outflow =	2.19 cfs @	12.04 hrs, Volume=	0.164 af,	Atten= 0%,	Lag= 0.0 min
Primary =	2.19 cfs @	12.04 hrs, Volume=	0.164 af		

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 503.18' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	502.50'	**18.0" x 40.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 502.00' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=2.19 cfs @ 12.04 hrs HW=503.18' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 2.19 cfs @ 4.11 fps)

Pond 5: Catch Basin 5

Inflow Area =	1.090 ac,	Inflow Depth =	6.68"	for	100 Year event
Inflow =	4.06 cfs @	12.07 hrs, Volume=	0.607 af		
Outflow =	4.06 cfs @	12.07 hrs, Volume=	0.607 af,	Atten= 0%,	Lag= 0.0 min
Primary =	4.06 cfs @	12.07 hrs, Volume=	0.607 af		

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 503.49' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	502.50'	**18.0" x 40.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 502.00' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=4.05 cfs @ 12.07 hrs HW=503.49' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 4.05 cfs @ 4.64 fps)

Pond 6: Catch Basin 6

Inflow Area =	1.476 ac,	Inflow Depth =	7.07"	for	100 Year event
Inflow =	7.40 cfs @	12.05 hrs, Volume=	0.870 af		
Outflow =	7.40 cfs @	12.05 hrs, Volume=	0.870 af,	Atten= 0%,	Lag= 0.0 min
Primary =	7.40 cfs @	12.05 hrs, Volume=	0.870 af		

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 504.01' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	502.50'	**18.0" x 40.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 502.00' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=7.39 cfs @ 12.05 hrs HW=504.01' (Free Discharge)
↑**1=Culvert** (Inlet Controls 7.39 cfs @ 4.18 fps)

Pond 7: Catch Basin 7

Inflow Area =	1.829 ac,	Inflow Depth =	7.23"	for	100 Year event
Inflow =	10.63 cfs @	12.04 hrs,	Volume=	1.102 af	
Outflow =	10.63 cfs @	12.04 hrs,	Volume=	1.102 af,	Atten= 0%, Lag= 0.0 min
Primary =	10.63 cfs @	12.04 hrs,	Volume=	1.102 af	

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 504.81' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	502.50'	**18.0" x 10.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 502.35' S= 0.0150 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=10.61 cfs @ 12.04 hrs HW=504.81' (Free Discharge)
↑**1=Culvert** (Inlet Controls 10.61 cfs @ 6.00 fps)

Pond BIO 1: Bio-Retention Zone #1

Inflow Area =	1.998 ac,	Inflow Depth =	5.85"	for	100 Year event
Inflow =	7.88 cfs @	12.38 hrs,	Volume=	0.975 af	
Outflow =	7.71 cfs @	12.44 hrs,	Volume=	0.975 af,	Atten= 2%, Lag= 3.4 min
Discarded =	0.53 cfs @	12.44 hrs,	Volume=	0.452 af	
Primary =	7.18 cfs @	12.44 hrs,	Volume=	0.523 af	

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 504.84' @ 12.44 hrs Surf.Area= 5,775 sf Storage= 5,001 cf

Plug-Flow detention time= 54.4 min calculated for 0.975 af (100% of inflow)
Center-of-Mass det. time= 54.4 min (880.5 - 826.0)

Volume	Invert	Avail.Storage	Storage Description
#1	500.75'	14,283 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
500.75	2,600	40.0	0	0
501.50	2,600	20.0	390	390
504.00	2,600	20.0	1,300	1,690
504.01	2,600	100.0	26	1,716
504.50	4,000	100.0	1,617	3,333
505.00	6,600	100.0	2,650	5,983
506.00	10,000	100.0	8,300	14,283

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**4.000 in/hr Soil Exfiltration over Surface area**
#2	Primary	504.50'	**2.50' x 3.00' Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Discarded OutFlow Max=0.53 cfs @ 12.44 hrs HW=504.84' (Free Discharge)
↑—**1=Soil Exfiltration** (Exfiltration Controls 0.53 cfs)

Primary OutFlow Max=7.17 cfs @ 12.44 hrs HW=504.84' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 7.17 cfs @ 1.91 fps)

Pond C1: Road Culvert Storage

Inflow Area = 5.578 ac, Inflow Depth = 5.85" for 100 Year event
Inflow = 16.00 cfs @ 12.73 hrs, Volume= 2.722 af
Outflow = 16.00 cfs @ 12.73 hrs, Volume= 2.722 af, Atten= 0%, Lag= 0.0 min
Primary = 16.00 cfs @ 12.73 hrs, Volume= 2.722 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 503.12' @ 12.73 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	501.00'	**24.0" x 150.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 499.75' S= 0.0083 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=16.00 cfs @ 12.73 hrs HW=503.12' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 16.00 cfs @ 5.09 fps)

Pond C2: Road Culvert Storage

Inflow Area = 0.819 ac, Inflow Depth = 6.58" for 100 Year event
Inflow = 6.25 cfs @ 12.08 hrs, Volume= 0.449 af
Outflow = 6.25 cfs @ 12.08 hrs, Volume= 0.449 af, Atten= 0%, Lag= 0.0 min
Primary = 6.25 cfs @ 12.08 hrs, Volume= 0.449 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 505.33' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	501.75'	**15.0" x 40.0' long Culvert** CPP, square edge headwall, Ke= 0.500 Outlet Invert= 500.25' S= 0.0375 '/' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior
#2 Device 1 505.00' **2.50' x 2.50' Horiz. Orifice/Grate** Limited to weir flow C= 0.600

Primary OutFlow Max=6.23 cfs @ 12.08 hrs HW=505.33' (Free Discharge)
↑**1=Culvert** (Passes 6.23 cfs of 10.16 cfs potential flow)
↑**2=Orifice/Grate** (Weir Controls 6.23 cfs @ 1.88 fps)

Pond Pond: Existing Pond

Inflow Area = 11.691 ac, Inflow Depth > 5.45" for 100 Year event
Inflow = 29.17 cfs @ 12.47 hrs, Volume= 5.309 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 498.30' @ 48.00 hrs Surf.Area= 145,722 sf Storage= 231,267 cf

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	496.00'	1,328,750 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
496.00	55,000	1,900.0	0	0	55,000
498.00	139,810	2,309.0	188,333	188,333	192,056
500.00	181,423	2,690.0	320,331	508,664	343,703
502.00	204,288	2,950.0	385,485	894,149	460,532
504.00	230,578	3,150.0	434,601	1,328,750	557,808

Device	Routing	Invert	Outlet Devices
#1	Primary	504.50'	**Custom Weir/Orifice, C= 2.62**
			Head (feet) 0.00 1.00 1.50 2.00
			Width (feet) 143.00 150.00 155.00 170.00

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=496.00' (Free Discharge)
↑**1=Custom Weir/Orifice** (Controls 0.00 cfs)

Pond WQB1: Water Quality Basin #1

Inflow Area = 2.744 ac, Inflow Depth = 7.17" for 100 Year event
Inflow = 17.64 cfs @ 12.04 hrs, Volume= 1.639 af
Outflow = 10.45 cfs @ 12.16 hrs, Volume= 1.380 af, Atten= 41%, Lag= 6.9 min
Primary = 8.03 cfs @ 12.16 hrs, Volume= 1.320 af
Secondary = 2.42 cfs @ 12.16 hrs, Volume= 0.061 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 503.71' @ 12.16 hrs Surf.Area= 10,347 sf Storage= 28,664 cf

Plug-Flow detention time= 334.2 min calculated for 1.380 af (84% of inflow)

Center-of-Mass det. time= 267.1 min (1,038.2 - 771.1)

Volume	Invert	Avail.Storage	Storage Description
#1	497.00'	31,756 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
497.00	900	0	0	900
498.00	1,450	1,164	1,164	1,463
500.00	2,500	3,903	5,067	2,559
501.50	5,500	5,854	10,921	5,577
502.00	6,900	3,093	14,014	6,984
504.00	11,000	17,741	31,756	11,137

Device	Routing	Invert	Outlet Devices
#1	Primary	500.50'	**18.0" x 30.0' long Culvert** CPP, mitered to conform to fill, Ke= 0.700 Outlet Invert= 500.00' S= 0.0167 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	501.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	503.00'	**4.00' W x 1.00' H Vert. Primary Overflow** C= 0.600
#4	Secondary	503.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=8.03 cfs @ 12.16 hrs HW=503.71' (Free Discharge)
└**1=Culvert** (Passes 8.03 cfs of 11.78 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.34 cfs @ 6.95 fps)
  └**3=Primary Overflow** (Orifice Controls 7.68 cfs @ 2.71 fps)

Secondary OutFlow Max=2.40 cfs @ 12.16 hrs HW=503.71' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 2.40 cfs @ 1.14 fps)

Appendix C

Revised Post Drainage Area Map

OWNER'S CONSENT

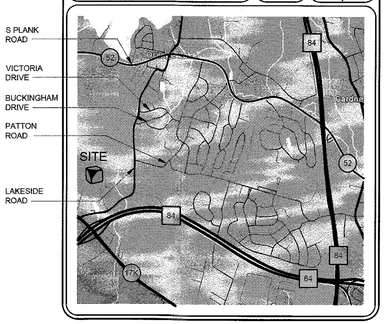
THE UNDERSIGNED OWNER OF THE PROPERTY HEREON STATES THAT HE IS FAMILIAR WITH THESE PLANS, THEIR CONTENT AND LEGENDS, AND HEREBY CONSENTS TO ALL SAID TERMS AND CONDITIONS AS STATED THEREON.

SIGNED THIS _____ DAY OF _____, 20_____

_____

SITE LOC. MAP

SCALE: N.T.S.



INDEX TO DRAWINGS

PROPOSED SENIOR HOUSING COMMUNITY:

LAKESIDE APARTMENTS

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CIVIL ENGINEER / SURVEYOR:

BARRY MEDENBACH, PE
MEDENBACH & EGGERS CIVIL
ENGINEERING & LAND SURVEYING, PC
4305 US HIGHWAY 209
STONE RIDGE, NY 12484
845.687-0047

OWNER:

BRYAN J FARRELL, TRUSTEE
HUDSON PLACE AT LAKESIDE, LLC
2317 MONTAUK HIGHWAY, PO BOX 14
BRIDGEHAMPTON, NY 11932

1 BUILDINGS 1 & 2 TYPICAL NORTH / SOUTH ELEVATION

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

BUILDING 3 SOUTH SIMILAR, SEE 1/PB-2 FOR NORTH ELEVATION

0 1' 5' 10' 20'

project no.
18-09

date
22 FEB 19

drawn by
BP

revision date	description
14 MAY 19	PLANNING BOARD RESUBMISSION

PROPOSED SENIOR HOUSING:

LAKESIDE APARTMENTS

LAKESIDE ROAD — TOWN OF NEWBURGH, NY

APARTMENT BUILDING ELEVATIONS

MAURI ARCHITECTS PC
73 MANSION STREET POUGHKEEPSIE NY 12601 845.452.1030 mauri-architects.com

SHEET NO.

PB-1

REGISTERED ARCHITECT
MARTIN T DIESING
039240
STATE OF NEW YORK

1 BUILDING 3 NORTH ELEVATION
SCALE: 1/8" = 1'-0"

0 1' 5' 10' 20'

2 BUILDINGS 1 & 2: TYPICAL APARTMENT EAST / WEST ELEVATION
SCALE: 1/8" = 1'-0"

0 1' 5' 10' 20'

3 BUILDING 3 EAST ELEVATION
SCALE: 1/8" = 1'-0"

BUILDING 3 WEST SIMILAR

0 1' 5' 10' 20'

project no.
18-09

date
22 FEB 19

drawn by
BP

revision date	description
14 MAY 19	PLANNING BOARD RESUBMISSION

PROPOSED SENIOR HOUSING:

LAKESIDE APARTMENTS

TOWN OF NEWBURGH, NY

LAKESIDE ROAD

APARTMENT BUILDING ELEVATIONS

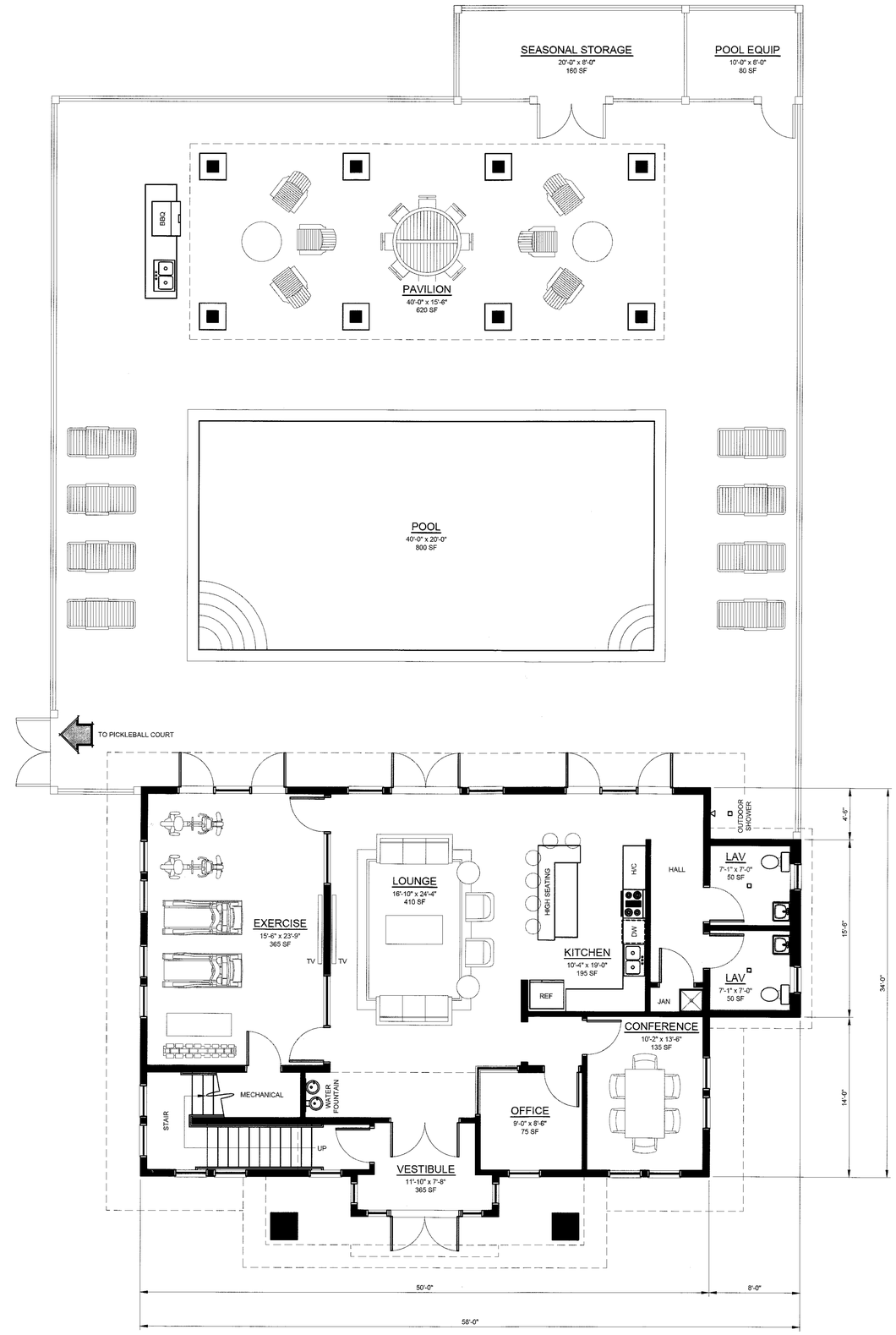
MAURI ARCHITECTS PC
73 MANSION STREET POUGHKEEPSIE NY 12601 845.452.1030 mauri-architects.com

sheet no.
PB-2

2 CLUBHOUSE - SECOND FLOOR PLAN

SCALE: 3/16" = 1'-0"

0 1' 2' 5' 10'



1 CLUBHOUSE & PAVILION - FIRST FLOOR PLAN

SCALE: 3/16" = 1'-0"

0 1' 2' 5' 10'

project no.
18-09

date
22 FEB 19

drawn by
BP

revision date	description
14-MAY-19	PLANNING BOARD RESUBMISSION

PROPOSED SENIOR HOUSING:

LAKESIDE APARTMENTS

TOWN OF NEWBURGH, NY

LAKESIDE ROAD

CLUBHOUSE & PAVILION FLOOR PLANS

MAURI ARCHITECTS PC
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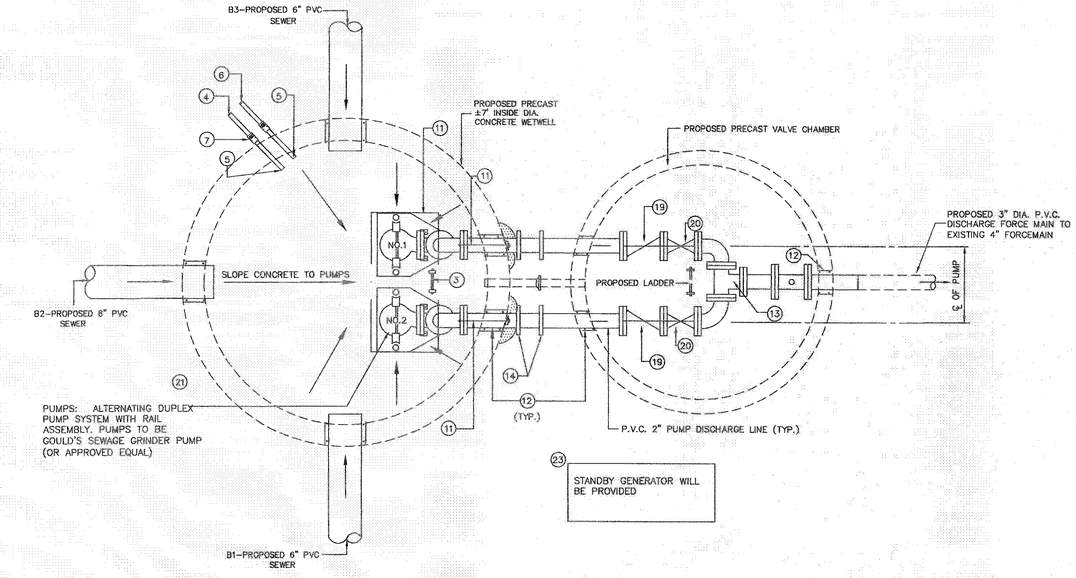
sheet no.
PB-4

