

Illinois Nature Preserves



Commission

One Natural Resources Way
Springfield, IL 62702-1271
217/785-8686

September 13, 2012

Leia Cooney
Shaw Environmental, Inc.
1607 East Main Street
St. Charles, IL 60174

Dear Ms. Cooney,

I have reviewed the information you provided in your letter dated 9/6/12 regarding a subject property in Round Lake Park, IL. According to the Illinois Natural Heritage Database, there are no Illinois Nature Preserves in the specified project area located in the SW corner of Township 45 North, Range 10 East, Section 28 of the 3rd Principal Meridian.

However, significant resources do exist within one mile of the project area so please be aware of these:

- Endangered & threatened species
 - *Chlidonias niger* (black tern)
 - *Gallinula chloropus* (common moorhen)
 - *Ixobrychus exilis* (least bittern)
 - *Potamogeton gramineus* (grass-leaved pondweed)
 - *Utricularia minor* (small bladderwort)
 - *Xanthocephalus xanthocephalus* (yellow-headed blackbird)
- Illinois Natural Areas Inventory (INA) sites
 - Cranberry Lake
 - Round Lake
 - Round Lake Marsh

Because there are no nature preserves in the indicated area, the site does not pose a threat to a dedicated nature preserve pursuant to the Illinois Natural Areas Preservation Act (525 ILCS 30).

Please be aware that the Natural Heritage Database cannot provide a conclusive statement on the presence, absence, or condition of significant natural features in Illinois. The Department of Natural Resources can only summarize the existing information known to us at the time of the request. This report should not be regarded as a final statement on the area being considered, nor should it substitute for field surveys required for environmental assessments.

This letter is separate from the Illinois Department of Natural Resources consultation requirement under the Illinois Endangered Species Act (530 ILCS 10/11) and the Illinois Natural Areas Preservation Act (525 ILCS 30/17). For more information on this process, please contact the Illinois Department of Natural Resources, Division of Resource Review and Coordination, at One Natural Resources Way, Springfield, Illinois 62702-1271 or by telephone at (217)785-5500.

Sincerely,



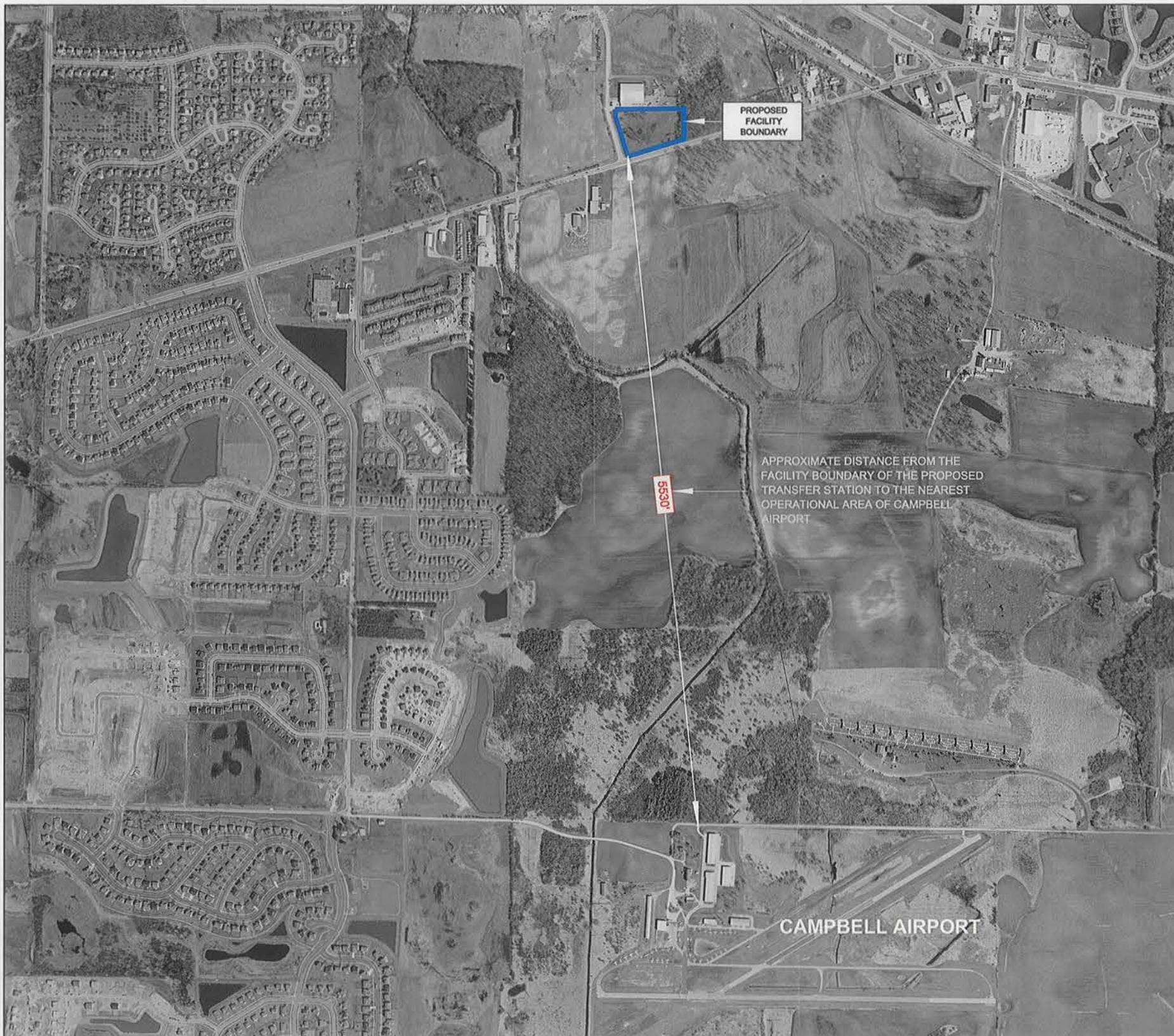
Randy Heidorn
Acting Director

RH:tgk

cc: Keith Shank, IDNR, Resource Review & Coordination (w/ attachments)

APPENDIX K

Airport Proximity Demonstration



GRAPHIC SCALE

0 1000'

LEGEND

PROPOSED FACILITY BOUNDARY

NOTES

1. FACILITY BOUNDARY TAKEN FROM AN ALTA/ACSM LAND SURVEY PROVIDED BY ENVIRONMENTAL DESIGN INTERNATIONAL, INC., CHICAGO, IL, DATED NOVEMBER 1, 2012



REV. NO.	DATE	DESCRIPTION



GROOT INDUSTRIES LAKE TRANSFER STATION

**FIGURE K-1
AIRPORT PROXIMITY DEMONSTRATION**

DRAWN BY: RDS APPROVED BY: DAM PROJ. NO.: 147312 DATE: MAY 2013

APPENDIX L

Stormwater Management

APPENDIX L.1

Rainfall Totals and Distributions



Client: Groot Industries, Inc.

Project: Groot Industries Lake Transfer Station

Project #: 147312

Calculated By: JWP Date: 10/8/12

Checked by: RDS Date: 10/8/12

TITLE: DETERMINATION OF RAINFALL TOTALS AND DISTRIBUTIONS

Problem Statement

Determine the rainfall total and distribution pattern for the 100-year, 1-hour storm. The rainfall total and distribution pattern is used in the HEC-HMS computer model to determine rainfall runoff quantities.

Given

The one hour storm event provides the largest peak runoff rate for 100-year storm events and is appropriate for sizing stormwater conveyance features such as bioswales, culverts, and pipes. A bioswale and discharge pipe are both used to convey stormwater for the Lake Transfer Station.

Higher duration storms, such as the 24-hour storm event, produce higher stormwater discharge volume (though at a lower rate) and are more appropriate for sizing stormwater storage features such as detention basins. No stormwater detention will be provided at the Lake Transfer Station prior to being discharged from the site. Therefore, the 24-hour storm not considered in stormwater modeling.

A Regional Stormwater Detention Basin will be used to retain stormwater from the Ferdinand Industrial Park prior to discharge to Squaw Creek. The Regional Stormwater Detention Basin has been modeled and sized to handle all discharge from the proposed Lake Transfer Station, as demonstrated in Appendix L.6.

Rainfall data was obtained from Appendix I of the "Lake County Watershed Development Ordinance," published by the Lake County Stormwater Management Commission effective July 10, 2012. (See attached).

Assumptions

Based on the information provided in Appendix I of the Watershed Development Ordinance, the rainfall distribution of the 1-hour storm for all storm frequencies corresponds to the Huff first-quartile distribution pattern, i.e the heaviest rainfall occurs in the first quarter of the storm event. HEC-HMS requires that specific rainfall events be entered as a user hyetograph. For the 1-hour storm event, a 3-minute time interval was assumed. Appendix I also provides the rainfall totals.

Results

The 100-year, 1-hour storm event will produce 3.06 inches of rainfall. The rainfall distribution is attached.

1st Quartile Rainfall Distribution

Storm Event
 Enter Rainfall Depth (in)
 Storm Length (hrs.)

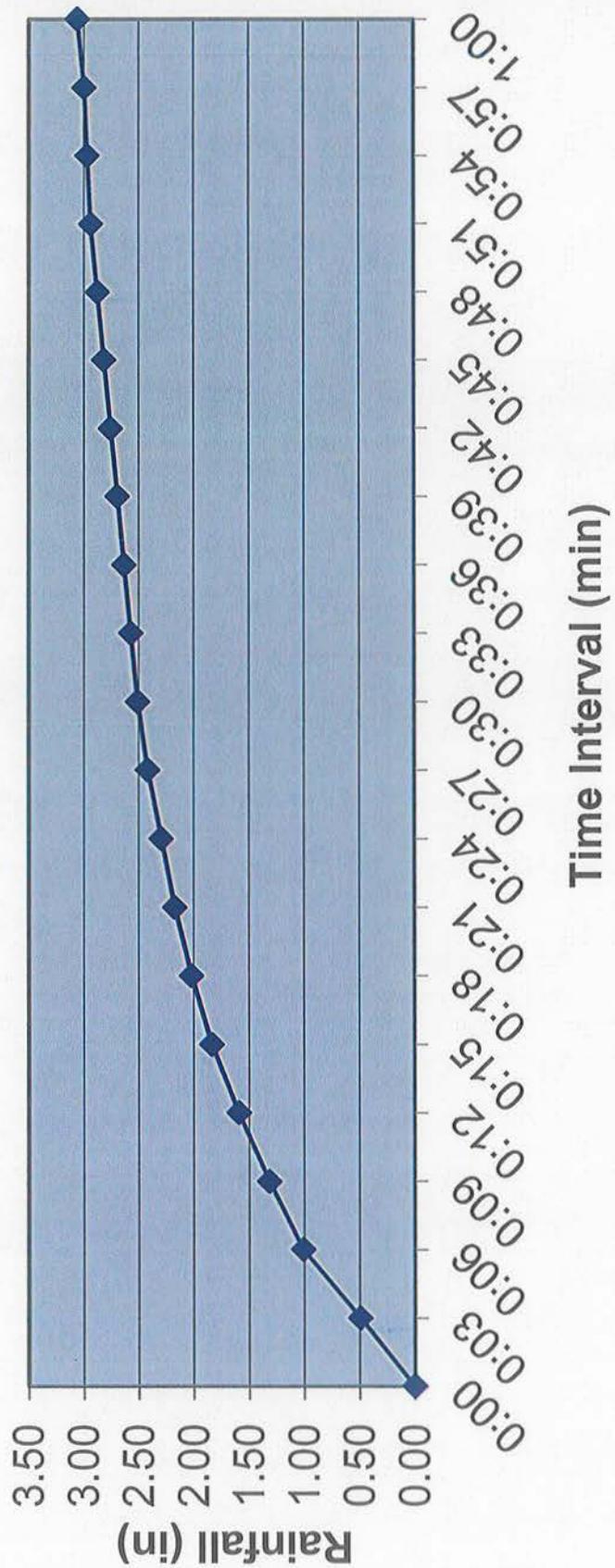
100-year, 1-hour storm event for Round Lake Park	
3.06	
1	

Cumulative Storm Rainfall (%)	First Quartile (%)	Time	Cumulative Precipitation (in)
0	0	0:00	0.00
5	16	0:03	0.49
10	33	0:06	1.01
15	43	0:09	1.32
20	52	0:12	1.59
25	60	0:15	1.84
30	66	0:18	2.02
35	71	0:21	2.17
40	75	0:24	2.30
45	79	0:27	2.42
50	82	0:30	2.51
55	84	0:33	2.57
60	86	0:36	2.63
65	88	0:39	2.69
70	90	0:42	2.75
75	92	0:45	2.82
80	94	0:48	2.88
85	96	0:51	2.94
90	97	0:54	2.97
95	98	0:57	3.00
100	100	1:00	3.06

Time Interval (min)

3

User Hyetograph
100-year, 1-hour Storm Event



APPENDIX I - RAINFALL DEPTH DURATION FREQUENCY TABLES FOR LAKE COUNTY

Rainfall Depth-Duration Frequency Tables for Lake County Rainfall is in inches

Duration	1 year	2 year	5 year	10 year	25 year	50 year	100 year	*Mult. factor
5 min	0.28	0.34	0.41	0.47	0.57	0.66	0.78	0.12
10 min	0.49	0.59	0.71	0.81	1.00	1.16	1.37	0.21
15 min	0.63	0.76	0.92	1.05	1.28	1.49	1.76	0.27
30 min	0.87	1.04	1.26	1.44	1.76	2.04	2.41	0.37
1 hour	1.10	1.32	1.60	1.82	2.23	2.59	3.06	0.47
2 hour	1.36	1.62	1.97	2.25	2.76	3.19	3.77	0.58
3 hour	1.50	1.79	2.18	2.48	3.04	3.52	4.16	0.64
6 hour	1.76	2.10	2.55	2.91	3.56	4.13	4.88	0.75
12 hour	2.04	2.44	2.96	3.38	4.13	4.79	5.66	0.87
18 hour	2.21	2.63	3.20	3.65	4.47	5.17	6.11	0.94
24 hour	2.35	2.80	3.40	3.88	4.75	5.50	6.50	1.00
48 hour	2.54	3.02	3.67	4.19	5.13	5.94	7.02	1.08
72 hour	2.73	3.25	3.94	4.50	5.51	6.38	7.54	1.16
120 hour	3.08	3.67	4.45	5.08	6.22	7.21	8.52	1.31
240 hour	3.45	4.12	5.00	5.70	6.98	8.09	9.56	1.47

References: Bulletin 70, Illinois State Water Survey Champaign, 1989

*Multiplication Factor - Average ratios of X-hour/24-hour rainfall for Illinois, 1989 Bulletin 70.

HUFF RAINFALL DISTRIBUTIONS

The Huff quartiles represent the typical rainfall distribution for 4 different storm duration ranges. The First quartile applies to storms less than or equal to 6 hours long. Second is for storms greater than 6 hours and less than or equal to 12 while the third Huff quartile is for storms greater than 12 hours and less than or equal to 24 hours. Fourth quartile storms apply to storm durations greater than 24 hours.

CUMUL. STORM PERCENT	HUFF QUARTILE DISTRIBUTIONS											
	AREA < 10 SM				AREA > 10 & AREA < 50				AREA > 50 & AREA < 400			
	HUFF QUARTILE				HUFF QUARTILE				HUFF QUARTILE			
1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	
05	16	03	03	02	12	03	02	02	08	02	02	02
10	33	08	06	05	25	06	05	04	17	04	04	03
15	43	12	09	08	38	10	08	07	34	08	07	05
20	52	16	12	10	51	14	12	09	50	12	10	07
25	60	22	15	13	62	21	14	11	63	21	12	09
30	66	29	19	16	69	30	17	13	71	31	14	10
35	71	39	23	19	74	40	20	15	76	42	16	12
40	75	51	27	22	78	52	23	18	80	53	19	14
45	79	62	32	25	81	63	27	21	83	64	22	16
50	82	70	38	28	84	72	33	24	86	73	29	19
55	84	76	45	32	86	78	42	27	88	80	39	21
60	86	81	57	35	88	83	55	30	90	86	54	25
65	88	85	70	39	90	87	69	34	92	89	68	29
70	90	88	79	45	92	90	79	40	93	92	79	35
75	92	91	85	51	94	92	86	47	95	94	87	43
80	94	93	89	59	95	94	91	57	96	96	92	54
85	96	95	92	72	96	96	94	74	97	97	95	75
90	97	97	95	84	97	97	96	88	98	98	97	92
95	98	98	97	92	98	98	98	95	99	99	99	97

References: Floyd A. Huff and James R. Angel, 1989 "Frequency Distributions and Hydroclimatic Characteristics of Heavy Rainstorms in Illinois", Illinois State Water Survey, Bulletin 70.

APPENDIX L.2

Curve Number Determination



Client: Groot Industries, Inc.

Project: Groot Industries Lake Transfer Station

Project #: 147312

Calculated By: JWP Date: 10/8/12

Checked by: RDS Date: 10/9/12

TITLE: DETERMINATION OF WEIGHTED CURVE NUMBER

Problem Statement

Determine the weighted curve number to be used for the Lake Transfer Station. The curve number is used to determine stormwater runoff.

The Lake County Watershed Development Ordinance requires that all newly disturbed areas conservatively utilize a curve number based on Soil Group D characteristics for modeling the proposed conditions.

Given

The weighted curve number was determined using the following:

- Conceptual Site Plan Figure (Drawing No. D5)
- Technical Release 55 (TR-55), Urban Hydrology for Small Watersheds, published by the Soil Conservation Service.

Assumptions

The facility is modeled as one subcatchment area with a total area of 3.9 acres.

1. A total of 2.66 acres of the facility will be impervious and will use a curve number of 98.
2. A total of 1.24 acres of the facility are conservatively assumed to be brush in poor condition. Soils onsite are conservatively assumed to be hydrologic soil group D, per the Watershed Development Ordinance requirements, which yields a curve number of 83.
3. Curve numbers were determined from Tables 2-2a and 2-2c from the TR-55 manual (see attached pages).

Calculation Methodology

1. *Determine Curve Numbers:* The curve numbers used for the facility were determined using Tables 2-2a and 2-2c from the TR-55 manual.
2. *Calculate Weighted Curve Number:* The weighted curve number, which will be used in calculating existing runoff, was calculated from the following equation. See attached spreadsheets for calculations.



Client: Groot Industries, Inc.

Project: Groot Industries Lake Transfer Station

Project #: 147312

Calculated By: JWP Date: 10/8/12

Checked by: RDS Date: 10/9/12

TITLE: DETERMINATION OF WEIGHTED CURVE NUMBER

$$\text{Weighted CN} = \frac{(\text{Area}_B \times \text{CN}_B) + (\text{Area}_C \times \text{CN}_C)}{(\text{Area}_B + \text{Area}_C)}$$

Where:

Area = the total area of the hydrologic group

CN = the curve number for a hydrologic group

Calculations

Please refer to attached spreadsheet.

Results

The weighted curve number for proposed facility is 93. This curve number will be used in the HEC-HMS stormwater model. It is noted that this is the same curve number used for the proposed conditions in the 2004 Regional Stormwater Basin sizing determinations included in Attachment L.6.

Groot Industries Lake Transfer Station
Weighted Curve Number

<i>Ground Cover</i>	<i>Curve Number</i>	<i>Area (sq. feet)</i>	<i>Area (acres)</i>	<i>Percent of Total Area</i>
Impervious	98	115,887	2.66	68.3%
Pervious	83	53,853	1.24	31.7%
	Total Hydrologic Area	169,740	3.90	100.0%

Weighted Curve Number	93
------------------------------	-----------

Table 2-2a Runoff curve numbers for urban areas ^{1/}

Cover type and hydrologic condition	Cover description	Average percent impervious area ^{2/}	Curve numbers for hydrologic soil group			
			A	B	C	D
<i>Fully developed urban areas (vegetation established)</i>						
Open space (lawns, parks, golf courses, cemeteries, etc.) ^{3/} :						
Poor condition (grass cover < 50%)		68	79	86	89	
Fair condition (grass cover 50% to 75%)		49	69	79	84	
Good condition (grass cover > 75%)		39	61	74	80	
Impervious areas:						
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98	
Streets and roads:						
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98	
Paved; open ditches (including right-of-way)		83	89	92	93	
Gravel (including right-of-way)		76	85	89	91	
Dirt (including right-of-way)		72	82	87	89	
Western desert urban areas:						
Natural desert landscaping (pervious areas only) ^{4/}		63	77	85	88	
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96	
Urban districts:						
Commercial and business		85	89	92	94	95
Industrial		72	81	88	91	93
Residential districts by average lot size:						
1/8 acre or less (town houses)		65	77	85	90	92
1/4 acre		38	61	75	83	87
1/3 acre		30	57	72	81	86
1/2 acre		25	54	70	80	85
1 acre		20	51	68	79	84
2 acres		12	46	65	77	82
<i>Developing urban areas</i>						
Newly graded areas (pervious areas only, no vegetation) ^{5/}			77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).						

¹ Average runoff condition, and $I_a = 0.25$.² The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.³ CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.⁴ Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.⁵ Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Table 2-2c Runoff curve numbers for other agricultural lands ^{1/}

Cover type	Cover description	Hydrologic condition	Curve numbers for hydrologic soil group			
			A	B	C	D
Pasture, grassland, or range—continuous forage for grazing. ^{2/}	Poor	68	79	86	89	
	Fair	49	69	79	84	
	Good	39	61	74	80	
Meadow—continuous grass, protected from grazing and generally mowed for hay.	—	30	58	71	78	
Brush—brush-weed-grass mixture with brush the major element. ^{3/}	Poor	48	67	77	83	
	Fair	35	56	70	77	
	Good	30 ^{4/}	48	65	73	
Woods—grass combination (orchard or tree farm). ^{5/}	Poor	57	73	82	86	
	Fair	43	65	76	82	
	Good	32	58	72	79	
Woods. ^{6/}	Poor	45	66	77	83	
	Fair	36	60	73	79	
	Good	30 ^{4/}	55	70	77	
Farmsteads—buildings, lanes, driveways, and surrounding lots.	—	59	74	82	86	

^{1/} Average runoff condition, and $I_a = 0.2S$.

2/ Poor: <50% ground cover or heavily grazed with no mulch.

Fair: 50 to 75% ground cover and not heavily grazed.

Good: >75% ground cover and lightly or only occasionally grazed.

3/ Poor: <50% ground cover.

Fair: 50 to 75% ground cover.

Good: >75% ground cover.

4/ Actual curve number is less than 30; use CN = 30 for runoff computations.

5/ CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.

6/ Poor: Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.

Fair: Woods are grazed but not burned, and some forest litter covers the soil.

Good: Woods are protected from grazing, and litter and brush adequately cover the soil.

APPENDIX L.3

Lag Time Determination



Client: Groot Industries, Inc.

Project: Groot Industries Lake Transfer Station

Project #: 147312

Calculated By: JWP Date: 10/8/12

Checked by: RDS Date: 10/8/12

TITLE: DETERMINATION OF SCS LAG TIME

Problem Statement

Calculate the Time of Concentration (TOC)/SCS lag time for the proposed facility. These parameters are used to describe how the runoff is distributed over time. The time of concentration is typically defined as the time required for a particle of water to travel from the most hydrologically remote point in the watershed to the point of collection.

Given

- The longest hydraulic flow path for the proposed site conditions is shown on Figure L.3-1. (See attached drawing).
- The methodology to calculate SCS lag time within the HydroCAD program is based on Technical Release 55 (TR-55), Urban Hydrology for Small Watersheds, published by the Soil Conservation Service. (Refer to attached pages).

Assumptions

The following assumptions were made in the calculations:

- The Manning's n for sheet flow for the impervious areas is assumed to be 0.011 (smooth surfaces). This number is appropriate for the building and paved areas which are being modeled as impervious.
- An average slope for sheet flow within the proposed facility was used.
- The 2-year, 24-hour rain event provides the shortest time of concentrations and highest peak discharge. The 2-year, 24-hour rainfall is 2.80 inches. Refer to attached page from the Lake County Watershed Development Ordinance.
- Sheet flow is assumed to become shallow concentrated flow at 100 feet. It is noted that the TR-55 technique was originally intended for lengths up to 300 feet in length. However, this flow length has been conservatively modified to 100 feet based on subsequent technical recommendations of TR-55 by stormwater experts and recommendations by various stormwater agencies.



Client: Groot Industries, Inc.

Project: Groot Industries Lake Transfer Station

Project #: 147312

Calculated By: JWP Date: 10/8/12

Checked by: RDS Date: 10/8/12

TITLE: DETERMINATION OF SCS LAG TIME

Calculations

For each watershed the time of concentration, T_c is the sum of the travel times, T_t , of various consecutive flow segments. There are three types of flow: sheet flow, shallow concentrated flow, and open channel flow.

Sheet Flow:

Sheet flow is flow over plane surfaces and is computed using the following equation.

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

Where:

n = Manning roughness coefficient, unitless

L = Flow Length, ft

P_2 = 24-hour, 2-year rainfall = 2.80 inches

s = slope, ft/ft

After 100 feet, sheet flow becomes shallow concentrated flow.

Shallow Concentrated Flow:

The average velocity for shallow concentrated flow is calculated using Figure 3-1 of the TR-55 manual (attached), which is a graph of average velocity versus slope. The travel time is then calculated using the following equation.

$$T_t = \frac{L}{3,600V}$$

Where:

L = Flow Length, ft

V = Average velocity, ft/sec

3,600 = Conversion factor from seconds to hours



Client: Groot Industries, Inc.

Project: Groot Industries Lake Transfer Station

Project #: 147312

Calculated By: JWP Date: 10/8/12

Checked by: RDS Date: 10/8/12

TITLE: DETERMINATION OF SCS LAG TIME

The time of concentration for the watershed is then the summation of all travel times.

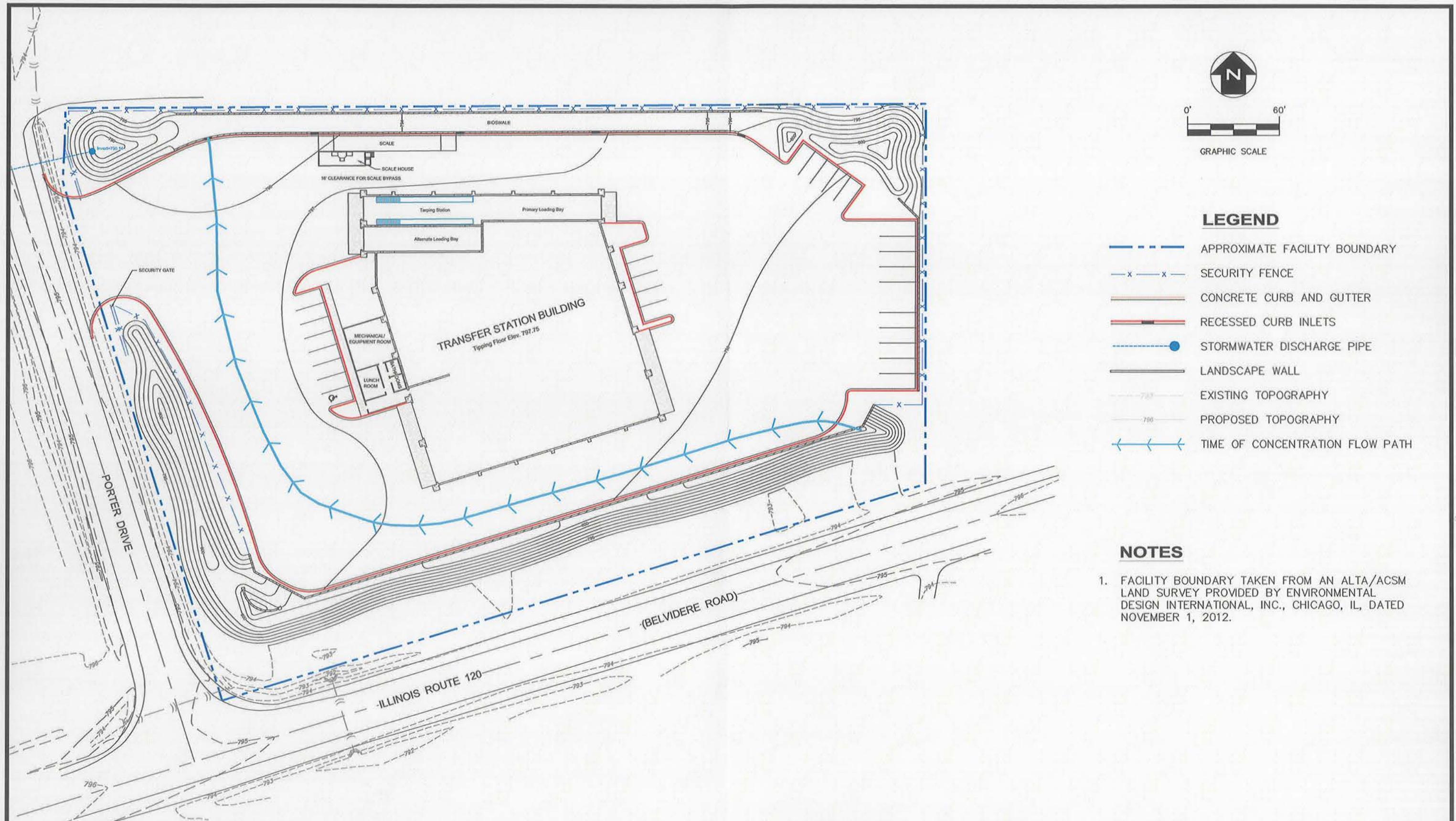
$$T_c = T_{t1} + T_{t2} + T_{t3} + \dots$$

To calculate the SCS lag time, the time of concentration is then multiplied by 0.6.

$$T_{lag} = 0.6 T_c$$

Results

The calculated SCS lag time for the Lake Transfer Station is 3.5 minutes (see attached table).



0'
60'
GRAPHIC SCALE

LEGEND

- APPROXIMATE FACILITY BOUNDARY
- X — SECURITY FENCE
- CONCRETE CURB AND GUTTER
- RECESSED CURB INLETS
- ● STORMWATER DISCHARGE PIPE
- LANDSCAPE WALL
- EXISTING TOPOGRAPHY
- PROPOSED TOPOGRAPHY
- ← → TIME OF CONCENTRATION FLOW PATH

NOTES

1. FACILITY BOUNDARY TAKEN FROM AN ALTA/ACSM LAND SURVEY PROVIDED BY ENVIRONMENTAL DESIGN INTERNATIONAL, INC., CHICAGO, IL, DATED NOVEMBER 1, 2012.



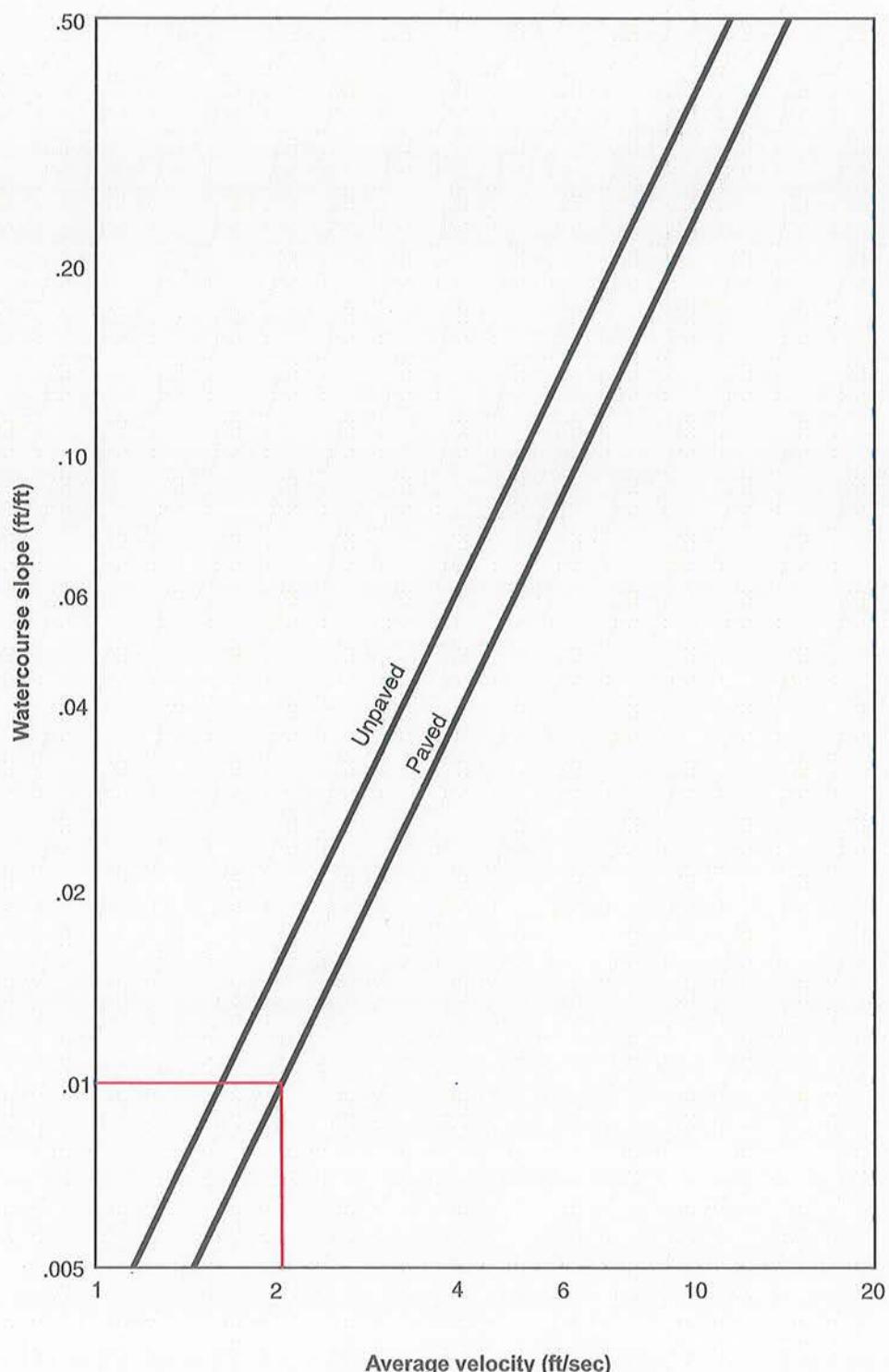
REV. NO.	DATE	DESCRIPTION



GROOT INDUSTRIES LAKE TRANSFER STATION

FIGURE L.3-1
SCS LAG TIME FLOW PATH

DRAWN BY: RDS APPROVED BY: DAM PROJ. NO.: 147312 DATE: MAY 2013

Figure 3-1 Average velocities for estimating travel time for shallow concentrated flow

APPENDIX I - RAINFALL DEPTH DURATION FREQUENCY TABLES FOR LAKE COUNTY

Rainfall Depth-Duration Frequency Tables for Lake County Rainfall is in inches

Duration	1 year	2 year	5 year	10 year	25 year	50 year	100 year	*Mult. factor
5 min	0.28	0.34	0.41	0.47	0.57	0.66	0.78	0.12
10 min	0.49	0.59	0.71	0.81	1.00	1.16	1.37	0.21
15 min	0.63	0.76	0.92	1.05	1.28	1.49	1.76	0.27
30 min	0.87	1.04	1.26	1.44	1.76	2.04	2.41	0.37
1 hour	1.10	1.32	1.60	1.82	2.23	2.59	3.06	0.47
2 hour	1.36	1.62	1.97	2.25	2.76	3.19	3.77	0.58
3 hour	1.50	1.79	2.18	2.48	3.04	3.52	4.16	0.64
6 hour	1.76	2.10	2.55	2.91	3.56	4.13	4.88	0.75
12 hour	2.04	2.44	2.96	3.38	4.13	4.79	5.66	0.87
18 hour	2.21	2.63	3.20	3.65	4.47	5.17	6.11	0.94
24 hour	2.35	2.80	3.40	3.88	4.75	5.50	6.50	1.00
48 hour	2.54	3.02	3.67	4.19	5.13	5.94	7.02	1.08
72 hour	2.73	3.25	3.94	4.50	5.51	6.38	7.54	1.16
120 hour	3.08	3.67	4.45	5.08	6.22	7.21	8.52	1.31
240 hour	3.45	4.12	5.00	5.70	6.98	8.09	9.56	1.47

References: Bulletin 70, Illinois State Water Survey Champaign, 1989

*Multiplication Factor - Average ratios of X-hour/24-hour rainfall for Illinois, 1989 Bulletin 70.

HUFF RAINFALL DISTRIBUTIONS

The Huff quartiles represent the typical rainfall distribution for 4 different storm duration ranges. The First quartile applies to storms less than or equal to 6 hours long. Second is for storms greater than 6 hours and less than or equal to 12 while the third Huff quartile is for storms greater than 12 hours and less than or equal to 24 hours. Fourth quartile storms apply to storm durations greater than 24 hours.

CUMUL. STORM PERCENT	HUFF QUARTILE DISTRIBUTIONS											
	AREA < 10 SM				AREA > 10 & AREA < 50				AREA > 50 & AREA < 400			
	HUFF QUARTILE		HUFF QUARTILE		HUFF QUARTILE		HUFF QUARTILE		HUFF QUARTILE		HUFF QUARTILE	
05	16	03	03	02	12	03	02	02	08	02	02	02
10	33	08	06	05	25	06	05	04	17	04	04	03
15	43	12	09	08	38	10	08	07	34	08	07	05
20	52	16	12	10	51	14	12	09	50	12	10	07
25	60	22	15	13	62	21	14	11	63	21	12	09
30	66	29	19	16	69	30	17	13	71	31	14	10
35	71	39	23	19	74	40	20	15	76	42	16	12
40	75	51	27	22	78	52	23	18	80	53	19	14
45	79	62	32	25	81	63	27	21	83	64	22	16
50	82	70	38	28	84	72	33	24	86	73	29	19
55	84	76	45	32	86	78	42	27	88	80	39	21
60	86	81	57	35	88	83	55	30	90	86	54	25
65	88	85	70	39	90	87	69	34	92	89	68	29
70	90	88	79	45	92	90	79	40	93	92	79	35
75	92	91	85	51	94	92	86	47	95	94	87	43
80	94	93	89	59	95	94	91	57	96	96	92	54
85	96	95	92	72	96	96	94	74	97	97	95	75
90	97	97	95	84	97	97	96	88	98	98	97	92
95	98	98	97	92	98	98	98	95	99	99	99	97

References: Floyd A. Huff and James R. Angel, 1989 "Frequency Distributions and Hydroclimatic Characteristics of Heavy Rainstorms in Illinois", Illinois State Water Survey, Bulletin 70.

LAKE TRANSFER STATION
SCS LAG COMPUTATION - TR55 METHOD

2-year, 24-hour rainfall (inches) =				2.80						
FORMULA INPUTS:										
	SHEET FLOW			SHALLOW CONCENTRATED FLOW			RESULTS			
Watershed	Length	n	Slope	Length	Slope	Velocity ¹	Tt - Sheet	Tt - Shallow Conc.	Tc	SCS Lag
	(ft)		(ft/ft)	(ft)	(ft/ft)	(ft/sec)	(min)	(min)	(min)	(min)
Lake Transfer Station	100	0.011	0.01	527	0.01	2.05	1.6	4.3	5.9	3.5

APPENDIX L.4

HEC-HMS Model Results



Client: Groot Industries, Inc.

Project: Groot Industries Lake Transfer Station

Project #: 147312

Calculated By: JWP Date: 10/9/12

Checked by: RDS Date: 10/9/12

TITLE: HYDROLOGIC MODELING ANALYSES

Problem Statement

Determine the stormwater runoff rates for the proposed conditions for the Lake Transfer Station. Stormwater discharge rates from the various subcatchment areas are used to determine the adequacy of the bioswale and stormwater discharge pipe.

Given

The stormwater runoff was calculated using the computer program, HEC-HMS. This program was developed and distributed by U.S. Army Corps of Engineers.

Assumptions

Various parameters, such as rainfall intensity hyetographs, drainage areas, curve numbers, lag times, and Manning's coefficients are entered into the program. Calculations to determine these parameters are summarized below:

Subcatchment Area "Lake Transfer Station"

Area (Square Feet):	167,270
Area (Square Miles):	0.006
SCS Lag Time:	3.5 minutes
Weighted Curve Number:	93

*Determined from:**68% Impervious, Curve Number 98**32% Pervious, Curve Number 83**Bioswale*

Length (ft):	368
Slope (percent):	0.5%
Base Width (ft):	12
Sideslopes (H:V)	0:1 (Vertical)
Manning's Coefficient:	0.06 (indicative of brush vegetation)



Client: Groot Industries, Inc.

Project: Groot Industries Lake Transfer Station

Project #: 147312

Calculated By: JWP

Date: 10/9/12

Checked by: RDS

Date: 10/9/12

TITLE: HYDROLOGIC MODELING ANALYSES

Discharge Pipe

Length (ft):	460
Slope (percent):	0.16%
Pipe Diameter (inches):	30
Manning's Coefficient:	0.011 (Indicative of smooth-walled HDPE)

Model Results

Results of the HEC-HMS computer models are summarized in the following table. The computer output files are also attached.

Peak Inflow and Outflow for the 100-Year 1-Hour Storm Event (CFS)		
Stormwater Element	Peak Inflow	Peak Outflow
Subcatchment "Lake Transfer Station"	NA	19.0
Bioswale	19.0	18.8
Discharge Pipe	18.8	18.8

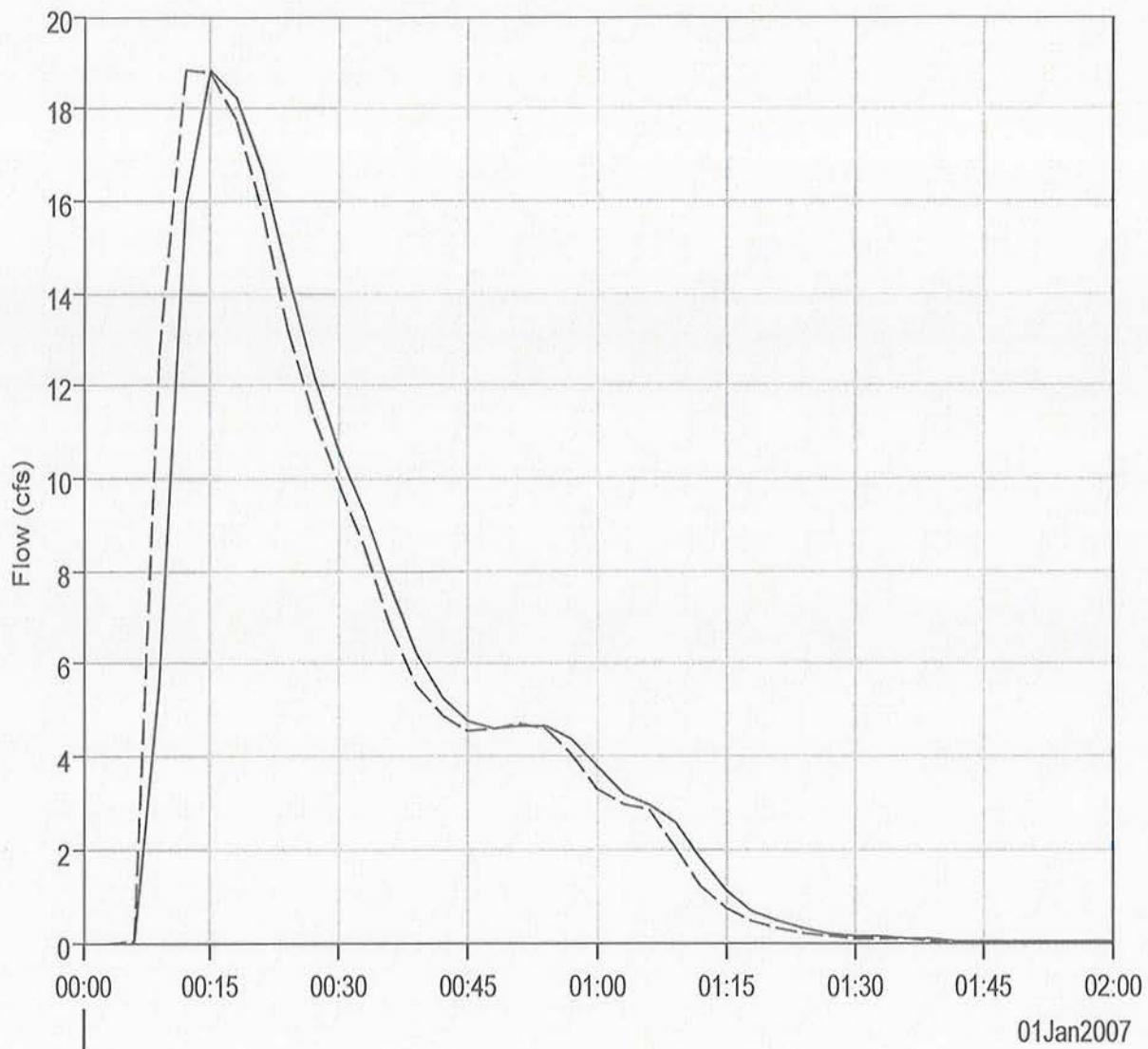
The peak inflows are used in subsequent calculations to determine whether the bioswale and culvert are adequately sized.

Project: Lake Transfer Station Simulation Run: 100-yr 1-hr

Start of Run: 01Jan2007, 00:00 Basin Model: Lake TS Proposed
End of Run: 01Jan2007, 02:00 Meteorologic Model: 100-yr, 1-hr
Compute Time: 23Oct2012, 14:52:04 Control Specifications: 1-hr

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Lake Transfer Station	0.006	19.0	01Jan2007, 00:12	2.31
Bioswale	0.006	18.8	01Jan2007, 00:12	2.34
Discharge Pipe	0.006	18.8	01Jan2007, 00:15	2.35

Reach "Discharge Pipe" Results for Run "100-yr 1-hr"



—— Run:100-yr 1-hr Element:DISCHARGE PIPE Result:Outflow

- - - Run:100-YR 1-HR Element:DISCHARGE PIPE Result:Combined Inflow

Project: Lake Transfer Station

Simulation Run: 100-yr 1-hr Reach: Discharge Pipe

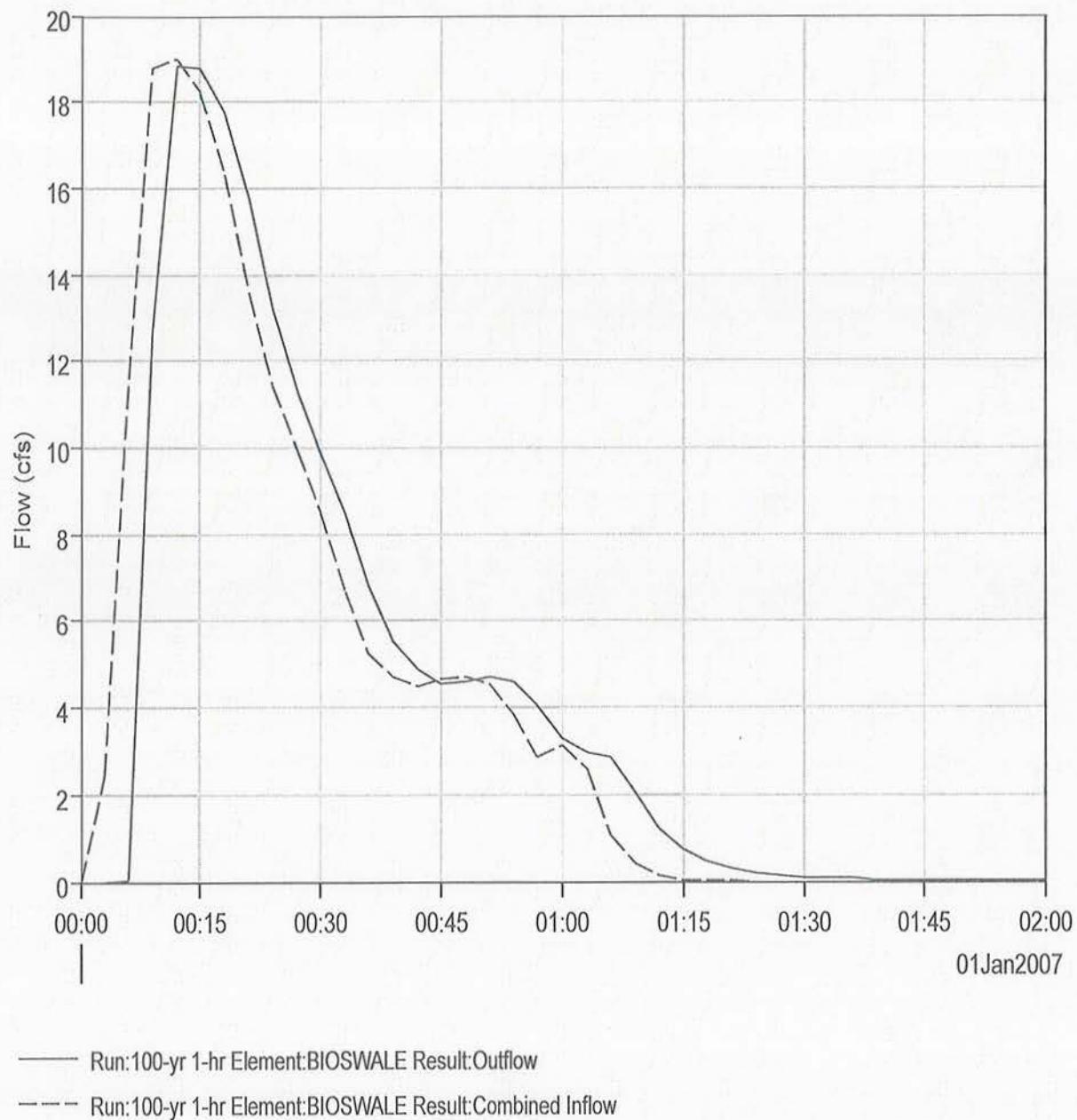
Start of Run:	01Jan2007, 00:00	Basin Model:	Lake TS Proposed
End of Run:	01Jan2007, 02:00	Meteorologic Model:	100-yr, 1-hr
Compute Time:	23Oct2012, 14:52:04	Control Specifications:	1-hr

Volume Units: IN

Computed Results

Peak Inflow:	18.8 (CFS)	Date/Time of Peak Inflow:	01Jan2007, 00:12
Peak Outflow:	18.8 (CFS)	Date/Time of Peak Outflow:	01Jan2007, 00:15
Total Inflow:	2.34 (IN)	Total Outflow:	2.35 (IN)

Reach "Bioswale" Results for Run "100-yr 1-hr"



—— Run:100-yr 1-hr Element:BIOSWALE Result:Outflow
---- Run:100-yr 1-hr Element:BIOSWALE Result:Combined Inflow

Project: Lake Transfer Station

Simulation Run: 100-yr 1-hr Reach: Bioswale

Start of Run:	01Jan2007, 00:00	Basin Model:	Lake TS Proposed
End of Run:	01Jan2007, 02:00	Meteorologic Model:	100-yr, 1-hr
Compute Time:	23Oct2012, 14:52:04	Control Specifications:	1-hr

Volume Units: IN

Computed Results

Peak Inflow:	19.0 (CFS)	Date/Time of Peak Inflow:	01Jan2007, 00:12
Peak Outflow:	18.8 (CFS)	Date/Time of Peak Outflow:	01Jan2007, 00:12
Total Inflow:	2.31 (IN)	Total Outflow:	2.34 (IN)

APPENDIX L.5

Bioswale and Culvert Sizing



Client: Groot Industries, Inc.

Project: Groot Industries Lake Transfer Station

Project #: 147312

Calculated By: JWP Date: 10/8/12

Checked by: RDS Date: 10/8/12

TITLE: BIOSWALE AND CULVERT SIZING

Problem Statement

Determine whether the bioswale and discharge pipe are sized to handle the peak flow velocities and depths anticipated for the 100-year, 1-hour storm event. It is noted that the Lake County Watershed Development Ordinance requires a 10-year, 1-hour storm even for the sizing of swales. The use of the 100-year, 1-hour storm event is conservative due to the larger peak flows than the 10-year, 1-hour storm event.

Assumptions

The following design parameters for the bioswale and discharge pipe were input into the HEC-HMS computer model:

Bioswale

Length (ft):	368
Slope (percent):	0.5%
Base Width (ft):	12
Sideslopes (H:V)	Vertical (0:1)
Manning's Coefficient:	0.06 (indicative of brush vegetation)

Discharge Pipe

Length (ft):	460
Slope (percent):	0.16%
Pipe Diameter (inches):	30
Manning's Coefficient:	0.011 (Indicative of smooth-walled HDPE)

The following peak flows for the bioswale and the discharge pipe from the 100-year, 1-hour storm event were determined using HEC-HMS computer program:

Bioswale

Peak Flow (cfs):	19.0
------------------	------

Discharge Pipe

Peak Flow (cfs):	18.8
------------------	------



Client: Groot Industries, Inc.

Project: Groot Industries Lake Transfer Station

Project #: 147312

Calculated By: JWP Date: 10/8/12

Checked by: RDS Date: 10/8/12

TITLE: BIOSWALE AND CULVERT SIZING

Calculations

Calculations were performed using the computer program, Flowmaster, by Haestad Methods. The program uses Manning's equation.

$$V = (1.49/n)R^{2/3}S^{1/2}$$

where:

V = mean velocity, ft/sec
n = Manning's roughness coefficient
R = hydraulic radius, ft
S = slope, ft/ft

Manning's n, peak flow, sideslope, channel slope, base width (bioswale) and pipe diameter (discharge pipe) were entered into the program and the program solves for depth and velocity. The Flowmaster output files, which include all input parameters, are attached.

Results

The Flowmaster results are summarized in the following tables. Based on the results, the bioswale and discharge pipe are sized to handle the peak 100-year, 1-hour storm event and the velocities are lower than the recommended value to minimize scour and erosion (5 ft/s for the bioswale) and higher than the recommended value to minimize sediment accumulation (2.5 ft/s for the discharge pipe). The use of the 100-year, 1-hour storm event exceeds the Lake County Watershed Development Ordinance in sizing swales.

Summary of Critical Depths and Velocities			
Peak Flow (cfs)	Design Channel Depth (ft)	Critical Channel Depth (ft)	Critical Velocity (ft/s)
Bioswale			
19.0	2.00	1.00	1.58
Culvert			
18.8	30.00	24.00	4.50

Bioswale
Worksheet for Rectangular Channel

Project Description

Project File c:\haestad\fmw\round 1a.fm2
Worksheet Bioswale
Flow Element Rectangular Channel
Method Manning's Formula
Solve For Channel Depth

Input Data

Mannings Coefficient 0.060
Channel Slope 0.005000 ft/ft
Bottom Width 12.00 ft
Discharge 19.00 cfs

Results

Depth 1.00 ft
Flow Area 12.02 ft²
Wetted Perimeter 14.00 ft
Top Width 12.00 ft
Critical Depth 0.43 ft
Critical Slope 0.076346 ft/ft
Velocity 1.58 ft/s
Velocity Head 0.04 ft
Specific Energy 1.04 ft
Froude Number 0.28
Flow is subcritical.

Appendix L.5
Support Page 1

Discharge Pipe
Worksheet for Circular Channel

Project Description

Project File	c:\haestad\fmw\round 1a.fm2
Worksheet	Discharge Pipe
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data

Mannings Coefficient	0.011
Channel Slope	0.001600 ft/ft
Diameter	30.00 in
Discharge	18.80 cfs

Results

Depth	1.98 ft
Flow Area	4.18 ft ²
Wetted Perimeter	5.50 ft
Top Width	2.02 ft
Critical Depth	1.47 ft
Percent Full	79.35
Critical Slope	0.003548 ft/ft
Velocity	4.50 ft/s
Velocity Head	0.31 ft
Specific Energy	2.30 ft
Froude Number	0.55
Maximum Discharge	20.86 cfs
Full Flow Capacity	19.39 cfs
Full Flow Slope	0.001504 ft/ft
Flow is subcritical.	

Appendix L.5
Support Page 2

APPENDIX L.6

Regional Stormwater Calculations



FILE COPY

December 2, 2004

Mr. Thomas Hubbard
Auth Consulting Associates
406 Technology Drive E., Suite A
Menomonie, Wisconsin 54751.

**Subject: Stock Building Supply Facility/Ferdinand Industrial Park
Watershed Development Permit #04-41-159.
With-Project Conditions BFE Approval & No Isolated Wetland Impact
Determination**

Dear Mr. Hubbard:

We have completed our review of the plans and calculations submitted by Auth Consulting Associates (ACA) for the base flood elevation (BFE) determination and no isolated wetland impact determination at the subject development site. The calculations were based on numerous documents submitted by ACA through November 19, 2004, and supplemental calculations and modeling performed by SMC (as presented in our November 24, 2004 memorandum). **A WDP from the Village of Round Lake Park is required prior to the start of construction; however, no further SMC approval is required for the subject development.** Based on the documentation submitted and SMC's modeling, we approve a base flood elevation through the property as follows:

**APPROVED PROPOSED CONDITIONS BASE FLOOD ELEVATION
THROUGH FERDINAND INDUSTRIAL PARK**

BASIN	STORM EVENT	ELEVATION	VOLUME (AcFt)
IWLC	100-YR, 240-HR	791.08	10.81
DETENTION POND	100-YR, 24-HR	792.5	15.87

The BFE approval is based on the plan sheets entitled:

**NEW FACILITY FOR STOCK BUILDING SUPPLY, SHEETS C3.1, C4.1, AND C5.4 BY
AUTH CONSULTING ASSOCIATES, DATED SEPTEMBER 24, 2004, LAST REVISED
NOVEMBER 30, 2004, RECEIVED BY SMC DECEMBER 1, 2004.**

WINNER OF THE ASFPM 2003 NATIONAL AWARD FOR EXCELLENCE

Stevenson Mountsier, Chairman Ward S. Miller, Executive Director
333-B Peterson Road • Libertyville, Illinois 60048 • 847/918-5260 • FAX 847/918-9826

Mr. Thomas Hubbard
December 2, 2004.
Page 2 of 2

SMC does not object to the Village's issuance of the required WDP after they have substantially completed their review. Please note that SMC recommends the Village ensure that the proposed pond grading (as depicted on Sheet C4.1 cited above) be revised to tie into to existing contours along the north and east property lines as part of their permit review process. Additionally, the pond overflow (at 692.5) should be directed south into the isolated wetland prior to discharging off-site to the north or east.

Based on the above referenced plans and the wetland hydrology calculations performed by ACA and SMC, it is SMC's determination that the subject development will not impact Isolated Waters of Lake County (IWLC). **Please notify Glenn Westman of our office at (847)918-3611 to schedule a pre-construction field meeting as soon as the silt fence has been installed around the preserved IWLC and at least three (3) days prior to commencing grading activities.** The purpose of the field meeting is to inspect the silt fence around the preserved IWLC to ensure the wetlands are properly protected. Failure to notify SMC at least at least three (3) days before grading begins will result in forfeiture of the \$500 deposit provided by ACA.

We would like to be of assistance. If you have any questions, or would like to set up a meeting, please call our office at (847) 918-5262 or e-mail jcorona@co.lake.il.us.

Sincerely,

LAKE COUNTY STORMWATER MANAGEMENT COMMISSION



Michael D. Warner, P.E., CFM
Chief Engineer



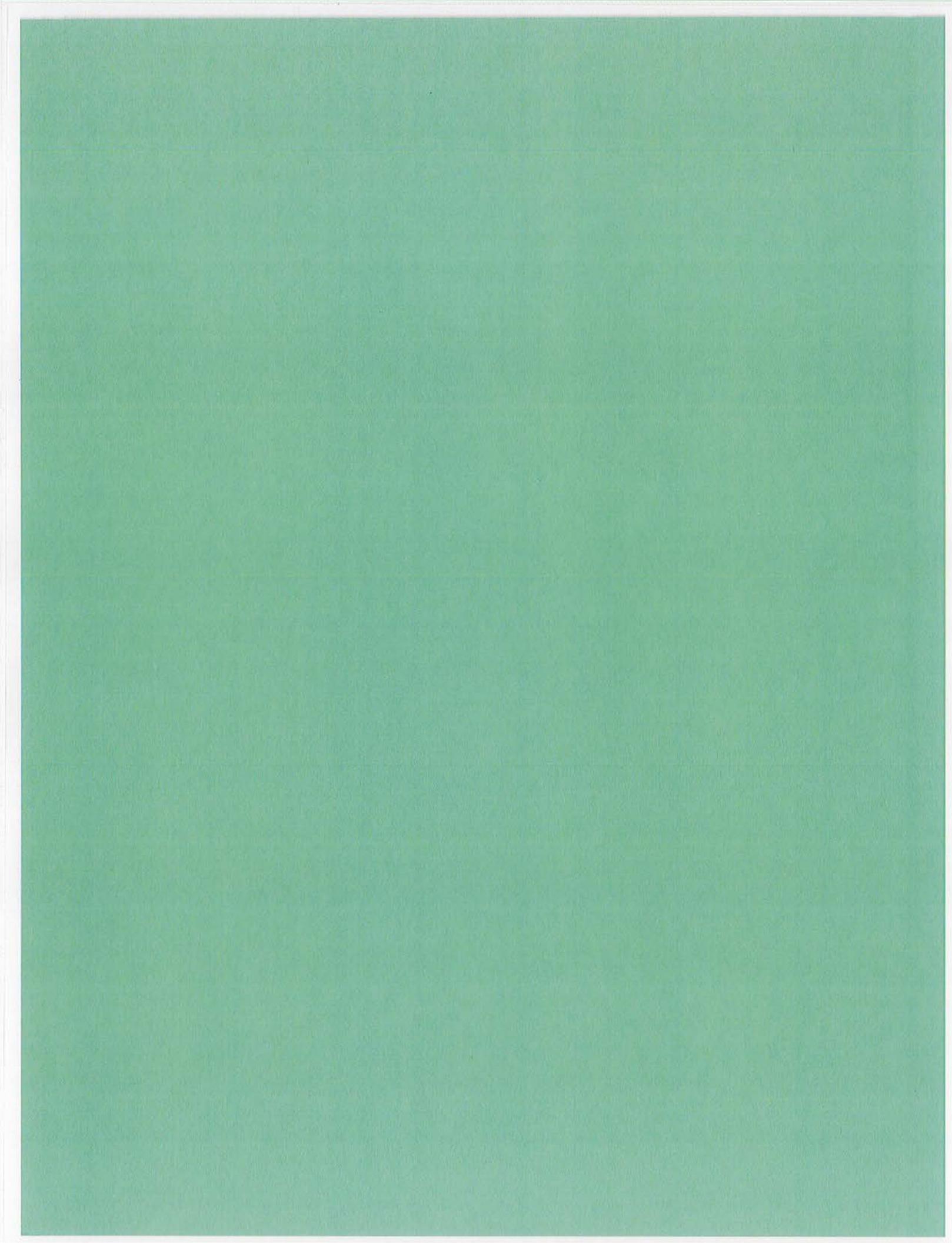
Glenn H. Westman, PWS, CWS, CFM
Senior Wetland Specialist

Cc: Robert J. Devery, Bonestroo Devery & Associates (Village of Round Lake Park)
Matt S. McCleary, Round Lake Park Director of Community & Economic Development
Mark Ferdinand, Owner/Applicant
Tony Cripe, Auth Consulting Associates
Tony Smithson, Lake County Health Department – ISD Coordinator
Larry Mackey, Lake County Health Department – Well Program Coordinator
SMC GIS BFE File

U:\Regulatory Program\Permits\04 Permits\04-41-159\120204_japprove.doc

This document was digitally transmitted. Please print out a copy of the document and retain for your records. If you are unable to print the document, or desire a hard copy mailed to you, please notify SMC at your earliest convenience.





