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PATRICK J. HINES

Principal Emeritus:
RICHARD D. McGOEY, P.E. (NY & PA)
WILLIAM J. HAUSER, P.E. (NY, NJ & PA)

TOWN OF NEWBURGH
PLANNING BOARD
TECHNICAL REVIEW COMMENTS

PROJECT:	**POND VIEW 2 LOT SUBDIVISION**
PROJECT NO.:	**14-19**
PROJECT LOCATION:	**SECTION 10, BLOCK 1, LOT 50**
PROJECT REPRESENTATIVE:	**HUDSON LAND DESIGN**
REVIEW DATE:	**13 NOVEMBER 2014**
MEETING DATE:	**20 NOVEMBER 2014**

1. The Applicant's Representative has addressed our previous comments for the project. The culvert design and driveway location have been modified in accordance with actual field topography.

2. The Applicants have identified they wish to keep the driveway separate. Driveways will require review and approval by the NYSDOT.

3. Orange County Planning comments have been received and addressed in the response letter.

4. Public Hearing for the project is required. This office would recommend a Negative Declaration of Significance for the 2 lot subdivision.

Respectfully submitted,

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

Patrick J. Hines
Principal

RAJ

RECEIVED
NOV 3 5 2014
TOWN OF NEWBURGH
PLANNING BOARD

HUDSON
LAND DESIGN

Civil & Environmental Engineering Consultants
174 Main Street, Beacon, New York 12508
Phone: 845-440-6926 Fax: 845-440-6637
www.HudsonLandDesign.com

October 31, 2014

Chairman Ewasutyn & Planning Board Members
Town of Newburgh Planning Board
308 Gardnertown Road
Newburgh, NY 12550

Re: Pond View Minor 2 Lot Subdivision
921-965 State Route 32
Tax ID: 10-1-50 (±10.21 acre)
T. of Newburgh Project 2014-19

Dear Chairman Ewasutyn & Planning Board Members:

On behalf of the Applicant for the above referenced project, Hudson Land Design (HLD) has revised the subdivision drawings in accordance with comments received at the August 21, 2014 Planning Board meeting, The McGoey, Hauser and Edsall (MHE) review letter dated August 18, 2014 and the Orange County Department of Planning (OCDOP) September 23, 2014 review letter. Below is a point-by-point response to each of the comments received.

MHE 10/18/14 Review Letter

1. The topographic survey has been updated via ground survey by Daniel Yanosh, L.S. within the development areas including the area of the wetland crossing and outlet channel. Soil test locations, water edge and some offsite wells and septic areas were also surveyed which have been updated on the map. The Lot 2 driveway has been moved farther away from the northerly property line at the wetland crossing to avoid impacts to the existing stone wall and adjacent property as a result of grading activities. A pre and post-construction watershed study has been completed for the proposed culvert crossing. The proposed culvert has been modeled in HydroCAD and the results show that post-construction flows are slightly less than pre-conditions while maintaining a similar water elevation within the wetland. The HydroCAD model and a watershed map is included in this submission for review. Five cross sections have also been provided along the Lot 2 driveway at the wetland crossing on Sheet 2 of the plan set.

2. The Applicant wishes to keep the driveways separate. The Lot 1 driveway has been moved to the south to provide adequate separation between the driveways in accordance with Figure 5A-3 of the NYSDOT Highway Design Manual (HDM) Chapter 5A draft regulations dated April 16, 2014. The HDM requires a minimum of 30 feet separation between driveways where the flare meets the edge of pavement. The plan shows 40 feet separation. Although the HDM regulations are in draft form and not effective yet, it is likely that they will be soon. Therefore, for the board's consideration the Applicant respectfully requests that the driveways remain separate. This is also subject to review by NYSDOT.
3. Notes have been added to the detail specifying where geotextile separation shall be used. In addition, biaxial geogrid is specified at the wetland crossing.
4. Dosing calculations have been completed for the pump system on Lot 1, and the detail has been updated with the information. The calculations are included in this submission for review.
5. The pump chamber provides 730 gallons of storage capacity above the high level alarm which is nearly two days of storage. Therefore, a backup generator is not required and the notes have been removed from the plans.
6. A "Certificate of Occupancy" note has been added to Sheet 1 of the plan set requiring a certified as-built prior to receipt of c.o..
7. The culvert has been revised to a 48" culvert buried 17" below the invert of the outlet channel. The 30% note has been removed.
8. See response 1. All soil tests have been survey located by Daniel Yanosh, L.S..

OCDOP 9/23/14 Review Letter

1. See response 2 to MHE above. The Applicant wishes to keep the driveways separate. Lot 1 driveway has been moved further to the south to provide adequate separation in accordance with NYSDOT requirements.
2. See response 1 to MHE above. The culvert has been sized accordingly.

Additional Planning Board Advisory Comments

1. The SBL number has been updated on page 4 of the Application. The page is included with this submission.

Please find the attached:

- Four (4) copies of revised page 4 of the application package;
- Twelve (12) copies of the Subdivision Plan Set (3 sheets per set);
- Three (3) copies of engineering calculations for MHE's review.

We respectfully request to be placed on your next available agenda to discuss the details of the project with you and to request that a public hearing be scheduled for the proposed action.

Should you have any questions or require additional information, please feel free to call me at 845-440-6926.

Sincerely,

Michael A. Bodendorf, P.E.
Principal

cc: Solo Group, LLC (w/attachments)
HV Realty Services (w/ attachments)
Daniel G. Koehler, P.E. (HLD File)

TOWN OF NEWBURGH
APPLICATION FOR
SUBDIVISION/SITE PLAN REVIEW

RETURN TO: Town of Newburgh Planning Board
308 Gardnertown Road
Newburgh, New York 12550

DATE RECEIVED: _____ **TOWN FILE NO:** 2014-
(Application fee returnable with this application)

1. **Title of Subdivision/Site Plan (Project name):**
Pond View Subdivision

2. **Owner of Lands to be reviewed:**
Name Solo Group LLC
Address PO Box 1000
Woodbury, NY 11797
Phone

3. **Applicant Information (If different than owner):**
Name HV Realty Services, Inc.
Address 219 Route 32, Suite 201C
Central Valley, NY 10917
Representative Gerald Casesa
Phone 845-928-5770
Fax 845-928-5771
Email jerry@hvrsinc.com

4. **Subdivision/Site Plan prepared by:**
Name Michael Bodendorf, P.E. c/o Hudson Land Design
Address 174 Main Street, Beacon, NY 12508
Phone/Fax 845-440-6926/845-440-6637

5. **Location of lands to be reviewed:**
921-965 Route 32, Newburgh, NY

6. **Zone** RR - Reservoir **Fire District** Plattekill
Acreage 10.21 ac. **School District** Wallkill

7. **Tax Map: Section** 10 **Block** 1 **Lot** 50

PUMP CALCULATIONS FOR POND VIEW LOT 1 PRIMARY AREA

I. Design Criteria

A. Minimum velocity of 2 feet per second in forcemain (pg. 40-4 of 10 State Standards For Wastewater Treatment).
B. Shutoff and check valve shall be placed in discharge line of each pump. Check valve shall be located between shutoff valve and pump (pg. 40-4 of Ten States Standards For Wastewater Treatment).
C. For smooth pipe materials such as PVC and polythethylene, a "C" value not to exceed 120 may be allowed for design (pg. 40-14).
D. The volume of effluent in each dose should be 75 % - to 85% of the volume available in the pipe network
E Minimum pipe size used in pressure distribution: 1.5" - 3.0"

II. Knowns

A. Proposed forcemain.	1.50 inch PVC
B. Pump discharges to proposed distribution box with invert elevation of	618.00 ft
C. Lowest Pump Off Elevation Dosing Chamber =	602.54 ft

III. Design Flows

A. Flow (Total) = 390 gpd Based upon 3 bedroom design

B. Size Discharge Line For a Minimum Velocity of 2 fps based upon 1997 Recommended Standards for Wastewater Facilities

$Q = VA$

- Q = Discharge (cfs)
- V = Velocity (fps)
- A = Area (sf)

PVC Forcemain size: 1.5 inch

- Area = 3.14 x 1.5 in. x 1.5 in x 0.25 / (144 in^2 / sf) = 0.01227 sf

$Q = VA$

- Q = 2 fps x 0.0123 sf = 0.0245 cfs

0.17 cfs x 7.48 gal/cf x 60 sec/min = 11.01 gpm (min flow rate)

IV. Pump Calculations

A. Determine Head Requirements

1. Proposed Primary Absorption Field

Proposed length of 1.5" PVC pipe = 133 ft.
12.2 gal. in forcemain

Proposed length of 1.5" PVC in dosing chamber = 8 ft.

Fittings =	45's	4	L_e (Equivalent Length) =	2.1	ft/fitting =	8.4	ft
	90's	3	L_e (Equivalent Length) =	4	ft/fitting =	12	ft

- Equivalent Lengths from Figure 37, pg. 225 of the Handbook for PVC Pipe.
- 90's in lift station and prior to distribution boxes.
- 45's along line.

Valves =	Check -	1	L_e (Equivalent Length) =	14	ft/valve =	14	ft
	Gate -	1	L_e (Equivalent Length) =	1.3	ft/valve =	1.3	ft

- Equivalent Lengths from Figure 37, pg. 225 of the Handbook for PVC Pipe.
- Gate Valve will be open.

Total Length = 176.7 ft

Velocity Head = $V^2 / 2g$

Proposed Static Head = (Invert to distribution box) - (Pump off elevation) = 15.46 ft

Pump Performance Curve

Flow Rate (gpm)	Velocity (fps)	Total Static Head (ft)	Velocity Head (ft)	Friction Loss / 100' C = 120	Friction Loss (ft)	TDH (ft)
0	0.00	15.46	0.00	0	0.00	15.46
4	0.73	15.46	0.01	0.07	0.12	15.59
6	1.09	15.46	0.02	0.14	0.25	15.73
10	1.82	15.46	0.05	0.36	0.64	16.15
20	3.63	15.46	0.20	1.31	2.31	17.98
25	4.54	15.46	0.32	1.98	3.50	19.28
30	5.45	15.46	0.46	2.77	4.90	20.82
40	7.27	15.46	0.82	4.73	8.35	24.63
50	9.08	15.46	1.28	7.15	12.63	29.37

Notes:
1) Friction Loss / 100' for C120 from attached chart.
2) Friction Loss = Length of Pipe x Friction Loss (C = 120) / 100'.
3) TDH = Total Static Head + Velocity Head + Friction Loss.

VI. Pump Selection

- 1.5 " Goulds Model PE 31 Submersible Effluent Pump
- Flowrate = 21 gpm

Flow Rate (gpm)	Velocity (fps)	Total Static Head (ft)	Velocity Head (ft)	Friction Loss / 100' C = 120	Friction Loss (ft)	TDH (ft)
21	3.81	15.46	0.23	1.43	2.53	18.22

VII. Dosing Calculations

1. Primary Absorption Area

Total sewage flow	390	gallons per day
Length of 4" pipe in field	280.0	feet
Volume of pipe:	191.2	gallons*
75% Volume:	143.4	gallons
85% Volume:	162.6	gallons

*Includes volume within force main

Pump Chamber (using 1,000 gallon pump tank):

Interior Width:	4.33	feet
Interior Length:	8.00	feet
Volume Per Ft Depth:	259.1	gallons

Dose:

Dose Depth:	7.00	inches
Dose Volume within tank:	151.2	gallons
Dose Percentage:	79.0	%

VIII. Determine Pump Cycle

Pump Running Time :

Dose Volume:	151.2	gallons
Pump Rate:	21.0	gallons per minute
Running Time:	7.2	minutes

VX. Determine Alarm Elevations

Invert In:	606.20	ft
Depth to Bottom Tank from Invert:	4.33	ft**
Bottom of Tank:	601.87	ft
Low Level Pump Off:	602.54	(manufacturer recommends 8" min. effluent level above floor)
Pump On Elev.:	603.12	ft
High Level Alarm:	603.37	ft
Storage over high level alarm:	732.51	gallons

**Woodards 1,000 Gallon Pump Tank

PUMP CALCULATIONS FOR POND VIEW LOT 1 RESERVE AREA

I. Design Criteria

A. Minimum velocity of 2 feet per second in forcemain (pg. 40-4 of 10 State Standards For Wastewater Treatment).
B. Shutoff and check valve shall be placed in discharge line of each pump. Check valve shall be located between shutoff valve and pump (pg. 40-4 of Ten States Standards For Wastewater Treatment).
C. For smooth pipe materials such as PVC and polythethylene, a "C" value not to exceed 120 may be allowed for design (pg. 40-14).
D. The volume of effluent in each dose should be 75 % - to 85% of the volume available in the pipe network
E Minimum pipe size used in pressure distribution: 1.5" - 3.0"

II. Knowns

A. Proposed forcemain.	1.50 inch PVC
B. Pump discharges to proposed distribution box with invert elevation of	618.00 ft
C. Lowest Pump Off Elevation Dosing Chamber =	602.54 ft

III. Design Flows

A. Flow (Total) = 390 gpd Based upon 3 bedroom design

B. Size Discharge Line For a Minimum Velocity of 2 fps based upon 1997 Recommended Standards for Wastewater Facilities

$Q = VA$

- Q = Discharge (cfs)
- V = Velocity (fps)
- A = Area (sf)

PVC Forcemain size: 1.5 inch

- Area = 3.14 x 1.5 in. x 1.5 in x 0.25 / (144 in^2 / sf) = 0.01227 sf

$Q = VA$

- Q = 2 fps x 0.0123 sf = 0.0245 cfs

0.17 cfs x 7.48 gal/cf x 60 sec/min = 11.01 gpm (min flow rate)

IV. Pump Calculations

A. Determine Head Requirements

1. Proposed Primary Absorption Field

Proposed length of 1.5" PVC pipe = 166 ft.
15.2 gal. in forcemain

Proposed length of 1.5" PVC in dosing chamber = 8 ft.

Fittings =	45's	4	L_e (Equivalent Length) =	2.1	ft/fitting =	8.4	ft
	90's	3	L_e (Equivalent Length) =	4	ft/fitting =	12	ft

- Equivalent Lengths from Figure 37, pg. 225 of the Handbook for PVC Pipe.
- 90's in lift station and prior to distribution boxes.
- 45's along line.

Valves =	Check -	1	L_e (Equivalent Length) =	14	ft/valve =	14	ft
	Gate -	1	L_e (Equivalent Length) =	1.3	ft/valve =	1.3	ft

- Equivalent Lengths from Figure 37, pg. 225 of the Handbook for PVC Pipe.
- Gate Valve will be open.

Total Length = 209.7 ft

Velocity Head = $V^2 / 2g$

Proposed Static Head = (Invert to distribution box) - (Pump off elevation) = 15.46 ft

Pump Performance Curve

Flow Rate (gpm)	Velocity (fps)	Total Static Head (ft)	Velocity Head (ft)	Friction Loss / 100' C = 120	Friction Loss (ft)	TDH (ft)
0	0.00	15.46	0.00	0	0.00	15.46
4	0.73	15.46	0.01	0.07	0.14	15.61
6	1.09	15.46	0.02	0.14	0.30	15.77
10	1.82	15.46	0.05	0.36	0.76	16.27
20	3.63	15.46	0.20	1.31	2.75	18.41
25	4.54	15.46	0.32	1.98	4.15	19.93
30	5.45	15.46	0.46	2.77	5.82	21.74
40	7.27	15.46	0.82	4.73	9.91	26.19
50	9.08	15.46	1.28	7.15	14.98	31.73

Notes:
1) Friction Loss / 100' for C120 from attached chart.
2) Friction Loss = Length of Pipe x Friction Loss (C = 120) / 100'.
3) TDH = Total Static Head + Velocity Head + Friction Loss.

VI. Pump Selection

- 1.5 " Goulds Model PE 31 Submersible Effluent Pump
- Flowrate = 20 gpm

Flow Rate (gpm)	Velocity (fps)	Total Static Head (ft)	Velocity Head (ft)	Friction Loss / 100' C = 120	Friction Loss (ft)	TDH (ft)
20	3.63	15.46	0.20	1.31	2.75	18.41

VII. Dosing Calculations

1. Primary Absorption Area

Total sewage flow	390	gallons per day	
Length of 4" pipe in field	280.0	feet	
Volume of pipe:	194.3	gallons*	*Includes Volume within force main
75% Volume:	145.7	gallons	
85% Volume:	165.1	gallons	

Pump Chamber (using 1,000 gallon pump tank):

Interior Width:	4.33	feet
Interior Length:	8.00	feet
Volume Per Ft Depth:	259.1	gallons

Dose:

Dose Depth:	7.00	inches
Dose Volume within tank:	151.2	gallons
Dose Percentage:	77.8	%

VIII. Determine Pump Cycle

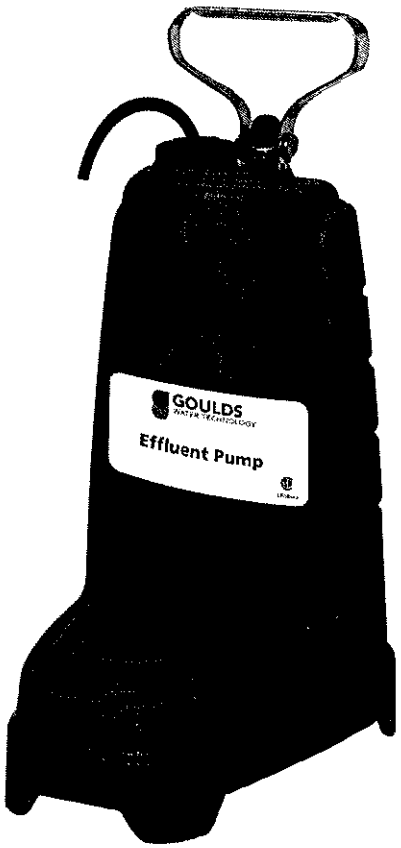
Pump Running Time :

Dose Volume:	151.2	gallons
Pump Rate:	20.0	gallons per minute
Running Time:	7.6	minutes

VX. Determine Alarm Elevations

Invert In:	606.20	ft	
Depth to Bottom Tank from Invert:	4.33	ft**	**Woodards 1,000 Gallon
Bottom of Tank:	601.87	ft	Pump Tank
Low Level Pump Off:	602.54	(manufacturer recommends 8" min. effluent level above floor)	
Pump On Elev.:	603.12	ft	
High Level Alarm:	603.37	ft	
Storage over high level alarm:	732.51	gallons	

TECHNICAL BROCHURE
BPE



FEATURES

Corrosion resistant construction

Cast iron body

Thermoplastic impeller and cover.

Upper sleeve and lower heavy duty ball bearing construction.

Motor is permanently lubricated for extended service life.

Powered for continuous operation.

All ratings are within the working limits of the motor.

Quick disconnect power cord, 20' standard length, heavy duty 16/3 SJTW with 115 or 230 volt grounding plug.

Complete unit is heavy duty, portable and compact.

Mechanical seal is carbon, ceramic, BUNA and stainless steel.

Stainless steel fasteners

PE

SUBMERSIBLE EFFLUENT PUMP

GOULDS
WATER TECHNOLOGY
a xylem brand

APPLICATIONS

Specially designed for the following uses:

- Mound Systems
- Effluent/Dosing Systems
- Low Pressure Pipe Systems
- Basement Draining
- Heavy Duty Sump/Dewatering

SPECIFICATIONS

Pump – General:

- Discharge: 1½" NPT
- Temperature: 104°F (40°C) maximum, continuous when fully submerged.
- Solids handling: ½" maximum sphere.
- Automatic models include a float switch.
- Manual models available.
- Pumping range: see performance chart or curve.