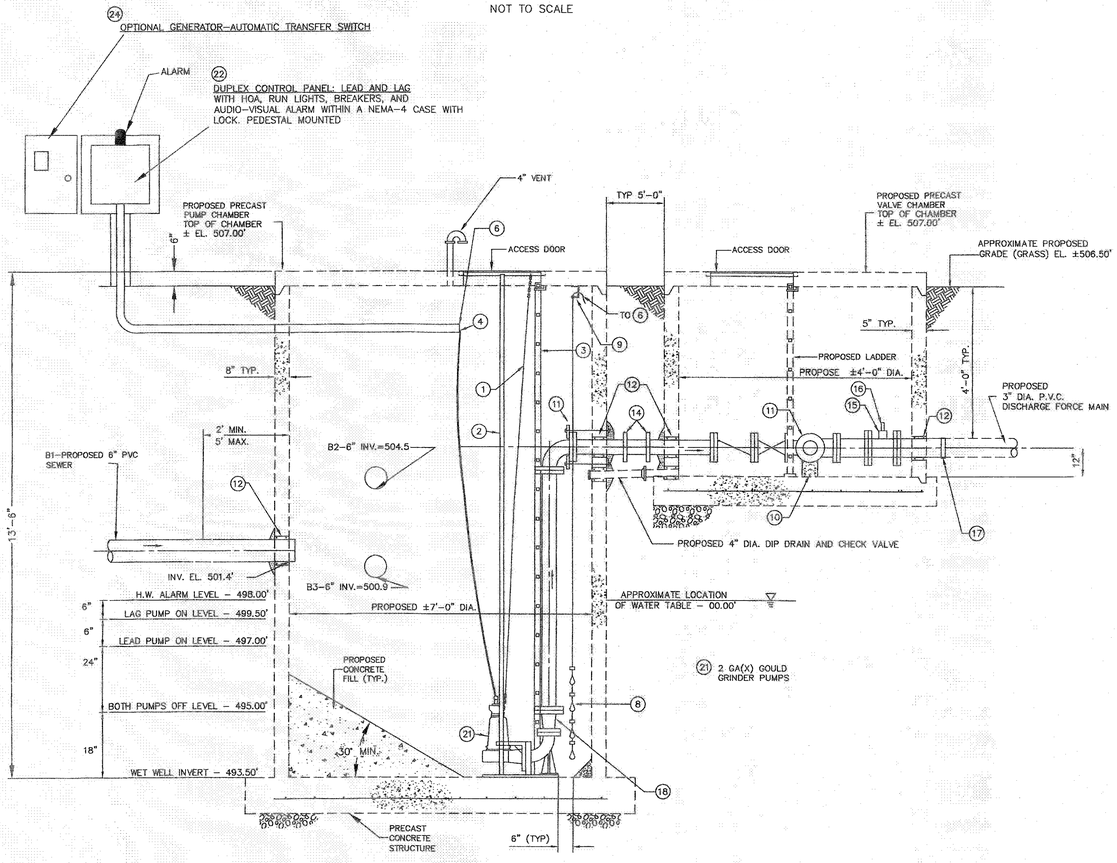
PURSUANT TO SECTION 643.0(b) OF THE REGULATIONS OF THE COMMISSIONER OF EDUCATION UNAUTHORIZED ALTERATIONS TO THIS DOCUMENT ARE A VIOLATION OF THE LAW

REGISTERED ARCHITECT
MARTIN T DIESING JR
032240
STATE OF NEW YORK



PLAN OF PUMPING STATION AND VALVE CHAMBER UPGRADE

NOT TO SCALE



CROSS–SECTION OF PUMPING STATION AND VALVE CHAMBER

NOT TO SCALE

1 PROPOSED DUPLEX PUMP STATION

NOT TO SCALE

PROPOSED KEY

1. STAINLESS STEEL LIFTING CHAIN
2. STAINLESS STEEL PUMP GUIDE RAILS
3. ALUMINUM LADDER WITH RUNGS AT 12" O.C. WITH RETRACTABLE 1" O.D. ALUMINUM EXTENSION TUBES FOR HANDRAIL (LOCATE TO SUIT CONDITIONS)
4. PUMP ELECTRICAL SERVICE, (UNDERGROUND CONDUIT) TO REMOTE MOUNTED CONTROL PANEL.
5. SEAL WITH NON–SHRINK GROUT SEE GENERAL NOTE #3.
6. FLOAT ELECTRICAL SERVICE (RIGID CONDUIT) TO REMOTE MOUNTED CONTROL PANEL.
7. EXPLOSION–PROOF SEAL (TYP. 2)
8. SEALED MERCURY SWITCH AND WATERPROOF CABLE ASSEMBLY (FLOAT SWITCHES)
9. STAINLESS STEEL BRACKET WITH ADJUSTABLE CABLE CONNECTORS (ACCESSIBLE THROUGH ACCESS HATCH)
10. CONCRETE PIPE SUPPORT (WHERE REQUIRED)
11. RESTRAINED CONNECTION: STAINLESS STEEL 1/2" TIE ROD PLATES, 2–3/4"ø TIE RODS, BOLTS, WASHERS, AND 3/8"x4" SQUARE BACKING PLATE WITH GROUT COVER
12. COMPRESSION GASKET OR LINK–SEAL WITH GROUT COVER
13. SCH 80 TEE
14. COMPRESSION COUPLING
15. PVC TEE WITH THREADED REDUCER BUSHING
16. PRESSURE GAUGE ASSEMBLY WITH DIAPHRAGM SEAL AND ISOLATION VALVE
17. SCH 80 PVC TO SDR 26 PVC TRANSITION COUPLING
16. CONCENTRIC REDUCER (IF REQUIRED)
19. BALL CHECK VALVE
20. TRUE UNION BALL VALVE
21. ALTERNATING DUPLEX "GOULDS" GRINDER PUMPS 2GA (7.5 HP)
22. DUPLEX CONTROL PANEL
23. OPTIONAL STANDBY GENERATOR
24. OPTIONAL AUTOMATIC GENERATOR TRANSFER SWITCH

GENERAL NOTES

1. NO ELECTRICAL SPLICES, JUNCTION BOXES, OR CONNECTIONS OF ANY KIND SHALL BE IN THE PUMP CHAMBER.
2. PUMP CONTROLS SHALL BE WIRED INTRINSICALLY SAFE.
3. JUNCTION BOXES SHALL BE ACCESSIBLE WITHOUT NEED FOR ENTERING WETWELL. CONTRACTOR HAS THE OPTION OF PROVIDING PUMPING STATION WITH NEMA 4X JUNCTION BOX AND APPROPRIATE GAS SEAL–OFF FITTINGS CAST INTO TOP SLAB.
4. PUMP CONTROL PANEL TO BE PEDESTAL MOUNTED. ALL CONDUIT AND CONDUCTORS FOR BOTH POWER AND CONTROL TO BE SIZED BY BUILDING DESIGNER. CONTRACTOR TO PROVIDE LOCAL DISCONNECTS FOR THE PUMPS.
5. THE PUMP STATION SHALL HAVE AN ALARM SYSTEM WITH TELEMETRY THAT REPORTS TO THE HOTEL OFFICE WHICH WILL BE MANNED 24 HOURS A DAY AT THE HOTEL.

DESIGN DATA

AVERAGE DAILY FLOW =
12,420 =G.P.D.

PEAK FLOW = 10 X ADF = 125 gpm
TOTAL DYNAMIC HEAD = 127'
PUMP CYCLE VOLUME = 576 gallons @ (7.2 Minutes)
PUMP CYCLCLE PER DAY = 22

UTILITY CONSTRUCTION AND TESTING SPECIFICATIONS:

General Provisions:

1. All construction activities shall be in compliance with municipal, county state and federal regulations.
2. The protection of adjacent properties or areas on site that are not to be disturbed during construction, shall be the responsibility of the contractor.

Excavation:

1. Excavation shall be carried to the lines, grades and slopes shown on the approved plans.
2. Where unstable or unsuitable material is encountered at the prescribed bottom grade of the trenches it shall be removed.

Bedding:

1. Selected bedding shall be provided for the construction of pipe foundations at those locations where the foundations or excavated material, or any portion thereof deemed to be unsuitable for supporting the pipe or structure, or for back filling the cover portion of the trenches to a level one foot above the pipe, or where excavated material consist of a predominance of large stone, boulders or rock which is not suitable for placing in the trench. Certified sieve analysis shall be submitted from the supplier for the engineer's review prior to use.

Back Filling:

1. all back fill material shall be placed in layers not exceeding twelve (12) inches in depth, (loose measure), and shall be thoroughly tamped and compacted to a minimum density of 95% standard AASHTO-T99 (ASTM-D698, as amended) compacting test. Compacting equipment shall be of a suitable type for the various back filling operations.

Obstructions:

1. Where underground or overhead obstructions are encountered in the work, the contractor shall assume all costs for direct or indirect injury to them. Any valve box, valve pit, water service, water main, catch basin, manhole etc. whether or not shown on the drawings shall be protected from damage. The contractor shall have all utilities identified and located prior to any construction.

Sanitary Sewers:

1. Gravity sewer pipes shall be 8", 6" or 4" SDR 35 with ring-tight joints in compliance with ASTM D-3212.
2. Manholes shall be pre cast concrete. Manhole is to be infiltration/exfiltration tested in accordance with NYSDEC design standards for Wastewater Treatment Works 1988

Procedure:
Fill manhole with water. Let sit for 24 hours. Maximum allowable rate of infiltration/exfiltration not to exceed 100 gallons per inch diameter per mile per day.

3. 10 - foot horizontal and 2 - foot vertical distance shall be maintained between all water and sewer lines.
4. No roof or foundation drains may discharge into the sewage disposal system
5. Sewer main is to tested in accordance with ASTM F 1417-92 (standard test method for installation acceptance of plastic gravity sewer lines using low-pressure air)

Procedure:

5.1 Clean section of sewer line to be tested by flushing or other means prior to conducting the low pressure air test. this cleaning serves to eliminate debris and produce the most consistant results.
5.2 Isolate the section of sewer line to be tested by inflatable stoppers or other suitable test plugs.
5.3 Plug or cap the ends of all branches, laterals, tees, wyes, and stubs to be included in the test to prevent air leakage. All plugs and caps shall be securely braced to prevent blowout. One of the plugs or caps should have an inlet tap, or other provision for connecting a hose to a portable air control source.
5.4 Connect the air hose to the inlet tap and portable air control source. The air equipment shall consist of necessary valves and pressure gages to control an oil-free air source and the rate at which air flows into the test section to enable monitoring of the air pressure within the test section.
5.5 Add air slowly to the test section until the pressure inside the pipe reaches 4.0 psig.
5.6 After the pressure of 4.0 psig is obtained, regulate the air supply so that the pressure is maintained between 3.5 and 4.0 psig for at least 2 min. Depending on air/ground temperature conditions, the air temperature should stabilize in equilibrium with the temperature of the pipe walls. the pressure will normally drop slightly until equilibrium is obtained; however, a minimum of 3.5 psig is required.
5.7 Determine the rate of air loss by either the constant pressure method or the time-pressure drop method (see ASTM F 1417-92 sections 8.2.1 and 8.2.2 for procedures)
5.8 Upon completion of the test, open the bleeder valve and allow all air to escape. Plugs shall not be removed until all air pressure in the test section has been reduced to atmospheric pressure.
6. Sewer shall be tested with mandrel 95% of pipe diameter for deflection and lamp tested.
7. Forcemains shall be tested using ASTM F 2164

Forcemain Test Procedure:

1. Flush and purge all air from the piping to be tested.
2. Close off by valves or other method the piping to be tested.
3. Slowly, add water with a positive displacement pump to raise the system pressure to the maximum determined by the authority having jurisdiction.
   (The maximum pressure is 1.5 times the design working pressure less the elevation hydrostatic head. Typical design (maximum operating) pressures: for SDR-9 is 200 psi, for SDR-11 is 160 psi, and SDR-13.5 is 128 psi; and is to be reduced for higher temperatures.
4. Allow the test section of piping and test liquid to equalize in temperature.
5. Add make up water as necessary for four (4) hours to maintain test pressure.
6. Reduce pressure by ten (10 psi), by letting water out and then closing the system.
7. Monitor for one (1) hour, do not increase pressure or add water.
8. Pass/Fail Criteria: if no leakage is visually observed and the pressure remains steady (within 5% of the pressure at item # 6) then a passing test is indicated.

TOWN SEWER SYSTEM NOTES

1. Construction of sanitary sewer facilities and connection to the Town of Newburgh sanitary sewer system requires a permit from the Town of Newburgh Sewer Department. All construction shall conform to the requirements of the NYSDEC and the Town of Newburgh.
2. All sewer pipe installation shall be subject to inspection by the Town of Newburgh Sewer Department. The Contractor shall be responsible for coordinating all inspections as required with the Town of Newburgh Sewer Department.
3. All gravity sanitary sewer service lines shall be 4 inches in diameter or larger and shall be SDR-35 PVC pipe conforming to ASTM D-3034-89. Joints shall be push-on with elastomeric ring gasket conforming ASTM D-3212. Fittings shall be as manufactured by the pipe supplier or equal and shall have a bell and spigot configuration compatible with the pipe.
4. The sewer main shall be tested in accordance with Town of Newburgh requirements. All testing shall be coordinated with the Town of Newburgh Sewer Department.
5. The final layout of the proposed water and/or sewer connection, including all materials, size and location of service and all appurtenances, is subject to the review and approval of the Town of Newburgh Water and/or Sewer Department. No permits shall be issued for a water and/or sewer connection until a final layout is approved by the respective Department.

MAP REVISION DATES		
DATE DATE	REVISION	BY
03-27-2017	ADDED TOWN OF NEWBURGH SEWER NOTES, CORRECTED PIPE TYPE PER NEWBURGH TOWN NOTE	SL
04-04-2017	ADDED DATA TO PUMP STATION AND VALVE CHAMBER DETAILS	SL
12-01-2017	REVISED FOR ORANGE COUNTY DEPT OF HEALTH	KJP
04-22-2019	REVISED AVERAGE DAILY FLOW TOTALS FOR CLUB HOUSE	CC

SEWER DETAILS CONTINUED

FOR SENIOR HOUSING AT
21 LAKESIDE PROPERTIES INC.

SITUATE - LAKESIDE ROAD
TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

FEBRUARY 8, 2016

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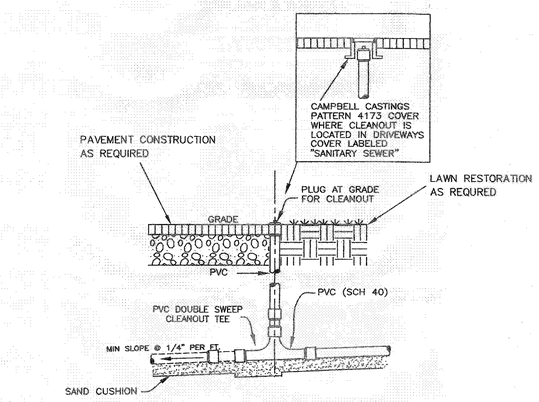
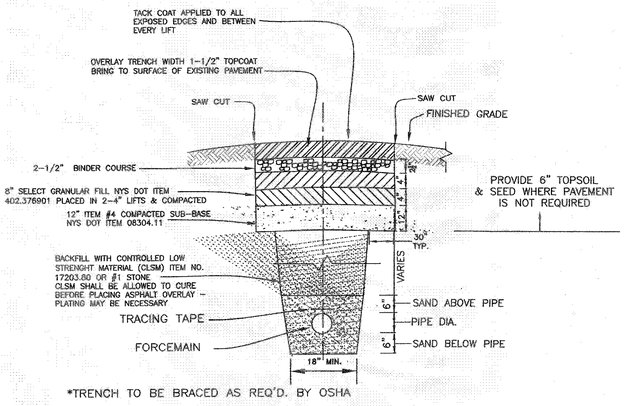


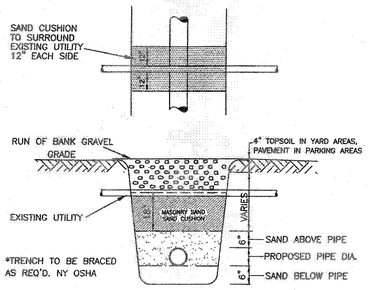
1 SEWER LATERAL CLEANOUT DETAIL

NOT TO SCALE



2 TYPICAL FORCEMAIN TRENCH DETAIL

NOT TO SCALE



3 TYPICAL UTILITY LINE CROSSING DETAIL

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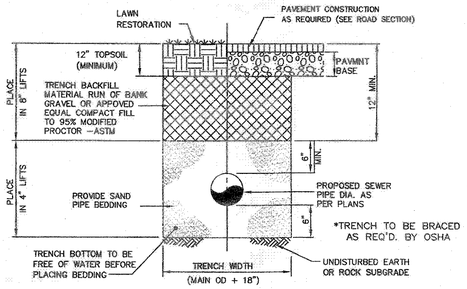

4 TYPICAL SEWER TRENCH DETAIL

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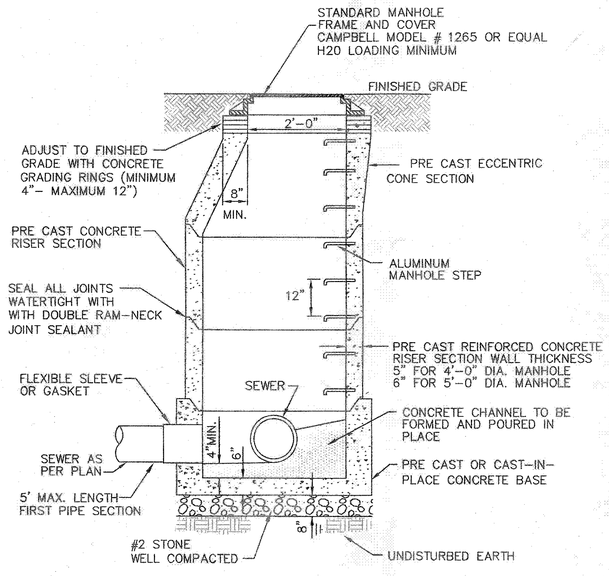

6 TYPICAL SANITARY SEWER MANHOLE

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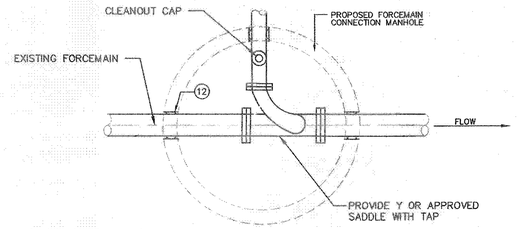
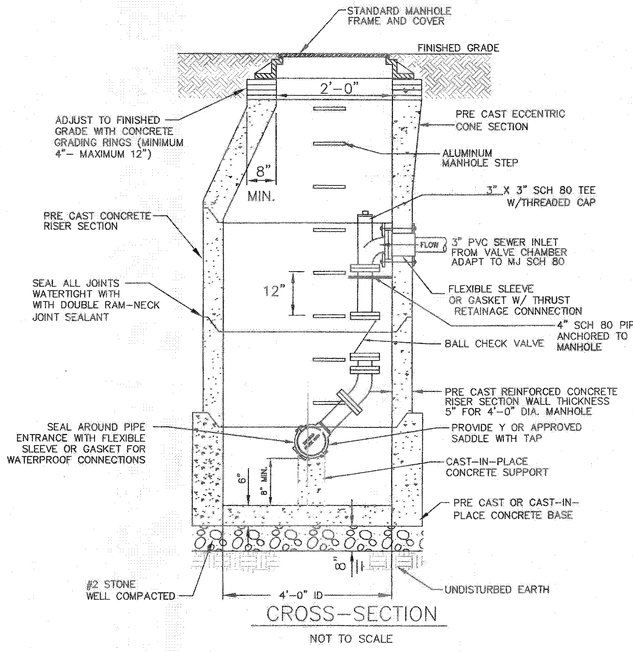


PLAN VIEW

NOT TO SCALE



CROSS-SECTION

NOT TO SCALE

5 SEWER MANHOLE W/ FORCE MAIN CONNECTION DETAIL

NOT TO SCALE

Sanitary Sewer Notes and Specifications

General Provisions:

1. Gravity sewer pipes shall be SDR 35 with ring-tight joints in compliance with ASTM D-3212.
2. Sewer mains in relation to water mains: where possible, sewers shall be laid at least 10 (ten) feet horizontally from any existing or proposed water main. Vertical separation shall be maintained to provide 18 (eighteen) inches between top of sewer invert of the water main at utility crossings. When not possible to obtain the proper vertical separation, SDR-26 PVC pipe shall be used 10 (ten) feet on each side of the water main being crossed.
3. No roof, foundation or storm drains may discharge into the sewage disposal system.
4. All concrete tanks, manholes and chambers etc. shall be pre cast concrete to the specifications and dimensions shown hereon. Frames and covers shall be gray iron or ductile iron. Gray iron shall conform with ASTM A 48, Class 30B and ductile iron shall conform with ASTM A 536 and be of a grade appropriate to its intended use to the dimensions and specifications as shown hereon. Any structures subject to vehicle loads shall be able to withstand an H20 loading. Shop drawings shall be submitted to the design engineer for approval prior to construction.