**Proposed Regional Stormwater Detention Facility
&
Base Flood Elevation Determination**

RECEIVED

NOV 11 2004

LAKE COUNTY STORMWATER
MANAGEMENT COMMISSION

for
Stock Building Supply & Mark Ferdinand

Project No. 205-022 & 326-001
November 8, 2004

Auth Consulting Associates, Inc.
406 Technology Drive E., Suite A
Menomonie, WI 54751
Tel: 715-232-8490



**Proposed Regional Stormwater Detention Facility
&
Base Flood Elevation Determination**

**for
Stock Building Supply & Mark Ferdinand**

**Project No. 205-022 & 326-001
November 8, 2004**

***Auth Consulting Associates, Inc.
406 Technology Drive E., Suite A
Menomonie, WI 54751
Tel: 715-232-8490***

Stormwater Model Development

Overview

A regional stormwater detention facility is proposed for the Stock Building Supply and Mark Ferdinand property located in the Village of Round Lake Park, IL. The proposed stormwater pond is designed to meet the stormwater requirements of Lake County Stormwater Management Commission and the State of Illinois.

Stormwater Requirements

Stormwater outlet control structures have been incorporated to restrict runoff from the developed area. The post-developed runoff flow rates do not exceed the rates established by Lake County Watershed Development Ordinance, Section IV.B.1.c, and in particular to the Squaw Creek Drainage Basin.

Flow rates for the Squaw Creek Drainage Basin restrict the amount of flow into Squaw Creek from developed areas to 0.02 cfs per developed acre for the 2-yr 24-hour storm and 0.09 cfs for the 100-yr 24-hour storm.

In addition, during the 2-year frequency, 24-hour duration storm the post-development conditions from the developed area release the same volume of runoff to the wetland as for pre-development conditions.

Detention Pond Design

The proposed stormwater pond includes a 3:1 interior side slope and a 4:1 exterior side slope. Two outlet control structures have been incorporated in the design.

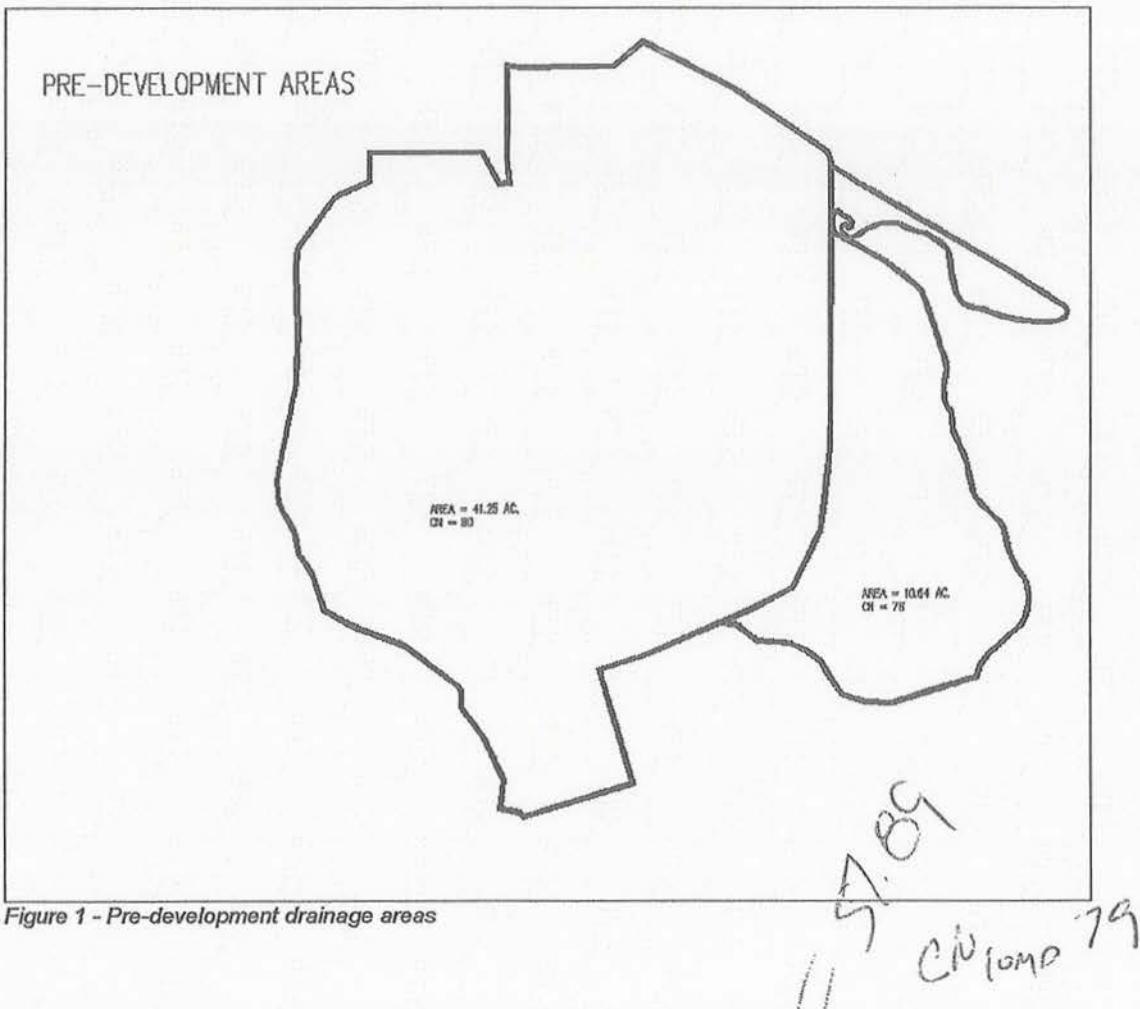
Outlet Structure A discharges into Squaw Creek through a 15-inch diameter discharge culvert and has a 4.40-inch diameter orifice at an invert elevation of 787.80 ft that restricts the flow during the 2-yr storm event and also has a 7.90-inch diameter orifice at an invert elevation of 790.00 ft that restricts the flow during the 100-yr storm event. In addition, this structure incorporates a 48-inch diameter vertical standpipe to handle storm events larger than the 100-yr storm.

Outlet Structure B discharges to the wetland through a 15-inch diameter discharge culvert and has 9.90-inch diameter orifice at an invert elevation of 787.80 ft that restricts the flow during the 2-yr storm event. A portion of the flow for the 2-yr storm event is routed from Outlet Structure B into the smaller pond through a 12-inch diameter pipe.

Pre-Development Drainage Area

The following figure illustrates the watershed runoff area that drains to the wetland for pre-development conditions. This drainage area and corresponding CN is used in computing the following scenario:

- 100-yr Pre-Development BFE Analysis



Industrial Areas (Pre-Development CN)

The following figure illustrates the post-development watershed runoff areas with their corresponding pre-development curve numbers (CN). This drainage area and corresponding CN is used in computing the following scenario:

- 2-yr Pre-Development Wetland Analysis

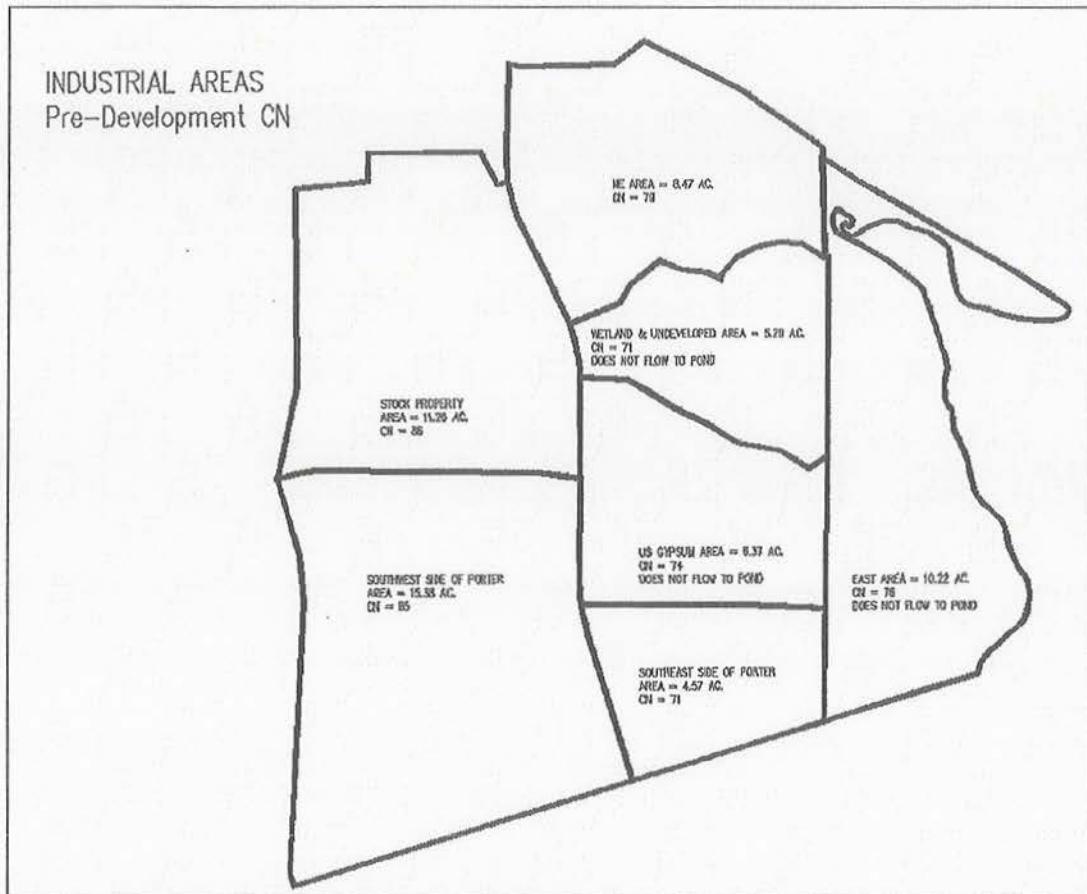


Figure 2 – Industrial drainage areas (pre-development CN)

Industrial Areas (Post-Development CN)

The following figure illustrates the post-development watershed runoff areas with their corresponding post-development curve numbers (CN). This drainage area and corresponding CN is used in computing the following scenarios:

- 2-yr Post-Development Wetland Analysis
- 100-yr Post-Development Pond Analysis
- 100-yr Post-Development BFE Analysis

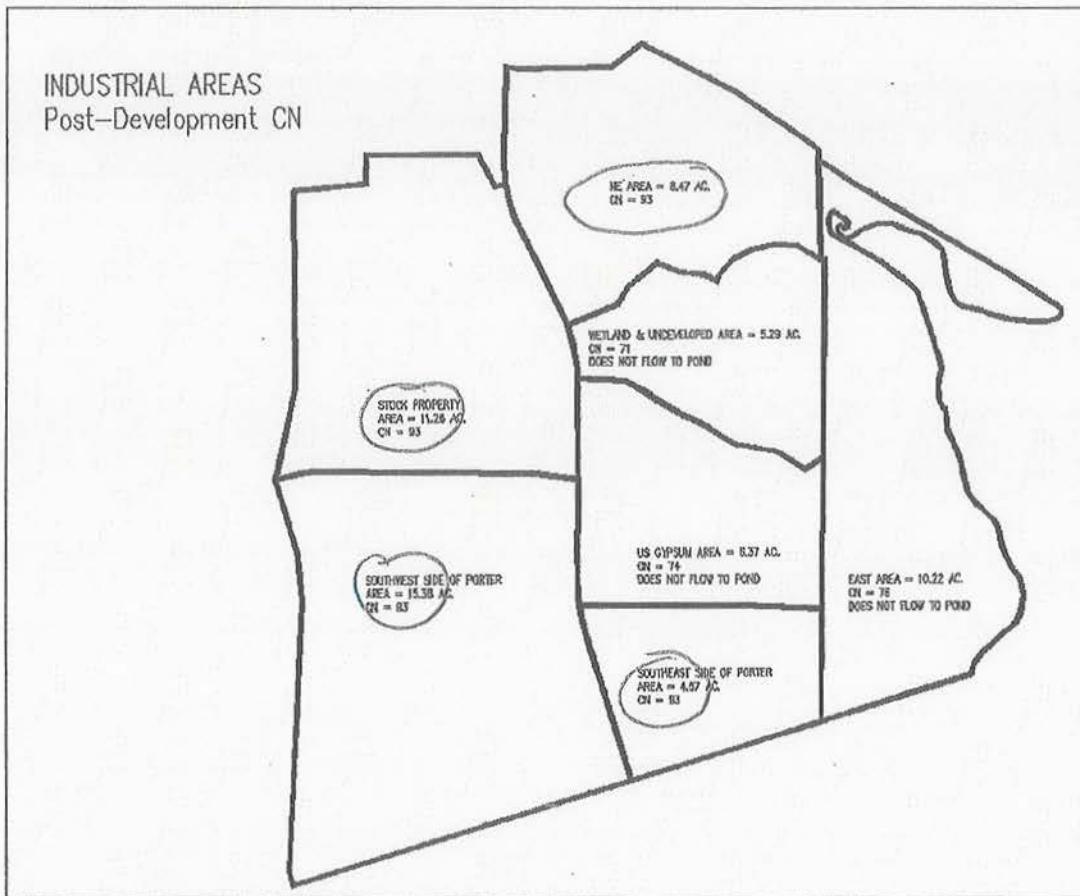


Figure 3 - Industrial drainage areas (post-development CN)

Wetland Terrain Model

A terrain model for the wetland area was developed using the aerial contours provided by Lake County Storm Water Management (SMC) staff. A storage-area-elevation relationship was developed from this terrain model, which was then used in the computer stormwater simulation of the 2-yr and 100-yr storm events.

Wetland Base Flood Elevation

The Base Flood Elevation (BFE) for the wetland was computed for the 100-yr frequency, 24-hr duration storm for both pre-development and post-development conditions. The wetland area is drained by a 10-inch vitrified clay drain tile flowing at full capacity. The pond is connected to the wetland for post-development conditions.

Storm Precipitation

For this stormwater analysis, the following precipitations were used:

2-yr Storm Precipitation = 2.80 inches
100-yr Storm Precipitation= 6.50 inches

Storm Distribution

The 3rd quartile Huff Storm Distribution was used to model the precipitation for the proposed regional stormwater detention facility.

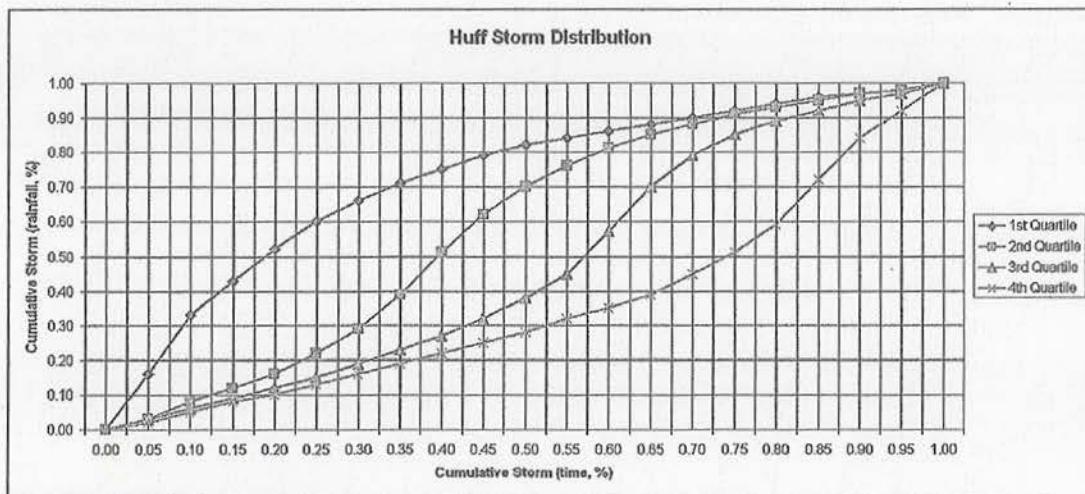


Figure 4 - Huff Storm Distribution

Drainage Model Scenarios

For modeling the drainage area for the stormwater requirements and restrictions, five different drainage model scenarios were developed to analyze specific aspects of the proposed regional detention pond:

- 2-yr Pre-Development Wetland Analysis
- 2-yr Post-Development Wetland Analysis
- 100-yr Post-Development Pond Analysis
- 100-yr Pre-Development BFE Analysis
- 100-yr Post-Development BFE Analysis

Each of these drainage model scenarios is discussed in detail in the following sections.

2-yr Pre-Development Wetland Analysis

This model was developed to determine the total volume of runoff that enters wetland during the 2-year frequency, 24-hour duration storm for pre-development conditions. This model was used in sizing the orifice in Outlet Structure B (to Wetland) so that the post-development conditions release the same volume of runoff to the Wetland as in pre-development conditions.

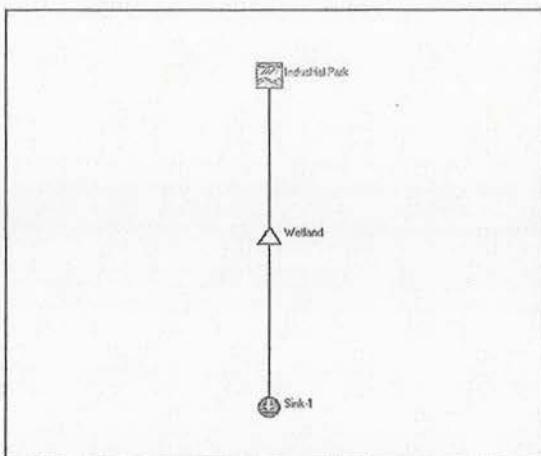


Figure 5 - Watershed network schematic

A summary of the model input data and analysis results is as follows:

Drainage area (industrial park only)	= 39.68 acres (0.062 mi ²)
Weighted CN	= 82 (pre-development conditions)
$((11.26 \times 86) + (15.38 \times 85) + (8.47 \times 79) + (4.57 \times 71)) / 39.68$	
Precipitation	= 2.80 inches
Initial Abstraction, 0.2 (1000 - 10 CN)/CN	= 0.198 inches
Computed Wetland Total Volume (from runoff)	= 4.54 acre-ft

2-yr Post-Development Wetland Analysis

This model was developed to size of the orifice in Outlet Structure B (to Wetland) so that the post-development conditions release the same volume of runoff that enters the wetland during the 2-year frequency, 24-hour duration storm for pre-development conditions.

In addition, the orifice in Outlet Structure A (to Squaw Creek) is checked to make certain that it is below maximum flow conditions allowed for the 2-yr storm event.

Note that this watershed model was developed using a diversion structure to model the diverted flow that routes from the larger pond to both the downstream wetland and the smaller pond.

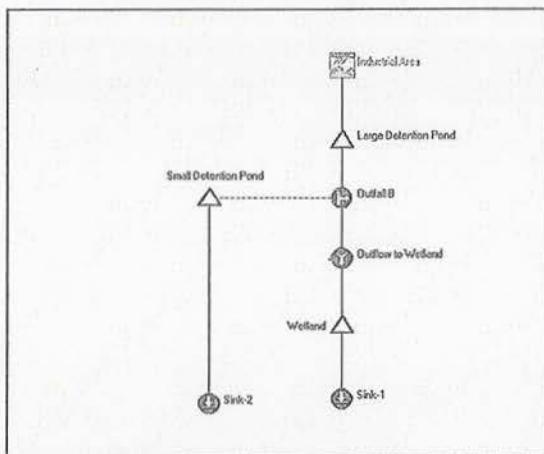


Figure 6 - Watershed network schematic

A summary of the model input data and analysis results is as follows:

Drainage area (industrial park only)	= 39.68 acres (0.062 mi ²)
CN	= 93 (post-development conditions)
Precipitation	= 2.80 inches
Initial Abstraction, 0.2 (1000 – 10 CN)/CN	= 0.151 inches
Outlet Structure A Lower Orifice diameter (to Squaw Creek)	= 4.40 inches
Outlet Structure A Upper Orifice diameter (to Squaw Creek)	= 7.90 inches
Outlet Structure B Orifice diameter (to wetland)	= 9.90 inches
Computed Wetland Total Volume (from runoff)	= 4.54 acre-ft
<i>matches original pre-development total</i>	
<i>runoff volume of 4.54 acre-ft</i>	
Max Discharge (Squaw Creek)	= 0.75 cfs
<i>less than maximum allowable flow of 0.02 cfs per developed acre for 2-yr storm (0.02 x 39.68 = 0.7936 cfs)</i>	

100-yr Post-Development Pond Analysis

This model was developed to size of the orifice in Outlet Structure A (to Squaw Creek) so that the post-development runoff to Squaw Creek is less than the maximum allowable flow for developed conditions.

In addition, the pond is sized to minimize the footprint of the pond area on the development site.

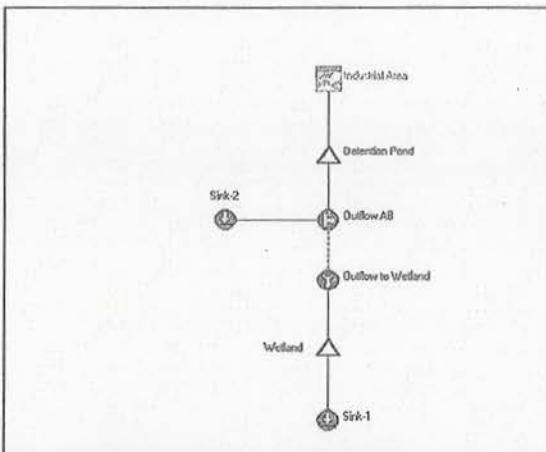


Figure 7 - Watershed network schematic

A summary of the model input data and analysis results is as follows:

Drainage area (industrial park only)	= 39.68 acres (0.062 mi ²)
CN	= 93 (post-development conditions)
Precipitation	= 6.50 inches
Initial Abstraction, 0.2 (1000 – 10 CN)/CN	= 0.151 inches
Outlet Structure A Lower Orifice diameter (to Squaw Creek)	= 4.40 inches
Outlet Structure A Upper Orifice diameter (to Squaw Creek)	= 7.90 inches
Outlet Structure B Orifice diameter (to wetland)	= 9.90 inches
Max Discharge (Squaw Creek)	= 3.54 cfs
<i>less than maximum allowable flow of 0.09 cfs per developed acre for 100-yr storm (0.09 x 39.68 = 3.5712 cfs)</i>	
Computed Pond Max WSEL	= 792.26 ft
<i>less than pond crest elevation of 792.50 ft and less than standpipe crest elevation of 792.31 ft</i>	

100-yr Pre-Development BFE Analysis

This model was developed to determine the maximum water surface elevation (BFE) in the wetland for the 100-year frequency, 24-hour duration storm for pre-development conditions.

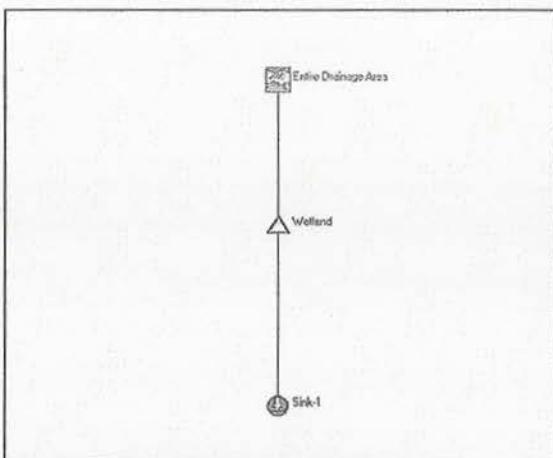


Figure 8 - Watershed network schematic

A summary of the model input data and analysis results is as follows:

Drainage area (lumped areas)	= 51.89 acres (0.08108 mi^2)
Weighted CN	= 79 (pre-development conditions)
$((41.25 \times 80) + (10.64 \times 76)) / 51.89$	
Precipitation	= 6.50 inches
Initial Abstraction, 0.2 ($1000 - 10 \text{ CN}) / \text{CN}$	= 0.198 inches
Computed Wetland Max WSEL (BFE)	= 790.08 ft

100-yr Post-Development BFE Analysis

This model was developed to determine the maximum water surface elevation (BFE) in the wetland for the 100-year frequency, 24-hour duration storm for post-development conditions. Runoff from areas inside of the industrial park is routed through the pond to the wetland, whereas runoff from areas outside of the industrial park were routed directly to the wetland.

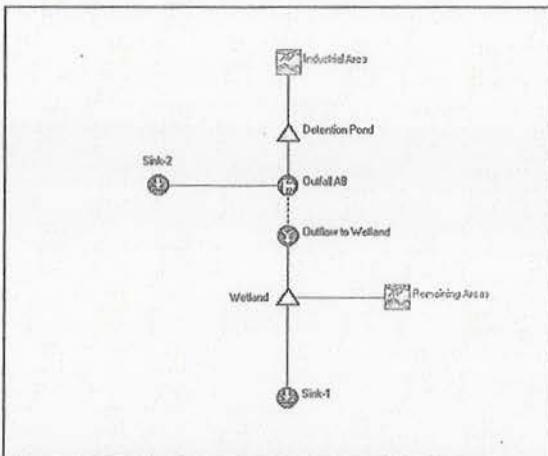


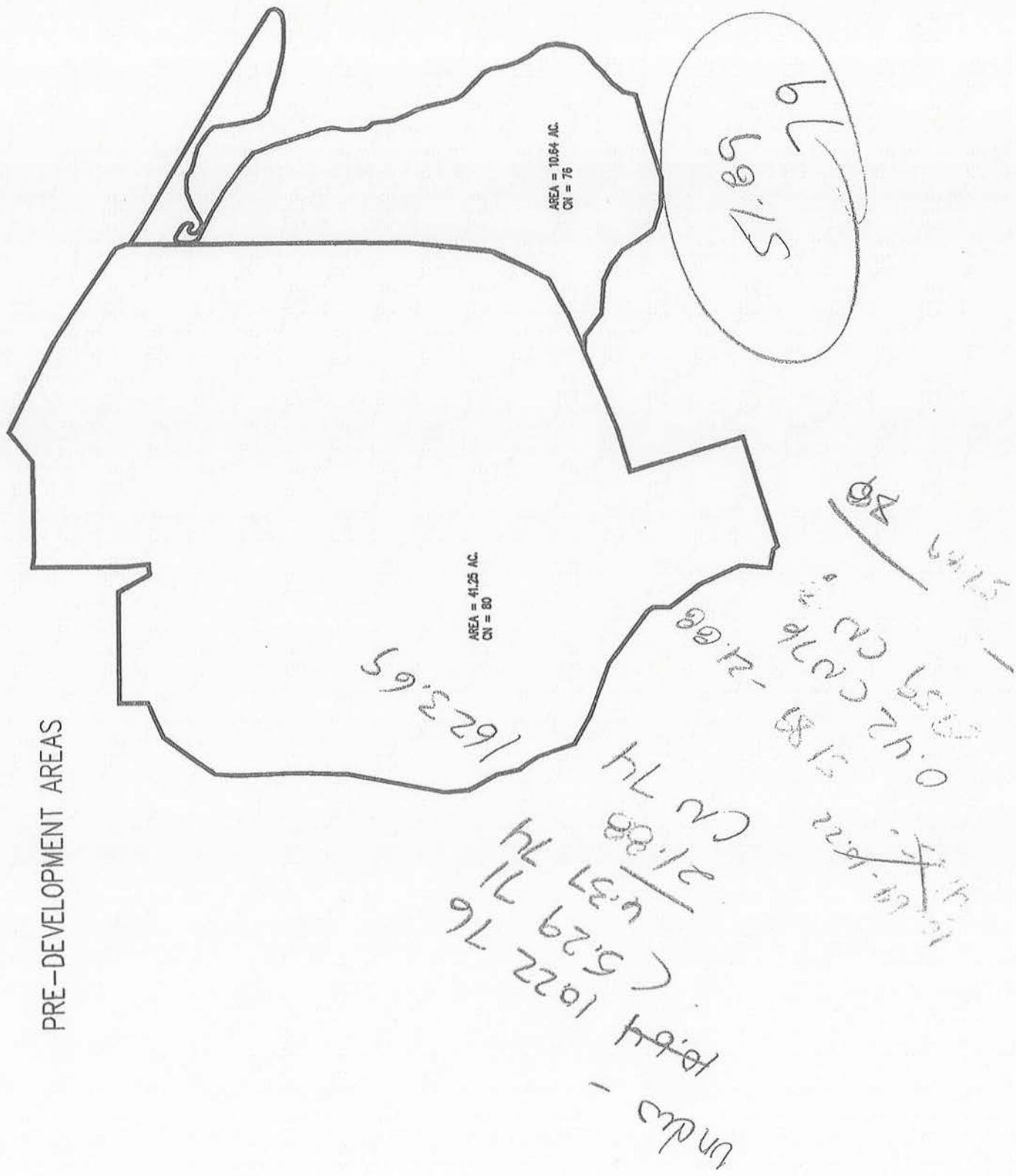
Figure 9 - Watershed network schematic

A summary of the model input data and analysis results is as follows:

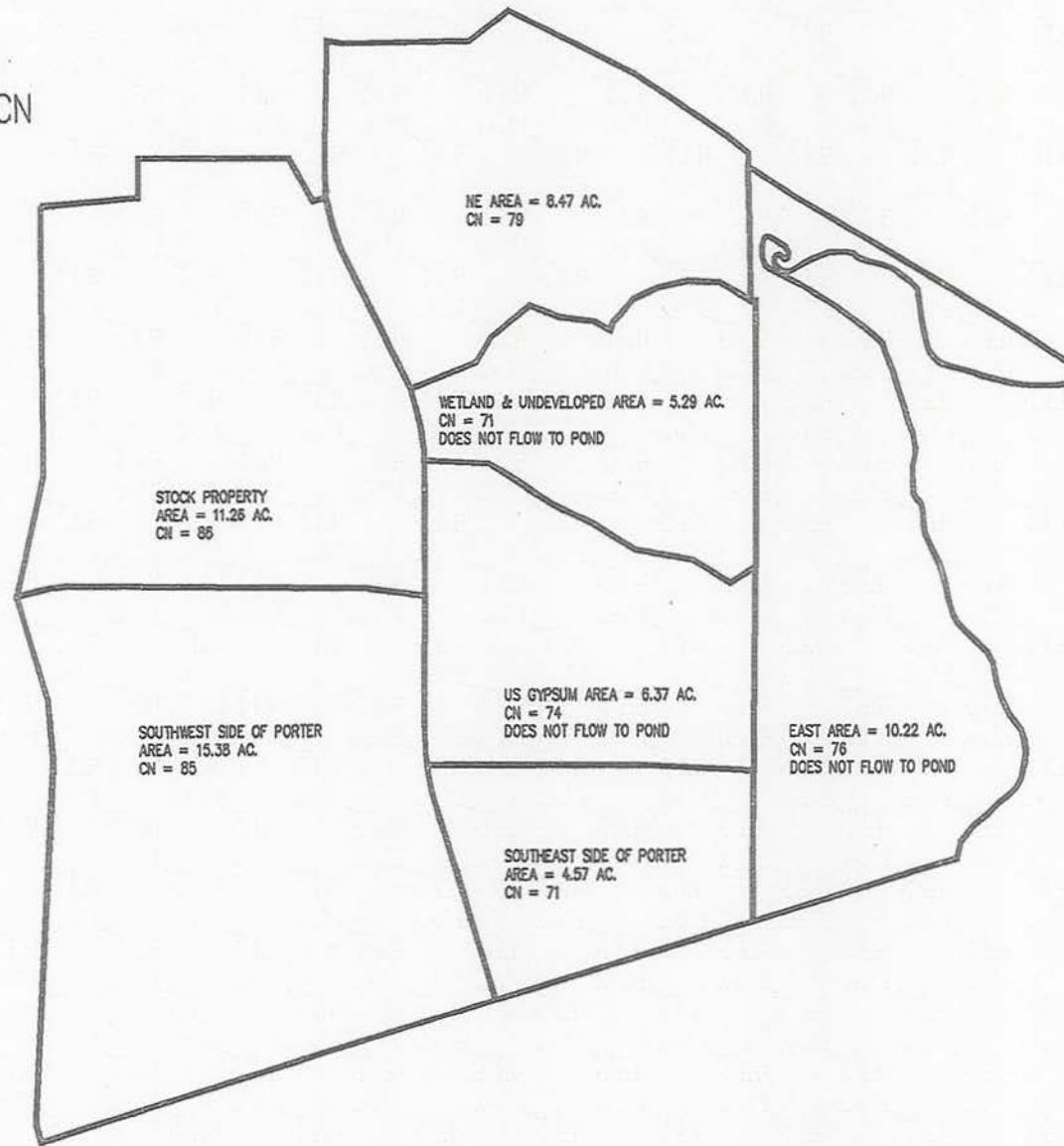
Outlet Structure A Lower Orifice diameter (to Squaw Creek)	= 4.40 inches
Outlet Structure A Upper Orifice diameter (to Squaw Creek)	= 7.90 inches
Outlet Structure B Orifice diameter (to wetland)	= 9.90 inches
Drainage area (industrial park only)	= 39.68 acres (0.062 mi ²)
CN	= 93 (post-development conditions)
Initial Abstraction, 0.2 (1000 – 10 CN)/CN	= 0.151 inches
Drainage area (remaining watershed areas)	= 21.88 acres (0.034187 mi ²)
Weighted CN	= 74 (pre-development conditions)
$((3.29 \times 71) + (6.37 \times 74) + (10.22 \times 76)) / 21.88$	
Initial Abstraction, 0.2 (1000 – 10 CN)/CN	= 0.198 inches
Precipitation	= 6.50 inches
Computed Wetland Max WSEL (BFE)	= 790.04 ft

Drainage Areas

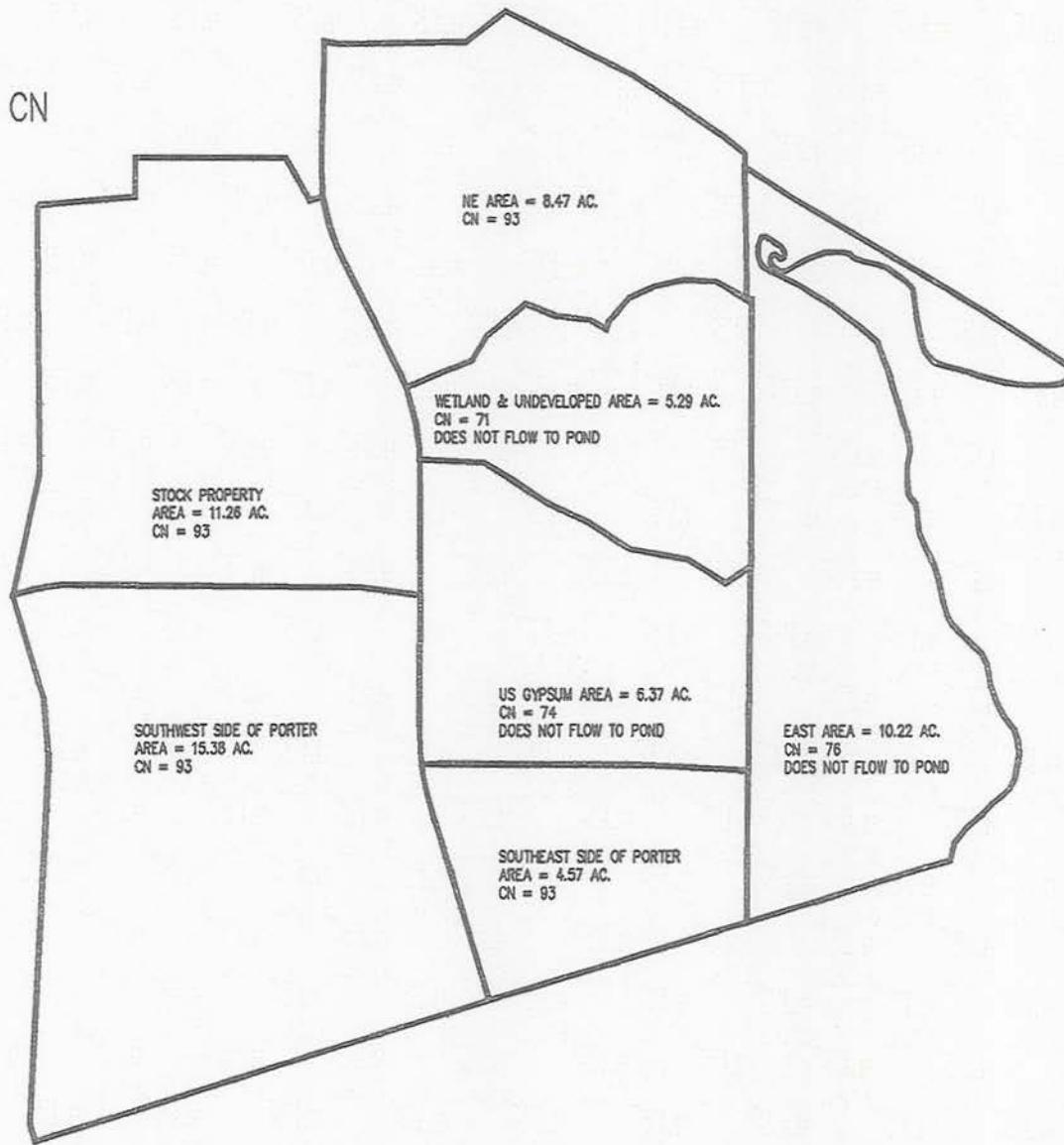
PRE-DEVELOPMENT AREAS



INDUSTRIAL AREAS
Pre-Development CN



INDUSTRIAL AREAS
Post-Development CN



Detention Pond Computations

Note	Elevation	Pond Area and Volume Computations								Outlet Structure A				Berm Analysis				Outlet B		Total			
		Small Pond Area (sq ft)	Small Pond Area (acres)	Large Pond Area (sq ft)	Large Pond Area (acres)	Total Pond Area (sq ft)	Total Pond Area (acres)	Incremental Volume (acre-ft)	Total Volume (acre-ft)	Diameter 4.40	Orifice @ Inv. Elev = 787.80,	Upper Orifice @ Inv. Elev = 780.00,	Max Limiting Flow 48"	Total Outflow Outfall Structure	12" Pipe Flow Between Ponds	Total Flow Between Ponds (cfs)	Structure B (to Squaw Creek, cfs)	Overflow Effective Weir Head (ft)	Overflow Effective Weir Head (ft)	Overflow Weir Flow to Wetland (cfs)	Wetland Q (cfs)	Total Pond Q	
Pond Bottom	787.79	0	0.0000	0	0.0000	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0.00	0.0000	0.0000	0.0000		
Invert of all Outfall Structures	787.80	26398	0.6080	98526	2.2159	122824	2.8220	0.0282	0.0282	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0.00	0.0000	0.0000	0.0000		
	788.00	26921	0.6180	97390	2.2358	124311	2.8530	0.5700	0.5900	0.2274	0.0000	0.0000	2.6425	0.2274	1.6912	0.0000	1.5912	1.5111	0	0.00	0.0000	1.1511	1.3785
	788.00	28817	0.6845	101754	2.3359	131571	3.0200	3.0200	3.6194	0.5570	0.0000	0.0000	6.4728	0.5570	4.1426	0.0000	4.1426	2.8196	0	0.00	0.0000	2.8196	3.3765
Weir Flow Between Ponds	790.00	30496	0.7001	108121	2.4821	138616	3.1822	3.1822	6.8016	0.7541	0.0000	0.0000	9.7842	0.7541	5.6091	0.0000	5.6091	3.8177	0	0.00	0.0000	3.8177	4.5718
	790.50	31059	0.7130	110120	2.5280	141176	3.2410	1.6205	8.4221	0.8354	1.1589	0.0000	9.7092	1.1589	6.2139	370.4358	376.8495	4.2293	0	0.00	0.0000	4.2293	6.2237
	791.00	31623	0.7260	112119	2.5739	143742	3.2689	1.6498	10.0721	0.9085	1.6390	0.0000	10.5701	2.5485	6.7849	1047.7500	1054.5149	4.8043	0	0.00	0.0000	4.8043	7.1528
	791.50	32201	0.7382	114167	2.6208	148368	3.3802	1.6801	11.7521	0.9780	2.0073	0.0000	11.3559	2.9883	7.2742	1924.8387	1932.1139	4.9510	0	0.00	0.0000	4.9510	7.9363
	792.00	32779	0.7525	116216	2.6680	148995	3.4205	1.7102	13.4624	1.0420	2.3179	0.0000	12.1085	3.3568	7.7501	2863.4945	2971.2348	5.2749	0	0.00	0.0000	5.2749	9.6348
Standpipe Flow Occurs	792.31	33144	0.7609	117508	2.6976	150653	3.4585	1.0721	14.5345	1.0797	2.4910	0.0000	12.5485	3.5709	8.0310	3678.5413	3688.5724	5.4681	0	0.00	0.0000	5.4681	9.0368
Pond Overflow Occurs	792.50	33367	0.7660	118302	2.7159	151670	3.4819	0.6816	15.1981	1.1022	2.5915	131.1756	12.6101	8.1985	4141.5955	4149.7940	5.5801	0	0.00	0.0000	5.5801	18.3901	
	793.00	33367	0.7860	118302	2.7159	151870	3.4819	1.7408	16.9370	1.1594	2.8388	137.9767	13.4742	8.6235	5444.2887	5452.8922	5.8984	608	0.50	581.1413	597.0107	610.8489	
	794.00	33367	0.7860	118302	2.7159	151870	3.4819	3.4819	20.4189	1.2800	3.2780	150.6807	14.7128	9.4183	8382.0000	8381.4163	6.4090	608	1.50	3071.8801	3078.0891	3092.7820	

Wetland Orifice Diameter 0.90 inches
Wetland Orifice Area 0.53456 sq. ft.

Squaw Creek Lower Orifice Diameter 4.40 inches
Squaw Creek Lower Orifice Area 0.10559 sq. ft.

Squaw Creek Upper Orifice Diameter 7.90 inches
Squaw Creek Upper Orifice Area 0.34039 sq. ft.

Pond Area Reduction 0.90 acres

Used only in 100yr analysis

HMS Input Data, for Pond

HMS Input Data, for Pond	
Elev (ft)	Area (acres)
787.79	0.0000
787.80	1.9220
788.00	1.9538
789.00	2.1205
790.00	2.2822
790.50	2.3410
791.00	2.3899
791.50	2.4602
792.00	2.5205
792.31	2.5585
792.50	2.5818
793.00	2.5819
794.00	2.5819

HMS Input Data, for Diversion

HMS Input Data, for Diversion	
Diverted Flow to wetland	
Inflow (cfs)	Diverted Flow (cfs)
0.0000	0.0000
1.3785	1.1511
3.3765	2.8186
4.5719	3.8177
6.2237	4.2293
7.1528	4.6043
7.9363	4.9510
8.6348	5.2749
9.0369	5.4661
18.3901	5.5801
610.4849	567.0107
3092.7820	3078.0891

HMS Input Data, for Diversion

HMS Input Data, for Diversion	
Remaining Flow to Squaw Creek	
Stage (ft)	Discharge (cfs)
787.79	0
788.00	0.2274
789.00	0.5570
790.00	0.7541
790.50	1.0944
791.00	2.5485
791.50	2.9853
792.00	3.3598
792.31	3.5708
792.50	12.8101
793.00	13.4742
794.00	14.7129

HMS Input Data, for Diversion

HMS Input Data, for Diversion	
Remaining Flow to Wetland	
Stage (ft)	Discharge (cfs)
787.79	0.0000
788.00	1.1511
789.00	2.8186
790.00	3.8177
790.50	4.2293
791.00	4.6043
791.50	4.9510
792.00	5.2749
792.31	5.4661
792.50	5.5801
793.00	5.8634
794.00	6.4090

Used only in 2yr analysis

HMS Input Data

HMS Input Data	
Large Detention Pond	
Elev (ft)	Area (acres)
787.79	0.0000
787.80	1.5139
788.00	1.5338
789.00	1.6339
790.00	1.7801
790.50	1.8260
791.00	1.8719
792.00	1.9680
792.31	1.9956
792.50	2.0139
793.00	2.0139
794.00	2.0139

HMS Input Data, for Diversion

HMS Input Data, for Diversion	
Diverted Flow to Small Pond	
Inflow (cfs)	Diverted Flow (cfs)
0.0000	0.0000
1.6912	1.5401
4.1426	1.3230
5.6091	1.7914
6.2139	1.9848
7.7501	2.4752
8.0310	2.5549
8.1985	2.6184
8.6235	2.7541
9.4163	3.0073

9.9" down red
45" up 7 days
1.9" 10" 1
39.69 ac
93

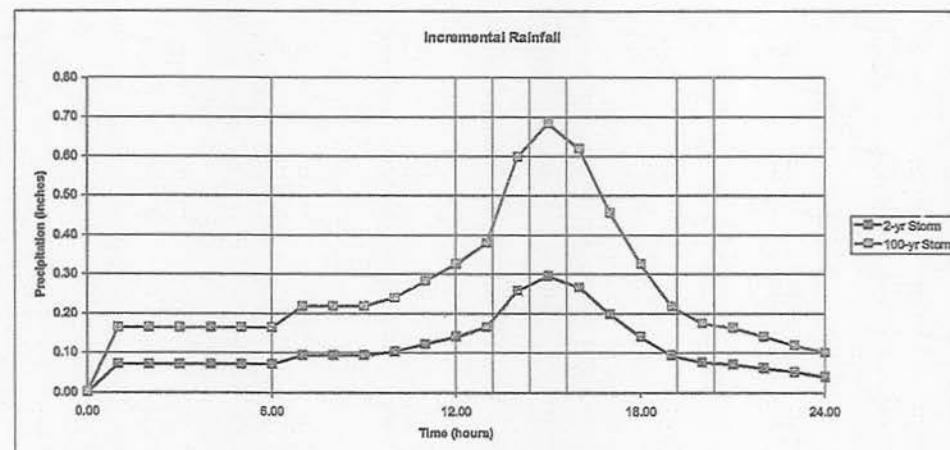
Wetland Storage Area

Note	Elevation	Area (sq ft)	Area (acres)	Incremental Volume (acre-ft)	Total Volume (acre-ft)	Drain Tile Discharge (cfs)	Overflow Effective Weir Length (ft)	Overflow Effective Weir Head (ft)	Overflow Weir Flow (cfs)	Total Flow (cfs)
Wetland Bottom	788.8	0	0	0.0000	0.0000	0.0000	0	0.00	0.0000	0.0000
	788.9	439	0.0101	0.0010	0.0010	0.8304	0.0000	0.0000	0.0000	0.8304
	789.0	3808	0.0874	0.0087	0.0097	1.1744	0.0000	0.0000	0.0000	1.1744
	789.1	12622	0.2898	0.0290	0.0387	1.4384	0.0000	0.0000	0.0000	1.4384
	789.2	25262	0.5799	0.0580	0.0967	1.6609	0.0000	0.0000	0.0000	1.6609
	789.3	43612	1.0012	0.1001	0.1968	1.8569	0.0000	0.0000	0.0000	1.8569
	789.4	67524	1.5501	0.1550	0.3519	2.0342	0.0000	0.0000	0.0000	2.0342
	789.5	90823	2.0850	0.2085	0.5604	2.1971	0.0000	0.0000	0.0000	2.1971
	789.6	122293	2.8075	0.2807	0.8411	2.3488	0.0000	0.0000	0.0000	2.3488
	789.7	164195	3.7694	0.3769	1.2180	2.4913	0.0000	0.0000	0.0000	2.4913
	789.9	208122	4.7778	0.9556	2.1736	2.7543	0.0000	0.0000	0.0000	2.7543
Wetland Overflow Occurs	790.0	245209	5.6292	0.5629	2.7365	2.8767	25.0000	0.1000	2.1741	5.0508
	790.2	293724	6.7430	1.3486	4.0851	3.1072	50.0000	0.6000	63.9042	67.0115
	790.4	356673	8.1881	1.6376	5.7227	3.3218	75.0000	1.1000	237.9485	241.2703
	790.6	410731	9.4291	1.8858	7.6086	3.5233	100.0000	1.6000	556.5609	560.0841
	790.8	472550	10.8483	2.1697	9.7782	3.7138	125.0000	2.1000	1046.0963	1049.8101
	791.0	521955	11.9824	2.3965	12.1747	3.8951	150.0000	2.1000	1255.3155	1259.2106
	791.2	568534	13.0517	2.6103	14.7850	4.0683	175.0000	2.1000	1464.5348	1468.6031
	791.4	641671	14.7307	2.9461	17.7312	4.2344	200.0000	2.1000	1673.7540	1677.9885
	791.6	707762	16.2480	3.2496	20.9808	4.3943	225.0000	2.1000	1882.9733	1887.3676
	791.8	751760	17.2580	3.4516	24.4324	4.5485	250.0000	2.1000	2092.1925	2096.7410
	792.0	816664	18.7480	3.7496	28.1820	4.6977	275.0000	2.1000	2301.4118	2306.1095

Huff Storm Distribution

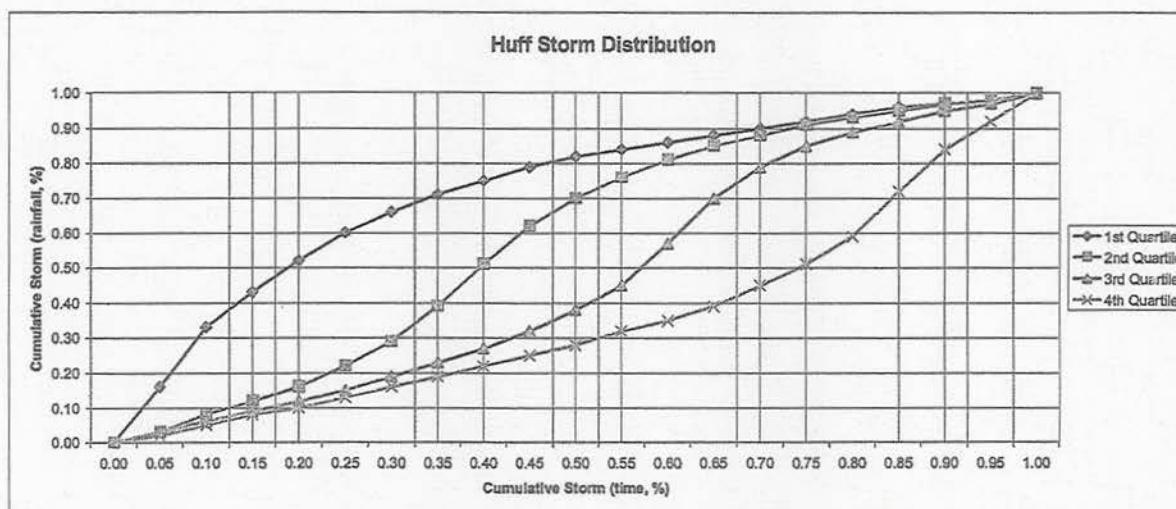
24-Hour Storm Duration Huff Storm Distributions

Cumulative Storm (%)	2 Year Storm Frequency			100 Year Storm Frequency			Increm. Rainfall (inches)
	24 Hour (hour)	3rd Quartile (%)	Total Rainfall (inches)	24 Hour (hour)	3rd Quartile (%)	Total Rainfall (inches)	
1	0.000	0.00	0.00	0.00	0.00	0.00	0.00
2	0.042	1.00	0.03	0.07	0.07	1.00	0.03
3	0.083	2.00	0.05	0.14	0.07	2.00	0.06
4	0.125	3.00	0.08	0.21	0.07	3.00	0.08
5	0.167	4.00	0.10	0.28	0.07	4.00	0.10
6	0.208	5.00	0.13	0.36	0.07	5.00	0.13
7	0.250	6.00	0.16	0.42	0.07	6.00	0.15
8	0.292	7.00	0.18	0.51	0.09	7.00	0.18
9	0.333	8.00	0.22	0.51	0.09	8.00	0.22
10	0.375	9.00	0.25	0.70	0.09	9.00	0.25
11	0.417	10.00	0.29	0.80	0.10	10.00	0.29
12	0.458	11.00	0.33	0.92	0.12	11.00	0.33
13	0.500	12.00	0.38	1.08	0.14	12.00	0.38
14	0.542	13.00	0.44	1.23	0.18	13.00	0.44
15	0.583	14.00	0.63	1.48	0.26	14.00	0.53
16	0.625	15.00	0.64	1.78	0.29	15.00	0.64
17	0.667	16.00	0.73	2.04	0.27	16.00	0.73
18	0.708	17.00	0.80	2.24	0.20	17.00	0.80
19	0.750	18.00	0.85	2.38	0.14	18.00	0.85
20	0.792	19.00	0.88	2.47	0.09	19.00	0.88
21	0.833	20.00	0.91	2.55	0.07	20.00	0.91
22	0.875	21.00	0.94	2.62	0.07	21.00	0.94
23	0.917	22.00	0.98	2.68	0.05	22.00	0.98
24	0.958	23.00	0.98	2.73	0.05	23.00	0.98
25	1.000	24.00	1.00	2.80	0.04	24.00	1.00



Standard Huff Storm Quartile Distribution

Cumulative Storm (%)	Huff Quartile			
	1st	2nd	3rd	4th
1	0.00	0.00	0.00	0.00
2	0.05	0.16	0.03	0.02
3	0.10	0.33	0.08	0.05
4	0.15	0.43	0.12	0.08
5	0.20	0.52	0.16	0.10
6	0.25	0.60	0.22	0.13
7	0.30	0.66	0.29	0.16
8	0.35	0.71	0.39	0.19
9	0.40	0.75	0.51	0.27
10	0.45	0.79	0.82	0.32
11	0.50	0.82	0.70	0.38
12	0.55	0.84	0.76	0.45
13	0.60	0.86	0.81	0.57
14	0.65	0.88	0.85	0.70
15	0.70	0.90	0.88	0.79
16	0.75	0.92	0.91	0.85
17	0.80	0.94	0.93	0.89
18	0.85	0.96	0.95	0.92
19	0.90	0.97	0.97	0.95
20	0.95	0.98	0.98	0.97
21	1.00	1.00	1.00	1.00



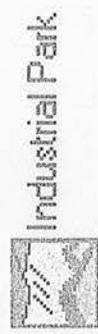
Runoff Curve Numbers for Urban Areas

Table 2-2a Runoff curve numbers for urban areas ^{1/}

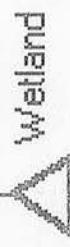
Cover type and hydrologic condition	Cover description	Average percent impervious area ^{2/}	Curve numbers for hydrologic soil group			
			A	B	C	D
<i>Fully developed urban areas (vegetation established)</i>						
Open space (lawns, parks, golf courses, cemeteries, etc.) ^{3/} :						
Poor condition (grass cover < 50%)		68	79	86	89	
Fair condition (grass cover 50% to 75%)		49	69	79	84	
Good condition (grass cover > 75%)		39	61	74	80	
Impervious areas:						
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98	
Streets and roads:						
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98	
Paved; open ditches (including right-of-way)		83	89	92	93	
Gravel (including right-of-way)		76	85	89	91	
Dirt (including right-of-way)		72	82	87	89	
Western desert urban areas:						
Natural desert landscaping (pervious areas only) ^{4/}		63	77	85	88	
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96	
Urban districts:						
Commercial and business		85	89	92	94	95
Industrial		72	81	88	91	93
Residential districts by average lot size:						
1/8 acre or less (town houses)		65	77	85	90	92
1/4 acre		38	61	75	83	87
1/3 acre		30	57	72	81	86
1/2 acre		25	54	70	80	85
1 acre		20	51	68	79	84
2 acres		12	46	65	77	82
<i>Developing urban areas</i>						
Newly graded areas (pervious areas only, no vegetation) ^{5/}		77	86	91	94	
Idle lands (CN's are determined using cover types similar to those in table 2-2c).						