PE31 Pump:

- Maximum capacity: 53 GPM
- Maximum head: 25' TDH

PE41 Pump:

- Maximum capacity: 61 GPM
- Maximum head: 29' TDH

PE51 Pump:

- Maximum capacity: 70 GPM
- Maximum head: 37' TDH

MOTOR

General:

- Single phase
- 60 Hertz
- 115 and 230 volts
- Built-in thermal overload protection with automatic reset.
- Class B insulation
- Oil-filled design
- High strength carbon steel shaft

PE31 Motor:

- .33 HP, 3000 RPM
- 115 volts
- Shaded pole design

PE41 Motor:

- .40 HP, 3400 RPM
- 115 and 230 volts
- PSC design

PE51 Motor:

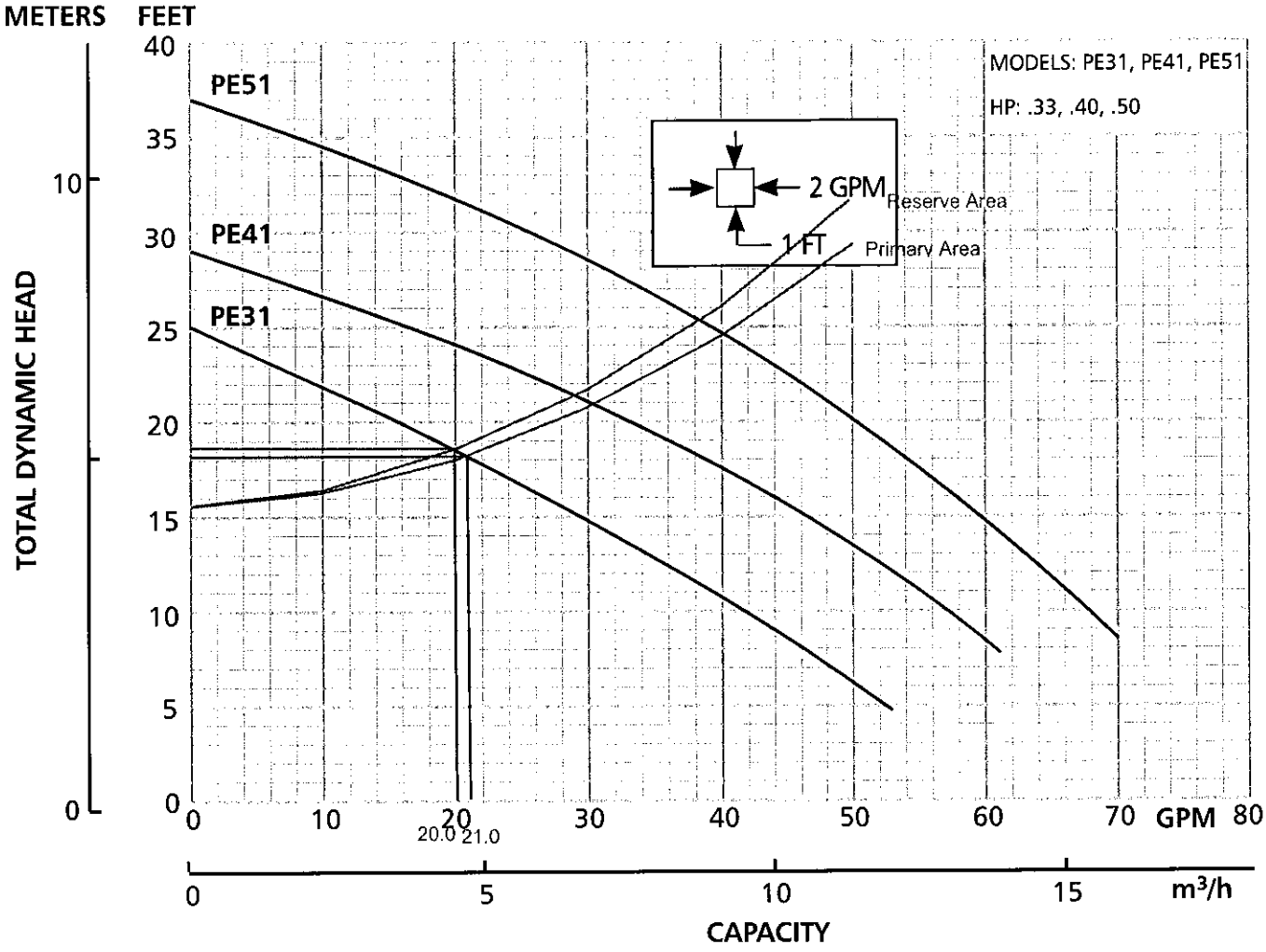
- .50 HP, 3400 RPM
- 115 and 230 volts
- PSC design

AGENCY LISTINGS

Tested to UL 778 and CSA 22.2 108 Standards
By Canadian Standards Association
File #LR38549

PUMP INFORMATION

Order No.	HP	Volts	Amps	Minimum Circuit Breaker	Phase	Float Switch Style	Cord Length	Discharge Connection	Minimum Basin Diameter	Maximum Solids Size	Shipping Weight lbs/kg
PE31M	0.33	115	12	20	1	Manual / No Switch	20'	1.5"	18"	.5"	31 / 14.1
PE31P1						Piggyback Float Switch					
PE41M	0.4		7.5	15		Manual / No Switch					
PE41P1						Piggyback Float Switch					
PE42M		230	3.7	10		Manual / No Switch					
PE42P1						Piggyback Float Switch					
PE51M	0.5	115	9.5	20		Manual / No Switch					
PE51P1						Piggyback Float Switch					
PE52M		230	4.7	10		Manual / No Switch					
PE52P1						Piggyback Float Switch					



PERFORMANCE RATINGS

PE31

Total Head (feet of water)	GPM
5	52
10	42
15	29
20	16
25	0

PE41

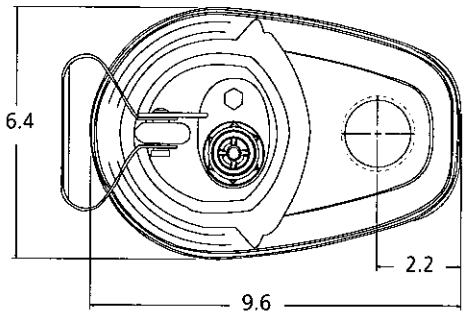
Total Head (feet of water)	GPM
8	61
10	57
15	46
20	33
25	16

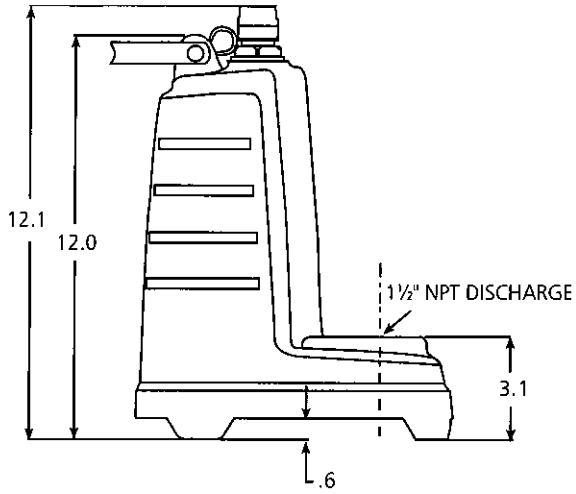
PE51

Total Head (feet of water)	GPM
10	67
15	59
20	50
25	39
30	26
35	8

DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)





xylem
Let's Solve Water

Xylem, Inc.
2881 East Bayard Street Ext., Suite A
Seneca Falls, NY 13148
Phone: (866) 325-4210
Fax: (888) 322-5877
www.xyleminc.com/brands/gouldswatertechnology

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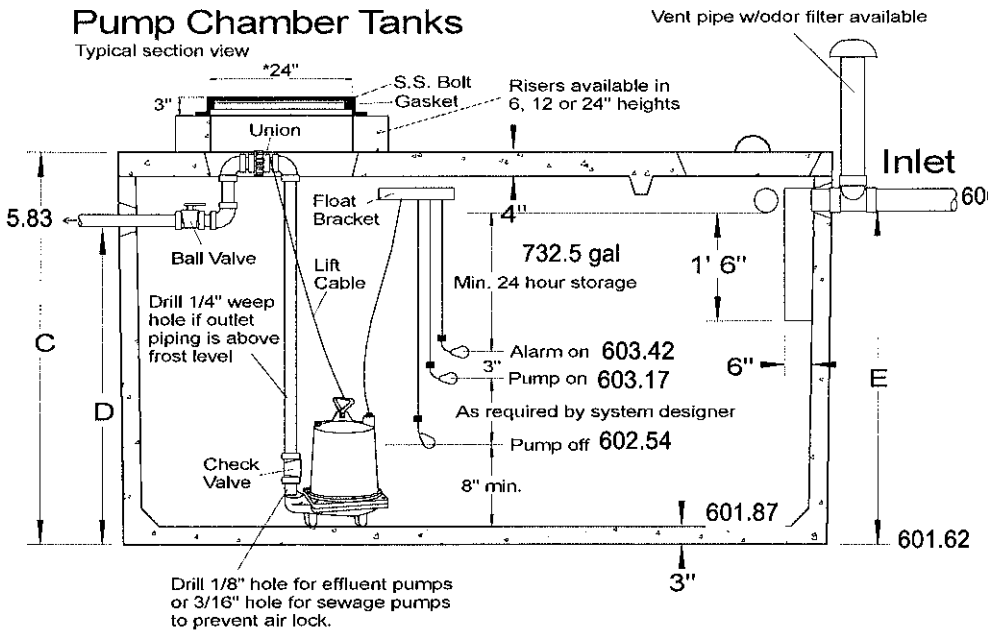
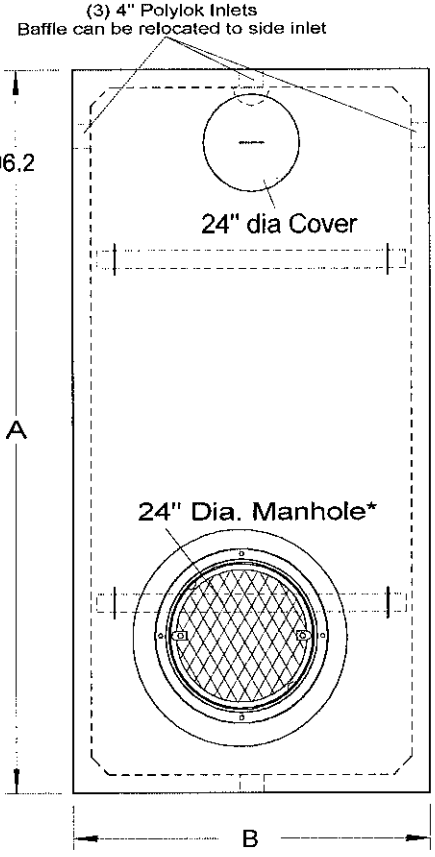
Pump Chamber Tanks

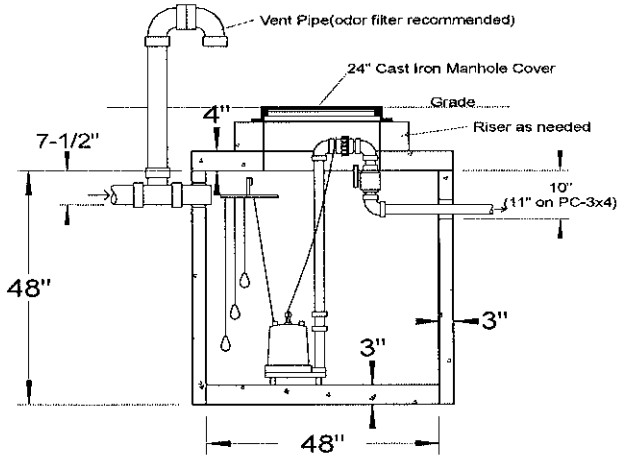
Typical section view





*24" opening is the minimum necessary for access to a single pump. 30" opening for two pumps. Aluminum hatch doors are also available.

Residential Pump Chamber Round Tank Options



Typical Section View
4' ID Residential Pump Chamber (PC-4X4)
2' and 4' high risers available
3' ID Chamber also available (PC-3X4)

Model	A	B	C	D	E	Gallons per inch LL
GT-750	8'-6"	4'-10"	56"	47"	44"	21.6
*GT-1000	8'-6"	4'-10"	65"	50.5"	55"	21.6
*GT-1250	10'	5'	65"	50.5"	55"	26.7
PC-1500	10'-6"	5'-8"	65"	52"	55"	32.3
PC-2000	12'	6'-6"	67"	53"	56"	43.1
PC-2500	12'	6'-6"	82"	68"	71"	43.1
PC-3000	12'	6'-6"	93"	79"	82"	43.1

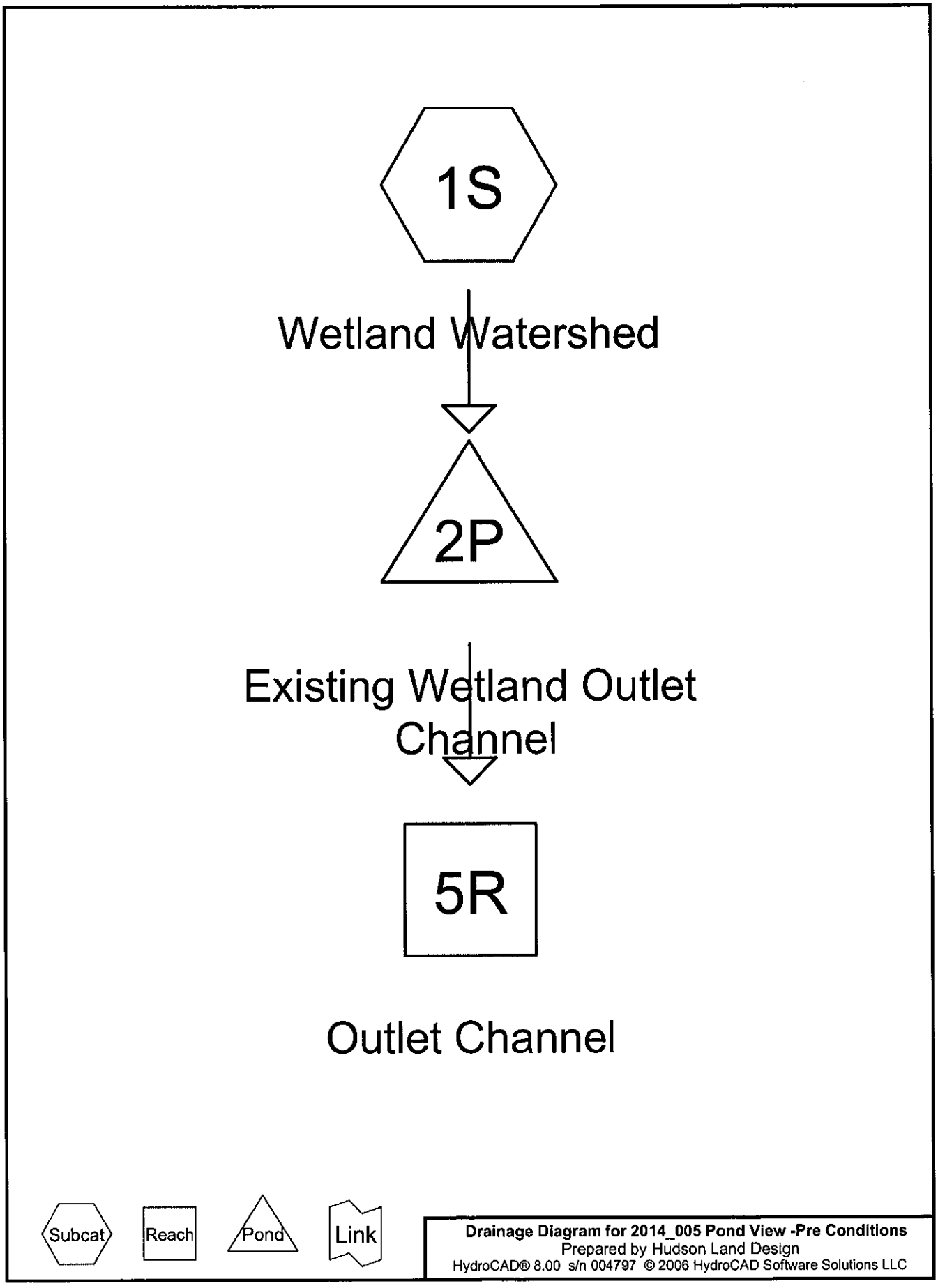
*Indicates stock size

SPECIFICATIONS

Concrete Min. Strength: 4,000 psi at 28 days
Reinforcement: WWM & Rebar
Air Entrainment: 6%
Pipe Connection: Polylok Seal or Pipe Boots
Volume: 3' ID = 53 gal/vf, 4' ID = 94 gal/vf
Load Rating: 300 psf

PRECAST PUMP CHAMBERS RESIDENTIAL GRADE

Woodard's Concrete Products, Inc.
629 Lybolt Road, Bullville, NY 10915
(845) 361-3471 / Fax 361-1050



Drainage Diagram for 2014_005 Pond View -Pre Conditions
Prepared by Hudson Land Design
HydroCAD® 8.00 s/n 004797 © 2006 HydroCAD Software Solutions LLC

Subcatchment 1S: Wetland Watershed

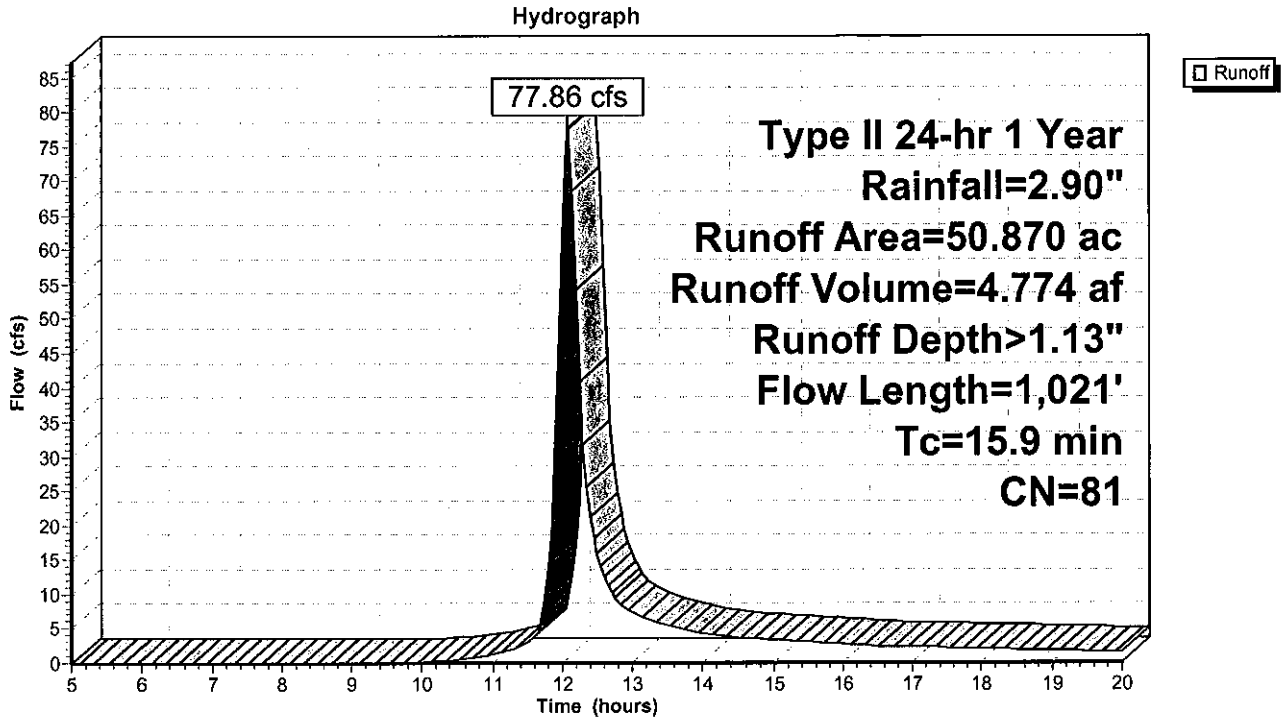
Runoff = 77.86 cfs @ 12.09 hrs, Volume= 4.774 af, Depth> 1.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1 Year Rainfall=2.90"

Area (ac)	CN	Description
7.780	79	1 acre lots, 20% imp, HSG C
11.060	84	1 acre lots, 20% imp, HSG D
7.030	89	Pasture/grassland/range, Poor, HSG D
8.570	79	Pasture/grassland/range, Fair, HSG C
16.430	77	Woods, Good, HSG D
50.870	81	Weighted Average
47.102		Pervious Area
3.768		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	65	0.0260	0.18		**Sheet Flow, 1** Grass: Short n= 0.150 P2= 3.50"
1.7	35	0.1875	0.35		**Sheet Flow, 2** Grass: Short n= 0.150 P2= 3.50"
5.2	656	0.0900	2.10		**Shallow Concentrated Flow, 3** Short Grass Pasture Kv= 7.0 fps
0.1	35	0.0200	10.18	31.99	**Circular Channel (pipe), 4** Diam= 24.0" Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
2.9	230	0.0700	1.32		**Shallow Concentrated Flow, 5** Woodland Kv= 5.0 fps
15.9	1,021	Total			

Subcatchment 1S: Wetland Watershed



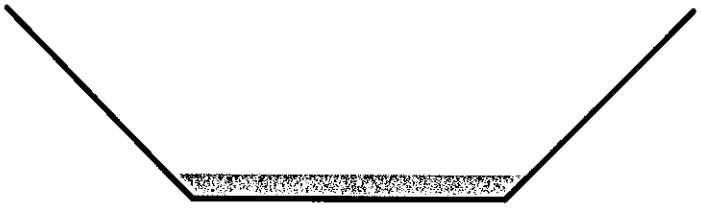
Reach 5R: Outlet Channel

Inflow Area = 50.870 ac, Inflow Depth > 0.78" for 1 Year event
Inflow = 7.16 cfs @ 13.04 hrs, Volume= 3.320 af
Outflow = 7.16 cfs @ 13.06 hrs, Volume= 3.316 af, Atten= 0%, Lag= 0.8 min