Gravity Sewer System Testing:

1. Contractor shall inspect and test the sewer installations as required by the authority having jurisdiction when work is ready for testing. After all tests have been performed, evidence of compliance shall be forwarded to owner/engineer and the authority having jurisdiction prior to acceptance.
2. The contractor shall test and inspect for alignment and infiltration and exfiltration of all sanitary sewers. Infiltration or exfiltration of the sanitary sewer system shall not exceed 0.60 gal/inch of internal pipe diameter per 100' of pipeline per hour with a maximum hydrostatic head at the centerline of the pipe of 25 ft, or as required by the authority having jurisdiction.
3. Infiltration leakage tests shall be run on each single manhole-to-manhole section, or reach, independently of all other manhole-to-manhole sections. A pipeline section under test shall include all pipe and fittings between the two manholes plus the upstream manhole.
4. Each manhole-to-manhole section shall be rejected or accepted based only on results of its own independent section test and not on results of any one test run simultaneously over more than one consecutive manhole-to-manhole section. The only exception allowed: accepting several consecutive manhole-to-manhole sections based on one combined infiltration test indicating zero infiltration.
5. Infiltration tests shall be made by installing a flow measuring device in the downstream manhole of section being tested. Test duration shall be 24 hrs, or for shorter period, provided a steady state flow condition has been achieved in the test period, and results projected to a 24 hr period.
6. Exfiltration tests shall be run on each single manhole-to-manhole section, or reach, independently of all other manhole-to-manhole sections. A pipeline section under test shall include all pipe and fittings between the two man-holes plus the upstream manhole.
7. Exfiltration tests shall be made by measuring the drop in water elevation in the upstream manhole 24 hrs after initial water level is recorded. Initial water level in upstream manhole shall be 2 feet higher than either the top of pipe or groundwater elevation at the downstream manhole. Any manhole-to-manhole section undergoing an exfiltration test must have the next adjacent sections, both upstream and downstream, dry and not under test.
8. Low pressure air testing may be allowed in lieu of exfiltration tests only. When so allowed, test shall be performed under direction of engineer according to ASTM F1417. An air test shall not be run until section of line to be tested has been cleaned of all foreign material by flushing and has been visually inspected.
9. Sewers shall be laid with straight alignment between manholes. Straight alignment shall be checked either using a laser beam or lamping. Testing shall comply with requirements of the authority having jurisdiction.
10. Manholes, which cannot be properly air tested, should be visually inspected and leakage-tested using internal or external hydrostatic pressure. Leakage testing shall comply with requirements of the authority having jurisdiction.
11. In areas where conventional testing is impractical (i.e. areas designated by Engineer where existing services are tied into new line immediately and any blockage could result in health problems) no lines shall be backfilled until each pipe section and connection is inspected and approved.
12. If the allowable rate of infiltration, exfiltration, or air leakage is exceeded, the contractor shall locate points of excessive leakage and shall promptly correct,repair, and bring system up to the standard. Costs of all such repairs and corrective measures, including costs of repeated tests, shall be born by contractor, the sewer line section (including manholes and building services) under test shall not be accepted until these test criteria are met.
13. The Orange County Health Department did not review the proposed sewer main extension.

MAP REVISION DATES		
DATE	REVISION	BY
12-01-2017	REVISED FOR ORANGE COUNTY DEPT OF HEALTH	KJP
1-21-2019	REVISED FOR CLUBHOUSE	SL

SEWER DETAILS
FOR
LAKESIDE SENIOR HOUSING

SITUATE - LAKESIDE ROAD
TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

FEBRUARY 8, 2016

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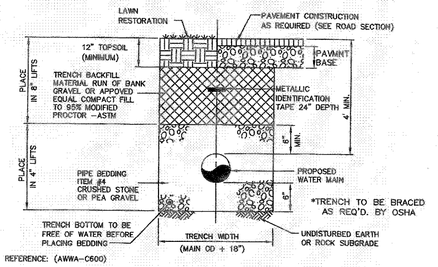
STATE OF NEW YORK BARRY MEDENBACH LICENSED PROFESSIONAL ENGINEER

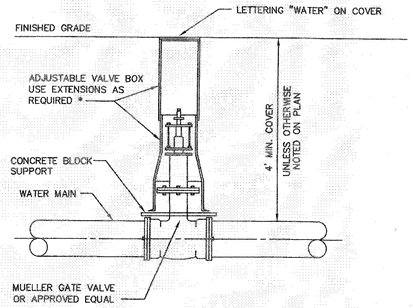
BARRY MEDENBACH, P.E.
NEW YORK LIC. NO. 60142

D4
E18 021
SHEET 16 OF 18



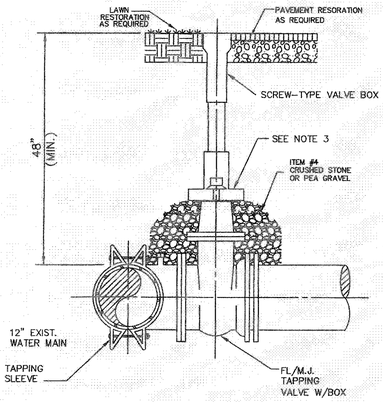
REFERENCE: (AWWA-C600)

1 TYPICAL WATER MAIN TRENCH DETAIL
NOT TO SCALE



* NOTE:
1. IF EXTENSIONS ARE NECESSARY CONTRACTOR SHALL SET "PLUMB" AND ALIGN PROPERLY FOR ACCESS TO OPERATING NUT.
2. VALVES-METAL SEATED (AWWA-C500) VALVES-RESILIANT SEAT (AWWA-C509)

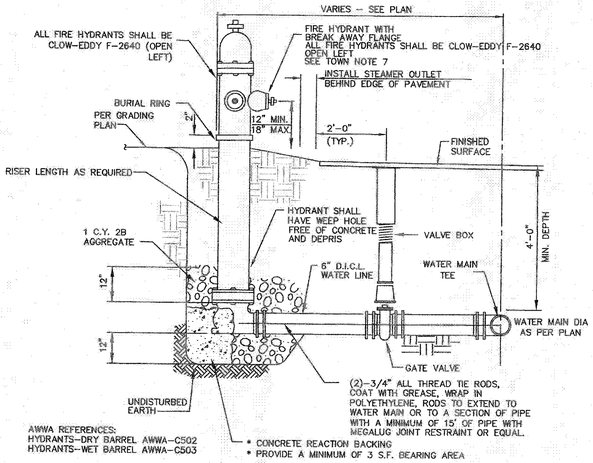
2 TYPICAL GATE VALVE DETAIL
NOT TO SCALE
SEE TOWN NOTE 5



NOTES:

1. RESILIENT WEDGE GATE VALVE SHALL BE EPOXY COATED.
2. TAPPING SLEEVES SHALL BE CAST IRON.
3. SELF-CENTERING ALIGNMENT RING EQUIVALENT TO AMERICAN FLOW CONTROL.
4. MEGA LUGS REQUIRED FOR ALL FITTINGS

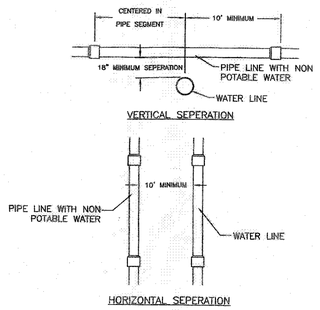
3 TYPICAL WET TAP DETAIL
NOT TO SCALE
SEE TOWN NOTE 6



AWWA REFERENCES:
HYDRANTS-DRY BARREL AWWA-C502
HYDRANTS-WET BARREL AWWA-C503

NOTE: IF HIGH GROUND WATER IS ENCOUNTERED, THE HYDRANT DRAIN HOLE SHOULD BE PLUGGED AND THE HYDRANT MARKED OR LABELED TO INDICATE THAT THE BARREL MUST BE PUMPED OUT AFTER USE TO PREVENT DAMAGE FROM FREEZING

4 TYPICAL FIRE HYDRANT DETAIL
NOT TO SCALE



5 WATERLINE SEPERATION
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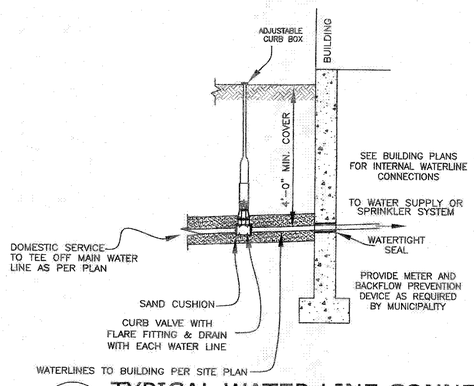


6 TYPICAL WATER LINE CONNECTION
NOT TO SCALE

Water Main Notes and Specifications

General Provisions:

1. All water lines shall be Class 52 ductile (AWWA C151) iron pipe unless otherwide noted or approved by engineer. All ductile fittings are to meet AWWA Standards C110.
2. The most recent revision of the AWWA standards are to be used.

Ductile Iron Pipe	**C151**
Valves - Metal Seated	**C500**
Hydrants - Wet Barrel	**C503**
Hydrants - Dry Barrel	**C502**
Valves-Resiliant Seat	**C509**
Pipe Laying	C600
Hydrostatic Testing	C600
Disinfection	C651
Service Lines, Corp. & Curb Stops	**C800**
Ductile Iron Fittings	**C110**

3. Water lines shall be equiped with Megalug - series 1100 for pipe restraining, or as required by Town Water Dept.
4. All water lines shall be installed a minimum of 4.0' feet below grade. The water line maybe flexed within pipe specifications or laid deeper in areas where crossings with the sanitary line occur, to achieve the required 18 inch vertical separation distance. (See sewer specifications for further information)
5. Water line is to be pressure tested and leakage tested in accordance with Great Lakes Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers' Recommended Standards for Water Works, Section 8.7.6 2012, (AWWA C-600-05).
6. Water line is to be disinfected in accordance with Great Lakes Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers' Recommended Standards for Water Works, Section 8.7.6 2012 (AWWA C-651).
7. All water lines shall be in compliance with the "No Lead" law for waterworks.
8. Whenever pipe laying is not actively in progress, the open ends of the pipe must be closed by a temporary watertight plug or cap to prevent soil, water or other foreign matter from entering the pipe.
9. Deflection of pipes at a joint must not exceed 80% of the manufactures recommended maximum.
10. Sufficent notice must be given to the head of the municipal water department, the privated owner or a designated representative of any testing so that they can witness if desired.
11. The head of the municipal water department or the private owner or their designated representative must review and accept the testing, hydrostatic and bacteriological, as adequate.
12. Bacteriological testing must include two consecutive sets of acceptable samples taken at least 24 hours apart
12. One from each 1200' of new watermain
12. Once from each branch of the watermain
12. One from each end of the watermain.
13. The tablet method of chlorinating the watermain, as described in AWWA, C651 is not acceptable method.
14. Refer to sections 8.7-8.13 of the "Recommended Standards for Water Works" for the installation, seperation and protection of watermains.

Original 12-06-96 Revised 04-24-02 Revised 01-2015
TOWN OF NEWBURGH
WATER SYSTEM NOTES FOR SITE PLANS

1. "Construction of potable water utilities and connection to the Town of Newburgh water system requires a permit from the Town of Newburgh Water Department. All work and materials shall conform to the requirements of the NYSDOH and the Town of Newburgh."

2. All water service lines four (4) inches and larger in diameter shall be cement lined class 52 ductile iron pipe conforming to ANSI\AWWA C151\A21.51 for Ductile Iron Pipe, latest revision. Joints shall be either push-on or mechanical joint as required.

3. Thrust restraint of the pipe shall be through the use of joint restraint. Thrust blocks are not acceptable. Joint restraint shall be through the use of mechanical joint pipe with retainer glands. All fittings and valves shall also be installed with retainer glands for joint restraint. Retainer glands shall be EBBA Iron Megalug Series 1100 or approved equal. The use of a manufactured restrained joint pipe is acceptable with prior approval of the Water Department.

4. All fittings shall be cast iron or ductile iron, mechanical joint, class 250 and conform to ANSI\AWWA C110\A21.10 for Ductile and Gray Iron Fittings or ANSI\AWWA C153\A21.53 for Ductile Iron Compact Fittings, latest revision.

5. All valves 4 to 12 inches shall be Resilient Wedge Gate Valves conforming to ANSI\AWWA C509 such as Mueller Model A-2360-23 or approved equal. All gate valves shall open left (counterclockwise).

6. Tapping sleeve shall be mechanical joint such as Mueller H-615 or equal. Tapping valves 4 to 12 inches shall be Resilient Wedge Gate Valves conforming to ANSI\AWWA C509 such as Mueller Model T-2360-19 or approved equal. All tapping sleeves and valves shall be tested to 150 psi minimum; testing of the tapping sleeve and valve must be witnessed and accepted by the Town of Newburgh Water Department prior to cutting into the pipe.
Original 12-06-96 Revised 04-24-02 Revised 01-2015

7. All hydrants shall be Clow-Eddy F-2640 conforming to AWWA Standard C-502, latest revision. All hydrants shall include a 5 ¼ inch main valve opening, two 2 ½ inch diameter NPT hose nozzles, one 4 inch NPT steamer nozzle, a 6 inch diameter inlet connection and a 1 ½ inch pentagon operating nut. All hydrants shall open left (counter-clockwise). Hydrants on mains to be dedicated to the Town shall be Equipment Yellow. Hydrants located on private property shall be Red.

8. All water service lines two (2) inches in diameter and smaller shall be type K copper tubing. Corporation stops shall be Mueller H-15020N for ¾ and 1 inch, Mueller H-15000N or B-25000N for 1 ½ and 2 inch sizes. Curb valves shall be Mueller H-1502-2N for ¾ and 1 inch and Mueller B-25204N for 1 ½ and 2 inch sizes. Curb boxes shall be Mueller H-10314N for ¾ and 1 inch and Mueller H-10310N for 1 ½ and 2 inch sizes.

9. All pipe installation shall be subject to inspection by the Town of Newburgh Water Department. The contractor shall be responsible for coordinating all inspections as required with the Town of Newburgh Water Department.

10. The water main shall be tested, disinfected and flushed in accordance with the Town of Newburgh requirements. All testing, disinfection and flushing shall be coordinated with the Town of Newburgh Water Department. Prior to putting the water main in service satisfactory sanitary results from a certified lab must be submitted to the Town of Newburgh Water Department. The test samples must be collected by a representative of the testing laboratory and witnessed by the Water Department.

11. The final layout of the proposed water and/or sewer connection, including all materials, size and location of service and all appurtenances, is subject to the review and approval of the Town of Newburgh Water and/or Sewer Department. No permits shall be issued for a water and/or sewer connection until a final layout is approved by the respective Department.

12. The installation must meet the requirements of the "Standard Design and Construction Requirements for Water Distribution Main Extensions", October 2001, by the Town of Newburgh Engineer.

ORANGE COUNTY HEALTH DEPARMENT DID NOT REVIEW THE PROPOSED SEWER MAIN EXTENTION

Water Main Notes and Specifications Continued

Pressure Test Procedure:

1. After trench has been backfilled, hydrostatic acceptance tests, consisting of a pressure test and a leakage test shall be performed on all sections of water mains installed, leakage test shall be conducted concurrently with pressure test. Test section shall be limited to about 2000 ft (max.) unless otherwise approved by the engineer.
2. After all tests and inspections have been performed evidence of compliance shall be forwarded to owner/engineer prior to acceptance.
3. All water for tests shall be furnished and disposed of by the contractor at the contractor's expense. Source and/or quality of water which the contractor proposes to use in testing lines shall be acceptable to the engineer
4. For the pressure test, system shall be pressurized and maintained at a minimum of 150 psi, or 1.5 times the working pressure, whichever is greater, based on the elevation of the lowest point in the section being tested and corrected to the elevation of the gauge. Provisions shall be made to relieve air trapped at high points in the system through adjacent hydrants or through taps and corporation stops installed for this purpose by the contractor. After said pressure has been maintained successfully, with further pumping as required, for a period of at least two hours. The section under test shall be considered to have passed the pressure test.
5. Leakage test shall be performed concurrently using a minimum test pressure of 150 psi, or 1.5 times the working pressure, whichever is greater. Based on the elevation of the lowest point in the section under test and corrected to elevation of the gauge. leakage test duration shall be a minimum of 2 hours after leakage rate has stabilized.
6. Maximum allowable leakage shall be as shown in the following table; allowable leakage per 1000 ft of pipeline per hour (gph)

Avg Test Pressure PSI (BAR)	Nominal Pipe Dia. inches 2"	4"	6"	8"
150 (10)	0.17	0.33	0.50	0.66

Disinfection Procedure:

1. Water from an approved source of supply shall be made to flow at a constant rate in to the newly laid water main.
2. Water entering the new main shall receive a dose of chlorine fed at a constant rate such that the water will not have less than 25 mg/l free chlorine.
3. Measure chlorine concentration at regular intervals. Chlorine application shall not cease until the entire main is filled with heavily chlorinated water. The chlorinated water shall be retained for a minimum of 24 hours. The treated water in all portions of the main at the end of the 24 hour period shall have a residual of not less than 10 mg/l free chlorine.
4. After all tests and inspections have been performed evidence of compliance shall be forwarded to owner/engineer prior to acceptance.

Service Pipe Conections:

1. Corporation stops for three-forths-inch and one-inch service lines shall be Mueller H-15008 conductive compression or equal. Corporation stops for one-and-one-half-inch and two-inch service lines shall be Mueller H-15013 conductive compression or equal. Corporation stops shall be in accordance with AWWA C800, latest revision.
2. Curb stops for three-forths-inch through two inch shall be mueller H-15219 conductive compression, with drain or equal. Curb stops shall be provided with an extension service box to grade. Curb stops shall be accordance with AWWA C800, latest Revision.
3. Underground service lines for sizes three-forths-inch through two-inch shall be Type K copper, supplied in conformance with ASTM 886, in accordance with AWWA C800, latest revision.
4. Service Connections or water main extension connections of three inch or larger shall be made by means of approved tapping sleeve and tapping valve. Mechanical joint tapping sleeves shall be provided with duck-tipped end gaskets. Outlet flange be class 125, ANSI B16.1.

Fire Sprinklers:

1. This project has indicated the intentino to provide adequate fire flow by the proposed installation of sprinkler systems meeting NFPA requirements, and is, therefore, considered exempt from the needed Fire Flow guidelines of the insurance Services office (ISO). the proposed sprinkler system design has not been evaluated by the Orange County Department of Health for compliance.