^{1/} Average runoff condition, and $I_a = 0.2S$.^{2/} The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.^{3/} CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.^{4/} Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.^{5/} Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

2yr, Predevelopment, Wetland Analysis



Industrial Park



Wetland



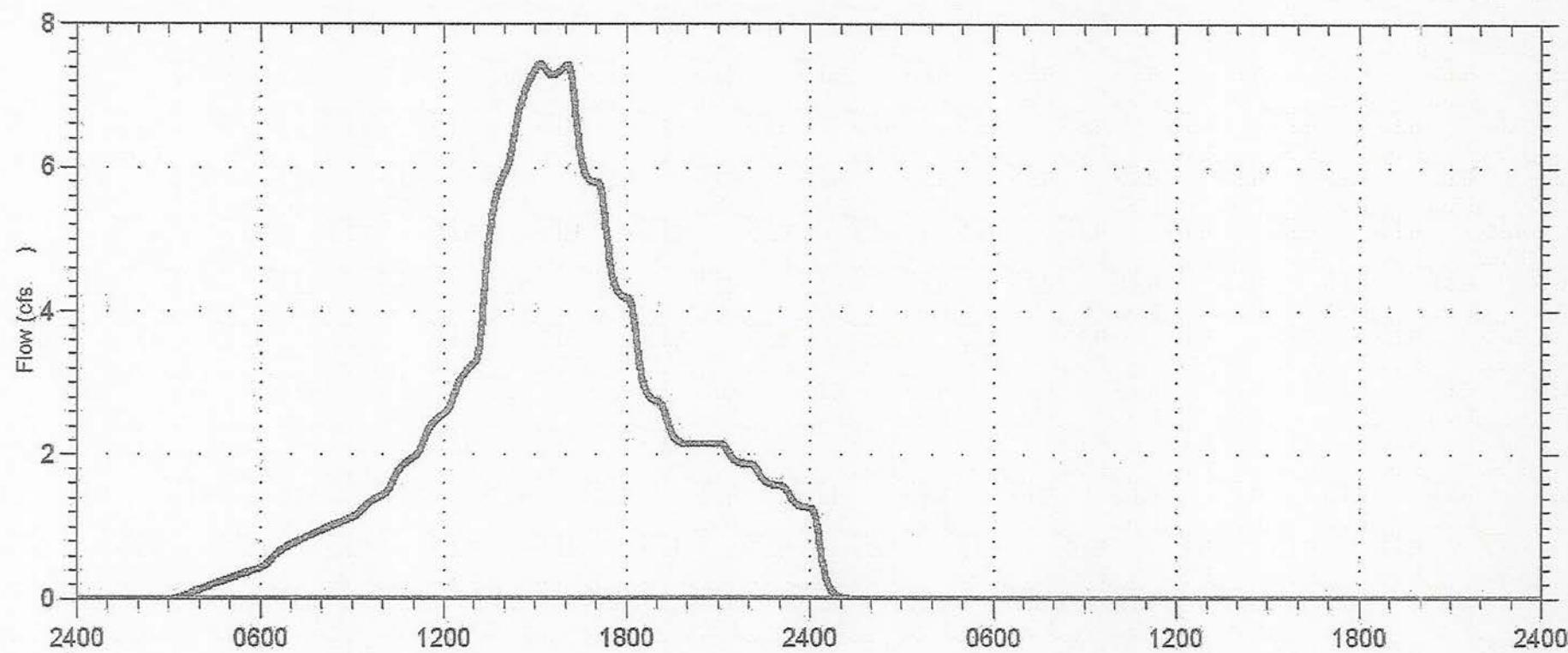
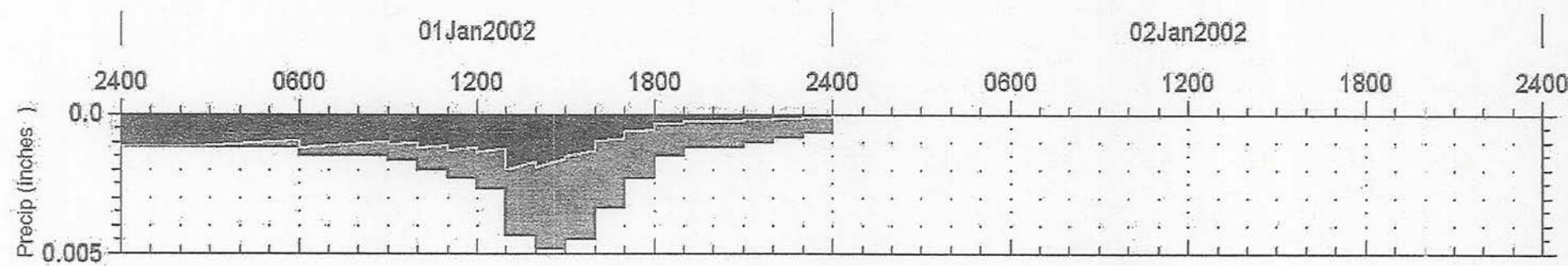
Sink-1

HMS * Summary of Results

Project : Stock Round Lake Run Name : 2yr Pre Dev Pond

Start of Run : 01Jan02 0000 Basin Model : 2yr Pre Dev Pond
End of Run : 03Jan02 0000 Met. Model : 2yr Pre Dev Pond
Execution Time : 10Nov04 0809 Control Specs : 2yr HUFF Storm

Hydrologic Element	Discharge Peak (cfs)	Time of Peak	Volume (ac ft)	Drainage Area (sq mi)
Industrial Park	7.4427	01 Jan 02 1510	4.5365	0.062
Wetland	2.6453	01 Jan 02 1912	4.5462	0.062
Sink-1	2.6453	01 Jan 02 1912	4.5462	0.062

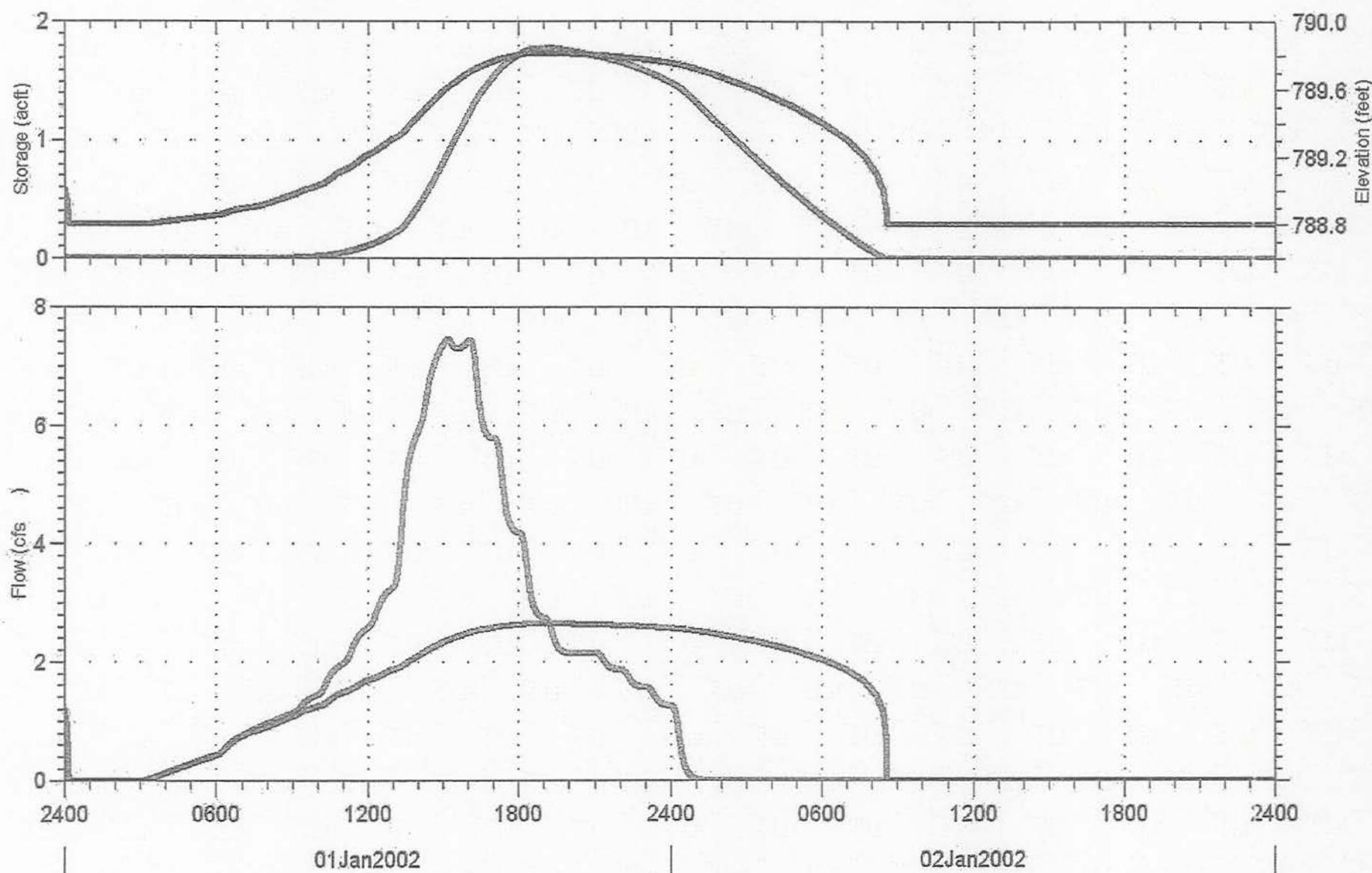


HEC
HMS

Total Precipitation
Loss
Industrial Park

Baseflow

Basin: 2yr Pre Dev Pond
Run: 2yr Pre Dev Pond
Time: 10Nov04, 06:46

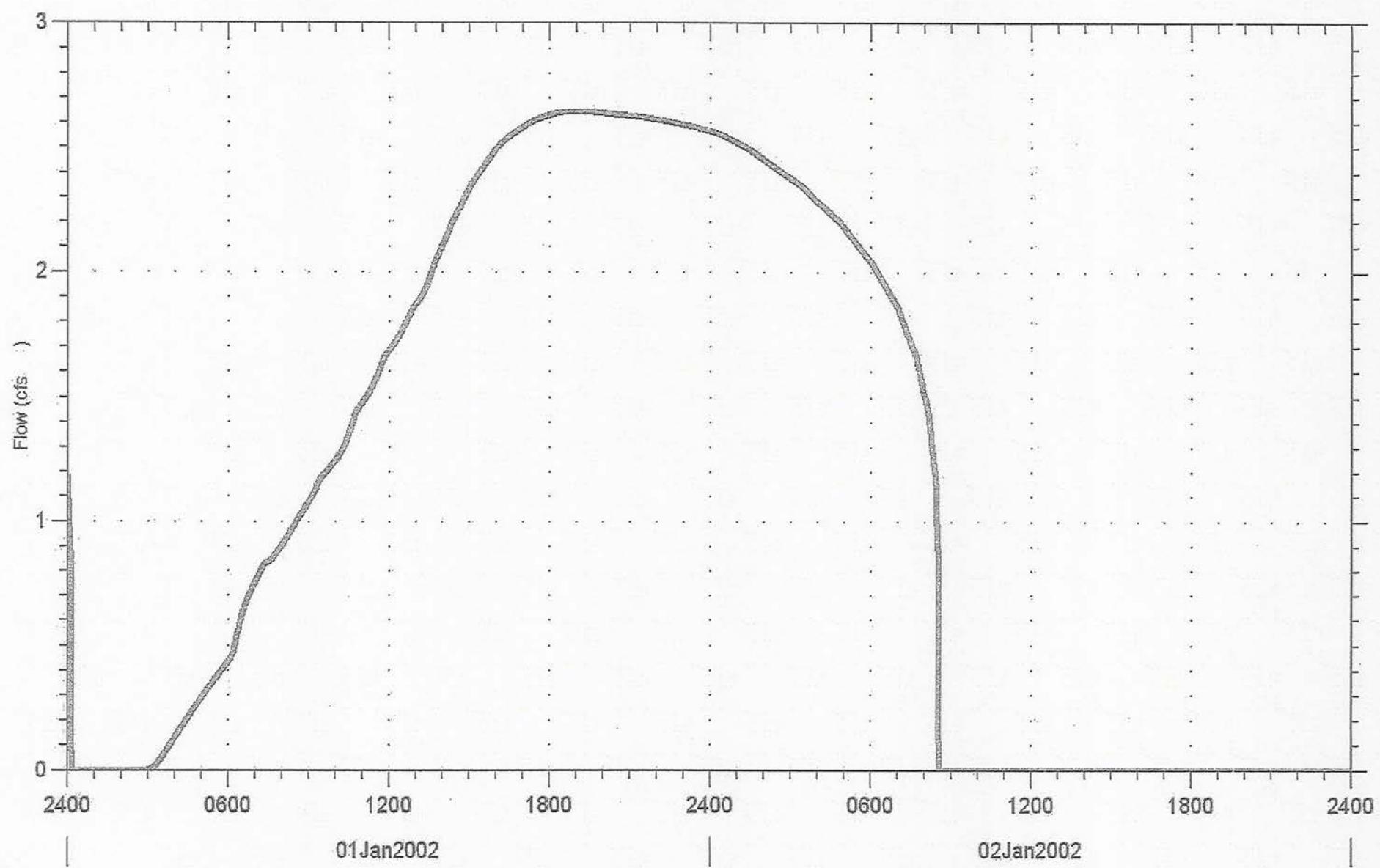


HEC
HMS

Storage
Elevation
Inflow

Wetland

Basin: 2yr Pre Dev Pond
Run: 2yr Pre Dev Pond
Time: 10Nov04, 06:47

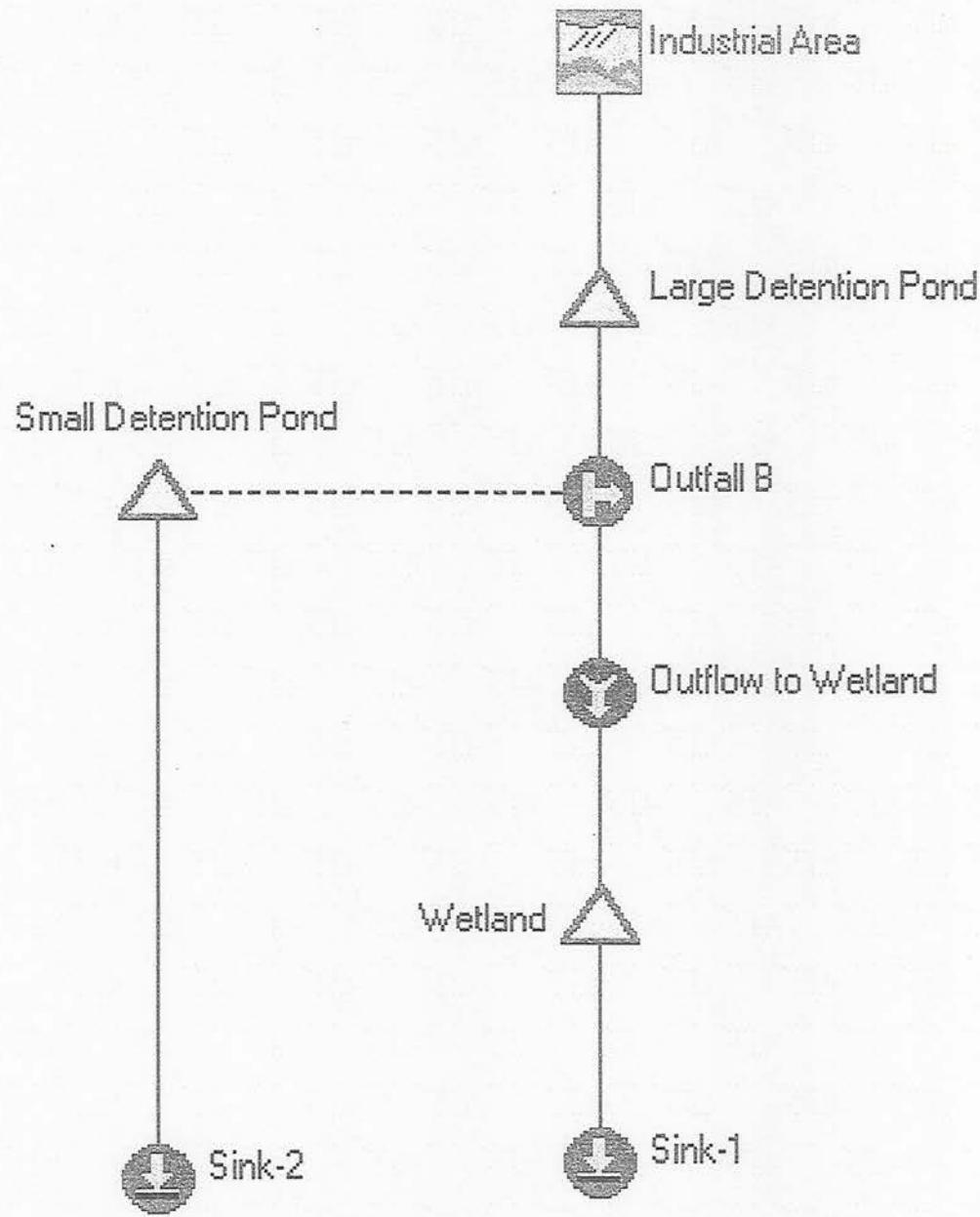


HEC
HMS

—— Sink-1
—— Wetland

Basin: 2yr Pre Dev Pond
Run: 2yr Pre Dev Pond
Time: 10Nov04, 06:49

2yr, Post-development, Wetland Analysis



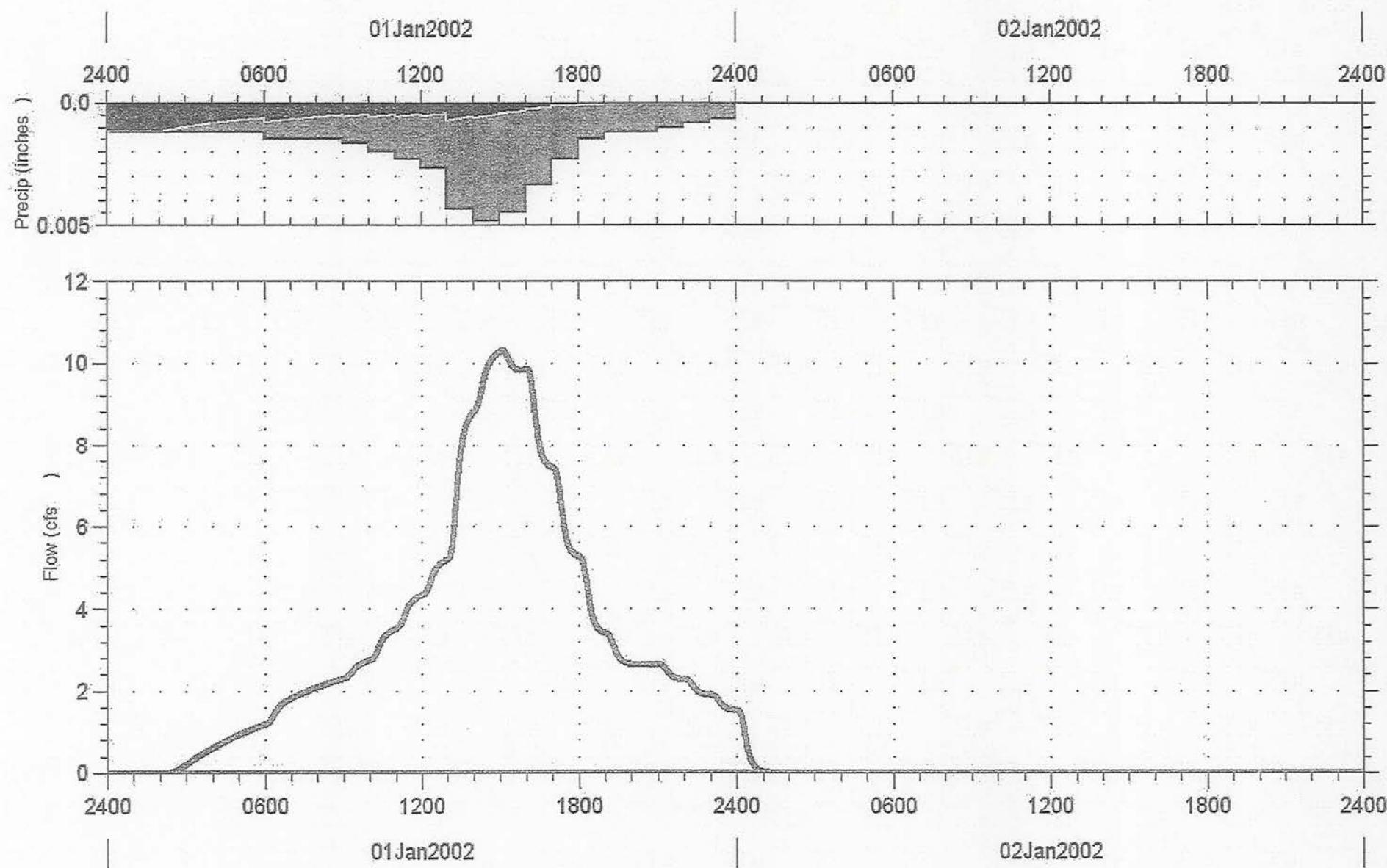
HMS * Summary of Results

Project : Stock Round Lake

Run Name : 2yr Post Dev Pond

Start of Run : 01Jan02 0000 Basin Model : 2yr Post Dev Pond
 End of Run : 03Jan02 0000 Met. Model : 2yr Post Dev Pond
 Execution Time : 10Nov04 0709 Control Specs : 2yr HUFF Storm

Hydrologic Element	Discharge Peak (cfs)	Stage Peak (ft)	Time of Peak	Area (ac ft)	Drainage Area (sq mi)
Industrial Area	10.303		01 Jan 02 1506	6.6641	0.062
Large Detention Po	4.7927		01 Jan 02 1815	6.6589	0.062
Outfall B	3.2621	789.44	01 Jan 02 1815	4.5323	0.062
Outflow to Wetland	3.2621		01 Jan 02 1815	4.5323	0.062
Wetland	2.3411		02 Jan 02 0109	4.5420	0.062
Sink-1	2.3411		02 Jan 02 0109	4.5420	0.062
Outfall B(br)	1.5306		01 Jan 02 1815	2.1266	0.000
Small Detention Po	0.75004		02 Jan 02 0408	1.8517	0.000
Sink-2	0.75004		02 Jan 02 0408	1.8517	0.000

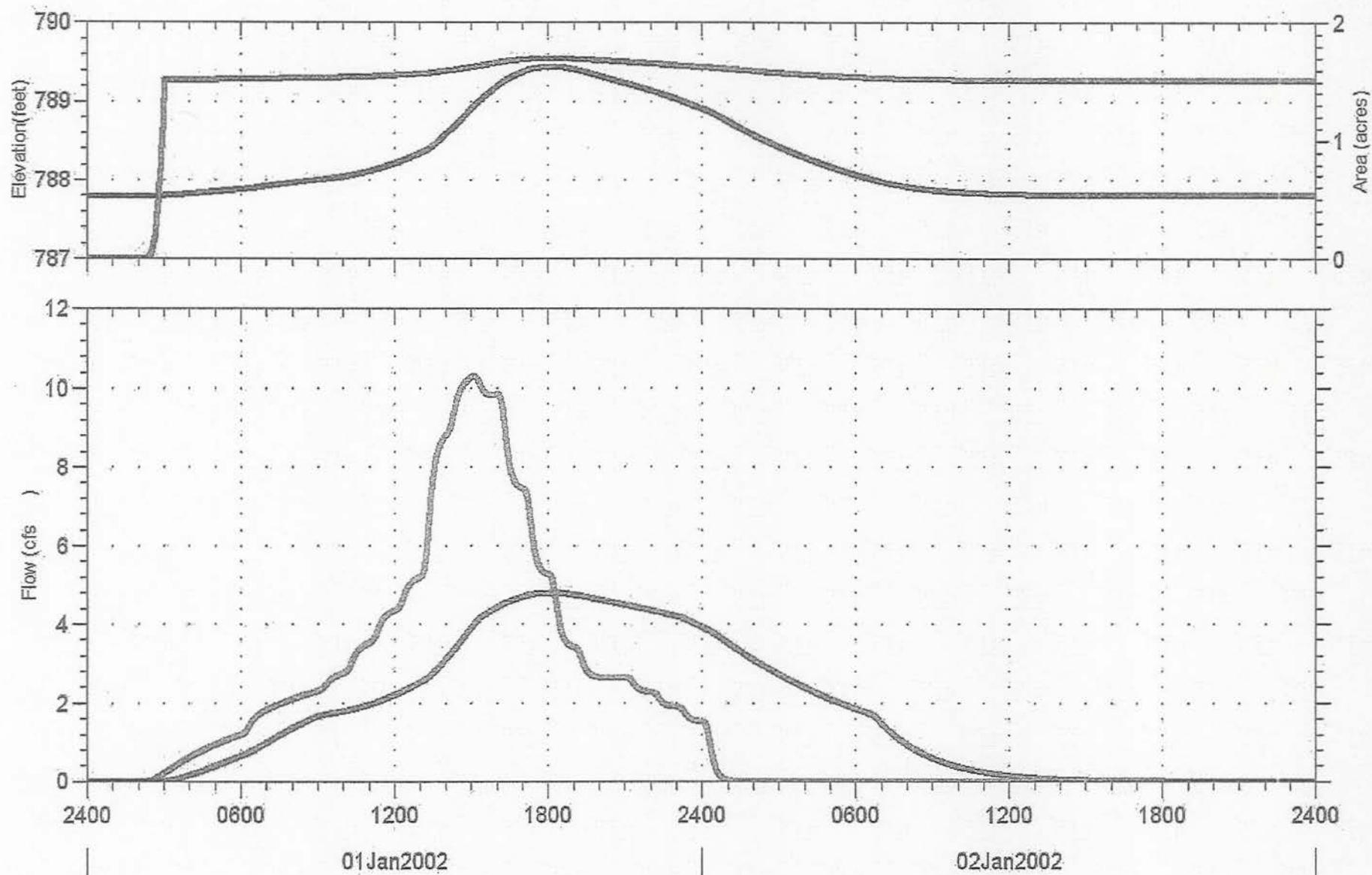


HEC
HMS

— Total Precipitation
— Loss
— Industrial Area

— Baseflow

Basin: 2yr Post Dev Pond
Run: 2yr Post Dev Pond
Time: 10Nov04, 07:13

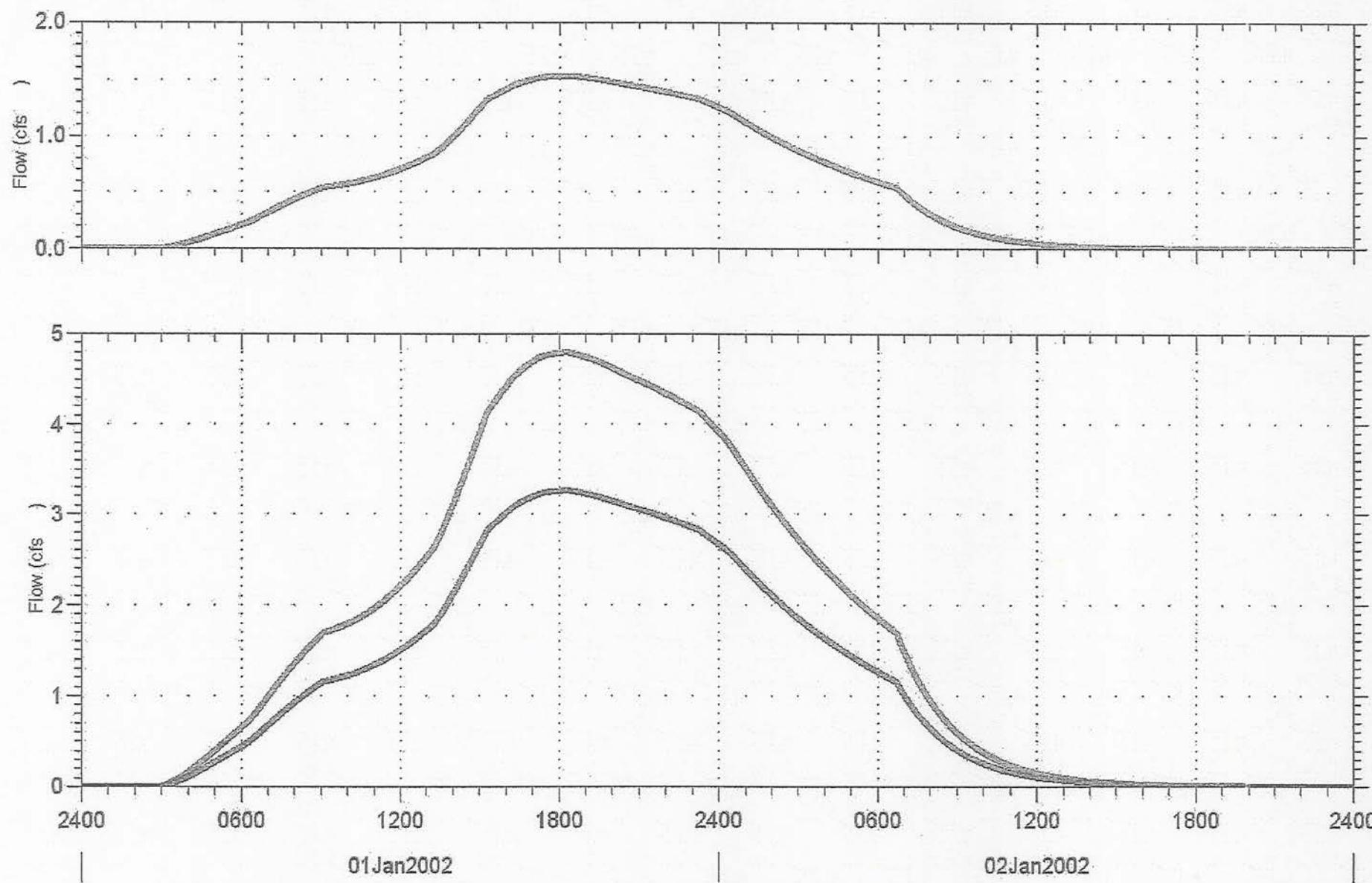


HEC
HMS

— Elevation
— Area
— Inflow

— Large Detention Pond

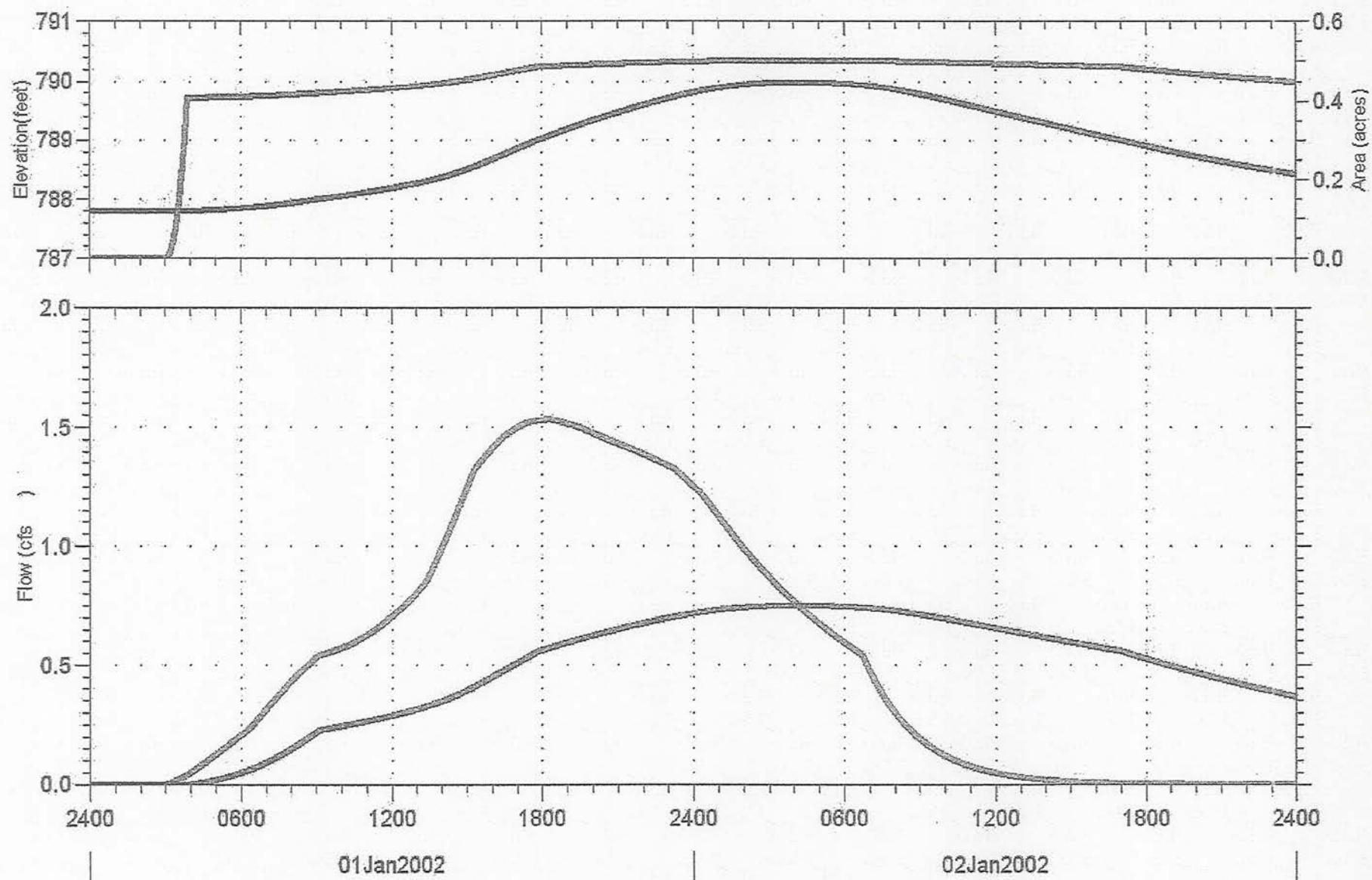
Basin: 2yr Post Dev Pond
Run: 2yr Post Dev Pond
Time: 10Nov04, 07:13



HEC
HMS

Diverted Flow
Outfall B
Inflow

Basin: 2yr Post Dev Pond
Run: 2yr Post Dev Pond
Time: 10Nov04, 07:13

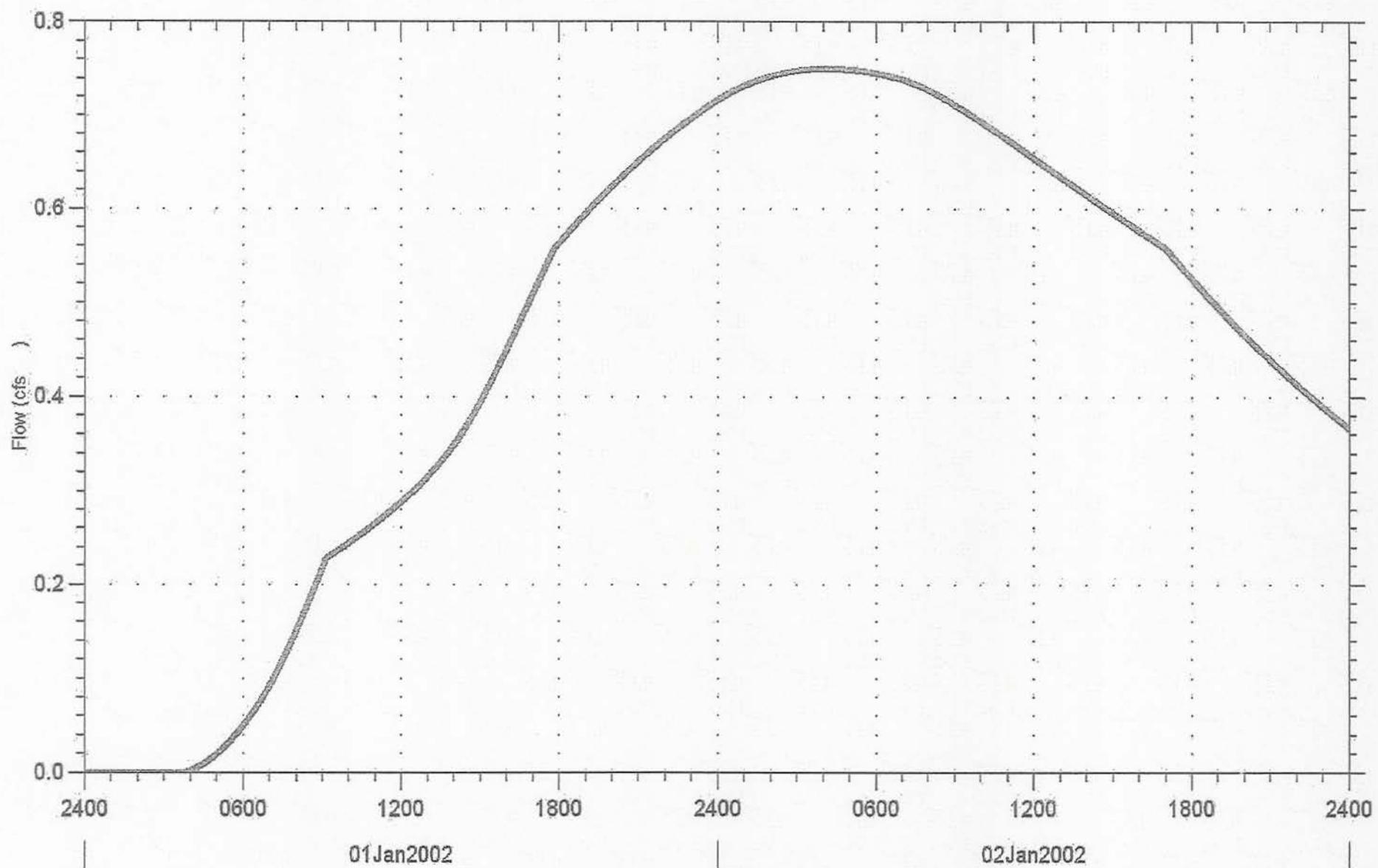


HEC
HMS

Elevation
Area
Inflow

Small Detention Pond

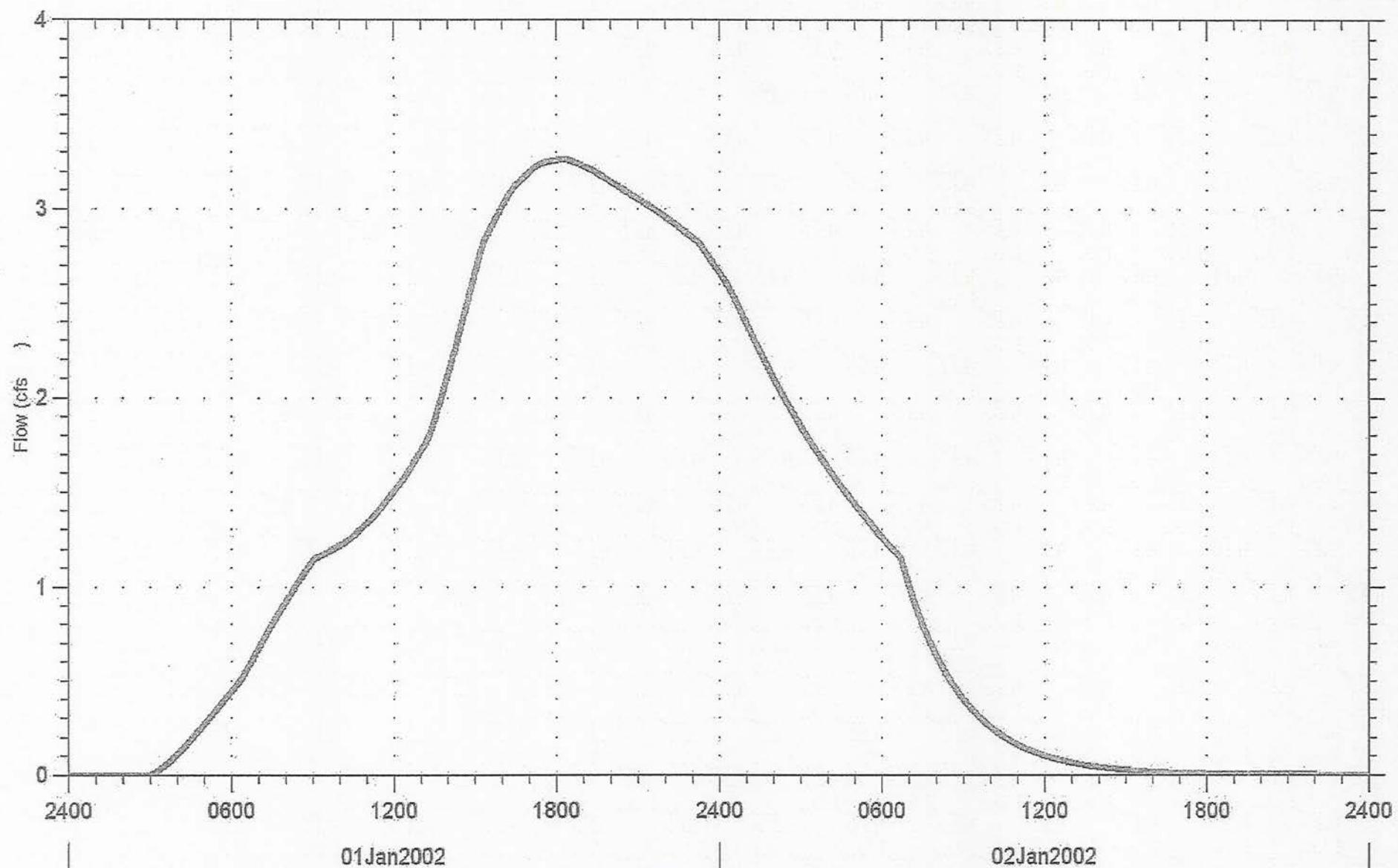
Basin: 2yr Post Dev Pond
Run: 2yr Post Dev Pond
Time: 10Nov04, 07:14



HEC
HMS

—— Sink-2
—— Small Detention Pond

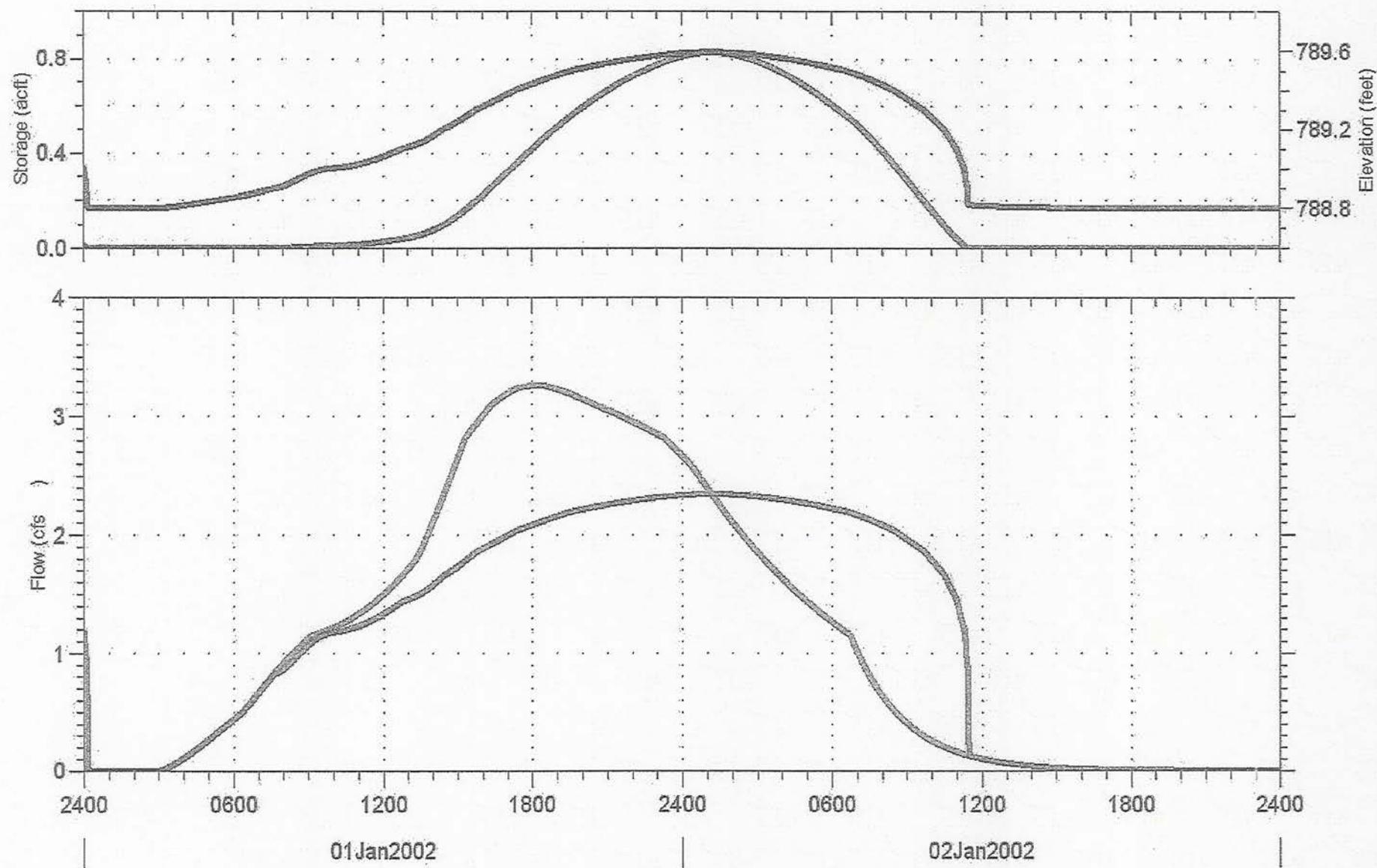
Basin: 2yr Post Dev Pond
Run: 2yr Post Dev Pond
Time: 10Nov04, 08:04



HEC
HMS

Outflow to Wetland
Outfall B

Basin: 2yr Post Dev Pond
Run: 2yr Post Dev Pond
Time: 10Nov04, 07:19

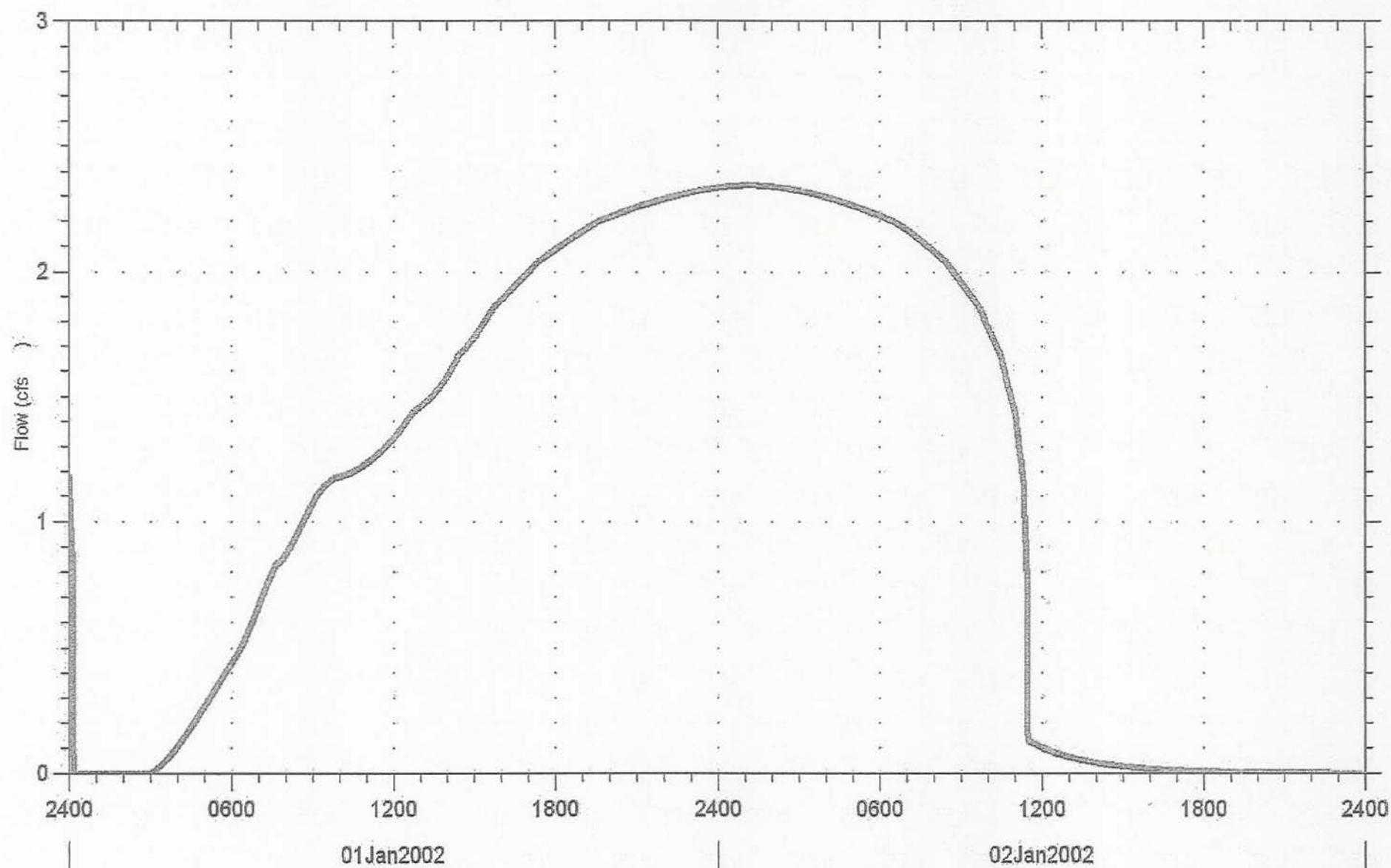


HEC
HMS

Storage
Elevation
Inflow

Wetland

Basin: 2yr Post Dev Pond
Run: 2yr Post Dev Pond
Time: 10Nov04, 07:19

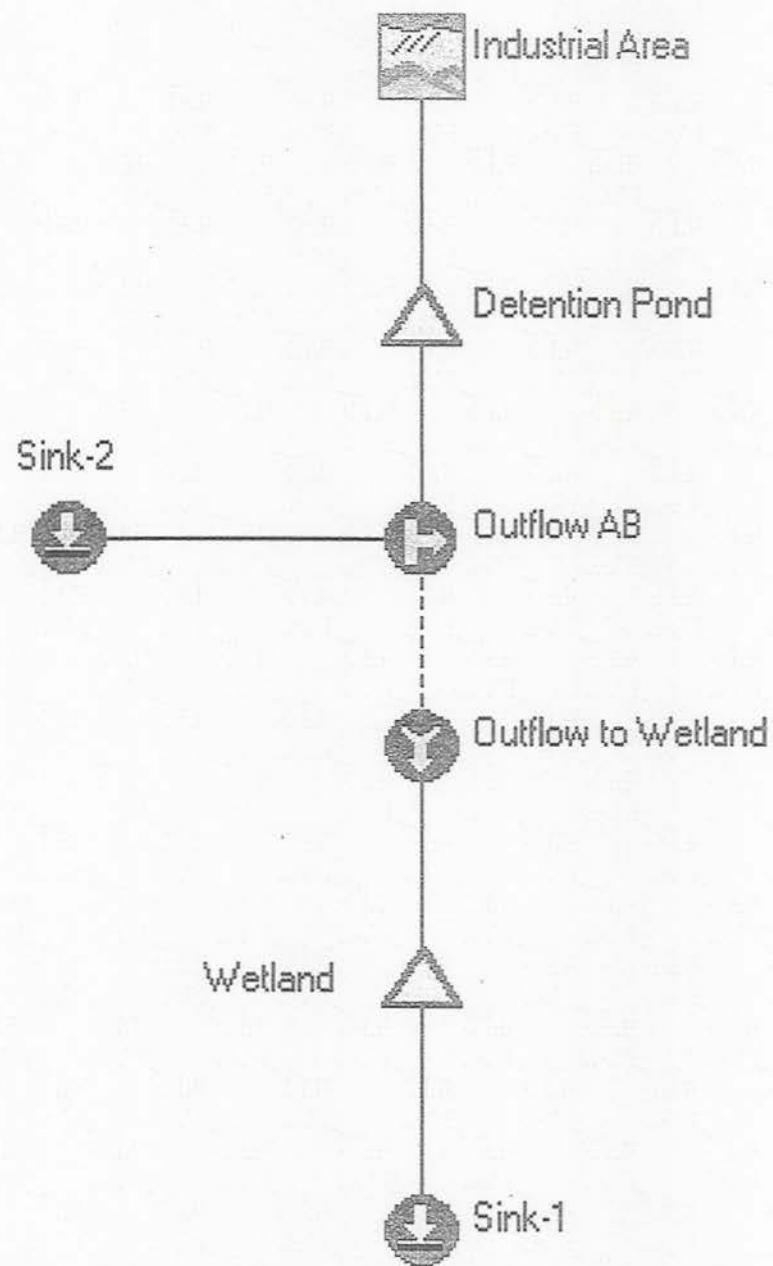


HEC
HMS

Sink-1
Wetland

Basin: 2yr Post Dev Pond
Run: 2yr Post Dev Pond
Time: 10Nov04, 07:20

100yr, Post-development, Pond Analysis



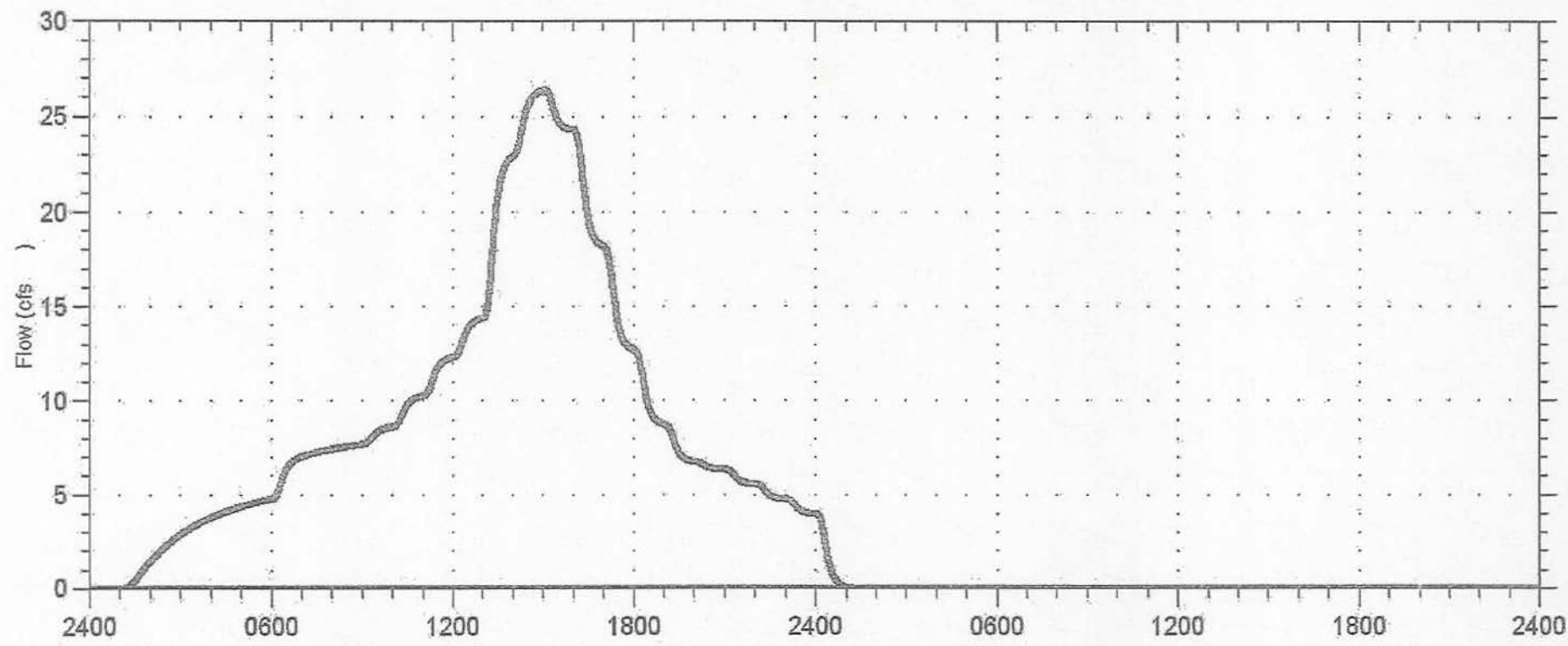
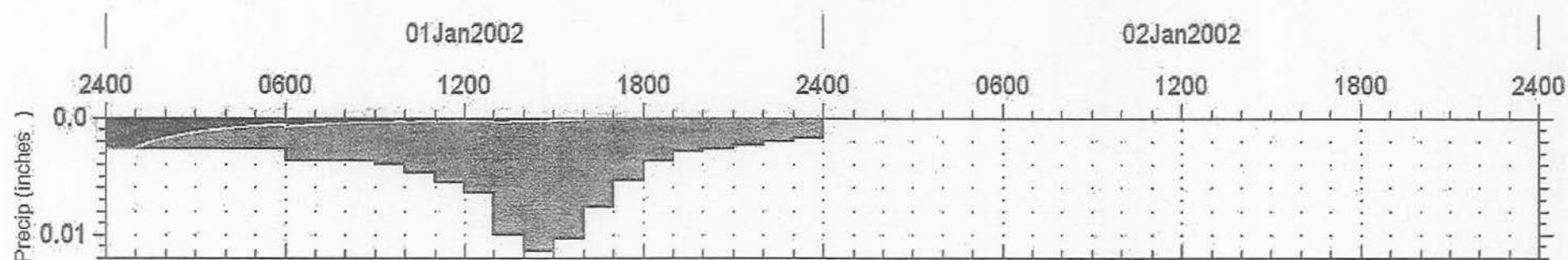
HMS * Summary of Results

Project : Stock Round Lake

Run Name : 100yr Post Dev Pond

Start of Run : 01Jan02 0000 Basin Model : 100yr Post Dev Pond
 End of Run : 03Jan02 0000 Met. Model : 100yr Post Dev Pond
 Execution Time : 10Nov04 0730 Control Specs : 100yr HUFF Storm

Hydrologic Element	Discharge Peak (cfs)	Stage Peak (ft)	Time of Peak	Area (ac ft)	Drainage Area (sq mi)
Outflow AB(br)	5.4380		01 Jan 02 1843	12.721	0.000
Outflow to Wetland	5.4380		01 Jan 02 1843	12.721	0.000
Wetland	4.6612		02 Jan 02 0252	11.060	0.000
Sink-1	4.6612		02 Jan 02 0252	11.060	0.000
Industrial Area	26.390		01 Jan 02 1503	18.573	0.062
Detention Pond	8.9779		01 Jan 02 1843	17.962	0.062
Outflow AB	3.5398	792.26	01 Jan 02 1843	5.2415	0.062
Sink-2	3.5398		01 Jan 02 1843	5.2415	0.062

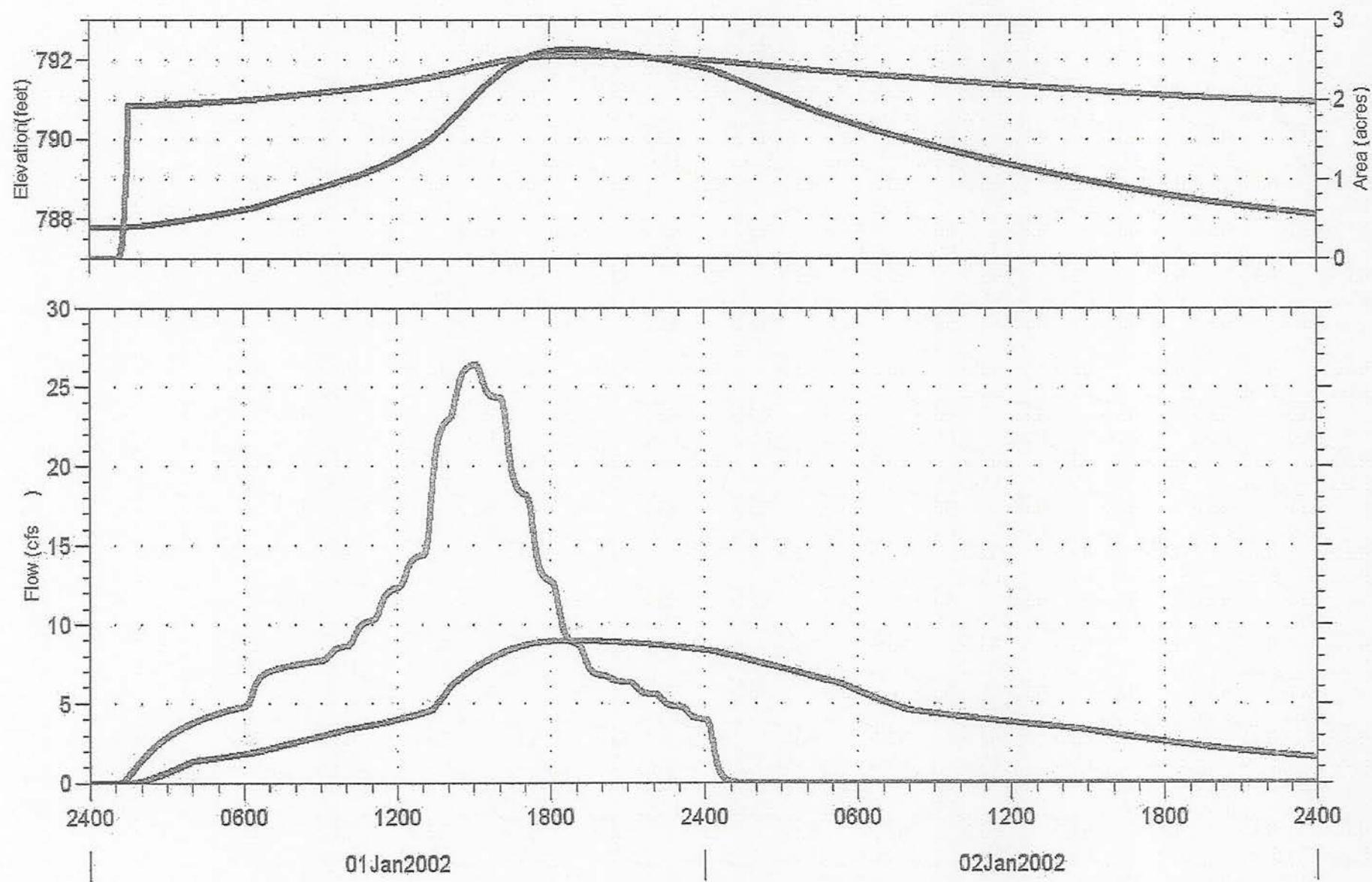


HEC
HMS

— Total Precipitation
— Loss
— Industrial Area

— Baseflow

Basin: 100yr Post Dev Pond
Run: 100yr Post Dev Pond
Time: 10Nov04, 07:32

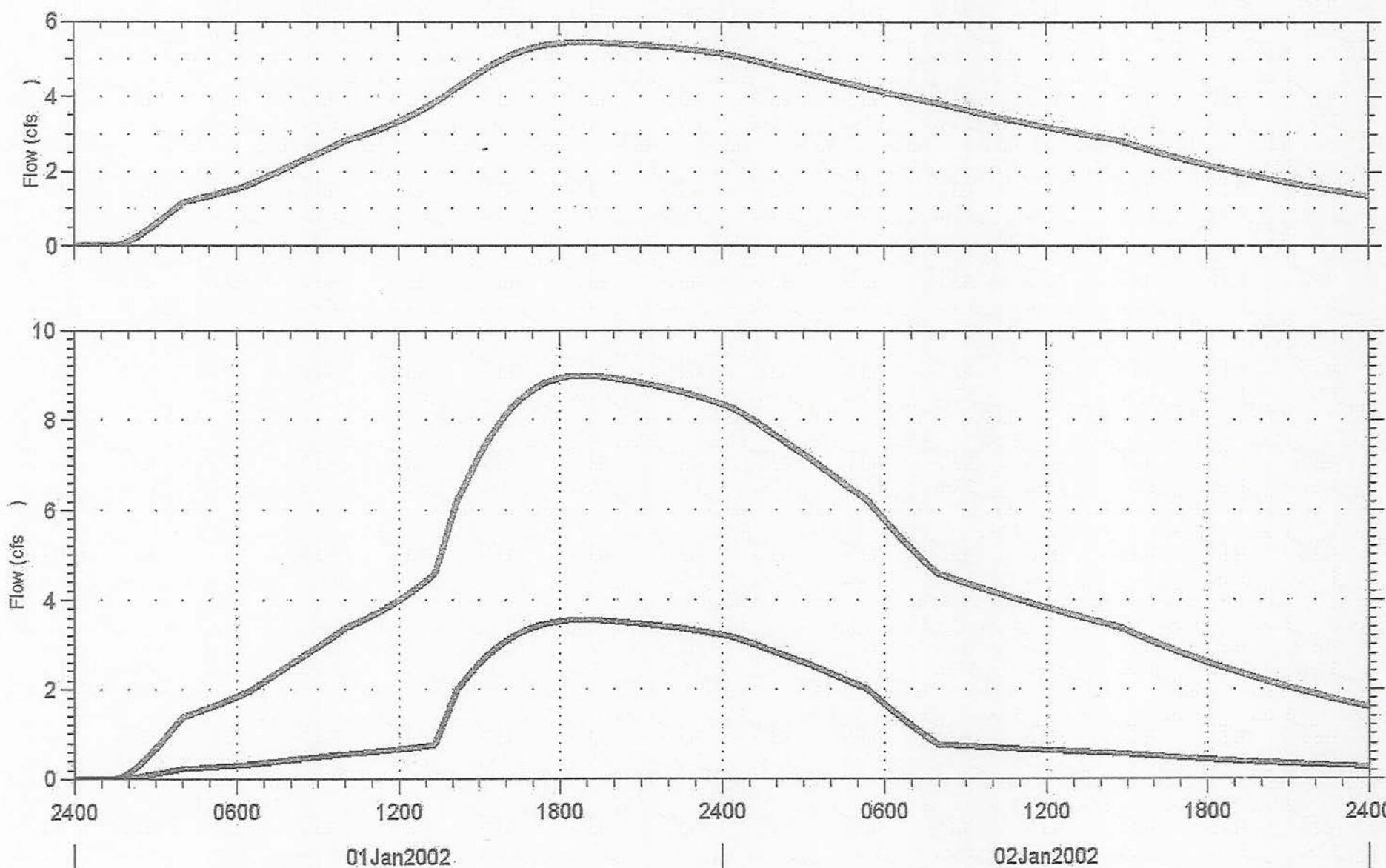


HEC
HMS

— Elevation
— Area
— Inflow

— Detention Pond

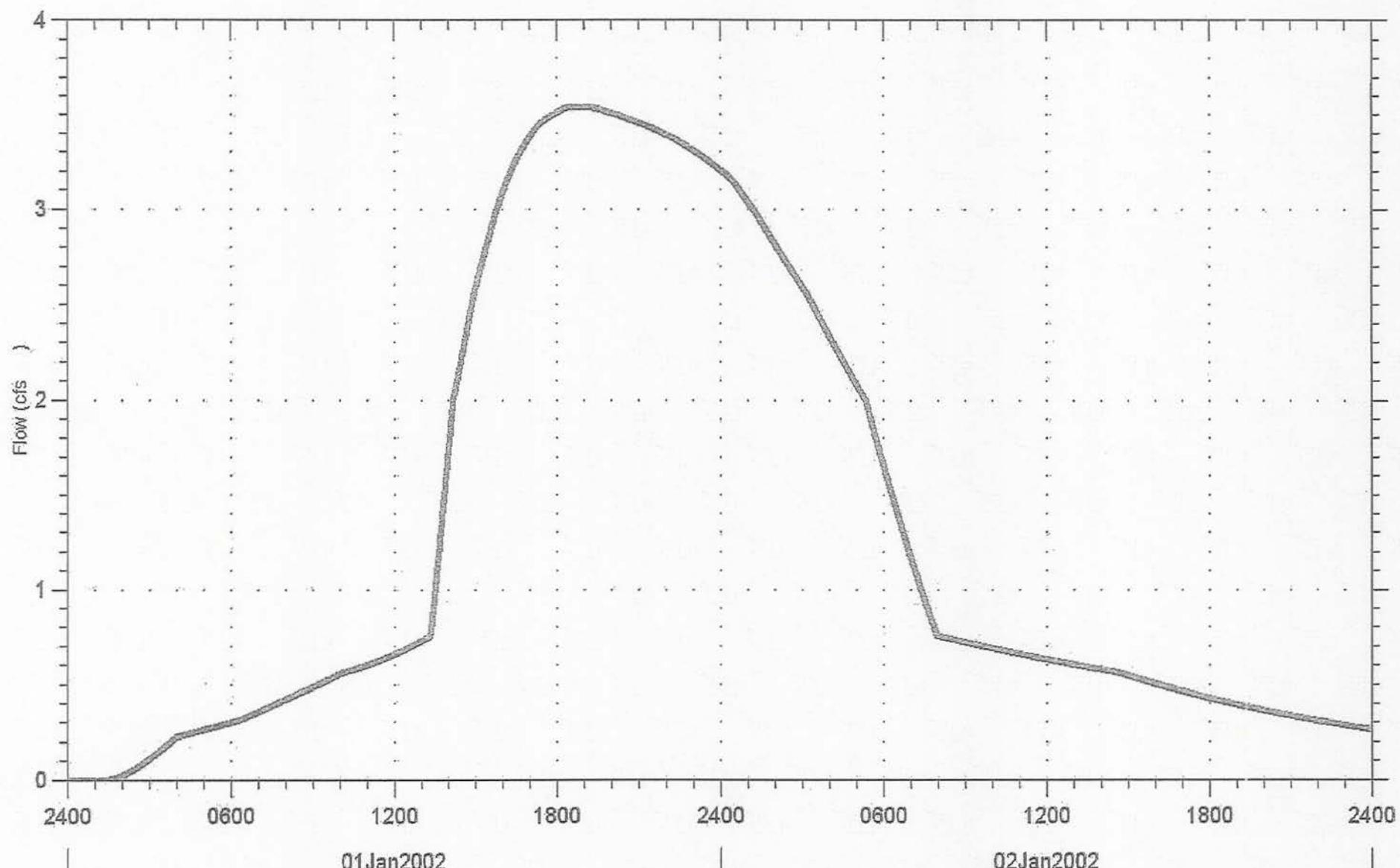
Basin: 100yr Post Dev Pond
Run: 100yr Post Dev Pond
Time: 10Nov04, 07:32



