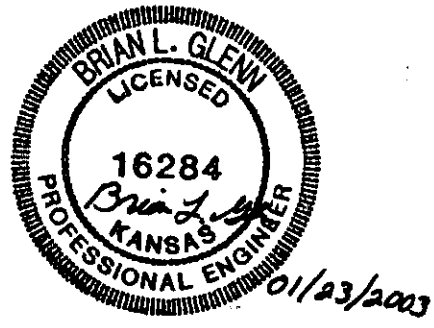
DRAINAGE PLAN
FOR
SEALPAK ADDITION
TO
WICHITA, SEDGWICK COUNTY, KANSAS



Prepared By

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ENGINEERING, SURVEYING & PLANNING
316/262-7271 FAX 316/262-0149 WICHITA, KANSAS 67211

January 23, 2003

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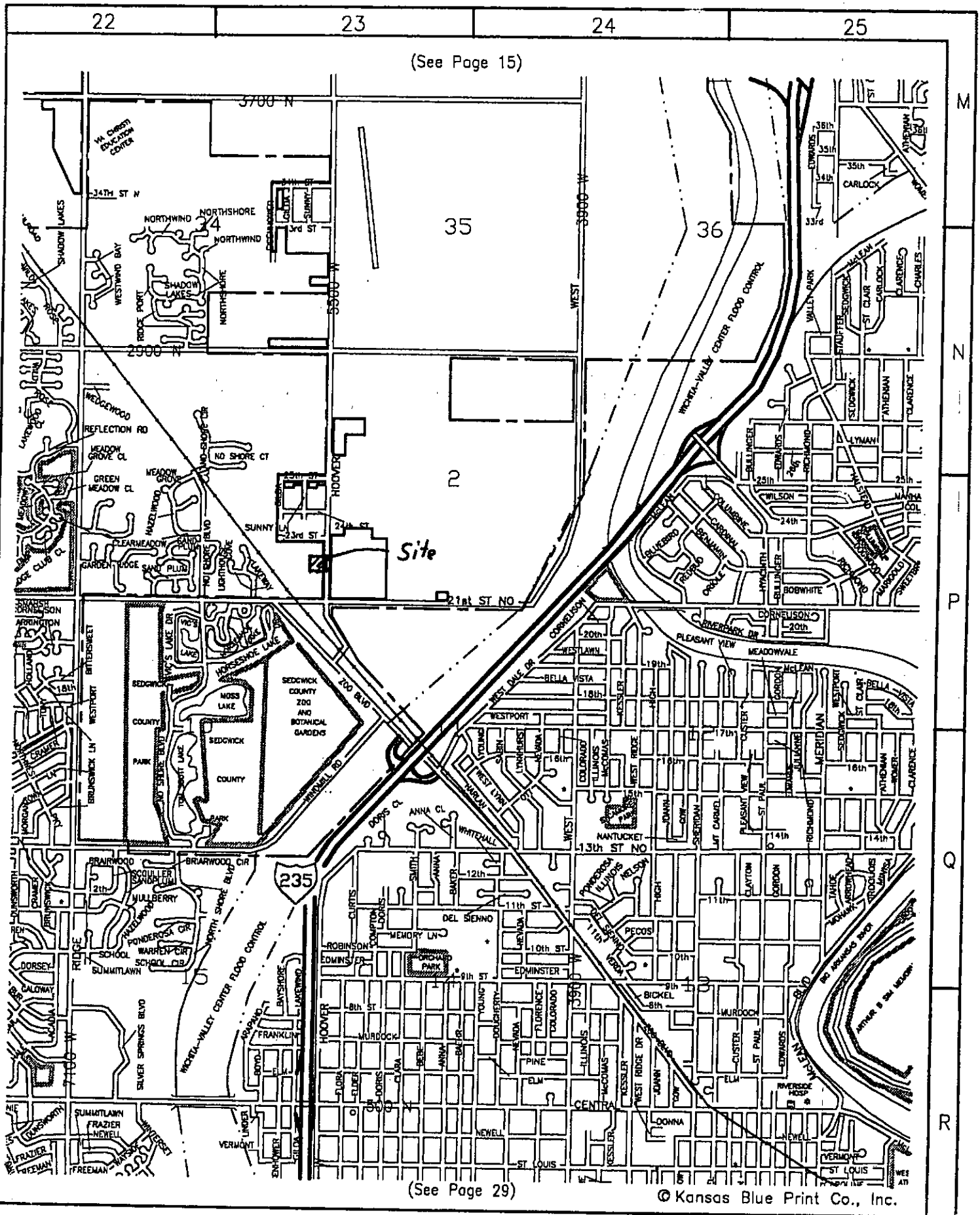
Introduction

This report provides information and supporting documentation to support the "Drainage Plan" for the proposed "SealPak" Addition to the City of Wichita. The subject property is located within the SE ¼ of Sec 3, TWP-27-S, R-1-W, more commonly north of 21st St. North on Hoover Road.

The "Drainage Plan" being submitted herein in intended to serve as a guide for the design of detention facilities, parking lots, and storm water sewer improvements to the proposed developments. Modifications to structures, pipes, etc. may be made as necessary during the final design in order to obtain the most economical design and construction possible.