MAP REVISION DATES		
DATE	REVISION	BY
03-27-2017	ADDED TOWN OF NEWBURGH WATER NOTE; REMOVED TEE THRUST BLOCK, HORIZONTAL AND UPWARD BEN, AND DOWNWARD BEND DETAILS; ADDED 'SEE TOWN NOTES' ON DETAIL 2 & 3; CORRECTED FIRE HIDRANT TYPE PER TOWN NOTES ON DETAIL 7	SL
04-04-2017	CORRECTED P.3 OF GENERAL PROV. TO MATCH TOWN REQUIREMENTS	SL
12-01-2017	REVISED FOR ORANGE COUNTY DEPT OF HEALTH	KJP

WATER DETAILS
FOR
LAKESIDE SENIOR HOUSING

SITUATE - LAKESIDE ROAD
TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

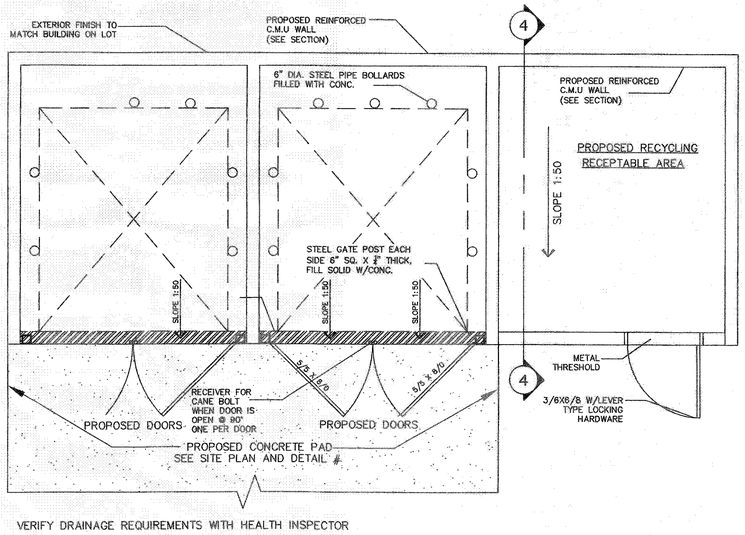
FEBRUARY 8, 2016

MEDENBACH & EGGERS
ENGINEERING & LAND SURVEYING, P.C.
STONE RIDGE, NEW YORK (845) 687-0047

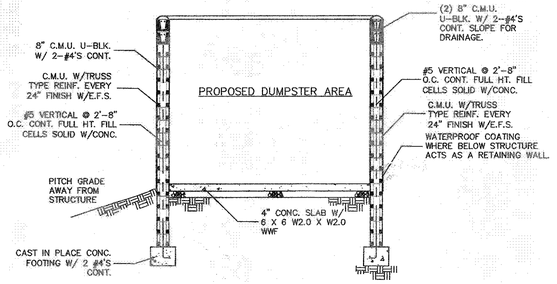
STATE OF NEW YORK BARRY MEDENBACH LICENSED PROFESSIONAL ENGINEER NO. 060142

BARRY MEDENBACH, P.E.
NEW YORK LIC. NO. 60142

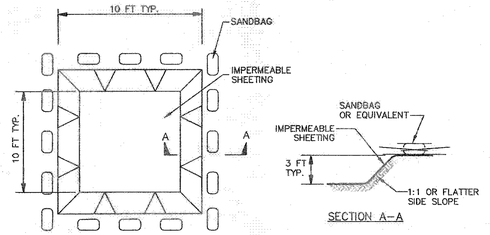
D3
E18 021



1 DUMPSTER RECEPTACLE SCREEN PLAN
SCALE: NOT TO SCALE



3 DUMPSTER RECEPTACLE SCREEN SECTION
SCALE: NOT TO SCALE

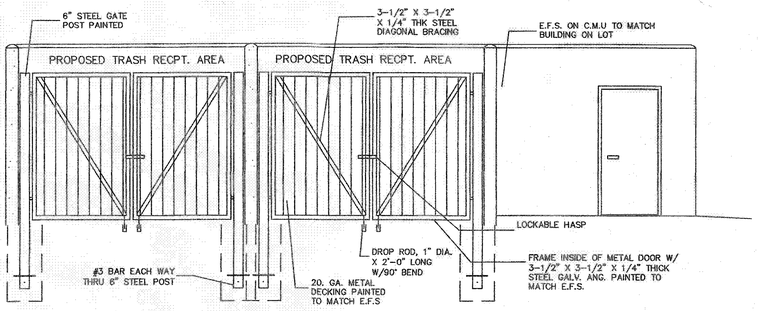


EXCAVATED WASHOUT STRUCTURE

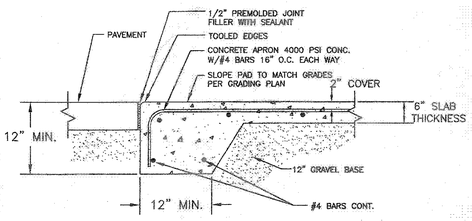
CONSTRUCTION SPECIFICATIONS

1. DESIGNATED TEMPORARY, BELOW GROUND CONCRETE WASHOUT FACILITIES WILL BE CONSTRUCTED AS SHOWN ABOVE. WASHOUTS WILL BE CENTRALLY LOCATED AT THE DISCRETION OF THE INDIVIDUALS WHO MANAGE DAY TO DAY CONSTRUCTION ACTIVITIES. WASHOUTS SHALL HAVE A MINIMUM LENGTH AND WIDTH OF 10 FEET BUT MUST HAVE SUFFICIENT VOLUME TO CONTAIN ALL LIQUID CONRETE WASTES GERNERTATED FROM WAHOUT OPERTIONS. THE WASHOUT AREAS WILL BE LINED WITH PLASTIC SHEETING AT LEAST 10 MILS THICK AND FREE OF ANY HOLES OR TEARS. SIGNS WILL BE POISTED MARKING THE LOCATION OF THE WAHOUT AREAS.
2. TEMPORARY CONCRETE WASHOUT FACILITIES WILL BE LOCATED A MINIMUM OF (50 FEET) FROM DRAIN INLETS.
3. KEEP THE WASHOUT AREAS WILL BE INSPECTED DAILY TO ENSURE THAT ALL CONRETE WASHING IS BEING DISCHARDE INTO THE WASHOUT AREA, NO LEAKS OR TEARS ARE PRESENT, AND TO IDENTIFY WHEN CONCRETE WASTES NEED TO BE REMOVED. THE WAHOUT AREAS WILL BE CLEANED OUT ONCE THE AREA IS FILLED TO 75 PERCENT OF THE HOLDING CAPACITY. ONCE THE AREA'S HOLDING CAPACITY HAS BEEN REACHED THE CONRETE WASTES WILL BE ALLOWED TO HARDEN , THE CONRETE WILL BE BROKEN UP, REMOVED, AND DISPOSED IN ACCORDANCE WITH LOCAL REGULATIONS. THE PLASTIC SHEET WILL BE REPLACED IF TEARS OCCCUR DURING REMOVAL OF CONCRETE WASTES FROM THE WASHOUT AREA.

5 CONCRETE WASHOUT DETAIL
NOT TO SCALE



2 DUMPSTER RECEPTACLE SCREEN ELEVATION
SCALE: NOT TO SCALE



4 DUMPSTER CONCRETE PAD DETAIL
NOT TO SCALE

MAP REVISION DATES		
DATE	REVISION	BY
12-01-2017	REVISED FOR ORANGE COUNTY DEPT OF HEALTH	KJP

SITE DETAILS
FOR
LAKESIDE SENIOR HOUSING

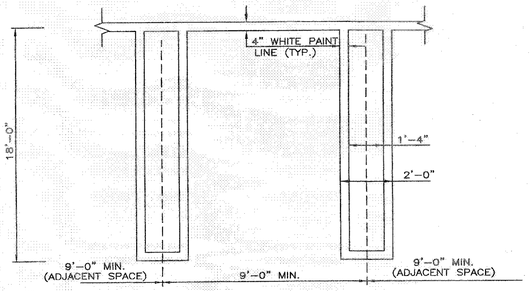
SITUATE - LAKESIDE ROAD
TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

FEBRUARY 8, 2016

MEDENBACH & EGGERS
CIVIL ENGINEERING & LAND SURVEYING, P.C.
STONE RIDGE, NEW YORK (845) 687-0047

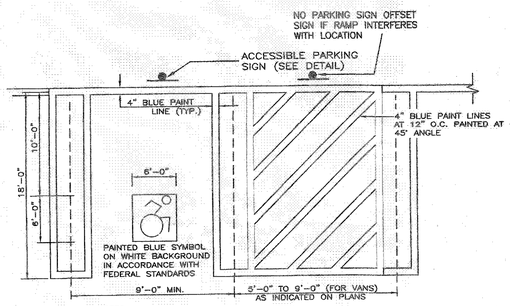
BARRY MEDENBACH, P.E.
NEW YORK LIC. NO. 60142

SHEET NOT FOR ORANGE COUNTY HEALTH DEPARTMENT REVIEW OR APPROVAL



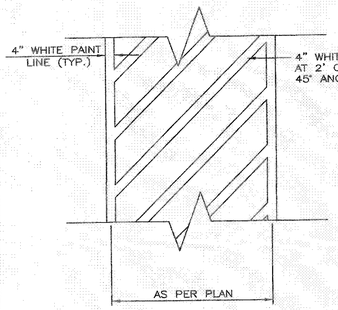
NOTES:
1. SEE SITE PLAN FOR SPACE LOCATION.
2. APPLY TWO COATS OF PAINT ON ALL SURFACES.

1 TYPICAL PARKING SPACE DETAIL
NOT TO SCALE



NOTES:
1. SEE SITE PLAN FOR ACCESSIBLE SPACE LOCATION AND DIMENSIONS.
2. APPLY TWO COATS OF PAINT ON ALL SURFACES.

2 HANDICAP PARKING SPACE DETAIL
NOT TO SCALE



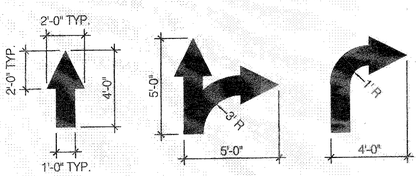
PAVEMENT MARKING NOTES:

1. STRIP PAVEMENT AS SHOWN ON THE PLANS AND/OR IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REQUIREMENTS.
2. ALL STRIPING UNLESS OTHERWISE NOTED IN DETAILS OR ON PLANS SHALL BE A MINIMUM OF 4" WIDE.

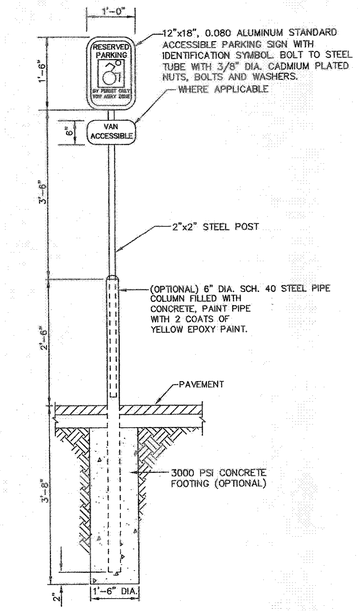
PAVEMENT MARKING COLORS:
3.1. DRIVE LANE DIVIDERS - WHITE
3.2. STOP BARS AND LETTERING - WHITE
3.3. PARKING DIVIDERS - WHITE
3.4. CROSS WALKS - WHITE
3.5. HANDICAP PARKING LINES - BLUE
3.6. WALKING SHOULDER - WHITE

NOTES:
1. SEE SITE PLAN FOR LOCATION AND DIMENSIONS.
2. APPLY TWO COATS OF PAINT ON ALL SURFACES.
3. WALKING SHOULDER AT PROPOSED RD. ENTRANCE IS 6' WIDE.

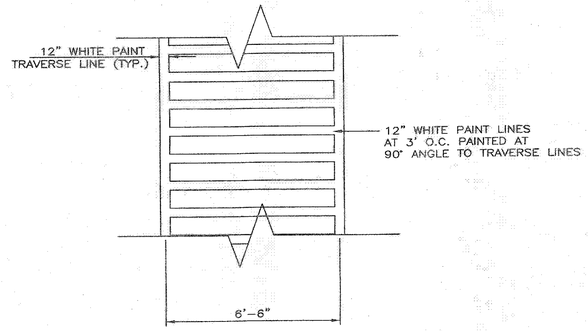
3 HATCH PAINTING DETAIL
NOT TO SCALE



4 TYPICAL PAVEMENT MARKINGS
NOT TO SCALE

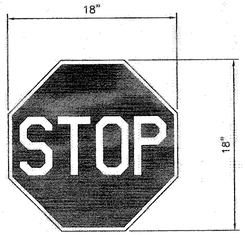


5 TYPICAL ACCESSIBLE PARKING SIGN
NOT TO SCALE



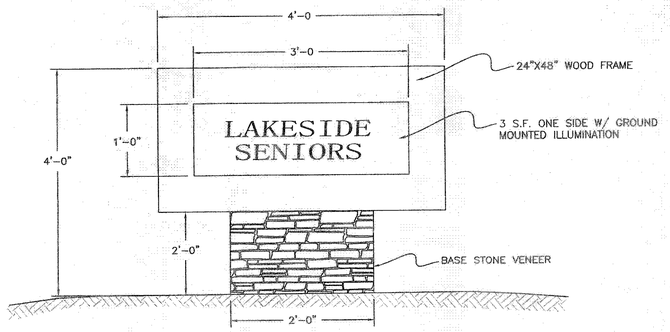
NOTES:
1. SEE SITE PLAN FOR CROSSWALK LOCATION AND DIMENSIONS.
2. APPLY TWO COATS OF PAINT ON ALL SURFACES.

6 TYPICAL CROSSWALK PAINTING DETAIL
NOT TO SCALE

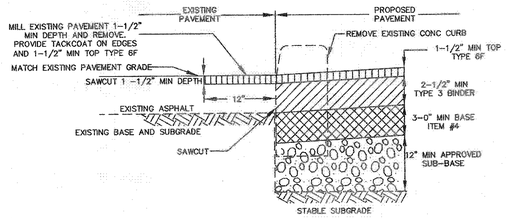


7 R1-1A: STOP SIGN DETAIL
NOT TO SCALE

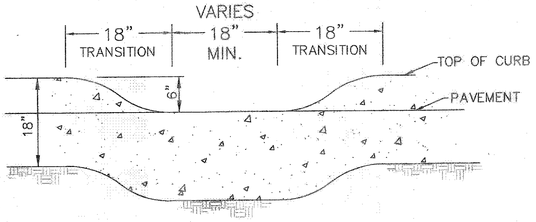
8 R3-8: NO PARKING SIGN DETAIL
NOT TO SCALE



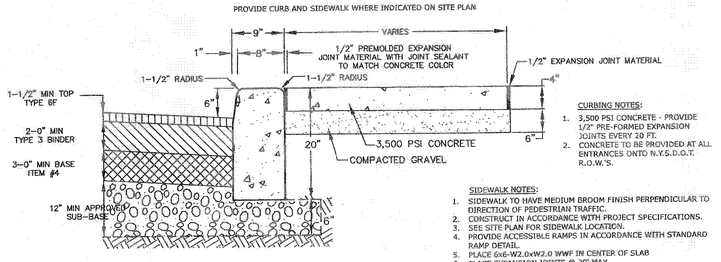
13 MONUMENT SIGN ELEVATION
NOT TO SCALE



9 TYPICAL PAVEMENT CONNECTION DETAIL
NOT TO SCALE



10 TYPICAL DEPRESSED CURB DETAIL
NOT TO SCALE
SEE SITE PLAN FOR FULL DETAIL



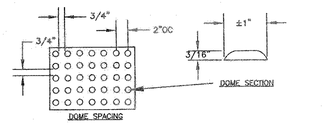
CURBING NOTES:
1. 3,500 PSI CONCRETE - PROVIDE 1/2" PRE-FORMED EXPANSION JOINTS EVERY 20 FT.
2. CONCRETE TO BE PROVIDED AT ALL ENTRANCES ONTO N.Y.S.D.O.T. R.O.W.'S.

SIDEWALK NOTES:
1. SIDEWALK TO HAVE MEDIUM BROOM FINISH PERPENDICULAR TO DIRECTION OF PEDESTRIAN TRAFFIC.
2. CONSTRUCT IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
3. SEE SITE PLAN FOR SIDEWALK LOCATION.
4. PROVIDE ACCESSIBLE RAMPS IN ACCORDANCE WITH STANDARD RAMP DETAIL.
5. PLACE 6x6-W2.0xW2.0 WWF IN CENTER OF SLAB
6. PLACE EXPANSION JOINTS @ 20' MAX.
7. PLACE CONTROL JOINTS AT 4' TO 10' MAX.
8. ALL OTHER SITE SIDEWALKS SHALL BE CONSTRUCTED USING THE MATERIALS AND DEPTHS INDICATED ABOVE.

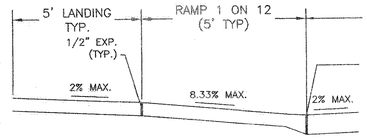
11 SITE PAVEMENT & CONCRETE CURB DETAIL
NOT TO SCALE

Curb Ramp Notes:

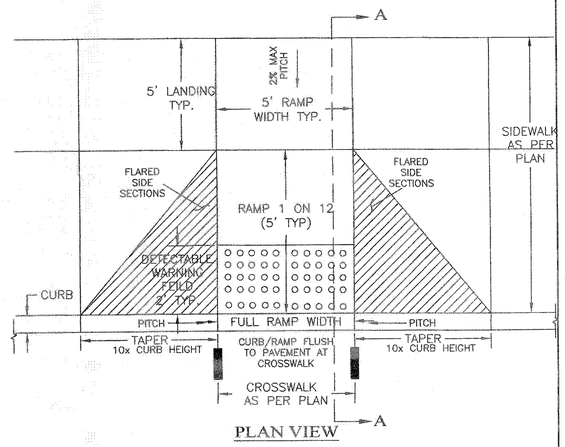
1. A curb ramp is defined as the entire concrete surface which includes the ramp & flared sides. The minimum 5' wide center portion, including the detectable surface, shall have a sloped plane of 8.33% (1:12) maximum, and cross slope, not to exceed 2%. The "flared side" of the ramp shall lie on a slope of 10% (1:10) maximum measured along the curb. The curb ramp shall have a surface tolerance of 1/4" per 10 foot straight edge maximum.
2. The ramp center line and path of travel should be parallel to the sidewalk whenever possible. The full width of the ramp shall lie within the crosswalk area. It is desirable that the location of the ramp be as close as possible to the center of the crosswalk.
3. Existing utility boxes and covers shall be adjusted flush with the curb ramp surface and shall not straddle any change in plane or material. Existing utility box frames and covers shall have matching surface finish on the entire frame and cover. New utility boxes shall not be placed within the detectable border.
4. The surface of the curb ramp and detectable surface material shall be stable, firm and slip resistant. Detectable warning fields shall visually contrast with adjoining surfaces either light on dark or dark on light. The concrete curb ramp surface shall be broom finished transverse to the axis of the ramp and shall be slightly rougher than the finish of the adjacent sidewalk surface.
5. A level landing 5'-0" deep, with a 2% maximum slope in each direction shall be provided at the upper end of each curb ramp to allow safe egress from the ramp surfaces. The width of the level landing shall be at least as wide as the width of the ramp.
6. Seal all joints on sidewalk and ramps. Maximum width of expansion joint is 1/2"