HEC
HMS

Diverted Flow
Outflow AB
Inflow

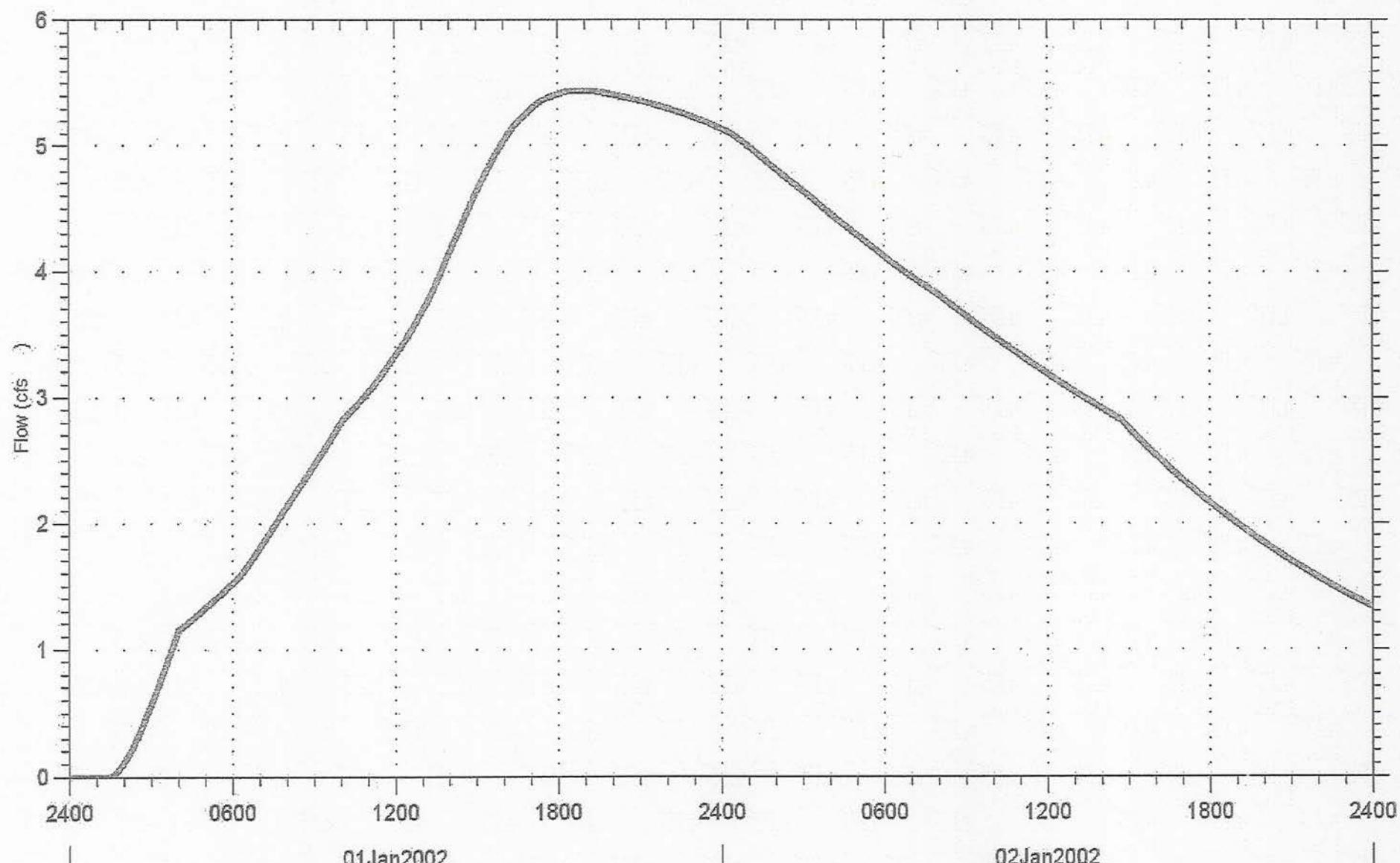
Basin: 100yr Post Dev Pond
Run: 100yr Post Dev Pond
Time: 10Nov04, 07:32



HEC
HMS

Sink-2
Outflow AB

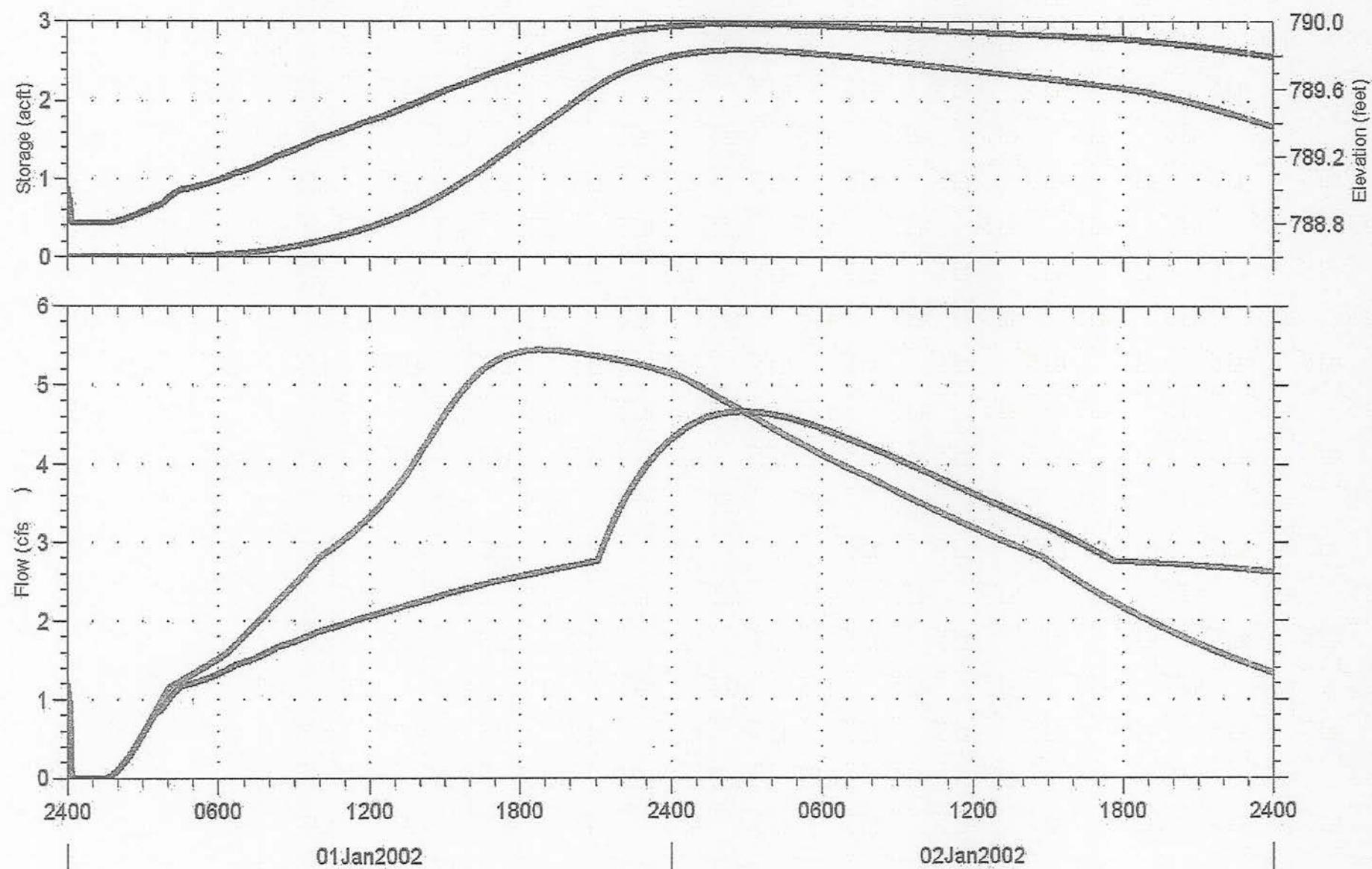
Basin: 100yr Post Dev Pond
Run: 100yr Post Dev Pond
Time: 10Nov04, 07:33



HEC
HMS

Outflow to Wetland
Outflow AB(br)

Basin: 100yr Post Dev Pond
Run: 100yr Post Dev Pond
Time: 10Nov04, 07:33

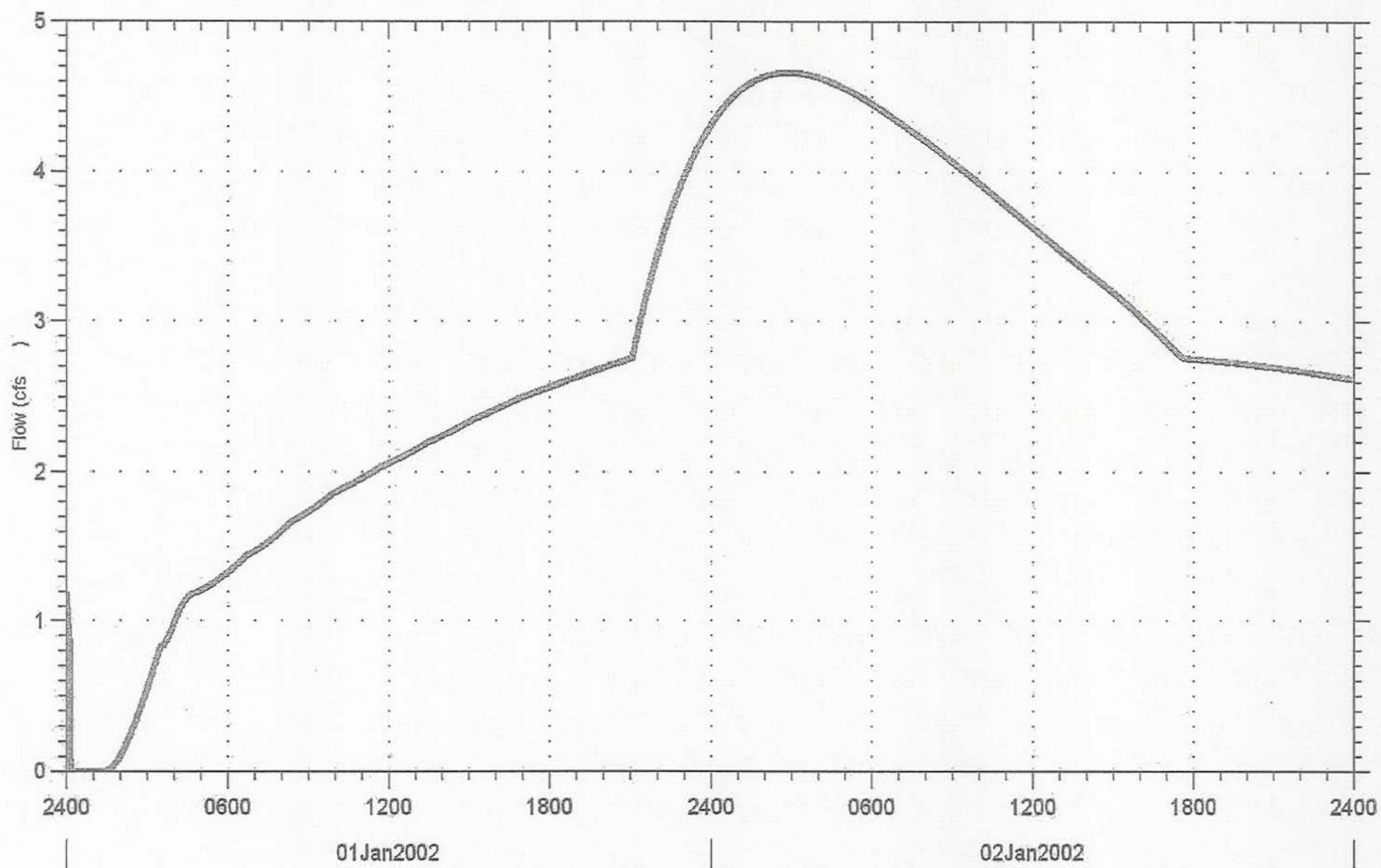


HEC
HMS

Storage
Elevation
Inflow

Wetland

Basin: 100yr Post Dev Pond
Run: 100yr Post Dev Pond
Time: 10Nov04, 07:33



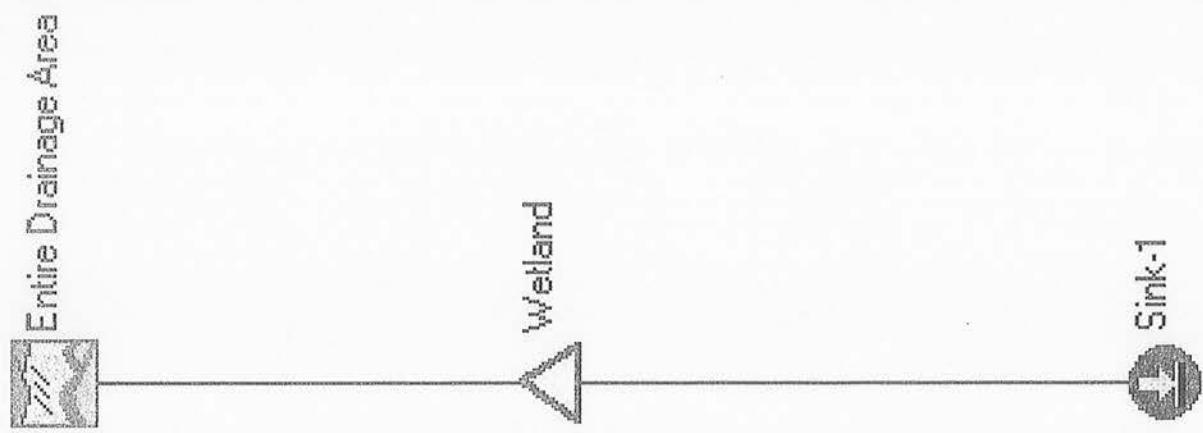
HEC
HMS

Sink-1

Wetland

Basin: 100yr Post Dev Pond
Run: 100yr Post Dev Pond
Time: 10Nov04, 07:33

100yr, Predevelopment, BFE Analysis

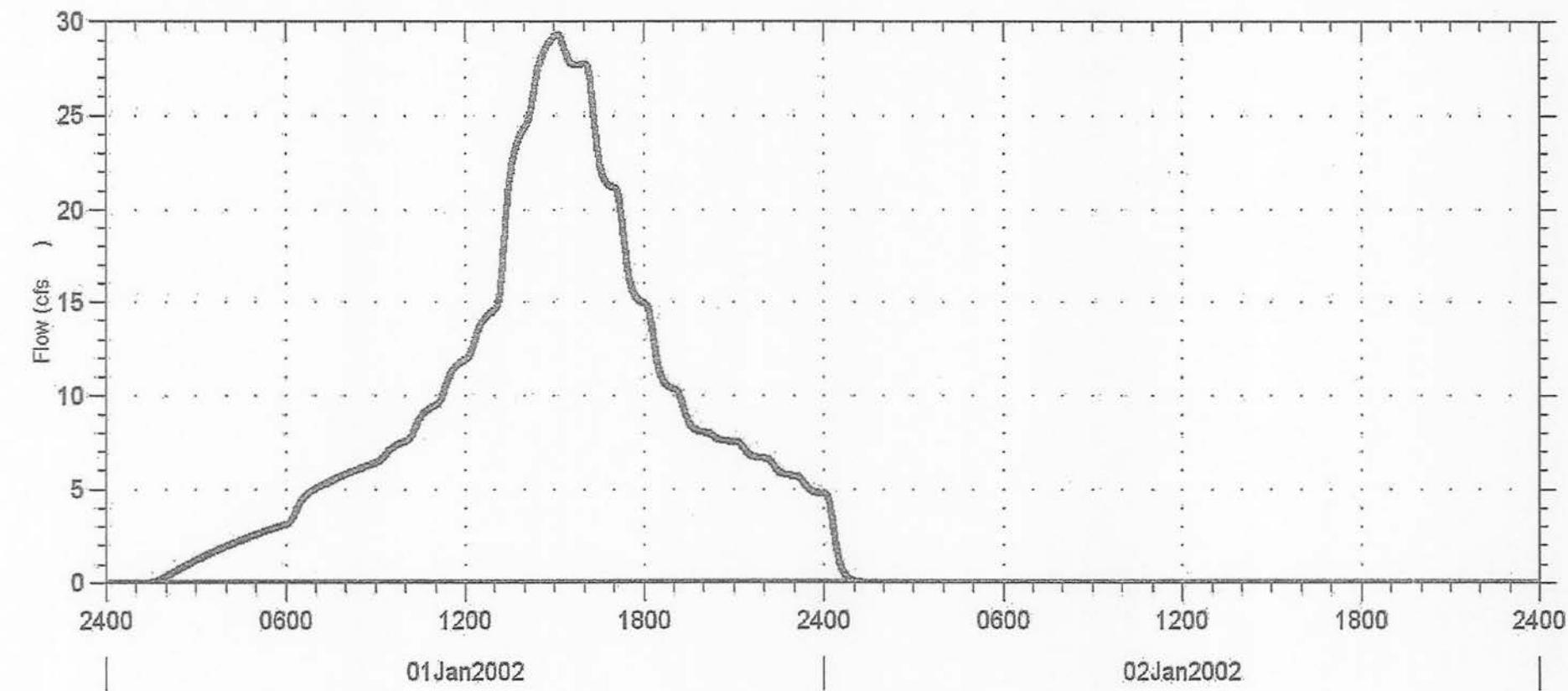
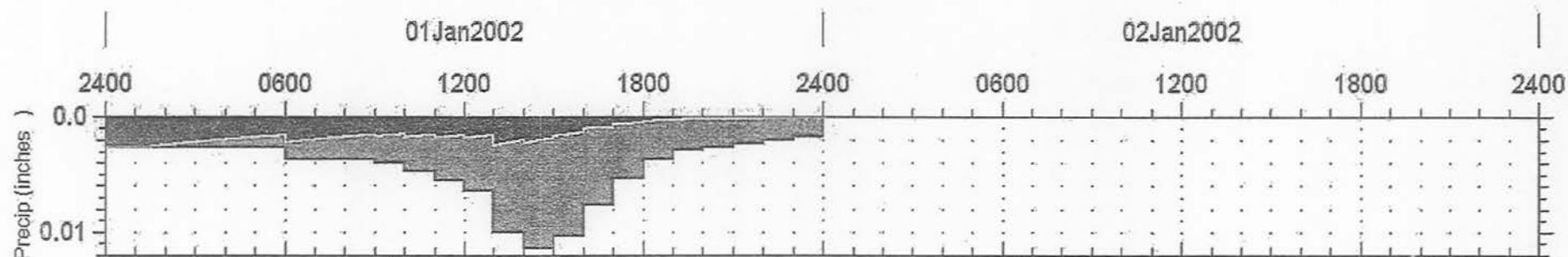


HMS * Summary of Results

Project : Stock Round Lake Run Name : 100yz Pre Dev BFE

Start of Run : 01Jan02 0000 Basin Model : 100yz Pre Dev BFE
End of Run : 03Jan02 0000 Met. Model : 100yr Pre Dev BFE
Execution Time : 10Nov04 0721 Control Specs : 100yr HUFF Stoxm

Hydrologic Element	Discharge Peak (cfs)	Time of Peak	Volume (ac ft)	Drainage Area (sq mi)
Entire Drainage Area	29.313	01 Jan 02 1506	18.930	0.081
Wetland	28.889	01 Jan 02 1516	18.940	0.081
Sink-1	28.889	01 Jan 02 1516	18.940	0.081

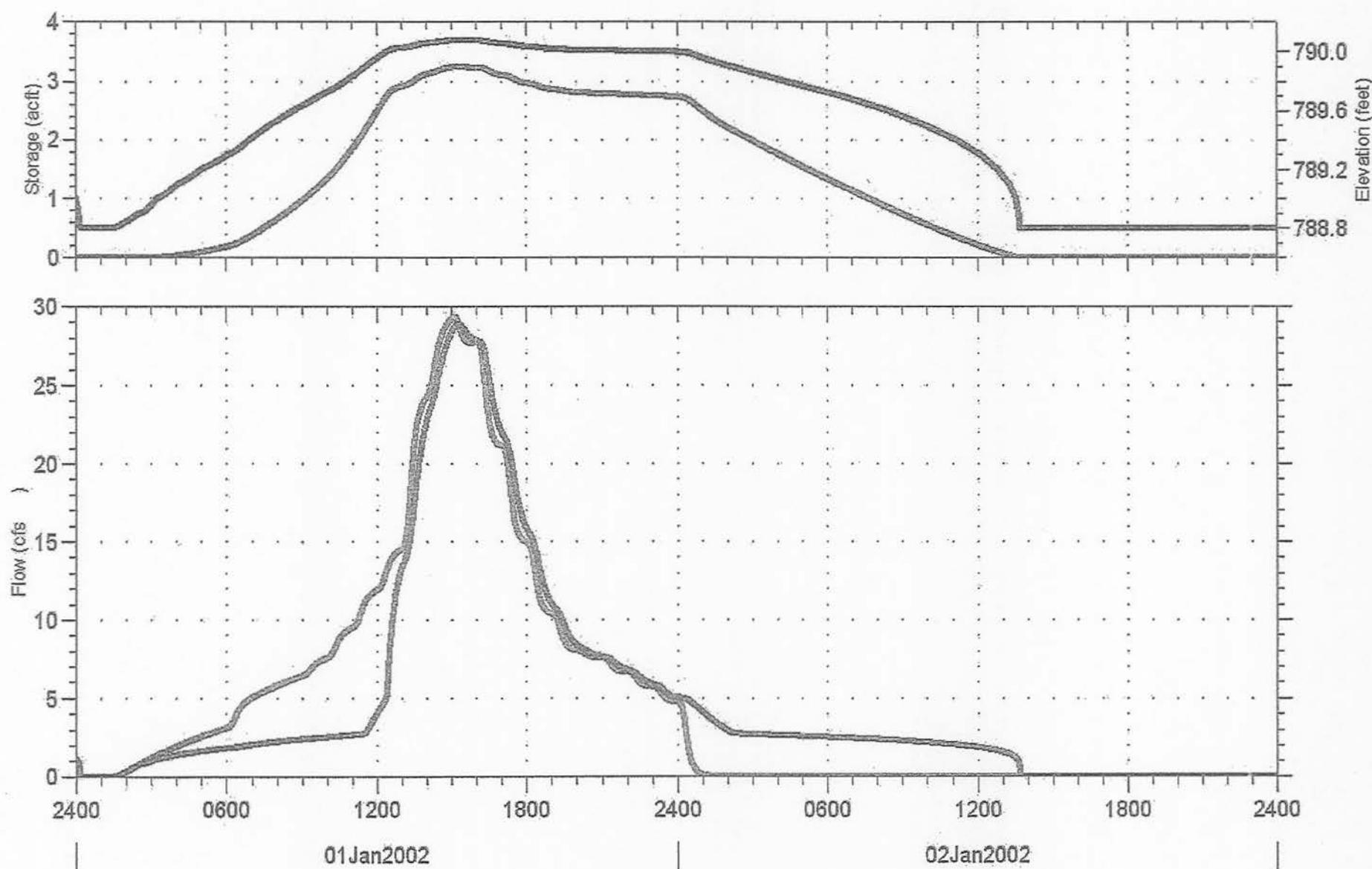


HEC
HMS

— Total Precipitation
— Loss
— Entire Drainage Area

— Baseflow

Basin: 100yr Pre Dev BFE
Run: 100yr Pre Dev BFE
Time: 10Nov04, 07:22

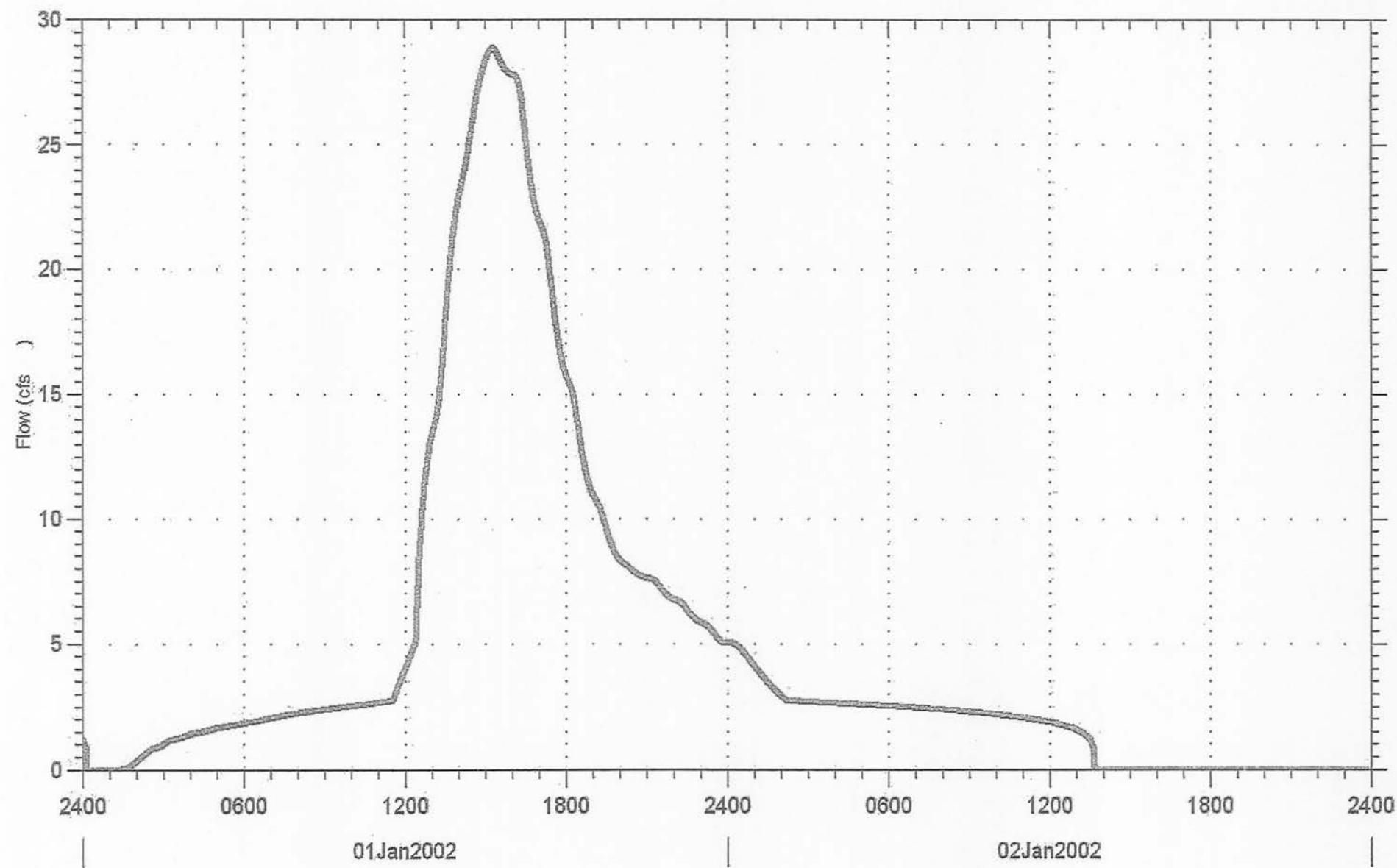


HEC
HMS

Storage
Elevation
Inflow

Wetland

Basin: 100yr Pre Dev BFE
Run: 100yr Pre Dev BFE
Time: 10Nov04, 07:23

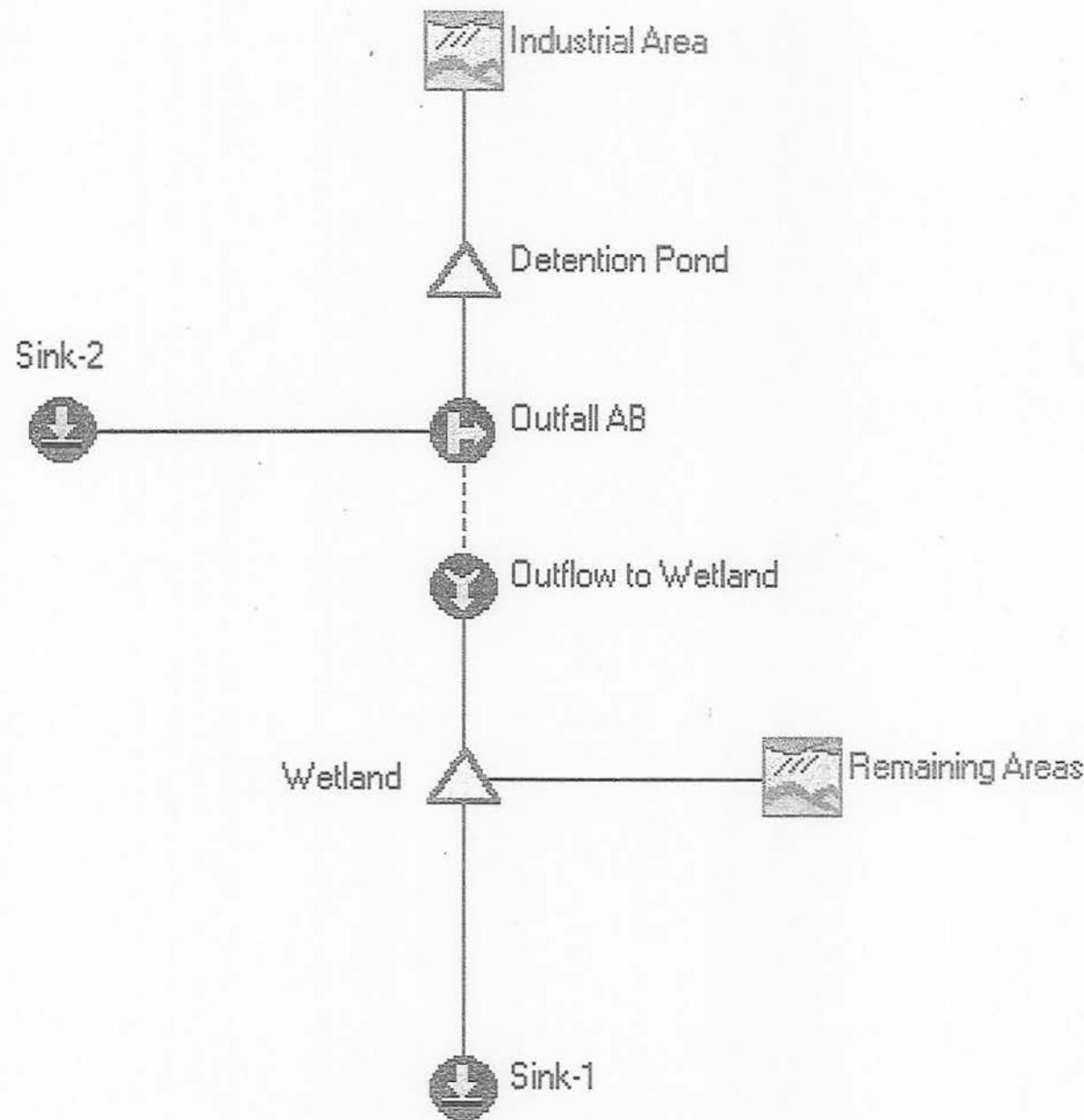


HEC
HMS

Sink-1
Wetland

Basin: 100yr Pre Dev BFE
Run: 100yr Pre Dev BFE
Time: 10Nov04, 07:23

100yr, Post-development, BFE Analysis

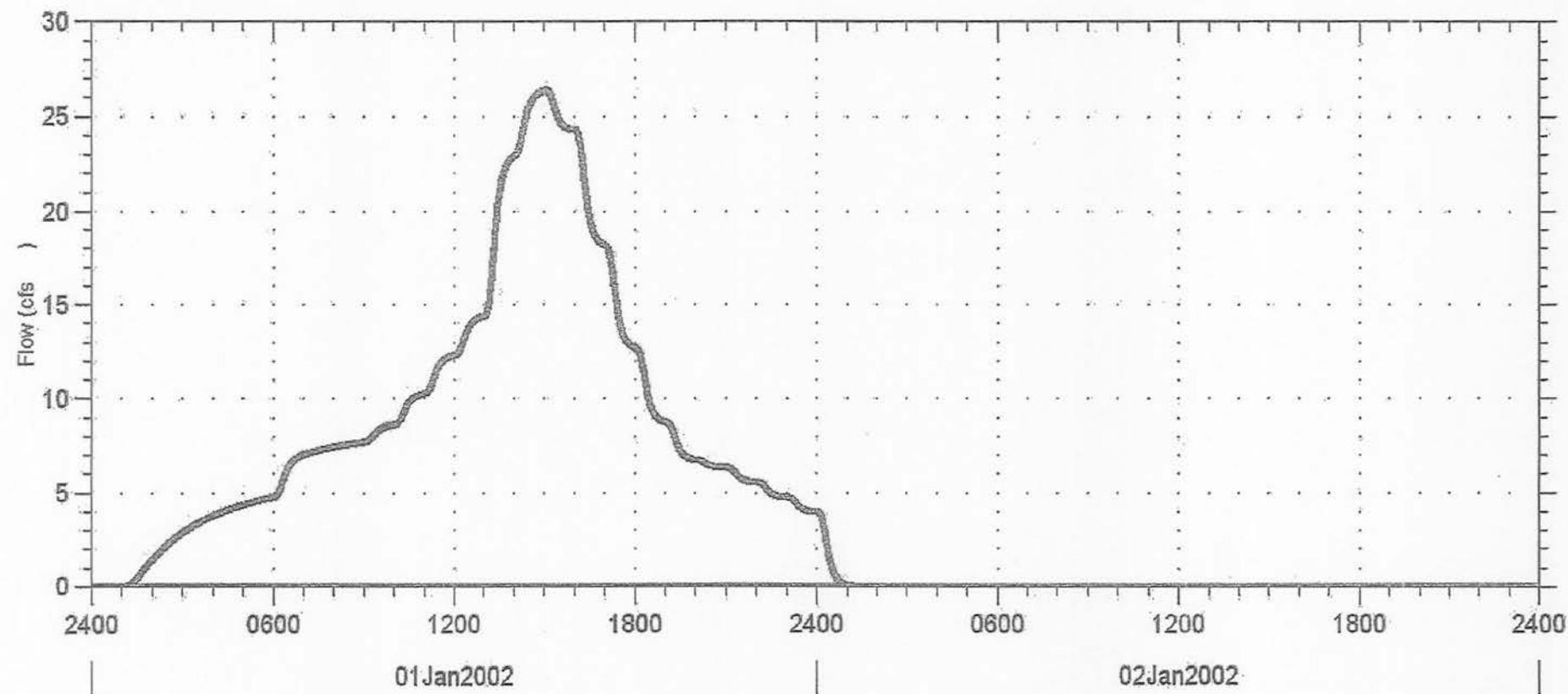
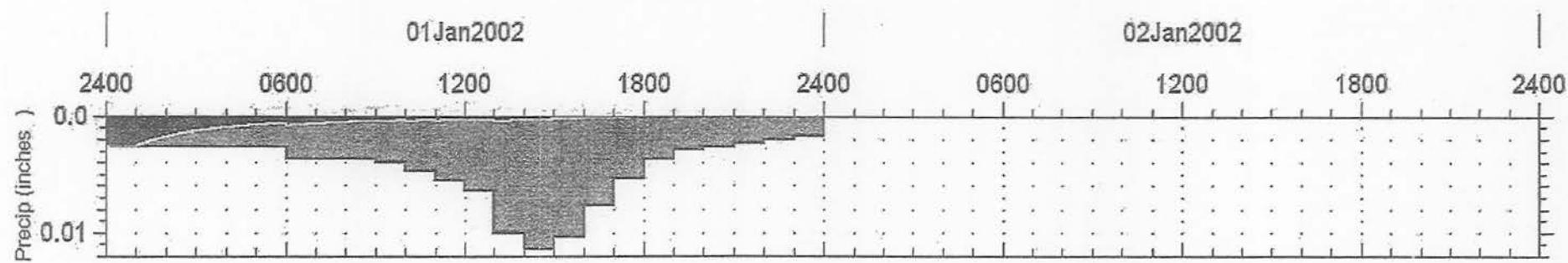


HMS * Summary of Results

Project : Stock Round Lake Run Name : 100yr Post Dev BFE

Start of Run : 01Jan02 0000 Basin Model : 100yr Post Dev BFE
 End of Run : 03Jan02 0000 Met. Model : 100yr Post Dev BFE
 Execution Time : 10Nov04 0726 Control Specs : 100yr HUFF Storm

Hydrologic Element	Discharge Peak (cfs)	Stage Peak (ft)	Time of Peak	e (ac ft)	Drainage Area (sq mi)
Outfall AB(br)	5.4380		01 Jan 02 1843	12.721	0.000
Outflow to Wetland	5.4380		01 Jan 02 1843	12.721	0.000
Remaining Areas	11.431		01 Jan 02 1507	7.2822	0.034
Wetland	15.902		01 Jan 02 1608	18.342	0.034
Sink-1	15.902		01 Jan 02 1608	18.342	0.034
Industrial Area	26.390		01 Jan 02 1503	18.573	0.062
Detention Pond	8.9779		01 Jan 02 1843	17.962	0.062
Outfall AB	3.5398	792.26	01 Jan 02 1843	5.2415	0.062
Sink-2	3.5398		01 Jan 02 1843	5.2415	0.062

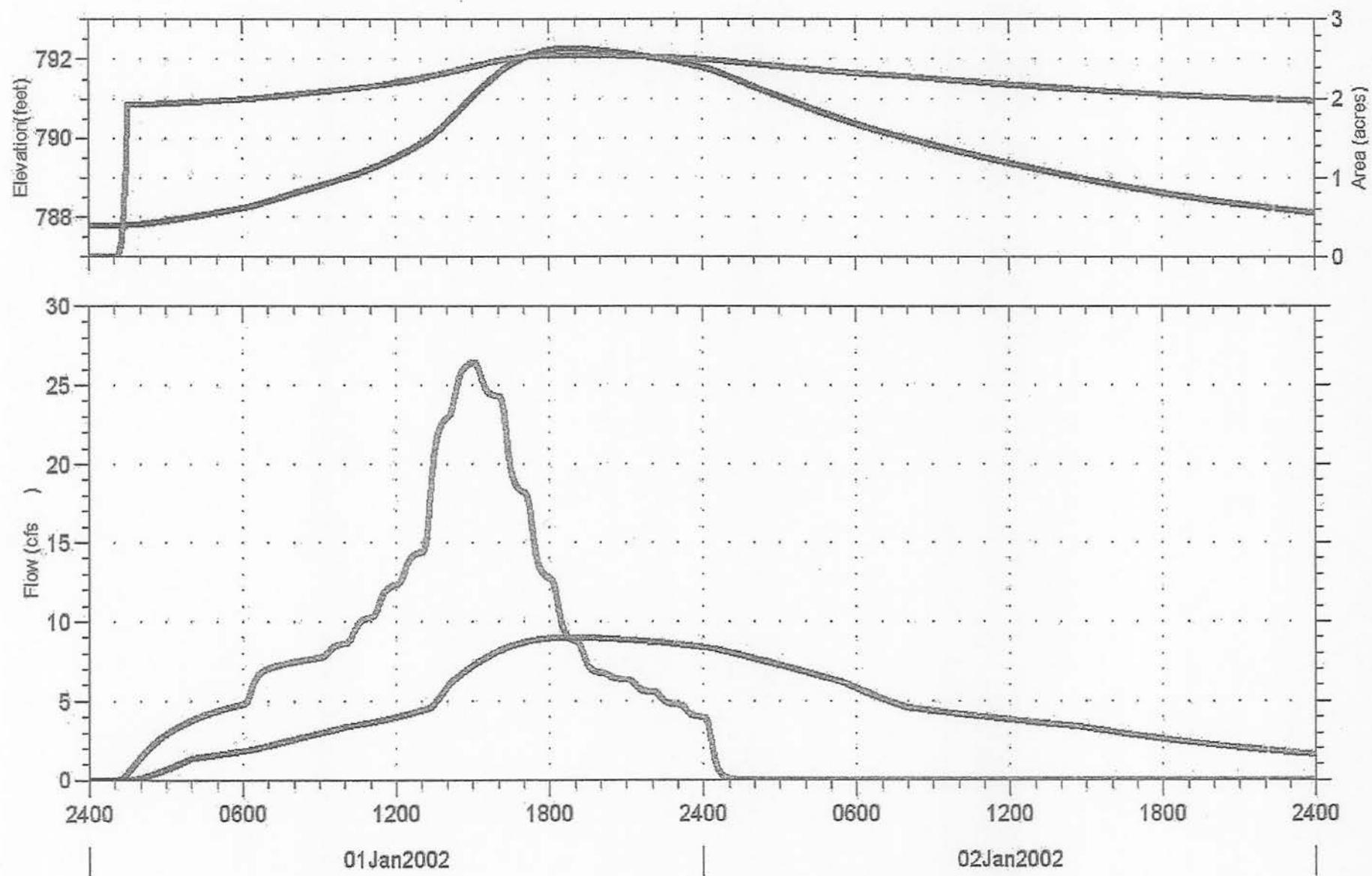


HEC
HMS

Total Precipitation
Loss
Industrial Area

Baseflow

Basin: 100yr Post Dev BFE
Run: 100yr Post Dev BFE
Time: 10Nov04, 07:27

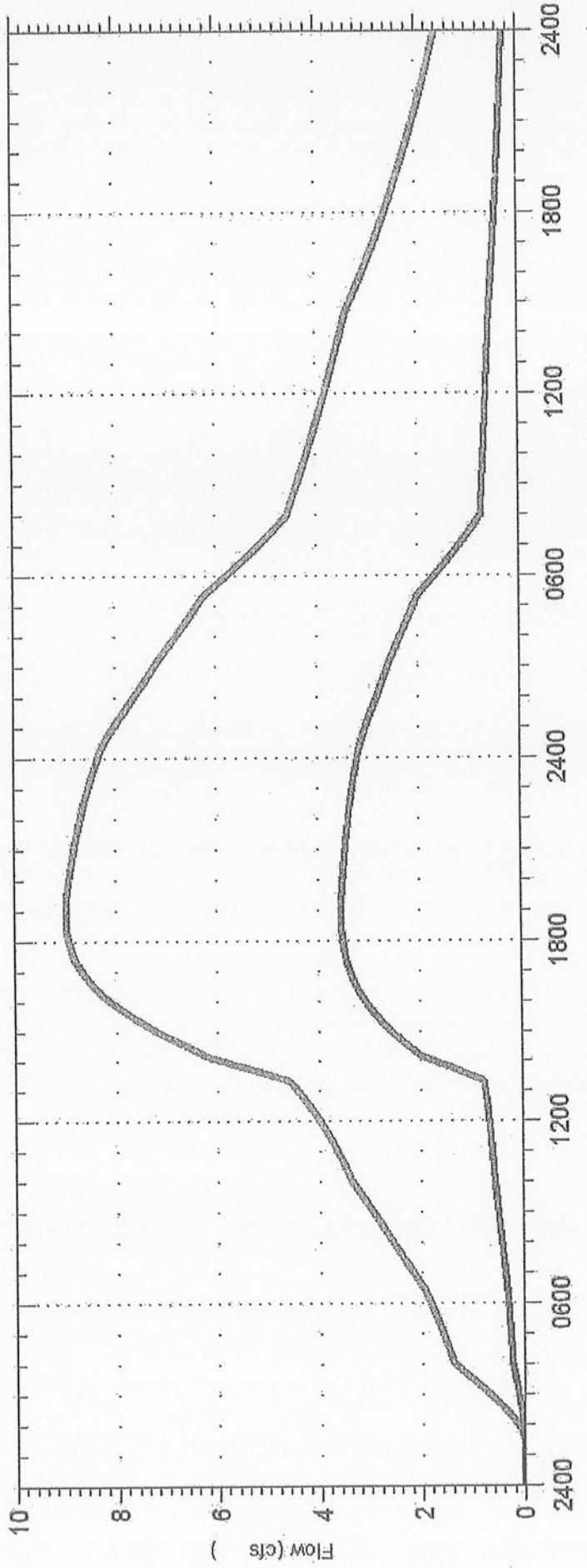
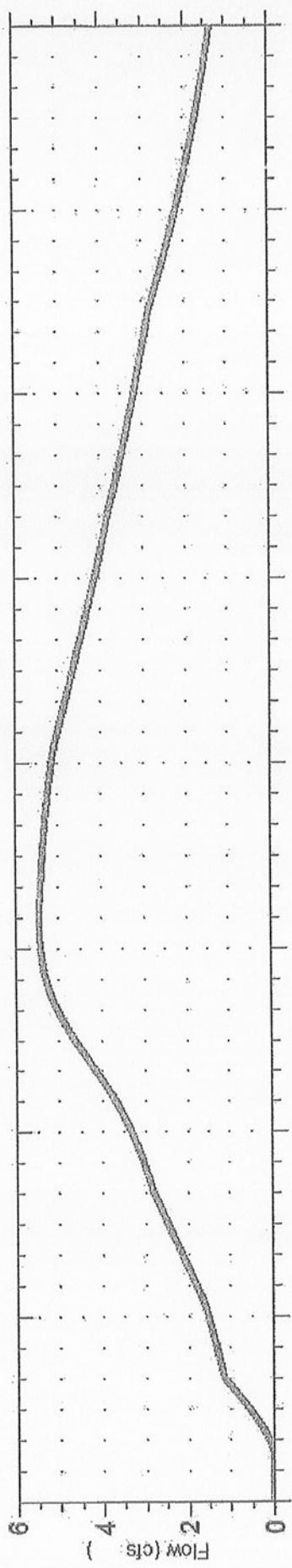


HEC
HMS

— Elevation
— Area
— Inflow

— Detention Pond

Basin: 100yr Post Dev BFE
Run: 100yr Post Dev BFE
Time: 10Nov04, 07:27



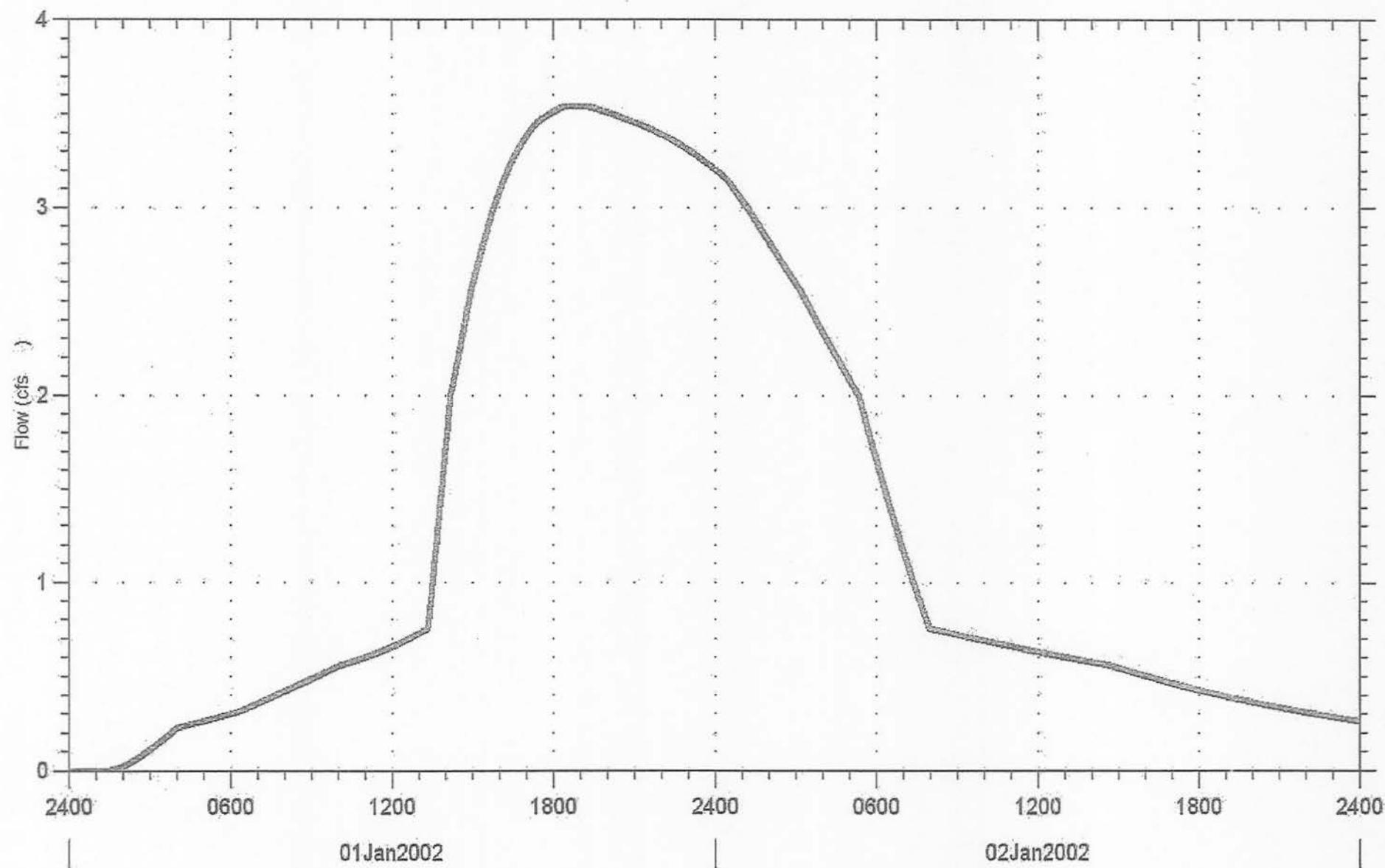
01Jan2002

02Jan2002

Basin: 100yr Post Dev BFE
Run: 100yr Post Dev BFE
Time: 10Nov04, 07:27

Diverted Flow
Outfall AB
Inflow

HEC
HMIS



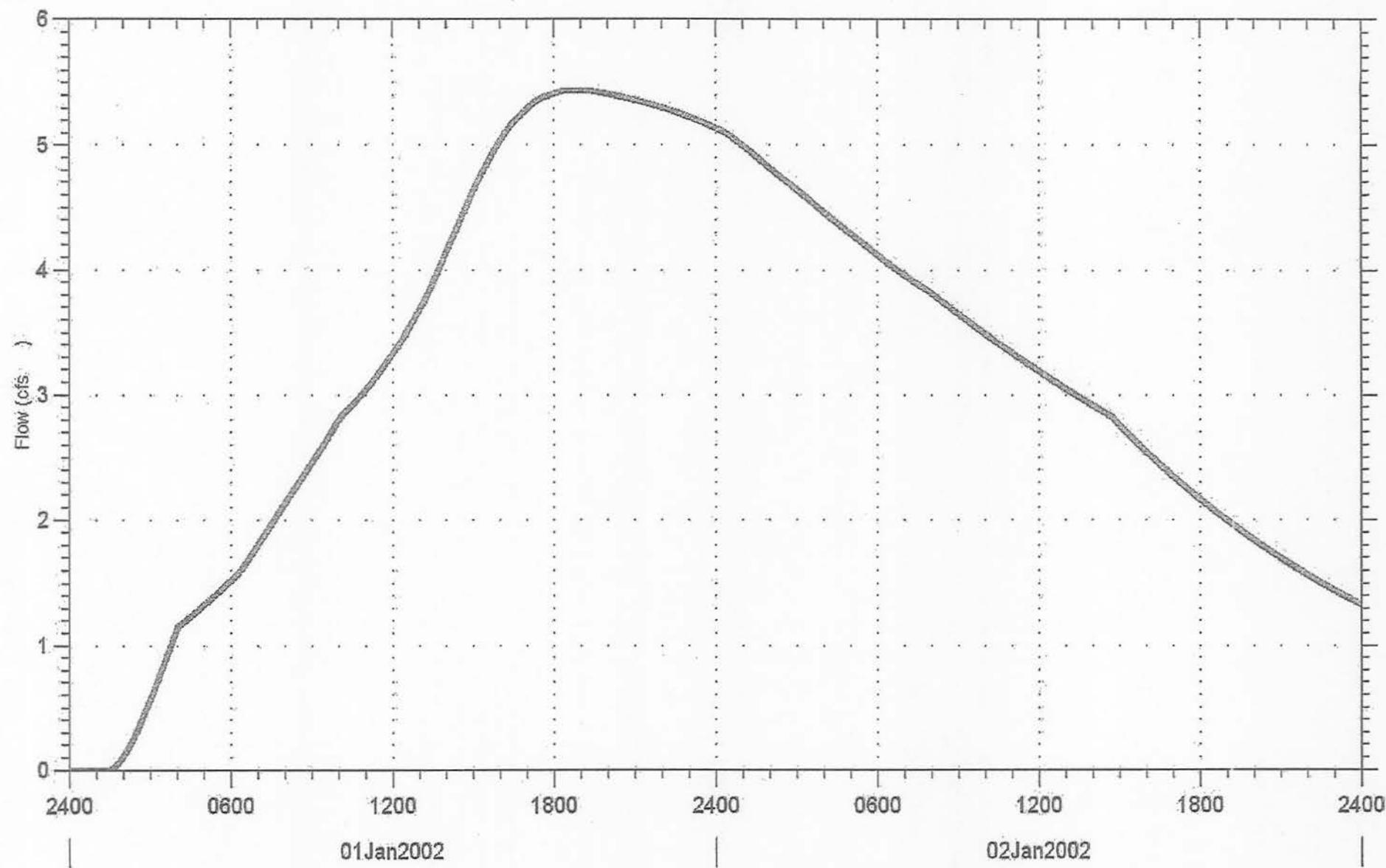
HEC
HMS

———
———

Sink-2

Outfall AB

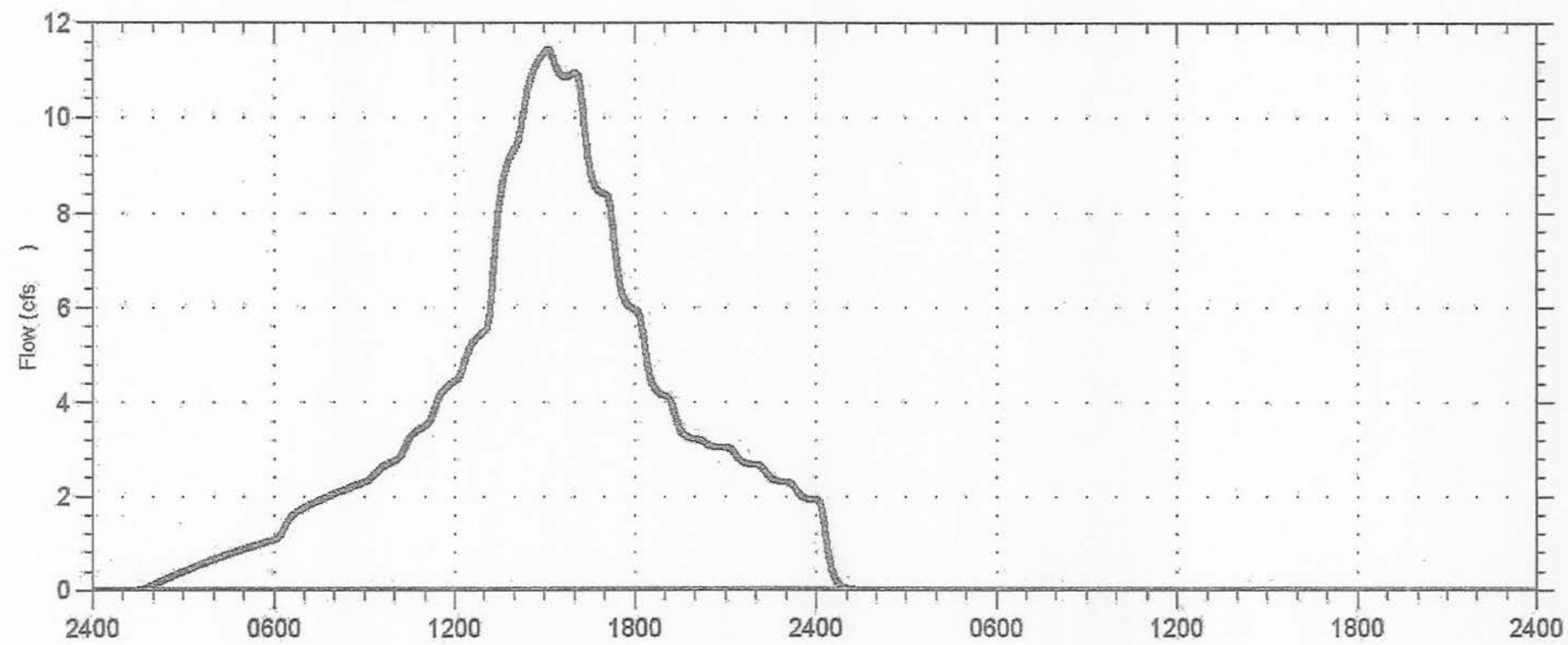
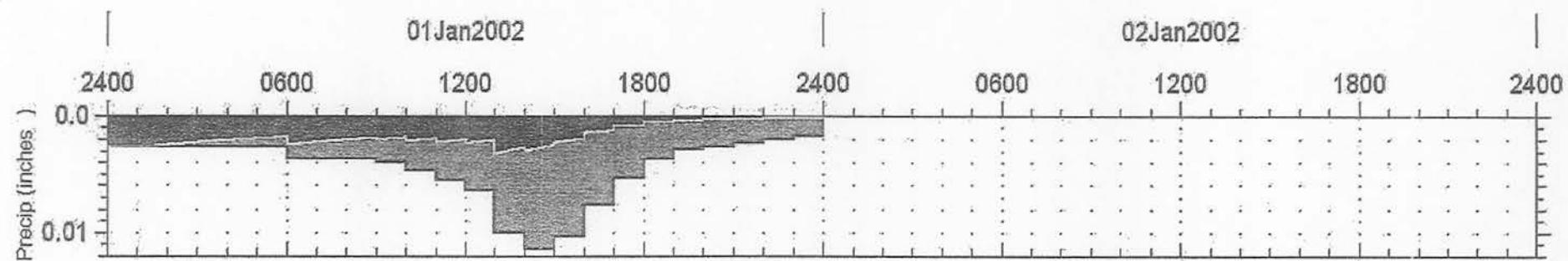
Basin: 100yr Post Dev BFE
Run: 100yr Post Dev BFE
Time: 10Nov04, 07:28



HEC
HMS

Outflow to Wetland
Outfall AB(br)