22
23
24
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M
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Q
R
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(See Page 29)
3700 N
3300 W
3000 W
2900 N
35
36
2
Site
21st ST NO
13th ST NO
235
HOOVER
WEST
WICHITA-VALLEY CENTER FLOOD CONTROL
ZOO BLVD
SEDGWICK COUNTY ZOO AND BOTANICAL GARDENS
CORNELISON
MERIDIAN
CENTRAL
© Kansas Blue Print Co., Inc.
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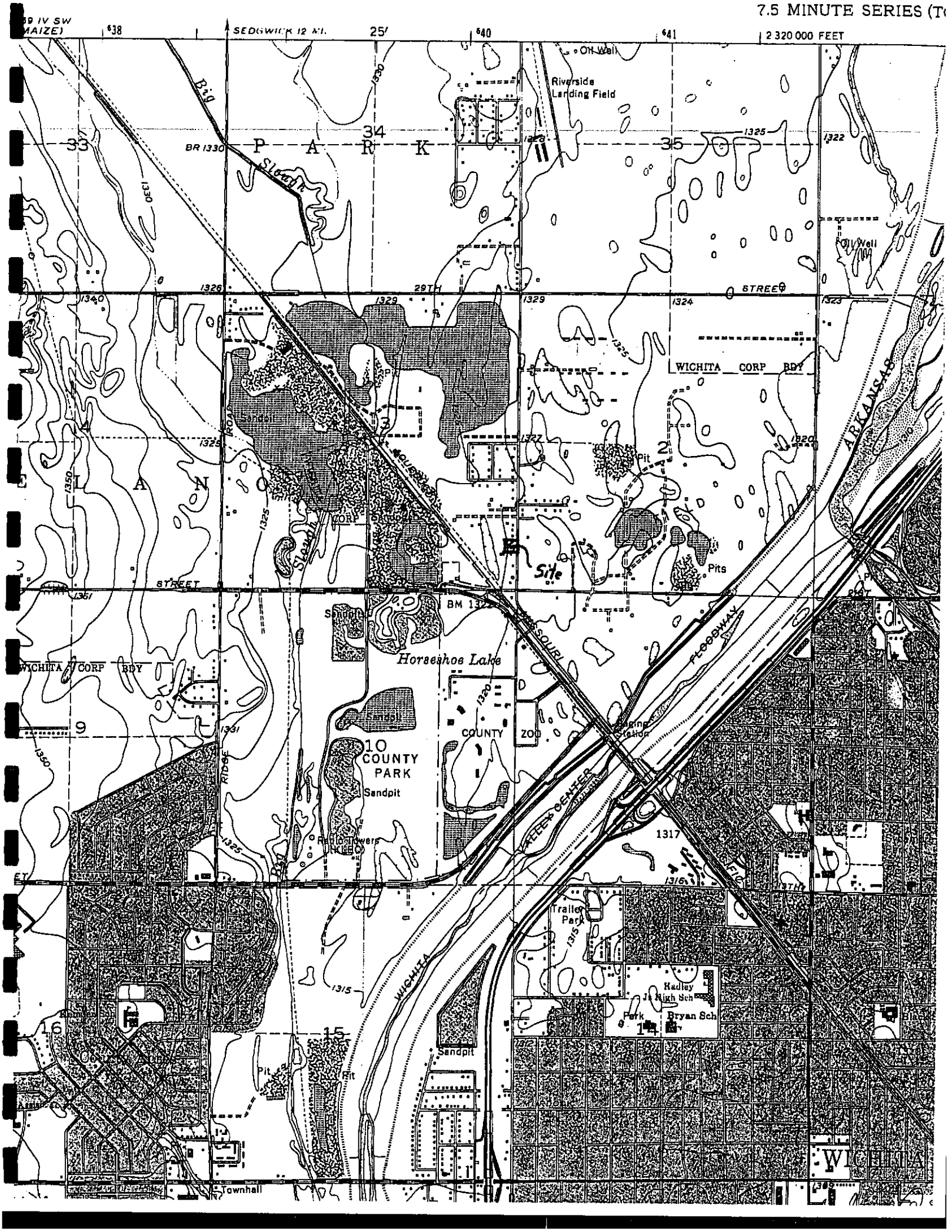
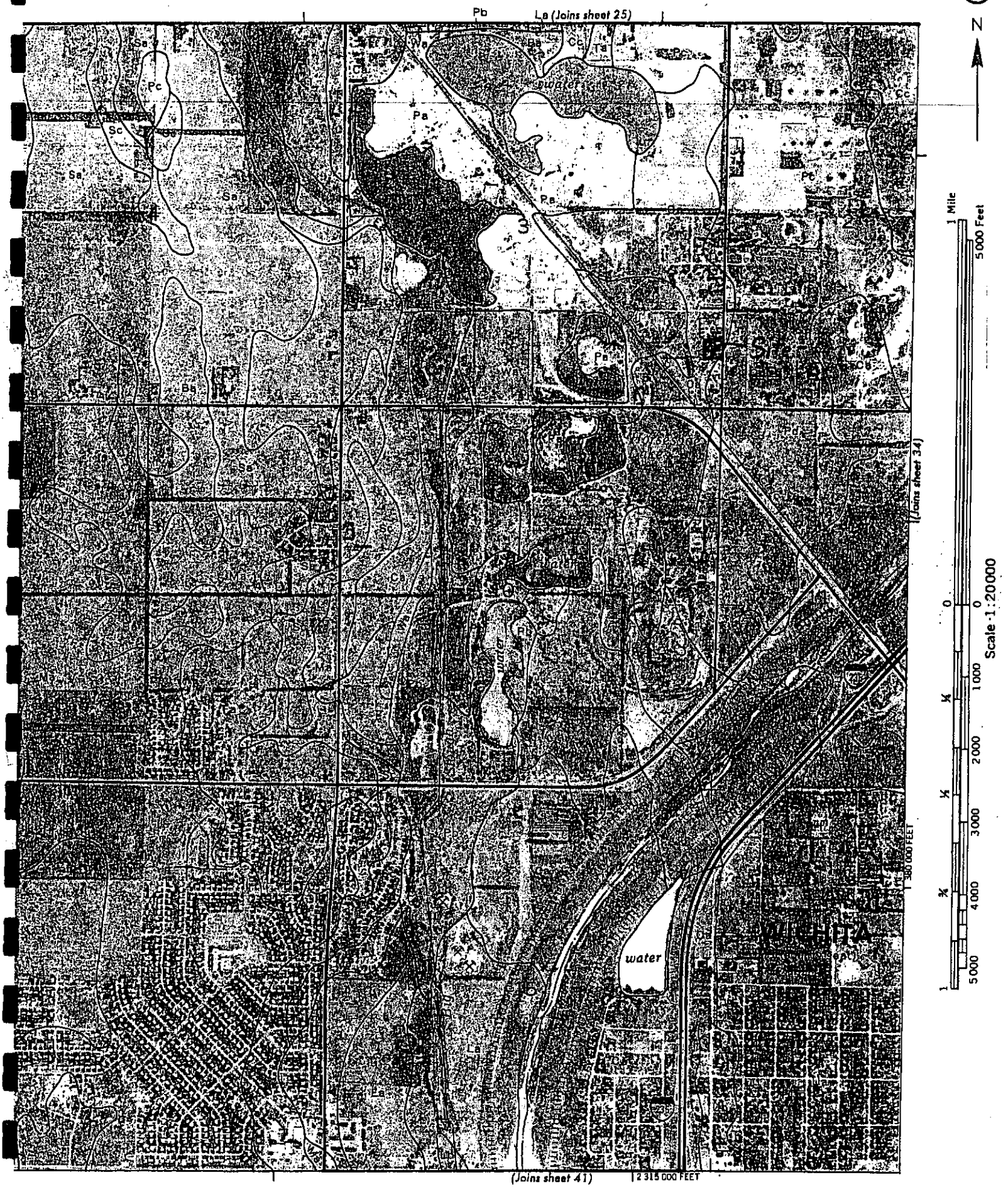