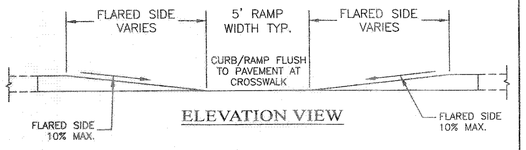
DETECTABLE WARNING FIELD DETAIL



SECTION A-A



PLAN VIEW



ELEVATION VIEW

12 DEPRESSED RAMP/DETECTABLE WARNING DETAIL
NOT TO SCALE

MAP REVISION DATES		
DATE	REVISION	BY
03-27-2017	ADDED 'SEE SITE PLAN FOR FULL DETAIL' UNDER DETAIL 10	SL
04-04-2017	DETAIL 10 CHANGED FROM 18" TO VARIES 18" MIN.	SL
07-06-2017	ADDED MONUMENT SIGN DETAIL	CC
12-01-2017	REVISED FOR ORANGE COUNTY DEPT OF HEALTH	KJP
02-12-2018	DETAIL #3 NOTE WALKING SHOULDER WIDTH	KJP

SITE DETAILS
FOR
LAKESIDE SENIOR HOUSING

SITUATE - LAKESIDE ROAD
TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

FEBRUARY 8, 2016

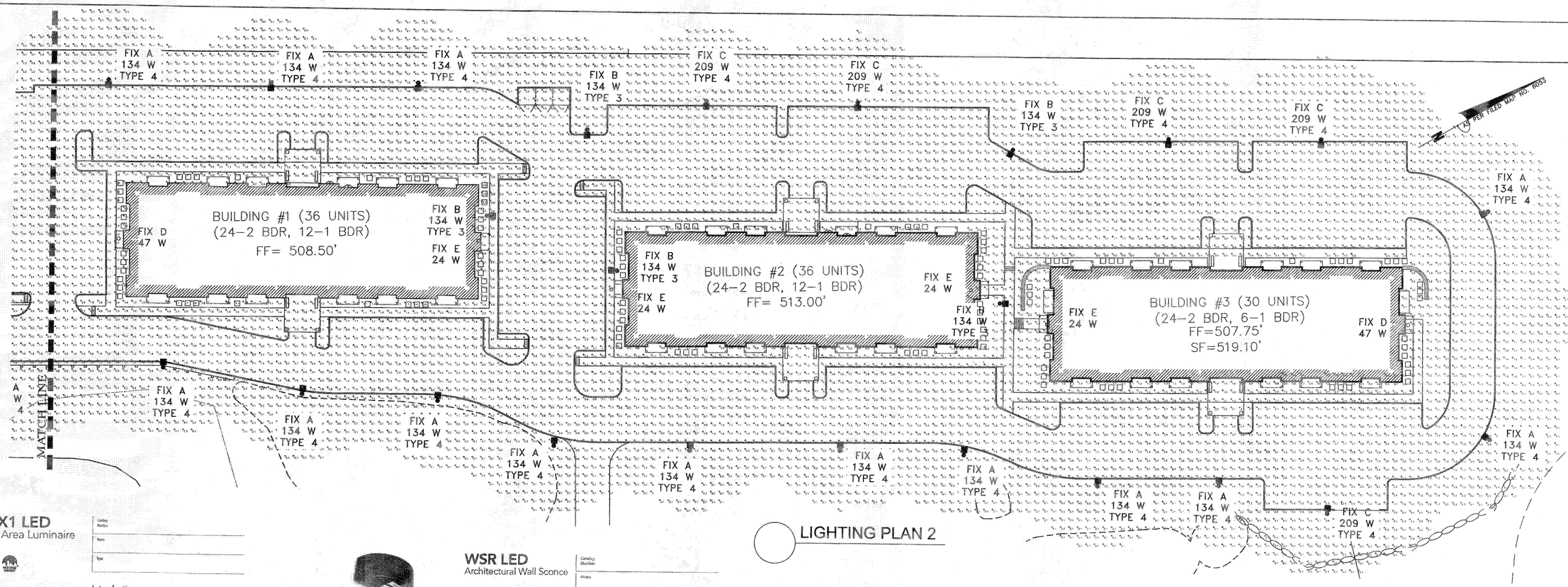
MEDENBACH & EGGERS
CIVIL ENGINEERING & LAND SURVEYING, P.C.
STONE RIDGE, NEW YORK (845) 687-0047

STATE OF NEW YORK · BARRY MEDENBACH · LICENSED PROFESSIONAL ENGINEER · No. 060142

BARRY MEDENBACH, P.E.
NEW YORK LIC. NO. 60142

SHEET NOT FOR ORANGE COUNTY HEALTH DEPARTMENT REVIEW OR APPROVAL

D1
E18 021
SHEET 13 OF 18



LIGHTING PLAN 2

CSX1 LED
LED Area Luminaire

Catalog Number
Notes
Type

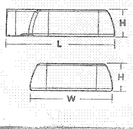
Introduction

The Contour® Series luminaires offer traditional square dayforms with softened edges for a versatile look that complements many applications.

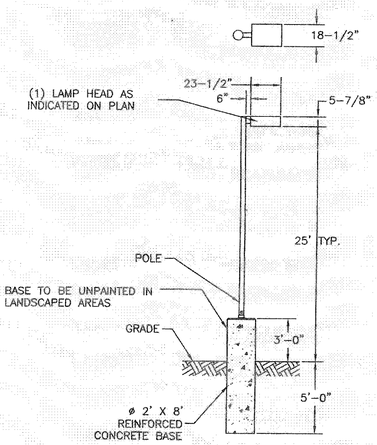
The CSX1 combines the latest in LED technology with the familiar aesthetic of the Contour® Series for stylish, high-performance illumination that lasts. It is ideal for replacing traditional metal halide in area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

Specifications

EPA:	0.7 ft² (.065m²)
Length:	23-1/2" (597 mm)
Width:	18-1/2" (470 mm)
Height:	5-7/8" (149 mm)
Weight (max):	37 lbs (16.8 kg)



Ordering Information EXAMPLE: CSX1 LED 60C 1000 40K T3M MVOLT SPA DDBXD



POLE MOUNTED LIGHT DETAIL (FIXTURE A, B, AND C)

1

LITHONIA CSX1 SERIES LED LAMPS:
MODEL'S:
134 WATT LED LAMP LITHONIA MODEL#: CSX1 LED 80C 700 50K T3M HS (HOUSE SHEILD) OR EQUAL
134 WATT LED LAMP LITHONIA MODEL#: CSX1 LED 60C 700 50K T4M HS (HOUSE SHEILD) OR EQUAL
209 WATT LED LAMP LITHONIA MODEL#: CSX1 LED 80C 1000 50K T4M HS (HOUSE SHEILD) OR EQUAL

WSR LED
Architectural Wall Sconce

Catalog Number
Notes
Type

Inverted available with WLG option only.

Introduction

The classic Architectural Wall Sconce is now available with the latest in LED technology. The result is a long-life, maintenance-free product with typical energy savings of 75% compared to metal halide versions. The integral battery backup option provides emergency egress lighting, without the use of a back-box or remote gear, so installations maintain their aesthetic integrity.

The WSR LED is ideal for replacing existing 50 – 175W metal halide wall-mounted products. The expected service life is 20+ years of nighttime use.

Specifications

Luminaire
Height: 7-1/4" (17.4 cm)
Width: 18" (45.7 cm)
Depth: 9" (22.2 cm)
Weight: 17 lbs (7.7 kg)

Optional Back Box (BBW)
Height: 4" (10.2 cm)
Width: 5-1/2" (14.0 cm)
Depth: 1-1/2" (3.8 cm)

Ordering Information EXAMPLE: WSR LED 2 10A700/40K SR3 MVOLT DDBTXD

WALL MOUNTED LIGHT DETAIL (FIXTURE E)

3

LITHONIA TWH WALL MOUNTED LIGHT WITH FULL SHIELD (FS) OPTION:
MODEL: 24 WATT LED LITHONIA MODEL#: WSR LED 1 10A700/50K SR3 MVOLT OR EQUAL

WST LED
Architectural Wall Sconce

Catalog Number
Notes
Type

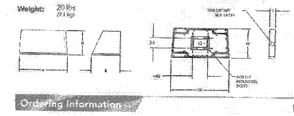
Introduction

The WST LED is designed with the specifier in mind. The traditional, trapezoidal shape offers a soft, non-pixilated light source for end-user visual comfort. For emergency egress lighting, the WST LED offers six battery options, including remote. For additional code compliance and energy savings, there is also a Bi-level motion sensor option. With so many standard and optional features, three lumen packages, and high LPW, the WST LED is your "go to" luminaire for most any application.

Specifications

Luminaire
Height: 8-1/2" (21.6 cm)
Width: 17" (43.18 cm)
Depth: 10-3/16" (25.7 cm)
Weight: 20 lbs (9.1 kg)

Optional Back Box (BBW)
Height: 4" (10.2 cm)
Width: 5-1/2" (14.0 cm)
Depth: 1-1/2" (3.8 cm)

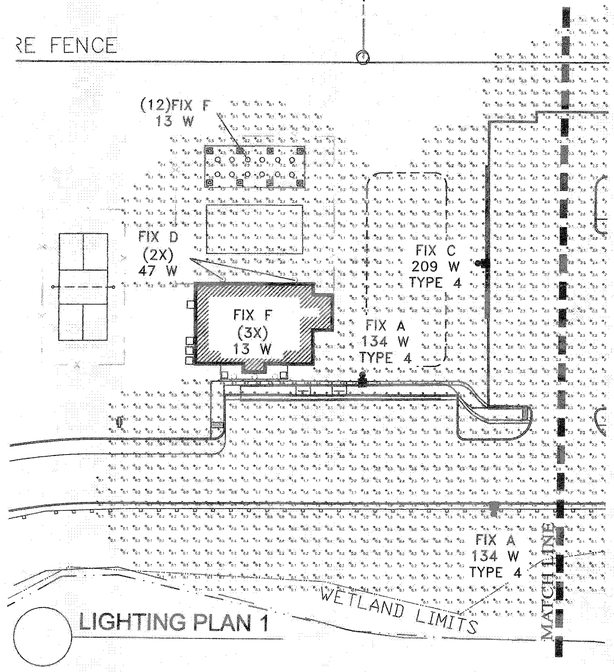


Ordering Information EXAMPLE: WST LED P1 40K VF MVOLT DDBTXD

WALL MOUNTED LIGHT DETAIL (FIXTURE D)

2

LITHONIA TWH WALL MOUNTED LIGHT WITH FULL SHIELD (FS) OPTION:
MODEL: 47 WATT LED LITHONIA MODEL#: WST LED 2 10A700/50K SR4 MVOLT OR EQUAL



LIGHTING PLAN 1

6" DOWNLIGHT (FIXTURE F)

4

LITHONIA 6" BAFFLE LED MODULE:
MODEL: 6BP TRW LED 40K 80CRI21

LIGHTING LEGEND

FIXTURE	Wattage (TYPE)	DENOTED BY	HEIGHT PLACEMENT	QYT.
A	134W (LED)	▬	25'	16
B	134W (LED)	▬	25'	5
C	209 W (LED)	▬	25'	6
D	47W (LED)	●	12'	2
E	24W (LED)	■	10'	24
F	13W (LED)	●	8'	15

MAP REVISION DATES

DATE	REVISION	BY
12-01-2017	REVISED FOR ORANGE COUNTY DEPT OF HEALTH	KJP
04-11-2019	ADDED LIGHTING FOR CLUB HOUSE	SL

SHEET NOT FOR ORANGE COUNTY HEALTH DEPARTMENT REVIEW OR APPROVAL

LIGHTING PLAN
FOR
LAKESIDE SENIOR HOUSING

SITUATE - LAKESIDE ROAD
TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

FEBRUARY 8, 2016

30 0 30 60 90

Scale: 1" = 30'

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STATE OF NEW YORK BARRY MEDENBACH 060142 LICENSED PROFESSIONAL ENGINEER

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LP
E18 021
SHEET 11 OF 18

BUILDING #2 (36 UNITS)
(24-2 BDR, 12-1 BDR)
FF= 513.00'

BUILDING #3 (30 UNITS)
(24-2 BDR, 6-1 BDR)
FF=507.75'
SF=519.10'

PROPOSED MOW LINE

PROPOSED TREE LINE

AS PER FILED MAP NO. 6053

LAWN

GRASS SEED PER SEEDING MIX CHART ON SHEET LS1

Switchgrass Mix 5 lbs per AC

MULCH RING

Mechanical Units (Typical)

Benches

Little Leaf Linden

Redmond Linden

Swamp White Oak

Blue Spruce

Norway Spruce

Donald Wyman Crabapple

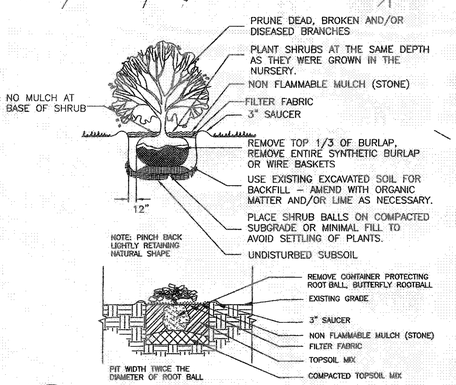
(5) Stella Doro Daylily
(5) Green Velvet Boxwood
(7) Stella Doro Daylily
(3) Green Velvet Boxwood
(7) Crane's bill
(2) Green Velvet Boxwood
(7) Bowles Periwinkle
(2) Green Mountain Boxwood
(12) Catlin's Giant Bugleweed
(5) Artic Fire Red-twig Dogwood
(2) Artic Fire Red-twig Dogwood
(5) Golden Mop Sawara Cypress
(10) Artic Fire Red-twig Dogwood
(16) Stella Doro Daylily
(5) Jr Walker Catmint
(2) Green Tower Boxwood
(10) Goldsturm Black-eyed Susan
(8) Black-eyed Susan
(6) Sunburst St. John's Wort
(14) Goldsturm Black-eyed Susan
(11) Crane's-bill
(9) Blue Star Juniper
(7) Golcen Mop Sawara Cypress
(7) Blue Star Juniper
(5) Golden Mop Sawara Cypress
(9) Crane's-bill
(9) Artic Fire Red-twig Dogwood
(2) Red Maple
(3) Red Maple
(5) River Birch
(7) Blue Joint
(9) New England Aster
(18) New England Aster
(19) Red-Twig Dogwood
(5) Red-Twig Dogwood
(41) Red-Twig Dogwood

LEGEND

- PROPOSED 5 dia MULCH RING
- PROPOSED MOW LINE
- MECHANICAL UNITS

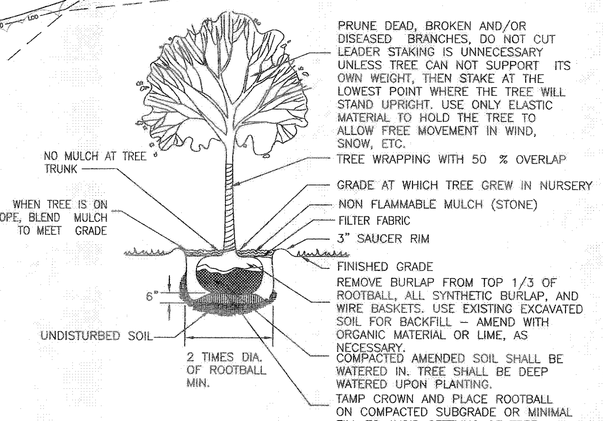
1 TYPICAL SHRUB PLANTING DETAILS

NOT TO SCALE



2 TYPICAL TREE PLANTING DETAIL

NOT TO SCALE



SHEET NOT FOR ORANGE COUNTY HEALTH DEPARTMENT REVIEW OR APPROVAL

MAP REVISION DATES

DATE	REVISION	BY
4-6-2017	REVISED SEVERAL TREES SPECIES	CC
8-30-2017	REVISED LANDSCAPING PER CONSULTANT	CC
12-01-2017	REVISED FOR ORANGE COUNTY DEPT OF HEALTH	KJP
01-22-2018	LANDSCAPING NOTES	KJP
04-08-2019	LANDSCAPING REVISED PER COMMENTS	CC

LANDSCAPING PLAN 2
FOR
LAKESIDE SENIOR HOUSING

SITUATE - LAKESIDE ROAD
TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

FEBRUARY 8, 2016

20 0 20 40 60

Scale: 1" = 20'

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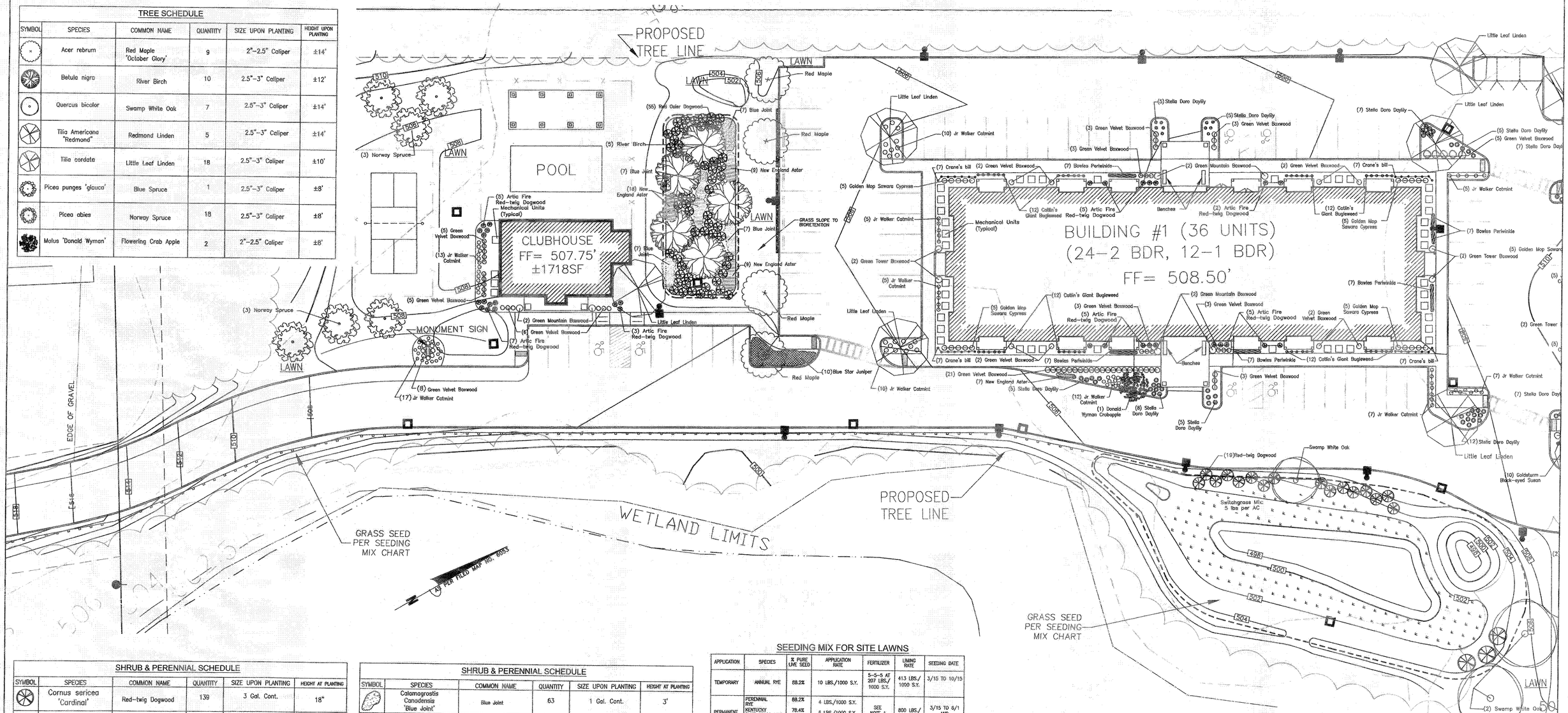
BARRY MEDENBACH, P.E.
NEW YORK LIC. NO. 60142