Basin: 100yr Post Dev BFE
Run: 100yr Post Dev BFE
Time: 10Nov04, 07:28

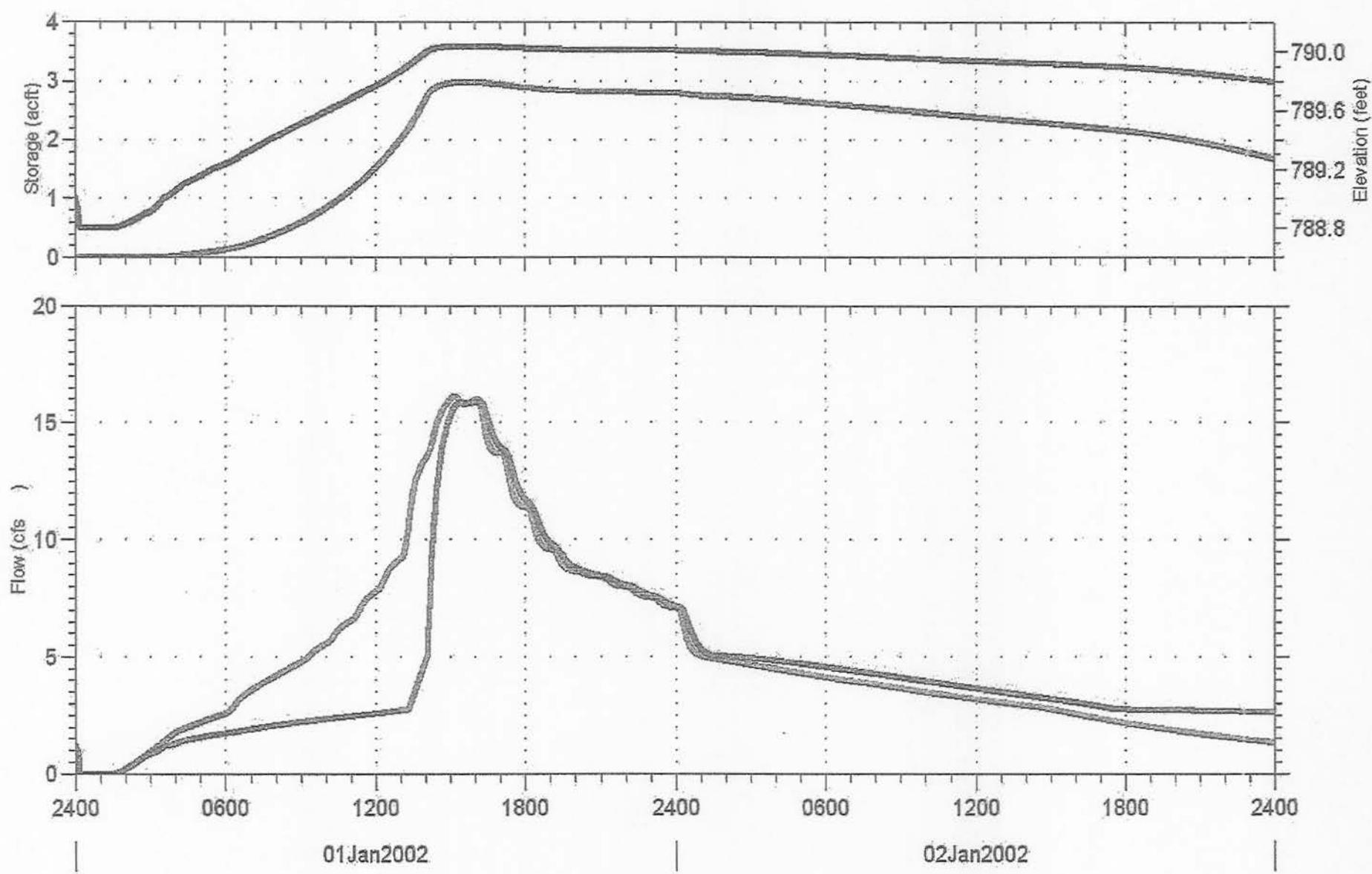


HEC
HMS

— Total Precipitation
— Loss
— Remaining Areas

— Baseflow

Basin: 100yr Post Dev BFE
Run: 100yr Post Dev BFE
Time: 10Nov04, 07:28

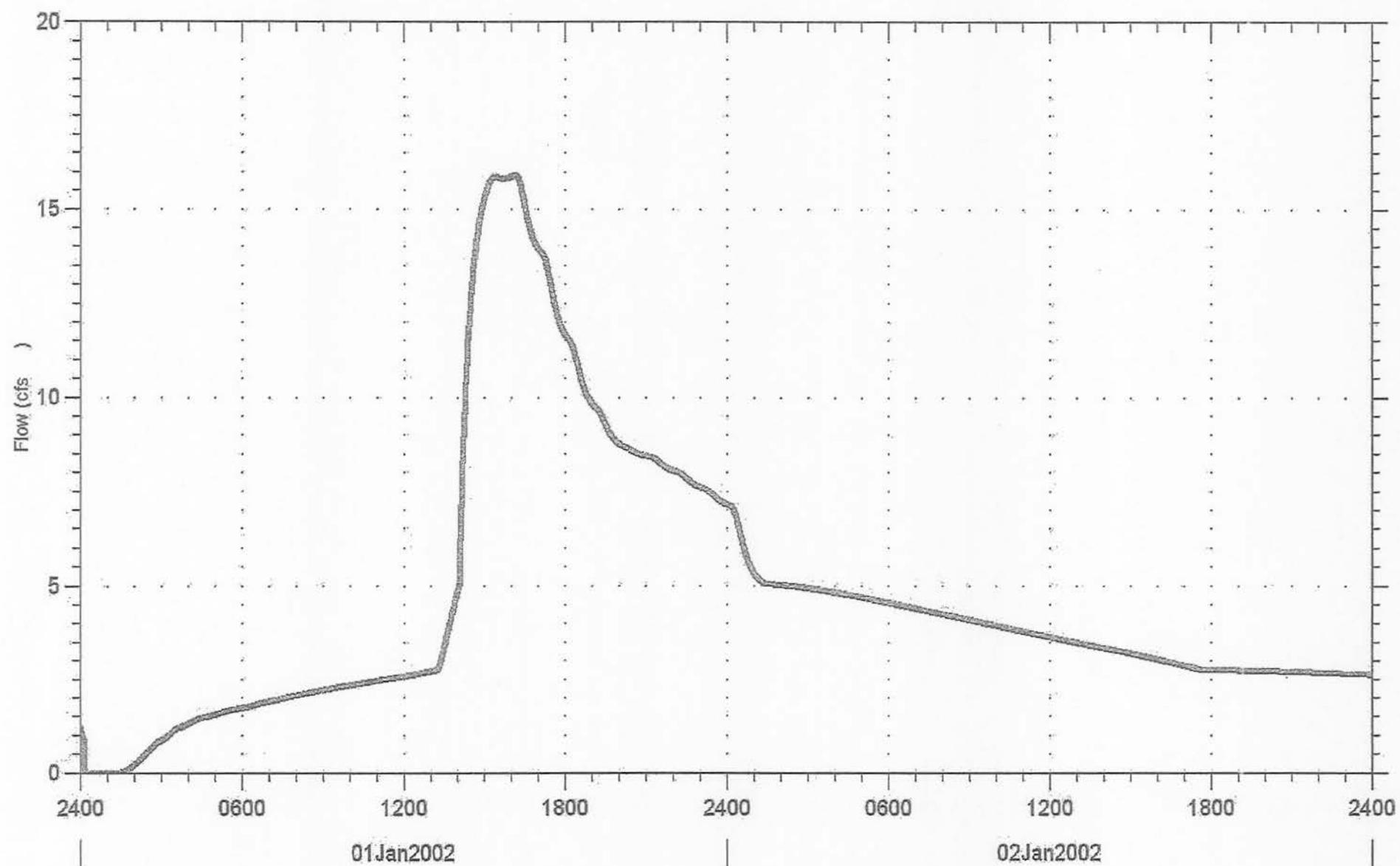


HEC
HMS

Storage
Elevation
Inflow

Wetland

Basin: 100yr Post Dev BFE
Run: 100yr Post Dev BFE
Time: 10Nov04, 07:28



HEC
HMS

—— Sink-1
—— Wetland

Basin: 100yr Post Dev BFE
Run: 100yr Post Dev BFE
Time: 10Nov04, 07:29

APPENDIX L.7

Stormwater Pollution Prevention Plan (SWPPP)

**STORMWATER POLLUTION PREVENTION PLAN FOR THE
GROOT INDUSTRIES LAKE TRANSFER STATION**

TABLE OF CONTENTS

INTRODUCTION.....	1
DESIGNATION OF RESPONSIBILITY.....	2
GENERAL FACILITY INFORMATION.....	3
SITE MAP.....	3
STORMWATER MANAGEMENT.....	4
POLLUTANTS POTENTIALLY PRESENT IN STORMWATER	4
STORMWATER POLLUTION PREVENTION PERSONNEL	4
PREVENTATIVE MAINTENANCE AND HOUSEKEEPING	7
SPILL PREVENTION AND RESPONSE.....	7
SEDIMENT AND EROSION PREVENTION	8
INSPECTIONS	8
REPORTING	9
EMPLOYEE TRAINING.....	10
PLAN MAINTENANCE AND REVIEW	10
PLAN AMENDMENTS	10
CERTIFICATION	10
COMPREHENSIVE SITE COMPLIANCE	11

FIGURES

- Figure 1 – Location Map
Figure 2 – Proposed Facility Conditions

ATTACHMENTS

- Attachment A – NPDES General Permit ILR00 (issued April 3, 2009)
Attachment B – Routine Site Inspection Report Form
Attachment C – SWPPP Activity Checklist



STORMWATER POLLUTION PREVENTION PLAN

Introduction

This Stormwater Pollution Prevention Plan (SWPPP) is written in accordance with the Illinois EPA (IEPA) General National Pollutant Discharge Elimination System (NPDES) Permit ILR00 for Industrial Stormwater. A copy of the reissued NPDES General Permit ILR00 (issued April 3, 2009 and expiring April 30, 2014), applicable to this site, is included as Attachment A. This NPDES Permit will be updated to include the Groot Industries Lake Transfer Station.

The proposed facility will accept municipal solid waste, landscape waste, and recyclables for temporary storage, consolidation and further transfer to approved disposal sites or recycling end use markets.

The purpose of this SWPPP is to develop and maintain a system to minimize the discharge of pollutants in stormwater runoff and to maintain compliance with the terms of the NPDES permit. The objectives stated within the permit are: 1) to help identify pollutant sources that affect the quality of industrial stormwater discharges, and 2) to describe and ensure the implementation of practices to reduce pollutants in industrial stormwater discharges.

The required elements of a SWPPP include:

- Pollution Prevention Team
- Identification and assessment of potential pollution source
- Pollution prevention procedures
- Materials inventory, handling procedures, and storage procedures
- Preventative maintenance program
- Spill prevention and response procedures
- General stormwater management measures and controls
- Employee training
- Facility inspection
- Record keeping
- Elimination of non-stormwater discharges to the industrial stormwater system



Designation of Responsibility

The Pollution Prevention Team will be made up of personnel from Groot Industries though may include a contracted Third Party Consultant to act as the SWPPP Oversight Subcontractor. The team members will be responsible for stormwater pollution prevention for the Facility. Specific responsibilities of the Pollution Prevention Team are listed as follows:

- Initiate facility modifications following adverse monitoring reports to ensure compliance with the SWPPP and appropriate regulatory limitations.
- Ensure that the SWPPP and any other required reports and all relevant information are maintained, signed, and certified as stated in the permit, and are promptly made available to the IEPA, as required or upon request.
- Annually review the SWPPP to determine if any additional requirements due to plant modifications, new construction, etc., are required, and that it is current and responsive to the activities and operations performed at the Facility.
- Conduct annual and quarterly facility inspections and prepare and/or maintain inspection logs to determine if modifications are required to comply with SWPPP guidelines.
- Initiate corrective action for site deficiencies found during inspections and modifications to the facility following adverse monitoring reports.
- Develop best management practices (BMPs), inspection procedures, responsibilities for training, and facility maintenance programs to ensure compliance with the SWPPP.
- Review all new plans and drawings associated with new construction, maintenance, or remodeling of material storage, new handling and processing areas to determine if the SWPPP requires amending.
- Coordinate facility inspections to determine if new modifications are required to achieve compliance with SWPPP guidelines.
- Maintain inspection logs.
- Identify the number and types of personnel, if necessary, who require training, and coordinate necessary training programs.
- Provide and maintain records of annual employee and subcontractor training sessions regarding their responsibilities concerning the implementation of this SWPPP.
- Act as Facility Emergency Response Coordinator.



General Facility Information

Name: Groot Industries Lake Transfer Station

Mailing Address: 201 South Porter Drive, Round Lake Park, Illinois 60073

Contact: Larry Groot (President)
Office: 773-242-1977
Fax : 847-734-6389
Email : lgroot@groot.com

SIC Code: 4953

Latitude: 42.344

Longitude: -88.079

Receiving Water: Pond approximately 850 feet north of site on the east side of Porter Drive and south of the railroad tracks

Total Facility Area: ± 3.9 Acres

Site Map

The location map of the Facility is shown on Figure 1. A site topographic map illustrating proposed facility conditions is shown on Figure 2. This drawing identifies the following features as applicable to the permit requirements:

- The stormwater conveyance and discharge locations;
- Maneuvering areas and buildings;
- Areas used for outdoor processing, storage, or disposal of significant materials, including activities that generate significant quantities of dust or particulates;
- Location of existing stormwater structural control measures;
- Surface water locations;
- Areas of existing and potential soil erosion;
- Vehicle service areas;
- Material loading, unloading and access areas.



Stormwater Management

The proposed facility has been designed to prevent stormwater from encountering waste. Stormwater will be routed via surface flow to a stormwater bioswale located along the northern property line of the site. Stormwater will then be directed to a stilling basin in the northwest corner of the site prior to discharge through a drainage outlet structure. Stormwater will then pass through a minimum 30-inch stormwater drainage pipe from the site and will then enter one of two parallel 42-inch drainage pipes to the Regional Detention Pond, located approximately 850 feet north of the site.

The proposed facility will require a NPDES permit for the discharge of stormwater during construction and operation. In accordance with the NPDES construction permit regulations, a Notice of Intent (NOI) and this facility SWPPP will be submitted at least 48 hours prior to the commencement of any construction activities which disturb more than one acre. An application is required to be filed for stormwater discharge associated with industrial activity prior to the start of operations. The proposed facility will be subject to the requirements of a general NPDES permit, and this permit will outline the sampling which may be required. This SWPPP will be maintained on file at the facility in accordance with the NPDES permit.

Pollutants Potentially Present in Stormwater

Materials stored onsite that may be considered a potential pollutant present in stormwater include municipal solid waste, recyclables, and landscape waste.

The primary industrial procedure at the Facility is the acceptance of materials for temporary storage, consolidation and further transfer to approved disposal sites or recycling end use markets. To the extent possible, incoming materials will be transferred on the day they are received.

Stormwater Pollution Prevention Personnel

Groot Industries, Inc. will be responsible for the implementation of this Stormwater Pollution Prevention Plan (SWPPP).

The personnel responsible for implementing this SWPPP will identify potential pollutant sources and spill sources, and conduct environmental incident reporting as applicable. The team coordinates spill prevention and response, and provides prompt notices to appropriate agencies and facility environmental contractors. The team provides stormwater pollution prevention inspections as outlined in a subsequent section of this SWPPP, maintains facility records, reviews environmental occurrences to evaluate the need for modifications to the SWPPP, and implements any subsequent amendments to the SWPPP.





PROJECT LOCATION

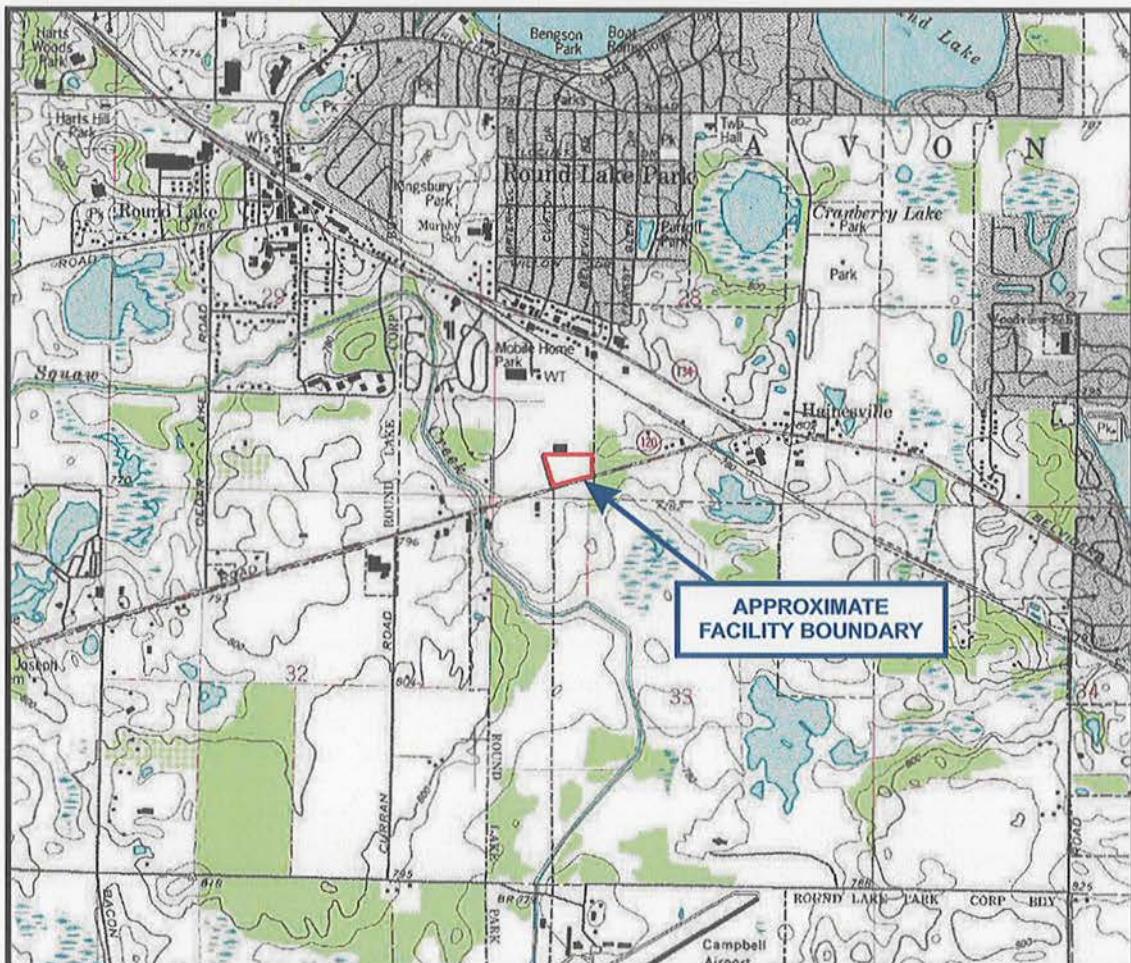


Figure Adapted from USAPhotoMaps.

0 0.5 MILES



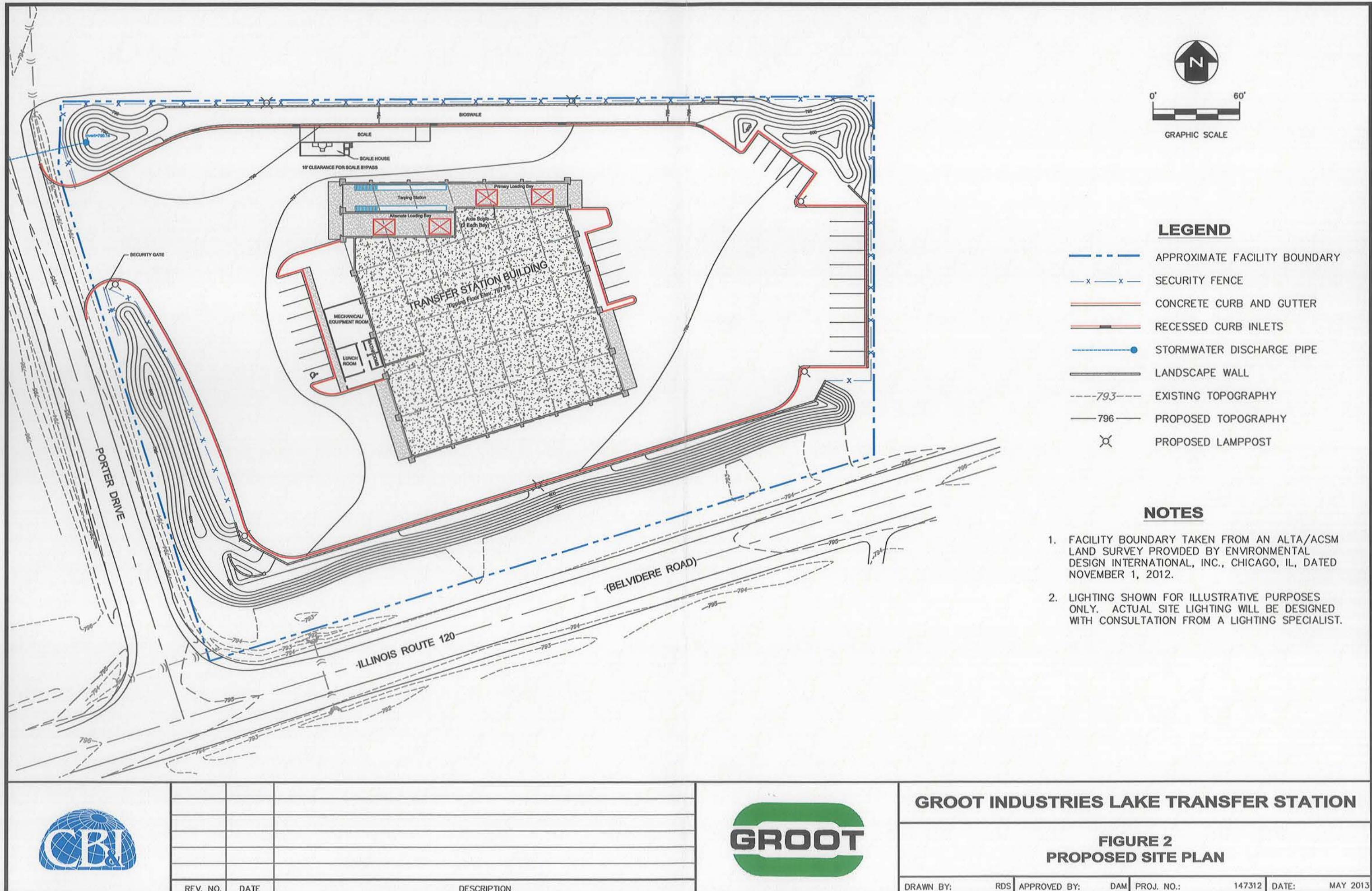
ROUND LAKE PARK TRANSFER STATION ROUND LAKE PARK, ILLINOIS

FIGURE 1
SITE LOCATION ON USGS TOPOGRAPHY

APPROVED BY: MNF

PROJ. NO.: 137818

DATE: MAY 2013



Preventative Maintenance and Housekeeping

Proper housekeeping shall be implemented to minimize the possibility of material being exposed to stormwater. Such housekeeping shall include facility preventive maintenance, grounds maintenance, and general cleanliness. Housekeeping activities will be conducted on a routine basis and will be performed in accordance with an inspection schedule. Any corrective actions based on the visual observations will be used to manage the potential contamination of stormwater runoff from this area.

Periodic preventative maintenance shall be performed on all stormwater control structures (i.e., culvert crossings, bioswale) and/or other equipment to minimize the possibility of impact on facility stormwater runoff. Routine visual observations will be performed in accordance with the inspection schedule, and any corrective actions based on the visual observations will be used to manage the potential contamination of stormwater runoff from this area. Corrective actions will be implemented if soil erosion problems occur on the Facility grounds. Inspection and maintenance activities shall be documented and recorded.

Spill Prevention and Response

Minor, superficial, releases of petroleum in amounts less than reportable quantities will be immediately cleaned up by on-site personnel using a spill kit that is stored on-site in accordance with the facility Health and Safety Plan.

In the event that a release of petroleum product (i.e., oil, gasoline, etc.) occurs at this facility, Groot Industries, Inc. will attempt to contain and recover as much of the spilled material as possible. When appropriate, materials will be stockpiled temporarily on-site while Groot Industries, Inc. conducts profiling and obtains disposal acceptance. Finally, transportation of the manifested materials will be carried out using a licensed waste hauler and be disposed of at an approved location that is properly registered and permitted according to all local, state and federal regulations.

In the event that a release in excess of reportable quantities occurs, the following appropriate agencies/persons will be immediately notified:

<u>Name/Agency</u>	<u>Phone Number</u>
Larry Groot (Groot Industries, Inc., President)	(800)-244-1977
National Response Center	(800) 424-8802
Illinois Emergency Management Agency	(800) 782-7860

Within 14 calendar days after the knowledge of the release, the SWPPP must be modified to provide a description of the release, the circumstances leading to the release, and the date of the release. The responsible personnel must then review the SWPPP to identify and modify the plan, when necessary, regarding measures to prevent the recurrence of such releases and measures to respond to such releases.



Sediment and Erosion Prevention

The Facility is approximately 3.9 acres, of which approximately 68% will be impervious area (buildings and asphalt). The Facility is primarily comprised of a transfer building, maneuvering areas, and a scale/scalehouse. Earthen berms are located around the border of the Facility. The remaining property generally includes the bioswale, stilling basin, and landscaping areas, including earthen berms along Porter Road and Illinois 120.

Routine visual observations will be performed, in accordance with the inspection schedule in the following section, and recorded on the Routine Site Inspection Report Form (Attachment B). Any corrective actions based on the visual observations will be used to manage the potential contamination of stormwater runoff. Erosion control problems identified during an inspection will be addressed subsequent to the scheduled inspection.

Inspections

Routine inspections shall be conducted in accordance with the table below. A quarterly visual observation of discharges and an annual inspection are required to verify that all elements of the SWPPP are accurate and to make certain that the pollution control strategy and the pollution prevention plan are being effectively implemented.

These inspections shall be conducted by qualified Groot Industries, Inc. personnel at the frequency described in the above table and shall, at minimum, include stormwater discharge locations, parking areas, vehicle wash areas, stormwater drainage swales, stockpile locations, and other areas previously described in this SWPPP. Inspections and maintenance activities shall be documented and recorded.

Qualified personnel must perform and document a quarterly visual observation of a storm water discharge from each outfall. The visual observation must be made during daylight hours. If no storm event resulted in runoff during daylight hours from the facility during a monitoring quarter, Groot Industries, Inc. is excused from the visual observation requirement for that quarter, provided it is documented in the records that no runoff occurred.

The quarterly visual observation must be made on samples collected as soon as practical, but not to exceed one (1) hour of when the runoff or snowmelt begins discharging from the Facility. All samples must be collected from a storm event discharge that is greater than 0.1 inch in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1" rainfall) storm event. The observation must document: color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution. If the visual observation results in any of the above listed indicators of storm water pollution, Groot Industries, Inc. must obtain a sample and test and monitor that sample for total petroleum hydrocarbons. The results of the tested sample will be recorded and documented in the Quarterly Visual Observation report.



Inspection Activity	Frequency	Recommended Inspection	Rainfall
Preventative Maintenance	Monthly	N/A	
Housekeeping	Monthly	N/A	
Soil Erosion and Sediment Control	Monthly	Within 24 hours of 1.0" or greater rainfall	
Quarterly Visual Observation of Discharges	Quarterly (within 72 hours of 0.1" or greater rainfall)	N/A	
Annual SWPPP Inspection (per General NPDES Permit No. ILR00)	Annually	N/A	

Reporting

The Quarterly Visual Observation reports will be signed and certified, will be maintained onsite with this SWPPP, and made available to IEPA and the general public upon written request. The report will include the observation date and time, inspection personnel information, nature of the discharge (i.e., runoff or snowmelt), visual quality of the storm water discharge, and probable sources of any observed storm water contamination.

An Annual Inspection Report will be submitted to IEPA. The report shall include the results of the annual inspection, along with documentation of any event (spill, stormwater discharge malfunction, etc.), the results of all other inspections and any corrective actions. The report will be completed and signed by the team member that conducted the inspection. The inspections will be documented and a copy provided to the IEPA as required in Section G of the General NPDES Permit No. ILR00. Additionally, the annual inspection report shall be available to the public at any reasonable time upon request, and to the regulated small municipal separate storm water system owner (MS4 Community) upon their request.

The first report must include the information gathered during the one (1) year period beginning with the effective date of coverage under the permit and submitted no later than 60 days after the one (1) year period has expired. Each subsequent annual inspection report shall contain the previous year's information and shall be submitted no later than one (1) year after the previous year's report was due.



The annual inspection report must be submitted to the following email and office address:

Email: epa.indannualinsp@illinois.gov

Mailing Address:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Compliance Assurance Section #19
Annual Inspection Report
PO Box 19276
Springfield, Illinois 62794-9276

The annual inspection records will be maintained for at least three (3) years with the current SWPPP.

Employee Training

In accordance with Section E(6)(g) of the General Permit ILR00, all appropriate personnel will be trained to the requirements of the SWPPP. This training will include any other means to minimize pollutants in stormwater discharges as appropriate for this site and shall also include coverage of all applicable pollution control laws, rules and regulations. Records of training shall be kept with this SWPPP and maintained by Groot Industries, Inc. Training will be conducted and/or updated annually, or as deemed necessary.

Plan Maintenance and Review

The SWPPP will be reviewed annually by Management. Based upon the findings of that review, the plan will be updated to incorporate any changes in pollution control management strategies, and/or any other changes that could alter the stormwater runoff characteristics or impact the implementation of the plan. The pollution control strategy shall also be examined to determine if additional structural or management practices are feasible to further minimize pollutants in stormwater runoff. All reviews and subsequent amendments of the plan shall be recorded on the Record of Review Amendment Form, found at the beginning of this SWPPP. The original plan and all accompanying records, reports, and changes will be retained by Management.

Plan Amendments

The SWPPP shall be amended whenever there is a change in status, construction or maintenance operations that may affect the discharge of significant quantities of pollutants to surface water, groundwater, or the local storm drain system. The SWPPP shall also be amended when administrative changes result in a change of personnel responsible for SWPPP implementation or when the facility is found to be in violation of any conditions of the permit, or has not achieved the general objectives of controlling pollutants in stormwater discharge.

Certification

The SWPPP shall be reviewed by the Groot Industries, Inc. Management and certified that all the information provided in the SWPPP is accurate and complete, and that the discharge has



been evaluated for the presence of non-stormwater discharges. The Facility is required to provide proof that the discharge has been tested or evaluated for the presence of non-stormwater discharges. The certification must include a description of any tests for the presence of non-stormwater discharges, the methods used, the dates of the testing, and any on-site drainage points that were observed during the testing.

Should amendments be required to the original SWPPP due to changes, Management must review the amendments and certify both the accuracy of the revised information and that non-stormwater will not be discharged under this plan.

Comprehensive Site Compliance

Qualified personnel will conduct a comprehensive site audit at least once per year. The annual inspection will include a visual inspection of all areas contributing to stormwater discharge for evidence of, or the potential for, pollutants entering the discharge system. The annual inspection will include the evaluation of all current practices in place to reduce pollutants in stormwater and will be used to determine these practices are effective or if further controls are necessary. Structural control measures will also be inspected and all necessary repairs or problems with these systems will be reported.

The report shall identify any incidents of noncompliance and must be reviewed by Management within two (2) weeks of its completion. If no incidents of non-compliance are identified, a letter of certification must be included with the report. If non-compliances are noted, all necessary changes must be documented and implemented within twelve (12) weeks.

The report must be signed, or initialed, by Management and retained with the SWPPP for at least three (3) years after date of the evaluation. Information in this report will be included in the annual report to IEPA.

A SWPPP Activity Checklist has been developed as a management tool to assist in documenting completion of compliance activities outlined in this plan (Attachment C). Modifications to the plan should also be incorporated into the SWPPP activity checklist.



Attachment A

General NPDES Permit No. ILR00

Illinois Environmental Protection Agency
Division of Water Pollution Control
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276
www.epa.state.il.us

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

**General NPDES Permit
For
Storm Water Discharges from Industrial Activities**

Expiration Date: April 30, 2014

Issue Date: April 3, 2009

Effective Date: May 1, 2009

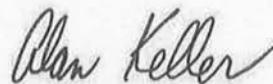
Discharges authorized by this General Permit: In compliance with the provisions of the Illinois Environmental Protection Act, the Illinois Pollution Control Board Rules and Regulations (35 Ill. Adm. Code, Subtitle C, Chapter 1) and the Clean Water Act, the following discharges may be authorized by this permit in accordance with the conditions herein:

Discharges of storm water associated with industrial activity, as defined and limited herein. Storm water means storm water runoff, snow melt runoff, and surface runoff and drainage.

This general permit regulates only storm water discharges from a facility. Other discharges such as process wastewater or cooling water shall be regulated by other NPDES permits.

Receiving waters: Discharges may be authorized to any surface water of the State.

To receive authorization to discharge under this general permit, a facility operator must either submit an application as described in the permit conditions to the Illinois Environmental Protection Agency or have a valid Illinois General NPDES Permit for industrial storm water. Authorization, if granted, will be by letter and include a copy of this permit.



Alan Keller, P.E.
Manager, Permit Section
Division of Water Pollution Control

General NPDES Permit No. ILR00

<u>CONTENTS OF THIS GENERAL PERMIT</u>	Pages
A. Applicability of this General Permit	2 - 3
B. Types of Discharges not Covered by this Permit	3
C. Special Conditions	4
D. Application Requirements	4 - 6
E. Storm Water Pollution Prevention Plan	6 - 8
F. Construction Authorization	8 - 9
G. Reporting	9
H. Termination of Coverage Under this Permit	9 - 10
I. Reopener Clause	10
J. Definitions	10

A. APPLICABILITY OF THIS GENERAL PERMIT

This permit is applicable to storm water discharges associated with industrial activity from areas (except access roads and rail lines) where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to storm water in the state of Illinois from the facilities listed below.

1. Discharges of storm water from facilities whose process wastewater discharges are subject to new source performance standards or toxic pollutant effluent standards under 40 CFR Subchapter N, except:
 - a. discharges subject to new source performance standards or toxic pollutant effluent standards and described in paragraph A.2. below which do not have materials or activities exposed to storm water. Facilities with these discharges shall submit a No Exposure Certification form to the Agency.
 - b. discharges subject to storm water effluent limitations guidelines listed in B.1. of this permit.
2. Discharges from facilities in the following SIC codes:

SIC 20	(Food and kindred products manufacturing or processing)
SIC 21	(Tobacco products)
SIC 22	(Textile mill products)
SIC 23	(Apparel and other finished products made from fabrics and similar materials)
SIC 24	(Lumber and wood products except furniture)
SIC 2434	(Wood kitchen cabinets)
SIC 25	(Furniture and fixtures)
SIC 26	(Paper and allied products)
SIC 265	(Paperboard containers and boxes)
SIC 267	(Converted paper and paperboard products)
SIC 27	(Printing, publishing, and allied industries)
SIC 28	(Chemicals and allied products)
SIC 283	(Drugs)
SIC 285	(Paints, varnishes, lacquers, enamels, and allied products)
SIC 29	(Petroleum refining and related industries), except discharges subject to 40 CFR 419
SIC 30	(Rubber and miscellaneous plastics products)
SIC 31	(Leather and leather products)
SIC 311	(Leather tanning and finishing)
SIC 32	(Stone, clay, glass, and concrete products)
SIC 323	(Glass products, made of purchased glass)
SIC 33	(Primary metal industries)
SIC 34	(Fabricated metal products, except machinery and transportation equipment)
SIC 3441	(Fabricated structural metal)
SIC 35	(Industrial and commercial machinery and computer equipment)
SIC 36	(Electronic and other electrical equipment and components, except computer equipment)
SIC 37	(Transportation equipment)
SIC 373	(Ship and boat building and repairing)
SIC 38	(Measuring, analyzing, and controlling instruments; photographic, medical, and optical goods; watches and clocks)
SIC 39	(Miscellaneous manufacturing industries)
SIC 4221-25	(Farm products warehousing and storage, refrigerated warehousing and storage, general warehousing and storage)

General NPDES Permit No. ILR00

3. Facilities classified as SIC Codes 10-14 (Mineral Industry) including active or inactive mining operations and oil and gas exploration, production, processing, treatment operations, or transmission facilities, except discharges subject to 40 CFR 434, 436, or 440.
4. Landfills, land application sites (excluding land application sites which utilize agricultural land), and open dumps that receive or have received any industrial wastes (waste that is received from any of the facilities described in 40 CFR 122.26(b)(14)).
5. Facilities involved in the recycling of materials including metal scrapyards, battery reclaimers, salvage yards, and automobile junkyards including but not limited to SIC 5015 (Used motor vehicle parts) and SIC 5093 (Scrap and waste materials)
6. Transportation facilities-areas of the following facilities involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, or airport deicing operations:

SIC 40	(Railroad transportation)
SIC 41	(Local and suburban transit and inter-urban highway passenger transportation)
SIC 42	(Motor freight transportation and warehousing) except SIC 4221-4225 (Farm product warehousing and storage, refrigerated warehousing and storage, general warehousing and storage)
SIC 43	(United States Postal Service)
SIC 44	(Water transportation)
SIC 45	(Transportation by air)
SIC 5171	(Petroleum bulk stations and terminals-wholesale)

7. Treatment Works treating domestic sewage with a design flow of 1.0 mgd or more; includes sludge or wastewater treatment devices or systems used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, and land dedicated to sludge disposal located within the confines of the facility; excludes off-site sludge management lands, farm lands, and gardens.

B. TYPES OF DISCHARGES NOT COVERED BY THIS PERMIT

This permit is not applicable to storm water discharges from the facilities listed below. Storm water discharges from these facilities must be authorized by an individual NPDES permit or alternate general NPDES permit.

1. Discharges subject to storm water effluent limitations guidelines in the following categories;
 - Cement Manufacturing (40 CFR 411)
 - Feedlots (40 CFR 412)
 - Fertilizer Manufacturing (40 CFR 418)
 - Petroleum Refining (40 CFR 419)
 - Phosphate Manufacturing (40 CFR 422)
 - Steam Electric (40 CFR 423)
 - Coal Mining (40 CFR 434)
 - Mineral Mining and Processing (40 CFR 436)
 - Ore Mining and Dressing (40 CFR 440)
 - Asphalt Emulsion (40 CFR 443).
2. Hazardous waste treatment, storage or disposal facilities.
3. Steam electric power generating facilities, including coal handling sites.
4. Construction site activity including clearing, grading and excavation activities.
5. Storm water discharges associated with industrial activity from facilities with an existing NPDES individual or general permit for the storm water discharges.
6. Storm water discharges associated with industrial activity which are identified by the Agency as possibly causing or contributing to a violation of water quality standards.
7. Storm water discharges associated with inactive mining or inactive oil and gas operations occurring on Federal lands where an operator cannot be identified.
8. Storm water discharges to any receiving water identified under 35 Ill. Adm. Code 302.105(d)(6).
9. Storm water discharges that the Agency determines are not appropriately covered by this general permit.

This permit does not authorize the discharge of hazardous substances or oil resulting from an on-site spill, and does not supersede any reporting requirements for spills or releases of hazardous substances or oil.

General NPDES Permit No. ILR00

C. SPECIAL CONDITIONS

1. Prohibition on non-storm water discharges
 - a. Except as provided in C. 1. b. below, all discharges covered by this permit shall be composed entirely of storm water.
 - b.
 - i. Except as provided in C. 1.b. ii. below, discharges of material other than storm water must be in compliance with an NPDES permit (other than this permit) issued for the discharge.
 - ii. The following non-storm water discharges may be authorized by this permit provided the non-storm water component of the discharges is in compliance with Part E.7. of this permit: discharges from fire fighting activities; fire hydrant flushings; waters used to wash vehicles without the use of detergents; waters used to control dust; potable water sources including waterline flushings; irrigation drainage; lawn watering; routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; condensate from refrigerants; springs; uncontaminated ground water; and foundation or footing drains where flows are not contaminated with process materials such as solvents.
 2. Provisions for handling storm water from bulk storage and hazardous waste containment areas
 - a. This permit does not authorize the discharge of storm water collected in containment areas at bulk storage and hazardous waste facilities where the storm water becomes contaminated by direct contact with a spill or release of stored materials into the containment area. Such storm water shall be handled properly by on-site treatment or hauling off-site for treatment and disposal.
 - b. Where a spill or release to a dry containment area occurs, the permittee shall institute procedures to clean up the spill in order to prevent contamination of any storm water, which subsequently collects in the containment area. Spills shall be cleaned and any contaminated water or solids shall be disposed of in accordance with applicable regulations. Where these procedures are followed, collected storm water may be discharged; following visual inspection to assure that the storm water contains no unnatural turbidity, color, oil films, foams, settleable solids, or deposits.
 - c. If you have storage piles of salt used for deicing or other commercial or industrial purposes, they must be enclosed or covered to prevent exposure to precipitation (except for exposure resulting from adding or removing materials from the pile). Piles do not need to be enclosed or covered where storm water from the pile is not discharged to waters of the state or the discharges from the piles are authorized under another permit.
 3. Discharging pollutants for which a water body is impaired with an approved TMDL
 - a. For existing dischargers, new dischargers and new sources: you must carefully document the justifications for all Best Management Practices (BMP) selections in your SWPPP, and install, implement and maintain BMPs that are consistent with all relevant TMDL allocations and with all relevant conditions in an implementation plan.
 4. Discharges covered by this permit, alone or in combination with other sources, shall not cause or contribute to a violation of any applicable water quality standard.
 5. Additional Monitoring Required by IEPA – IEPA may provide written notice requiring additional discharge monitoring. Any such notice will briefly state the reasons for the monitoring, locations and parameters to be monitored, frequency and period of monitoring, sample types, and reporting requirements.

D. APPLICATION REQUIREMENTS

1. Dischargers that are covered by a valid Illinois General NPDES Permit for industrial storm water as of May 31, 2008 are automatically covered by this permit unless they request otherwise prior to the effective date of this permit. Other dischargers seeking coverage under this general permit shall provide the Illinois Environmental Protection Agency (IEPA) with the following information:
 - a.
 - i. A completed IEPA Notice of Intent form, accompanied by quantitative sampling data for the storm water discharge(s) if available; or
 - ii. A completed U.S. EPA Form 1, including form 2F and quantitative sampling data when requested by the Agency.

General NPDES Permit No. ILR00

- b. An electronic copy of the storm water pollution prevention plan that has been prepared for the industrial site in accordance with Part E of this permit. The electronic copy shall be submitted to the Agency at the following email address: epa.indilr00swppp@illinois.gov .
- 2. Quantitative sampling data as required by U.S. EPA Form 2F for storm water discharges from the following existing or new facilities is required to be submitted.
 - a. Facilities subject to reporting requirements under Section 313 of EPCRA for chemicals classified as "Section 313 water priority chemicals": Storm water discharges that come into contact with any equipment, tank, container, or other vessel or area used for storage of a Section 313 water priority chemical, or located at a truck or rail car unloading area where a Section 313 water priority chemical is handled.
 - b. Facilities classified as SIC 33 (Primary Metal Industries).
 - c. Active or inactive landfills, land application sites, or open dumps without a stabilized final cover which have received any industrial wastes.
 - d. Wood treatment facilities: Storm water discharges from areas that are used for wood treatment, wood surface application, or storage of treated or surface protected wood.
 - e. Coal pile runoff at industrial facilities other than coal mines.
 - f. Battery reclaiming facilities: Storm water discharges from areas used for storage of lead acid batteries, reclamation products, or waste products, and areas used for lead acid battery reclamation.
 - g. Airports with over 50,000 flight operations per year: storm water discharges from aircraft or airport deicing areas.
 - h. Meat packing plants, poultry packing plants, and facilities that manufacture animal and marine fats and oils.
 - i. Facilities classified as SIC 28 (Chemicals and Allied Products) and SIC 30 (Rubber and Miscellaneous Plastics Products): Storm water discharges that come into contact with solid chemical storage piles.
 - j. Automobile junkyards: Storm water discharges exposed to over 250 auto/truck bodies with drivelines, over 250 drivelines, or any combination thereof (in whole or in parts); over 500 auto/truck units (bodies with or without drivelines in whole or in parts); or over 100 units per year are dismantled and drainage or storage of automotive fluids occurs in areas exposed to storm water.
 - k. Lime manufacturing facilities: Storm water discharges that have come into contact with lime storage piles.
 - l. Cement manufacturing facilities and cement kilns: Storm water discharges other than those subject to 40 CFR 411.
 - m. Ready-mixed concrete facilities. Sampling data is not required for new ready-mixed concrete facilities or for relocated ready-mixed concrete facilities.
 - n. Ship building and repairing facilities.
- 3. When a facility has two or more outfalls that, based on consideration of features and activities within the area drained by the outfall, the permittee reasonably believes discharge substantially identical effluents, the permittee may sample the effluent of one such outfall and report that quantitative data also applied to the substantially identical outfalls. If the applicant is requesting approval to sample a representative outfall, identification of all storm water outfalls considered to be substantially identical along with the outfall being used to represent such outfalls and appropriate justification must be provided with the application.
- 4. For existing facilities with an individual NPDES permit covering storm water associated with industrial activity, or those facilities who have previously submitted an application for an individual permit and not yet received a permit, the permittee/applicant may elect to seek coverage under this general permit in place of obtaining an individual permit. To be considered for coverage the permittee/applicant is required to submit the above information.
- 5. For new facilities, the NOI and required information shall be submitted 180 days prior to the date on which the discharge is to commence unless permission for a later date has been granted by the IEPA. Mobile facilities (such as concrete or asphalt batch plants) shall apply at least 30 days prior to discharge.

General NPDES Permit No. ILR00

6. The required information shall be submitted to the following address:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Permit Section #15
Post Office Box 19276
Springfield, Illinois 62794-9276

7. In any case where an NPDES Permit has been timely applied for but final administrative disposition of such application has not been made, it shall not be a violation of Section 12-F of the Environmental Protection Act to discharge without such permit unless the complainant proves that final administrative disposition has not been made because of the failure of the applicant to furnish information reasonably required or requested in order to process the application. This provision does not relieve the applicant from the responsibility for compliance with any other requirement of the Act or regulations promulgated under the Act.
8. Facilities which discharge storm water associated with industrial activity to a municipal separate storm sewer system shall notify the municipality, and shall provide the municipality with a copy of their application if requested.

E. STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

1. A storm water pollution prevention plan shall be developed by the permittee and submitted to the Agency for each facility covered by this permit. The plan shall identify potential sources of pollution which may be expected to affect the quality of storm water discharges associated with the industrial activity at the facility. In addition, the plan shall describe and ensure the implementation of practices which are to be used to reduce the pollutants in storm water discharges associated with industrial activity at the facility and to assure compliance with the terms and conditions of this permit. An electronic copy of the plan shall be submitted to the Agency at the following email address: epa.indilr00swppp@illinois.gov. The permittee shall submit any modified plan to the Agency, when such modification includes substantive changes to the plan or modification is made to the plan for compliance with this permit.

- a. Waters not classified as Impaired pursuant to Section 303(d) of the Clean Water Act

Unless otherwise specified by federal regulation, the storm water pollution prevention plan shall be designed for a storm event equal to or greater than a 25-year 24-hour rainfall event.

- b. Waters classified as Impaired pursuant to Section 303(d) of the Clean Water Act

For any site which discharges directly to an impaired water identified in the Agency's 303(d) listing, and if any parameter in the subject discharge has been identified as the cause of impairment, the storm water pollution prevention plan shall be designed for a storm event equal to or greater than a 25-year 24-hour rainfall event. If required by federal regulations, the storm water pollution prevention plan shall adhere to a more restrictive design criteria.

2. Plans for new facilities shall be completed prior to submitting an NOI to be covered under this permit. An electronic copy of the storm water pollution prevention plan shall be submitted to the Agency at the following email address: epa.indilr00swppp@illinois.gov. Plans shall provide for compliance with the terms of this permit prior to operation of any industrial activity to be covered under this permit. [Note: If the plan has already been required to be developed under a previous permit it shall be maintained in accordance with all requirements of this special condition.]. The owner or operator of an existing facility with storm water discharges covered by this permit shall make a copy of the plan available to the Agency at any reasonable time upon request.

Facilities which discharge to a municipal separate storm sewer system shall also make a copy available to the operator of the municipal system at any reasonable time upon request.

3. The permittee may be notified by the Agency at any time that the plan does not meet the requirements of this permit. After such notification, the permittee shall make changes to the plan and shall submit a revised plan to the Agency, with the requested changes that have been made. Unless otherwise provided, the permittee shall have 30 days after such notification to make the changes.
4. The discharger shall amend the plan whenever there is a change in construction, operation, or maintenance which may affect the discharge of significant quantities of pollutants to the waters of the State or if a facility inspection required by paragraph E.8. of this permit indicates that an amendment is needed. The plan should also be amended if the discharger is in violation of any conditions of this permit, or has not achieved the general objectives of controlling pollutants in storm water discharges. Amendments to the plan shall be made within 30 days of any proposed construction or operational changes at the facility, and shall be submitted to the Agency.
5. The plan shall provide a description of potential sources which may be expected to add significant quantities of pollutants to storm water discharges, or which may result in non-storm water discharges from the facility. The plan shall include, at a minimum, the following items:

General NPDES Permit No. ILR00

- a. A topographic map extending one-quarter mile beyond the property boundaries of the facility, showing: the facility, surface water bodies, wells (including injection wells), seepage pits, infiltration ponds, and the discharge points where the facility's storm water discharges to a municipal storm drain system or other water body. The requirements of this paragraph may be included on the site map if appropriate. Any map or portion of map may be withheld for security reasons.
 - b. A site map showing:
 - i. The storm water conveyance and discharge structures;
 - ii. An outline of the storm water drainage areas for each storm water discharge point;
 - iii. Paved areas and buildings;
 - iv. Areas used for outdoor manufacturing, storage, or disposal of significant materials, including activities that generate significant quantities of dust or particulates;
 - v. Location of existing or future storm water structural control measures/practices (dikes, coverings, detention facilities, etc.);
 - vi. Surface water locations and/or municipal storm drain locations;
 - vii. Areas of existing and potential soil erosion;
 - viii. Vehicle service areas;
 - ix. Material loading, unloading, and access areas;
 - x. Areas under Items iv and ix above may be withheld from the site map for security reasons.
 - c. A narrative description of the following:
 - i. The nature of the industrial activities conducted at the site, including a description of significant materials that are treated, stored or disposed of in a manner to allow exposure to storm water;
 - ii. Materials, equipment, and vehicle management practices employed to minimize contact of significant materials with storm water discharges;
 - iii. Existing or future structural and non-structural control measures/practices to reduce pollutants in storm water discharges;
 - iv. Industrial storm water discharge treatment facilities;
 - v. Methods of onsite storage and disposal of significant materials.
 - d. A list of the types of pollutants that have a reasonable potential to be present in storm water discharges in significant quantities. Also provide a list of any pollutant that is listed as impaired in the most recent 303(d) report.
 - e. An estimate of the size of the facility in acres or square feet, and the percent of the facility that has impervious areas such as pavement or buildings.
 - f. A summary of existing sampling data describing pollutants in storm water discharges.
6. The plan shall describe the storm water management controls which will be implemented by the facility. The appropriate controls shall reflect identified existing and potential sources of pollutants at the facility. The description of the storm water management controls shall include:
- a. Storm Water Pollution Prevention Personnel - Identification by job titles, direct telephone numbers and email addresses of the individuals who are responsible for developing, implementing, and revising the plan.
 - b. Preventive Maintenance - Procedures and frequencies for inspection and maintenance of storm water conveyance system devices such as oil/water separators, catch basins, etc., and inspection and testing of plant equipment and systems that could fail and result in discharges of pollutants to storm water.
 - c. Good Housekeeping - Good housekeeping requires the maintenance of clean, orderly facility areas that discharge storm water. Material handling areas shall be inspected and cleaned to reduce the potential for pollutants to enter the storm water conveyance system.
 - d. Spill Prevention and Response - Identification of areas where significant materials can spill into or otherwise enter the storm water conveyance systems and their accompanying drainage points. Specific material handling procedures, storage requirements, spill

General NPDES Permit No. ILR00

clean up equipment and procedures should be identified, as appropriate. Internal notification procedures for spills of significant materials should be established.

- e. Storm Water Management Practices - Storm water management practices are practices other than those which control the source of pollutants. They include measures such as installing oil and grit separators, diverting storm water into retention basins, etc. Based on assessment of the potential of various sources to contribute pollutants, measures to remove pollutants from storm water discharge shall be implemented. In developing the plan, the following management practices shall be considered:
 - i. Containment - Storage within berms or other secondary containment devices to prevent leaks and spills from entering storm water runoff. To the maximum extent practicable, storm water discharged from any area where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to storm water should not enter vegetated areas or surface waters or infiltrate into the soil unless adequate treatment is provided.
 - ii. Oil & Grease Separation - Oil/water separators, booms, skimmers or other methods to minimize oil contaminated storm water discharges.
 - iii. Debris & Sediment Control - Screens, booms, sediment ponds or other methods to reduce debris and sediment in storm water discharges.
 - iv. Waste Chemical Disposal - Waste chemicals such as antifreeze, degreasers and used oils shall be recycled or disposed of in an approved manner and in a way which prevents them from entering storm water discharges.
 - v. Storm Water Diversion - Storm water diversion away from materials manufacturing, storage and other areas of potential storm water contamination. Minimize the quantity of storm water entering areas where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to storm water using green infrastructure techniques where practicable in the areas outside the exposure area, and otherwise divert storm water away from the exposure area.
 - vi. Covered Storage or Manufacturing Areas - Covered fueling operations, materials manufacturing and storage areas to prevent contact with storm water.
 - vii. Mercury Switch Removal and Recycling – Mercury-containing convenience lighting switches and anti-lock brake assemblies shall be removed from vehicles, and recycled in an approved manner, in a way which prevents mercury from entering the storm water discharges.
 - viii. Storm Water Reduction – Install vegetation on roofs of buildings within and adjacent to the exposure area to detain and evapotranspire runoff where the precipitation falling on the roof is not exposed to contaminants, to minimize storm water runoff; capture storm water in devices that minimize the amount of storm water runoff and use this water as appropriate based on quality.
 - f. Sediment and Erosion Prevention - The plan shall identify areas which due to topography, activities, or other factors, have a high potential for significant soil erosion. The plan shall describe measures to limit erosion.
 - g. Employee Training - Employee training programs shall inform personnel at all levels of responsibility of the components and goals of the storm water pollution prevention plan. Training should address topics such as spill response, good housekeeping and material management practices. The plan shall identify periodic dates for such training.
 - h. Inspection Procedures - Qualified plant personnel shall be identified to inspect designated equipment and plant areas. A tracking or follow-up procedure shall be used to ensure appropriate response has been taken in response to an inspection. Inspections and maintenance activities shall be documented and recorded.
7. Non-Storm water Discharges - The plan shall include a certification that the discharge has been tested or evaluated for the presence of non-storm water discharges. The certification shall include a description of any tests for the presence of non-storm water discharges, the methods used, the dates of the testing, and any onsite drainage points that were observed during the testing. Any facility that is unable to provide this certification must describe the procedure of any test conducted for the presence of non-storm water discharges, the test results, potential sources of non-storm water discharges to the storm sewer, and why adequate tests for such storm sewers were not feasible. Except as provided in C.1. b., discharges not comprised entirely of storm water are not authorized by this permit.
 8. Quarterly Visual Observation of Discharges – The requirements and procedures for quarterly visual observations are applicable to all facilities covered under this permit, regardless of your sector of industrial activity.
 - a. You must perform and document a quarterly visual observation of a storm water discharge associated with industrial activity from each outfall. The visual observation must be made during daylight hours. If no storm event resulted in runoff during daylight hours from the facility during a monitoring quarter, you are excused from the visual observation requirement for that quarter, provided you document in your records that no runoff occurred. You must sign and certify the documentation.

General NPDES Permit No. ILR00

- b. Your visual observation must be made on samples collected as soon as practical, but not to exceed 1 hour of when the runoff or snowmelt begins discharging from your facility. All samples must be collected from a storm event discharge that is greater than 0.1 inch in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. The observation must document: color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution. If visual observations indicate any unnatural color, odor, turbidity, floatable material, oil sheen or other indicators of storm water pollution, the permittee shall obtain a sample and monitor for the parameter or the list of pollutants in Part E.5.d.
- c. You must maintain your visual observation reports onsite with the SWPPP. The report must include the observation date and time, inspection personnel, nature of the discharge (i.e., runoff or snow melt), visual quality of the storm water discharge (including observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution), and probable sources of any observed storm water contamination.
- d. You may exercise a waiver of the visual observation requirement at a facility that is inactive and unstaffed, as long as there are no industrial materials or activities exposed to storm water. If you exercise this waiver, you must maintain a certification with your SWPPP stating that the site is inactive and unstaffed, and that there are no industrial materials or activities exposed to storm water.
- e. Representative Outfalls – If your facility has two or more outfalls that you believe discharge substantially identical effluents, based on similarities of the industrial activities, significant materials, size of drainage areas, and storm water management practices occurring within the drainage areas of the outfalls, you may conduct visual observation of the discharge at just one of the outfalls and report that the results also apply to the substantially identical outfall(s).
- f. The visual observation documentation shall be made available to the Agency and general public upon written request.
9. The permittee shall conduct an annual facility inspection to verify that all elements of the plan, including the site map, potential pollutant sources, and structural and non-structural controls to reduce pollutants in industrial storm water discharges are accurate. Observations that require a response and the appropriate response to the observation shall be retained as part of the plan. Records documenting significant observations made during the site inspection shall be submitted to the Agency in accordance with the reporting requirements of this permit.
10. This plan should briefly describe the appropriate elements of other program requirements, including Spill Prevention Control and Countermeasures (SPCC) plans required under Section 311 of the CWA and the regulations promulgated thereunder, and Best Management Programs under 40 CFR 125.100.
11. The plan is considered a report that shall be available to the public at any reasonable time upon request.
12. The plan shall include the signature and title of the person responsible for preparation of the plan and include the date of initial preparation and each amendment thereto.
13. Facilities which discharge storm water associated with industrial activity to municipal separate storm sewers may also be subject to additional requirements imposed by the operator of the municipal system.

F. CONSTRUCTION AUTHORIZATION

Authorization is hereby granted to construct treatment works and related equipment that may be required by the Storm Water Pollution Prevention Plan developed pursuant to this permit.

This Authorization is issued subject to the following condition(s).

1. If any statement or representation is found to be incorrect, this authorization may be revoked and the permittee thereupon waives all rights thereunder.
2. The issuance of this authorization (a) does not release the permittee from any liability for damage to persons or property caused by or resulting from the installation, maintenance or operation of the proposed facilities; (b) does not take into consideration the structural stability of any units or part of this project; and (c) does not release the permittee from compliance with other applicable statutes of the State of Illinois, or other applicable local law, regulations or ordinances.
3. Plans and specifications of all treatment equipment being included as a part of the stormwater management practice shall be included in the SWPPP.
4. Any modification of or deviation from the plans and specifications originally submitted with the initial SWPPP requires amendment of the SWPPP.
5. Construction activities which result from treatment equipment installation, including clearing, grading and excavation activities which result in the disturbance of one acre or more of land area, are not covered by this authorization. The permittee shall contact the IEPA regarding required permit(s).

General NPDES Permit No. ILR00

G. REPORTING

1. The facility shall submit an electronic copy of the annual inspection report to the Illinois Environmental Protection Agency. The report shall include results of the annual facility inspection which is required by Part 9 of the Storm Water Pollution Prevention Plan of this permit. The report shall also include documentation of any event (spill, treatment unit malfunction, etc.) which would require an inspection, results of the inspection, and any subsequent corrective maintenance activity. The report shall be completed and signed by the authorized facility employee(s) who conducted the inspection(s). The annual inspection report is considered a public document that shall be available to the public at any reasonable time upon request.
2. The first report shall contain information gathered during the one year time period beginning with the effective date of coverage under this permit and shall be submitted no later than 60 days after this one year period has expired. Each subsequent report shall contain the previous year's information and shall be submitted no later than one year after the previous year's report was due.
3. If the facility performs inspections more frequently than required by this permit, the results shall be included as additional information in the annual report.
4. The permittee shall retain the annual inspection report on file at least 3 years. This period may be extended by request of the Illinois Environmental Protection Agency at any time.

Annual inspection reports shall be submitted to the following email and office addresses: epa.indannualinsp@illinois.gov

Illinois Environmental Protection Agency
Division of Water Pollution Control
Compliance Assurance Section #19
Annual Inspection Report
P.O. Box 19276
Springfield, Illinois 62794-9276

5. Any permittee shall notify any regulated small municipal separate storm water system owner (MS4 Community) that they have received coverage of a general ILR00 permit. The permittee shall submit any SWPPP or any annual inspection to the MS4 community upon request by the MS4 community.

H. TERMINATION OF COVERAGE UNDER THIS PERMIT

Where all storm water discharges associated with industrial activity that have been authorized by this permit are eliminated, the operator of the facility may submit a termination request to the Agency at the address shown on Page 6 of this permit. The termination request shall include the name, address, telephone number, and location of the facility, and a description of actions taken to eliminate the storm water discharge or other justification for the request. Coverage under this permit is not terminated until the Agency acts on the termination request, and reports as described above are required until coverage is terminated.

1. The Agency may require any person authorized by this permit to apply for and/or obtain either an individual NPDES permit or an alternative NPDES general permit. Any interested person may petition the Agency to take action under this paragraph. The Agency may require any owner or operator authorized to discharge under this permit to apply for an individual NPDES permit only if the owner or operator has been notified in writing that a permit application is required. This notice shall include a brief statement of the reasons for this decision, an application form, a statement setting a deadline for the owner or operator to file the application, and a statement that on the effective date of the individual NPDES permit or the alternative general permit as it applies to the individual permittee, coverage under this general permit shall automatically terminate. The Agency may grant additional time to submit the application upon request of the applicant. If an owner or operator fails to submit in a timely manner an individual NPDES permit application required by the Agency under this paragraph then the applicability of this permit to the individual NPDES permitted is automatically terminated at the end of the day specified for application submittal. The Agency may require an individual NPDES permit based on:
 - a. information received which indicates the receiving water may be of particular biological significance pursuant to 35 Ill. Adm. Code 302.105(d)(6);
 - b. whether the receiving waters are identified as impaired pursuant to the Agency's 303(d) listing and the site storm water is a potential contributing source of any parameter identified as a cause of that impairment;
 - c. size of industrial site, proximity of site to the receiving stream, etc.