SEDGWICK 12 MI.
2 320 000 FEET
Oil Well
Riverside Landing Field
Big Slough
BR 1330
PARK
29TH STREET
WICHITA CORP BDY
Pit
Pits
Site
BM 1322
Sandpit
Horseshoe Lake
Sandpit
10 COUNTY PARK
Sandpit
Radio Towers (KLEO)
COUNTY ZOO
Flying Station
ARKANSAS
FLOODWAY
VALLEY CENTER
WICHITA
Trailer Park
Hadley Jr High Sch
Park
Bryan Sch
Townhall
WICHITA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N
Pb
La (Joins sheet 25)
Wa
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Pc
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water
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2 315 000 FEET
380 000 FEET
WICHITA
1 Mile
5000 Feet
Scale 1:20000
0
1000
2000
3000
4000
5000

Existing Conditions

Presently this property sheds stromwater runoff to the adjacent property on the west. Field surveys indicate that the project site has a moderate slope of approximately 1.5 per cent. By methods outlined in TR-55, the time of concentration was calculated to be 12 minutes, however for analysis, the City of Wichita's 15-minute minimum will be used.

The soils in the area are of hydrologic type "B" as determined in the *Soil Survey of Sedgwick County*. This soil has been assigned a SCS curve number of 69 as derived from the attached table. These values were used as input to the commercial software "PondPak" distributed by Haestad Methods. Analysis for this project will be done using variable return periods for the 24-hour duration. The rainfall depths for the variable return periods were obtained from TP-40. The resulting calculated peak discharges for existing conditions are:

Return Period yr.	24-hr Rainfall depth in.	Existing Peak Flowrate cfs
2	3.5	1.7
5	4.5	3
10	5.3	4.2
100	7.9	8.3

Developed Conditions

Preliminary site plans for this project indicate that 0.6 acres of impervious areas will be created due to construction. Again, the City of Wichita's 15 minute minimum time of concentration will be used. The SCS curve number for developed conditions is based on a weighted average of the existing condition curve number for those areas to remain pervious, and a curve number of 98 for the proposed impervious areas. The resulting curve number for developed conditions has been calculated to be 80.

Inputting the developed values into PondPak, the developed peak flowrates for the project, prior to detention are:

Return Period yr.	24-hr Rainfall depth in.	Developed Peak Flowrate cfs
2	3.5	3.2
5	4.5	4.8
10	5.3	6.1
100	7.9	10.6

On-Site Detention

Initial conceptual designs for detention explored the possibility of collecting only the developed portion of the project in a detention facility, while allowing the undeveloped areas to naturally discharge to the west. These concepts would utilize a detention pond located in the southeast corner of the property.

The first scenario was to create a "wet" surface pond, in which the static water level would be controlled by the presence of groundwater. Research of the Water Well Completion Record Database revealed that a nearby domestic water well has a recorded depth to groundwater of 15 feet. Since the project site is relatively small, excavation to intercept the groundwater would be impractical.

The second scenario was to create a "dry" detention pond with an outlet pipe crossing Hoover Road and discharging directly into the eastern right-of-way ditch. This scenario, however, is not a viable solution due to the existing elevations of the ditch flow, along with the potential of utility conflicts.

The third scenario was to locate the detention facility near the southwest corner of the property and allow the pond discharge to remain in its natural drainage basin.

A "dry" facility was initially proposed for this location. However, after calculating an annual water budget for the site, it was determined that a "wet" facility could be sustained with minimal supplemental water supply. In addition to creating an amenity to the project, the excavation will also serve as a borrow pit to obtain the necessary fill material for construction. Preliminary estimates indicate that 2,800 to 3,000 cubic yards of material will be needed for construction.

Converting the borrow requirement into a pond volume, assuming a static pool depth of seven feet. The resulting pond area was calculated at 0.3 acres. This area was used as the initial size for the detailed detention calculations.

Detention Calculation

In order to create storage volume and maintain gravity discharge, an 18-inch earthen berm will be constructed. Routing results from PondPak indicate that a 5-foot earthen weir section will provide the necessary restriction, to reduce peak discharges equal to or less than existing conditions. The following are the routing results:

Based on Static WS = 135.0		
Return Period yr.	Peak Pond Discharge cfs	Maximum Pond Elevation city datum
2	1.3	135.2
5	2.4	135.3
10	3.2	135.4
100	6.4	135.6

Summary

The proposed drainage plan for the property will direct stormwater runoff from the site to a "wet" surface detention pond located in the southwest corner of the property. Discharge for the detention pond will occur at the natural grade elevation with the storage volume being created by the construction of an earthen berm. The outlet shall be constructed as a 5-foot earthen weir section allowing for positive gravity flow for the site.

Due to the sandy nature of the soils in this area, it is recommended that a clay liner be installed in the pond to prevent leakage. The pond size for the project has been estimated based on detention requirements as well as the need of fill material. Since the installation of the detention facility will alter the natural flow of runoff and concentrate the discharge point, it is recommended that the owner obtain an off-site drainage agreement with the adjacent property owner. The following is a summary of the pre-project and post-project conditions:

Return Period yr.	24-hr Rainfall depth in.	Existing Peak Flowrate cfs	Developed Peak Flowrate cfs	Proposed Peak Discharge cfs	Maximum Pond Elevation city datum
2	3.5	1.7	3.2	1.3	135.2
5	4.5	3	4.8	2.4	135.3
10	5.3	4.2	6.1	3.2	135.4
100	7.9	8.3	10.6	6.4	135.6

Appendix A

Time of Concentration Calculation

Sea/Pak

By Date Page 01

BAUGHMAN COMPANY, P.A.