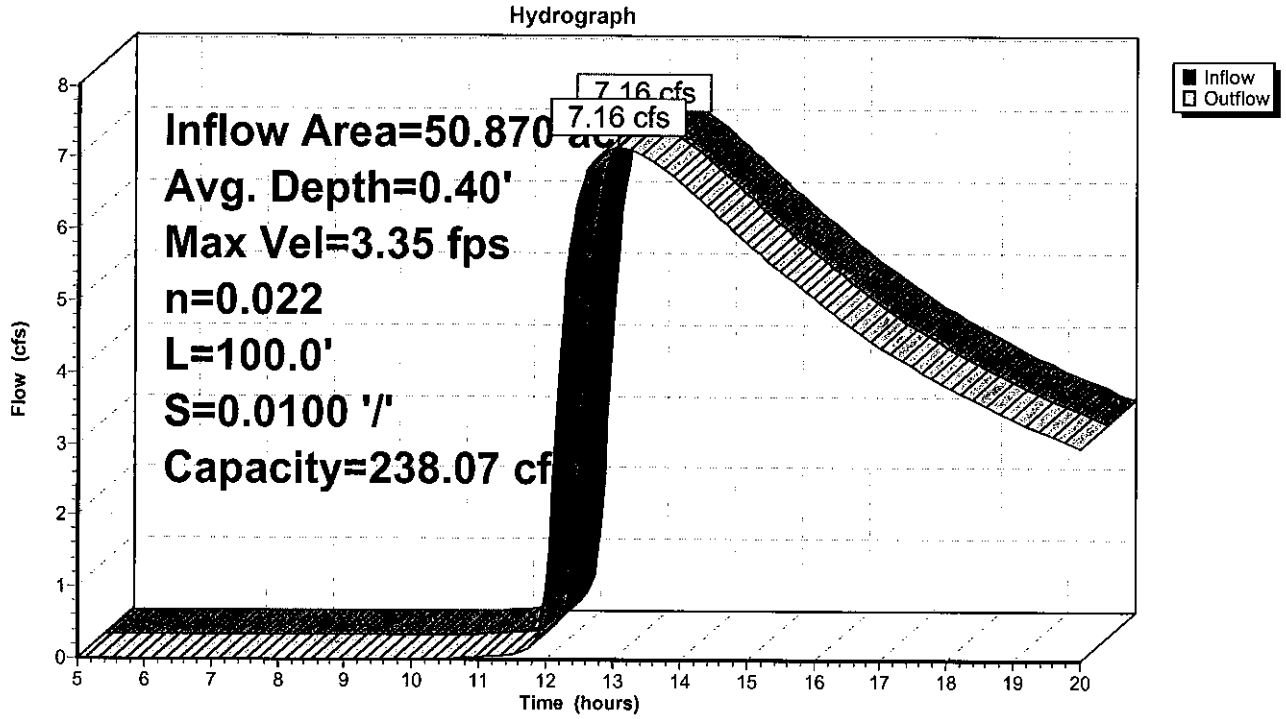
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.35 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 2.42 fps, Avg. Travel Time= 0.7 min

Peak Storage= 214 cf @ 13.05 hrs, Average Depth at Peak Storage= 0.40'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 238.07 cfs

5.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 1.0 '/' Top Width= 11.00'
Length= 100.0' Slope= 0.0100 '/'
Inlet Invert= 604.00', Outlet Invert= 603.00'



Reach 5R: Outlet Channel



Pond 2P: Existing Wetland Outlet Channel

Inflow Area = 50.870 ac, Inflow Depth > 1.13" for 1 Year event
Inflow = 77.86 cfs @ 12.09 hrs, Volume= 4.774 af
Outflow = 7.16 cfs @ 13.04 hrs, Volume= 3.320 af, Atten= 91%, Lag= 57.3 min
Primary = 7.16 cfs @ 13.04 hrs, Volume= 3.320 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 604.49' @ 13.04 hrs Surf.Area= 5.592 ac Storage= 2.593 af

Plug-Flow detention time= 193.7 min calculated for 3.309 af (69% of inflow)
Center-of-Mass det. time= 123.9 min (927.5 - 803.7)

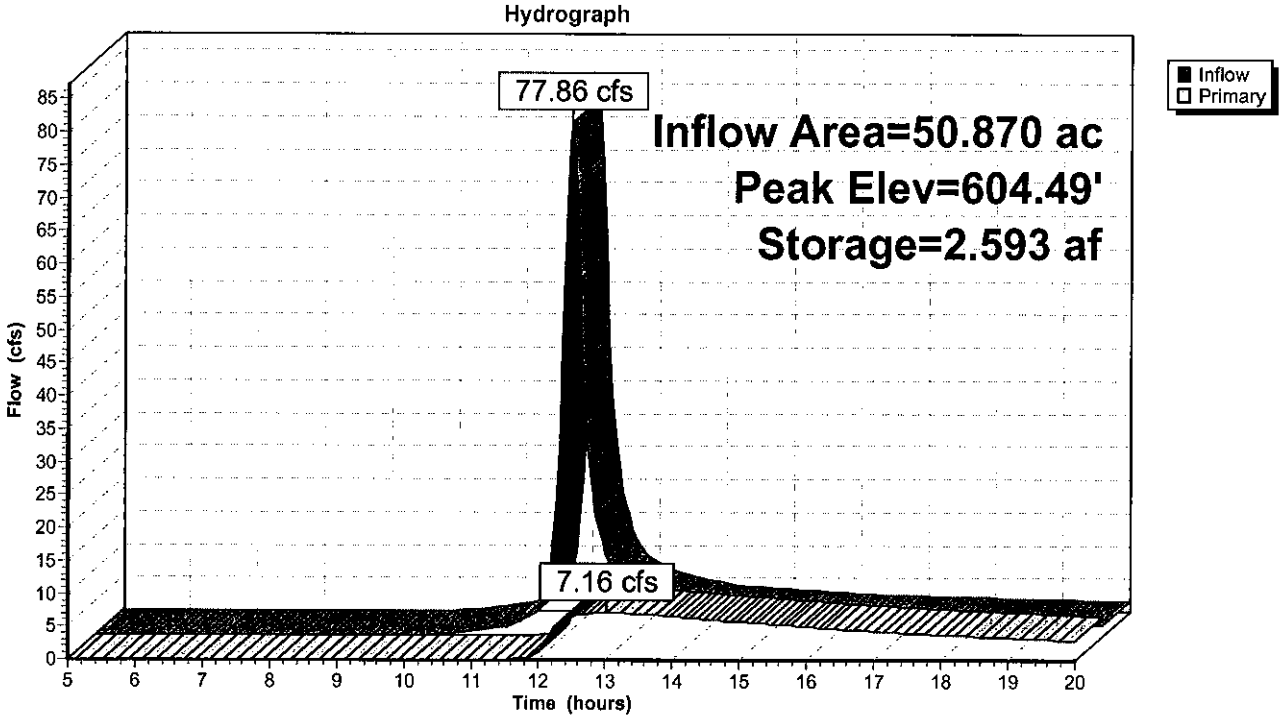
Volume	Invert	Avail.Storage	Storage Description
#1	604.00'	25.898 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
604.00	5.000	0.000	0.000
606.00	7.420	12.420	12.420
607.50	10.550	13.478	25.898

Device	Routing	Invert	Outlet Devices
#1	Primary	604.00'	**8.0' long x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=7.16 cfs @ 13.04 hrs HW=604.49' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 7.16 cfs @ 1.83 fps)

Pond 2P: Existing Wetland Outlet Channel



Subcatchment 1S: Wetland Watershed

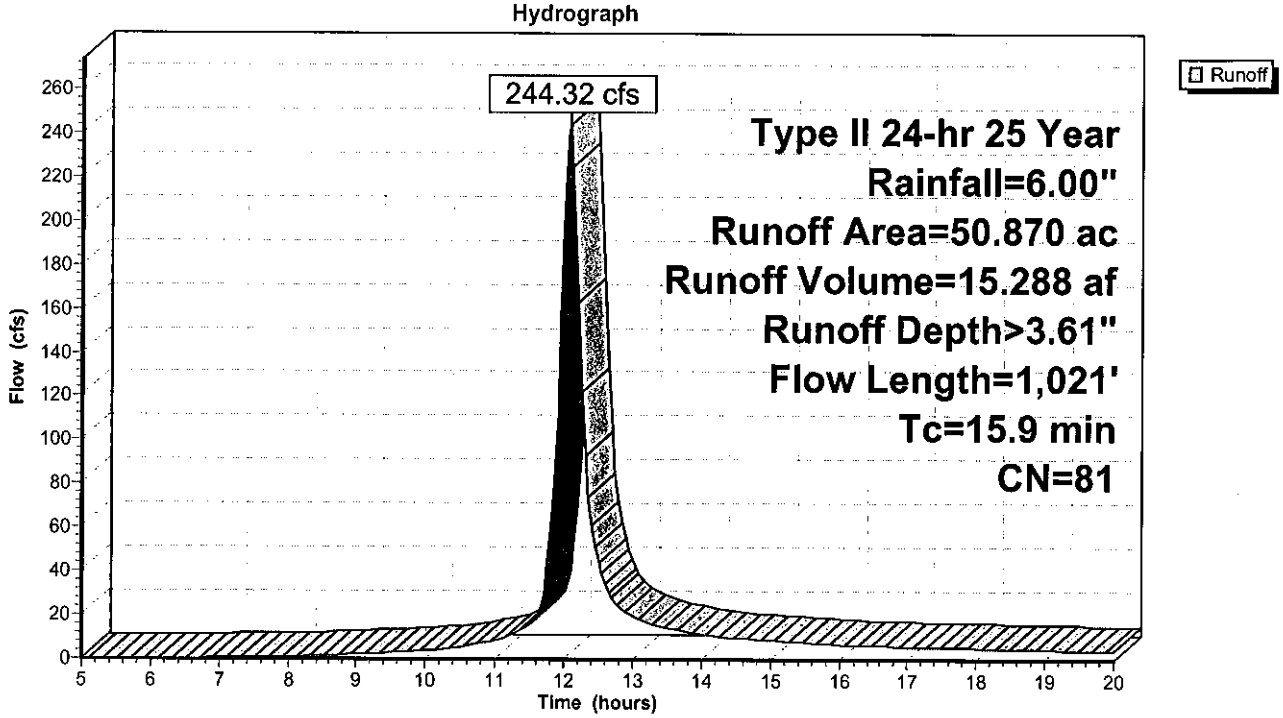
Runoff = 244.32 cfs @ 12.08 hrs, Volume= 15.288 af, Depth> 3.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 Year Rainfall=6.00"

Area (ac)	CN	Description
7.780	79	1 acre lots, 20% imp, HSG C
11.060	84	1 acre lots, 20% imp, HSG D
7.030	89	Pasture/grassland/range, Poor, HSG D
8.570	79	Pasture/grassland/range, Fair, HSG C
16.430	77	Woods, Good, HSG D
50.870	81	Weighted Average
47.102		Pervious Area
3.768		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	65	0.0260	0.18		**Sheet Flow, 1** Grass: Short n= 0.150 P2= 3.50"
1.7	35	0.1875	0.35		**Sheet Flow, 2** Grass: Short n= 0.150 P2= 3.50"
5.2	656	0.0900	2.10		**Shallow Concentrated Flow, 3** Short Grass Pasture Kv= 7.0 fps
0.1	35	0.0200	10.18	31.99	**Circular Channel (pipe), 4** Diam= 24.0" Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
2.9	230	0.0700	1.32		**Shallow Concentrated Flow, 5** Woodland Kv= 5.0 fps
15.9	1,021	Total			

Subcatchment 1S: Wetland Watershed



Reach 5R: Outlet Channel

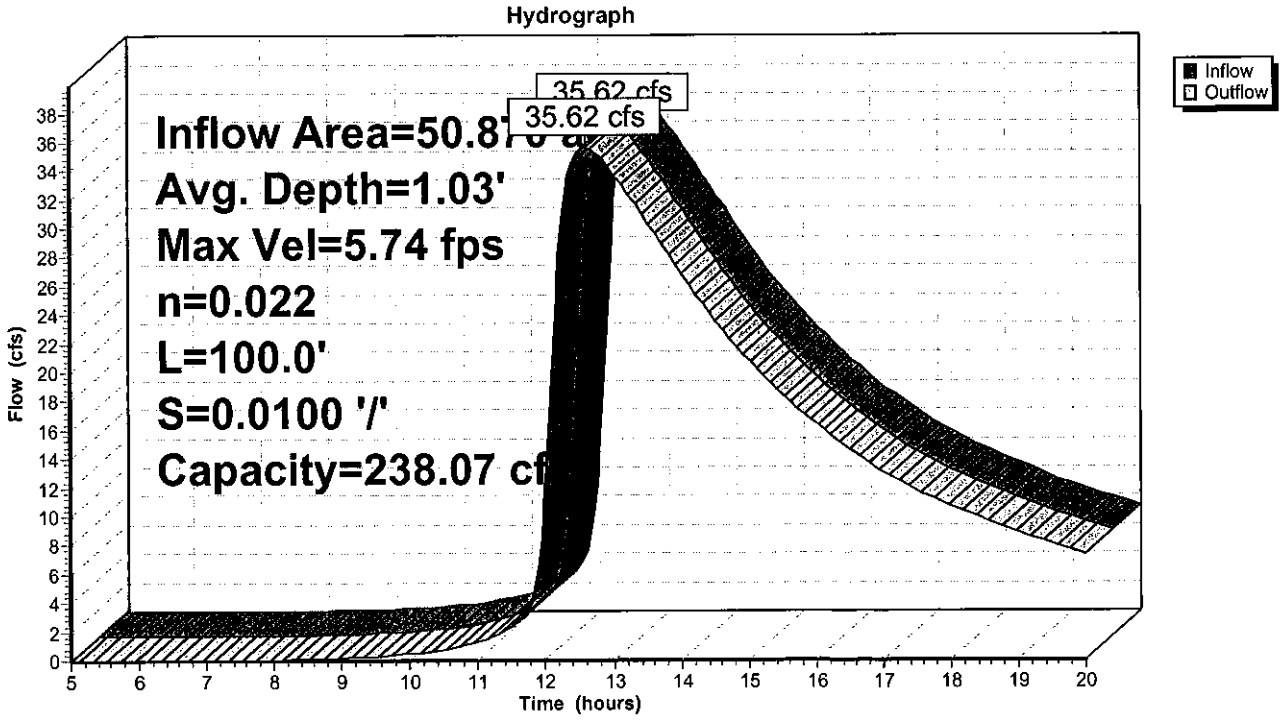
Inflow Area = 50.870 ac, Inflow Depth > 2.99" for 25 Year event
Inflow = 35.62 cfs @ 12.59 hrs, Volume= 12.657 af
Outflow = 35.62 cfs @ 12.60 hrs, Volume= 12.649 af, Atten= 0%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.74 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.10 fps, Avg. Travel Time= 0.5 min

Peak Storage= 620 cf @ 12.59 hrs, Average Depth at Peak Storage= 1.03'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 238.07 cfs

5.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 1.0 '/' Top Width= 11.00'
Length= 100.0' Slope= 0.0100 '/'
Inlet Invert= 604.00', Outlet Invert= 603.00'

Reach 5R: Outlet Channel



Pond 2P: Existing Wetland Outlet Channel

Inflow Area = 50.870 ac, Inflow Depth > 3.61" for 25 Year event
Inflow = 244.32 cfs @ 12.08 hrs, Volume= 15.288 af
Outflow = 35.62 cfs @ 12.59 hrs, Volume= 12.657 af, Atten= 85%, Lag= 30.6 min
Primary = 35.62 cfs @ 12.59 hrs, Volume= 12.657 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 605.41' @ 12.59 hrs Surf.Area= 6.706 ac Storage= 8.253 af

Plug-Flow detention time= 161.7 min calculated for 12.657 af (83% of inflow)
Center-of-Mass det. time= 112.5 min (891.2 - 778.7)

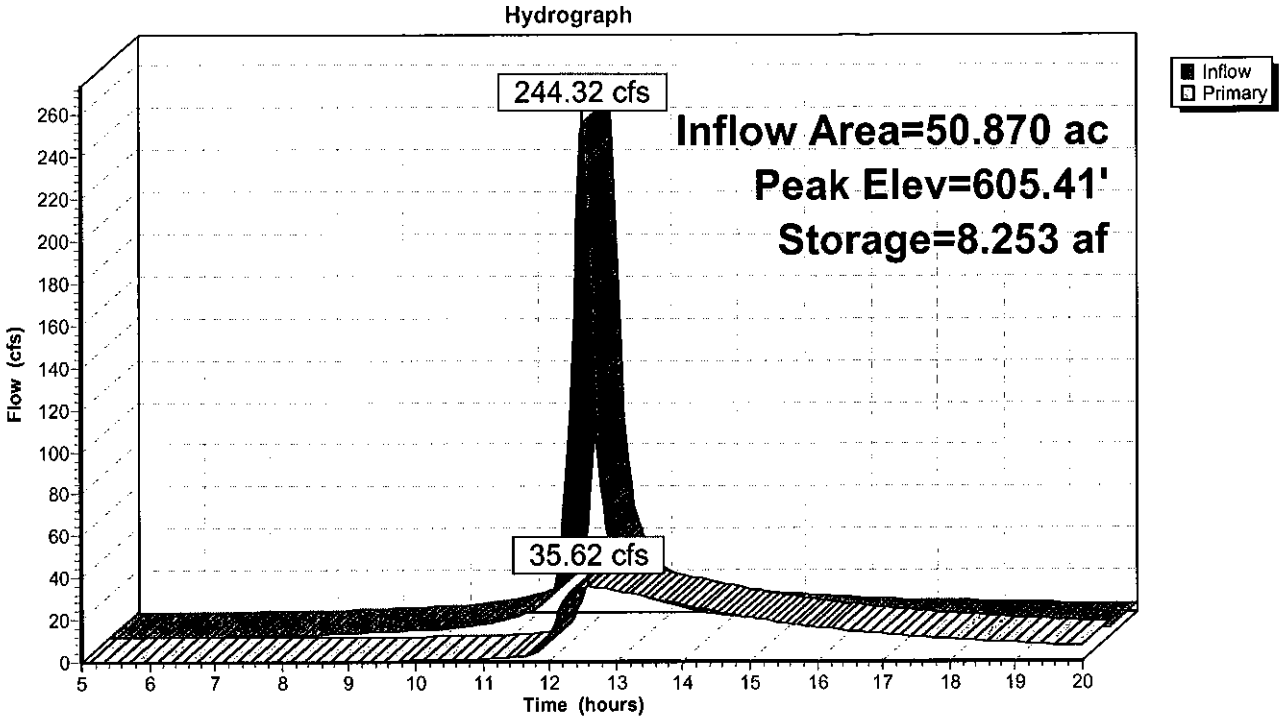
Volume	Invert	Avail.Storage	Storage Description
#1	604.00'	25.898 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
604.00	5.000	0.000	0.000
606.00	7.420	12.420	12.420
607.50	10.550	13.478	25.898

Device	Routing	Invert	Outlet Devices
#1	Primary	604.00'	**8.0' long x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=35.61 cfs @ 12.59 hrs HW=605.41' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 35.61 cfs @ 3.16 fps)