The Agency may also require monitoring of any storm water discharge from any site to determine whether an individual permit is required.

2. Any owner or operator authorized by this permit may request to be excluded from the coverage of this permit by applying for an individual permit. The owner or operator shall submit an individual application with reasons supporting the request, in accordance with the requirements of 40 CFR 122.28, to the Agency. The request shall be granted by issuing of an individual permit or an alternative general permit if the reasons cited by the owner or operator are adequate to support the request.

General NPDES Permit No. ILR00

- When an individual NPDES permit is issued to an owner or operator otherwise subject to this permit, or the owner or operator is approved for coverage under an alternative NPDES general permit, the applicability of this permit to the individual NPDES permittee is automatically terminated on the issue date of the individual permit or the date of approval for coverage under the alternative general permit, whichever the case may be. When an individual NPDES permit is denied to an owner or operator otherwise subject to this permit, or the owner or operator is denied coverage under an alternative NPDES general permit the applicability of this permit to the individual NPDES permitted is automatically terminated on the date of such denial, unless otherwise specified by the Agency.

I. REOPENER CLAUSE

- If there is evidence indicating potential or realized impacts on water quality due to any storm water discharge associated with industrial activity covered by this permit, the discharger may be required to obtain an individual permit or an alternative general permit in accordance with Part H.I. of this permit or the permit may be modified to include different limitations and/or requirements.
- Permit modification or revocation will be conducted according to provisions of 35 Ill. Adm. Code, Subtitle C, Chapter I and the provisions of 40 CFR 122.62, 122.63, 122.64 and 124.5 and any other applicable public participation procedures.
- The Agency will reopen and modify this permit under the following circumstances:
 - the U.S. EPA amends its regulations concerning public participation;
 - a court of competent jurisdiction binding in the State of Illinois or the 7th Circuit issues an order necessitating a modification of public participation for general permits; or
 - to incorporate federally required modifications to the substantive requirements of this permit.

J. DEFINITIONS

- Coal pile runoff means the rainfall runoff from or through any coal storage pile.
- Green Infrastructure means wet weather management approaches and technologies that utilize, enhance or mimic the natural hydrologic cycle processes of infiltration, evapotranspiration and reuse. Green infrastructure approaches currently in use include green roofs, trees and tree boxes, rain gardens, vegetated swales, pocket wetlands, infiltration planters, porous and permeable pavements, porous piping systems, dry wells, vegetated median strips, reforestation/revegetation, rain barrels and cisterns and protection and enhancement of riparian buffers and floodplains.
- Land application site means an area where wastes are applied onto or incorporated into the soil surface for treatment or disposal.
- Landfill means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application site, surface impoundment, injection well or waste pile.
- Section 313 water priority chemical means a chemical or chemical categories which: 1) Are listed at 40 CFR 372.65 pursuant to Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) (also known as Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986); 2) are present at or above threshold levels at a facility subject to EPCRA Section 313 reporting requirements; and 3) that meet at least one of the following criteria: (i) Are listed in Appendix D of 40 CFR 122 on either Table II (organic priority pollutants), Table III (certain metals, cyanides, and phenols) or Table V (certain toxic pollutants and hazardous substances); (ii) are listed as a hazardous substance pursuant to section 311(b)(2)(A) of the CWA at 40 CFR 116.4; or (iii) are pollutants for which EPA has published acute or chronic water quality criteria.
- Significant materials includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical the facility is required to report pursuant to EPCRA Section 313; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with storm water discharges.
- Significant spills includes, but is not limited to: releases of oil or hazardous substances in excess of reportable quantities under section 311 of the Clean Water Act (see 40 CFR 110.6 and CFR 117.21) or section 102 of CERCLA (see 40 CFR 302.4).

Note that additional definitions are included in the permit Standard Conditions, Attachment H.

Attachment H
Standard Conditions
Definitions

Act means the Illinois Environmental Protection Act, 415 ILCS 5 as Amended.

Agency means the Illinois Environmental Protection Agency.

Board means the Illinois Pollution Control Board.

Clean Water Act (formerly referred to as the Federal Water Pollution Control Act) means Pub. L. 92-500, as amended. 33 U.S.C. 1251 et seq.

NPDES (National Pollutant Discharge Elimination System) means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318 and 405 of the Clean Water Act.

USEPA means the United States Environmental Protection Agency.

Daily Discharge means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurements, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

Maximum Daily Discharge Limitation (daily maximum) means the highest allowable daily discharge.

Average Monthly Discharge Limitation (30 day average) means the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Discharge Limitation (7 day average) means the highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Aliquot means a sample of specified volume used to make up a total composite sample.

Grab Sample means an individual sample of at least 100 milliliters collected at a randomly-selected time over a period not exceeding 15 minutes.

24 Hour Composite Sample means a combination of at least 8 sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over a 24-hour period.

8 Hour Composite Sample means a combination of at least 3 sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over an 8-hour period.

Flow Proportional Composite Sample means a combination of sample aliquots of at least 100 milliliters collected at periodic intervals such that either the time interval between each aliquot or the volume of each aliquot is proportional to either the stream flow at the time of sampling or the total stream flow since the collection of the previous aliquot.

- (1) **Duty to comply.** The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.
- (2) **Duty to reapply.** If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. If the permittee submits a proper application as required by the Agency no later than 180 days prior to the expiration date, this permit shall continue in full force and effect until the final Agency decision on the application has been made.
- (3) **Need to halt or reduce activity not a defense.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- (4) **Duty to mitigate.** The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.
- (5) **Proper operation and maintenance.** The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up, or auxiliary facilities, or similar systems only when necessary to achieve compliance with the conditions of the permit.

(6) **Permit actions.** This permit may be modified, revoked and reissued, or terminated for cause by the Agency pursuant to 40 CFR 122.62. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

(7) **Property rights.** This permit does not convey any property rights of any sort, or any exclusive privilege.

(8) **Duty to provide information.** The permittee shall furnish to the Agency within a reasonable time, any information which the Agency may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with the permit. The permittee shall also furnish to the Agency, upon request, copies of records required to be kept by this permit.

(9) **Inspection and entry.** The permittee shall allow an authorized representative of the Agency, upon the presentation of credentials and other documents as may be required by law, to:

- (a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
- (b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- (c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
- (d) Sample or monitor at reasonable times, for the purpose of assuring permit compliance, or as otherwise authorized by the Act, any substances or parameters at any location.

(10) **Monitoring and records.**

- (a) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
- (b) The permittee shall retain records of all monitoring information, including all calibration and maintenance records, and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of this permit, measurement, report or application. This period may be extended by request of the Agency at any time.
- (c) Records of monitoring information shall include:
 - (1) The date, exact place, and time of sampling or measurements;
 - (2) The individual(s) who performed the sampling or measurements;
 - (3) The date(s) analyses were performed;
 - (4) The individual(s) who performed the analyses;
 - (5) The analytical techniques or methods used; and
 - (6) The results of such analyses.

(d) Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit. Where no test procedure under 40 CFR Part 136 has been approved, the permittee must submit to the Agency a test method for approval. The permittee shall calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals to ensure accuracy of measurements.

(11) **Signatory requirement.** All applications, reports or information submitted to the Agency shall be signed and certified.

- (a) **Application.** All permit applications shall be signed as follows:
 - (1) **For a corporation:** by a principal executive officer of at least the level of vice president or a person or position having overall responsibility for environmental matters for the corporation;
 - (2) **For a partnership or sole proprietorship:** by a general partner or the proprietor, respectively; or
 - (3) **For a municipality, State, Federal, or other public agency:** by either a principal executive officer or ranking elected official.
- (b) **Reports.** All reports required by permits, or other information requested by the Agency shall be signed by a person described in paragraph (a) or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - (1) The authorization is made in writing by a person described in paragraph (a); and
 - (2) The authorization specifies either an individual or a position responsible for the overall operation of the facility, from which the discharge originates, such as a plant manager, superintendent or person of equivalent responsibility; and
 - (3) The written authorization is submitted to the Agency.

- (c) **Changes of Authorization.** If an authorization under (b) is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of (b) must be submitted to the Agency prior to or together with any reports, information, or applications to be signed by an authorized representative.
- (12) **Reporting requirements.**
- (a) **Planned changes.** The permittee shall give notice to the Agency as soon as possible of any planned physical alterations or additions to the permitted facility.
- (b) **Anticipated noncompliance.** The permittee shall give advance notice to the Agency of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- (c) **Compliance schedules.** Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.
- (d) **Monitoring reports.** Monitoring results shall be reported at the intervals specified elsewhere in this permit.
- (1) Monitoring results must be reported on a Discharge Monitoring Report (DMR).
- (2) If the permittee monitors any pollutant more frequently than required by the permit, using test procedures approved under 40 CFR 136 or as specified in the permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR.
- (3) Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Agency in the permit.
- (e) **Twenty-four hour reporting.** The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and time; and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. The following shall be included as information which must be reported within 24 hours:
- (1) Any unanticipated bypass which exceeds any effluent limitation in the permit;
- (2) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Agency in the permit to be reported within 24 hours.
- The Agency may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.
- (f) **Other noncompliance.** The permittee shall report all instances of noncompliance not reported under paragraphs (12)(c), (d), or (e), at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph (12)(e).
- (g) **Other information.** Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application, or in any report to the Agency, it shall promptly submit such facts or information.
- (13) **Transfer of permits.** A permit may be automatically transferred to a new permittee if:
- (a) The current permittee notifies the Agency at least 30 days in advance of the proposed transfer date;
- (b) The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage and liability between the current and new permittees; and
- (c) The Agency does not notify the existing permittee and the proposed new permittee of its intent to modify or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement.
- (14) All manufacturing, commercial, mining, and silvicultural dischargers must notify the Agency as soon as they know or have reason to believe:
- (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant identified under Section 307 of the Clean Water Act which is not limited in the permit, if that discharge will exceed the highest of the following notification levels:
- (1) One hundred micrograms per liter (100 ug/l);
- (2) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6 dinitrophenol; and one milligram per liter (1 mg/l) for antimony.
- (3) Five (5) times the maximum concentration value reported for that pollutant in the NPDES permit application; or
- (4) The level established by the Agency in this permit.
- (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the NPDES permit application.
- (15) All Publicly Owned Treatment Works (POTWs) must provide adequate notice to the Agency of the following:
- (a) Any new introduction of pollutants into that POTW from an indirect discharge which would be subject to Sections 301 or 306 of the Clean Water Act if it were directly discharging those pollutants; and
- (b) Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
- (c) For purposes of this paragraph, adequate notice shall include information on (i) the quality and quantity of effluent introduced into the POTW, and (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.
- (16) If the permit is issued to a publicly owned or publicly regulated treatment works, the permittee shall require any industrial user of such treatment works to comply with federal requirements concerning:
- (a) User charges pursuant to Section 204(b) of the Clean Water Act, and applicable regulations appearing in 40 CFR 35;
- (b) Toxic pollutant effluent standards and pretreatment standards pursuant to Section 307 of the Clean Water Act; and
- (c) Inspection, monitoring and entry pursuant to Section 308 of the Clean Water Act.
- (17) If an applicable standard or limitation is promulgated under Section 301(b)(2)(C) and (D), 304(b)(2), or 307(a)(2) and that effluent standard or limitation is more stringent than any effluent limitation in the permit, or controls a pollutant not limited in the permit, the permit shall be promptly modified or revoked, and reissued to conform to that effluent standard or limitation.
- (18) Any authorization to construct issued to the permittee pursuant to 35 Ill. Adm. Code 309.154 is hereby incorporated by reference as a condition of this permit.
- (19) The permittee shall not make any false statement, representation or certification in any application, record, report, plan or other document submitted to the Agency or the USEPA, or required to be maintained under this permit.
- (20) The Clean Water Act provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Clean Water Act is subject to a civil penalty not to exceed \$10,000 per day of such violation. Any person who willfully or negligently violates permit conditions implementing Sections 301, 302, 306, 307, or 308 of the Clean Water Act is subject to a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than one year, or both.
- (21) The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.
- (22) The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit shall, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.
- (23) Collected screening, slurries, sludges, and other solids shall be disposed of in such a manner as to prevent entry of those wastes (or runoff from the wastes) into waters of the State. The proper authorization for such disposal shall be obtained from the Agency and is incorporated as part hereof by reference.
- (24) In case of conflict between these standard conditions and any other condition(s) included in this permit, the other condition(s) shall govern.
- (25) The permittee shall comply with, in addition to the requirements of the permit, all applicable provisions of 35 Ill. Adm. Code, Subtitle C, Subtitle D, Subtitle E, and all applicable orders of the Board.
- (26) The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit is held invalid, the remaining provisions of this permit shall continue in full force and effect.

Attachment B

**BEST MANAGEMENT PRACTICE (BMP)
ROUTINE SITE INSPECTION REPORT**

DATE: _____

WEATHER: _____

TIME ELAPSED SINCE LAST STORM: _____

INSPECTED BY: _____
(print name) _____ (title) _____
(signature) _____

Check "Yes," "No" or "N/A" if not applicable.

NO.	DESCRIPTION	YES	NO*	N/A
1	Are the project SWPPP and BMP plan up to date, available on-site and being properly implemented?			
2	Are all discharge points free of any noticeable pollutant discharges?			
3	Is sediment, debris, or mud being cleaned from vehicle storage/wash areas?			
4	Are all temporary stockpiles protected from erosion (i.e., silt fence installed around stockpile locations)?			
5	Are dust control measures being appropriately implemented?			
6	Are all materials and equipment properly covered?			
7	Are all material handling and storage areas clean and free of spills, leaks, or other deleterious materials?			
8	Are hazardous materials and wastes properly stored, including being covered and stored within berms or other measures to provide secondary containment?			
9	Are all equipment storage and maintenance areas clean and free of spills, leaks, or any other deleterious materials?			
10	Are all drainage swales, culverts and other stormwater structural controls clean and functioning properly?			
11	Are all erosion control devices in-place and functioning in accordance with the plan?			
12	Are all exposed slopes protected from erosion through the implementation of acceptable soil stabilization practices?			

* If any answer is "no," describe needed correction(s) below. Indicate the location of needed correction(s), along with the date corrections are made.

CORRECTIVE ACTION LOG

Corrective Action Description and Location	Date Corrected

Attachment C

GROOT INDUSTRIES, INC.
LAKE TRANSFER STATION

SWPPP ACTIVITY CHECKLIST

SWPPP ACTIVITY	SWPPP SECTION and/or PERMIT REQUIREMENT	FREQUENCY	RESPONSIBLE PARTY	DATE COMPLETE	COMPLETED BY
Plan Certification	SWPPP 3.11 ILR00 E.7	Initial Plan/Plan Revision	Management		
Non-Stormwater Certification	SWPPP 3.11 ILR00 E.7	Initial Plan/Plan Revision	Management		
Plan Amendment Review	SWPPP 3.10	Plan Revision	Management		
Letter of NPDES Permit Coverage	SWPPP Appendix B	N/A	Management		
Modify SWPPP	SWPPP 1.0 ILR00 E.4	<ul style="list-style-type: none"> • New Construction • Failed stormwater controls • Violation of ILR00 Permit • Annual inspection dictates • Administrative changes • Reportable Spill 	Management		
Preventative Maintenance Inspection	SWPPP 3.2; 3.5 ILR00 E.6.b	Monthly (see Section 3.2)	Qualified Personnel		
Housekeeping Inspection	SWPPP 3.2; 3.5 ILR00 E.6.c	Monthly (see Section 3.2)	Qualified Personnel		
Soil Erosion and Sediment Control	SWPPP 3.4; 3.5 ILR00 E.6.f	Monthly; Or within 24 hours of 1.0" or greater rainfall	Qualified Personnel		
Quarterly Visual Observation of Discharges	SWPPP 3.5; 3.6 ILR00 E.8	Quarterly	Qualified Personnel		
Annual SWPPP Inspection	SWPPP 3.5; 3.6 ILR00 E.9	Annually	Qualified Personnel		
Spill Reporting	SWPPP 3.3 ILR00 E.6.d	14 days after knowledge of release	Management		

Records Management (3 Years) • Inspection Records • Training Records • Annual Inspection	SWPPP 3.6; ILR00 E.6.h; ILR00 E.6.g; SWPPP 4.0; ILR00 G.4	• As performed • As performed • As performed	Management		
Annual Inspection	SWPPP 3.6; Appendix C ILR00 E.8	Annually	Qualified Personnel		
First Annual Report submitted to IEPA	SWPPP 3.6 ILR00 G.1; G.2	60 days after one year has expired	Management		
Submittal of Subsequent Annual Reports	SWPPP 3.6 ILR00 G.2	One year after previous year's report was due	Management		
Employee Training	SWPPP 3.7 ILR00 E.6.g	Annually	Management		
SWPPP Review	SWPPP 3.9 ILR00 E.8	Annually	Management		

APPENDIX M

Waste Transfer Capacity Calculations

APPENDIX M.1

Throughput Analysis

GROOT INDUSTRIES LAKE TRANSFER STATION

TABLE M.1-1 - PROJECTED MATERIAL PROCESSING AND TRAFFIC VOLUME

Time (Hour Beginning)	Municipal Solid Waste Delivered								Municipal Solid Waste Transferred				Required Tip Floor Storage		
	Hourly Incoming				Total Hourly Incoming			Cumulative Incoming		Hourly Transferred		Hourly Truck Volumes			
	Packer (trucks)	Packer (tons)	Roll-off (trucks)	Roll-off (tons)	(trucks)	(tons)	(yd3)	(tons)	(yd3)	(trucks)	(tons)	(yd3)	(trucks)	(tons)	(yd3)
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	2	16	1	4	3	20	100	20	100	0	0	0	3	0	0
5:00 AM	3	24	1	4	4	28	140	48	240	1	24	120	5	20	100
6:00 AM	5	40	2	8	7	48	240	96	480	2	48	240	9	24	120
7:00 AM	6	48	3	12	9	60	300	156	780	2	48	240	11	24	120
8:00 AM	7	56	3	12	10	68	340	224	1,120	3	72	360	13	36	180
9:00 AM	8	64	5	20	13	84	420	308	1,540	4	96	480	17	32	160
10:00 AM	9	72	6	24	15	96	480	404	2,020	4	96	480	19	20	100
11:00 AM	8	64	4	16	12	80	400	484	2,420	3	72	360	15	20	100
12:00 PM	7	56	3	12	10	68	340	552	2,760	3	72	360	13	28	140
1:00 PM	6	48	2	8	8	56	280	608	3,040	2	48	240	10	24	120
2:00 PM	6	48	2	8	8	56	280	664	3,320	2	48	240	10	32	160
3:00 PM	5	40	1	4	6	44	220	708	3,540	2	48	240	8	40	200
4:00 PM	5	40	1	4	6	44	220	752	3,760	2	48	240	8	36	180
5:00 PM	0	0	0	0	0	0	0	752	3,760	1	24	120	1	32	160
6:00 PM	0	0	0	0	0	0	0	752	3,760	1	8	40	1	8	40
7:00 PM	0	0	0	0	0	0	0	752	3,760	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	752	3,760	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	752	3,760	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	752	3,760	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	752	3,760	0	0	0	0	0	0
DAILY TOTALS	77	616	34	136	111	752	3760	752	3,760	32	752	3,760	143	MAX 40	MAX 200

Notes:

The last transfer trailer loaded during the operating day will be a partial load consisting of 8 tons of waste.

Assumptions:

750 tons = Approximate Daily Throughput of Municipal Solid Waste

8 tons = Average Municipal Solid Waste or Landscape Waste Packer Truck Load

4 tons = Average Roll-Off Truck Load

24 tons = Average Transfer Trailer Load (Approximate legal road limit)

1 ton Municipal Solid Waste = 5 cubic yards

APPENDIX M.2

Tipping Floor Waste Storage Capacity



Client: Groot Industries, Inc.

Project: Groot Industries Lake Transfer Station

Project #: 147312

Calculated By: MNF/BWM Date: 10/23/12

Checked by: DGA Date: 10/24/12

TITLE: TIPPING FLOOR STORAGE CAPACITY

Problem Statement

Calculate the available storage capacity for waste on the tipping floor at the Lake Transfer Station.

Given

The dimensions of the tipping floor and proposed material storage locations (indicated on the attached Figures M.2-1 and M.2-2).

Assumptions

1. There will be an approximate 1:1 angle of repose of waste on the tipping floor.
2. The maximum material pile height is 16 feet. (the maximum height of the concrete pushwalls).
3. No materials will be stockpiled outside of their designated areas.
4. The waste density is 400 lb/yd³.

Calculations*Scenario 1 (All Municipal Solid Waste):*

Determine the available storage volume on the tipping floor for municipal solid waste using the computer program AutoCAD Civil 3D 2011. Volume calculations were performed by creating three dimensional surfaces and calculating the volumetric difference between the surfaces. The results are summarized in the Table M.2-1.

TABLE M.2-1
TIPPING FLOOR STORAGE VOLUME – MSW ONLY

Stockpile Area	Height of Waste Pile (ft)	Volume (yd ³)	Volume (tons)
1 (MSW)	16	920	184
2 (MSW)	16	520	104
Total	-	-	288



Client: Groot Industries, Inc.

Project: Groot Industries Lake Transfer Station

Project #: 147312

Calculated By: MNF/BWM Date: 10/23/12

Checked by: DGA Date: 10/24/12

TITLE: TIPPING FLOOR STORAGE CAPACITY**Scenario 2 (Municipal Solid Waste, Recyclables, and Landscape Waste):**

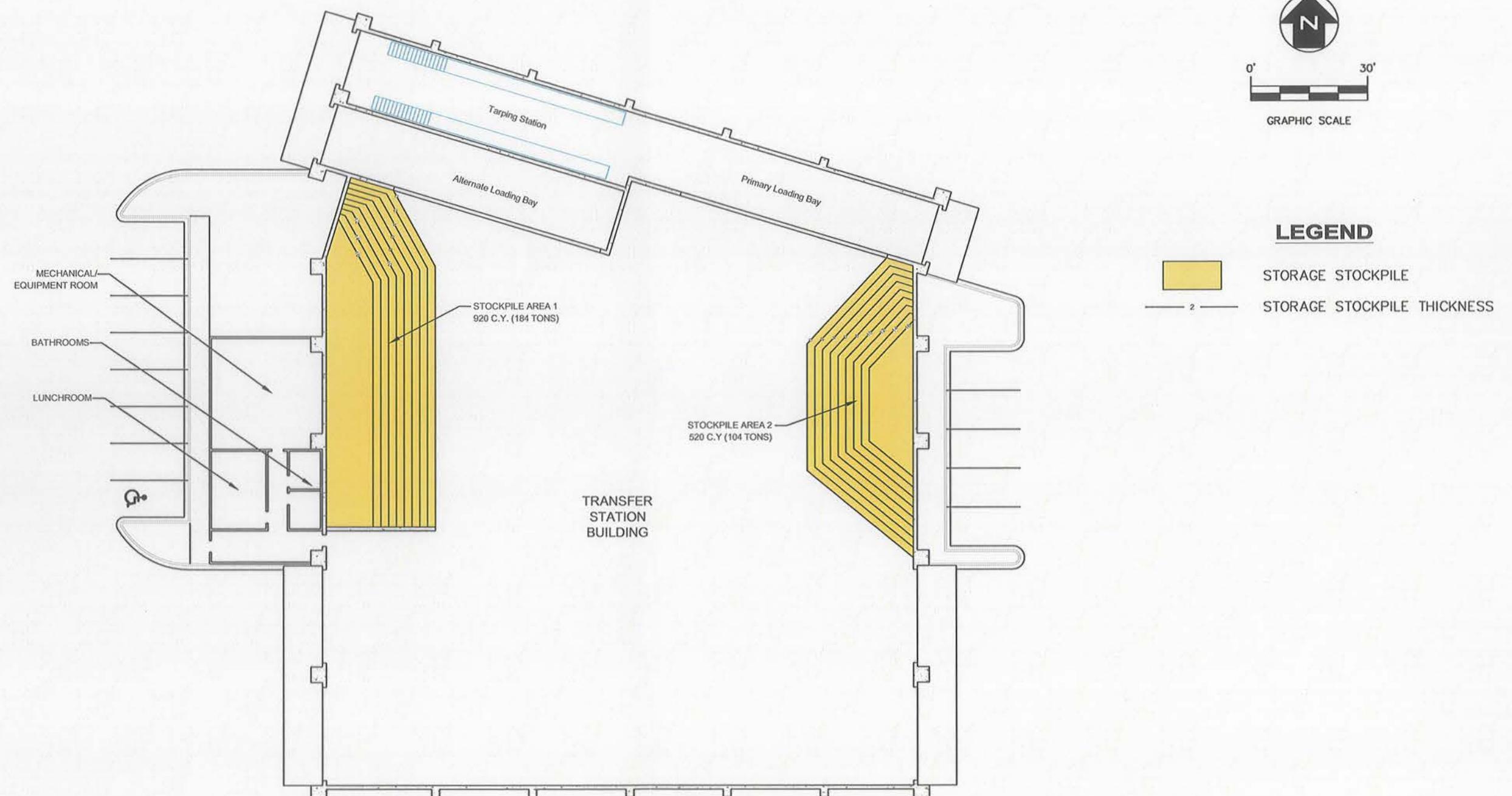
Determine the available storage volume on the tipping floor for municipal solid waste, recyclables, and landscape waste (assuming that recyclables and landscape waste will each contribute to at least 10 percent of daily throughput) using the computer program AutoCAD Civil 3D 2011. Volume calculations were performed by creating three dimensional surfaces and calculating the volumetric difference between the surfaces. The results are summarized in the Table M.2-2.

TABLE M.2-2
TIPPING FLOOR STORAGE VOLUME
(MSW, LANDSCAPE WASTE, AND RECYCLABLES)

Stockpile Area	Height of Waste Pile (ft)	Volume (yd ³)	Volume (tons)
1 (MSW)	16	320	64
1 (Landscape)	10	125	25
1 (Recyclables)	10	130	26
2 (MSW)	16	520	104
Total	-	-	219

Conclusion

The tipping floor has approximately 288 tons of available stockpile capacity assuming that all material received at the facility is municipal solid waste. This is 44% greater than the maximum anticipated amount of waste that will exist on the tipping floor at any time during the operating day under typical conditions. The tipping floor can also accommodate more than adequate stockpile areas for recyclables and landscape waste under the assumption that they could each constitute at least 10% of the typical peak hourly throughput).



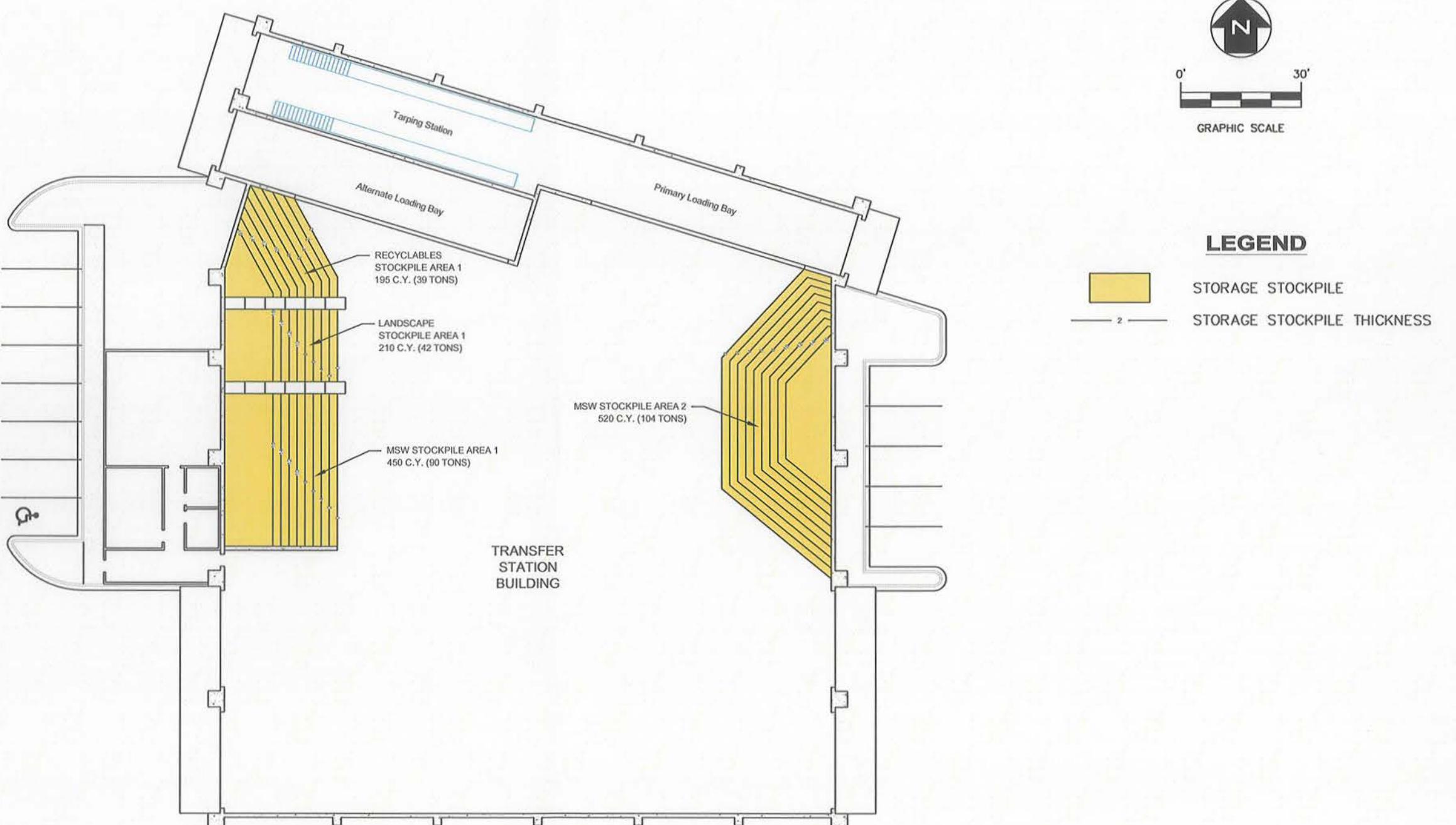
REV. NO.	DATE	DESCRIPTION



GROOT INDUSTRIES LAKE TRANSFER STATION

**FIGURE M.2-1
WASTE STOCKPILE LOCATIONS - SCENARIO 1**

DRAWN BY: RDS APPROVED BY: DAM PROJ. NO.: 147312 DATE: MAY 2013



REV. NO.	DATE	DESCRIPTION



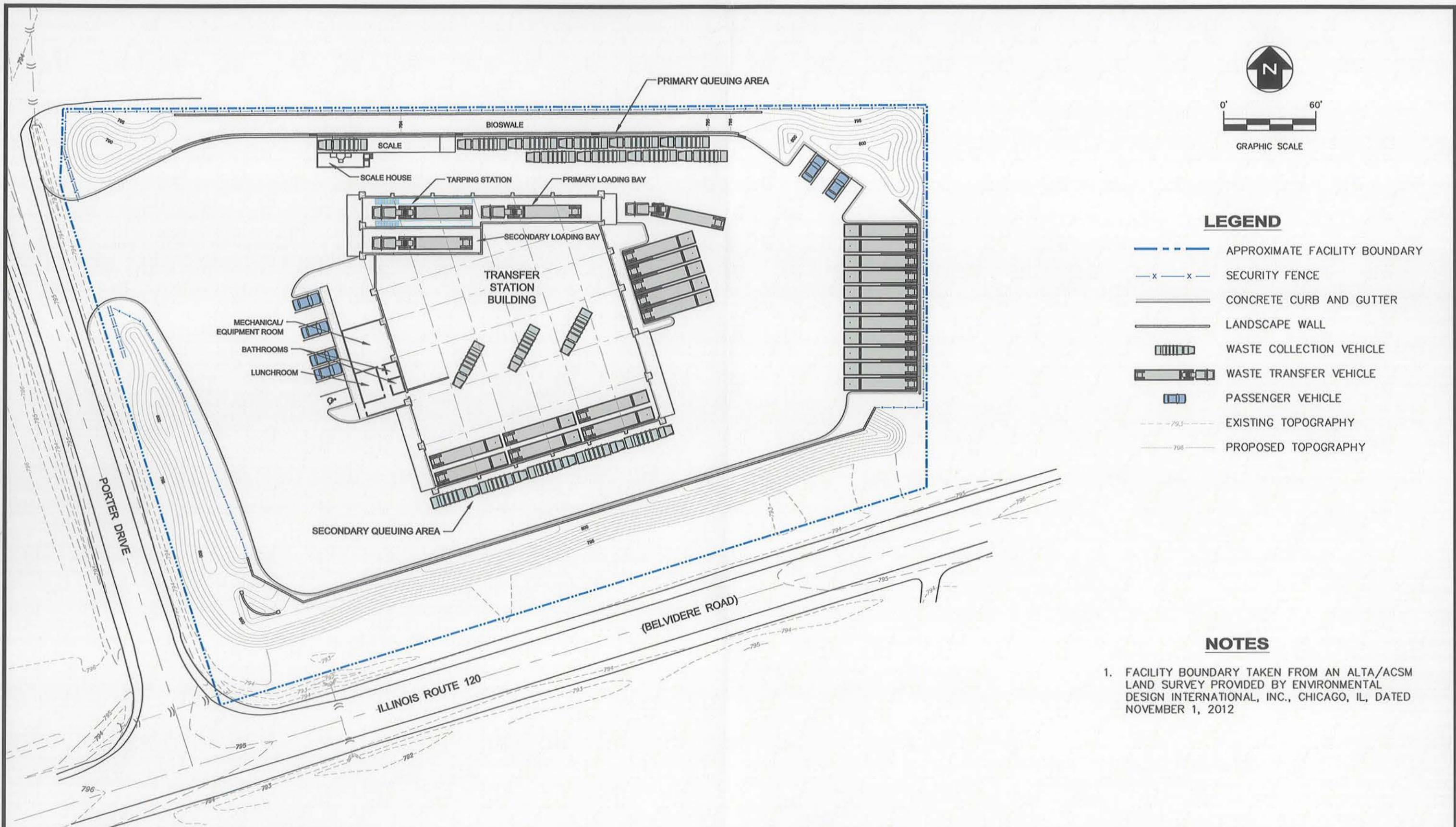
GROOT INDUSTRIES LAKE TRANSFER STATION

FIGURE M.2-2
WASTE STOCKPILE LOCATIONS - SCENARIO 2

DRAWN BY: RDS APPROVED BY: DAM PROJ. NO: 147312 DATE: MAY 2013

APPENDIX M.3

Vehicle Queuing Areas



REV. NO.	DATE	DESCRIPTION



GROOT INDUSTRIES LAKE TRANSFER STATION

**FIGURE M.3-1
VEHICLE QUEUING AREAS**

DRAWN BY: RDS APPROVED BY: DAM PROJ. NO.: 147312 DATE: MAY 2013

APPENDIX N

Wastewater Generation

APPENDIX N.1

Wastewater Generation from Floor Cleaning



Client: Groot Industries, Inc.

Project: Groot Industries Lake Transfer Station

Project #: 147312

Calculated By: MNF Date: 11/12/12

Checked by: DGA Date: 11/13/12

TITLE: PUSHWALL WASHWATER CALCULATION

Problem Statement

The Groot Industries, Inc. Lake Transfer Station is proposed to be cleaned on a daily basis using street sweepers. As necessary, the pushwalls will also be cleaned using a pressure washer to prevent the buildup of odor-causing residues. The following calculation estimates the volume of wastewater that may be generated by washing the pushwalls.

Given

- Drawing No. D7, Floor Plan.
- MI-T-M Pressure Washer Model #GC-3000-0MLB-C, Gas, 7HP, 3000 PSI (Grainger Item 5JKL7 - attached)

Assumptions

- It is assumed that the pushwalls will be washed a maximum of once per week.
- Based on the pushwall area of approximately 5,000 ft², washdown is expected to take approximately 3 hours per week.
- Pressure washer Model #GC-3000-0MLB-C, 3000 psi, 2.4 gpm (reference Grainger).

Calculation

$$V = \left(\frac{2.4 \text{ Gal}}{\text{min}}\right) \left(\frac{60 \text{ min}}{\text{hr}}\right) \left(\frac{2 \text{ hr}}{\text{week}}\right) = \frac{288 \text{ Gal}}{\text{week}}$$

Results

The estimated maximum volume of wastewater that will be generated during tipping floor washdown is 288 gallons per week.

MI-T-M Pressure Washer, Gas, 7HP, 3000 PSI

[Cleaning](#) > [Equipment](#) > [Pressure Washers](#)
[Write a Review](#) | [Read all Reviews](#) | [Read all Ask & Answer](#)

Pressure Washer, Gas Engine, Cold Water, Commercial, 7 HP, Engine Size 208 Cu-cm, Operating Pressure 3000 PSI, 2.4 GPM, Usable Hours per Week 10 to 20, MI-T-M OHV Engine, Recoil Starter, Pump Drive Direct, Pump Type Crankshaft, Piston Material Solid Ceramic, Hose Dimensions 3/8 In. x 25 Ft., Length 37 In., Width 21 In., Height 24-1/2 In., Net Weight 85 lbs., Water Input Temp. 125 Degrees F, Standards California Ready, Includes (3) Quick-Connect Nozzles

Grainger Item #	5JKL7
Price (ea.)	\$1,087.00
Brand	MI-T-M
Mfr. Model #	GC-3000-0MLB-C
UNSPSC #	47121805
Ship Qty.	1
Sell Qty. (Will-Call)	1
Ship Weight (lbs.)	104.0
Availability	Ready to Ship
Catalog Page No.	1600
Country of Origin (Country of Origin is subject to change.)	USA


[Enlarge Image](#)

See Notes & Restrictions for important safety information.

 Qty:

Add Grainger TripleGuard® repair & replacement coverage for \$199.00 each.

 Price shown may not reflect your price. [Sign In](#) or [register](#).

When can I get it? Use your ZIP code to estimate availability.

 Qty: ZIP code:
[Optional Accessories](#)
[More Accessories](#)

[Oil, Air Compressor](#)

 Brand: **MOBIL**

 Grainger Item #: **4ZF21**

 Price (ea.): **\$10.16**

 Qty:
[Add to Order](#)

Tech Specs	Additional Information	Compliance & Restrictions	MSDS	Required Accessories	Optional Accessories	Alternate Products
Repair Parts						
Item	Pressure Washer					
Type	Gas Engine, Cold Water, Commercial					
HP	7					
Engine Size	208 Cu-cm					
Operating Pressure	3000 PSI					
GPM	2.4					
Usable Hours per Week	10 to 20					
Engine	MI-T-M OHV					
Starter	Recoil					
Pump Drive	Direct					
Pump Type	Crankshaft					
Piston Material	Solid Ceramic					
Hose Dimensions	3/8" x 25 Ft.					
Length	37"					
Width	21"					
Height	24-1/2"					
Net Weight	85 lbs.					
Water Input Temp.	125 Degrees F					
Standards	California Ready					
Includes	(3) Quick-Connect Nozzles					

Customers Also Bought

1 of 5

APPENDIX N.2

Wastewater Generation from Employee Facilities



Client: Groot Industries, Inc.

Project: Groot Industries Lake Transfer Station

Project #: 147312

Calculated By: MNF Date: 11/12/12

Checked by: DGA Date: 11/13/12

TITLE: EMPLOYEE WASTEWATER CALCULATION

Problem Statement

Determine the daily wastewater volume generated by the employees of the Groot Industries, Inc. Lake Transfer Station. Wastewater will be directed to the sanitary sewer system (or holding tank). The following calculation estimates the volume of wastewater that will be generated by the employees at the proposed transfer station.

Given

1. Up to three 8-hour operating shifts each day.
2. Six employees per operating shift.

Assumption

Average wastewater generation per employee is 15 gallons per 8-hour day.

Calculation

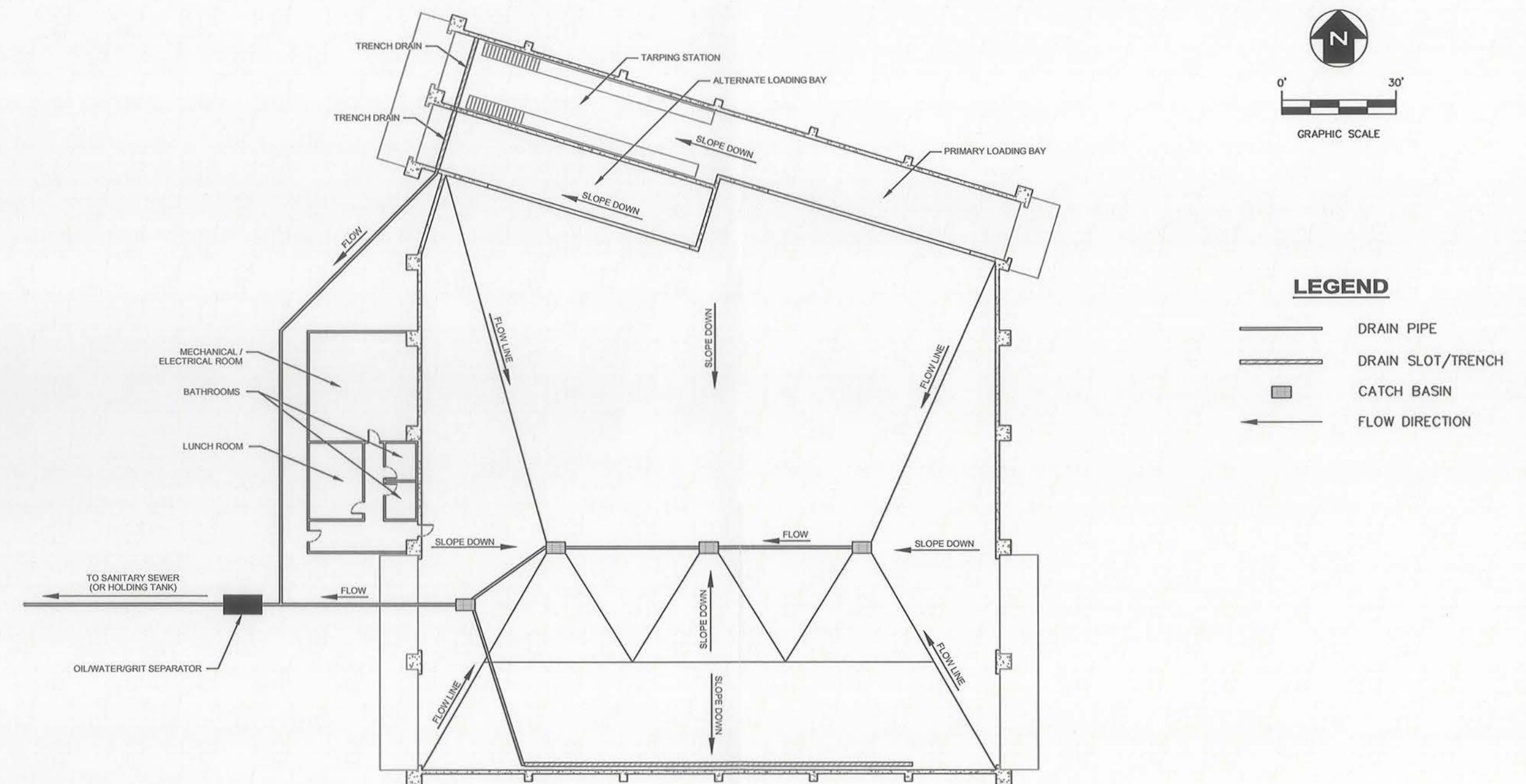
$$V = \left(\frac{15 \text{ Gal}}{\text{Day}}\right) \left(\frac{6 \text{ Employees}}{\text{Shift}}\right) \left(\frac{3 \text{ Shifts}}{\text{Day}}\right) = \left(\frac{270 \text{ Gal}}{\text{Day}}\right)$$

Results

The estimated volume of wastewater that will be generated by employee usage is 1270 gallons per day.

APPENDIX N.3

Conceptual Wastewater Management System



Show Environmental, Inc. has prepared this document for a specific project or purpose. All information contained within this document is copyrighted and remains intellectual property of Show Environmental, Inc. This document may not be used or copied, in part or in whole, for any reason without expressed written consent by Show Environmental, Inc.



REV. NO.	DATE	DESCRIPTION



GROOT INDUSTRIES LAKE TRANSFER STATION

FIGURE N.3-1
CONCEPTUAL WASTEWATER MANAGEMENT PLAN

DRAWN BY: RDS APPROVED BY: DAM PROJ. NO.: 147312 DATE: MAY 2013

APPENDIX O

Illinois Environmental Protection Agency
Groundwater Correspondence



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601

ROD R. BLAGOJEVICH, GOVERNOR

RENEE CIPRIANO, DIRECTOR

217/524-3300

July 2, 2003

Envirogen

Attn: Douglas G. Allen
1150 N. Fifth Avenue, Suite C
St. Charles, Illinois 60174-1231

Re: 9170000000 – State of Illinois
Envirogen
Log No. #PS03-074
State Permit File

Dear Mr. Allen:

This letter has been written in response to your letter dated June 3, 2003 requesting clarification of Illinois EPA design requirements for solid waste transfer facilities. The responses to your specific questions within your letter are outlined below:

You Asked: Does a solid waste transfer station equipped with a steel reinforced concrete tipping floor meet the definition of a Potential Primary or Potential Secondary Source as defined by Section 3.59 (Section 3.345 as renumbered) and 3.60 (Section 3.355 as renumbered) of the Illinois Environmental Protection Act?

Our Response: A facility used solely as a transfer station for municipal waste would not meet the definition of a primary or secondary source. If the transfer station were permitted to receive special waste, the facility would be considered a "potential primary source" and would have to meet the setback requirements in Section 14.3 of the Environmental Protection Act.

You Asked: Does the Agency require a solid waste transfer station equipped with a steel reinforced concrete tipping floor to conduct a Groundwater Impact Assessment (GIA) during the Agency permitting process?

Our Response: The Illinois EPA would not normally require a groundwater impact assessment because the purpose of a groundwater impact assessment is to evaluate the impact of the amount of seepage upon groundwater. A transfer station must be constructed to prevent the migration of waste or accumulated liquid from the tipping floor to the soil, groundwater or surface water at any time during its use. To obtain a permit, a transfer station must be designed and constructed with an impermeable base constructed with water stops and grouts to seal the system. This design will prevent seepage from a properly constructed and maintained tipping floor.

ROCKFORD – 4302 North Main Street, Rockford, IL 61103 – (815) 987-7760 • DES PLAINES – 9511 W. Harrison St., Des Plaines, IL 60016 – (847) 294-4000

ELGIN – 595 South State, Elgin, IL 60123 – (847) 608-3131 • PEORIA – 5415 N. University St., Peoria, IL 61614 – (309) 693-5463

UREAU OF LAND – PEORIA – 7620 N. University St., Peoria, IL 61614 – (309) 693-5462 • CHAMPAIGN – 2125 South First Street, Champaign, IL 61820 – (217) 278-5800

SPRINGFIELD – 4500 S. Sixth Street Rd., Springfield, IL 62706 – (217) 786-6892 • COLLINSVILLE – 2009 Main Street, Collinsville, IL 62234 – (618) 346-5120

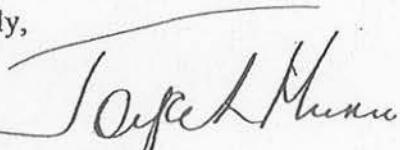
MARION – 2309 W. Main St., Suite 116, Marion, IL 62959 – (618) 993-7200

You Asked: Does the Agency require a solid waste transfer station equipped with a steel reinforced concrete tipping floor to install a groundwater monitoring network in accordance with an Agency approved groundwater monitoring program as part of the Agency permitting process?

Our Response: The Illinois EPA would not normally require a groundwater-monitoring program for a solid waste transfer station if the transfer station is constructed to prevent the migration of waste or accumulated liquid from the tipping floor to the soil, groundwater or surface water at any time during its use. Typically, transfer stations are equipped with an impermeable base constructed with water stops and grouts to seal the system; this should prevent impact to groundwater.

Should you have any questions or comments regarding the contents of this letter please contact Mark A. Schollenberger, P.E., of my staff at 217/524-3307.

Sincerely,



Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:MAS:bjh\031874s.doc

APPENDIX P

Health and Safety Information

APPENDIX P.1

Health and Safety Plan

HEALTH AND SAFETY PLAN
GROOT INDUSTRIES LAKE TRANSFER STATION
TABLE OF CONTENTS

HEALTH AND SAFETY PLAN	1
INTRODUCTION	1
SAFETY OFFICER.....	1
COMMUNICATIONS	1
EMERGENCY EVACUATION ASSEMBLY LOCATION.....	1
PERSONNEL TRAINING	3
PERSONAL PROTECTIVE EQUIPMENT	3
FIRE PREVENTION, CONTROL, AND RESPONSE MEASURES	4
Fire Control Features	4
Fire Response Measures	5
SPILL CONTROL AND PREVENTION.....	9
Petroleum Products	9
In the event that a spill occurs within the transfer station building:	9
In the event that a spill occurs outside of the transfer station building:	10
Incidental Liquids on the Tipping Floor.....	10
Emergency Spill Kit.....	10
LOCKOUT / TAGOUT PROCEDURES	12
SECURITY	12
VISITOR SAFETY.....	12
VANDALISM	12
MEDICAL SERVICES	12
EMERGENCY ACCESS POINT	13
OPERATIONAL CONTINGENCY PLAN.....	13
Equipment Failure	13
Severe Weather Conditions	13
Interruption of Utility Service	13



HEALTH AND SAFETY PLAN

Introduction

This Health and Safety Plan summarizes the procedures that will be implemented to minimize the potential for fire, spills or other operational accidents at the proposed transfer station.

Safety Officer

The operator of the Facility will designate a Safety Officer. As there are only approximately six employees at the Facility, the Facility Manager (or duly designated equipment operator) will also serve as the Safety Officer. This is to assure that there exists an identified Safety Officer on-site during each and every shift. The Safety Officer will be responsible for implementing safety procedures at the Facility, which include:

- Administering training programs
- Conducting regular safety meetings
- Updating the Health and Safety Plan
- Investigating, assessing and correcting potential on-site hazards
- Responding to emergency situations
- Maintaining records of training, inspections, corrective actions, and incidents

Communications

The Facility will be equipped with telephones located within the scale house office that can be used to notify the appropriate agencies in the event of an emergency. An Emergency Call List will be mounted next to telephones as presented in Table 1. This call list identifies the appropriate authorities to contact for various emergency situations. In addition, all Facility employees will be in communication with the Facility Manager via two-way radios. Continuous communication between employees will aid in the prevention of accidents and in keeping other operating problems from developing. Additionally, it will facilitate an effective response to a problem, should one occur. The Village of Round Lake Park operates a 911 system for contacting emergency assistance personnel, e.g. police, fire department and ambulance service.

Emergency Evacuation Assembly Location

Every Facility employee will be instructed on emergency evacuation procedures and the location of emergency equipment. In the event of an emergency requiring evacuation, 1) a pre-determined system for alerting employees (such as an alarm or contact over two-way radio or cellular phone) will be initiated, 2) employees will be gathered in a safe location, and 3) the Safety Officer, or the person in responsible charge, will take roll call of all persons who were known to be at the Facility at the time of the emergency. The Emergency Evacuation Assembly Location will be at the Facility access gate located in the northwest portion of the Facility at Porter Drive.



TABLE 1 - EMERGENCY CALL LIST

Groot Industries Lake Transfer Station
201 Porter Drive, Round Lake Park, Illinois 60073

When Calling any Response Agency, Give the Following Information:

Your Name and Telephone Number

Name and Address of the Facility

Time and Type of Incident

Name and Quantity of Spilled Material (if applicable)

Extent of Injuries (if applicable)

FOR FIRE, MEDICAL OR POLICE EMERGENCIES, DIAL 911

Facility Contacts:	
Facility Telephone	(To be identified)
Operator Mobile Telephone	(To be identified)
Operator Home Telephone	(To be identified)
Response Agencies:	
IEPA Emergency Response Unit	(217) 782-3637
National Response Center	(800) 424-8802
Illinois Poison Control Center	(800) 942-5969
IEMA, Illinois Emergency Management Agency	(217) 782-7860
IEPA, Division of Land Pollution Control	(217) 524-3300
Greater Round Lake Fire Protection District:	
Emergency	9-1-1
Non-Emergency	(847) 270-9111
Local Emergency Facility:	
Northwestern Lake Forest Hospital – Grayslake Campus 1475 E. Belvidere Rd. (Rte. 120) Grayslake, Illinois 60030-2012 (847) 535-8800	



Personnel Training

The Safety Officer will be required, at a minimum, to have completed high school education and have at least 5 years of experience in a related industry. The Safety Officer will be trained and required to demonstrate proficiency in identifying unacceptable wastes and appropriate emergency response procedures prior to performing duties as the Safety Officer. Prior to starting the first day of on-site employment, Facility workers and equipment operators will be required to complete training to identify potentially hazardous situations and materials which may present themselves during Facility operations. Each employee will then be trained in the operational procedures of the Facility and general safety techniques. All operations personnel will receive training to ensure that the equipment is operated in accordance with local, state, and federal regulations and in a safe and environmentally sound manner. This will supplement the fire protection and prevention and accident training by teaching the proper procedures and techniques necessary to complete each task safely.

Employees will receive training, at a minimum, in the following areas:

- Operational procedures,
- Health and safety procedures,
- Lockout-tagout procedures,
- Fire control and prevention,
- Emergency first aid,
- Detection, identification and handling of any unauthorized wastes, and
- Emergency evacuation.

Regular training sessions and safety meetings will be conducted with employees to review and update safety and operating procedures subsequent to initial training. The Safety Officer will review the emergency response procedures on an annual basis, at a minimum. These procedures will also be reviewed and modified when procedures or job task responsibilities are reassigned. Adequate training will be administered to those affected by the modifications.

The IEPA is authorized to inspect the Facility and operations to ensure that operations are performed safely and in accordance with permit requirements.

Personal Protective Equipment

Personnel will be issued appropriate personal protective equipment (PPE) and will be required to wear and maintain such equipment. Personnel will be instructed as to the proper use, maintenance and limitations of such PPE.



Employees of the Facility will wear PPE which will include, but may not be limited to, the following items:

- Hard hats
- Steel toed boots
- Long sleeved shirt
- Long pants

Employees who are expected to be exposed to vehicular traffic, equipment, or who may come into contact with waste material, will also be required to wear the following PPE items as necessary;

- Hearing protection
- Eye protection
- Reflective or high visibility clothing
- Chemical resistant gloves

Fire Prevention, Control, and Response Measures

Fire prevention is generally attained by two mechanisms: (1) fire control features, which refer to facility design and operating features, and (2) fire response measures, which refer to actions undertaken to mitigate or respond to fires. These aspects of fire prevention are discussed in the following text.

Fire Control Features

A fire control protection plan has been developed for the proposed transfer station. The plan includes the following safeguards:

- The proposed transfer station will be serviced by the municipal water supply;
- The transfer station building and scale house will be equipped with a sprinkler system designed to the satisfaction of the Greater Round Lake Fire Protection District;
- The proposed transfer station will have a direct alarm system connected to the Greater Round Lake Fire Protection District;
- A Knox Box located near the entrance will contain all keys necessary for access into structures on the property;
- Fire hydrant locations within the facility have been located with the assistance of the Greater Round Lake Fire Protection District;



- Fire extinguishers will be located on all mobile equipment and at various locations within the transfer station building;
- The transfer station building is accessible from all sides from the paved vehicle maneuvering areas;
- Heavy equipment will be fitted with heat shields to minimize the threat of fire; and
- Emergency telephone numbers will be posted at all telephones.

As the Greater Round Lake Fire Protection District will respond to fire emergencies at the facility, the operator will coordinate with the District on procedures to obtain access during hours the facility is closed. Moreover, they will be provided with the names and telephone numbers of personnel to be contacted in an emergency. As an additional fire control feature, Groot Industries, Inc. will make on-site equipment available to assist in fire fighting activities, if necessary.

The transfer station building, constructed of steel and concrete, will be equipped with a dry-pipe sprinkler system. Water for the sprinkler system will be supplied by the Village of Round Lake Park municipal water supply. The sprinkler system will be initiated by heat-activated sprinkler heads, which will activate the direct link alarm to the District. Additionally, an alarm system will be installed in the transfer station building and scale house to alert employees of a fire. Pull alarms will be located next to each door and audible alarms and strobes will be located in areas of the transfer station building above the 16-foot high pushwalls.

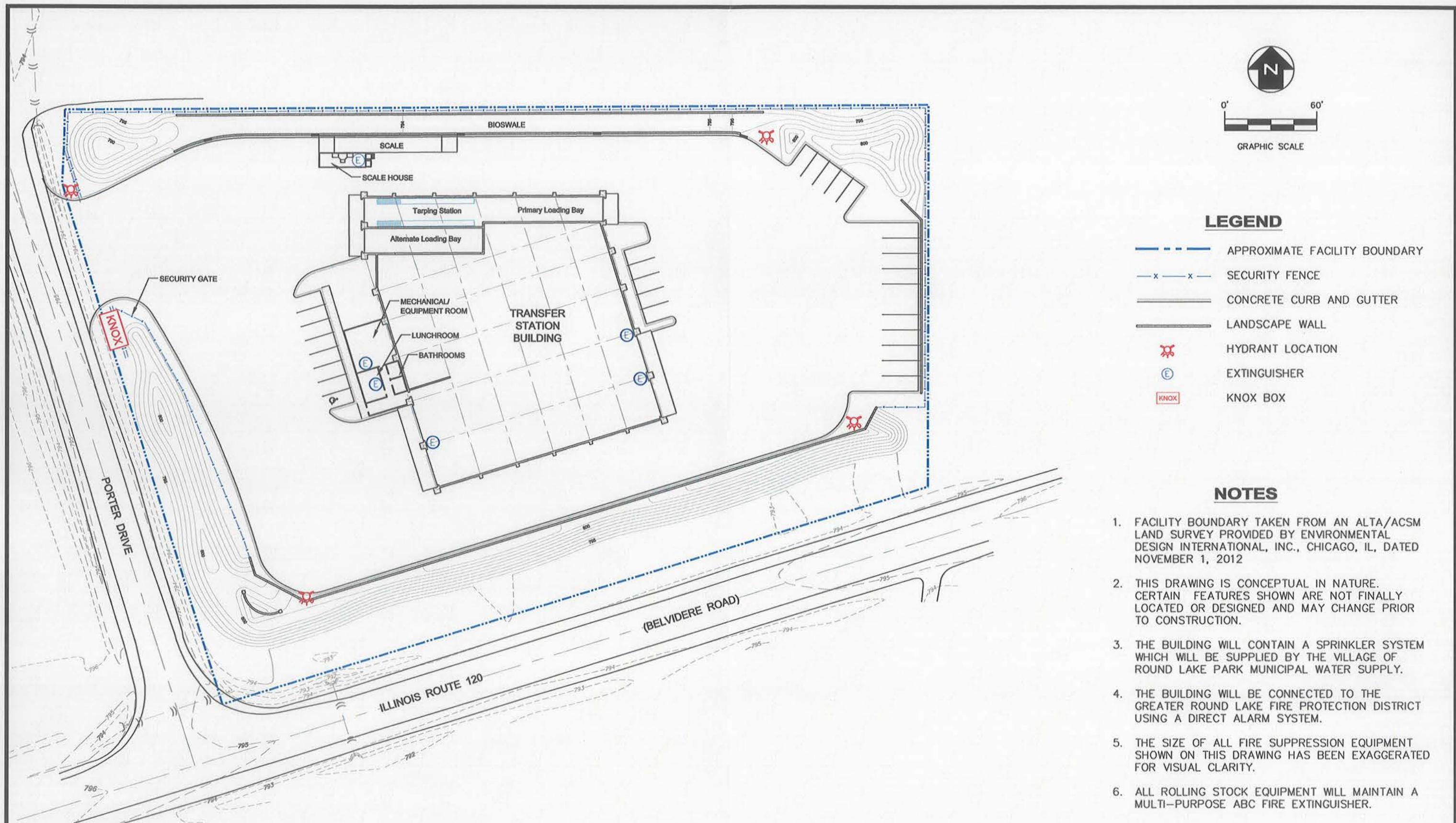
Locations of fire hydrants and extinguishers are shown on Figure 5-1. Four fire hydrants will be located at the proposed transfer station. In addition, type ABC fire extinguishers will also be strategically placed within the transfer station building and scale house. All heavy equipment will be required to maintain a multi-purpose type ABC fire extinguisher.

All fire control features will be installed and fully operational prior to acceptance of waste at the facility.

Fire Response Measures

Annual instruction and training in fire response procedures will be provided to all personnel, with additional training required of equipment operators and other personnel who are routinely present within the transfer station building. Training will include identification of all potential fire hazards at the proposed transfer station and methods used to prevent fires from occurring. Training will also include the proper use of fire extinguishers.





REV. NO.	DATE	DESCRIPTION



GROOT INDUSTRIES LAKE TRANSFER STATION

FIGURE 1
FIRE SUPPRESSION SYSTEM PLAN

DRAWN BY: RDS APPROVED BY: DAM PROJ. NO.: 147312 DATE: NOV. 2012

The following procedures will be followed in the event of a fire emergency:

- Extinguish a small fire only if annual fire extinguisher training has been completed and maintained. Individual judgement to extinguish a fire must be based on the limitations of training and the ability to safely control the fire;
- Evacuate through the nearest exit;
- If doors or door knobs are hot to the touch, do not open the door;
- If Heavy smoke is encountered while evacuating, kneel to floor level and crawl for the remainder of the escape. Breathe through a filter (shirt, jacket, etc.). Breathing should be done through your nose;
- Do not break a window unless it is your necessary and selected means of escape;
- Close as many doors between you and the fire as possible;
- If your clothes catch on fire, remember to STOP, DROP, and ROLL; and
- Exit the building and assemble at designated assembly locations.

The potential for fire at the proposed transfer station is most likely to originate from two sources: 1) waste materials, and 2) equipment fueling. Immediate response actions will be taken in the unlikely event that a fire occurs. The actions taken will depend upon the cause and location of the fire. Typical mitigating steps include isolation of the burning material and utilization of fire extinguishers. The following text outlines the procedures that will be implemented under these circumstances.