Time of Concentration

sheet flow

$$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,S_0^{0.4}}$$

$n = 0.15$
$L = 100'$
$P_2 = 3.5''$
$S_0 = 0.015$ ft/ft

$$T_{t_1} = \frac{0.007\,[(0.15)(100)]^{0.8}}{(3.5)^{0.5}\,(0.015)^{0.4}}$$

$T_{t_1} = 0.175$ hr

shallow concentrated flow

$T_{t_2} = \frac{L}{3600\,V}$ where L = flow length = 250'

$V = 16.1345\sqrt{S_0} = 2$ ft/s

$T_{t_2} = \frac{250}{3600\,(2)} = 0.035$ hr

$T_c = T_{t_1} + T_{t_2} = 0.175 + 0.035 = 0.21$ hr $= 12.6$ min

use City of Wichita minimum $T_c = 15$ min

Appendix B

Curve Number Reference

And

Water Well Data

TABLE 2.1

Runoff Curve Numbers for Selected Agricultural, Suburban, and Urban Land Use (Antecedent moisture condition II; $I_a = 0.2S$)

LAND USE DESCRIPTION	HYDROLOGIC SOIL GROUP			
	A	B	C	D
Cultivated land[1]				
Without conservation treatment	72	81	88	91
With conservation treatment	62	71	78	81
Pasture or range land				
Poor condition	68	79	86	89
Good condition	39	61	74	80
Meadow				
Good condition	30	58	71	78
Wood or forest land				
Thin stand, poor cover, no mulch	45	66	77	83
Good cover[2]	25	55	70	77
Open spaces, lawns, parks, golf courses, cemeteries, etc.				
Good condition: grass cover on 75% or more of the area	39	61	74	80
Fair condition: grass cover on 50–75% of the area	49	69	79	84
Commercial and business areas (85% impervious)	89	92	94	95
Industrial districts (72% impervious)	81	88	91	93
Residential[3]				
Average lot size — Average % impervious[4]				
1/8 ac or less — 65	77	85	90	92
1/4 ac — 38	61	75	83	87
1/3 ac — 30	57	72	81	86
1/2 ac — 25	54	70	80	85
1 ac — 20	51	68	79	84
Paved parking lots, roofs, driveways, etc.[5]	98	98	98	98
Streets and roads				
Paved with curbs and storm sewers[5]	98	98	98	98
Gravel	76	85	89	91
Dirt	72	82	87	89

1. For a more detailed description of agricultural land use curve numbers, refer to *National Engineering Handbook*, Section 4, "Hydrology," Chapter 9, Aug. 1972.

2. Good cover is protected from grazing and litter and brush cover soil.

3. Curve numbers are computed assuming that the runoff from the house and driveway is directed toward the street with a minimum of roof water directed to lawns where additional infiltration could occur.

4. The remaining pervious areas (lawn) are considered to be in good pasture condition for these curve numbers.

5. In some warmer climates of the country a curve number of 95 may be used.

Kansas Geological Survey | Hydrology | Water Well Database Query

Specific Water Well Detail

Well T27S, R1W, Sec. 3, NENESE, Action: Constructed

Location Info	
County: Sedgwick	**Location:** T27S, R1W, Sec. 3, NENESE
Owner: NICHOLS	**Status:** Constructed
Directions: 2528 N GLIDA WICHITA KANSAS	
Longitude: -97.40878	**Latitude:** 37.72968

General Info	
Well Depth: 30 ft.	**Elevation:** ft.
Static Water Level: 15 ft.	**Well Use:** Domestic
Est. Yield: 0 gpm.	

Driller Info	
Driller: Todd S. Harp Well & Pump Service, Inc.	**License #:** 236
Comp. Date: 04-Sep-1986	**DWR Applic. #:**
Chemical Sample Submitted?: N	

Casing Info
Casing Type: RMP(SR)
Diam: 5 in. to 20 ft.
Diam: 0 in. to 0 ft.
Diam: 0 in. to 0 ft.

Grout Info
Grout used: CEMENT GROUT
From: 4 to 14 ft.
From: 0 to 0 ft.
From: 0 to 0 ft.

Contamination Info	
Contamination type: SEPTIC TANK	
Direction:	**Distance:** 0

Screen and Perforation Info	
Screen Type: SAW CUT	**Screen Openings:** SAW CUT
From: 20 ft. to 30 ft.	**From:** 0 ft. to 0 ft.
From: 0 ft. to 0 ft.	**From:** 0 ft. to 0 ft.

Lithologic Log

From: 0 ft. **to** 7 ft.	**Type:** CLAY
From: 7 ft. **to** 21 ft.	**Type:** FINE SAND
From: 21 ft. **to** 30 ft.	**Type:** MEDIUM SAND

Kansas Geological Survey
Comments to webadmin@kgs.ku.edu
URL=http://www.kgs.ku.edu/Magellan/WaterWell/index.html
Display Programs Updated June 17, 2002
Data added continuously.

Appendix C

Existing Conditions PondPak Model

==========
JOB TITLE
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Existing Conditions Model for SealPak project site on N. Hoover

Table of Contents

MASTER DESIGN STORM SUMMARY

Default Network Design Storm File, ID SEDGWICK.RNQ Sedgwick24

Return Event	Total Depth in	Rainfall Type	RNF File	RNF ID
Pre..5	4.5000	Synthetic Curve	SCSTYPES	TypeII 24hr
Pre100	7.9000	Synthetic Curve	SCSTYPES	TypeII 24hr
Pre.10	5.3000	Synthetic Curve	SCSTYPES	TypeII 24hr
Pre..2	3.5000	Synthetic Curve	SCSTYPES	TypeII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Storage Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond ac-ft
EXISTING BASIN	AREA	5	.214		12.0600	3.04		
EXISTING BASIN	AREA	100	.569		12.0400	8.29		
EXISTING BASIN	AREA	10	.290		12.0600	4.19		
EXISTING BASIN	AREA	2	.127		12.0600	1.73		
*OUTLET	JCT	5	.214		12.0600	3.04		
*OUTLET	JCT	100	.569		12.0400	8.29		
*OUTLET	JCT	10	.290		12.0600	4.19		
*OUTLET	JCT	2	.127		12.0600	1.73		

DESIGN STORMS SUMMARY

Design Storm File,ID = SEDGWICK.RNQ Sedgwick24

Storm Tag Name = Pre..5
Description: Sedgwick County 5-yr 24 hour Duration

Data Type, File, ID = Synthetic Storm SCSTYPES.RNF TypeII 24hr
Storm Frequency = 5 yr
Total Rainfall Depth= .0000 in
Duration Multiplier = 1
Resulting Duration = -.1000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= -.1000 hrs

Storm Tag Name = Pre100
Description: Sedgwick County 100-yr 24 hour Duration

Data Type, File, ID = Synthetic Storm SCSTYPES.RNF TypeII 24hr
Storm Frequency = 100 yr
Total Rainfall Depth= .0000 in
Duration Multiplier = 1
Resulting Duration = -.1000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= -.1000 hrs

Storm Tag Name = Pre.10
Description: Sedgwick County 10-yr 24 hour Duration

Data Type, File, ID = Synthetic Storm SCSTYPES.RNF TypeII 24hr
Storm Frequency = 10 yr
Total Rainfall Depth= .0000 in
Duration Multiplier = 1
Resulting Duration = -.1000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= -.1000 hrs