Pond 2P: Existing Wetland Outlet Channel



Subcatchment 1S: Wetland Watershed

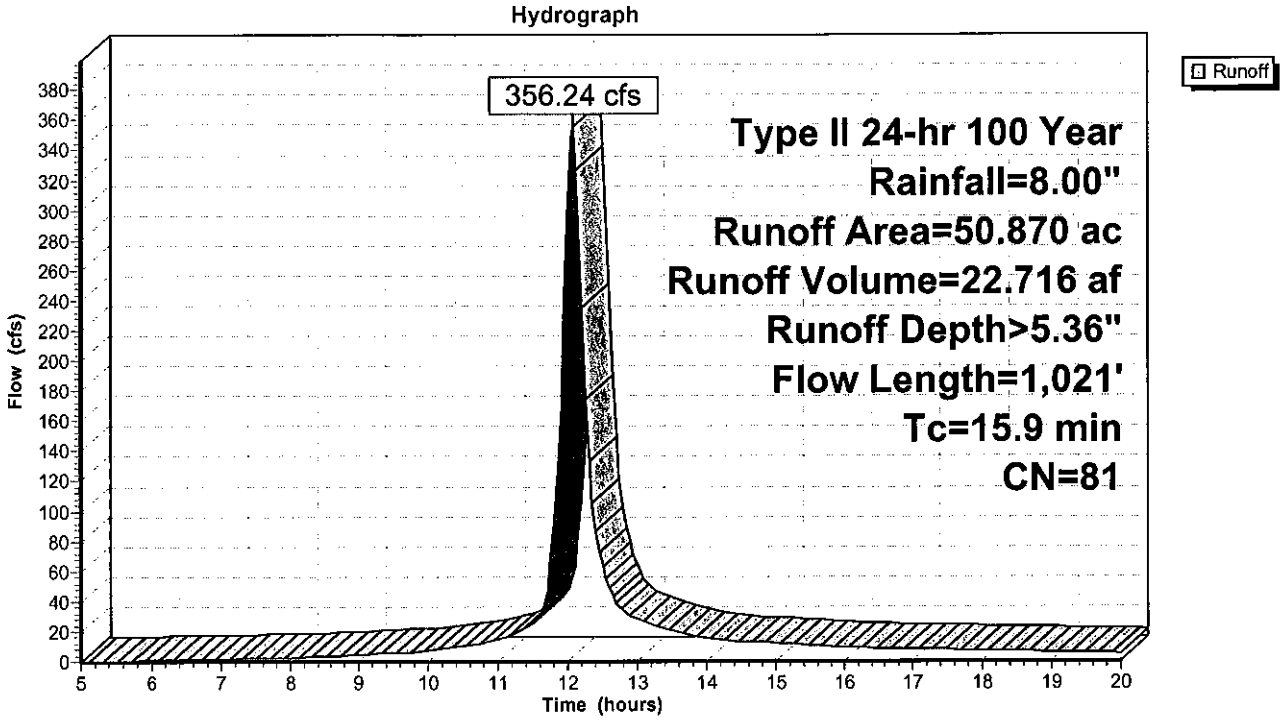
Runoff = 356.24 cfs @ 12.08 hrs, Volume= 22.716 af, Depth> 5.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 Year Rainfall=8.00"

Area (ac)	CN	Description
7.780	79	1 acre lots, 20% imp, HSG C
11.060	84	1 acre lots, 20% imp, HSG D
7.030	89	Pasture/grassland/range, Poor, HSG D
8.570	79	Pasture/grassland/range, Fair, HSG C
16.430	77	Woods, Good, HSG D
50.870	81	Weighted Average
47.102		Pervious Area
3.768		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	65	0.0260	0.18		**Sheet Flow, 1** Grass: Short n= 0.150 P2= 3.50"
1.7	35	0.1875	0.35		**Sheet Flow, 2** Grass: Short n= 0.150 P2= 3.50"
5.2	656	0.0900	2.10		**Shallow Concentrated Flow, 3** Short Grass Pasture Kv= 7.0 fps
0.1	35	0.0200	10.18	31.99	**Circular Channel (pipe), 4** Diam= 24.0" Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
2.9	230	0.0700	1.32		**Shallow Concentrated Flow, 5** Woodland Kv= 5.0 fps
15.9	1,021	Total			

Subcatchment 1S: Wetland Watershed



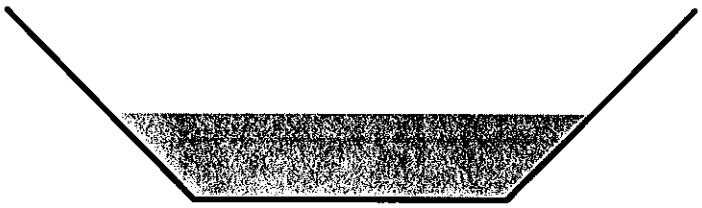
Reach 5R: Outlet Channel

Inflow Area = 50.870 ac, Inflow Depth > 4.59" for 100 Year event
Inflow = 57.92 cfs @ 12.53 hrs, Volume= 19.466 af
Outflow = 57.91 cfs @ 12.54 hrs, Volume= 19.456 af, Atten= 0%, Lag= 0.5 min

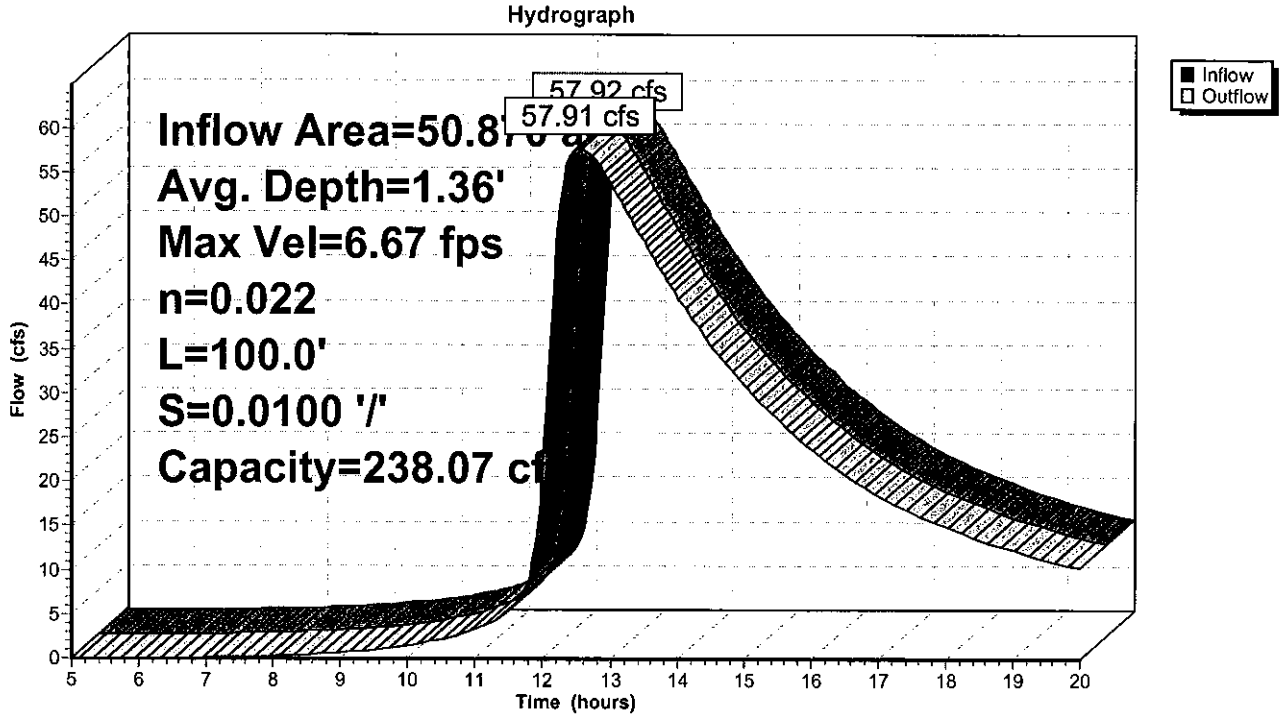
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.67 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.43 fps, Avg. Travel Time= 0.5 min

Peak Storage= 869 cf @ 12.54 hrs, Average Depth at Peak Storage= 1.36'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 238.07 cfs

5.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 1.0 '/' Top Width= 11.00'
Length= 100.0' Slope= 0.0100 '/'
Inlet Invert= 604.00', Outlet Invert= 603.00'



Reach 5R: Outlet Channel



Pond 2P: Existing Wetland Outlet Channel

Inflow Area = 50.870 ac, Inflow Depth > 5.36" for 100 Year event
Inflow = 356.24 cfs @ 12.08 hrs, Volume= 22.716 af
Outflow = 57.92 cfs @ 12.53 hrs, Volume= 19.466 af, Atten= 84%, Lag= 27.5 min
Primary = 57.92 cfs @ 12.53 hrs, Volume= 19.466 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 605.96' @ 12.53 hrs Surf.Area= 7.371 ac Storage= 12.118 af

Plug-Flow detention time= 153.9 min calculated for 19.466 af (86% of inflow)
Center-of-Mass det. time= 110.2 min (879.7 - 769.5)

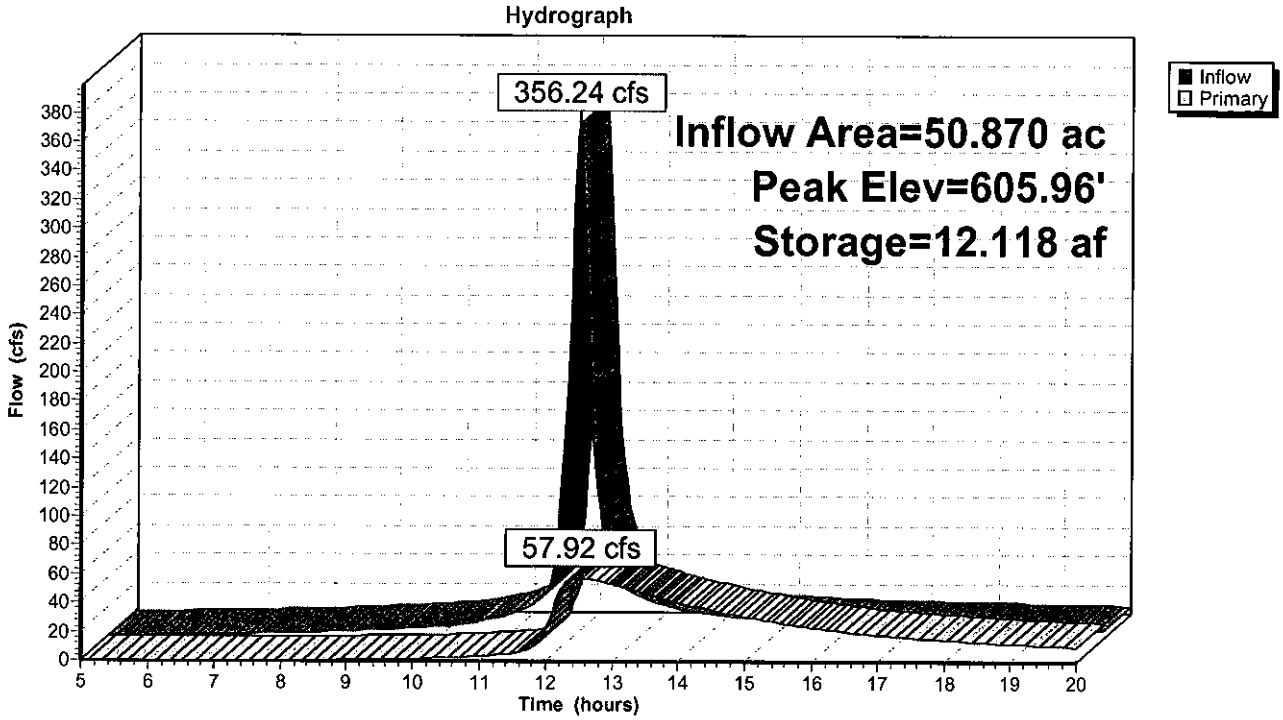
Volume	Invert	Avail.Storage	Storage Description
#1	604.00'	25.898 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

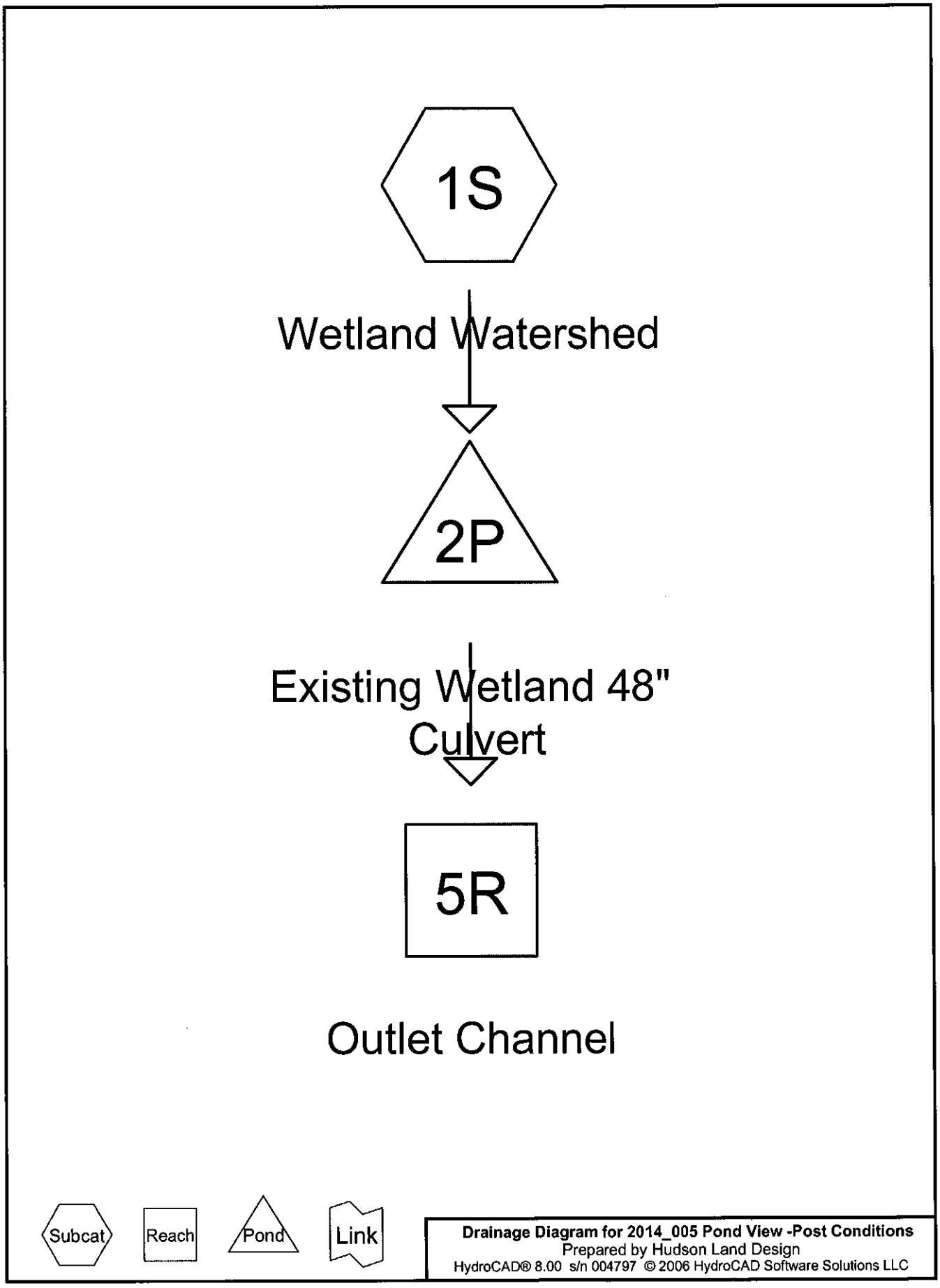
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
604.00	5.000	0.000	0.000
606.00	7.420	12.420	12.420
607.50	10.550	13.478	25.898

Device	Routing	Invert	Outlet Devices
#1	Primary	604.00'	**8.0' long x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=57.90 cfs @ 12.53 hrs HW=605.96' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 57.90 cfs @ 3.69 fps)

Pond 2P: Existing Wetland Outlet Channel




1S
Wetland Watershed
2P
Existing Wetland 48"
Culvert
5R
Outlet Channel
Subcat
Reach
Pond
Link
Drainage Diagram for 2014_005 Pond View -Post Conditions
Prepared by Hudson Land Design
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Subcatchment 1S: Wetland Watershed

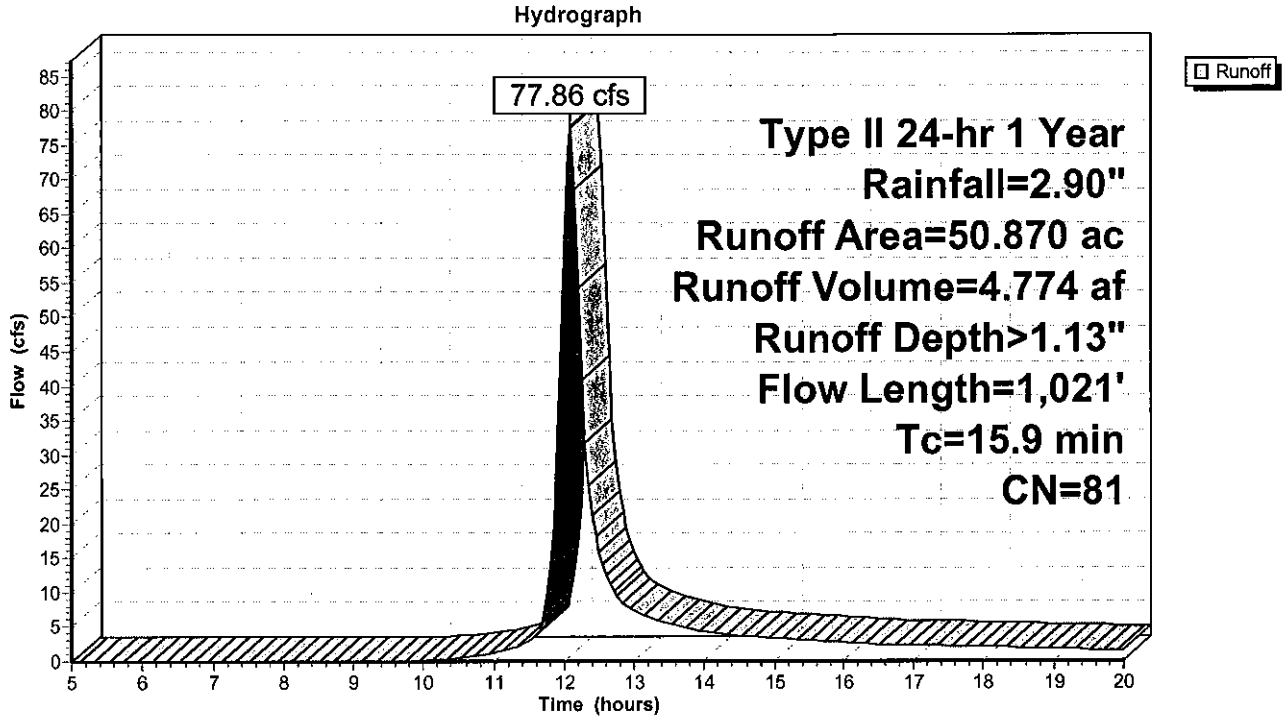
Runoff = 77.86 cfs @ 12.09 hrs, Volume= 4.774 af, Depth> 1.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1 Year Rainfall=2.90"

Area (ac)	CN	Description
7.780	79	1 acre lots, 20% imp, HSG C
11.060	84	1 acre lots, 20% imp, HSG D
7.030	89	Pasture/grassland/range, Poor, HSG D
8.570	79	Pasture/grassland/range, Fair, HSG C
16.430	77	Woods, Good, HSG D
50.870	81	Weighted Average
47.102		Pervious Area
3.768		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	65	0.0260	0.18		**Sheet Flow, 1** Grass: Short n= 0.150 P2= 3.50"
1.7	35	0.1875	0.35		**Sheet Flow, 2** Grass: Short n= 0.150 P2= 3.50"
5.2	656	0.0900	2.10		**Shallow Concentrated Flow, 3** Short Grass Pasture Kv= 7.0 fps
0.1	35	0.0200	10.18	31.99	**Circular Channel (pipe), 4** Diam= 24.0" Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
2.9	230	0.0700	1.32		**Shallow Concentrated Flow, 5** Woodland Kv= 5.0 fps
15.9	1,021	Total			

Subcatchment 1S: Wetland Watershed



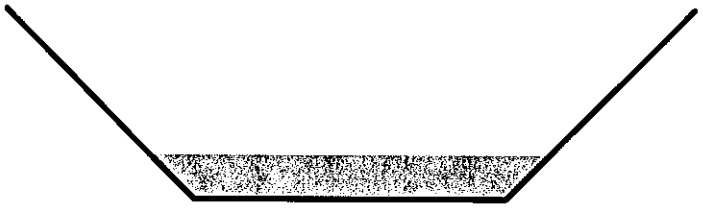
Reach 5R: Outlet Channel

Inflow Area = 50.870 ac, Inflow Depth > 1.12" for 1 Year event
Inflow = 18.83 cfs @ 12.44 hrs, Volume= 4.753 af
Outflow = 18.83 cfs @ 12.45 hrs, Volume= 4.751 af, Atten= 0%, Lag= 0.7 min