LS2
F18 021
SHEET 10 OF 18

TREE SCHEDULE

SYMBOL	SPECIES	COMMON NAME	QUANTITY	SIZE UPON PLANTING	HEIGHT UPON PLANTING
	Acer rebrum	Red Maple 'October Glory'	9	2"–2.5" Caliper	±14'
	Betula nigra	River Birch	10	2.5"–3" Caliper	±12'
	Quercus bicolor	Swamp White Oak	7	2.5"–3" Caliper	±14'
	Tilia Americana "Redmond"	Redmond Linden	5	2.5"–3" Caliper	±14'
	Tilia cordata	Little Leaf Linden	18	2.5"–3" Caliper	±10'
	Picea punges 'glauca'	Blue Spruce	1	2.5"–3" Caliper	±8'
	Picea abies	Norway Spruce	18	2.5"–3" Caliper	±8'
	Malus 'Donald Wyman'	Flowering Crab Apple	2	2"–2.5" Caliper	±8'



SHRUB & PERENNIAL SCHEDULE

SYMBOL	SPECIES	COMMON NAME	QUANTITY	SIZE UPON PLANTING	HEIGHT AT PLANTING
	Cornus sericea 'Cardinal'	Red–twig Dogwood	139	3 Gal. Cont.	18"
	Cornus sericea Artic Fire	Artic Fire Red–twig Dogwood	98	3 Gal. Cont.	24"
	Symphyotrichum novae–angliae	New England Aster	88	1 Gal. Cont.	12"
	Hemerocallis 'Stella de Oro'	Stella Doro Daylily	131	2 Gal. Cont.	12"
	Hypericum frondsum 'Sunburst'	Sunburst St. John's Wort	12	2 Gal. Cont.	18"
	Chamaecyparic pisfera 'Golden Mop'	Golden Mop Sawara Cypress	62	2 Gal. Cont.	18"
	Nepeta faassenii 'Novanepjun'	Jr Walker Catmint	85	2 Gal. Cont.	9"
	Rudbeckia fulgida 'Goldsturm'	Goldsturm Black–eyed Susan	25	2 Gal. Cont.	12"

SHRUB & PERENNIAL SCHEDULE

SYMBOL	SPECIES	COMMON NAME	QUANTITY	SIZE UPON PLANTING	HEIGHT AT PLANTING
	Calamagrostis Canadensis 'Blue Joint'	Blue Joint	63	1 Gal. Cont.	3'
	Juniperus Squamata 'Blue Star'	Blue Star Juniper	26	3 Gal. Cont.	12"
	Vinca minor 'Bowles'	Bowles Common Periwinkle	70	In Flats	3"
	Buxus 'Green Mountain'	Green Mountain Boxwood	18	3 Gal. Cont.	24'
	Buxus sempervirens 'Monrue'	Green Tower Boxwood	6	3 Gal. Cont.	18"
	Buxus 'Green Velvet'	Green Velvet Boxwood	135	3 Gal. Cont.	18"
	Ajuga reptans 'Catlin's Giant'	Catlin's Giant Bugleweed	144	1 Gal. Cont.	6"
	Geranium x cantabrigiense 'Biokovo'	Crane's–bill	90	2 Gal. Cont.	6"

SEEDING MIX FOR SITE LAWNS

APPLICATION	SPECIES	% PURE LIVE SEED	APPLICATION RATE	FERTILIZER	LIMING RATE	SEEDING DATE
TEMPORARY	ANNUAL RYE	88.2%	10 LBS./1000 S.Y.	5–5–5 AT 207 LBS./ 1000 S.Y.	413 LBS./ 1000 S.Y.	3/15 TO 10/15
PERMANENT	PERENNIAL RYE KENTUCKY BLUE GRASS MIX* CREEPING RED FESCUE	88.2% 78.4% 83.3%	4 LBS./1000 S.Y. 6 LBS./1000 S.Y. 11 LBS./1000 S.Y.	SEE NOTE 1 BELOW	800 LBS./ 1000 S.Y.	3/15 TO 6/1 AND 9/1 TO 10/15
PERMANENT	TALL FESCUE (VAR. KENTUCKY 31) BIRDSFOOT TREFOIL MIX REDTOP	83.5% **78.4% 73.6%	7.5 LBS./1000 S.Y. 2.0 LBS./1000 S.Y. 1.0 LBS./1000 S.Y.	SEE NOTE 1 BELOW	800 LBS./ 1000 S.Y.	4/1 TO 6/15 AND 9/1 9/15

SEEDING MIX FOR DISTURBED AREAS BEYOND LAWN NATIVE UPLAND WILDLIFE FORAGE & COVER MEADOW MIX

APPLICATION	SPECIES	SEED MIXTURE %	APPLICATION RATE	SEEDING DATE
PERMANENT	BIG BLUESTEM, 'NIAGARA' SWITCHGRASS, 'SHAWNEE' VIRGINIA WILDRYE, PA ECOTYPE BIRDWARDRASS, PA ECOTYPE BLACKEYED SUSAN, COASTAL PLAIN RC ECOTYPE PARTRIDGE PEA, PA ECOTYPE OXEYE SUNFLOWER, PA ECOTYPE PLAINS COREOPSIS SHOWY TICKTREFOIL, PA ECOTYPE	35.00% 27.00% 21.00% 9.00% 3.00% 2.00% 1.50% 1.00% 0.50%	20 LBS./ 1 ACRE	5/1 TO 10/1

1. FERTILIZER SHALL BE APPLIED IN ACCORDANCE WITH A SOIL TEST. IN THE ABSENCE OF A SOIL TEST, FERTILIZER SHALL BE APPLIED AS FOLLOWS:
   A. 10–20–20 ANALYSIS COMMERCIAL FERTILIZER AT 140 LBS./1000 S.Y.
      38–0–0 UREA FORM FERTILIZER AT 50 LBS./1000 S.Y.
   B. 32–0–0 TO 38–0–0 SULFUR COATED UREA FERTILIZER AT 59–50 LBS./1000 S.Y.
   C. 31–0–0 IBDU FERTILIZER AT 61 LBS./1000 S.Y.
2. ALL SEEDED AREAS SHALL BE MULCHED WITH HAY OR STRAW APPLIED AT A RATE OF 6000 LBS./AC.
3. ALL AREAS RECEIVING SEEDING SHALL HAVE A MINIMUM OF 6" OF TOPSOIL COMPOST MIX SHOULD BE INSTALLED IN ALL PLANTING AREAS, SCARIFY OR DIG ALL PROPOSED PLANTING AREAS TO A DEPTH OF 12". TOPSOIL–COMPOST MIX CONSISTS OF 70% STOCKPILED TOPSOIL OF AVAILABLE) AND 30% WELL–ROTTED COMPOST. IF STOCKPILED SOIL IS NOT AVAILABLE, USE PURCHASED TOPSOIL IN SUFFICIENT QUANTITY TO COMPLETE THE REQUIREMENTS AS SPECIFIED. TOPSOIL SHALL BE NATURAL, FRIABLE, FERTILE SOIL, CHARACTERISTIC OF PRODUCTIVE SOIL IN VICINITY, REASONABLE FREE FROM STONES, CLAY LUMPS, ROOTS AND OTHER FOREIGN MATTER, WITH ACIDITY (pH) LEVEL BETWEEN 6 AND 6.8. MULCH TO BE ANCHORED WITH WOOD CELLULOSE FIBER AT 750 LBS./AC. OR EQUAL.
   NOTE: TOPSOIL IS TO BE APPROVED BY LANDSCAPE ARCHITECT
   * BLUEGRASS MIX: A COMBINATION OF CERTIFIED VARIETIES EACH AT 25% OR LESS OF MIX.
   ** MINIMUM 20% HARDSEED AND 60% NORMAL SPROUTS.
4. THE MEADOW MIXTURES SHOULD BE USED FOR AREAS BEYOND THE MOW LINE AROUND THE PARKING AREAS.

LANDSCAPING NOTES:

1. The contractor shall furnish and plant all plants in quantities as shown on this plan. No substitutes will be permitted unless approved by the owner. All plants shall be nursery grown.
2. Plants shall be in accordance with the current "American Association for Nursery Stock" as published by the American Association of Nurserymen.
3. Plant stock shall be grown within the hardiness zone 5 established by the plant hardiness zone map, miscellaneous publications no.814, agricultural research service, United States Department of Agriculture, latest revision.
4. All plants must be moved with the root systems as solid units with the balls of earth firmly wrapped with burlap. No plants shall be accepted when the ball of earth surrounding its roots has been badly cracked or broken before planting. All plants shall be freshly dug. All plants that cannot be planted at once must be heeled–in by setting in the ground, and covering the balls with soil and then watering during transport. All plant materials shall be wrapped with wind proof covering.
5. Plant material shall bear the same relationship to finished grade as to the original planting grade prior to digging.
6. All disturbed areas not to be paved or otherwise treated shall receive four (4) inch loam and seed.
7. See planting details and specifications for additional requirements.
8. Tree stakes and wrap shall remain in place for no less than 6 months and no more than 1 year.
9. Planting shall be completed from April 1st through November 1st.
10. Maintenance shall consist of keeping the plants in a healthy growing condition and shall include weeding, cultivating, re–mulching, tightening and repairing of guys, removal of dead material, resetting plants to proper grades or upright position and maintaining the planting saucer.
11. All vegetation shown on this plan shall be maintained in a healthy and vigorous growing condition throughout the duration of the proposed use. All vegetation not so maintained shall be replaced with new same size and type vegetation at the beginning of the next planting year.
12. Replacements shall conform in all respects to the specifications for new plants and shall be planted in the same manner.
13. All disturbed areas not landscaped or otherwise specified shall receive grass seeds.
14. Plantings are to be installed by local companies familiar with the conditions in the area that employ NYS Certified Nursery Professionals or with an owner or foreman that has degree in horticulture, arboriculture, botany, or any other landscape degree or qualified experience.

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- ☐ Wait The Required Time
- ☑ Confirm Utility Response
- ☑ Respect The Marks
- ☐ Dig With Care

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NOT FOR ORANGE COUNTY HEALTH DEPARTMENT REVIEW OR APPROVAL

MAP REVISION DATES

DATE	REVISION	BY
4-6-2017	REVISED PLANT COUNT AND ADDED PLANTING HEIGHTS	CC
8-30-2017	REVISED LANDSCAPING PER CONSULTANT	CC
01-22-2018	LANDSCAPING NOTES	KJP
01-30-2018	LANDSCAPING NOTES	CC
01-21-2019	LANDSCAPING FOR NEWLY ADDED CLUBHOUSE	SL
03-25-2019	LANDSCAPING REVISED	SL
04-8-2019	LANDSCAPING REVISED PER COMMENTS	CC

LANDSCAPING PLAN 1
FOR
LAKESIDE SENIOR HOUSING

SITUATE - LAKESIDE ROAD
TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

FEBRUARY 8, 2016

20 0 20 40 60
Scale: 1" = 20'

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STATE OF NEW YORK BARRY MEDENBACH 050152 LICENSED PROFESSIONAL ENGINEER

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LS1
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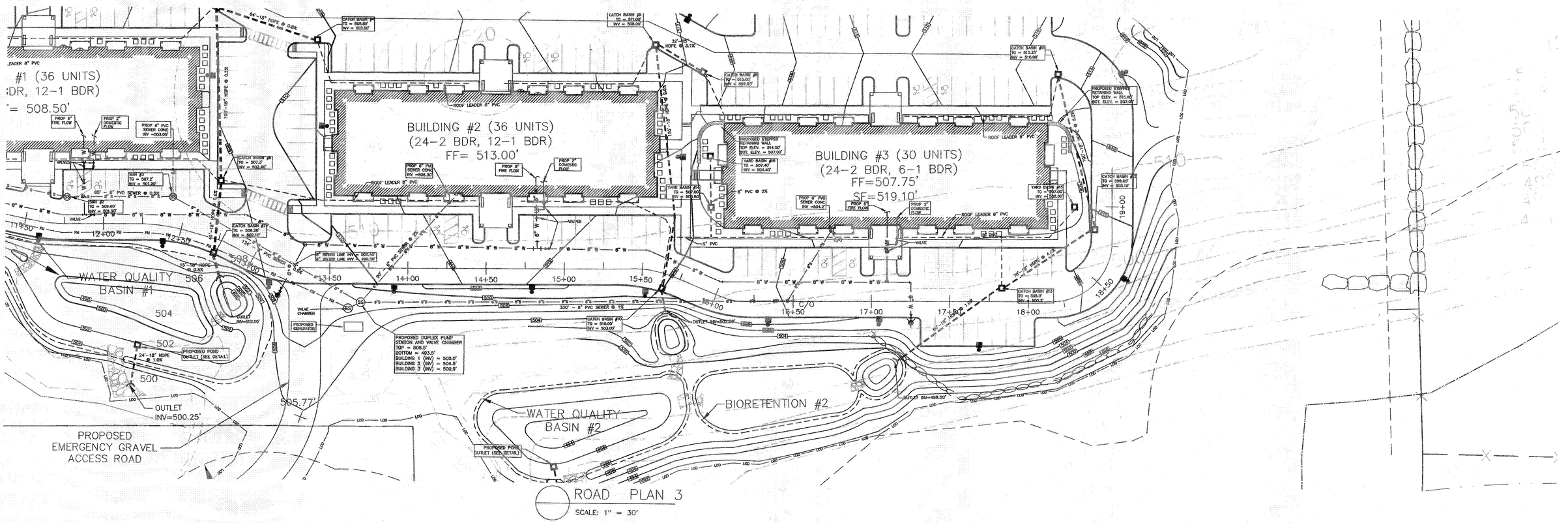
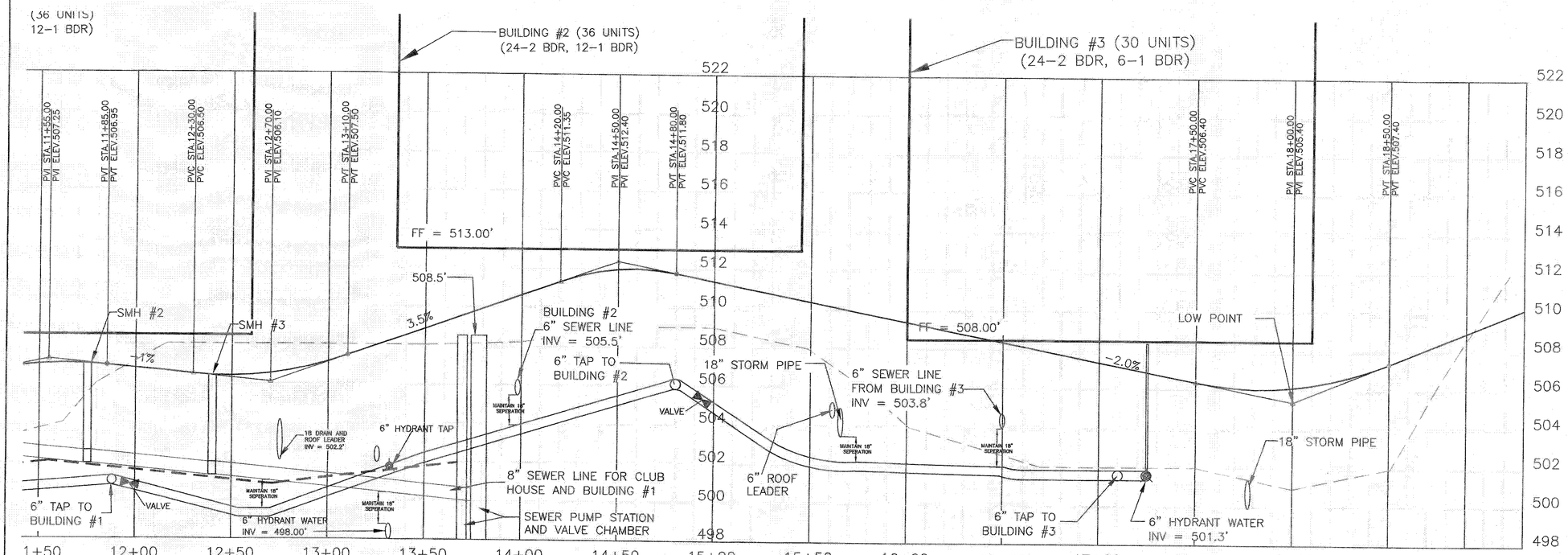
SHEET 9 OF 18



ROAD PLAN 3

SCALE: 1" = 30'



ROAD PROFILE 3

SCALE: 1" = 30' HORIZONTAL 1" = 3' VERTICAL

MAP REVISION DATES		
DATE	REVISION	BY
09-19-2017	COMMENTS FROM TECH REVIEW	SL
12-01-2017	REVISED FOR ORANGE COUNTY DEPT OF HEALTH	KJP
01-22-2018	ROAD PROFILE NOTES	KJP
04-11-2019	REVISED WATER LINE CONNECTIONS	CC

ROAD PROFILE AND PLAN 3

FOR

LAKESIDE SENIOR HOUSING

SITUATE - LAKESIDE ROAD
TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

FEBRUARY 8, 2016

30 0 30 60 90

Scale: 1" = 30'

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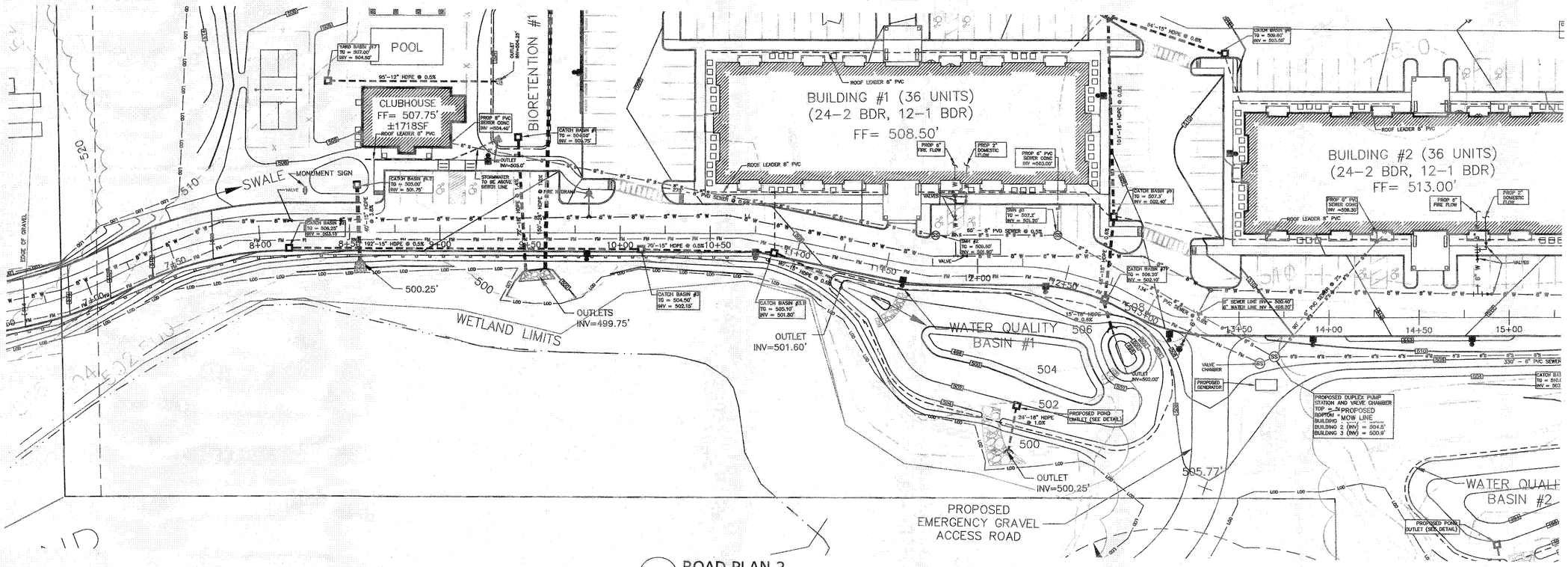
STATE OF NEW YORK BARRY MEDENBACH 60142 LICENSED PROFESSIONAL ENGINEER