Storm Tag Name = Pre..2
Description: Sedgwick County 2-yr 24 hour Duration

Data Type, File, ID = Synthetic Storm SCSTYPES.RNF TypeII 24hr
Storm Frequency = 2 yr
Total Rainfall Depth= .0000 in
Duration Multiplier = 1
Resulting Duration = -.1000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= -.1000 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration = 24.0000 hrs Rain Depth = 3.5000 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SEALPAK\PONDPAK\
HYG File - ID = SEALPAKX.HYG - EXISTING BASIN Pre..2
Tc = .2500 hrs
Drainage Area = 1.600 acres Runoff CN= 69

==========

Computational Time Increment	=	.03333 hrs
Computed Peak Time	=	12.0667 hrs
Computed Peak Flow	=	1.74 cfs
Time Increment for HYG File	=	.0200 hrs
Peak Time, Interpolated Output	=	12.0601 hrs
Peak Flow, Interpolated Output	=	1.73 cfs

==========

DRAINAGE AREA

ID:None Selected
CN = 69
Area = 1.600 acres
S = 4.4928 in
0.2S = .8986 in

Cumulative Runoff

.9540 in
.127 ac-ft

HYG Volume... .127 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25000 hrs (ID: None Selected)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak,	qp =	7.25 cfs
Unit peak time	Tp =	.16667 hrs
Unit receding limb,	Tr =	.66667 hrs
Total unit time,	Tb =	.83333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 5 year storm
Duration = 24.0000 hrs Rain Depth = 4.5000 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SEALPAK\PONDPAK\
HYG File - ID = SEALPAKX.HYG - EXISTING BASIN Pre..5
Tc = .2500 hrs
Drainage Area = 1.600 acres Runoff CN= 69

==========

Computational Time Increment	=	.03333 hrs
Computed Peak Time	=	12.0667 hrs
Computed Peak Flow	=	3.05 cfs
Time Increment for HYG File	=	.0200 hrs
Peak Time, Interpolated Output	=	12.0601 hrs
Peak Flow, Interpolated Output	=	3.04 cfs

==========

DRAINAGE AREA

ID:None Selected
CN = 69
Area = 1.600 acres
S = 4.4928 in
0.2S = .8986 in

Cumulative Runoff

1.6024 in
.214 ac-ft

HYG Volume... .214 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25000 hrs (ID: None Selected)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak,	qp =	7.25 cfs
Unit peak time	Tp =	.16667 hrs
Unit receding limb,	Tr =	.66667 hrs
Total unit time,	Tb =	.83333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration = 24.0000 hrs Rain Depth = 5.3000 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SEALPAK\PONDPAK\
HYG File - ID = SEALPAKX.HYG - EXISTING BASIN Pre.10
Tc = .2500 hrs
Drainage Area = 1.600 acres Runoff CN= 69

==========

Computational Time Increment	=	.03333 hrs
Computed Peak Time	=	12.0667 hrs
Computed Peak Flow	=	4.19 cfs
Time Increment for HYG File	=	.0200 hrs
Peak Time, Interpolated Output	=	12.0601 hrs
Peak Flow, Interpolated Output	=	4.19 cfs

==========

DRAINAGE AREA

ID:None Selected
CN = 69
Area = 1.600 acres
S = 4.4928 in
0.2S = .8986 in

Cumulative Runoff

2.1781 in
.290 ac-ft

HYG Volume... .290 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25000 hrs (ID: None Selected)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak,	qp =	7.25 cfs
Unit peak time	Tp =	.16667 hrs
Unit receding limb,	Tr =	.66667 hrs
Total unit time,	Tb =	.83333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration = 24.0000 hrs Rain Depth = 7.9000 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SEALPAK\PONDPAK\
HYG File - ID = SEALPAKX.HYG - EXISTING BASIN Pre100
Tc = .2500 hrs
Drainage Area = 1.600 acres Runoff CN= 69

==========

Computational Time Increment	=	.03333 hrs
Computed Peak Time	=	12.0333 hrs
Computed Peak Flow	=	8.31 cfs
Time Increment for HYG File	=	.0200 hrs
Peak Time, Interpolated Output	=	12.0401 hrs
Peak Flow, Interpolated Output	=	8.29 cfs

==========

DRAINAGE AREA

ID:None Selected
CN = 69
Area = 1.600 acres
S = 4.4928 in
0.2S = .8986 in

Cumulative Runoff

4.2648 in
.569 ac-ft

HYG Volume... .569 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25000 hrs (ID: None Selected)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak,	qp =	7.25 cfs
Unit peak time	Tp =	.16667 hrs
Unit receding limb,	Tr =	.66667 hrs
Total unit time,	Tb =	.83333 hrs

Index of Starting Page Numbers for ID Names

Appendix D

Developed Conditions w/o detention PondPak Model

JOB TITLE

Developed Conditions Model for the SealPak site on N. Hoover.
This Model reflects conditions prior to detention

Table of Contents

MASTER DESIGN STORM SUMMARY

Default Network Design Storm File, ID SEDGWICK.RNQ Sedgwick24

Return Event	Total Depth in	Rainfall Type	RNF File	RNF ID
Dev..5	4.5000	Synthetic Curve	SCSTYPES	TypeII 24hr
Dev100	7.9000	Synthetic Curve	SCSTYPES	TypeII 24hr
Dev.10	5.3000	Synthetic Curve	SCSTYPES	TypeII 24hr
Dev..2	3.5000	Synthetic Curve	SCSTYPES	TypeII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Storage Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond ac-ft
DEVELOPED	AREA	5	.328		12.0400	4.79		
DEVELOPED	AREA	100	.737		12.0400	10.55		
DEVELOPED	AREA	10	.421		12.0400	6.12		
DEVELOPED	AREA	2	.218		12.0400	3.17		
*OUTLET	JCT	5	.328		12.0400	4.79		
*OUTLET	JCT	100	.737		12.0400	10.55		
*OUTLET	JCT	10	.421		12.0400	6.12		
*OUTLET	JCT	2	.218		12.0400	3.17		

File.... C:\HAESTAD\PPKW\RAINFALL\SEDGWICK.RNQ
Title... Developed Conditions Model for the SealPak site on N. Hoover.
This Model reflects conditions prior to detention

DESIGN STORMS SUMMARY

Design Storm File,ID = SEDGWICK.RNQ Sedgwick24

Storm Tag Name = Dev..5
Description: Sedgwick County 5-yr 24 hour Duration

Data Type, File, ID = Synthetic Storm SCSTYPES.RNF TypeII 24hr
Storm Frequency = 5 yr
Total Rainfall Depth= 4.5000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = Dev100
Description: Sedgwick County 100-yr 24 hour Duration