Fire Associated with Waste Materials

If a "hot" load of waste is placed on the tipping floor:

- The Safety Officer will be notified of the situation, and the transfer station building will be evacuated, if necessary;
- The hot load will be isolated from other combustible materials utilizing equipment within the transfer station building in a manner which will not cause danger to employees. The hot load may be pushed outside of the transfer station building by the front-end loader;
- Fire extinguishers will be utilized to extinguish the fire, if possible;
- The Greater Round Lake Fire Protection District will be contacted for assistance;
- Fire lanes around the transfer station building will be evacuated of vehicles; and
- The sprinkler system will activate within the transfer station building if the fire is of sufficient magnitude.



If a fire or smoldering waste is found within a load and is detected during the load inspection by the scalehouse operator prior to entering the transfer station building:

- If possible, the load will be discharged from the vehicle in a remote location within the proposed transfer station;
- The vehicle's battery disconnect switch will be turned to the off position if it can be done without risk of personal injury;
- The vehicle will be evacuated, the Safety Officer will be notified of the situation, and the area of the vehicle in question will be evacuated;
- Fire extinguishers will be utilized to extinguish the fire, if possible; and
- The Greater Round Lake Fire Protection District District will be contacted for assistance.

If a fire occurs within the scale house:

- The Safety Officer will be notified of the situation, and the structure will be evacuated;
- Fire extinguishers will be utilized to extinguish the fire, if possible; and
- The District will be contacted for their assistance.

Fire Associated with Equipment Fueling

The potential for fire hazards associated with equipment fueling is minimal. During fueling operations, the following procedures will be utilized to minimize any fire hazard:

- Smoking will be prohibited in the area of fueling operations;
- Engines of both the fueling truck and the equipment being fueled will be shut off during fueling;
- A fire extinguisher will be proximate to fueling activity areas (including on the equipment being fueled);
- Appropriate grounding will be performed between the fueling truck and the equipment being fueled to prevent static electrical discharge; and
- The fuel truck driver will be required to be outside of the vehicle monitoring fuel dispensing operations at all times so as to promptly cease fueling should there be a spill or emergency.

Fueling of equipment will be performed by an outside fueling service. Therefore, there will be no petroleum storage tanks at the facility. As a result, there will be no fire hazard associated with the storage of petroleum products.



Spill Control and Prevention

As liquid waste will not be accepted at the facility, the nature of spills that are most likely to occur would consist of petroleum products (diesel fuel) during equipment fueling or incidental liquids from waste materials unloaded on the tipping floor. These situations are addressed in the following text.

Petroleum Products

As stated within Section 2 of this application and discussed previously, a fueling service will be utilized to fuel facility equipment. Therefore, there will be no petroleum storage tanks at the facility. The following steps will be implemented to ensure that spills do not occur during vehicle fueling or operation:

- All on-site equipment will be inspected daily or prior to use to assess the integrity of the fuel holding tanks;
- Engines of both the on-site equipment being fueled and the fueling truck will be required to be turned off during equipment fueling operations;
- Fueling operations will be observed by the fuel truck driver at all times so as to immediately cease fueling activities if a spill should occur; and
- The use of a funnel or spout will be utilized to prevent spillage, as deemed necessary.

Should minor spillage of petroleum occur during fueling operations, the Safety Officer will be notified. The spill will then be contained and managed utilizing absorbent material contained within the emergency spill kit. Once the material has been collected, any surfaces that came into contact with the material will be thoroughly cleaned.

If the petroleum spill is of a larger volume, the following activities will be implemented to minimize spreading and to ensure safety of all personnel.

In the event that a spill occurs within the transfer station building:

- The Safety Officer will be notified of the incident;
- Personnel will clear the transfer station building of all waste collection vehicles, transfer vehicles and equipment;
- Rubber mats contained within the emergency spill kit will be placed over drains on the tipping floor;
- Absorbent socks will be placed around the spill to prevent the spill from leaving the transfer station building;
- An emergency response contractor will be contacted, if necessary;
- Waste deliveries will be diverted from the proposed transfer station, as necessary; and



- Notification of the appropriate emergency agencies will take place as discussed later in this section.

In the event that a spill occurs outside of the transfer station building:

- The Safety Officer will be notified of the incident;
- Personnel will clear the area of all waste collection vehicles, transfer vehicles and equipment, as necessary;
- Rubber mats contained within the emergency spill kit will be placed over catch basins;
- The sluice gate located on the outlet of the stormwater management system will be closed;
- Absorbent socks will be placed to minimize the extent of the spill as safely as practicable;
- An emergency response contractor will be contacted, if necessary;
- Waste deliveries will be diverted from the proposed transfer station, as necessary; and
- Notification of the appropriate emergency agencies will take place as discussed later in this section.

Incidental Liquids on the Tipping Floor

The facility will not accept liquid wastes. As a result, it is unlikely that significant volumes of liquids would be present within the incoming municipal solid waste stream.

Incidental liquids may be present in waste materials as they are unloaded on the tipping floor. These incidental liquids are typically of small quantity and are absorbed by the movement of waste materials across the tipping floor. The tipping floor is gently sloped toward catch basins. Liquids not absorbed by waste materials will be directed to the catch basins located on the tipping floor and discharged to the sanitary sewer system (or holding tank(s)). All liquids will be processed by an oil/water/grit separator prior to entering the sanitary sewer. The slope of the floor prevents incidental liquids from leaving the transfer station building.

Emergency Spill Kit

An emergency spill kit will be maintained at the proposed transfer station to aid in the containment and clean up of any spills. The spill kit will contain the following items at a minimum:

- Tyvek suits, rubber gloves, and boots;
- Oil-dry or other granulated absorbent material;



- Absorbent socks for containing spills;
- Rubber mats for covering catch basins and drains in order to minimize the potential for spills to enter the stormwater management system;
- Non-sparking shovels and brooms for clean-up of spill residues; and
- Heavy duty disposal bags.

The emergency spill kit will be inspected regularly to ensure it is fully stocked and in usable condition. Facility personnel will be trained in the proper use of the spill kit.

Hazardous Spill Notification and Reporting Procedure

In the unlikely event that an emergency would arise at the facility involving the release of a hazardous material, the Facility Safety Officer will follow the procedures as outlined below:

- Inform affected personnel and evacuate, as necessary;
- Determine, to the extent possible, the nature, source and extent of the release and contact the appropriate emergency response contractor;
- Ensure that measures are undertaken to isolate the hazardous material so as to further minimize the extent of the release;
- Notify the Illinois Emergency Management Agency and District with the nature of the release. Should the incident involve a CERLA regulated material, Federal regulations (40 CFR 302.6) require that the release also be reported to the National Response Center at (800) 424-8802;
- The Superfund and Re-authorization Act (SARA) 40 CFR 355.40 Title III requires that the community emergency coordinator (i.e. Village of Round Lake Park Police Department) be notified of any adjacent areas potentially affected by the release. The Facility Safety Officer will be responsible for any such notifications and will prepare a complete report summarizing the nature of the spill, suspected cause of the spill, cleanup procedures, and any corrective action employed;
- Ensure that all emergency equipment is properly stored and/or restocked prior to resuming operations; and
- Within 15 days of such an incident, the Facility Safety Officer must submit a written report of the release to the IEPA which includes; 1) name, address, and telephone number of the owner, operator, and transfer station, 2) date, time, and nature of the release, 3) type and quantity of the material involved in the release, 4) extent of any injuries caused by the release, 5) hazard assessment of the spill aftermath, and 6) estimated quantity and disposition of the materials recovered.



Lockout / Tagout Procedures

Lockout / Tagout procedures will be followed to ensure that machines and equipment are properly isolated from hazardous or potentially hazardous energy sources during servicing and maintenance and properly protect against re-energization as required by 29 CFR 1910.147. While any employee is exposed to fixed electrical equipment or circuits which have been de-energized, the circuits energizing the parts shall be locked out and tagged.

Energy control procedures will be utilized to control potentially dangerous sources of stored energy. These procedures include 1) preparation for shutdown, 2) machine or equipment shut-down, 3) machine or equipment isolation, 4) implementing the proper lockout / tagout devices to the equipment, 5) completely releasing the devices stored energy, and 6) verification of isolation of the equipment.

Security

A security plan will be implemented at the site, which includes walls, fencing and lockable gates. Lockable gates located at the facility entrance will control access to the facility. The north and east site boundaries, as well as the majority of the west site boundary will be surrounded by 8-foot high chain link fencing, thereby preventing unauthorized access to the facility. The southern boundary of the facility will include a retaining wall behind a landscaped berm. A 6-foot high fence will be located on top of the retaining wall. These security measures will help to prevent accidents and vandalism by preventing trespassers from entering the Facility.

Visitor Safety

All visitor's at the Facility will be required to sign in and out in a log book located within the scale house office. Visitors, vendors or contractors who may be exposed to vehicular or equipment traffic will also be provided with reflective clothing (i.e. vest) to increase their visibility to vehicle drivers and equipment operators.

Vandalism

Any vandalism will be immediately reported to the Safety Officer, or the person in responsible charge. The Safety Officer will evaluate potential damage that may adversely affect the operating capabilities of the Facility. The Safety Officer will report any incidences of vandalism or other criminal activity to the appropriate law enforcement authority.

Medical Services

The scale house and equipment storage area will both be equipped with a first-aid kit and an eye-wash station in an easily accessible location. The Safety Officer will be responsible for checking that the kits are adequately supplied on a regular basis.

If an incident involving personal injury should occur, the nearest employee and the Safety Officer will be immediately notified. First-aid, CPR, or other emergency medical treatment will be applied as appropriate, depending upon the severity of the injury and the qualifications of available personnel. If the injury is determined to be serious, or warranting further treatment, an ambulance or other emergency unit will be summoned. An emergency call list will be clearly posted near all Facility telephones. The Safety Officer will be responsible for documenting any personal injury incidences.



Emergency Access Point

Emergency vehicles will access the Facility utilizing the vehicle entrance drive located at the northeast corner of the Facility at Porter Drive. All areas of the Facility are accessible to fire/emergency equipment.

Operational Contingency Plan

Equipment Failure

Groot Industries will perform routine maintenance on all equipment utilized at the facility. However, there is always the possibility that equipment may fail to operate. The on-site rolling stock and equipment that is susceptible to downtime includes the front-end loader, grapple excavator, sweeper, and/or other processing equipment.

Since Groot Industries, Inc. and its affiliated companies operate other material handling operations in the region, disabled equipment may be readily replaced with spare equipment from other nearby facilities. Additionally, minor maintenance and repairs can be completed on-site. If necessary, replacement equipment can be rented from local agencies until the onsite equipment can be repaired and returned to service.

If a vehicle delivering materials to or hauling materials from the facility becomes disabled, additional vehicles can be dispatched to the facility. Moreover, there is adequate room on the facility to stage a disabled vehicle to enable the efficient receipt and processing of material.

If the facility scale is not functioning properly, the weight of shipments and deliveries can be estimated based on vehicle size and density of materials being delivered or deliveries can be temporarily suspended until the scale is again operational.

Severe Weather Conditions

The Facility Safety Officer will be responsible for initiating the appropriate response actions in the event of severe weather conditions. Depending upon the nature and severity of event, the Safety Officer will communicate instructions to all persons at the Facility by two-way radios, cellular phones, or an alarm system. If a tornado is imminent, all employees, drivers utilizing the Facility, and visitors will be directed to the maintenance building in the Groot Industries, Inc. hauling yard north of the facility.

As soon as feasible, the Safety Officer will be responsible for taking roll call and for assessing and coordinating any rescue procedures or medical treatment that may be needed. Appropriate emergency response units will be contacted as necessary. Clean-up or repair will be initiated as soon as possible to return to normal operations at the Facility.

As part of personnel training, the Safety Officer will be responsible for educating employees on the proper attire and practices to protect themselves during extreme temperatures, the warning signs of heat stress or frostbite, and the appropriate first-aid or other medical treatment.

Interruption of Utility Service



In the event that telephone, water or electrical service is interrupted at the facility, plans are in place to either temporarily suspend operations or safely continue work. Incoming material

can be diverted in the event that operations are suspended. The available light and other resources may be used to carefully load and transfer any waste remaining inside the facility, in order to eliminate the potential for fire or accidents. If necessary, a portable generator will be used to provide power to the scale system. Cellular phones or two-way radios may be used to summon emergency assistance during a loss of telephone service.



APPENDIX P.2

Fire Protection Correspondence



Greater Round Lake Fire Protection District
409 W. Nippersink Road
Round Lake, Illinois 60073
Office: 847-546-6001 Fax: 847-546-0758

Michael Kohlmeyer President	Richard Kenyon Secretary	Patrick Anderson Treasurer	Thomas Buehler Trustee	Dan MacGillis Trustee
Paul Maplethorpe Fire Chief	John Whitten Deputy Chief	Doug Zeigler Fire Marshal		

November 19, 2012

Mr. Martin Fallon
Shaw Environmental, Inc.
1607 E. Main Street, Suite E
St. Charles, IL. 60174

Re: Groot Industries

Dear Mr. Fallon,

Thank you for meeting with Deputy Chief Whitten and me on October 30, 2012 regarding Groot Industries' solid waste transfer station proposed for the Village of Round Lake Park. Based on that meeting, the Fire District understands that the following is proposed:

- The transfer station building will be constructed of steel and concrete. It is my understanding that all waste transfer and handling operations will occur within this building.
- The waste transfer building will be equipped with an automatic fire sprinkler and alarm systems which meet the Fire District's requirements.
- Fire lanes around the waste transfer building, as proposed, are adequate to allow access to fire fighting and emergency response vehicles.
- Fire hydrants, key box access, fire department connections and gate controls will be installed in accordance with the requirements of the Fire District.
- No waste will be stored on the tipping floor when the facility is not operating.
- The transfer station does not intend to accept liquid or hazardous wastes.
- Protections will be in place to control rodents and limit run-off from the property.

If the facility is constructed as proposed, the Fire District does not anticipate any significant threat of fire or other risk to the community.

Respectfully,

Paul Maplethorpe
Fire Chief/Administrator
GRLFPD

Cc: Mayor McCue

Mission: To protect our residents, visitors and their property from the adverse effects of fires, medical emergencies and other dangerous, life threatening situations through public education, training, prevention and planning, community interaction and safe, efficient, professional emergency response.

APPENDIX Q

Wetland Documentation



May 17, 2013

L. Groot
Groot Industries, Inc.
2500 Landmeier Road
Elk Grove Village, IL 60007

**Subject: SMC Watershed Development File #10-41-027
Porter Drive & IL Route 120 Property (PIN #'s 06-28-307-027; 06-28-307-033 &
06-28-307-034), Village of Round Lake Park, Lake County, Illinois
PRELIMINARY WETLAND JURISDICTIONAL DETERMINATION &
ISOLATED WETLAND BOUNDARY VERIFICATION**

Dear L. Groot:

This letter responds to your request for a preliminary wetland jurisdictional determination (PJD) for the subject property, received by the Lake County Stormwater Management Commission (SMC) on May 9, 2013. This letter supersedes our previous PJD letter for the subject property dated May 21, 2010. Note that the wetland referenced in this letter is shown on the enclosed Figure 8 and described in the reports entitled: *Routine Wetland Assessment Report, Groot Industries, Porter Drive Properties, Round Lake Park, Lake County, Illinois*, by Shaw Environmental, Inc., dated May 4, 2010, and *Routine Wetland Assessment Report – Amendment 1 - Groot Industries*, by CB&I, dated May 8, 2010 (as revised).

SMC performed a site reconnaissance on May 9, 2013 in the company of Mr. Michael Murphy of the U.S. Army Corps of Engineers (USACE). A follow-up field review was performed by SMC on May 16, 2013, in the company of Ms. Michele Martzke of CB&I. Based on our findings, the subject property does not appear to contain *Waters of the United States* (WOUS). **The property appears to contain one Isolated Water of Lake County (IWLC), which is subject to regulation by the Village of Round Lake Park under the Lake County Watershed Development Ordinance** ("WDO"; see Permitting Considerations on page 2). The IWLC includes the area designated as "Approximate Wetland Boundaries" on the enclosed Figure 8.

Based on our observations on May 16, 2013, SMC concurs with the updated wetland boundary as delineated and flagged by CB&I. The flagged wetland boundary will need to be surveyed and included on the proposed site development plans for permitting purposes.

This PJD and isolated wetland boundary verification have been approved by SMC's Chief Engineer and are valid for a period of three (3) years from the date of this letter, unless new information warrants a revision before the expiration date. This letter satisfies the requirement for a written jurisdictional determination under WDO Article IV, Section E.1.a.

For your information, SMC determined the jurisdiction of potential WOUS areas on the subject property based upon the guidance provided in the EPA/USACE Memorandum entitled "Clean Water Act Jurisdiction Following the U.S. Supreme Court's decision in Rapanos v. United States & Carabell v. United States" dated June 5, 2007 (revised December 2, 2008) and the USACE's *Jurisdictional Determination Form Instructional Guidebook* dated May 30, 2007. For areas not considered WOUS, we determined jurisdiction using the definition of *Isolated Waters of Lake County* (IWLC) contained in Appendix A of the WDO.

Permitting Considerations

A Lake County Watershed Development Permit (WDP), including authorization for any IWLC impacts, will be required from the Village of Round Lake Park for the proposed development of the property. Please contact Mr. Frank Furlan, the Village's WDO enforcement officer, at (847)662-4568 for the WDP submittal requirements, and Dan Krill, the Village's certified wetland specialist, at (847)548-7458 for the IWLC submittal requirements.

We would like to be of assistance. If you have any questions, or would like to set up a meeting, please call our office at (847) 377-7705 or e-mail Glenn Westman at gwestman@lakecountyil.gov. If you have any additional concerns that have not been addressed by the regulatory staff, you may contact Chief Engineer Kurt Woolford kwoolford@lakecountyil.gov or Executive Director Michael Warner mwarner@lakecountyil.gov at (847) 377-7700.

If you would like to provide feedback regarding the SMC permit/inspection process please go to:
(password – *survey*)

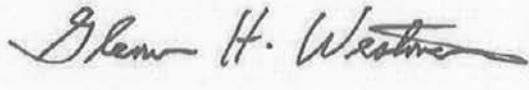
www.lakecountyil.gov/Stormwater/Pages/permit-process-survey.aspx
www.lakecountyil.gov/Stormwater/Pages/inspection-process-survey.aspx

Sincerely,

LAKE COUNTY STORMWATER MANAGEMENT COMMISSION



Kurt Woolford, P.E., CFM
Chief Engineer



Glenn H. Westman, PWS, CWS, CFM
Principal Wetland Specialist

Enclosure: Figure 8 – Approximate Wetland Delineation (Shaw, April 2010)

cc: Frank Furlan, EO, & Dan Krill, CWS -Village of Round Lake Park
Mike Murphy, U.S. Army Corps of Engineers
Michele Martzke, CB&I

This document was digitally transmitted. Please print out a copy of the document and retain for your records. If you are unable to print the document, or desire a hard copy mailed to you, please notify SMC at your earliest convenience.



Figure adapted using Google Earth (Imagery Date October 11, 2007)



Shaw® Shaw Environmental, Inc.

**GROOT INDUSTRIES
ROUND LAKE PARK, ILLINOIS**

**FIGURE 8
APPROXIMATE WETLAND DELINEATION**

APPROVED BY: KJH | PROJ. NO.: 137818 | DATE: APRIL 2010



Routine Wetland Assessment Report – Amendment 1 Groot Industries

Prepared for Groot Industries

Prepared by CB&I
1607 E. Main St.
St. Charles, IL 60174

147312
Revision: May 8, 2013
Publish Date: May 4, 2010

Routine Wetland Assessment Report - Addendum 1

Groot Industries Porter Drive Properties
Round Lake Park, Lake County, Illinois

Introduction

On May 6, 2013, Shaw Environmental, Inc., a CB&I Company (Shaw), visited the Study Area located at the northeast and northwest corners of Route 120 and Porter Drive in Round Lake Park, Lake County, Illinois. The Study Area is comprised of two properties: the property located in the northeast corner of the intersection is 3.9 acres and the property located in the northwest corner of the intersection is 14 acres. The legal location is in the southwest quarter of Section 28, Township 45 North, Range 10 East.

This report is an amendment to the Routine Wetland Assessment Report (2010 Report) prepared for Groot Industries on May 4, 2010. Shaw visited the site to gather three-parameter wetland data, create a Floristic Quality Assessment, and observe current site conditions. The Study Area was the same area reviewed in 2010. The wetland delineation and assessment was completed following technical guidelines and methodology outlined in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0, August 2010).

All maps contained within the 2010 Report are current. One wetland (Wetland 1) was identified during the 2013 Study Area visit. Numbering on data forms attached to this letter correspond with numbering on data forms contained within the 2010 Report. Current photographs of the site are attached as Figures 9D to 9E under Appendix B. Wetland 1 corresponds with the Wetland #1 identified in the 2010 Report. Wetlands identified during the 2013 visit are depicted on Figure 8 of the 2010 Report.

Uplands

Upland portions of the Study Area were tilled cropland with corn stubble. The cropland had been covered with leaf mulch. One area vegetated with reed canary grass (*Phalaris arundinacea*) was investigated for wetland characteristics; however, it lacked hydric soils and positive wetland hydrology indicators (Data Point 1B, Appendix A).

Wetland 1

Wetland 1 was located in the southeastern corner of the eastern property. Soils within the wetlands showed evidence of recent disturbance via tilling. Dominant vegetation in the wetland was reed canary grass (*Phalaris arundinacea*). Soils sampled within the wetland were characteristic of federal hydric soil indicator A11, depleted below dark surface. Standing water in the wetland was evidence of persistent wetland hydrology. The Floristic Quality Assessment yielded a native Floristic Quality Index of 1.0 and a native mean C-value of 0.5 (Appendix C).

Wetland 1 appears to lack a connection to a Traditional Navigable Waterway. The wetland was connected to a roadside ditch along Route 120. It is Shaw's opinion that Wetland 1 will be considered an Isolated Waters of Lake County. According to a Pre-Jurisdictional Determination dated May 21, 2010 (File #10-41-027), Wetland 1 was previously identified as an Isolated Waters of Lake County (IWLC).

Wetland Buffers

Onsite portions of Wetland 1 buffer was comprised of tilled cropland. Off-site wetland buffer east of Wetland 1 was vegetated with red oak (*Quercus rubra*), shagbark hickory (*Carya ovata*), common buckthorn (*Rhamnus cathartica*), red trillium (*Trillium recurvatum*), and tall agrimony (*Agrimonia gryposepala*). Wetland buffer conditions are documented in Data Point 2B contained in **Appendix A**.

This addendum should be forwarded to Lake County Stormwater Management Commission for concurrence with findings. A Pre-Jurisdictional Determination form should be filed to determine whether Wetland 1 remains an Isolated Waters of Lake County. Isolated Waters of Lake County are under the jurisdiction of Lake County. Dredging or filling activities within an IWLC is subject to the wetland provisions of the Lake County Watershed Development Ordinance (July 10, 2012).

Questions related to this addendum to the Routine Wetland Assessment Report can be directed to Michele Martzke via telephone (630-762-3301) or e-mail (michele.martzke@CBI.com).

Appendix A
US Army Corps of Engineers
Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Porter Drive Property City/County: Round Lake P; Lake Sampling Date: 05/06/2013
 Applicant/Owner: Groot Industries State: IL Sampling Point: 1B
 Investigator(s): Michele Martzke, Shaw Environmental, Inc. Section, Township, Range: SW1/4 Section 28; T. 45N; R. 10E
 Landform (hillslope, terrace, etc.): Corner of Farm Field Local relief (concave, convex, none): None
 Slope (%): 0 Lat: 88.07 Long: 42.34 Datum: WGS84
 Soil Map Unit Name: Zurich and Ozaukee silt loams (840A) - non-hydric NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	within a Wetland?
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks:		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>None</u>	—	—	—	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	—	—	—	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	—	—	—	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
4. _____	—	—	—	Prevalence Index worksheet:
5. _____	—	—	—	Total % Cover of: _____ Multiply by: _____
50%: <u>50</u> 20%: <u>20</u> : <u>0</u> = Total Cover	—	—	—	OBL species _____ x 1 = _____
Sapling/Shrub Stratum (Plot size: <u>15 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	FACW species _____ x 2 = _____
1. <u>Rosa multiflora</u>	<u>5</u>	Yes	FACU	FAC species _____ x 3 = _____
2. _____	—	—	—	FACU species _____ x 4 = _____
3. _____	—	—	—	UPL species _____ x 5 = _____
4. _____	—	—	—	Column Totals: <u>0</u> (A) <u>0</u> (B)
5. _____	—	—	—	Prevalence Index = B/A = _____
50%: <u>50</u> 20%: <u>20</u> : <u>5</u> = Total Cover	—	—	—	Hydrophytic Vegetation Indicators:
Herb Stratum (Plot size: <u>5 ft radius</u>)	Absolute % Cover	Dominant Species?	— 1 - Rapid Test for Hydrophytic Vegetation	
1. <u>Phalaris arundinacea</u>	<u>80</u>	Yes	FACW	— 2 - Dominance Test is >50%
2. <u>Barbarea vulgaris</u>	<u>10</u>	No	FAC	— 3 - Prevalence Index is $\leq 3.0^1$
3. <u>Cirsium arvense</u>	<u>5</u>	No	FACU	— 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Carduus nutans</u>	<u>1</u>	No	FACU	— Problematic Hydrophytic Vegetation ¹ (Explain)
5. <u>Solidago altissima</u>	<u>1</u>	No	FACU	
6. <u>Oenothera biennis</u>	<u>1</u>	No	FACU	
7. _____	—	—	—	
8. _____	—	—	—	
9. _____	—	—	—	
10. _____	—	—	—	
50%: <u>49</u> 20%: <u>19.6</u> : <u>98</u> = Total Cover	—	—	—	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Hydrophytic Vegetation Present?	
1. <u>None</u>	—	—	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
2. _____	—	—		
50%: <u>0</u> 20%: <u>0</u> : <u>0</u> = Total Cover	—	—		
Remarks: (Include photo numbers here or on a separate sheet.)				

soil

Sampling Point: 1B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
 - Histic Epipedon (A2)
 - Black Histic (A3)
 - Hydrogen Sulfide (A4)
 - Stratified Layers (A5)
 - 2 cm Muck (A10)
 - Depleted Below Dark Surface (A11)
 - Thick Dark Surface (A12)
 - Sandy Mucky Mineral (S1)
 - 5 cm Mucky Peat or Peat (S3)

- Sandy Gleyed Matrix (S4)
 - Sandy Redox (S5)
 - Stripped Matrix (S6)
 - Loamy Mucky Mineral (F1)
 - Loamy Gleyed Matrix (F2)
 - Depleted Matrix (F3)
 - Redox Dark Surface (F6)
 - Depleted Dark Surface (F7)
 - Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
 - Dark Surface (S7)
 - Iron-Manganese Masses (F12)
 - Very Shallow Dark Surface (TF12)
 - Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Hydric Soil Present? Yes No

Remarks:

No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required: check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
 - Drainage Patterns (B10)
 - Dry-Season Water Table (C2)
 - Crayfish Burrows (C8)
 - Saturation Visible on Aerial Imagery (C9)
 - Stunted or Stressed Plants (D1)
 - Geomorphic Position (D2)
 - FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No ✓ Depth (inches):

Water Table Present? Yes No Depth (inches): _____

Saturation Present? Yes No Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydric soil indicators observed.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Porter Drive Property City/County: Round Lake P; Lake Sampling Date: 05/06/2013
 Applicant/Owner: Groot Industries State: IL Sampling Point: 2A
 Investigator(s): Michele Martzke, Shaw Environmental, Inc. Section, Township, Range: SW1/4 Section 28; T. 45N; R. 10E
 Landform (hillslope, terrace, etc.): Corner of Farm Field Local relief (concave, convex, none): None
 Slope (%): 0 Lat: 88.07 Long: 42.34 Datum: WGS84
 Soil Map Unit Name: Wauconda & Beecher silt loams (978A) - non-hydric NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation Yes, Soil Yes, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes _____ No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	
Remarks: Soil appears to have been tilled. The point was taken in a wet area within a farm field.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>30 ft radius</u>) 1. <u>None</u> 2. 3. 4. 5. 50%: <u>20%</u> : <u>0</u> = Total Cover	Absolute % Cover Dominant Species? Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15 ft radius</u>) 1. <u>None</u> 2. 3. 4. 5. 50%: <u>20%</u> : <u>0</u> = Total Cover		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = _____
<u>Herb Stratum</u> (Plot size: <u>5 ft radius</u>) 1. <u>Phalaris arundinacea</u> <u>80</u> Yes <u>FACW</u> 2. <u>Rumex crispus</u> <u>1</u> No <u>FAC</u> 3. 4. 5. 6. 7. 8. 9. 10. 50%: <u>20%</u> : <u>81</u> = Total Cover		Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is $\leq 3.0^1$ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>30 ft radius</u>) 1. <u>None</u> 2. 50%: <u>20%</u> : <u>0</u> = Total Cover		<u>Hydrophytic Vegetation Present?</u> Yes <input checked="" type="checkbox"/> No _____
Remarks: (Include photo numbers here or on a separate sheet.)		

soil

Sampling Point: 2A

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)
Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> FAC-Neutral Test (D5)	

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Porter Drive Property City/County: Round Lake P; Lake Sampling Date: 05/06/2013
 Applicant/Owner: Groot Industries State: IL Sampling Point: 2B
 Investigator(s): Michele Martzke, Shaw Environmental, Inc. Section, Township, Range: SW1/4 Section 28; T. 45N; R. 10E
 Landform (hillslope, terrace, etc.): Corner of Farm Field Local relief (concave, convex, none): None
 Slope (%): 0 Lat: 88.07 Long: 42.34 Datum: NAD83
 Soil Map Unit Name: Wauconda & Beecher silt loams (978A) - Non-hydric NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks:							

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:		
1. <u>Quercus rubra</u>		15	Yes	FACU	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)		
2. <u>Carya ovata</u>		5	Yes	FACU	Total Number of Dominant Species Across All Strata: <u>5</u> (B)		
3. _____		_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>20%</u> (A/B)		
4. _____		_____	_____	_____	Prevalence Index worksheet:		
5. _____		_____	_____	_____	Total % Cover of: _____ Multiply by: _____		
50%: <u>10</u> 20%: <u>4</u>		<u>20</u>	= Total Cover			OBL species _____ x 1 = _____	
Sapling/Shrub Stratum (Plot size: <u>15 ft radius</u>)		Absolute % Cover	Dominant Species?	Indicator Status	FACW species _____ x 2 = _____		
1. <u>Cornus racemosa</u>		50	Yes	FACW	FAC species _____ x 3 = _____		
2. <u>Rhamnus cathartica</u>		10	No	FAC	FACU species _____ x 4 = _____		
3. <u>Lonicera mackii</u>		1	No	UPL	UPL species _____ x 5 = _____		
4. <u>Rosa multiflora</u>		1	No	FACU	Column Totals: <u>0</u> (A) <u>0</u> (B)		
5. <u>Viburnum opulus</u>		1	No	FAC	Prevalence Index = B/A = _____		
50%: <u>31.5</u> 20%: <u>12.6</u>		<u>63</u>	= Total Cover			Hydrophytic Vegetation Indicators:	
Herb Stratum (Plot size: <u>5 ft radius</u>)		Absolute % Cover	Dominant Species?	Indicator Status	1 - Rapid Test for Hydrophytic Vegetation		
1. <u>Agrimonia gryposepala</u>		10	Yes	FACU	2 - Dominance Test is >50%		
2. <u>Trillium recurvatum</u>		5	Yes	FACU	3 - Prevalence Index is $\leq 3.0^1$		
3. <u>Hydrophyllum virginianum</u>		1	No	FAC	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)		
4. <u>Podophyllum peltatum</u>		1	No	FACU	Problematic Hydrophytic Vegetation ¹ (Explain)		
5. _____		_____	_____	_____	_____		
6. _____		_____	_____	_____	_____		
7. _____		_____	_____	_____	_____		
8. _____		_____	_____	_____	_____		
9. _____		_____	_____	_____	_____		
10. _____		_____	_____	_____	_____		
50%: <u>8.5</u> 20%: <u>3.4</u>		<u>17</u>	= Total Cover			'Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.'	
Woody Vine Stratum (Plot size: <u>30 ft radius</u>)		Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?		
1. <u>None</u>		_____	_____	_____	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
2. _____		_____	_____	_____	_____		
50%: <u>0</u> 20%: <u>0</u>		<u>0</u>	= Total Cover			_____	
Remarks: (Include photo numbers here or on a separate sheet.)							

soil

Sampling Point: 2B

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)
Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> FAC-Neutral Test (D5)	

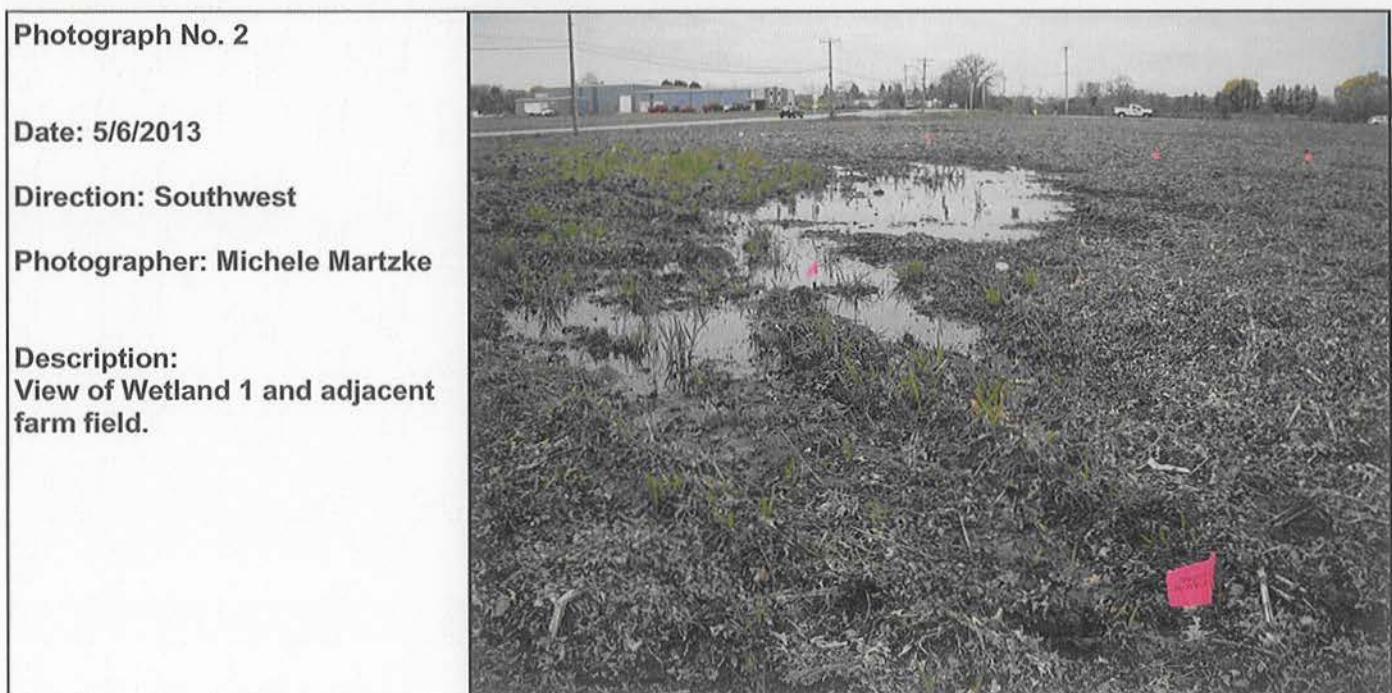
Appendix B

Site Photographs



Photographic Documentation

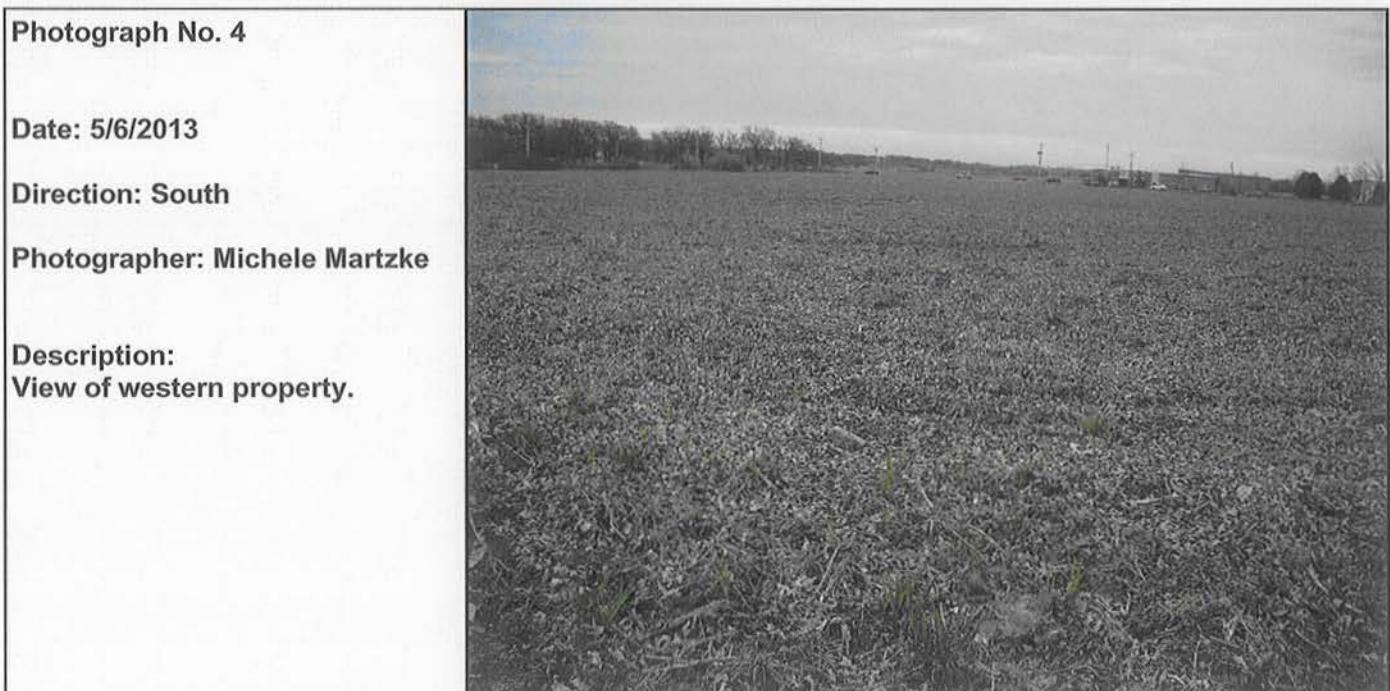
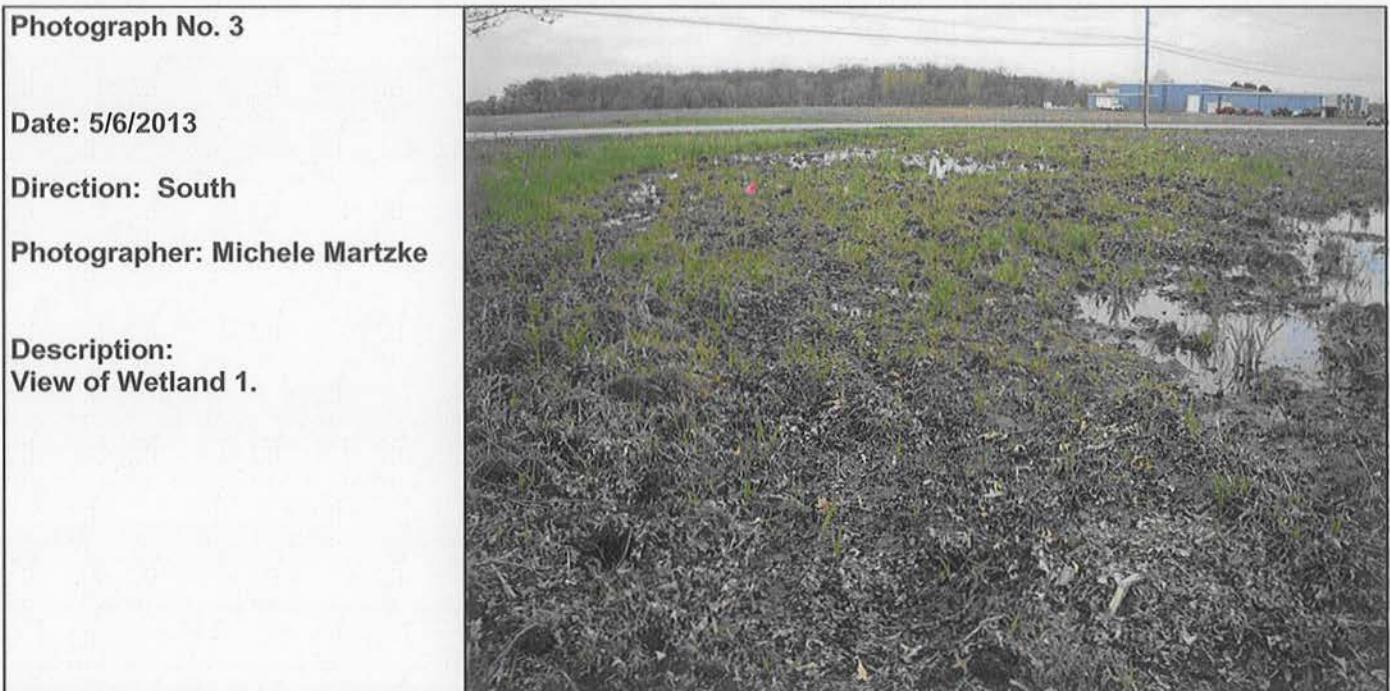
Figure 9D	Client:	Groot Industries
Location:	Porter Drive Properties	Project Number: 147312





Photographic Documentation

Figure 9E	Client:	Groot Industries
Location:	Porter Drive Properties	Project Number: 147312



Appendix C

Floristic Quality Assessment

Site: Porter Drive Properties
 Locale: Wetland 1
 By: Michele Martzke, Shaw Environmental, Inc.
 File: t:\Projects\2012\147312 - Groot Industries Lake Transfer Station\Wetland Delineation\FQA Wetland 1.inv
 Notes: Sampling Date: 5/6/2013

FLORISTIC QUALITY DATA	Native	4	40.0%	Adventive	6	60.0%
4 NATIVE SPECIES	Tree	0	0.0%	Tree	0	0.0%
10 Total Species	Shrub	0	0.0%	Shrub	0	0.0%
0.5 NATIVE MEAN C	W-Vine	0	0.0%	W-Vine	0	0.0%
0.2 W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%
1.0 NATIVE FQI	P-Forb	2	20.0%	P-Forb	2	20.0%
0.6 W/Adventives	B-Forb	0	0.0%	B-Forb	2	20.0%
-1.7 NATIVE MEAN W	A-Forb	1	10.0%	A-Forb	0	0.0%
-0.5 W/Adventives	P-Grass	0	0.0%	P-Grass	2	20.0%
Avg: Fac. Wetland (-)	A-Grass	0	0.0%	A-Grass	0	0.0%
	P-Sedge	1	10.0%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Cryptogam	0	0.0%			

ACRONYM	C SCIENTIFIC NAME	W WETNESS	PHYSIOGNOMY	COMMON NAME
BARVUL	0 BARBAREA VULGARIS	0 FAC	Ad B-Forb	YELLOW ROCKET
CYPESC	0 Cyperus esculentus	-1 [FAC+]	Nt P-Sedge	FIELD NUT SEDGE
DIPLAC	0 DIPSACUS LACINIATUS	5 UPL	Ad B-Forb	CUT-LEAVED TEASEL
PHAARU	0 PHALARIS ARUNDINACEA	-4 FACW+	Ad P-Grass	REED CANARY GRASS
POAPRA	0 POA PRATENSIS	1 FAC-	Ad P-Grass	KENTUCKY BLUE GRASS
POLPEN	0 Polygonum pensylvanicum	-4 FACW+	Nt A-Forb	PINKWEED
RUMCRI	0 RUMEX CRISPUS	-1 FAC+	Ad P-Forb	CURLY DOCK
SOLALT	1 Solidago altissima	3 FACU	Nt P-Forb	TALL GOLDENROD
SONARV	0 SONCHUS ARVENSIS	1 FAC-	Ad P-Forb	FIELD SOW THISTLE
TYPANG	1 Typha angustifolia	-5 OBL	Nt P-Forb	NARROW-LEAVED CATTAIL

ROUTINE WETLAND ASSESSMENT REPORT

Groot Industries
Porter Drive Properties
Round Lake Park, Lake County, Illinois

May 4, 2010

Prepared by:
Shaw Environmental, Inc.
1607 E. Main Street
St. Charles, Illinois 60174



TABLE OF CONTENTS

Signature Page.....	Page 3
Introduction.....	Page 4
Methodology.....	Page 4
Results and Summary.....	Page 6
Wetland Regulations.....	Page 7
Conclusion.....	Page 8

APPENDICES

Routine Wetland Determination Forms.....	Appendix A
--	------------

FIGURES

Location Map.....	Figure 1
National Wetlands Inventory.....	Figure 2
Lake County Wetlands Inventory (ADID).....	Figure 3
Soil Survey of Lake County.....	Figure 4
USGS Topographic Survey.....	Figure 5
Lake County Flood of Record (Hydrologic Atlas).....	Figure 6
Flood Insurance Rate Map.....	Figure 7
Approximate Wetland Delineation (Aerial).....	Figure 8
Color Photographs.....	Figure 9
Farmed Wetland Determination.....	Figure 10

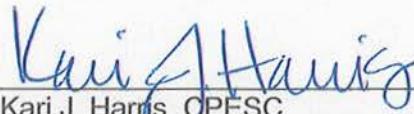


Shaw™ Shaw Environmental, Inc.

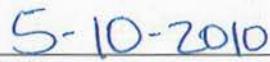
Routine Wetland Assessment
Groot Industries
Round Lake Park, Illinois

Signature Page

To the best of my knowledge, the following Wetland Delineation and Assessment report has been completed and prepared in compliance with the current US Army Corps of Engineers methodology, and in accordance with the Lake County Watershed Development Ordinance.

A handwritten signature in blue ink that appears to read "Kari J. Harris".

Kari J. Harris, CPESC
Natural Resources Manager
Lake County CWS #C-022

A handwritten date in blue ink that appears to read "5-10-2010".

Date



Introduction

On April 29, 2010, Shaw Environmental, Inc. (Shaw) completed a wetland delineation and assessment of the Porter Drive project site. The project site consists of two properties. One property is located at the northeast corner of Route 120 and Porter Drive and is approximately 3.9 acres. The other property is located at the northwest corner of Route 120 and Porter Drive and is approximately 14 acres. Both properties are located within Round Lake Park in Lake County, Illinois (Figure 1). Geographically, the project area is located in the southwest quarter of Section 28, Township 45 North, Range 10 East.

The project area consists of existing agricultural land, cropped in corn this past year. One (1) isolated wetland area, approximately 0.1-acre in size, was identified during the site visit. The wetland boundaries were marked in the field with pink pin flags. Figure 8 illustrates the approximate wetland boundaries, as delineated on that day. It is strongly recommended that the flags be surveyed and located in relation to the project coordinate system so that the boundaries and area of the wetland can be accurately identified and depicted on any site improvement plans.

Methodology

This wetland delineation and assessment was completed following technical guidelines and methodology outlined in the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (September 2008). Three criteria were investigated in identifying onsite wetland areas, under normal circumstances. These three criteria include the dominant presence of hydrophytic vegetation, hydric soils, and positive wetland hydrology. The following briefly describes each of these indicators:

Hydrophytic Vegetation: The US Fish and Wildlife Service, Region 3 has designated plants across the north central part of the United States into categories of either *Obligate Wetland*, *Facultative Wetland*, *Facultative*, *Facultative Upland* or (*obligate*) *Upland*. These categories are defined as the following:

Obligate Wetland (OBL)	-	Occurs almost always in wetlands under natural conditions (estimated >99% probability).
Facultative Wetland (FACW)	-	Usually occurs in wetlands, but occasionally found in non-wetlands (estimated 67-99% probability).
Facultative (FAC)	-	Equally likely to occur in wetlands or non-wetlands (estimated 34-66% probability).
Facultative Upland (FACU)	-	Occasionally occurs in wetlands, but usually occurs in non-wetlands (estimated 1-33% probability).
Upland (UPL)	-	Occurs almost never in wetlands under natural conditions (estimated <1% probability).

If more than 50% of the dominant plant species across all strata identified within a sample plot are rated OBL, FACW, or FAC, then the investigated area meets the wetland vegetation criterion.



Hydric Soils: A hydric soil is defined as a soil formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (US Department of Agriculture, Natural Resources Conservation Service; 1995).

In general, hydric soils are identified through the presence of gleyed soils (gray colors), soils with bright mottles and/or low matrix chroma, iron and manganese concretions, sulfidic odor, or soils appearing on the National Hydric Soils list.

Wetland Hydrology: An area that is periodically inundated or has saturated soils during the growing season indicates the presence of positive wetland hydrology. Indicators may include, but are not limited to; visual observation of inundation, visual observation of saturated soils, visual observation of a high water table, sediment deposits, hydrogen sulfide odor, water stained leaves, drift deposits or water marks. Any one or a combination of these indicators can be evidence of wetland hydrologic characteristics.

Additionally, a Floristic Quality Assessment was completed of the onsite wetland. A Floristic Quality Assessment (Swink & Wilhelm, 1994) is not a standard for identifying wetland areas within the Corps of Engineers Manual, but is used as a way to assess the overall quality of the wetland plant community. The FQA is an assessment method that enables a person to index the presence of conservative plants and to distinguish plant communities with differing levels of floristic integrity, and is based on a fundamental character of the Chicago region flora. Each native species in a plant checklist are given a coefficient of conservatism (C value), ranging from 0 to 10. From the list of identified plants within a certain area, a mean C value is calculated. The mean C value is generally lower as conservative plants are lost and replaced by either non-conservative plant species, or by weedy plants.

The floristic quality index (FQI) is derived from a mathematical equation using the calculated mean C value. The FQI can then provide information regarding the natural quality of the investigated area. In general, if the mean C value for the investigated area is 3.5 or higher or has an FQI value of 35 or greater, you can be somewhat certain that the area has adequate floristic quality to be at least of marginal natural quality.

Farmed Wetland Determination Methodology

The farmed wetland determination for this site was completed using the National Food Security Act Manual (NFSAM) methodology and accepted mapping conventions. Mapping conventions are a set of accepted procedures used to guide a person in making off-site farmed wetland inventories, and on-site determinations.

Off-site techniques rely on the interpretation of aerial photography and other inventories, including the County Soil Survey and National Wetland Inventory, or in this case the Lake County Wetland Inventory (ADID) maps. At least five (5) years of aerial compliance (or crop history) color slides are used in the aerial photography review procedure. While reviewing each of the FSA slides, observed wetland signatures are documented. A wetland signature is the indication left in a field, recorded by a photograph, of ponding, flooding or impacts of saturation for sufficient duration that meets wetland hydrology and possibly wetland vegetation criteria.



If a wetland signature appears in the same location on more than 50% of the FSA slides reviewed during the off-site procedure, it is then marked on current aerial photography in preparation for the on-site determination. During the on-site determination procedure, potential farmed wetland areas are assessed for the presence of hydric soils, and any hydrophytic plants or hydrology indicators. If no hydrophytic plants are observed within the potential area, but hydric soils are present, the area is determined to be a farmed wetland.

Results and Summary

Wetland #1

Wetland #1 is located in the southeast corner of the 3.9 acre property, as shown on Figure 8 (Data Point 2A). The wetland is located in a low-lying area of the landscape with no visual outlet to another waterway.

The identified plant community within the wetland was dominated by hydrophytic vegetation; including but not limited to reed canary grass (*Phalaris arundinacea*) and cattail (*Typha angustifolia*).

The following lists plants observed within the wetland area, with the calculated FQI:

FLORISTIC QUALITY DATA	Native	6	37.5%	Adventive	10	62.5%
6 NATIVE SPECIES	Tree	0	0.0%	Tree	0	0.0%
16 Total Species	Shrub	1	6.3%	Shrub	0	0.0%
2.2 NATIVE MEAN C	W-Vine	0	0.0%	W-Vine	0	0.0%
0.8 W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%
5.3 NATIVE FQI	P-Forb	3	18.8%	P-Forb	4	25.0%
3.3 W/Adventives	B-Forb	0	0.0%	B-Forb	4	25.0%
-3.7 NATIVE MEAN W	A-Forb	0	0.0%	A-Forb	1	6.3%
-0.9 W/Adventives	P-Grass	0	0.0%	P-Grass	1	6.3%
AVG: Fac. Wetland (+)	A-Grass	0	0.0%	A-Grass	0	0.0%
	P-Sedge	2	12.5%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Cryptogam	0	0.0%			

C SCIENTIFIC NAME	W WETNESS	PHYSIOGNOMY	COMMON NAME
0 AMARANTHUS RETROFLEXUS	2 FACU+	Ad A-Forb	ROUGH AMARANTH
0 BARBAREA VULGARIS	0 FAC	Ad B-Forb	YELLOW ROCKET
0 CIRSIUM VULGARE	4 FACU-	Ad B-Forb	BULL THISTLE
1 Cornus racemosa	-2 FACW-	Nt Shrub	GRAY DOGWOOD
0 Cyperus esculentus	-1 [FAC+]	Nt P-Sedge	FIELD NUT SEDGE
0 DAUCUS CAROTA	5 UPL	Ad B-Forb	QUEEN ANNE'S LACE
0 DIPSACUS SYLVESTRIS	5 UPL	Ad B-Forb	COMMON TEASEL
3 Epilobium coloratum	-5 OBL	Nt P-Forb	CINNAMON WILLOW HERB
0 LYTHRUM SALICARIA	-5 OBL	Ad P-Forb	PURPLE LOOSESTRIFE
0 PHALARIS ARUNDINACEA	-4 FACW+	Ad P-Grass	REED CANARY GRASS
0 RANUNCULUS REPENS	-1 FAC+	Ad P-Forb	CREEPING BUTTERCUP
0 RUMEX CRISPUS	-1 FAC+	Ad P-Forb	CURLY DOCK
4 Scirpus atrovirens	-5 OBL	Nt P-Sedge	DARK GREEN RUSH
0 TARAXACUM OFFICINALE	3 FACU	Ad P-Forb	COMMON DANDELION
1 Typha angustifolia	-5 OBL	Nt P-Forb	NARROW-LEAVED CATTAIL
4 Verbena hastata	-4 FACW+	Nt P-Forb	BLUE VERVAIN

A soil probe was used to investigate soils within the wetland area, revealing hydric soil conditions. The field indicators of hydric soils included a thick dark surface (A12) and a redox dark surface (F6). Finally, positive wetland hydrology was characterized through the visual observation of saturated soils at the surface, a sparsely vegetated concave surface and surface soil cracks.



Wetland #1 is not mapped on the Lake County Wetland Inventory (ADID) map (Figure 3). One (1) data point was collected for Wetland #1, and is recorded on the Routine Wetland Determination Forms found with this report as Data Point 2A. Color photographs of the onsite wetland are included on Figure 9.

Offsite Wetland Area

Wetland #1 does not extend offsite beyond the property line, with the exception that part of the wetland area may be located within the Route 120 State right-of-way. No other wetland areas were identified within 100-feet of the property boundaries.

Onsite Wetland Buffers

The on-site wetland buffer includes actively cropped agricultural land to the north and west. The wetland buffer to the east is woodland dominated by common, upland tree species native to northeast Illinois including; burr oak (*Quercus macrocarpa*), maple (*Acer spp.*) and shagbark hickory (*Carya ovata*). The wetland buffer along the south side of the wetland includes State Route 120 and its maintained right-of-way.

Farmed Wetlands

On January 14, 2010, Shaw completed the off-site technique of interpreting aerial photography, and reviewing the Lake County Soil Survey and the Lake County ADID map. The results of the off-site technique resulted in no wetland signatures appearing in the same location in more than 50% of the FSA slides reviewed. FSA slides from 2002, 2001, 2000, 1998 and 1996 were reviewed. Although there were wetland signatures identified in some of the years reviewed, not one area appeared more than the required 50% of aerials viewed. Therefore, in our opinion, the parcels do not contain farmed wetland areas. Figure 10 illustrates the results of each of the FSA slides reviewed.

Federal Wetland Regulations

The US Army Corps of Engineers (USACOE) administers a regulatory (permit) program that regulates some activities conducted in certain waters and wetlands. The Chicago District is responsible for regulating activities conducted within the limits of its jurisdictional boundaries, including Cook, DuPage, Kane, Lake, McHenry, and Will Counties in Illinois.

Section 404 of the Clean Water Act (CWA) gives the USACOE authority to regulate discharges of dredged or fill material in waters of the United States, including wetlands. Mechanized land clearing, grading, leveling, ditching, and redistribution of material within waters of the United States, including wetlands, are examples of regulated activities. Waters of the United States is broadly defined and includes the navigable waters of the United States and most other lakes, rivers, streams, wetlands, bogs, sloughs, wet meadows, ponds, etc.

If the USACOE determines the identified wetland areas to be jurisdictional and regulated under Section 404 of the Clean Water Act, they will be subject to general and special conditions described in the Chicago District's current Regional Permit Program (RPP). The RPP is a set of Regional Permits for activities with minimal individual and cumulative impacts to jurisdictional waters of the US, including wetlands. However, if



the wetlands are considered isolated, and not hydrologically connected with a significant nexus to any navigable waterway, the USACOE will have no jurisdictional authority, based on the US Supreme Court Ruling *US Army Corps of Engineers vs. SWANCC* (January 2001), and US Supreme Court Decision *Rapanos v. United States and Carabell v. United States* (June 2007).

In our opinion, Wetland #1 is isolated from any navigable waterway and would not be regulated under Section 404 of the Clean Water Act. Therefore the wetland would be regulated locally, under the Lake County Watershed Development Ordinance (WDO).

Local Wetland Regulations

If the wetland area is considered isolated, and not regulated under Section 404 of the Clean Water, the wetland area is then subject to regulations under the Lake County WDO. In Lake County, a Watershed Development Permit is required for any regulated development that creates a wetland impact within an area defined as a Waters of the US or Isolated Waters of Lake County, or for any development that occurs within the buffer adjoining a Waters of the US or an Isolated Waters of Lake County.

In order to determine the jurisdictional status of the onsite wetland, a written jurisdictional determination must be obtained. Shaw will submit a request for a jurisdictional determination and boundary confirmation to Lake County Stormwater Management Commission (SMC) in order to expedite the final determination.

It is Shaw's opinion that the onsite wetland will be considered an Isolated Waters of Lake County. Wetland impacts to an Isolated Waters of Lake County that are less than or equal to one (1) acre, and is not a high-quality aquatic resource, requires a Category I permit from SMC. Additionally, wetland impacts greater than or equal to 0.25-acre of Isolated Waters of Lake County that are not a high-quality aquatic resource require wetland mitigation at a minimum 1.5:1 replacement ratio.

Conclusion

As discussed in this report, Shaw Environmental, Inc. completed a wetland delineation and assessment of the project area located at the northeast and northwest corners of Route 120 and Porter Drive in Round Lake Park, Lake County, Illinois. One (1) wetland area was identified during the site visit.

It is the opinion of Shaw that Wetland #1 is isolated and not regulated by the US Army Corps of Engineers, under Section 404 of the Clean Water Act. The identified wetland area did not have a clear, distinct hydrologic connection to a navigable waterway. Therefore, we believe that the isolated wetland will be considered an Isolated Waters of Lake County and subject to jurisdiction under the Lake County WDO.

If the proposed development of the subject property results in indirect or direct impacts to Wetland #1 or its buffer area, a Watershed Permit Application would need to be submitted to Lake County SMC requesting authorization to proceed under the provisions of the WDO. Because it is assumed that the wetland area is approximately 0.1-acre in size, a Category I permit submittal would be required. Additionally, wetland mitigation may not be required, if the total wetland acreage is less than 0.25 acres.



Shaw™ Shaw Environmental, Inc.

*Routine Wetland Assessment
Groot Industries
Round Lake Park, Illinois*

It is highly recommended that the flagged wetland boundaries be surveyed and located on all improvement plans, so that any impacts to the wetland can be assessed and quantified. Once the surveyed wetland boundaries are set on the improvement plans, and potential impacts are identified, a brief meeting should be scheduled to review all applicable Lake County WDO regulations and policies.

Should you have any questions regarding this document, please do not hesitate to contact us at 630-762-1400.