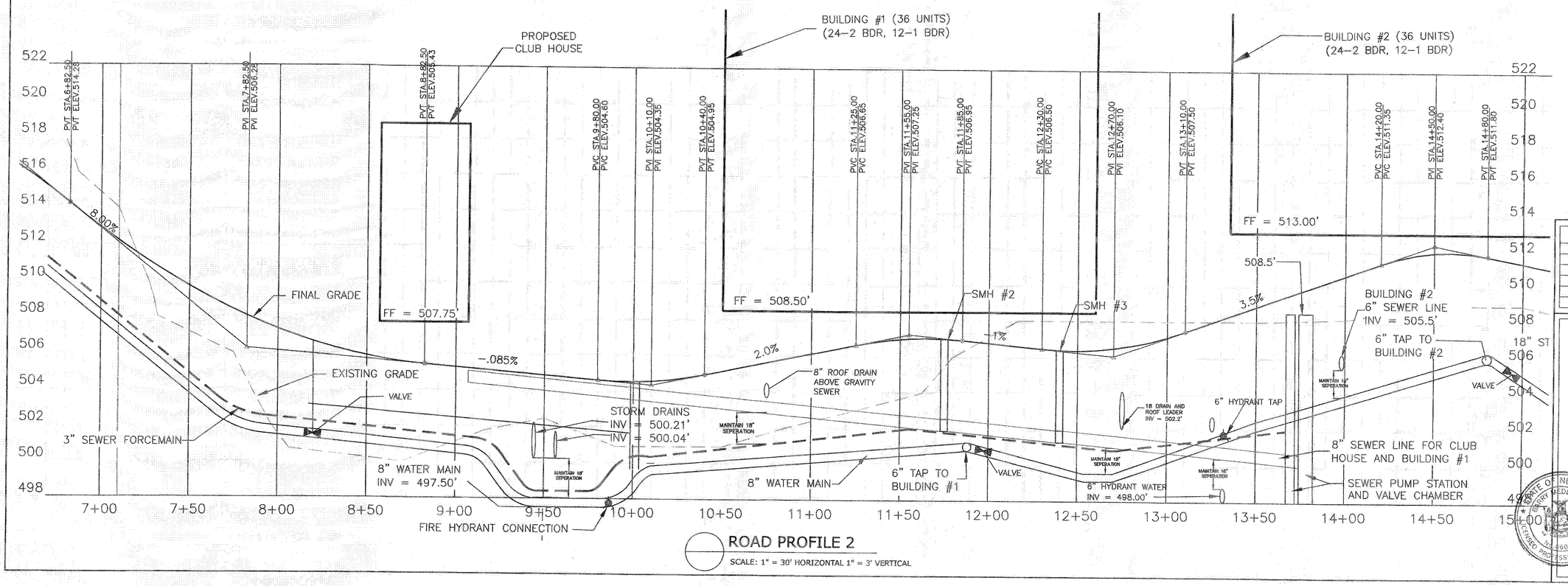
BARRY MEDENBACH, P.E.
NEW YORK LIC. NO. 60142

RP3
E18 021
SHEET 8 OF 18



ROAD PLAN 2

SCALE: 1" = 30'



ROAD PROFILE 2

SCALE: 1" = 30' HORIZONTAL 1" = 3' VERTICAL

MAP REVISION DATES		
DATE	REVISION	BY
09-19-2017	COMMENTS FROM TECH REVIEW	SL
12-01-2017	REVISED FOR ORANGE COUNTY DEPT OF HEALTH	KJP
01-22-2018	ROAD PROFILE NOTES	KJP
01-21-2019	NEW SEWER LINE FOR CLUB HOUSE & BLDG #1	SL
04-11-2019	REVISED WATER LINE CONNECTIONS	CC

ROAD PROFILE AND PLAN 2

FOR

LAKESIDE SENIOR HOUSING

SITUATE - LAKESIDE ROAD

TOWN OF NEWBURGH

ORANGE COUNTY, NEW YORK

FEBRUARY 8, 2016

30 0 30 60 90

Scale: 1" = 30'

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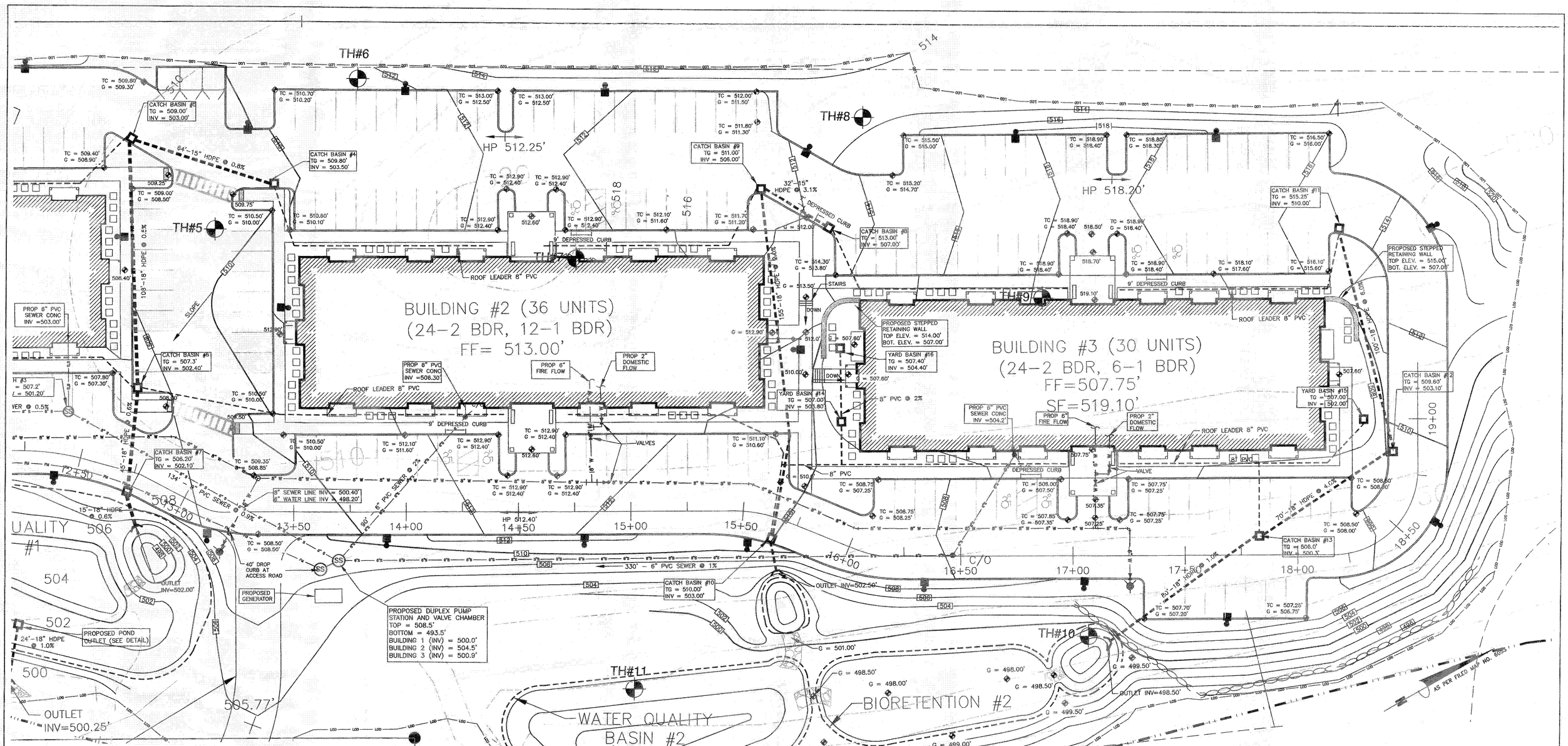
BARRY MEDENBACH, P.E.

NEW YORK LIC. NO. 60142

RP2

E18 021

SHEET 7 OF 18



Test Hole Data

21 Lakeside Senior Housing

15-Sep-16

TH#7	
0-6"	Topsoil
6"-24"	Gravelly silt loam
24"	Shale, no water or mottling
TH#8	
0-6"	Topsoil
6"-54"	Gravelly silt loam
54"	Shale, no water or mottling
TH#9	
0-6"	Topsoil
6"-48"	Gravelly silt loam
48"	Shale, no water or mottling
TH#10	
0-12"	Topsoil
12"-24"	Silty clay
24"-36"	Dense mottled clay
36"-60"	Gravelly silt loam with sand
	No water, rock or mottling
TH#11	
0-6"	Topsoil
6"-60"	Sandy silt-no water, rock or mottling

ABBREVIATIONS

TC	TOP OF CURB
G	GROUND OR PAVEMENT
FF	FINISH FLOOR
INV	INVERT
TG	TOP OF GRADE
HP	HIGH POINT OF PAVEMENT

DEPRESSED CURB RAMP

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MAP REVISION DATES

DATE	REVISION	BY
03-27-2017	ADDED 6" FIRE FLOW & 2" DOMESTIC FLOW VALVES	SL
04-04-2017	LABELED DEPRESSED CURBS, REVISED WATER MAIN	SL
09-19-2017	SHOW STATIONING	SL
12-01-2017	REVISED FOR ORANGE COUNTY DEPT OF HEALTH	KJP
01-22-2018	SEWER AND WATER LINES	KJP
12-6-2018	CONSTRUCTION CHANGE REV. BUILDING FOOTPRINT	SL
12-10-2018	REVISE GRADING	CC
12-20-2018	REVISE GRADING	CC
04-11-2019	REVISE RETAINING WALLS AND WATER LINE CONNECTIONS	CC

GRADING & UTILITY PLAN 2

FOR

LAKESIDE SENIOR HOUSING

SITUATE - LAKESIDE ROAD

TOWN OF NEWBURGH

ORANGE COUNTY, NEW YORK

JANUARY 31, 2016

20 0 20 40 60

Scale: 1" = 20'

MEDENBACH & EGGERS

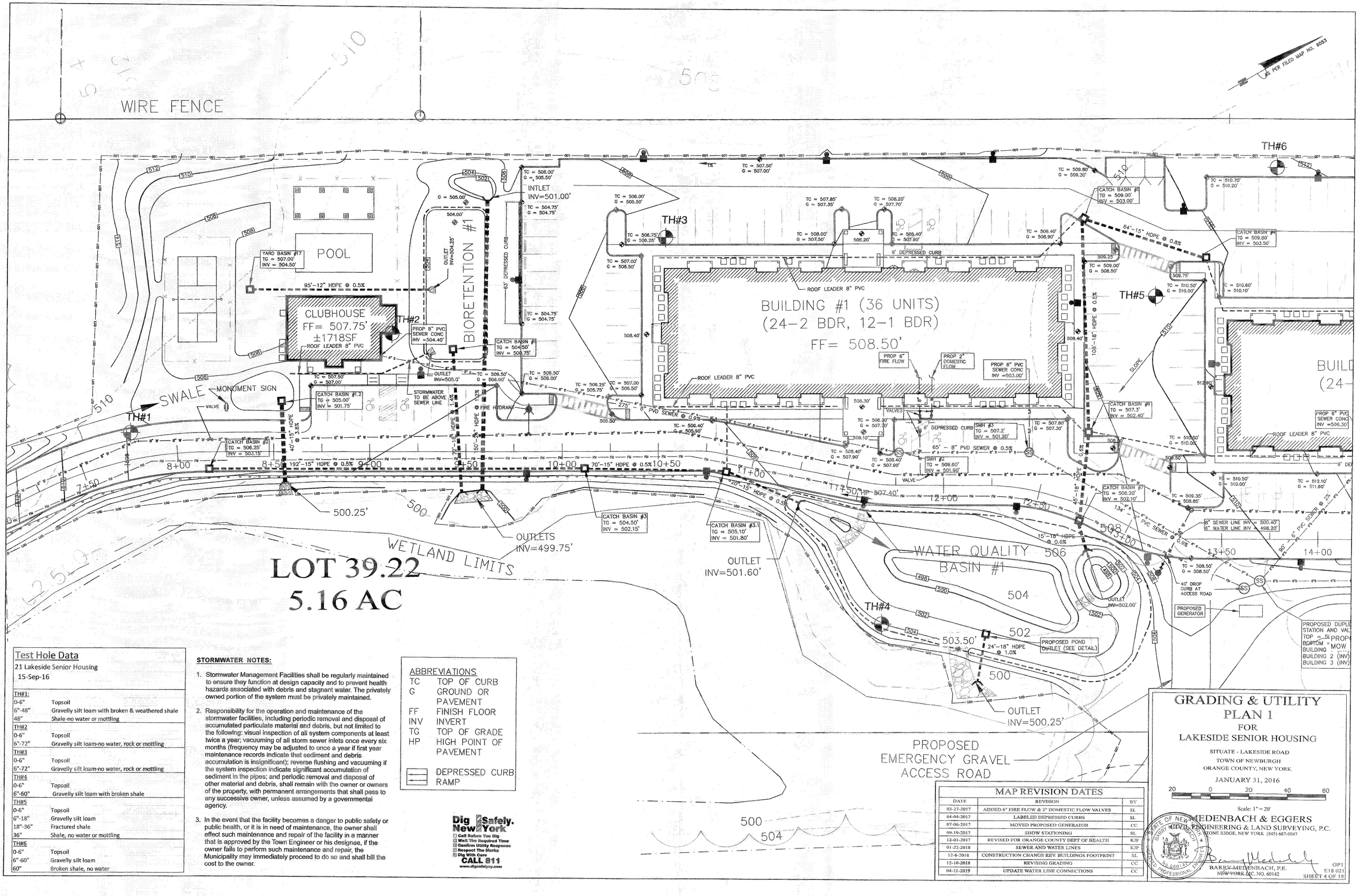
CIVIL ENGINEERING & LAND SURVEYING, P.C.

STONE RIDGE, NEW YORK (845) 687-0047

STATE OF NEW YORK BARRY MEDENBACH 060142 LICENSED PROFESSIONAL ENGINEER

BARRY MEDENBACH, P.E.

NEW YORK LIC. NO. 60142



Test Hole Data

21 Lakeside Senior Housing
15-Sep-16

TH#1:	
0-6"	Topsoil
6"-48"	Gravelly silt loam with broken & weathered shale
48"	Shale-no water or mottling
TH#2	
0-6"	Topsoil
6"-72"	Gravelly silt loam-no water, rock or mottling
TH#3	
0-6"	Topsoil
6"-72"	Gravelly silt loam-no water, rock or mottling
TH#4	
0-6"	Topsoil
6"-60"	Gravelly silt loam with broken shale
TH#5	
0-6"	Topsoil
6"-18"	Gravelly silt loam
18"-36"	Fractured shale
36"	Shale, no water or mottling
TH#6	
0-6"	Topsoil
6"-60"	Gravelly silt loam
60"	Broken shale, no water

STORMWATER NOTES:

1. Stormwater Management Facilities shall be regularly maintained to ensure they function at design capacity and to prevent health hazards associated with debris and stagnant water. The privately owned portion of the system must be privately maintained.
2. Responsibility for the operation and maintenance of the stormwater facilities, including periodic removal and disposal of accumulated particulate material and debris, but not limited to the following: visual inspection of all system components at least twice a year; vacuuming of all storm sewer inlets once every six months (frequency may be adjusted to once a year if first year maintenance records indicate that sediment and debris accumulation is insignificant); reverse flushing and vacuuming if the system inspection indicate significant accumulation of sediment in the pipes; and periodic removal and disposal of other material and debris, shall remain with the owner or owners of the property, with permanent arrangements that shall pass to any successive owner, unless assumed by a governmental agency.
3. In the event that the facility becomes a danger to public safety or public health, or it is in need of maintenance, the owner shall effect such maintenance and repair of the facility in a manner that is approved by the Town Engineer or his designee, if the owner fails to perform such maintenance and repair, the Municipality may immediately proceed to do so and shall bill the cost to the owner.

ABBREVIATIONS

TC	TOP OF CURB
G	GROUND OR PAVEMENT
FF	FINISH FLOOR
INV	INVERT
TG	TOP OF GRADE
HP	HIGH POINT OF PAVEMENT
	DEPRESSED CURB RAMP

Dig Safely. New York
- Call Before You Dig
- Wait The Required Time
- Confirm Utility Response
- Respect The Marks
- Dig With Care

CALL 811
www.digsafelyny.com

MAP REVISION DATES

DATE	REVISION	BY
03-27-2017	ADDED 6" FIRE FLOW & 2" DOMESTIC FLOW VALVES	SL
04-04-2017	LABELED DEPRESSED CURBS	SL
07-06-2017	MOVED PROPOSED GENERATOR	CC
09-19-2017	SHOW STATIONING	SL
12-01-2017	REVISED FOR ORANGE COUNTY DEPT OF HEALTH	KJF
01-22-2018	SEWER AND WATER LINES	KJF
12-6-2018	CONSTRUCTION CHANGE REV. BUILDINGS FOOTPRINT	SL
12-10-2018	REVISING GRADING	CC
04-11-2019	UPDATE WATER LINE CONNECTIONS	CC

GRADING & UTILITY PLAN 1
FOR
LAKESIDE SENIOR HOUSING

SITUATE - LAKESIDE ROAD
TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

JANUARY 31, 2016

20 0 20 40 60
Scale: 1" = 20'

MEDENBACH & EGGERS
CIVIL ENGINEERING & LAND SURVEYING, P.C.
STONE RIDGE, NEW YORK (845) 687-0047

STATE OF NEW YORK
BARRY MEDENBACH
No. 060134
LICENSED PROFESSIONAL ENGINEER

BARRY MEDENBACH, P.E.
NEW YORK LIC. NO. 60142

GP1
E18 021
SHEET 4 OF 18

N 28°24'32" E 53.25'

WIRE FENCE

N 29°34'07" E 607.69'

N 29°56'08" E 51.64'

N 29°56'08" E 634.21'

S 62°04'04" E 329.51'

S 60°15'21" E 223.35'

N 61°35'28" W 916.54'

GRAVEL PARKING AREA

EXISTING FENCE

FIRE HYDRATE

WETLAND LIMITS

LOT 39.22
5.16 AC
ACOE WETLANDS
AREA = ±1.8 AC
APPROXIMATE LIMIT OF 100 YEAR FLOOD PLAIN W.E. 499.50'

S 29°34'07" W 704.18'

EXISTING POND

EXISTING LOT LINE TO BE DELETED

PER FILED MAP NO. 6083

LOT 39.23
14.07 AC

ADJACENT AREA 100.0'

APPROXIMATE LIMIT OF 100 YEAR FLOOD PLAIN W.E. 490.00'

NEW YORK STATE
FRESHWATER WETLAND NO. NB-21
AREA = ±5.8AC
FHA W.E.= 490 FT

APPROXIMATE LOCATION OF UPLAND BOUNDARY

N 61°49'00" W 649.00'

STONE WALL

ICE TIME SPORTS COMPLEX

12" CPP

4"PVC OUTLET

DETENTION BASIN

12"CPP

UPLAND

.VES & VENT

REMAINS OF OLD WIRE FENCE

STONE WALL

S 27°34'24" W

SHEET NOT FOR ORANGE COUNTY HEALTH DEPARTMENT REVIEW OR APPROVAL

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Wait The Required Time
Confirm Utility Responses
Respect The Marks
Dig With Care
CALL 811
www.digsafelyny.com