Data Type, File, ID = Synthetic Storm SCSTYPES.RNF TypeII 24hr
Storm Frequency = 100 yr
Total Rainfall Depth= 7.9000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = Dev.10
Description: Sedgwick County 10-yr 24 hour Duration

Data Type, File, ID = Synthetic Storm SCSTYPES.RNF TypeII 24hr
Storm Frequency = 10 yr
Total Rainfall Depth= 5.3000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = Dev..2
Description: Sedgwick County 2-yr 24 hour Duration

Data Type, File, ID = Synthetic Storm SCSTYPES.RNF TypeII 24hr
Storm Frequency = 2 yr
Total Rainfall Depth= 3.5000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration = 24.0000 hrs Rain Depth = 3.5000 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SEALPAK\PONDPAK\
HYG File - ID = SEALPAKD.HYG - DEVELOPED Dev..2
Tc = .2500 hrs
Drainage Area = 1.600 acres Runoff CN= 80

==========
Computational Time Increment = .03333 hrs
Computed Peak Time = 12.0333 hrs
Computed Peak Flow = 3.17 cfs

Time Increment for HYG File = .0200 hrs
Peak Time, Interpolated Output = 12.0401 hrs
Peak Flow, Interpolated Output = 3.17 cfs
==========

DRAINAGE AREA

ID:None Selected
CN = 80
Area = 1.600 acres
S = 2.5000 in
0.2S = .5000 in

Cumulative Runoff

1.6364 in
.218 ac-ft

HYG Volume... .218 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25000 hrs (ID: None Selected)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 7.25 cfs
Unit peak time Tp = .16667 hrs
Unit receding limb, Tr = .66667 hrs
Total unit time, Tb = .83333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 5 year storm
Duration = 24.0000 hrs Rain Depth = 4.5000 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SEALPAK\PONDPAK\
HYG File - ID = SEALPAKD.HYG - DEVELOPED Dev..5
Tc = .2500 hrs
Drainage Area = 1.600 acres Runoff CN= 80

==========

Computational Time Increment	=	.03333 hrs
Computed Peak Time	=	12.0333 hrs
Computed Peak Flow	=	4.80 cfs
Time Increment for HYG File	=	.0200 hrs
Peak Time, Interpolated Output	=	12.0401 hrs
Peak Flow, Interpolated Output	=	4.79 cfs

==========

DRAINAGE AREA

ID:None Selected
CN = 80
Area = 1.600 acres
S = 2.5000 in
0.2S = .5000 in

Cumulative Runoff

2.4615 in
.328 ac-ft

HYG Volume... .328 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25000 hrs (ID: None Selected)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak,	qp =	7.25 cfs
Unit peak time	Tp =	.16667 hrs
Unit receding limb,	Tr =	.66667 hrs
Total unit time,	Tb =	.83333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration = 24.0000 hrs Rain Depth = 5.3000 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SEALPAK\PONDPAK\
HYG File - ID = SEALPAKD.HYG - DEVELOPED Dev.10
Tc = .2500 hrs
Drainage Area = 1.600 acres Runoff CN= 80

==========
Computational Time Increment = .03333 hrs
Computed Peak Time = 12.0333 hrs
Computed Peak Flow = 6.14 cfs

Time Increment for HYG File = .0200 hrs
Peak Time, Interpolated Output = 12.0401 hrs
Peak Flow, Interpolated Output = 6.12 cfs
==========

DRAINAGE AREA

ID:None Selected
CN = 80
Area = 1.600 acres
S = 2.5000 in
0.2S = .5000 in

Cumulative Runoff

3.1562 in
.421 ac-ft

HYG Volume... .421 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25000 hrs (ID: None Selected)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 7.25 cfs
Unit peak time Tp = .16667 hrs
Unit receding limb, Tr = .66667 hrs
Total unit time, Tb = .83333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration = 24.0000 hrs Rain Depth = 7.9000 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SEALPAK\PONDPAK\
HYG File - ID = SEALPAKD.HYG - DEVELOPED Dev100
Tc = .2500 hrs
Drainage Area = 1.600 acres Runoff CN= 80

==========

Computational Time Increment	=	.03333 hrs
Computed Peak Time	=	12.0333 hrs
Computed Peak Flow	=	10.60 cfs
Time Increment for HYG File	=	.0200 hrs
Peak Time, Interpolated Output	=	12.0401 hrs
Peak Flow, Interpolated Output	=	10.55 cfs

==========

DRAINAGE AREA

ID:None Selected
CN = 80
Area = 1.600 acres
S = 2.5000 in
0.2S = .5000 in

Cumulative Runoff

5.5313 in
.738 ac-ft

HYG Volume... .737 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25000 hrs (ID: None Selected)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak,	qp =	7.25 cfs
Unit peak time	Tp =	.16667 hrs
Unit receding limb,	Tr =	.66667 hrs
Total unit time,	Tb =	.83333 hrs

Index of Starting Page Numbers for ID Names

Appendix E

Proposed Conditions w/ detention PondPak Model

Job File: F:\HYDRO\PROJECTS\SEALPAK\PONDPAK\SEALPAK_DETAINED.PPW
Rain Dir: C:\HAESTAD\PPKW\RAINFALL\

==========
JOB TITLE
==========

Proposed Conditions Model for SealPak site on N. Hoover.
Model reflects proposed discharges after detention

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Table of Contents (continued)

MASTER DESIGN STORM SUMMARY

Default Network Design Storm File, ID SEDGWICK.RNQ Sedgwick24

Return Event	Total Depth in	Rainfall Type	RNF File	RNF ID
5y24h	4.5000	Synthetic Curve	SCSTYPES	TypeII 24hr
100y24	7.9000	Synthetic Curve	SCSTYPES	TypeII 24hr
10y24h	5.3000	Synthetic Curve	SCSTYPES	TypeII 24hr
2y24h	3.5000	Synthetic Curve	SCSTYPES	TypeII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Storage Node ID		Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond ac-ft
DEVELOPED		AREA	5	.328		12.0400	4.79		
DEVELOPED		AREA	100	.737		12.0400	10.55		
DEVELOPED		AREA	10	.421		12.0400	6.12		
DEVELOPED		AREA	2	.218		12.0400	3.17		
*OUTLET		JCT	5	.328		12.2200	2.35		
*OUTLET		JCT	100	.737		12.1800	6.40		
*OUTLET		JCT	10	.421		12.2000	3.17		
*OUTLET		JCT	2	.218		12.2400	1.31		
POND	IN	POND	5	.328		12.0400	4.79		
POND	IN	POND	100	.737		12.0400	10.55		
POND	IN	POND	10	.421		12.0400	6.12		
POND	IN	POND	2	.218		12.0400	3.17		
POND	OUT	POND	5	.328		12.2200	2.35	135.31	.093
POND	OUT	POND	100	.737		12.1800	6.40	135.62	.187
POND	OUT	POND	10	.421		12.2000	3.17	135.39	.117
POND	OUT	POND	2	.218		12.2400	1.31	135.21	.064