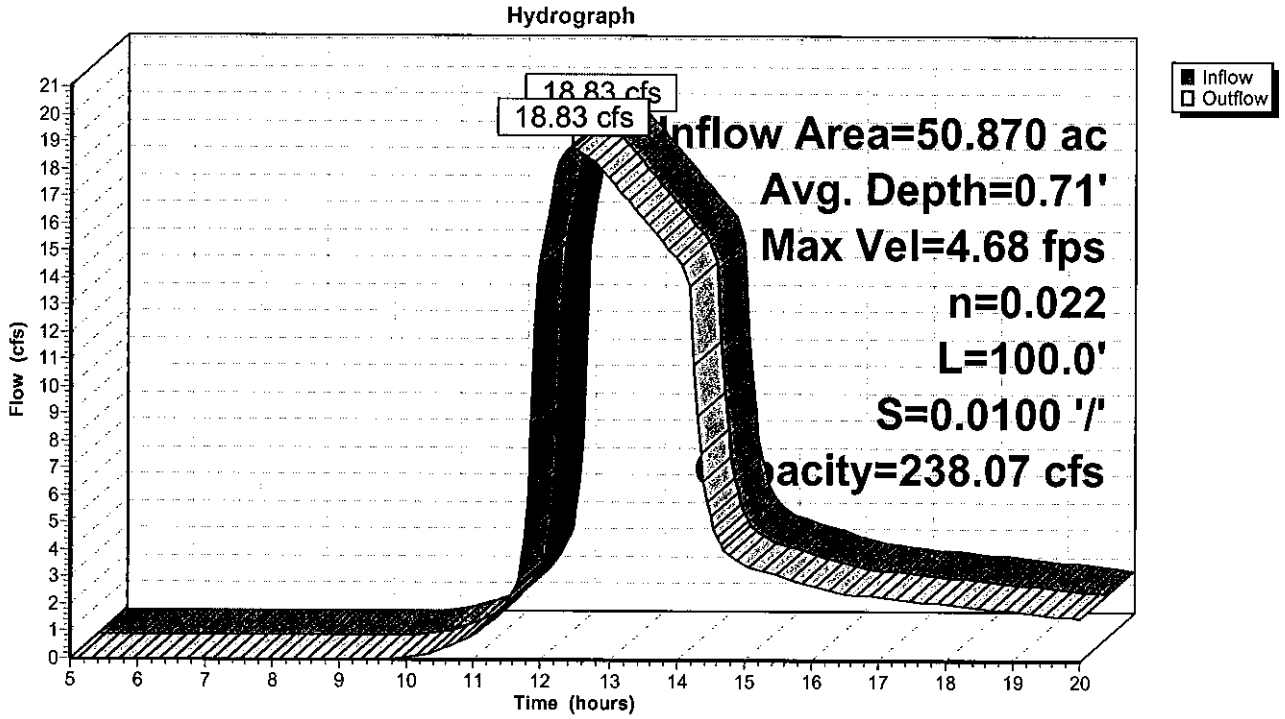
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.68 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.60 fps, Avg. Travel Time= 0.6 min

Peak Storage= 403 cf @ 12.45 hrs, Average Depth at Peak Storage= 0.71'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 238.07 cfs

5.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 1.0 '/' Top Width= 11.00'
Length= 100.0' Slope= 0.0100 '/'
Inlet Invert= 604.00', Outlet Invert= 603.00'



Reach 5R: Outlet Channel



Pond 2P: Existing Wetland 48" Culvert

Inflow Area = 50.870 ac, Inflow Depth > 1.13" for 1 Year event
Inflow = 77.86 cfs @ 12.09 hrs, Volume= 4.774 af
Outflow = 18.83 cfs @ 12.44 hrs, Volume= 4.753 af, Atten= 76%, Lag= 21.3 min
Primary = 18.83 cfs @ 12.44 hrs, Volume= 4.753 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 604.30' @ 12.44 hrs Surf.Area= 5.364 ac Storage= 1.559 af

Plug-Flow detention time= 30.8 min calculated for 4.737 af (99% of inflow)
Center-of-Mass det. time= 29.0 min (832.7 - 803.7)

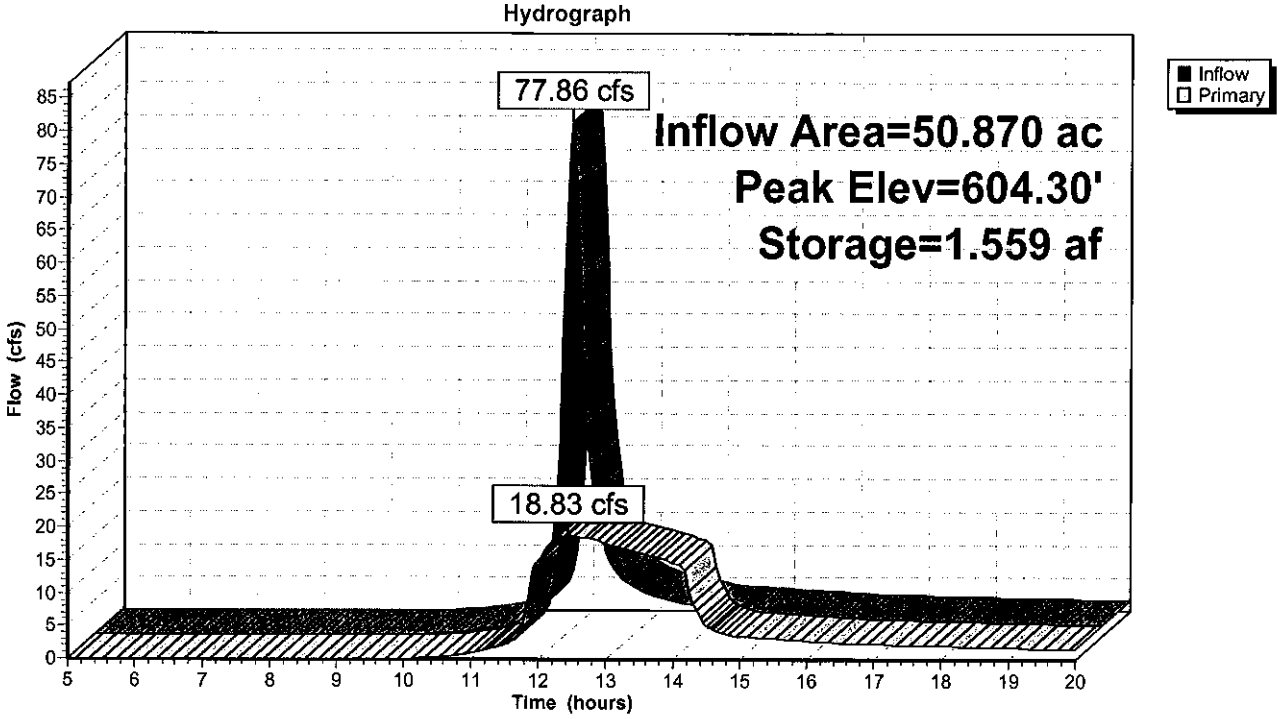
Volume	Invert	Avail.Storage	Storage Description
#1	604.00'	25.898 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
604.00	5.000	0.000	0.000
606.00	7.420	12.420	12.420
607.50	10.550	13.478	25.898

Device	Routing	Invert	Outlet Devices
#1	Primary	602.50'	**48.0" x 20.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 602.30' S= 0.0100 '/' Cc= 0.900 n= 0.013
#2	Primary	607.80'	**20.0' long x 15.0' 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) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=18.83 cfs @ 12.44 hrs HW=604.30' (Free Discharge)
└**1=Culvert** (Barrel Controls 18.83 cfs @ 5.05 fps)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2P: Existing Wetland 48" Culvert



Subcatchment 1S: Wetland Watershed

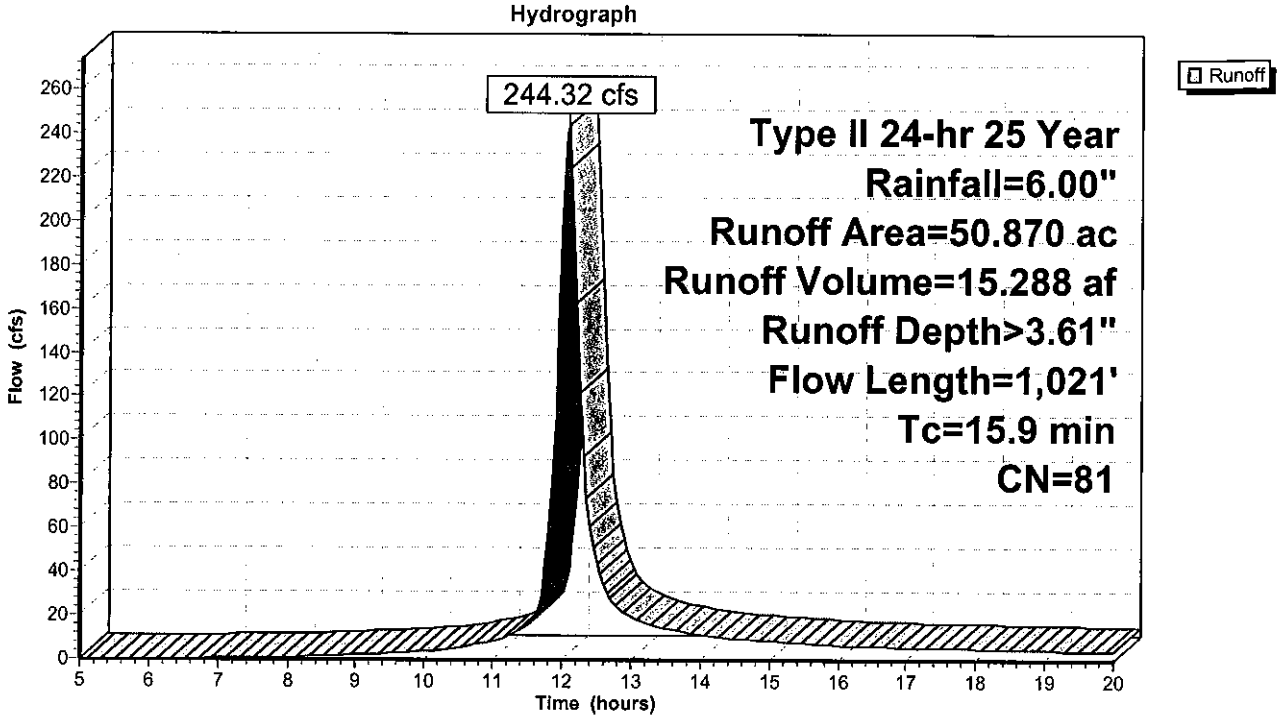
Runoff = 244.32 cfs @ 12.08 hrs, Volume= 15.288 af, Depth> 3.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 Year Rainfall=6.00"

Area (ac)	CN	Description
7.780	79	1 acre lots, 20% imp, HSG C
11.060	84	1 acre lots, 20% imp, HSG D
7.030	89	Pasture/grassland/range, Poor, HSG D
8.570	79	Pasture/grassland/range, Fair, HSG C
16.430	77	Woods, Good, HSG D
50.870	81	Weighted Average
47.102		Pervious Area
3.768		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	65	0.0260	0.18		**Sheet Flow, 1** Grass: Short n= 0.150 P2= 3.50"
1.7	35	0.1875	0.35		**Sheet Flow, 2** Grass: Short n= 0.150 P2= 3.50"
5.2	656	0.0900	2.10		**Shallow Concentrated Flow, 3** Short Grass Pasture Kv= 7.0 fps
0.1	35	0.0200	10.18	31.99	**Circular Channel (pipe), 4** Diam= 24.0" Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
2.9	230	0.0700	1.32		**Shallow Concentrated Flow, 5** Woodland Kv= 5.0 fps
15.9	1,021	Total			

Subcatchment 1S: Wetland Watershed



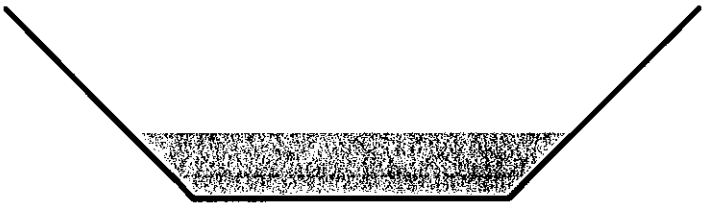
Reach 5R: Outlet Channel

Inflow Area = 50.870 ac, Inflow Depth > 3.59" for 25 Year event
Inflow = 36.79 cfs @ 12.57 hrs, Volume= 15.236 af
Outflow = 36.79 cfs @ 12.58 hrs, Volume= 15.231 af, Atten= 0%, Lag= 0.5 min

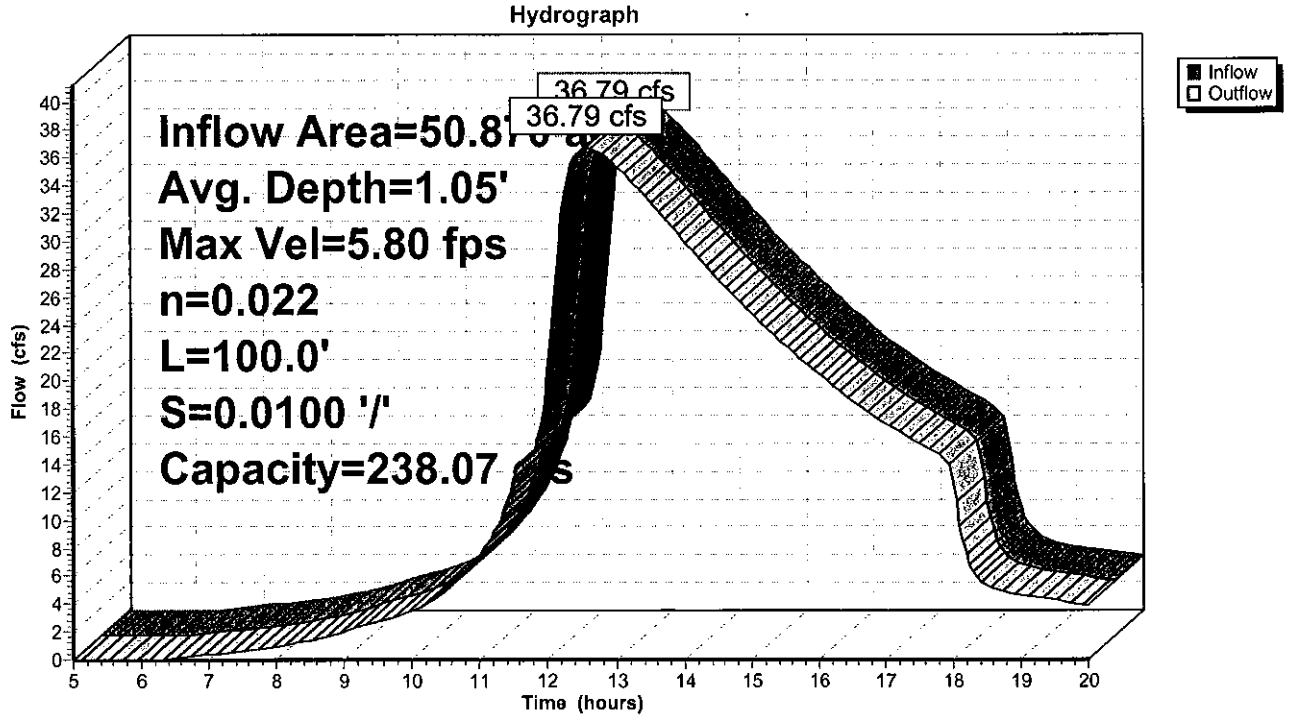
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.80 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.56 fps, Avg. Travel Time= 0.5 min

Peak Storage= 634 cf @ 12.58 hrs, Average Depth at Peak Storage= 1.05'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 238.07 cfs

5.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 1.0 '/' Top Width= 11.00'
Length= 100.0' Slope= 0.0100 '/'
Inlet Invert= 604.00', Outlet Invert= 603.00'



Reach 5R: Outlet Channel



Pond 2P: Existing Wetland 48" Culvert

Inflow Area = 50.870 ac, Inflow Depth > 3.61" for 25 Year event
Inflow = 244.32 cfs @ 12.08 hrs, Volume= 15.288 af
Outflow = 36.79 cfs @ 12.57 hrs, Volume= 15.236 af, Atten= 85%, Lag= 29.8 min
Primary = 36.79 cfs @ 12.57 hrs, Volume= 15.236 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 605.15' @ 12.57 hrs Surf.Area= 6.395 ac Storage= 6.566 af

Plug-Flow detention time= 81.1 min calculated for 15.236 af (100% of inflow)
Center-of-Mass det. time= 79.7 min (858.4 - 778.7)

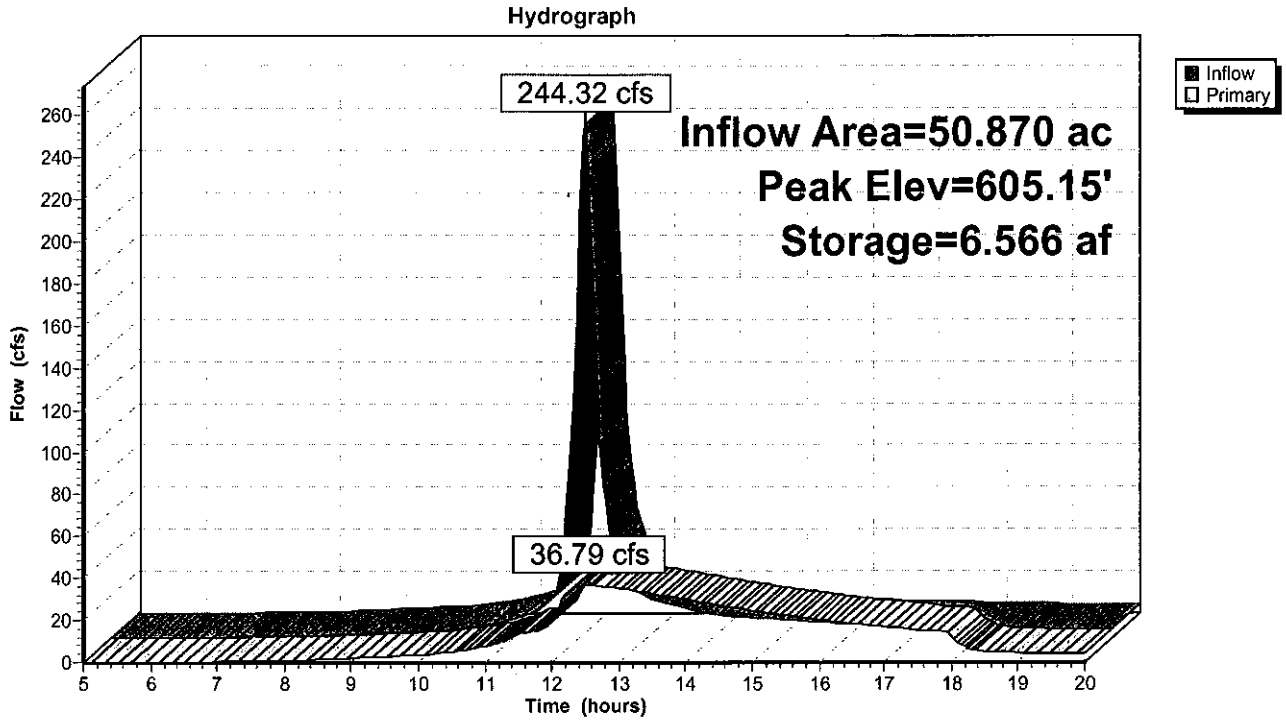
Volume	Invert	Avail.Storage	Storage Description
#1	604.00'	25.898 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
604.00	5.000	0.000	0.000
606.00	7.420	12.420	12.420
607.50	10.550	13.478	25.898

Device	Routing	Invert	Outlet Devices
#1	Primary	602.50'	**48.0" x 20.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 602.30' S= 0.0100 '/' Cc= 0.900 n= 0.013
#2	Primary	607.80'	**20.0' long x 15.0' 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) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=36.78 cfs @ 12.57 hrs HW=605.15' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 36.78 cfs @ 5.89 fps)
└—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2P: Existing Wetland 48" Culvert