APPENDIX A

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Porter Drive Property City/County: Round Lake Park, Lake Co. Sampling Date: 4/29/10
 Applicant/Owner: Groot Industries State: IL Sampling Point: 1B
 Investigator(s): Kari Harris Section, Township, Range: SW1/4 Section 28; T. 45N; R. 10E
 Landform (hillslope, terrace, etc.): N/A Local relief (concave, convex, none): Flat
 Slope (%): N/A Lat: 88.07 Long: 42.34 Datum: NAD 83
 Soil Map Unit Name: Zurich and Ozaukee silt loams NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No _____	Is the Sampled Area within a Wetland?	Yes _____	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>			
Remarks: All three criteria are not met, under normal circumstances					

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Number of Dominant Species	Test FACW, or FAC:	worksheet: That Are OBL, (A)		
1. <u>Quercus macrocarpa</u>	20	Y	FAC					
2. _____	_____	_____	_____	_____	_____	_____		
3. _____	_____	_____	_____	_____	_____	_____		
4. _____	_____	_____	_____	_____	_____	_____		
5. _____	_____	_____	_____	_____	_____	_____		
Sapling/Shrub Stratum (Plot size: 15')				20	= Total Cover	Total Number of Dominant Species Across All Strata: 4 (B)		
1. <u>Cornus racemosa</u>	5	Y	FACW	Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)				
2. _____	_____	_____	_____	_____	_____	_____		
3. _____	_____	_____	_____	_____	_____	_____		
4. _____	_____	_____	_____	_____	_____	_____		
5. _____	_____	_____	_____	_____	_____	_____		
Herb Stratum (Plot size: 5')				5	= Total Cover	Prevalence Index worksheet:		
1. <u>Phalaris arundinacea</u>	50	Y	FACW	Total % Cover of:	Multiply by:			
2. <u>Daucus carota</u>	40	Y	UPI	OBL species	x 1 =			
3. <u>Cirsium arvense</u>	30	N	UPI	FACW species	x 2 =			
4. <u>Solidago altissima</u>	20	N	FACU	FAC species	x 3 =			
5. <u>Taraxacum officinale</u>	10	N	FACU	FACU species	x 4 =			
6. <u>Oenothera biennis</u>	5	N	FACU	UPI species	x 5 =			
7. _____	_____	_____	_____	Column Totals:	(A)	(B)		
8. _____	_____	_____	_____	Prevalence Index = B/A =	_____	_____		
9. _____	_____	_____	_____	Hydrophytic Vegetation Indicators:				
10. _____	_____	_____	_____	X Dominance Test is >50%				
Woody Vine Stratum (Plot size: _____)				155	= Total Cover	Prevalence Index is ≤3.0		
1. _____	_____	_____	_____	Morphological Adaptations: (Provide supporting data in Remarks or on a separate sheet)				
2. _____	_____	_____	_____	Problematic Hydrophytic Vegetation: (Explain)				
				_____	= Total Cover	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.		
Remarks: (Include photo numbers here or on a separate sheet.)				Hydrophytic Vegetation Present?		Yes <input checked="" type="checkbox"/>	No _____	

SOIL

Sampling Point:

1B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ₁	Loc ₂		
0-8	10YR 3/2	90	10YR 5/6	10	C	M	sil	
8-18	10YR 4/2	100					sil	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- Coast Prairie Redox (A16)
- Iron-Manganese Masses (F12)
- Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):
Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Gauge or Well Data (D9)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No Depth (inches): _____Water Table Present? Yes _____ No Depth (inches): _____Saturation Present? Yes _____ No Depth (inches): _____
(includes capillary fringe)Wetland Hydrology Present? Yes _____ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Porter Drive Property City/County: Round Lake Park, Lake Co. Sampling Date: 4/29/10
 Applicant/Owner: Groot Industries State: IL Sampling Point: 2A
 Investigator(s): Kari Harris Section, Township, Range: SW1/4 Section 28; T. 45N; R. 10E
 Landform (hillslope, terrace, etc.): Corner of Farm Field Local relief (concave, convex, none): Concave
 Slope (%): N/A Lat: 88.07 Long: 42.34 Datum: NAD 83
 Soil Map Unit Name: Ozaukee silt loam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No _____		
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No _____		
Remarks:			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Number of Dominant Species	Test	worksheet: That Are OBL, FACW, or FAC:	
1. _____	_____	_____	_____	2 _____	_____	(A)	
2. _____	_____	_____	_____	_____	_____		
3. _____	_____	_____	_____	_____	_____		
4. _____	_____	_____	_____	_____	_____		
5. _____	_____	_____	_____	_____	_____		
= Total Cover							
Sapling/Shrub Stratum (Plot size: 15')				Total Number of Dominant Species Across All Strata:	2 _____	(B)	
1. _____	_____	_____	_____	_____	_____		
2. _____	_____	_____	_____	_____	_____		
3. _____	_____	_____	_____	_____	_____		
4. _____	_____	_____	_____	_____	_____		
5. _____	_____	_____	_____	_____	_____		
= Total Cover							
Herb Stratum (Plot size: 5')				Percent of Dominant Species That Are OBL, FACW, or FAC:	100%	(A/B)	
1. <u>Phalaris arundinacea</u>	100	Y	FACW	Dominance	Test	worksheet:	
2. <u>Typha angustifolia</u>	50	Y	OBL	Number of Dominant Species		That Are OBL, FACW, or FAC:	
3. <u>Cyperus esculentus</u>	40	N	FACW	FACW, or FAC:	2 _____	(A)	
4. <u>Barbarea vulgaris</u>	20	N	FAC	Total Number of Dominant Species Across All Strata:	2 _____	(B)	
5. <u>Verbena hastata</u>	5	N	FACW	Percent of Dominant Species That Are OBL, FACW, or FAC:	100%	(A/B)	
6. <u>Scirpus atrovirens</u>	5	N	OBL	Prevalence Index worksheet:			
7. _____	_____	_____	_____	Total % Cover of:	Multiply by:		
8. _____	_____	_____	_____	OBL species	x 1 =		
9. _____	_____	_____	_____	FACW species	x 2 =		
10. _____	_____	_____	_____	FAC species	x 3 =		
= Total Cover				FACU species	x 4 =		
Woody Vine Stratum (Plot size: _____)	220	= Total Cover			UPL species	x 5 =	
1. _____	_____	_____	_____	Column Totals:	(A)	(B)	
2. _____	_____	_____	_____				
= Total Cover							
Prevalence Index = B/A = _____							
Hydrophytic Vegetation Indicators:							
X Dominance Test is >50%							
Prevalence Index is ≤3.01							
Morphological Adaptations: (Provide supporting data in Remarks or on a separate sheet)							
Problematic Hydrophytic Vegetation: (Explain)							
Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.							
Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No _____						
Remarks: (Include photo numbers here or on a separate sheet.)							

SOIL

Sampling Point:

2A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ₁	Loc ₂	
0-6	10YR 2/1	100					scl
6-16	10YR 2/1	90	10YR 5/6	5	C	M	scl
			2.5Y 5/4	5	C	M	
16+	10YR 3/1	90	10YR 5/6	5	C	M	
			2.5Y 5/4	5	C	M	

1Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. 2Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

- Coast Prairie Redox (A16)
- Iron-Manganese Masses (F12)
- Other (Explain in Remarks)

Indicators of hydrophytic vegetation and
wetland hydrology must be present,
unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____Water Table Present? Yes No Depth (inches): _____Saturation Present? Yes No Depth (inches): surface
(includes capillary fringe)Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Porter Drive Property City/County: Round Lake Park, Lake Co. Sampling Date: 4/29/10.
 Applicant/Owner: Groot Industries State: IL Sampling Point: 2B
 Investigator(s): Kari Harris Section, Township, Range: SW1/4 Section 28; T. 45N; R. 10E
 Landform (hillslope, terrace, etc.): N/A Local relief (concave, convex, none): Flat
 Slope (%): N/A Lat: 88.07 Long: 42.34 Datum: NAD 83
 Soil Map Unit Name: Wauconda and Beecher silt loams NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland?	Yes _____	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____ No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes _____ No <input checked="" type="checkbox"/>			
Remarks: All three criteria are not met, under normal circumstances				

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute Cover	Dominant Species?	Indicator Status	Dominance Test Number of Dominant Species	worksheet: That Are OBL, FACW, or FAC:
1. <u>Quercus macrocarpa</u>	75	Y	FAC	5	(A)
2. _____	_____	_____	_____	_____	_____
3. _____	_____	_____	_____	_____	_____
4. _____	_____	_____	_____	_____	_____
5. _____	_____	_____	_____	_____	_____
	75	= Total Cover		Total Number of Dominant Species Across All Strata:	6 (B)
Sapling/Shrub Stratum (Plot size: 15')	Absolute Cover	Dominant Species?	Indicator Status	Percent of Dominant Species That Are OBL, FACW, or FAC:	83% (A/B)
1. <u>Cornus racemosa</u>	50	Y	FACW	Prevalence Index worksheet:	
2. <u>Rhamnus cathartica</u>	50	Y	FACU	Total % Cover of:	Multiply by:
3. _____	_____	_____	_____	OBL species	x 1 = _____
4. _____	_____	_____	_____	FACW species	x 2 = _____
5. _____	_____	_____	_____	FAC species	x 3 = _____
	100	= Total Cover		FACU species	x 4 = _____
Herb Stratum (Plot size: 5')	Absolute Cover	Dominant Species?	Indicator Status	UPL species	x 5 = _____
1. <u>Fragaria virginiana</u>	50	Y	FAC	Column Totals:	(A) (B)
2. <u>Prunella vulgaris</u>	50	Y	FAC	Prevalence Index = B/A = _____	
3. <u>Poa pratensis</u>	30	Y	FAC	Hydrophytic Vegetation Indicators:	
4. <u>Solidago altissima</u>	20	N	FACU	X Dominance Test is >50%	
5. _____	_____	_____	_____	Prevalence Index is ≤3.0	
6. _____	_____	_____	_____	Morphological Adaptations: (Provide supporting data in Remarks or on a separate sheet)	
7. _____	_____	_____	_____	Problematic Hydrophytic Vegetation: (Explain)	
8. _____	_____	_____	_____	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
Woody Vine Stratum (Plot size: _____)	150	= Total Cover		Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No _____
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
	_____	= Total Cover			
Remarks: (Include photo numbers here or on a separate sheet.)					

soil

Sampling Point:

2B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- | | |
|-------------------------------------|------------------------------|
| — Histosol (A1) | — Sandy Gleyed Matrix (S4) |
| — Histic Epipedon (A2) | — Sandy Redox (S5) |
| — Black Histic (A3) | — Stripped Matrix (S6) |
| — Hydrogen Sulfide (A4) | — Loamy Mucky Mineral (F1) |
| — Stratified Layers (A5) | — Loamy Gleyed Matrix (F2) |
| — 2 cm Muck (A10) | — Depleted Matrix (F3) |
| — Depleted Below Dark Surface (A11) | — Redox Dark Surface (F6) |
| — Thick Dark Surface (A12) | — Depleted Dark Surface (F7) |
| — Sandy Mucky Mineral (S1) | — Redox Depressions (F8) |
| — 5 cm Mucky Peat or Peat (S3) | |

Indicators for Problematic Hydric Soils:

- Coast Prairie Redox (A16)
 - Iron-Manganese Masses (F12)
 - Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Type: Layer (if observed):

Depth (inches):

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
 - High Water Table (A2)
 - Saturation (A3)
 - Water Marks (B1)
 - Sediment Deposits (B2)
 - Drift Deposits (B3)
 - Algal Mat or Crust (B4)
 - Iron Deposits (B5)
 - Inundation Visible on Aerial Imagery (B7)
 - Sparsely Vegetated Concave Surface (B8)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
 - Drainage Patterns (B10)
 - Dry-Season Water Table (C2)
 - Crayfish Burrows (C8)
 - Saturation Visible on Aerial Imagery (C9)
 - Stunted or Stressed Plants (D1)
 - Geomorphic Position (D2)
 - FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches):

Water Table Present? Yes No Depth (inches):

Saturation Present? Yes No Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Porter Drive Property City/County: Round Lake Park, Lake Co. Sampling Date: 4/29/10
 Applicant/Owner: Groot Industries State: IL Sampling Point: 3B
 Investigator(s): Kari Harris Section, Township, Range: SW1/4 Section 28; T. 45N; R. 10E
 Landform (hillslope, terrace, etc.): N/A Local relief (concave, convex, none): Flat
 Slope (%): N/A Lat: 88.07 Long: 42.34 Datum: NAD 83
 Soil Map Unit Name: Zurich and Ozaukee silt loams NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes _____	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>			
Remarks: All three criteria are not met, under normal circumstances					

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Number of Dominant Species	worksheet: That Are OBL, FACW, or FAC:
1. _____	_____	_____	_____	2 _____	(A)
2. _____	_____	_____	_____	4 _____	(B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	50% (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:	
5. _____	_____	_____	_____	Total % Cover of:	Multiply by:
= Total Cover				OBL species	x 1 = _____
= Total Cover				FACW species	x 2 = _____
= Total Cover				FAC species	x 3 = _____
= Total Cover				FACU species	x 4 = _____
= Total Cover				UPL species	x 5 = _____
= Total Cover				Column Totals:	(A) (B)
= Total Cover				Prevalence Index = B/A = _____	
= Total Cover				Hydrophytic Vegetation Indicators:	
= Total Cover				Dominance Test is >50%	
= Total Cover				Prevalence Index is ≤3.0	
= Total Cover				Morphological Adaptations: (Provide supporting data in Remarks or on a separate sheet)	
= Total Cover				Problematic Hydrophytic Vegetation: (Explain)	
Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.					
= Total Cover				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>	
Remarks: (Include photo numbers here or on a separate sheet.)					

SOIL

Sampling Point:

3B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- | | |
|-------------------------------------|------------------------------|
| — Histosol (A1) | — Sandy Gleyed Matrix (S4) |
| — Histic Epipedon (A2) | — Sandy Redox (S5) |
| — Black Histic (A3) | — Stripped Matrix (S6) |
| — Hydrogen Sulfide (A4) | — Loamy Mucky Mineral (F1) |
| — Stratified Layers (A5) | — Loamy Gleyed Matrix (F2) |
| — 2 cm Muck (A10) | — Depleted Matrix (F3) |
| — Depleted Below Dark Surface (A11) | — Redox Dark Surface (F6) |
| — Thick Dark Surface (A12) | — Depleted Dark Surface (F7) |
| — Sandy Mucky Mineral (S1) | — Redox Depressions (F8) |
| — 5 cm Mucky Peat or Peat (S3) | |

Indicators for Problematic Hydric Soils:

- Coast Prairie Redox (A16)
 - Iron-Manganese Masses (F12)
 - Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Type: Layer (if observed):

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- | | |
|---|--|
| — Surface Water (A1) | — Water-Stained Leaves (B9) |
| — High Water Table (A2) | — Aquatic Fauna (B13) |
| — Saturation (A3) | — True Aquatic Plants (B14) |
| — Water Marks (B1) | — Hydrogen Sulfide Odor (C1) |
| — Sediment Deposits (B2) | — Oxidized Rhizospheres on Living Roots (C3) |
| — Drift Deposits (B3) | — Presence of Reduced Iron (C4) |
| — Algal Mat or Crust (B4) | — Recent Iron Reduction in Tilled Soils (C6) |
| — Iron Deposits (B5) | — Thin Muck Surface (C7) |
| — Inundation Visible on Aerial Imagery (B7) | — Gauge or Well Data (D9) |
| — Sparsely Vegetated Concave Surface (B8) | — Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
 - Drainage Patterns (B10)
 - Dry-Season Water Table (C2)
 - Crayfish Burrows (C8)
 - Saturation Visible on Aerial Imagery (C9)
 - Stunted or Stressed Plants (D1)
 - Geomorphic Position (D2)
 - FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No X Depth (inches):

Water Table Present? Yes No Depth (inches): _____

Saturation Present? Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Porter Drive Property City/County: Round Lake Park, Lake Co. Sampling Date: 4/29/10
 Applicant/Owner: Groot Industries State: IL Sampling Point: 4B
 Investigator(s): Kari Harris Section, Township, Range: SW1/4 Section 28; T. 45N; R. 10E
 Landform (hillslope, terrace, etc.): N/A Local relief (concave, convex, none): Flat
 Slope (%): N/A Lat: 88.07 Long: 42.34 Datum: NAD 83
 Soil Map Unit Name: Ozaukee silt loam NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes _____	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>			
Remarks: All three criteria are not met, under normal circumstances					

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Number of Dominant Species	worksheet: That Are OBL, FACW, or FAC:
1. _____	_____	_____	_____	2 _____	(A)
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
= Total Cover					
Sapling/Shrub Stratum (Plot size: <u>15'</u>)	_____	_____	_____	Total Number of Dominant Species Across All Strata:	5 _____ (B)
1. <u>Cornus racemosa</u>	<u>50</u>	<u>Y</u>	<u>FACW</u>		
2. <u>Rubus occidentalis</u>	<u>50</u>	<u>Y</u>	<u>UPL</u>		
3. <u>Rhamnus cathartica</u>	<u>30</u>	<u>N</u>	<u>FACU</u>		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
= Total Cover					
Herb Stratum (Plot size: <u>5'</u>)	<u>130</u>				
1. <u>Taraxacum officinale</u>	<u>50</u>	<u>Y</u>	<u>FACU</u>		
2. <u>Solidago altissima</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>		
3. <u>Phalaris arundinacea</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>		
4. <u>Daucus carota</u>	<u>10</u>	<u>N</u>	<u>UPL</u>		
5. <u>Cirsium vulgare</u>	<u>10</u>	<u>N</u>	<u>UPL</u>		
6. <u>Barbarea vulgaris</u>	<u>10</u>	<u>N</u>	<u>FAC</u>		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
= Total Cover					
Woody Vine Stratum (Plot size: _____)	<u>140</u>				
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
= Total Cover					
Hydrophytic Vegetation Indicators: Dominance Test is >50% Prevalence Index is ≤3.01 Morphological Adaptations: (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation: (Explain)					
Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.					
Hydrophytic Vegetation Present?	Yes _____	No <input checked="" type="checkbox"/>			

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point:

4B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- | | |
|-------------------------------------|------------------------------|
| — Histosol (A1) | — Sandy Gleyed Matrix (S4) |
| — Histic Epipedon (A2) | — Sandy Redox (S5) |
| — Black Histic (A3) | — Stripped Matrix (S6) |
| — Hydrogen Sulfide (A4) | — Loamy Mucky Mineral (F1) |
| — Stratified Layers (A5) | — Loamy Gleyed Matrix (F2) |
| — 2 cm Muck (A10) | — Depleted Matrix (F3) |
| — Depleted Below Dark Surface (A11) | — Redox Dark Surface (F6) |
| — Thick Dark Surface (A12) | — Depleted Dark Surface (F7) |
| — Sandy Mucky Mineral (S1) | — Redox Depressions (F8) |
| — 5 cm Mucky Peat or Peat (S3) | |

Indicators for Problematic Hydric Soils:

- Coast Prairie Redox (A16)
 - Iron-Manganese Masses (F12)
 - Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Type: Layer (if observed):

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
 - High Water Table (A2)
 - Saturation (A3)
 - Water Marks (B1)
 - Sediment Deposits (B2)
 - Drift Deposits (B3)
 - Algal Mat or Crust (B4)
 - Iron Deposits (B5)
 - Inundation Visible on Aerial Imagery (B7)
 - Sparsely Vegetated Concave Surface (B8)

- Water-Stained Leaves (B9)
 - Aquatic Fauna (B13)
 - True Aquatic Plants (B14)
 - Hydrogen Sulfide Odor (C1)
 - Oxidized Rhizospheres on Living Roots (C3)
 - Presence of Reduced Iron (C4)
 - Recent Iron Reduction in Tilled Soils (C6)
 - Thin Muck Surface (C7)
 - Gauge or Well Data (D9)
 - Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
 - Drainage Patterns (B10)
 - Dry-Season Water Table (C2)
 - Crayfish Burrows (C8)
 - Saturation Visible on Aerial Imagery (C9)
 - Stunted or Stressed Plants (D1)
 - Geomorphic Position (D2)
 - FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No X Depth (inches):

Water Table Present? Yes No X Depth (inches):

Saturation Present? Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No X

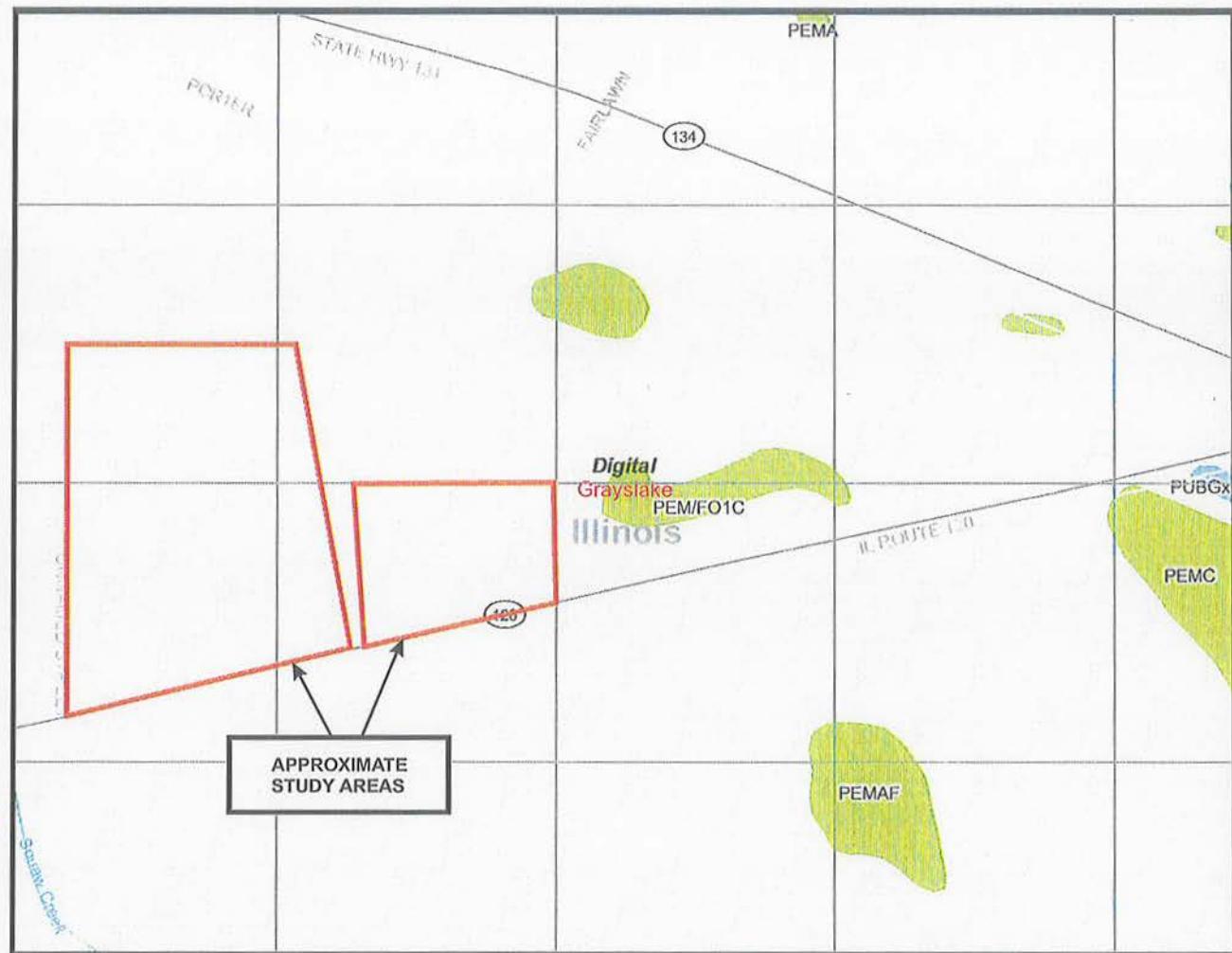
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

FIGURES 1 - 10



Figure adapted from MapQuest



LEGEND

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

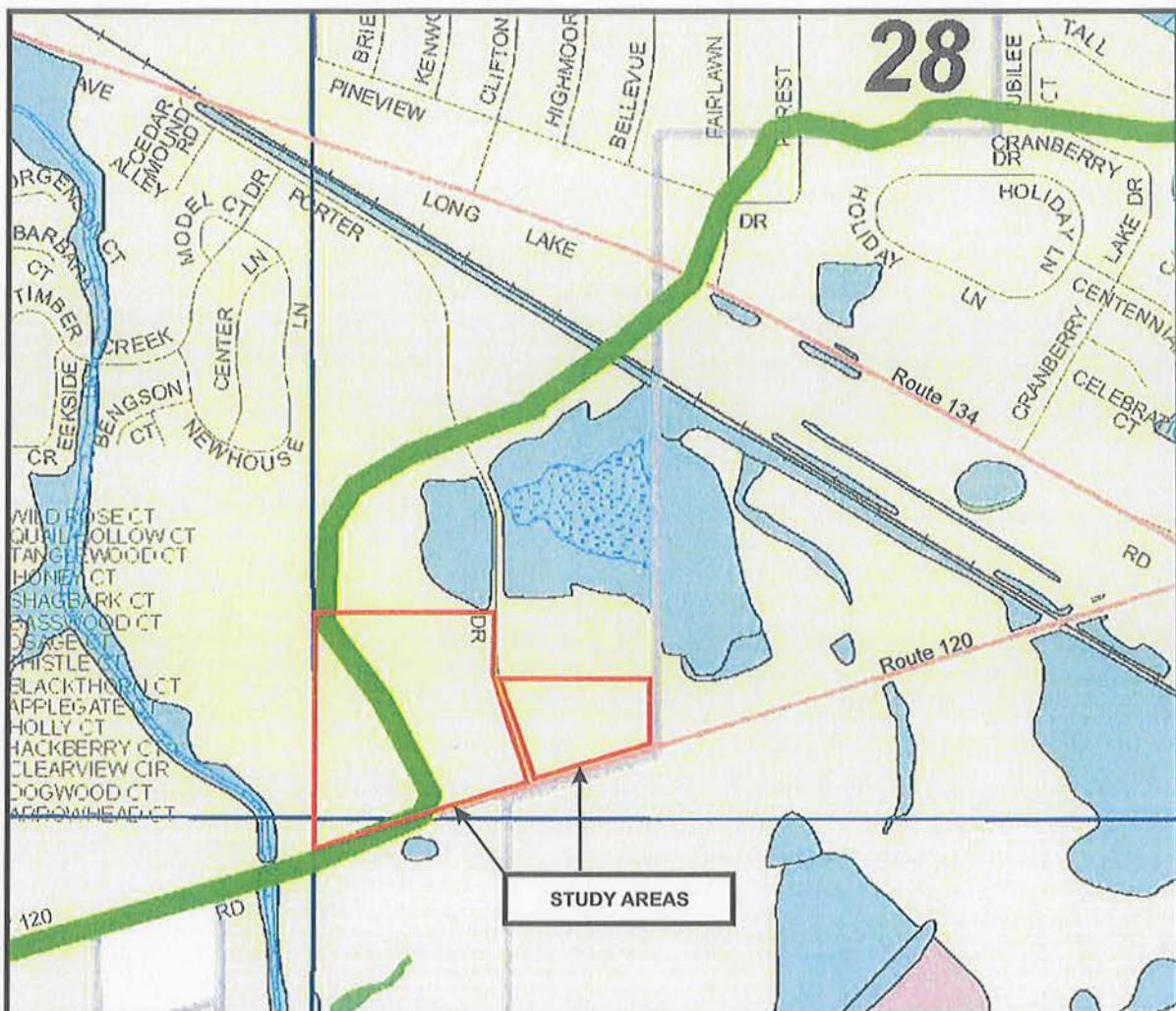
Figure adapted from US Fish and Wildlife Service Wetlands Mapper


Shaw® Shaw Environmental, Inc.

**GROOT INDUSTRIES
ROUND LAKE PARK, ILLINOIS**

**FIGURE 2
NATIONAL WETLANDS INVENTORY**

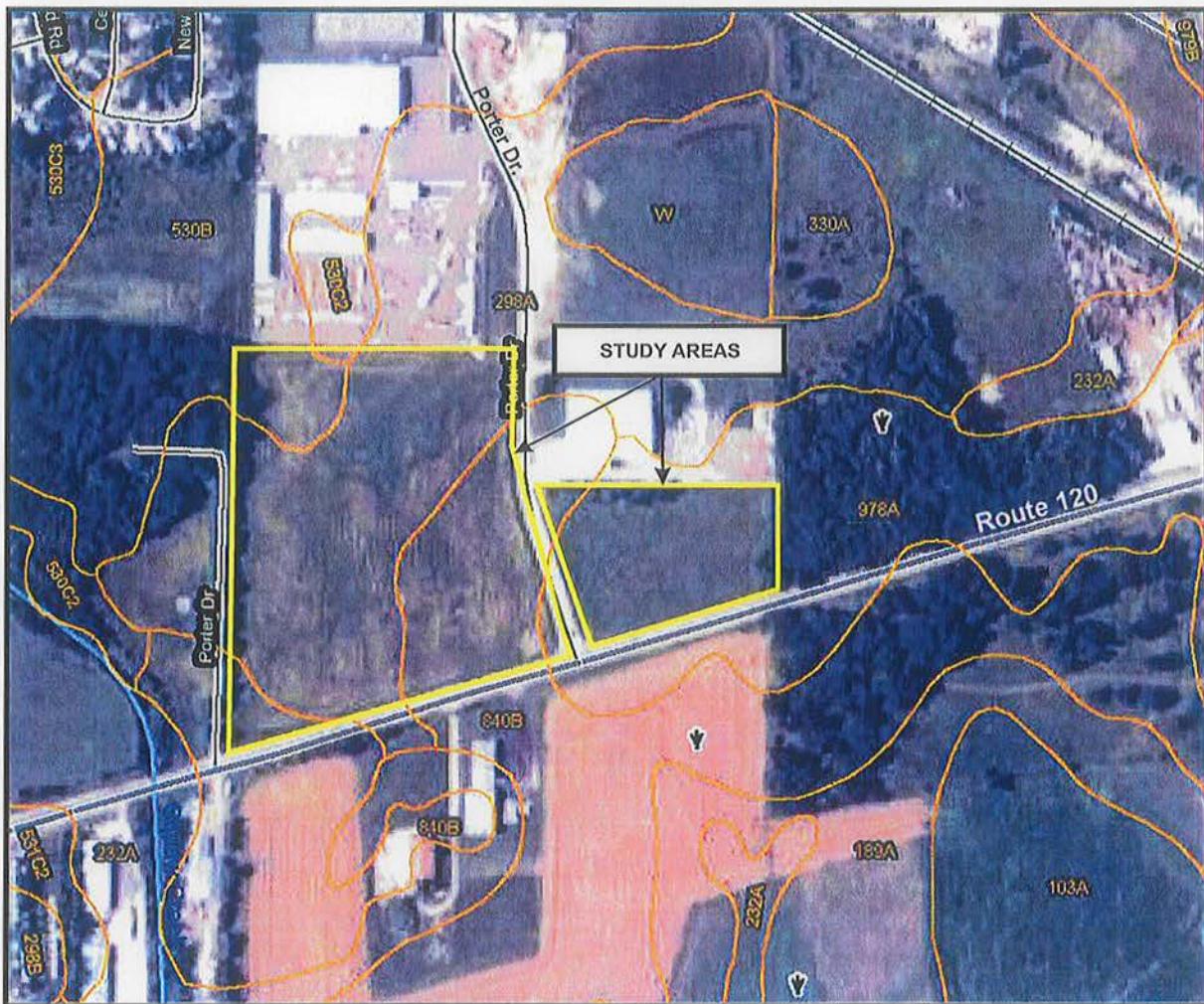
APPROVED BY: KJH | PROJ. NO.: 137818 | DATE: APRIL 2010



LEGEND

- | | | | |
|---|---|---|--|
| | WETLANDS - areas with a high potential for exhibiting hydric soil, hydrophytic vegetation and required hydrologic conditions. | | ARTIFICIAL WETLANDS - man-made wetlands on non-hydric soil. |
| | FARMED WETLANDS - agricultural cropped areas on hydric soil that have been cleared, partially drained or filled. | | CONVERTED WETLANDS - areas that have been drained or filled and no longer exhibit Wetland or Farmed Wetland characteristics. |
| | POTENTIAL FARMED WETLANDS - areas with a high potential for exhibiting hydric soil, hydrophytic vegetation and required hydrologic conditions. Review of NRSC slides needed for confirmation. | | NON-WETLANDS - upland areas within wetlands. |
| | | | ADID Wetlands |

Figure adapted from Lake County Wetland Inventory (2002) for Avon Twp.



LEGEND

- 298B - Beecher silt loam
- 530B - Ozaukee silt loam
- 840B - Zurich and Ozaukee silt loams
- 978A - Wauconda and Beecher silt loams

Figure adapted from NRCS Web Soil Survey

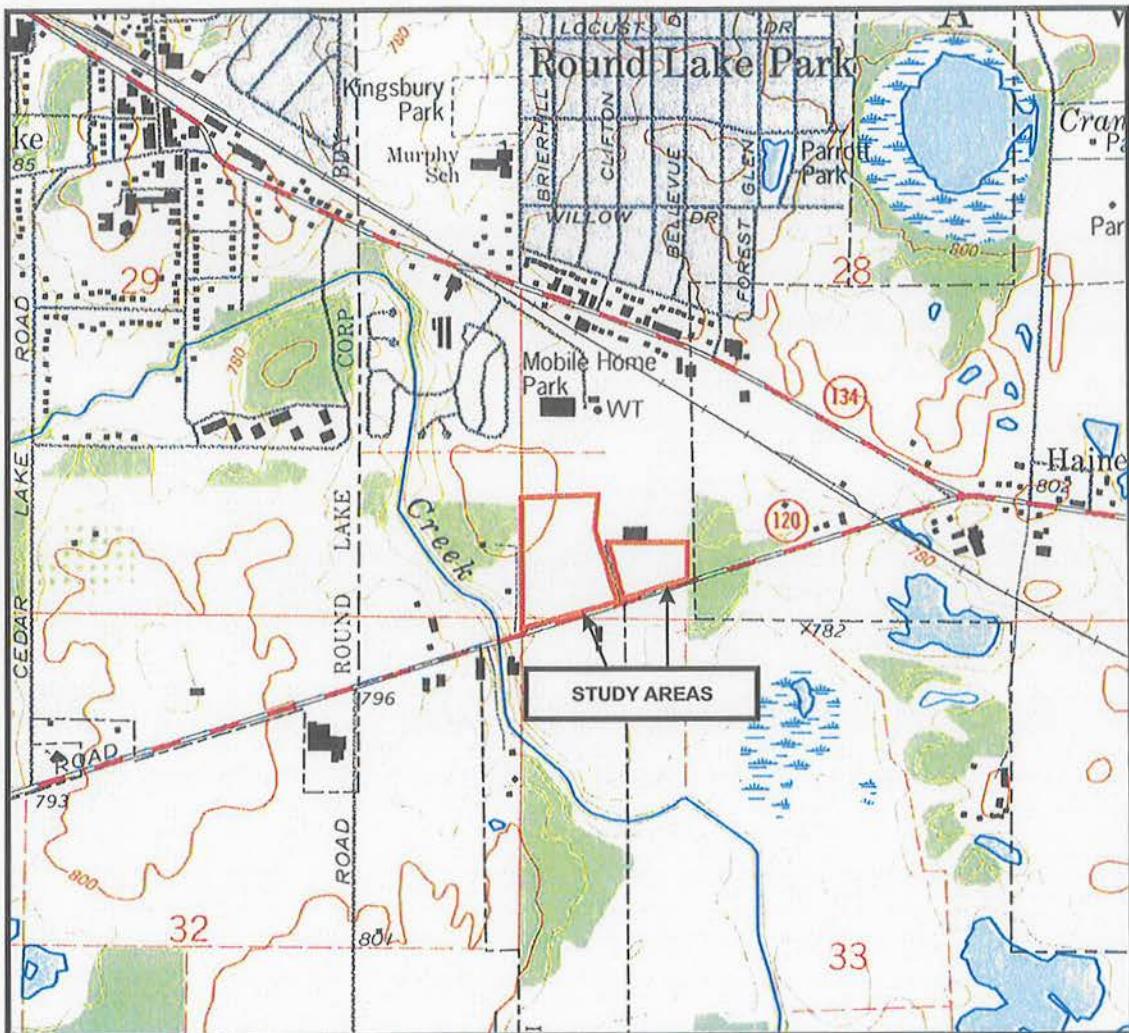
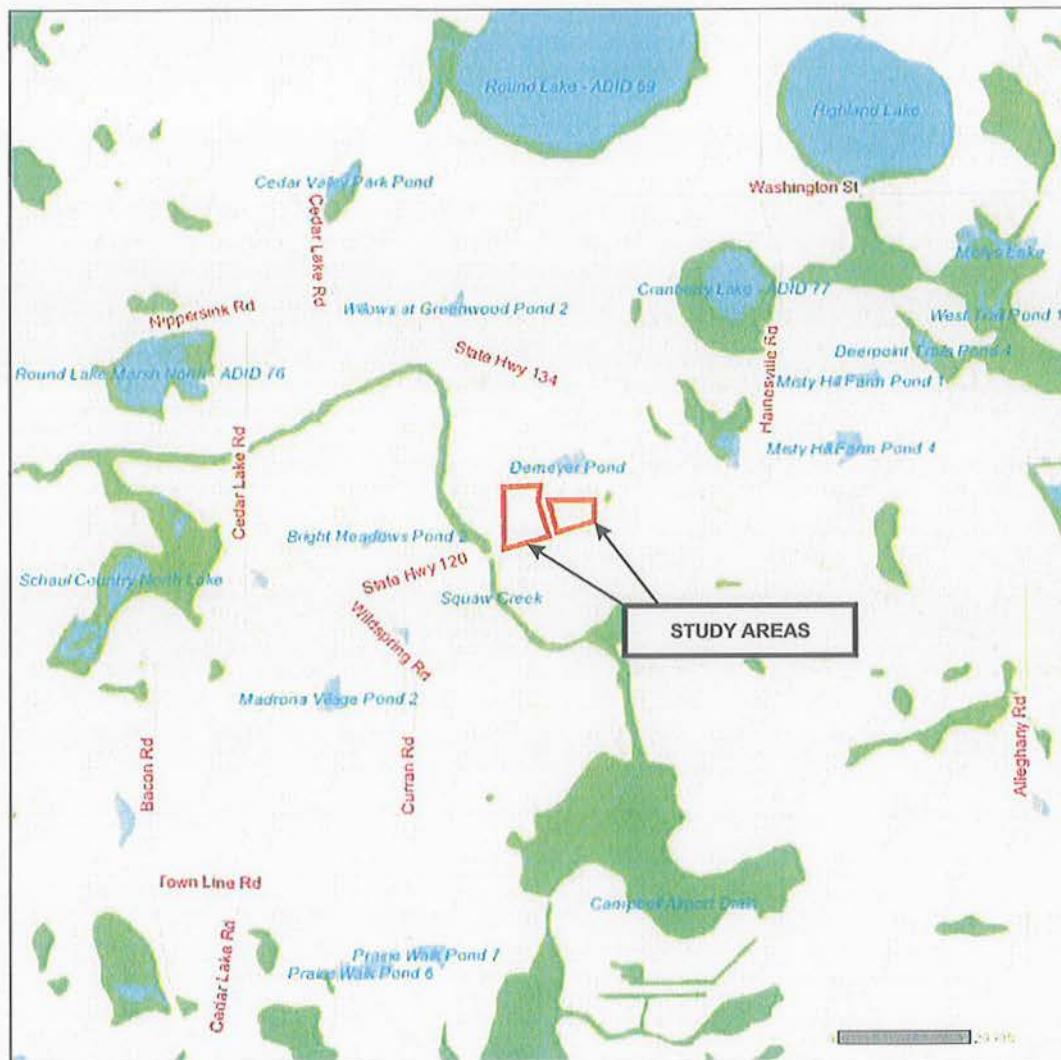


Figure adapted from USGS Topographic Survey - 7.5 Minute Quadrangle



Lake County, Flood of Record

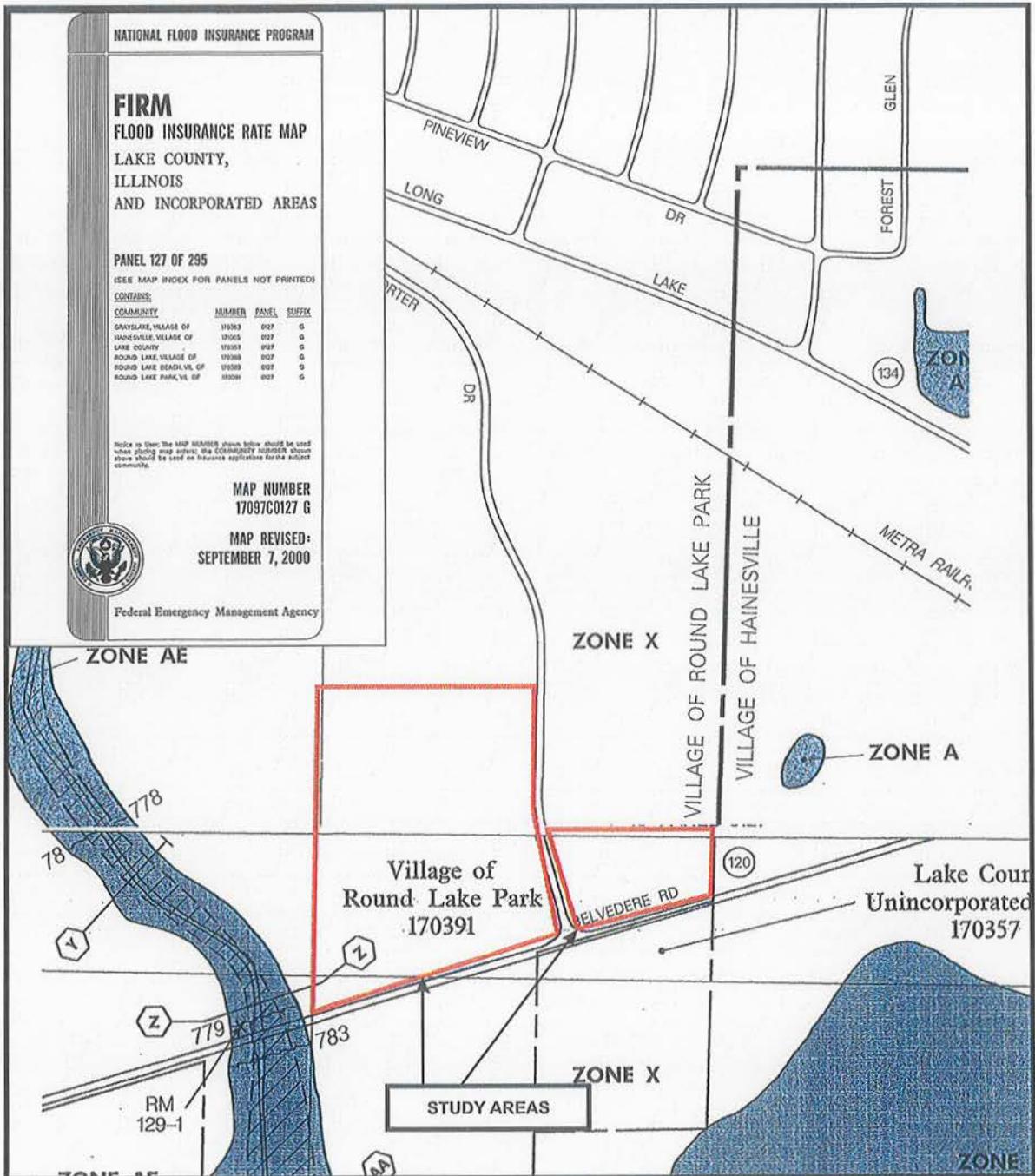


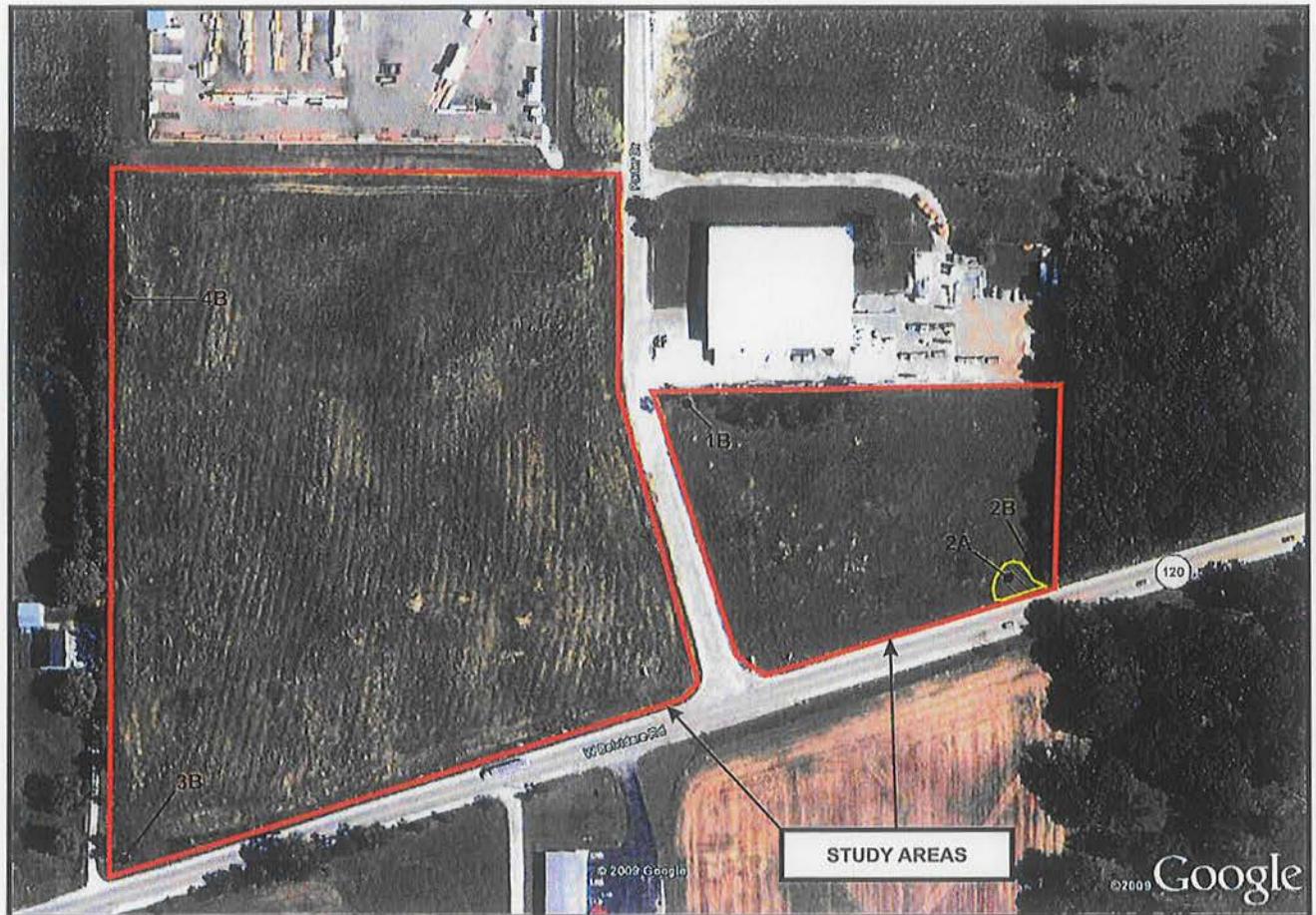
LakeCounty
Geographic Information System
Lake County Department of
Information Technology
18 N County St
Waukegan IL 60085
Map Printed on 4/22/2010



- Flood of Record
- Municipal
- Major Roads
- Railroads
- Major Water

Disclaimer: This map is for general information purposes only. A Registered Land Surveyor shall be consulted to determine the precise location of property boundaries on the ground. This map does not contain a registered title history and is not suitable for legal title transfers. This map is intended to be viewed and printed in color.





- Approximate Wetland Boundaries

Figure adapted using Google Earth (Imagery Date October 11, 2007)

 **Shaw®** Shaw Environmental, Inc.

**GROOT INDUSTRIES
ROUND LAKE PARK, ILLINOIS**

**FIGURE 8
APPROXIMATE WETLAND DELINEATION**

APPROVED BY: KJH | PROJ. NO.: 137818 | DATE: APRIL 2010



Data Point 1B
View Looking North



Data Point 2A
View Looking South



GROOT INDUSTRIES
ROUND LAKE PARK, ILLINOIS

**FIGURE 9A
REPRESENTATIVE COLOR PHOTOGRAPHS**

APPROVED BY: KJH | PROJ. NO.: 137818 | DATE: APRIL 2010



Data Point 2B
View Looking South



Data Point 3B
View Looking Southwest



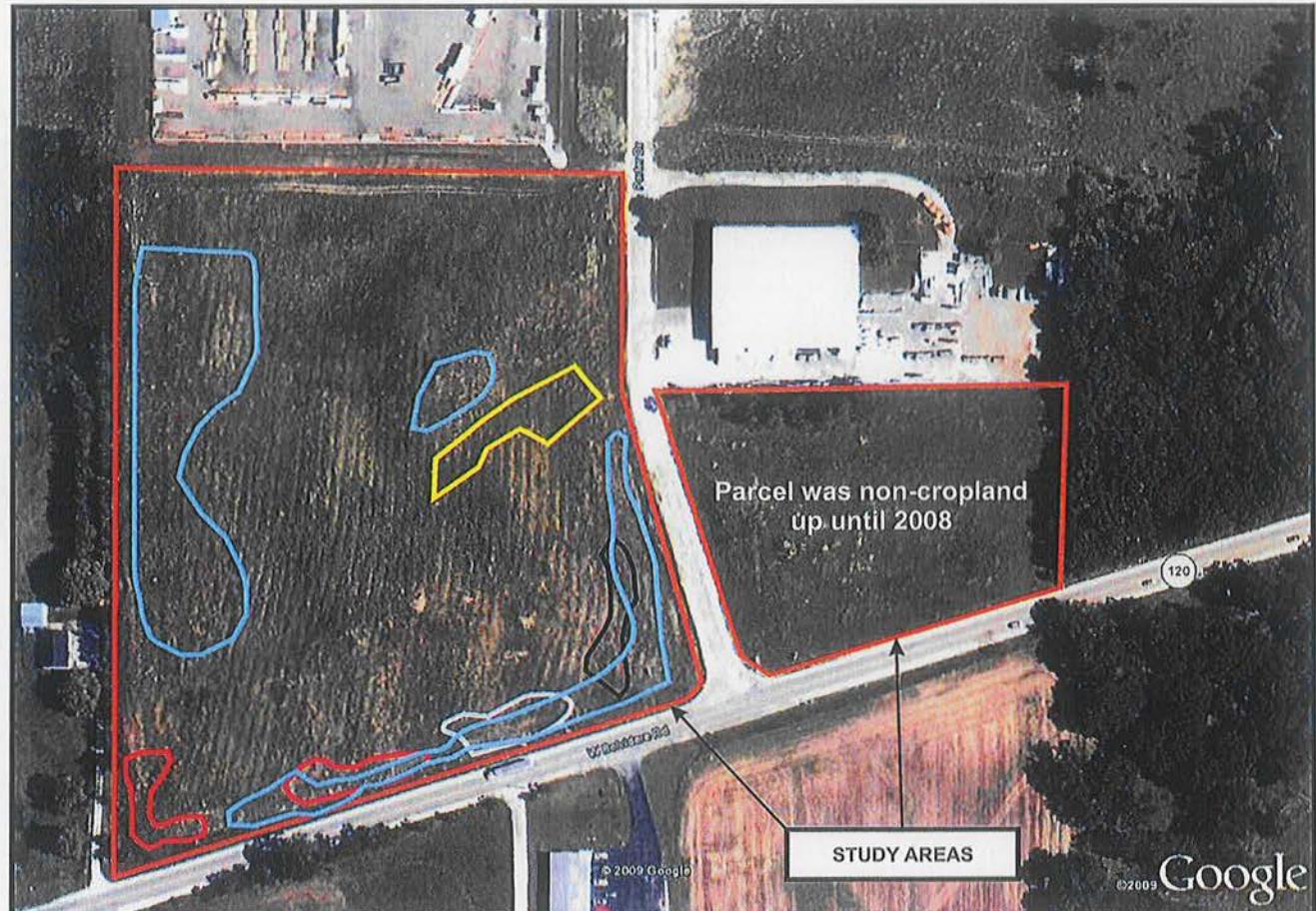
Data Point 4B
View Looking West



GROOT INDUSTRIES
ROUND LAKE PARK, ILLINOIS

FIGURE 9C
REPRESENTATIVE COLOR PHOTOGRAPHS

APPROVED BY: KJH | PROJ. NO.: 137818 | DATE: APRIL 2010



LEGEND

- | | |
|---|---------------------------|
| | - 2002 FSA Slide #9-1383 |
| | - 2001 FSA Slide #1090013 |
| | - 1998 FSA Slide #7600100 |
| | - 1996 FSA Slide #0067079 |
| | - 2000 FSA Slide #8600111 |

Figure adapted using Google Earth (Imagery Date October 11, 2007)

APPENDIX R

Illinois Environmental Protection Agency Regulated
Recharge Area and USEPA Sole Source Aquifer
Correspondence



A World of **Solutions**™

September 6, 2012

Mr. Dave McMillan
Division of Public Water Supply #13
Illinois Environmental Protection Agency
Bureau of Water
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

Subject: Regulated Recharge Areas
Password: SAINT

Dear Mr. McMillan:

I am requesting written identification of all federal and state Regulated Recharge Areas in the vicinity of the following property located within Sections 28, Township 45 North, Range 10 East of the Third Principal Meridian (Round Lake Park, Lake County, Illinois). The approximate property location is shown on the enclosed figure.

If you should require any additional information, please contact me at (630) 762-1400.

Thank you for your assistance.

Sincerely,
Shaw Environmental, Inc.


Lela Cooney
Engineer

Enclosure



PROJECT LOCATION

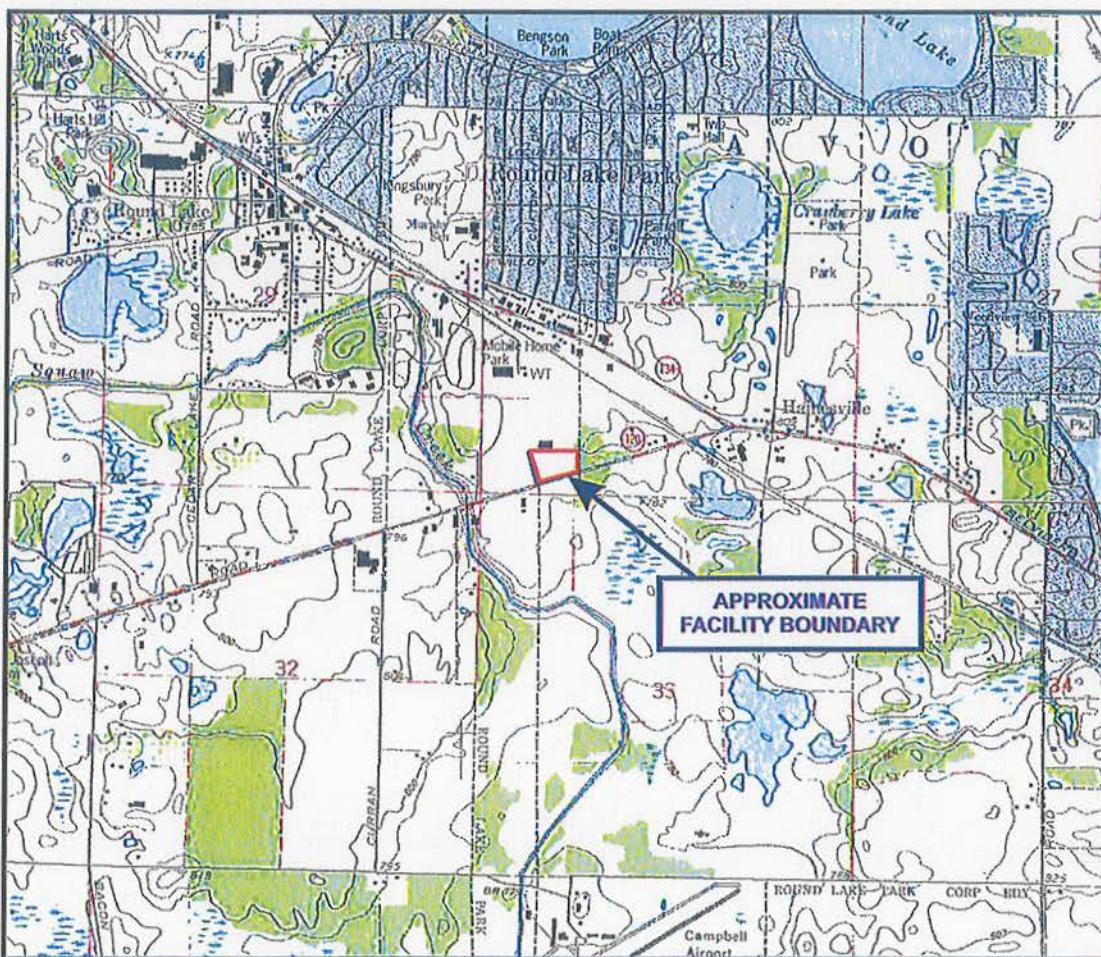


Figure Adapted from USAPhotoMaps.

0 0.5 MILES





ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
PAT QUINN, GOVERNOR **JOHN J. KIM, INTERIM DIRECTOR**

September 14, 2012

Ms. Leia Cooney
Shaw Environmental, Inc.
1607 East Main Street
St. Charles, IL 60174

Subject: Regulated Recharge Areas in Illinois

Dear Ms. Cooney:

Per your request, I am sending you a written response to your letter dated September 6, 2012. At this time, there is only one Regulated Recharge Area in the State of Illinois. The property that you are inquiring about is not in the county in which the aforementioned Regulated Recharge Area is located.

I trust that this meets your requirements, however, if you have any questions or comments feel free to call me at 217.785.4787.

Sincerely,

Joseph Konczyk
Environmental Geologist

4302 N. Main St., Rockford, IL 61103 (815)987-7760
595 S. State, Elgin, IL 60123 (847)608-3131
2125 S. First St., Champaign, IL 61820 (217)278-5800
2009 Mall St., Collinsville, IL 62234 (618)346-5120

9511 Harrison St., Des Plaines, IL 60016 (847)294-4000
5407 N. University St., Arbor 113, Peoria, IL 61614 (309)693-5462
2309 W. Main St., Suite 116, Marion, IL 62959 (618)993-7200
100 W. Randolph, Suite 10-300, Chicago, IL 60601 (312)814-6026



A World of **Solutions**™

September 6, 2012

Mr. Thomas Poy
United States Environmental Protection Agency
Sole Source Aquifer Coordinator, Region 5
Groundwater Protection Branch
77 West Jackson Boulevard
Chicago, IL 60604-3590

Subject: Sole Source Aquifer Inquiry

Dear Mr. Poy:

I am requesting documentation to verify that there are no Sole Source Aquifers located near the property shown on the enclosed figure (Figure 1). The property is located within Section 28, Township 45 North, Range 10 East of the Third Principal Meridian (Round Lake Park, Lake County, Illinois).

If you require any additional information, please contact me at (630) 762-1400. Thank you for your assistance.

Sincerely,
Shaw Environmental, Inc.

A handwritten signature in blue ink that reads "Leia Cooney".

Leia Cooney
Engineer

Enclosure



PROJECT LOCATION

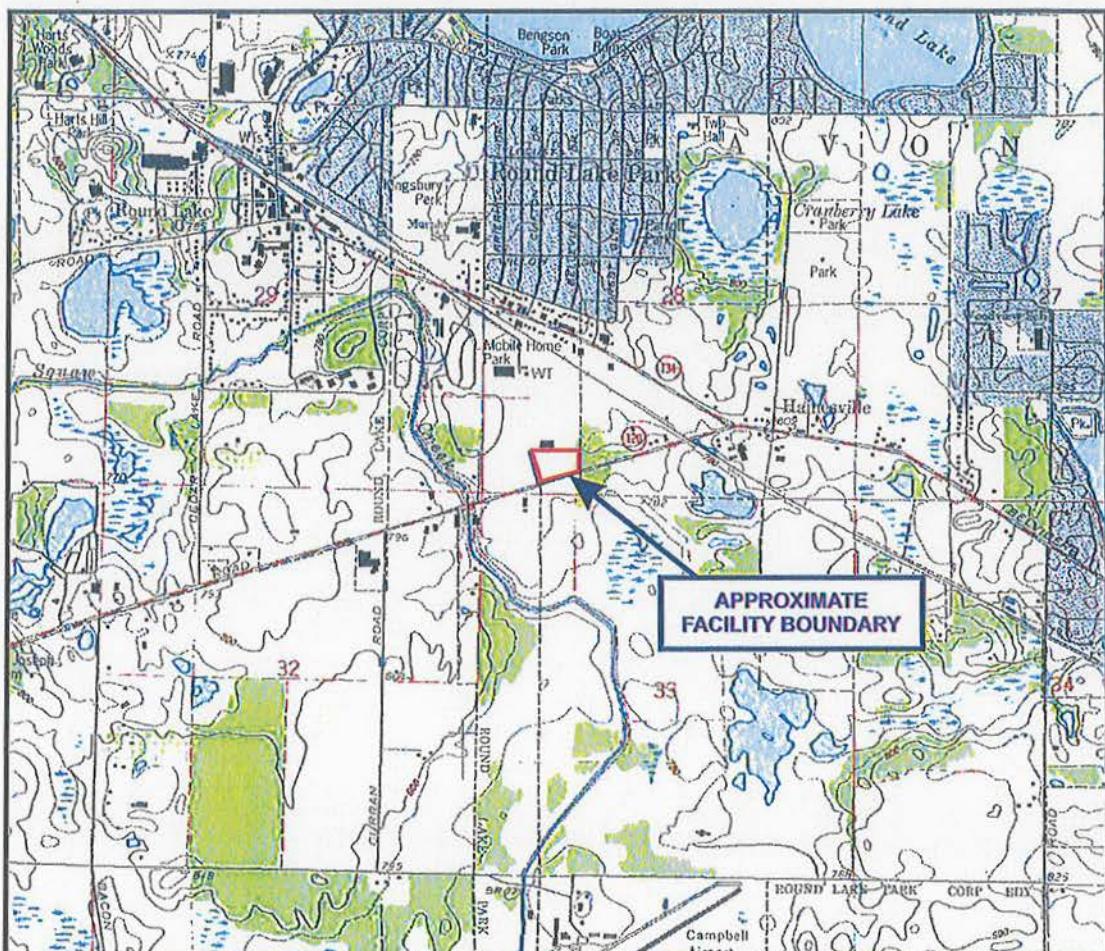


Figure Adapted from USAPhotoMaps.

0 0.5 MILES



ROUND LAKE PARK TRANSFER STATION ROUND LAKE PARK, ILLINOIS

 **Shaw**® Shaw Environmental, Inc.

FIGURE 1
SITE LOCATION ON USGS TOPOGRAPHY

APPROVED BY: MNF PROJ. NO.: 137818 DATE: SEPT. 2012



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

September 17, 2012

Leia Cooney
1607 East Main Street
St. Charles, IL 60174

**Re: Sole Source Aquifer Inquiry
Round Lake Park
Lake County, IL**

Dear Ms. Cooney:

In reply to your letter, please note that Section 28, Township 45 North, Range 10 East of the Third Principal Meridian, Round Lake Park, Lake County Illinois is not located within a Sole Source Aquifer, nor are there any pending petitions or designations.

Thank you for your inquiry. If you have any further questions please call me at (312) 886-9262.

Sincerely,

A handwritten signature in black ink, appearing to read "William Spaulding".

William Spaulding
Ground Water and Drinking Water Branch