File.... C:\HAESTAD\PPKW\RAINFALL\SEDGWICK.RNQ
Title... Proposed Conditions Model for SealPak site on N. Hoover.
Model reflects proposed discharges after detention

DESIGN STORMS SUMMARY

Design Storm File,ID = SEDGWICK.RNQ Sedgwick24

Storm Tag Name = 5y24h
Description: Sedgwick County 5-yr 24 hour Duration

Data Type, File, ID = Synthetic Storm SCSTYPES.RNF TypeII 24hr
Storm Frequency = 5 yr
Total Rainfall Depth= 4.5000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 100y24
Description: Sedgwick County 100-yr 24 hour Duration

Data Type, File, ID = Synthetic Storm SCSTYPES.RNF TypeII 24hr
Storm Frequency = 100 yr
Total Rainfall Depth= 7.9000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 10y24h
Description: Sedgwick County 10-yr 24 hour Duration

Data Type, File, ID = Synthetic Storm SCSTYPES.RNF TypeII 24hr
Storm Frequency = 10 yr
Total Rainfall Depth= 5.3000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 2y24h
Description: Sedgwick County 2-yr 24 hour Duration

Data Type, File, ID = Synthetic Storm SCSTYPES.RNF TypeII 24hr
Storm Frequency = 2 yr
Total Rainfall Depth= 3.5000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration = 24.0000 hrs Rain Depth = 3.5000 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SEALPAK\PONDPAK\
HYG File - ID = SEALPAKP.HYG - DEVELOPED 2y24h
Tc = .2500 hrs
Drainage Area = 1.600 acres Runoff CN= 80

==========
Computational Time Increment = .03333 hrs
Computed Peak Time = 12.0333 hrs
Computed Peak Flow = 3.17 cfs

Time Increment for HYG File = .0200 hrs
Peak Time, Interpolated Output = 12.0401 hrs
Peak Flow, Interpolated Output = 3.17 cfs
==========

DRAINAGE AREA

ID:None Selected
CN = 80
Area = 1.600 acres
S = 2.5000 in
0.2S = .5000 in

Cumulative Runoff

1.6364 in
.218 ac-ft

HYG Volume... .218 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25000 hrs (ID: None Selected)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 7.25 cfs
Unit peak time Tp = .16667 hrs
Unit receding limb, Tr = .66667 hrs
Total unit time, Tb = .83333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 5 year storm
Duration = 24.0000 hrs Rain Depth = 4.5000 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SEALPAK\PONDPAK\
HYG File - ID = SEALPAKP.HYG - DEVELOPED 5y24h
Tc = .2500 hrs
Drainage Area = 1.600 acres Runoff CN= 80

==========

Computational Time Increment	=	.03333 hrs
Computed Peak Time	=	12.0333 hrs
Computed Peak Flow	=	4.80 cfs
Time Increment for HYG File	=	.0200 hrs
Peak Time, Interpolated Output	=	12.0401 hrs
Peak Flow, Interpolated Output	=	4.79 cfs

==========

DRAINAGE AREA

ID:None Selected
CN = 80
Area = 1.600 acres
S = 2.5000 in
0.2S = .5000 in

Cumulative Runoff

2.4615 in
.328 ac-ft

HYG Volume... .328 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25000 hrs (ID: None Selected)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak,	qp =	7.25 cfs
Unit peak time	Tp =	.16667 hrs
Unit receding limb,	Tr =	.66667 hrs
Total unit time,	Tb =	.83333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration = 24.0000 hrs Rain Depth = 7.9000 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SEALPAK\PONDPAK\
HYG File - ID = SEALPAKP.HYG - DEVELOPED 100y24
Tc = .2500 hrs
Drainage Area = 1.600 acres Runoff CN= 80

==========

Computational Time Increment	=	.03333 hrs
Computed Peak Time	=	12.0333 hrs
Computed Peak Flow	=	10.60 cfs
Time Increment for HYG File	=	.0200 hrs
Peak Time, Interpolated Output	=	12.0401 hrs
Peak Flow, Interpolated Output	=	10.55 cfs

==========

DRAINAGE AREA

ID:None Selected
CN = 80
Area = 1.600 acres
S = 2.5000 in
0.2S = .5000 in

Cumulative Runoff

5.5313 in
.738 ac-ft

HYG Volume... .737 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25000 hrs (ID: None Selected)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak,	qp =	7.25 cfs
Unit peak time	Tp =	.16667 hrs
Unit receding limb,	Tr =	.66667 hrs
Total unit time,	Tb =	.83333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration = 24.0000 hrs Rain Depth = 5.3000 in
Rain Dir = C:\HAESTAD\PPKW\RAINFALL\
Rain File -ID = SCSTYPES.RNF - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = F:\HYDRO\PROJECTS\SEALPAK\PONDPAK\
HYG File - ID = SEALPAKP.HYG - DEVELOPED 10y24h
Tc = .2500 hrs
Drainage Area = 1.600 acres Runoff CN= 80

==========

Computational Time Increment	=	.03333 hrs
Computed Peak Time	=	12.0333 hrs
Computed Peak Flow	=	6.14 cfs
Time Increment for HYG File	=	.0200 hrs
Peak Time, Interpolated Output	=	12.0401 hrs
Peak Flow, Interpolated Output	=	6.12 cfs

==========

DRAINAGE AREA

ID:None Selected
CN = 80
Area = 1.600 acres
S = 2.5000 in
0.2S = .5000 in

Cumulative Runoff

3.1562 in
.421 ac-ft

HYG Volume... .421 ac-ft (area under HYG curve)

***** UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25000 hrs (ID: None Selected)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak,	qp =	7.25 cfs
Unit peak time	Tp =	.16667 hrs
Unit receding limb,	Tr =	.66667 hrs
Total unit time,	Tb =	.83333 hrs

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
135.00	-----	.3000	.0000	.000	.000
137.00	-----	.3000	.9000	.600	.600

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

REQUESTED POND WS ELEVATIONS:

Min. Elev.= 135.00 ft
Increment = .20 ft
Max. Elev.= 137.00 ft

****
OUTLET CONNECTIVITY
****

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.		Outfall	E1, ft	E2, ft
Weir-Rectangular TW SETUP, DS Channel	WR	--->	TW	135.000	137.000