Subcatchment 1S: Wetland Watershed

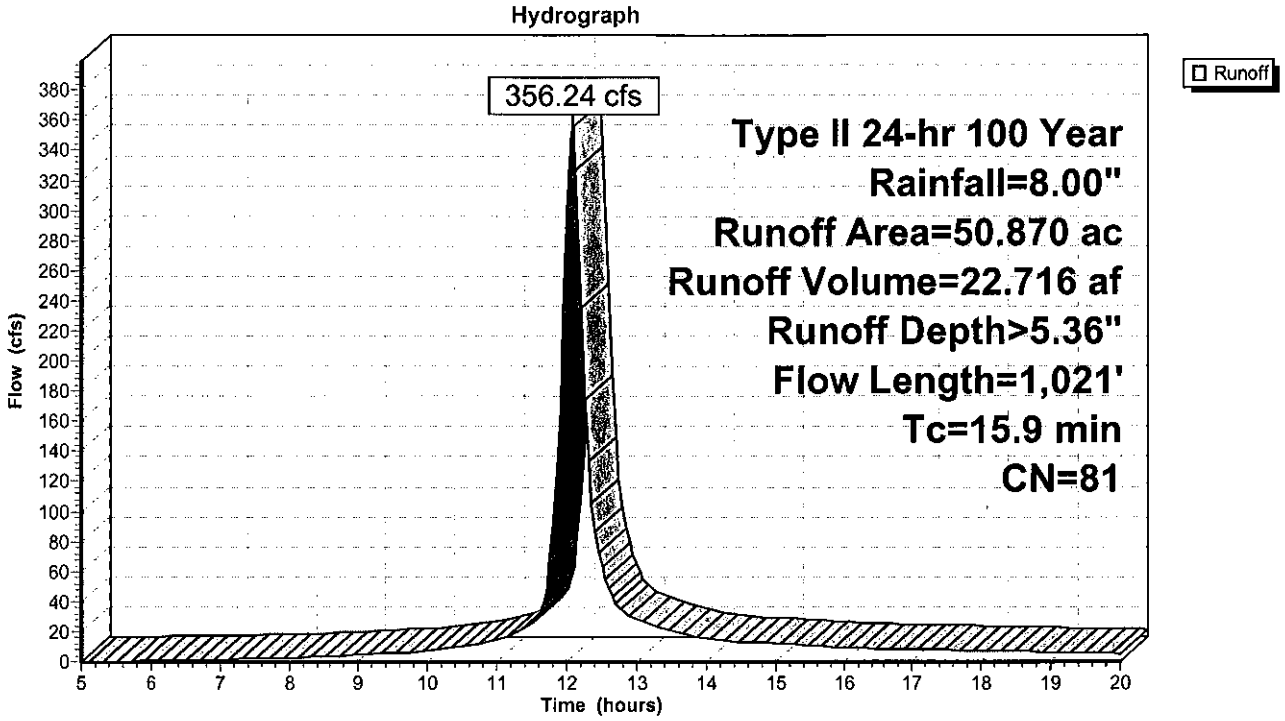
Runoff = 356.24 cfs @ 12.08 hrs, Volume= 22.716 af, Depth> 5.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 Year Rainfall=8.00"

Area (ac)	CN	Description
7.780	79	1 acre lots, 20% imp, HSG C
11.060	84	1 acre lots, 20% imp, HSG D
7.030	89	Pasture/grassland/range, Poor, HSG D
8.570	79	Pasture/grassland/range, Fair, HSG C
16.430	77	Woods, Good, HSG D
50.870	81	Weighted Average
47.102		Pervious Area
3.768		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	65	0.0260	0.18		**Sheet Flow, 1** Grass: Short n= 0.150 P2= 3.50"
1.7	35	0.1875	0.35		**Sheet Flow, 2** Grass: Short n= 0.150 P2= 3.50"
5.2	656	0.0900	2.10		**Shallow Concentrated Flow, 3** Short Grass Pasture Kv= 7.0 fps
0.1	35	0.0200	10.18	31.99	**Circular Channel (pipe), 4** Diam= 24.0" Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
2.9	230	0.0700	1.32		**Shallow Concentrated Flow, 5** Woodland Kv= 5.0 fps
15.9	1,021	Total			

Subcatchment 1S: Wetland Watershed



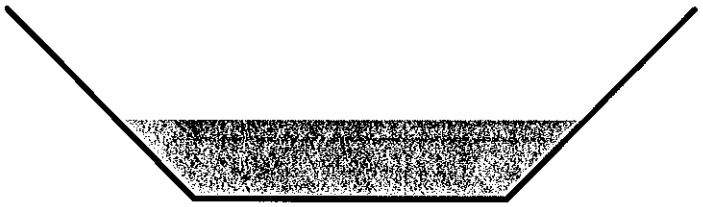
Reach 5R: Outlet Channel

Inflow Area = 50.870 ac, Inflow Depth > 5.34" for 100 Year event
Inflow = 50.02 cfs @ 12.59 hrs, Volume= 22.627 af
Outflow = 50.02 cfs @ 12.60 hrs, Volume= 22.620 af, Atten= 0%, Lag= 0.5 min

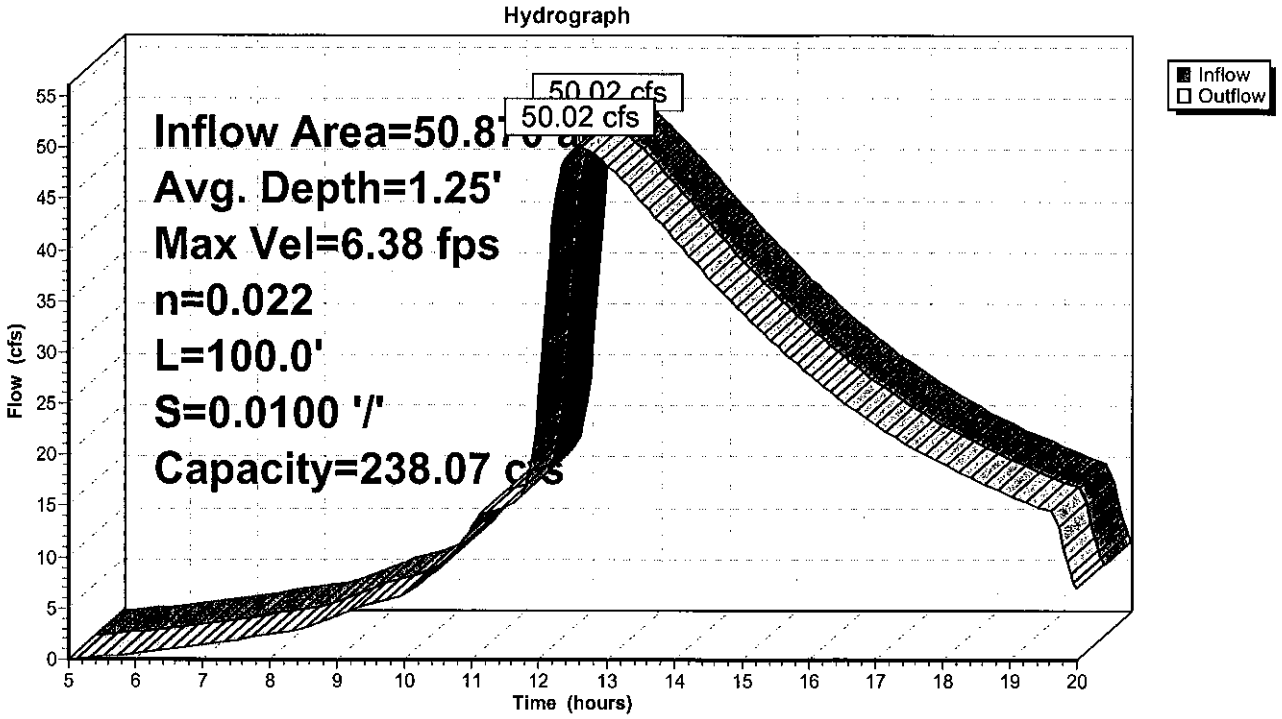
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.38 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 4.05 fps, Avg. Travel Time= 0.4 min

Peak Storage= 784 cf @ 12.59 hrs, Average Depth at Peak Storage= 1.25'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 238.07 cfs

5.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 1.0 '/' Top Width= 11.00'
Length= 100.0' Slope= 0.0100 '/'
Inlet Invert= 604.00', Outlet Invert= 603.00'



Reach 5R: Outlet Channel



Pond 2P: Existing Wetland 48" Culvert

Inflow Area = 50.870 ac, Inflow Depth > 5.36" for 100 Year event
Inflow = 356.24 cfs @ 12.08 hrs, Volume= 22.716 af
Outflow = 50.02 cfs @ 12.59 hrs, Volume= 22.627 af, Atten= 86%, Lag= 30.9 min
Primary = 50.02 cfs @ 12.59 hrs, Volume= 22.627 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 605.69' @ 12.59 hrs Surf.Area= 7.050 ac Storage= 10.208 af

Plug-Flow detention time= 99.9 min calculated for 22.627 af (100% of inflow)
Center-of-Mass det. time= 98.3 min (867.8 - 769.5)

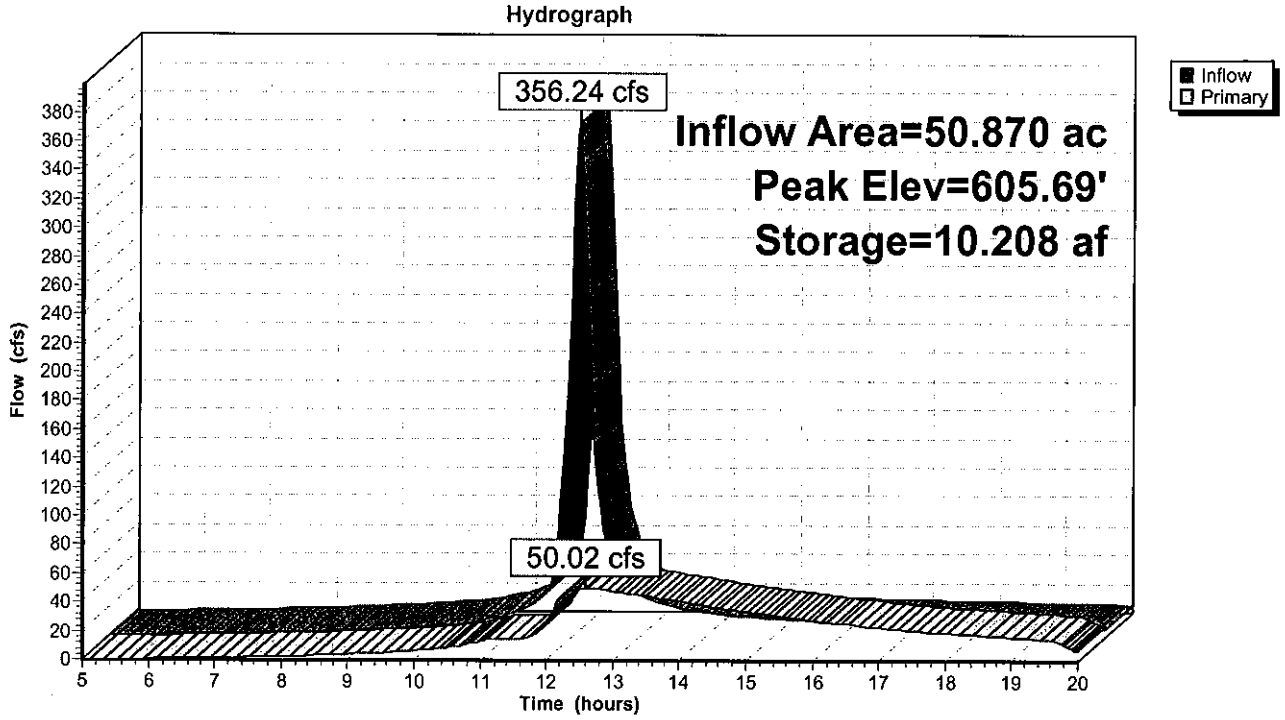
Volume	Invert	Avail.Storage	Storage Description
#1	604.00'	25.898 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

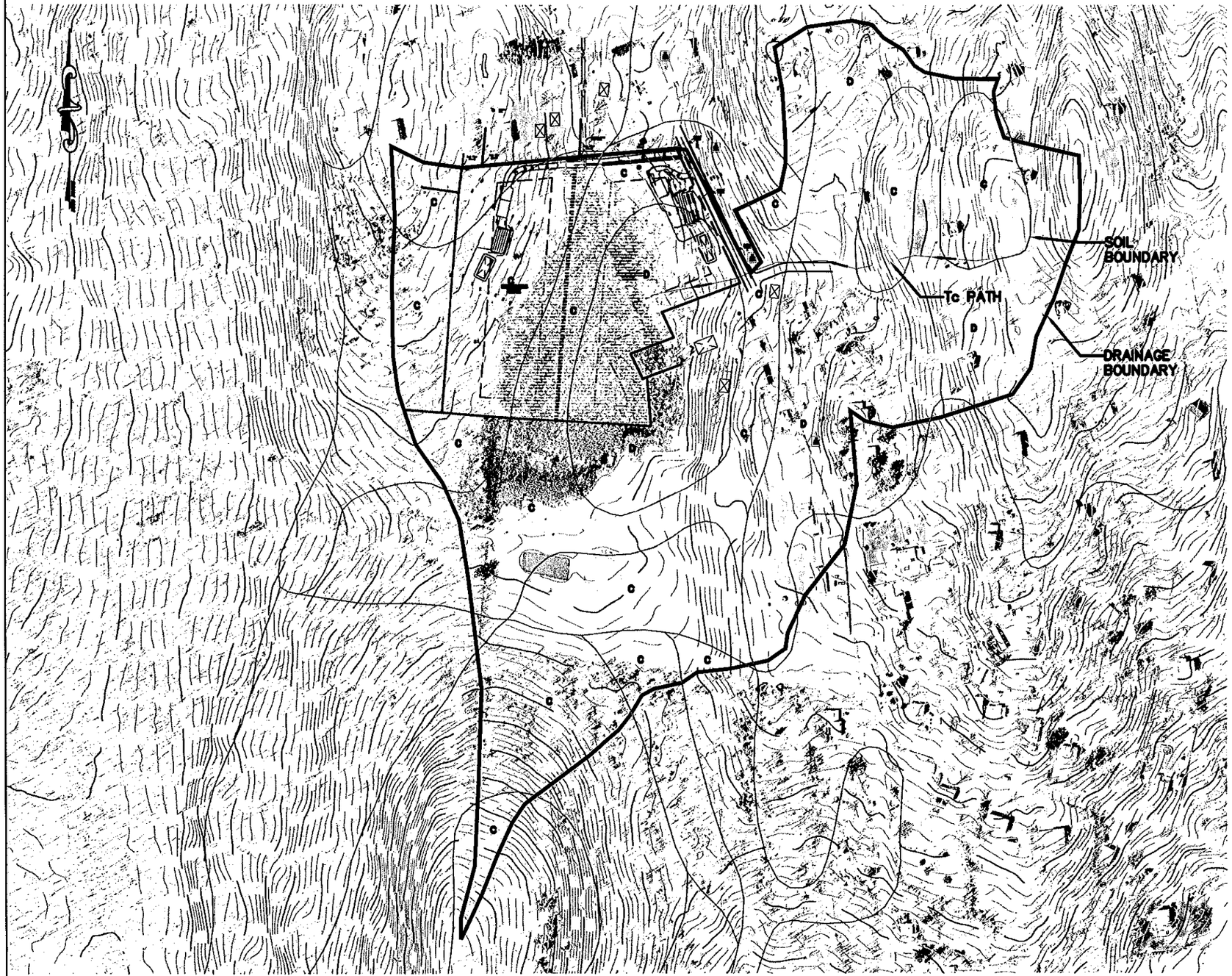
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
604.00	5.000	0.000	0.000
606.00	7.420	12.420	12.420
607.50	10.550	13.478	25.898

Device	Routing	Invert	Outlet Devices
#1	Primary	602.50'	**48.0" x 20.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 602.30' S= 0.0100 '/' Cc= 0.900 n= 0.013
#2	Primary	607.80'	**20.0' long x 15.0' 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) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=50.01 cfs @ 12.59 hrs HW=605.69' (Free Discharge)
└**1=Culvert** (Barrel Controls 50.01 cfs @ 6.37 fps)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2P: Existing Wetland 48" Culvert





DRAINAGE MAP
SCALE: 1"=300'

LEGEND:

SOIL BOUNDARY
DRAINAGE BOUNDARY
TIME OF CONCENTRATION

HYDROLOGIC SOIL GROUP ID C

DRAINAGE AREA

TOTAL AREA: 50.87 AC.

7.780 AC. 1 ACRE LOTS 20% IMP. GOOD CONDITION, SOIL C
11.060 AC. 1 ACRE LOTS 20% IMP. GOOD CONDITION, SOIL C
7.030 AC. PASTURE/GRASSLAND/RANGE, POOR CONDITION, SOIL D
8.570 AC. PASTURE/GRASSLAND/RANGE, FAIR CONDITION, SOIL C
16.430 AC. WOODS GOOD CONDITION, SOIL D

TIME OF CONCENTRATION: 15.9 MINUTES

1. 65' SHEET FLOW – GRASS, SHORT @ 2.6%
2. 35' SHEET FLOW.– GRASS, SHORT @ 18.75%
3. 656' SHALLOW CONC. – GRASS @ 9.0%
4. 35' PIPE FLOW – 24" HDPE @ 2.0%
5. 230' SHALLOW CONC. – WOODLAND @ 7.0%

DRAWN BY: MAB	CHECKED BY: DGK	JOB NO.: 2014:006	
REVISIONS:			
NO.	DATE	DESCRIPTION	BY

DRAINAGE MAP
POND VIEW SUBDIVISION

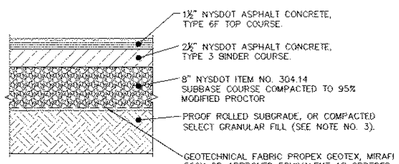
NYS ROUTE 32
TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK
TAX PARCEL: 10-1-50
SCALE: 1" = 300'
OCTOBER 30, 2014

HUDSON LAND DESIGN
PROFESSIONAL ENGINEERING P.C.
174 MAIN STREET
BEACON, NEW YORK 12508
PH: 845-440-6926 F: 845-440-6837

SEAL

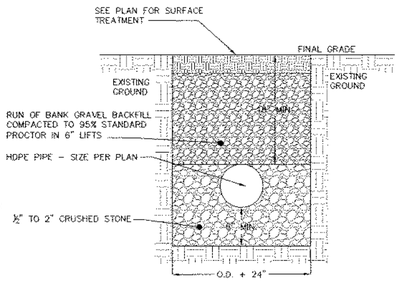
JON D. BODENDORF, P.E.
NYS LICENSE NO. 076245
DANIEL G. KOEHLER, P.E.
NYS LICENSE NO. 082716

SHEET: 1 OF 1



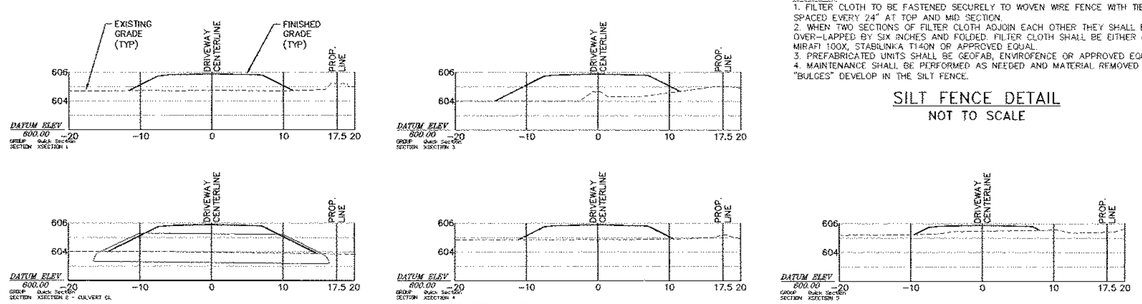
NOTES:
1. MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, DATED JANUARY 2, 2002 OR LATEST EDITION.
2. TACK COAT WHEN SPECIFIED OR CALLED OUT IN THESE DRAWINGS OR REQUIRED BY THE REFERENCED SPECIFICATIONS SHALL CONFORM WITH SECTION 407- TACK COAT OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS.
3. WHERE IT IS NECESSARY TO PLACE FILL FOR PURPOSES OF BRINGING THE SUBGRADE ELEVATION UP TO A SPECIFIED GRADE, THE FILL MATERIAL PLACED SHALL BE IN CONFORMANCE WITH SECTION 203-EXCAVATION AND EMBANKMENT OF THE ABOVE REFERENCED NYSDOT STANDARD SPECIFICATIONS.
4. GEOTECHNICAL FABRIC SHALL BE PROVIDED IN AREAS WHERE SUB-SOILS MAY MIGRATE INTO SUB-BASE MAERIAL AS ORDERED BY THE ENGINEER.
5. BIAXIAL GEOGRID REINFORCEMENT SHALL BE USED IN THE AREA OF THE WETLAND CROSSING BETWEEN STATION 2+25 AND 3 +75 OF THE PROPOSED LOT 2 DRIVEWAY. BIAXIAL GEOGRID SHALL BE FURNISHED BY PROPEX OR APPROVED EQUAL.