MAP REVISION DATES		
DATE	REVISION	BY
12-01-2017	REVISED FOR ORANGE COUNTY DEPT OF HEALTH	KJP
01-22-2018	METES AND BOUNDS	KJP

EXISTING CONDITIONS
FOR
LAKESIDE SENIOR HOUSING

SITUATE - LAKESIDE ROAD
TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

FEBRUARY 8, 2016

50 0 50 100 150

Scale: 1" = 50'

MEDENBACH & EGGERS
ENGINEERING & LAND SURVEYING, P.C.
STONE RIDGE, NEW YORK (845) 687-0047

BARRY MEDENBACH, P.E.
NEW YORK LIC. NO. 60142

EC
E18 021
SHEET 3 OF 18

WIRE FENCE

POOL

CLUBHOUSE
FF= 507.75'
±1718SF

BIORETENTION #1

MONUMENT SIGN

10' X 30'
DUMPSTER
ENCLOSURE

BUILDING #1 (36 UNITS)
(24–2 BDR, 12–1 BDR)
FF= 508.50'

BUILDING #2 (36 UNITS)
(24–2 BDR, 12–1 BDR)
FF= 513.00'

BUILDING #3 (30 UNITS)
(24–2 BDR, 6–1 BDR)
FF=507.75'
SF=519.10'
67 Parking Stalls

LOT 39.23
14.07 AC

LOT 39.22
5.16 AC

WETLAND LIMITS

ACOE WETLANDS
AREA = ±1.8 AC
APPROXIMATE LIMIT OF 100
YEAR FLOOD PLAIN W.E. 499.50'

WATER QUALITY
BASIN #1

WATER QUALITY
BASIN #2

BIORETENTION #2

PROPOSED
EMERGENCY GRAVEL
ACCESS ROAD

MOVE EXISTING
STONE WALL TO
NEW LOCATION

ADJACENT AREA
100.0'

DRAINAGE SWALE

G POND

APPROXIMATE LIMIT OF 100
YEAR FLOOD PLAIN W.E. 490.00'

NEW YORK STATE
FRESHWATER WETLAND NO. NB–21
AREA = ±5.8AC
FHA W.E.= 490 FT

EXISTING BUILDING
ICE TIME SPORTS COMPLEX

12" CPP

4"PVC
OUTLET

45° PER FIELD MAP NO. 8053

MAP REVISION DATES		
DATE	REVISION	BY
03-13-2017	ADDED SPOT ELEVATIONS	CC
07-06-2017	ADDED MONUMENT SIGN	CC
12-01-2017	REVISED FOR ORANGE COUNTY DEPT OF HEALTH	KJP
01-21-2019	REVISED SITE PLAN TO INCLUD CLUB HOUSE	SL
04-11-2019	UPDATED PLANS FOR CLUB HOUSE	CC

SITE PLAN
FOR
LAKESIDE SENIOR HOUSING

SITUATE - LAKESIDE ROAD
TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

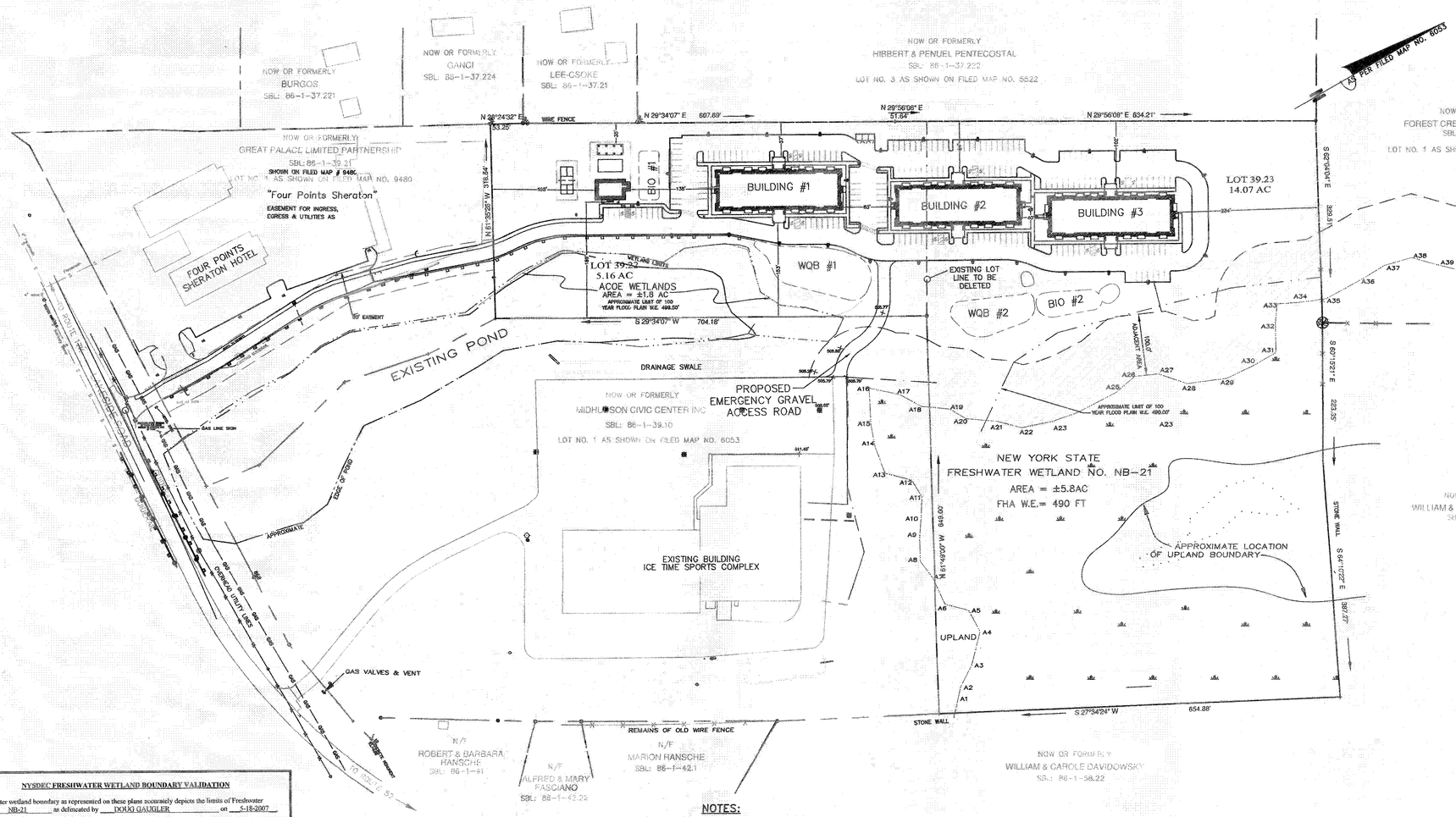
FEBRUARY 8, 2016

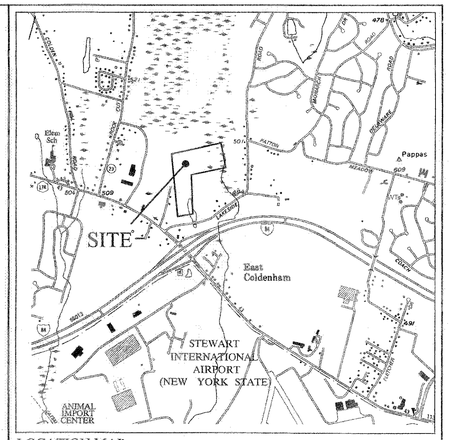
40 20 0 40 80 120
Scale: 1" = 40'

MEDENBACH & EGGERS
CIVIL ENGINEERING & LAND SURVEYING, P.C.
STONE RIDGE, NEW YORK (845) 687-0047

BARRY MEDENBACH, P.E.
NEW YORK LIC. NO. 60142

SP
EI8 021
SHEET 2 OF 18





LOCATION MAP
SCALE: 1" = 2,000'

ZONING REQUIREMENTS
FOR TOWN OF NEWBURGH
ZONE 1B DISTRICT
SENIOR CITIZEN HOUSING
(30) 1-Bdrm & (72) 2-Bdrm Units Total

	REQUIRED	PROVIDED
Total Lot Area	5 AC	19.23 AC
NYS Wetlands		5.80 AC
ACOE Wetlands		1.80 AC
100 Ft. Buffer		1.65 AC
Net Upland Area Available for Development		9.98 AC

Senior Citizen housing permitted as per §185-48:
(30) 1 Bdrm Units @12 units per AC = 2.5 AC req.
(72) 2 Bdrm Units @10 units per AC = 7.2 AC req.

Total acreage required for 102 units = 9.7 AC
Parking Requirement: 2 spaces per unit - 7 accessible
Accessible Parking = 14 spaces provided
102 units proposed = 204 spaces required
Proposed Parking = 210 Spaces provided

OWNER / DEVELOPER
HUDSON PLACE AT LAKESIDE, LLC
JOSEPH FARRELL
PO Box 14
BRIDGEHAMPTON, NY 11932

APPROVED BY THE TOWN OF NEWBURGH PLANNING BOARD
DATE _____
CHAIRMAN _____

SBL	LOT AREA
86-1-39.22	± 5.16 AC
86-1-39.23	± 14.07 AC
	TOTAL AREA = ± 19.23 AC

SHEET INDEX

SHEET	TITLE	SHEET#
I	INDEX SHEET	SHEET 1 OF 18
SP1	SITE PLAN	SHEET 2 OF 18
EC	EXISTING CONDITIONS	SHEET 3 OF 18
GP1	GRADING & UTILITY PLAN 1	SHEET 4 OF 18
GP2	GRADING & UTILITY PLAN 2	SHEET 5 OF 18
RP1	ROAD PROFILE AND PLAN 1	SHEET 6 OF 18
RP2	ROAD PROFILE AND PLAN 2	SHEET 7 OF 18
RP3	ROAD PROFILE AND PLAN 3	SHEET 8 OF 18
LS1	LANDSCAPING PLAN 1	SHEET 9 OF 18
LS2	LANDSCAPING PLAN 2	SHEET 10 OF 18
LP	LIGHTNG PLAN	SHEET 11 OF 18
SESC	PHASING AND SOIL EROSION AND SEDIMENT CONTROL PLAN	SHEET 12 OF 18
D1	SITE DETAILS	SHEET 13 OF 18
D2	SITE DETAILS	SHEET 14 OF 18
D3	WATER DETAILS	SHEET 15 OF 18
D4	SEWER DETAILS	SHEET 16 OF 18
D5	SEWER PUMP DETAILS	SHEET 17 OF 18
D6	DRAINAGE DETAILS	SHEET 18 OF 18

MAP REVISION DATES

DATE	REVISION	BY
03-13-2017	REVISED LINE STYLE FOR EXISTING ACOE WETLANDS	CC
04-05-2017	ADDED 6' PAINTED FOOTPATH	SL
06-15-2017	ADDED NOTE FOR NO TREE CUTTING	CC
07-06-2017	REVISED PLANS PER TOWN ENGINEER'S COMMENTS	CC
12-01-2017	REVISED FOR ORANGE COUNTY DEPT OF HEALTH	KJP
02-21-2018	ADD SIGNATURE BLOCK FOR PLANNING BOARD	CC
01-21-2019	REVISED SITE PLAN TO INCLUDE CLUBHOUSE	SL
04-11-2019	UPDATED PLANS FOR CLUBHOUSE	CC

INDEX SHEET
FOR
LAKESIDE SENIOR HOUSING
SITUATE - LAKESIDE ROAD
TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK
FEBRUARY 8, 2017

100 0 100 200 300
Scale: 1" = 100'

MEDENBACH & EGGERS
CIVIL ENGINEERING & LAND SURVEYING, P.C.
STONE RIDGE, NEW YORK (845) 687-0047
BARRY MEDENBACH, P.E.
NEW YORK LIC. NO. 60142

E18 021
SHEET 1 OF 18

NYSDEC FRESHWATER WETLAND BOUNDARY VALIDATION

The freshwater wetland boundary as represented on these plans accurately depicts the limits of Freshwater Wetland NB-21 as delineated by DOUG GAUGLER on 5-18-2007
DEC Staff: BRIAN DRUMM 5/19/2016 Surveyor/Engineer: WILLIAM EGGERS, LS
Date Valid: 5/19/2016 Expiration Date: 5/19/2021 SEAL

Wetland boundary delineations as validated by the New York State Department of Environmental Conservation remain valid for five (5) years unless existing exempt activities, area hydrology, or land use practices change (e.g., agricultural to residential). After five (5) years the boundary must be revalidated by DEC staff. Revalidation may include a new delineation and survey of the wetland boundary.
Any proposed construction, grading, filling, excavating, cleaning or other regulated activity in the freshwater wetland or within 100 feet of the wetland boundary as depicted on this plan requires a permit from the NYS Department of Environmental Conservation under Article 24 of the Environmental Conservation Law (Freshwater Wetlands Act) prior to commencement of work.

PLAN LEGEND

- PROJECT PARCEL BOUNDARY
- ADJACENT PARCEL BOUNDARY
- PROPOSED STRUCTURE
- EXISTING STRUCTURE
- EXISTING 1 FOOT CONTOUR
- EXISTING 5 FOOT CONTOUR
- PROPOSED 1 FOOT CONTOUR
- PROPOSED 5 FOOT CONTOUR
- PROPOSED CURBING
- EXISTING CURBING
- PROPOSED RELOCATED LIGHT FIXTURE
- EXISTING FENCE
- PROPOSED GUIDE RAIL
- EXISTING GUIDE RAIL
- PROPOSED RETAINING WALL
- PROPOSED STORM DRAIN
- PROPOSED CATCH BASIN
- PROPOSED SPOT ELEVATION
- PROPOSED STORMWATER MANHOLE
- EXISTING STORM DRAIN
- EXISTING CATCH BASIN
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY MANHOLE
- EXISTING SANITARY SEWER
- EXISTING SANITARY MANHOLE
- PROPOSED WATER MAIN (X=DIA.)
- EXISTING WATER MAIN (X=DIA.)
- PROPOSED WATER VALVE
- EXISTING WATER VALVE
- EXISTING HYDRANT
- PROPOSED OVERHEAD UTLITY
- PROPOSED UTLITY POLE
- EXISTING OVERHEAD UTLITY
- EXISTING UTILITY POLE
- PROPOSED GAS LINE
- EXISTING GAS LINE
- PROPOSED UNDERGROUND ELECTRIC
- PROPOSED UNDERGROUND CATV
- PROPOSED UNDERGROUND TELEPHONE
- LIMIT OF DISTURBANCE

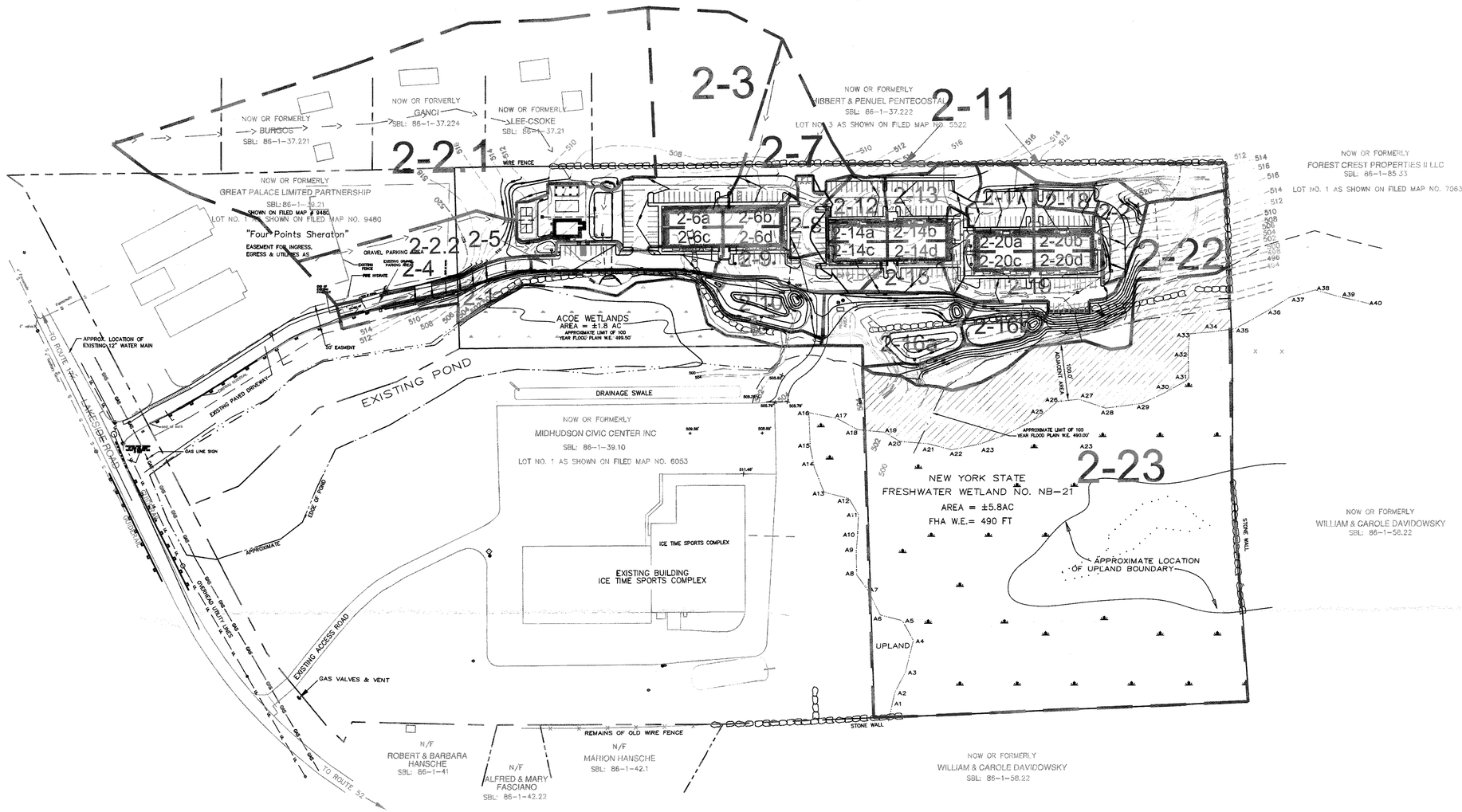
NOTES:

- NO TREE CUTTING SHALL OCCUR BETWEEN MARCH 31ST AND OCTOBER 1ST

MAP REFERENCES:

- "Survey Map Showing Lands of Ice Time, Inc." March 28, 1996, prepared by Medenbach & Eggers Land Surveying & Civil Engineering, PC.
- "Wetland Delineation Map for 21 Lakeside Properties", April 29, 2016, prepared by Medenbach & Eggers land Surveying & Civil Engineering, PC.

ORANGE COUNTY HEALTH DEPARMENT DID NOT REVIEW THE PROPOSED SEWER MAIN EXTENTION



MAP REVISION DATES		
DATE	REVISION	BY
4/11/2019	ADDED CLUB HOUSE TO PLANS	CC

POST DEVELOPMENT DRAINAGE AREAS

FOR SENIOR HOUSING AT

21 LAKESIDE PROPERTIES INC.

SITUATE - LAKESIDE ROAD
TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK

FEBRUARY 8, 2017

100 0 100 200 300

Scale: 1" = 100'

MEDENBACH & EGGERS
CIVIL ENGINEERING & LAND SURVEYING, P.C.
STONE RIDGE, NEW YORK (845) 687-0047