OUTLET STRUCTURE INPUT DATA

Structure ID = WR
Structure Type = Weir-Rectangular

# of Openings = 1
Crest Elev. = 135.00 ft
Weir Length = 5.00 ft
Weir Coeff. = 2.600000

Weir TW effects (Use adjustment equation)

Structure ID = TW
Structure Type = TW SETUP, DS Channel

FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...
Maximum Iterations= 30
Min. TW tolerance = .01 ft
Max. TW tolerance = .01 ft
Min. HW tolerance = .01 ft
Max. HW tolerance = .01 ft
Min. Q tolerance = .10 cfs
Max. Q tolerance = .10 cfs

File.... F:\HYDRO\PROJECTS\SEALPAK\PONDPAK\SEALPAK_DETAINED.PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = WR (Weir-Rectangular)

Upstream ID = (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

WS Elev, Device Q	Tail Water	Notes
WS Elev. ft	Q cfs	TW Elev ft	Converge +/-ft	Computation Messages
135.00	.00	Free Outfall		H=.00; Htw=.00; Qfree=.00;
135.20	1.16	Free Outfall		H=.20; Htw=.00; Qfree=1.16;
135.40	3.29	Free Outfall		H=.40; Htw=.00; Qfree=3.29;
135.60	6.04	Free Outfall		H=.60; Htw=.00; Qfree=6.04;
135.80	9.30	Free Outfall		H=.80; Htw=.00; Qfree=9.30;
136.00	13.00	Free Outfall		H=1.00; Htw=.00; Qfree=13.00;
136.20	17.09	Free Outfall		H=1.20; Htw=.00; Qfree=17.09;
136.40	21.53	Free Outfall		H=1.40; Htw=.00; Qfree=21.53;
136.60	26.31	Free Outfall		H=1.60; Htw=.00; Qfree=26.31;
136.80	31.39	Free Outfall		H=1.80; Htw=.00; Qfree=31.39;
137.00	36.77	Free Outfall		H=2.00; Htw=.00; Qfree=36.77;

***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
135.00	.00	Free Outfall		WR
135.20	1.16	Free Outfall		WR
135.40	3.29	Free Outfall		WR
135.60	6.04	Free Outfall		WR
135.80	9.30	Free Outfall		WR
136.00	13.00	Free Outfall		WR
136.20	17.09	Free Outfall		WR
136.40	21.53	Free Outfall		WR
136.60	26.31	Free Outfall		WR
136.80	31.39	Free Outfall		WR
137.00	36.77	Free Outfall		WR

LEVEL POOL ROUTING SUMMARY

HYG Dir = F:\HYDRO\PROJECTS\SEALPAK\PONDPAK\
Inflow HYG file = SEALPAKP.HYG - POND IN 2y24h
Outflow HYG file = SEALPAKP.HYG - POND OUT 2y24h

Pond Node Data = POND
Pond Volume Data = POND
Pond Outlet Data = WEIR

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	135.00 ft
Starting Volume	=	.000 ac-ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout=		.00 cfs
Time Increment	=	.0200 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow	=	3.17 cfs	at	12.0400 hrs
Peak Outflow	=	1.32 cfs	at	12.2400 hrs
Peak Elevation	=	135.21 ft		
Peak Storage	=	.064 ac-ft		

MASS BALANCE (ac-ft)

+ Initial Vol	=	.000
+ HYG Vol IN	=	.218
- Infiltration	=	.000
- HYG Vol OUT	=	.218
- Retained Vol	=	.000
Unrouted Vol	=	-.000 ac-ft (.001% of Inflow Volume)

LEVEL POOL ROUTING SUMMARY

HYG Dir = F:\HYDRO\PROJECTS\SEALPAK\PONDPAK\
Inflow HYG file = SEALPAKP.HYG - POND IN 5y24h
Outflow HYG file = SEALPAKP.HYG - POND OUT 5y24h

Pond Node Data = POND
Pond Volume Data = POND
Pond Outlet Data = WEIR

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	135.00 ft
Starting Volume	=	.000 ac-ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	.0200 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow	=	4.79 cfs	at	12.0400 hrs
Peak Outflow	=	2.35 cfs	at	12.2200 hrs
Peak Elevation	=	135.31 ft		
Peak Storage	=	.093 ac-ft		

MASS BALANCE (ac-ft)

+ Initial Vol	=	.000
+ HYG Vol IN	=	.328
- Infiltration	=	.000
- HYG Vol OUT	=	.328
- Retained Vol	=	.000
Unrouted Vol	=	-.000 ac-ft (.001% of Inflow Volume)

LEVEL POOL ROUTING SUMMARY

HYG Dir = F:\HYDRO\PROJECTS\SEALPAK\PONDPAK\
Inflow HYG file = SEALPAKP.HYG - POND IN 100y24
Outflow HYG file = SEALPAKP.HYG - POND OUT 100y24

Pond Node Data = POND
Pond Volume Data = POND
Pond Outlet Data = WEIR

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	135.00 ft
Starting Volume	=	.000 ac-ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	.0200 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow	=	10.55 cfs	at	12.0400 hrs
Peak Outflow	=	6.40 cfs	at	12.1800 hrs
Peak Elevation	=	135.62 ft		
Peak Storage	=	.187 ac-ft		

MASS BALANCE (ac-ft)

+ Initial Vol	=	.000
+ HYG Vol IN	=	.737
- Infiltration	=	.000
- HYG Vol OUT	=	.737
- Retained Vol	=	.000
Unrouted Vol	=	.000 ac-ft (.000% of Inflow Volume)

LEVEL POOL ROUTING SUMMARY

HYG Dir = F:\HYDRO\PROJECTS\SEALPAK\PONDPAK\
Inflow HYG file = SEALPAKP.HYG - POND IN 10y24h
Outflow HYG file = SEALPAKP.HYG - POND OUT 10y24h

Pond Node Data = POND
Pond Volume Data = POND
Pond Outlet Data = WEIR

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	135.00 ft
Starting Volume	=	.000 ac-ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	.0200 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow	=	6.12 cfs	at	12.0400 hrs
Peak Outflow	=	3.17 cfs	at	12.2000 hrs
Peak Elevation	=	135.39 ft		
Peak Storage	=	.117 ac-ft		

MASS BALANCE (ac-ft)

+ Initial Vol	=	.000
+ HYG Vol IN	=	.421
- Infiltration	=	.000
- HYG Vol OUT	=	.421
- Retained Vol	=	.000
Unrouted Vol	=	.000 ac-ft (.000% of Inflow Volume)

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