DRIVEWAY SECTION DETAIL
NOT TO SCALE

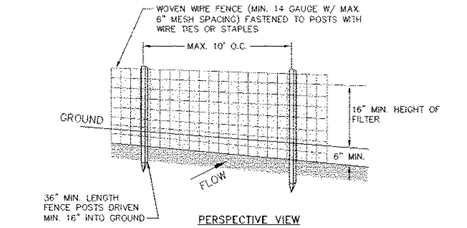


NOTES:
1. EXCAVATION AND TRENCHING SHALL MEET ALL OSHA REQUIREMENTS.

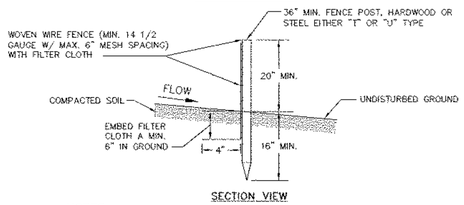
STORMWATER PIPE IN TRENCH DETAIL
NOT TO SCALE



LOT 2 DRIVEWAY CROSS SECTIONS AT WETLAND CROSSING
SCALE: 1"=10'



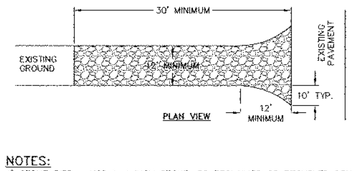
PERSPECTIVE VIEW



SECTION VIEW

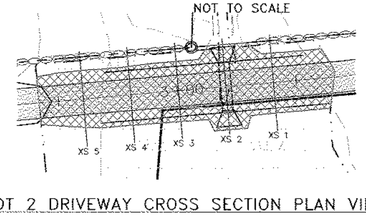
NOTES:
1. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N OR APPROVED EQUAL.
3. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE OR APPROVED EQUAL.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

SILT FENCE DETAIL
NOT TO SCALE

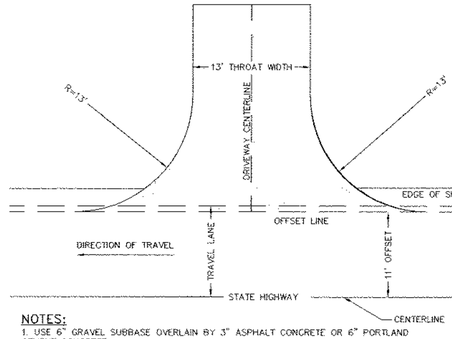


NOTES:
1) STONE SIZE - USE 1-4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2) LENGTH - NOT LESS THAN 30 FEET FOR A SINGLE RESIDENCE LOT.
3) THICKNESS - NOT LESS THAN SIX (6) INCHES.
4) WIDTH - 12 FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24 FOOT MINIMUM IF SINGLE ENTRANCE TO SITE.
5) GEOTEXTILE - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6) SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE, IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7) MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURE USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8) WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9) PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE DETAIL
NOT TO SCALE

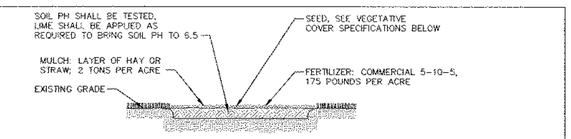


LOT 2 DRIVEWAY CROSS SECTION PLAN VIEW
SCALE: 1"=30'



NOTES:
1. USE 6" GRAVEL SUBBASE OVERLAIN BY 3" ASPHALT CONCRETE OR 6" PORTLAND CEMENT CONCRETE.
2. GRADE DRIVEWAY AWAY FROM HIGHWAY AT SAME PITCH AS EXISTING PAVED SHOULDER FOR A MINIMUM DISTANCE OF 10'.
2. DRIVEWAY CULVERT AS REQUIRED BY NYSDOT. MIN. DIAMETER IS 12", END SECTIONS ARE REQUIRED.
3. CUT/FILL SLOPES SHALL BE CONSTRUCTED NO STEEPER THAN 2 HORIZONTAL TO 1 VERTICAL (2:1). NYSDOT SHALL EVALUATE CUT/FILL SLOPES FOR ACCEPTABILITY.

NYSDOT RESIDENTIAL DRIVEWAY DETAIL
NOT TO SCALE



NOTES:
1. THIS DETAIL IS NOT FOR OCDH REVIEW OR APPROVAL.
2. TOPSOIL, SEED, MULCH, AND FERTILIZE DISTURBED SOIL AREAS THAT WILL BE LEFT EXPOSED FOR 14 DAYS OR MORE.
3. SEED MIXTURE FOR USE ON LAWNS IN SUNNY AREAS:

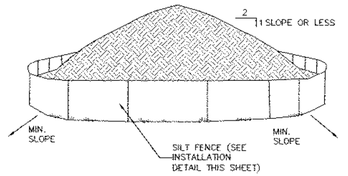
65% KENTUCKY BLUE GRASS BLEND	114 POUNDS PER ACRE
20% PERENNIAL RYEGRASS	35 POUNDS PER ACRE
15% FINE FESCUE	26 POUNDS PER ACRE
	175 POUNDS PER ACRE

4. SEED MIXTURE FOR USE IN SHADY AREAS:

80% BLEND OF SHADE TOLERANT KENTUCKY BLUEGRASS	138 POUNDS PER ACRE
20% FINE FESCUE	37 POUNDS PER ACRE
	175 POUNDS PER ACRE

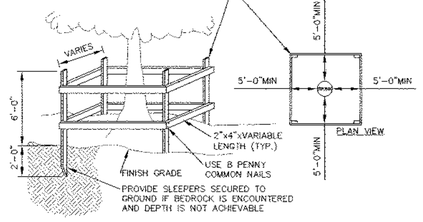
5. SEED BETWEEN APRIL 1ST AND MAY 15TH OR AUGUST 15TH AND OCTOBER 15TH. SEEDING MAY OCCUR BETWEEN MAY 15TH AND AUGUST 15TH IF ADEQUATE IRRIGATION IS PROVIDED.
6. TOPSOIL SHALL HAVE AT LEAST 6% BY WEIGHT OF FINE TEXTURED STABLE ORGANIC MATERIAL, AND NO GREATER THAN 20%. TOPSOIL SHALL HAVE NOT LESS THAN 20% FINE TEXTURED MATERIAL (PASSING THE NO. 200 SIEVE) AND NOT MORE THAN 15% CLAY.

TOPSOIL, SEED AND MULCH DETAIL
NOT TO SCALE



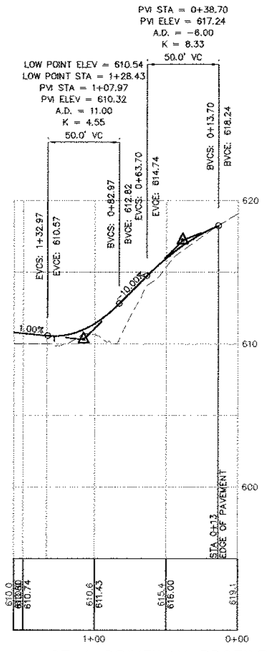
NOTES:
1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
2. EACH PILE SHALL BE SURROUNDED WITH SILT FENCING, THEN STABILIZED WITH VEGETATION OR COVERED.

TEMPORARY SOIL STOCKPILE DETAIL
NOT TO SCALE

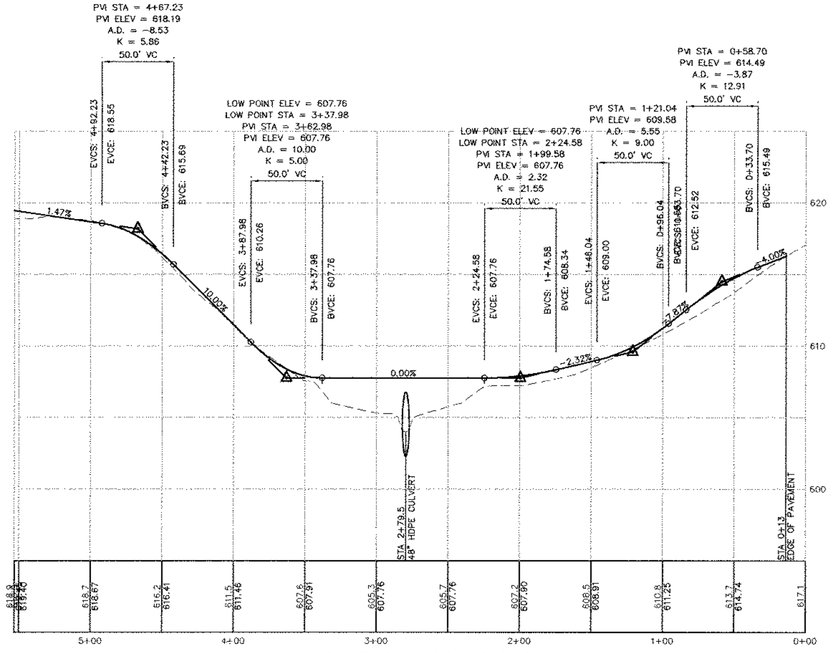


NOTES:
1. TREES TO REMAIN NOTED ON EXISTING CONDITIONS PLAN.
2. NOT ALL TREES TO REMAIN REQUIRE PROTECTION. TREE PROTECTION TO BE UTILIZED ON TREES WHERE CONSTRUCTION TRAFFIC WOULD COMPACT THE ROOT ZONE OF THE TREE.

TEMPORARY TREE PROTECTION DETAIL
NOT TO SCALE



LOT 1 DRIVEWAY PROFILE
SCALE: 1"=5'V
1"=50'H



LOT 2 DRIVEWAY PROFILE
SCALE: 1"=5'V
1"=50'H

SITE AND EROSION & SEDIMENT CONTROL DETAILS

POND VIEW

921-965 NYS ROUTE 32
TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK
TAX ID: 10-1-50
SCALE: 1" = 50'
JULY 31, 2014

DRAWN BY: MAB	CHECKED BY: JDB	JOB NO.: 2014:005

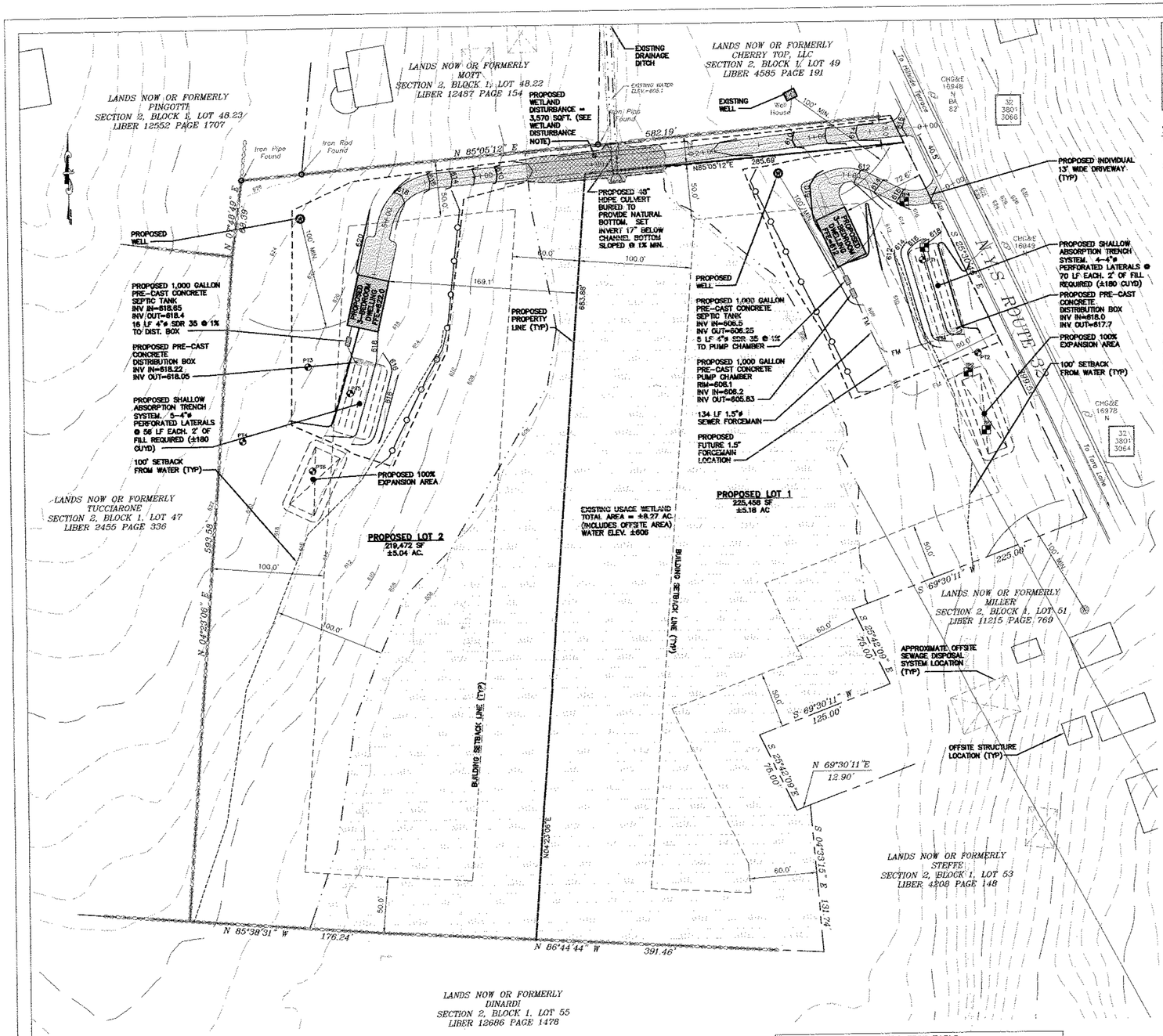
REVISIONS:

NO.	DATE	DESCRIPTION	BY
1	10/30/14	PER PLANNING BOARD COMMENTS	MAB

HUDSON LAND DESIGN
PROFESSIONAL ENGINEERING P.C.
174 MAIN STREET
BEACON, NEW YORK 12508
PH: 845-440-6926 F: 845-440-6637

SEAL
JON D. BODENDORF, P.E.
NYS LICENSE NO. 076245
DANIEL G. KOEHLER, P.E.
NYS LICENSE NO. 082716

SHEET: 2 OF 3



PROJECT INFORMATION:

PARCEL OWNER:	SOLO GROUP, LLC, PO BOX 1000, WOODBURY, NY 11797
PROJECT ENGINEER:	HUDSON LAND DESIGN P.C., 174 MAIN STREET, BEACON NY 12508
PARCEL LOCATION:	921-965 NYS ROUTE 32, NEWBURGH NY
TAX PARCEL ID:	2-1-50
PARCEL AREA:	±10.20-ACRE
WATER SUPPLY:	INDIVIDUAL WELL
SEWAGE DISPOSAL:	SEWAGE DISPOSAL SYSTEM

SITE SPECIFIC NOTES:

1. THE PROPOSED SEWAGE DISPOSAL SYSTEM COMPONENTS SHALL BE SET SUCH THAT GRAVITY FLOW IS ACHIEVED TO ALL COMPONENTS UP TO AND INCLUDING PUMP STATIONS.
2. THE PROJECT DOES NOT LIE WITHIN A PUBLIC WATER SUPPLY SOURCE WATERSHED.
3. ALL PROPOSED SIGHT DISTANCE MEASUREMENTS FOR 55 M.P.H MEET OR EXCEED TOWN OF NEWBURGH, NYSDOT AND THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS", LATEST EDITION, WHICH ARE THE FOLLOWING:
   SLSD LEFT = 610'
   SLSD RIGHT = 610'
   SSD = 495'
4. THE MEASURED SLSD RIGHT AND SLSD LEFT ARE TAKEN FROM THE CENTERLINE OF THE OUTBOUND LANE OF THE DRIVEWAY, 14.4' IN FROM THE EDGE OF PAVEMENT. SLSD EYE HEIGHT IS 42". TSD EYE HEIGHT 42", SSD EYE HEIGHT IS 42", AND OBJECT/BRAKE LIGHT HEIGHT IS 24".
5. THE MEASURED SLSD RIGHT AND SLSD LEFT FOR EACH DRIVEWAY IS IN EXCESS OF 900 FEET. THE MEASURED SSD AND TSD IS IN EXCESS OF 900 FEET.

SEWAGE DISPOSAL SYSTEM DESIGN NOTES:

SEWAGE DISPOSAL SYSTEM DESIGNS BASED ON 3 BEDROOM RESIDENTIAL DWELLING MAX. DESIGN FLOW IS BASED UPON NEW STANDARD FIXTURES. THESE INCLUDE: 1.5 GPF MAX. TOILET, 3.0 GPM MAX. FAUCETS/SHOWERHEADS. DESIGN FLOW = 390 GPD (3 BEDROOMS @ 130 GPD/BEDROOM).

NO FOOTING OR ROOF DRAINS, WATER SOFTENER BACKWASHES, SHALL BE ALLOWED TO ENTER THE SYSTEM.

NO KITCHEN SINK GARBAGE DISPOSAL SYSTEMS ARE PLANNED OR INCLUDED IN THE DESIGN.

THE PROPOSED SEPTIC TANK SIZE IS 1,000 GALLONS, WHICH MEETS THE REQUIREMENTS AS SET FORTH BY THE ORANGE COUNTY DEPARTMENT OF HEALTH (OCDOH) FOR THE DESIGN FLOW.

ALL UTILITY LINES IN THE VICINITY OF THE PROPOSED CONSTRUCTION SHALL BE CLEARLY MARKED OUT PRIOR TO ANY GROUND-BREAKING.

SEWAGE DISPOSAL SYSTEM SHALL NOT BE INSTALLED IN FROZEN OR WET SOILS.

LOT 1 SDS DESIGN:
SDS DESIGN BASED UPON AN APPLICATION RATE OF 0.7 GPD/SF FOR A PERCOLATION RATE OF 20 MIN/INCH. THIS RESULTS IN 279 LF OF 2' WIDE TRENCH REQUIRED. THE DESIGN CALLS FOR 4 LATERALS @ 70 LF EACH FOR A TOTAL OF 280 LF OF TRENCH PROVIDED.

LOT 2 SDS DESIGN:

SDS DESIGN BASED UPON AN APPLICATION RATE OF 0.7 GPD/SF FOR A PERCOLATION RATE OF 20 MIN/INCH. THIS RESULTS IN 279 LF OF 2' WIDE TRENCH REQUIRED. THE DESIGN CALLS FOR 5 LATERALS @ 56 LF EACH FOR A TOTAL OF 280 LF OF TRENCH PROVIDED. SEE ENGINEER'S REPORT FOR ADDITIONAL CALCULATIONS.

MAP REFERENCES:

1. REFERENCE IS HEREBY MADE TO A BOUNDARY SURVEY ENTITLED "SURVEY FOR SCHOONMAKER HOMES," AS PREPARED BY DANIEL YANOSH, L.S., DATED JULY 14, 2014.
2. 2' CONTOUR TOPOGRAPHIC INFORMATION TAKEN FROM ORANGE COUNTY AERIAL TOPOGRAPHIC MAPS, AND VERIFIED VIA GROUND SURVEY IN OCTOBER, 2014 BY DANIEL YANOSH, L.S.
3. ADJACENT WELL AND SEPTIC LOCATIONS, WETLAND BOUNDARY AND WATER EDGE ARE SHOWN PER UPDATED SURVEY IN OCTOBER 2014.

WETLAND DISTURBANCE NOTES:

1. INSTALLATION OF LOT 2 DRIVEWAY WILL RESULT IN 3,570± SQFT. (0.082 AC.) OF DISTURBANCE/FILL TO THE WETLAND. THE DISTURBANCE IS LESS THAN 0.10 AC.; THEREFORE, NO PERMIT FROM THE USACE IS REQUIRED.

SURVEYOR'S CERTIFICATION

I HEREBY CERTIFY THAT THIS BOUNDARY SURVEY WAS PREPARED BY ME AND WAS MADE FROM AN ACTUAL FIELD SURVEY COMPLETED ON JULY 8, 2014, AND CERTIFIED TO THE APPLICANT ON JULY 14, 2014.

DANIEL P. YANOSH, NYSLLS #: 49561 SEAL

OWNER'S CONSENT:

THE UNDERSIGNED OWNER OF THE PROPERTY HEREON STATES THAT HE/SHE IS FAMILIAR WITH THIS MAP, ITS CONTENTS AND ITS LEGENDS AND HEREBY CONSENTS TO ALL SAID TERMS AND CONDITIONS AS STATED HEREON.

MATTHEW SOLOF DATE

OWNER:

SOLO GROUP, LLC
PO BOX 1000
WOODBURY, NY 11797

APPLICANT:

HV REALTY SERVICES (GERALD CASESA)
219 ROUTE 32
SUITE 101
CENTRAL VALLEY, NEW YORK 10917

SITE LOCATION MAP SCALE: 1" = 2,000'

LEGEND

- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- SETBACK LINE
- EXISTING STONE WALL
- 600 EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING WATER EDGE
- 100' WATER SETBACK LINE
- FM FM PROPOSED SEWER FORCEMAIN
- LIMIT OF DISTURBANCE
- W PROPOSED WELL
- EXISTING WETLAND
- PROPOSED WETLAND DISTURBANCE AREA

SCHEDULE OF REGULATIONS (RR RESERVOIR ZONING DISTRICT) AND LOT CONFORMANCE TABLE:

PARAMETER	REQUIREMENT	LOT #1	LOT #2
LOT AREA:	2 ACRES MIN	±5.18 AC.	5.04 AC.
LOT WIDTH:	200 FEET MINIMUM	424 FEET	694 FEET
LOT DEPTH:	300 FEET MINIMUM	±385 FEET	±310 FEET
YARD SETBACKS (RESIDENTIAL USE):			
FRONT YARD:	60 FEET MINIMUM	72.6 FEET	169.1 FEET
SIDE YARD:	50 FEET MINIMUM	52.1 FEET	94.1 FEET
BOTH SIDE YARDS:	100 FEET MINIMUM	341.1 FEET	628.8 FEET
REAR YARD:	100 FEET MINIMUM	208.6 FEET	106.4 FEET
BUILDING COVERAGE:	MAX 10%	<1%	1%
MAXIMUM BUILDING HEIGHT:	35 FEET	<35 FEET	<35 FEET
LOT SURFACE COVERAGE:	10%	4%	2%
HABITABLE FLOOR AREA:	1,500 SQUARE FEET	>1,500 S.F.	>1,500 S.F.

SKETCH SUBDIVISION PLAT
POND VIEW

921-965 NYS ROUTE 32
TOWN OF NEWBURGH
ORANGE COUNTY, NEW YORK
TAX ID: 2-1-50
SCALE: 1" = 50'
JULY 31, 2014

DEEP TEST HOLE TABLE:

DEEP TEST HOLE RESULTS ESTABLISHED ON 5/2/14

DT1: 3" TOPSOIL, 3"-33" SILTY CLAY LOAM, 33"-36" SHALE AND SEEPAGE
DT2: 3" TOPSOIL, 3"-30" SILTY CLAY LOAM, SHALE AND SEEPAGE AT 30"
DT3: 3" TOPSOIL, 3"-40" SILTY CLAY LOAM, 40" SHALE AND SEEPAGE
DT4: (IN SPOILS PILE) 3" TOPSOIL, 3"-72" SILTY CLAY LOAM, (NO BEDROCK, NO WATER, NO MOTTLING)

SUBSURFACE INVESTIGATION:

THE SUBSURFACE CONDITIONS IN THE VICINITY OF THE PROPOSED SEWAGE DISPOSAL SYSTEM WERE INVESTIGATED BY HUDSON LAND DESIGN. TEST LOCATIONS WERE SURVEY LOCATED BY DANIEL YANOSH, L.S., OCTOBER, 2014.

SKETCH SUBDIVISION PLAT

SCALE: 1" = 50'
GRAPHIC SCALE

50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

CERTIFICATE OF OCCUPANCY NOTE:

1. PRIOR TO ISSUANCE OF A C.O. FOR EACH LOT, AN AS-BUILT PLAN CERTIFIED BY A LICENSED DESIGN PROFESSIONAL SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT.

PERC TEST TABLE:

PERC TESTS 1-4 ESTABLISHED ON 5/2/14 & 5/3/14
PERC TESTS 4-5 ESTABLISHED ON 10/10/14 & 10/11/14

PT1: 16" DEEP: 10 min/in; 15 min/in; 16 min/in; 17 min/in; 18 min/in; 20 min/in; 20 min/in
PT2: 16" DEEP: 7 min/in; 13 min/in; 16 min/in; 17 min/in; 18 min/in; 20 min/in; 20 min/in
PT3: 30" DEEP: 16 min/in; 17 min/in; 18 min/in; 19 min/in; 20 min/in; 20 min/in; 20 min/in
PT4: 30" DEEP: 14 min/in; 17 min/in; 19 min/in; 20 min/in; 20 min/in; 20 min/in
PT5: 30" DEEP: 10 min/in; 11 min/in; 11 min/in; 11 min/in 2
PT6: 30" DEEP: 11 min/in; 11 min/in; 12 min/in; 12 min/in; 12 min/in;

Dig Safely. New York
800-962-7962
www.digsafelynewyork.org
- ☐ Call Before You Dig
- ☐ Wait The Required Time
- ☐ Confirm Utility Response
- ☐ Respect the Marks
- ☐ Dig With Care

DRAWN BY: MAB	CHECKED BY: JDB	JOB NO.: 2014:005

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PROFESSIONAL ENGINEERING P.C.
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BEACON, NEW YORK 12508
PH: 845-440-6926 F: 845-440-6637

SEAL
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NYS LICENSE NO. 076245
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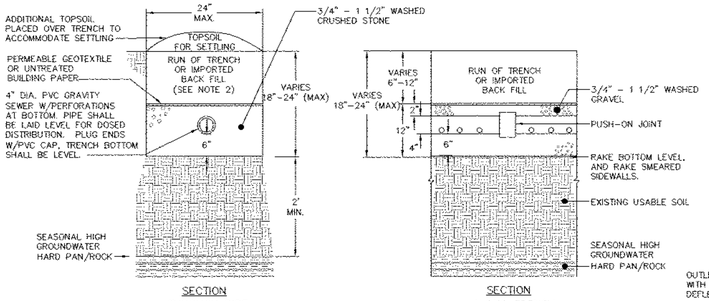
NYS LICENSE NO. 082716

SHEET: 1 OF 3

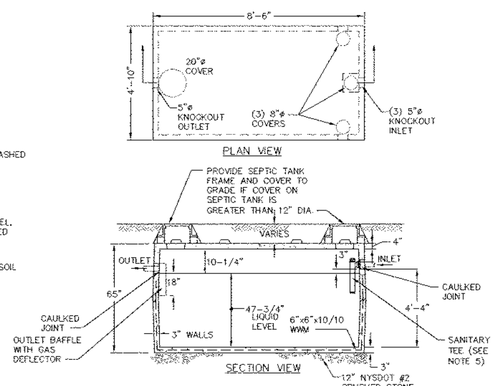


NOTES:
1. MINIMUM SPACING BETWEEN ABSORPTION FIELD TRENCHES IS 6' O.C.

2. IMPORTED BACKFILL SHALL MATCH THE QUALITY OF THE FILL SPECIFIED ON SHEET 1 FOR RAISED SYSTEMS.

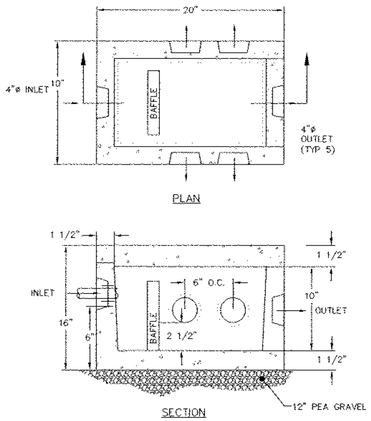
3. TOTAL TRENCH DEPTH NOT TO EXCEED 24".

ABSORPTION TRENCH DETAIL
NOT TO SCALE



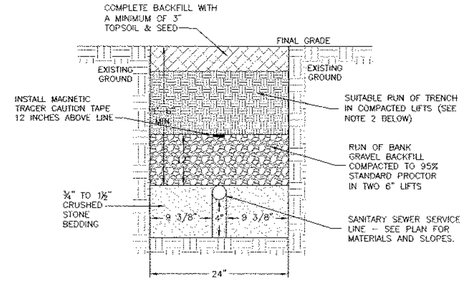
NOTES:
1. IF TANK IS DELIVERED TO THE SITE IN SECTIONS, THE CONTRACTOR SHALL MAKE IT WATER TIGHT. A WATER TIGHTNESS TEST SHALL BE COMPLETED BY THE CONTRACTOR, WITNESSED BY THE ENGINEER AND THE DCHD, AND SHALL INCLUDE FILLING THE TANK AND MEASURING WATER LEVEL OVER A 24-HOUR PERIOD.
2. ALL JOINTS SHALL BE CAULKED.
3. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
4. PRE-CAST SEPTIC TANK SHOWN IS MODEL ST-1,000 BY WOODARD'S CONCRETE PRODUCTS, INC. 629 LYBOLT ROAD, BULLVILLE, NY, 10915 (845) 361-3471.
5. SANITARY TEE SHALL BE USED ON INLET SIDE TO MEET REQUIRED 16" BAFFLE DEPTH BELOW LIQUID LEVEL.

PRECAST CONCRETE 1,000 GALLON SEPTIC TANK DETAIL
NOT TO SCALE



NOTES:
1. ALL OUTLETS SHALL BE SET AT THE SAME ELEVATION. DISTRIBUTION BOX SHALL BE SET LEVEL AND ALL UNUSED INLETS/OUTLETS SHALL BE PLUGGED.
2. PRE-CAST DISTRIBUTION BOX SHOWN IS MODEL DB-6W8 5 OUTLET BOX, WOODARD'S CONCRETE PRODUCTS, INC. 629 LYBOLT RD., BULVILLE, NY (845) 361-3471.
3. BAFFLE SHALL BE PROVIDED BY CONTRACTOR.
4. A MINIMUM OF 4' SOLID PIPE MUST BE PROVIDED BETWEEN THE DISTRIBUTION BOX AND PERFORATED LATERALS.
5. COVER OVER THE DISTRIBUTION BOX IS TO BE A MAXIMUM OF 12".

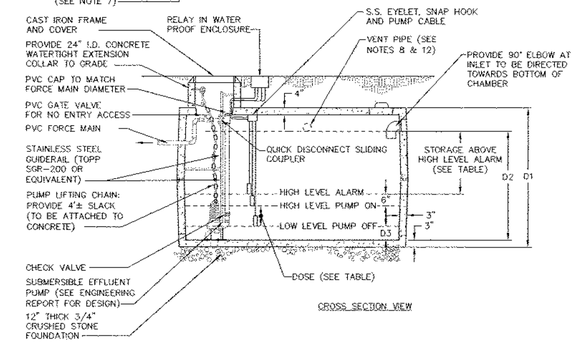
PRECAST CONCRETE DISTRIBUTION BOX WITH BAFFLE DETAIL
NOT TO SCALE



NOTES:
1. EXCAVATION AND TRENCHING SHALL MEET ALL OSHA REQUIREMENTS.

2. SUITABLE RUN OF TRENCH SHALL NOT INCLUDE FROZEN MATERIALS, DEBRIS, ORGANIC MATERIALS, LARGE STONES OR OTHER UNSUITABLE MATERIALS. IF THE RUN OF TRENCH MATERIAL IS FOUND TO BE UNSUITABLE, A SUITABLE BACKFILL MATERIAL SHALL BE IMPORTED AND USED.

SANITARY SEWER SERVICE LINE TRENCH DETAIL
NOT TO SCALE



PUMP CHAMBER NOTES

1. THREE FLOAT SWITCHES SHALL BE INSTALLED: PUMP ON, PUMP OFF, AND HIGH ALARM. VISIBLE AND AUDIBLE ALARMS SHALL BE PROVIDED. THE ALARMS SHALL BE LOCATED ON THE HOME EXTERIOR, CLEARLY VISIBLE AND AUDIBLE. EXTERIOR ALARMS SHALL BE RATED NEMA 3R FOR WEATHERPROOF LOCATIONS.

2. ELECTRICAL EQUIPMENT IN WET WELLS OR IN ENCLOSED SPACES WHERE EXPLOSIVE GASES MAY ACCUMULATE SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE FOR CLASS 1, DIVISION 1, GROUP C OR D LOCATIONS. THERE SHALL BE NO ELECTRICAL SPLICES, JUNCTION BOXES OR CONNECTIONS OF ANY NEC RATING IN THE PUMP CHAMBER.

3. EFFLUENT PUMP SIZE AND TYPE AS PER TABLE BELOW.

4. THERE SHALL BE A MINIMUM OF 2.5' COVER OVER THE CONDUIT CONVEYING THE FLOAT PUMP CABLES AND CONTROL WIRING. CONDUITS FROM ALARM BOX AND CONTROL PANEL TO RELAY PANEL AT PUMP CHAMBER SHALL SHARE THE SAME TRENCH.

5. PROVIDE ADDITIONAL CONDUIT FOR CONTROL WIRING AS PER THE MANUFACTURER'S RECOMMENDATIONS. MINIMUM COVER SHALL BE 2.5'.

6. AN ALUMINUM WARNING PLATE SHALL BE RIVETED OR OTHERWISE PERMANENTLY ATTACHED TO THE CHAMBER COVER. THE PLATE SHALL BE A MINIMUM OF 12"x12" AND SHALL BE ENGRAVED WITH THE FOLLOWING LANGUAGE: "WARNING – CONFINED SPACE – ENTRY PROHIBITED WITHOUT AUTHORIZATION – CALL OWNER FOR APPROVAL TO ACCESS".

7. CONTROL PANELS SHALL BE LOCATED WITHIN THE HOME.

8. 4" ø SDR PVC SCREENED VENT SHALL EXTEND TO BUILDING ROOF LINE.

9. A WATER TIGHTNESS TEST SHALL BE COMPLETED BY THE CONTRACTOR, WITNESSED BY THE ENGINEER, AND SHALL INCLUDE FILLING THE TANK AND MEASURING WATER LEVEL.

10. CONTRACTOR SHALL CAULK INLET AND OUTLET JOINTS AND OTHER CONDUIT PENETRATIONS.

11. INSTALL STAINLESS STEEL GUIDE RAIL FOR PUMP REMOVAL AND MAINTENANCE.

12. LOCATION OF 4" DIA. SDR PVC VENTILATION PIPE SHALL BE APPROVED BY THE OWNER AND SHALL PROVIDE POSITIVE SLOPE TO SURFACE (IE. NO DIPS OR SAGS ALLOWED). THE INVERT OF THE VENT PIPE SHALL MATCH INLET INVERT. THE VENT PIPE SHALL BE SECURELY MOUNTED TO THE EXTERIOR OF THE BUILDING AND SHALL VENT A MINIMUM OF 12" ABOVE ROOF LINE. VENT PIPE AND BRACKETS TO MATCH EXTERIOR BUILDING COLOR.

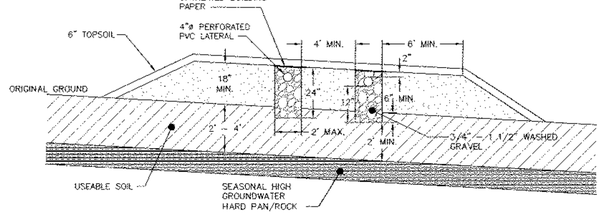
13. ALL ELECTRIC SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION.

14. A PROFESSIONAL ENGINEER SHALL CERTIFY INSTALLATION AND TESTING OF PUMP CHAMBER.

15. PRE-CAST PUMP CHAMBER SHOWN IS A 2,000 GALLON HEAVY DUTY PUMP CHAMBER, BY EASTERN PRECAST, CO. P.O. BOX, COLD SPRING, NY (845) 265-3771.

RIM ELEVATION	LENGTH OF PIPE IN FIELD (FT.)	PIPE VOLUME (GAL)	REQ'D DOSE RANGE (GAL)	PUMP CHAMBER DIMENSIONS W	L	D1	D2	D3	DOSE DEPTH (IN)	DOSE VOLUME (GAL)	STORAGE REQ'D (GAL)	STORAGE DEPTH PROVIDED (IN)	STORAGE VOLUME PROVIDED (GAL)	PUMP MAKE AND MODEL	FORCE MAIN SIZE (IN)	NO. OF PUMPS
608.1	280	191.2	144-162	4'-10"	8'-6"	65"	52"	8"	7"	151	390	34	732	GOULDS PE 31	1.5"	1

1,000 GAL. SEPTIC TANK/PUMP CHAMBER DETAIL
NOT TO SCALE



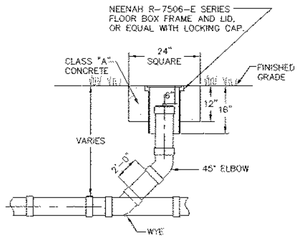
NOTES:
1. BOTTOM OF ALL TRENCHES SHALL BE 6" MINIMUM BELOW ORIGINAL GRADE.

2. USEABLE FILL MATERIAL SHALL HAVE A PERCOLATION RATE SIMILAR TO BUT NOT FASTER THAN THE ORIGINAL USEABLE SOIL PERCOLATION RATE. THE FILL MATERIAL SHALL NOT INCLUDE FROZEN MATERIALS, DEBRIS, ORGANIC MATERIALS, LARGE STONES OR OTHER UNSUITABLE MATERIALS.

3. MAXIMUM DEPTH OF USEABLE FILL PLUS SIX INCHES OF TOPSOIL SHALL NOT EXCEED 30 INCHES.

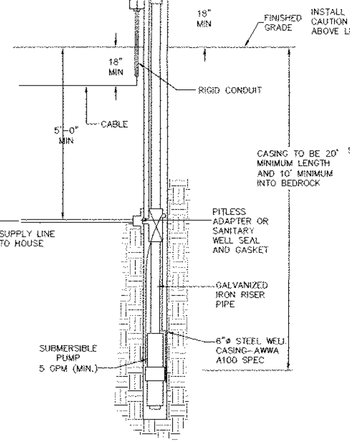
4. ON SLOPED SITES, A DIVERSION DITCH OR FRENCH DRAIN SHALL BE CONSTRUCTED UPHILL FROM THE FILL TO PREVENT SURFACE RUNOFF FROM ENTERING THE FILL.

SHALLOW ABSORPTION TRENCH SYSTEM DETAIL
NOT TO SCALE



NOTES:
1. SEWER PIPE AND FITTINGS SHALL BE ASTM D-3033 OR D-3034 SDR-35.

CLEANOUT DETAIL
NOT TO SCALE



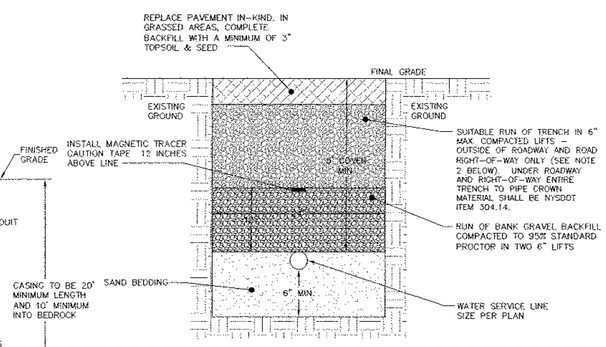
NOTES:
1. SUBMERSIBLE PUMP AND PRE-CHARGED HYDROPNEUMATIC TANK SHALL BE PROVIDED. PRESSURE TANK DRAW DOWN SHOULD NOT BE LESS THAN 20 GALLONS FOR A PRESSURE RANGE OF 30 TO 50 PSI. PUMP DISCHARGE CAPACITY SHOULD NOT EXCEED THE DEPENDABLE YIELD OF OF THE WELL AT THE HIGH END OF THE PRESSURE RANGE.

2. THE DRILLED WELL SHALL BE COMPLETED WITH A DEPENDABLE YIELD OF NOT LESS THAN 5 GPM. PROVIDE WATER TREATMENT AS REQUIRED.

3. UPON COMPLETION OF CONSTRUCTION, DISINFECT WITH CHLORINE SOLUTION, IN ACCORDANCE WITH AWWA STANDARD C654.

4. THE WELL SHALL BE CONSTRUCTED IN ACCORDANCE WITH APPENDIX 5B OF THE NEW YORK STATE SANITARY CODE.

WELL DETAIL
NOT TO SCALE



NOTES:
1. EXCAVATION AND TRENCHING SHALL MEET ALL OSHA REQUIREMENTS.

2. SUITABLE RUN OF TRENCH SHALL NOT INCLUDE FROZEN MATERIALS, DEBRIS, ORGANIC MATERIALS, ENLOGATED PARTICLES, LARGE STONES OR OTHER UNSUITABLE MATERIALS. IF THE RUN OF TRENCH MATERIAL IS FOUND TO BE UNSUITABLE, A SUITABLE BACKFILL MATERIAL SHALL BE IMPORTED AND USED.

3. IN AREAS WHERE 5' COVER REQUIREMENT CANNOT BE MET, THE CONTRACTOR SHALL PROVIDE PIPE INSULATION TO PREVENT FREEZING.

WATER SERVICE LINE TRENCH DETAIL
NOT TO SCALE

WELL AND SDS DETAILS
POND VIEW

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STATE OF NEW YORK – DANIEL G. KOEHLER – 082716 – PROFESSIONAL ENGINEER – 08.27.14

SEAL

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