

**DRAINAGE PLAN
AND
SUPPORTING CALCULATIONS
FOR
SILVER SPUR MOBILE HOME PARK
1915 W. MACARTHUR ROAD
WICHITA, KANSAS**

APRIL 20, 1994

PREPARED BY:

CERTIFIED ENGINEERING DESIGN

1330 E. FIRST, #113
WICHITA, KANSAS 67214

LETTER OF TRANSMITTAL

DATE: April 20, 1994

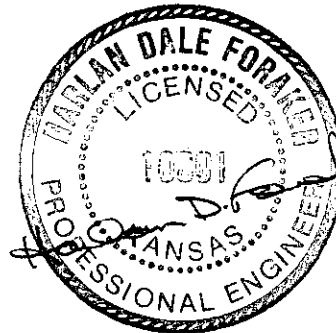
TO: Storm Water Management Division
Department of Public Works
City Hall, 7th floor
455 North Main
Wichita, KS 67202

ATTN: Ms. Suzanne Loomis

SUBJ: Drainage Plan
Silver Spur Mobile Home Park
1915 W. Macarthur Road

FROM: Harlan D. Foraker, P.E. *HDF*
Certified Engineering Design

CC: Mr. Roger Mendenhall, Seneca Const. Co. Inc.



4-20-94

DRAINAGE PLAN COMMENTS:

I. PROBLEM STATEMENT:

Evaluate existing drainage system and prepare drainage plan for the Silver Spur Mobile Home Park.

II. SITE DESCRIPTION:

The 50.4 acre site is currently a mobile home park with approximately 210 mobile homes. The site drains southeasterly to the southeast corner of the property. Using the SCS Soil Survey for Sedgwick County there are 44.1 acres of Type B soils and 6.3 acres of Type C soils on this site. Surface drainage from this site collects in the open grassed area south and east of the mobile home lots. According to the engineering properties from the SCS soils survey the soils in this area have permeabilities which range from 0.6 inches per hour (14.4 inches per day) to 6.0 inches per hour (144 inches per day). Since these soils have the capacity to absorb such a large amount of water there does not appear to be substantial surface runoff from this site. However, if surface runoff did occur it would flow from the southeast corner of this site as shown on the drainage plan.

III. HYDROLOGIC ANALYSIS:

The Rational method will be used to calculate peak design flows. Rational 'C' coefficients will be obtained from Attachment 'D' of the City of Wichita Interim Drainage Guide. The time of concentration for each basin will be computed using methods from SCS TR-55 "Urban Hydrology for Small Watersheds".

The minimum subbasin time of concentration is 15 minutes.

Drainage basins for the existing site have been delineated on the 1" = 100' aerial contour survey.

The volume of runoff for retention pond design was determined using SCS TR-55 runoff curve number and the 24 hour precipitation.

IV. RETENTION POND DESIGN:

Minor Storm: 2 yr.
Major Storm: 100 yr.

A retention pond will be designed and constructed to capture the 2 year storm runoff volume from this site. The site will also be evaluated for the ponding depth of the 100 year storm runoff volume in order to prevent flooding of the mobile home park.

V. SUMMARY:

The owner of this property desires to apply for a 80 percent retention credit for this site. In order to qualify for a retention credit for this site it must be shown that there is no runoff from this site. The owner intends to construct a levee along the south and east property lines of this property so that there is no surface runoff from this site. A retention pond will be constructed at the southeast corner of this property to collect the surface runoff from this site. The water in the pond will be depleted through a combination of percolation into the soil and evaporation.

VI. ATTACHMENTS:

1. All charts, graphs, tables and nomographs used in the design are presented as attachments.
2. Retention Credit application

VII. DRAINAGE PLAN:

A 1" = 100' scale drainage map is included.

PROJECT: DRAINAGE PLAN FOR STORMWATER ANALYSIS

DATE: 2-10-94

LOCATION: NW 1/4, S. 18, T. 285, R. 1E

BY: HOF CKD

CLIENT: ROGER MEYERHILL

JOB NO. SHEET NO. OF

DRAINAGE AREA (FROM AERIAL PHOTOGRAPH)

SE 1/4, NW 1/4, S. 18, T. 285, R. 1E Area = 60 ACRES

EAST 393' NE 1/4, NW 1/4, S. 18, T. 285, R. 1E Area = (393' / 320') = 10.40 ACRES
3560

50.40 ACRES
640

0.07875 mi²

SOIL TYPE

SOIL GROUP

Ca, Canadian fine sandy loam
Na, Naron fine sandy loam
Wa, Wauvick sandy loam

B
B
C

LAND USE

15 ACRES OPEN SPACE

35.4 ACRES MOBILE HOME PARK

TIME OF CONCENTRATION

T_c = 14.6 minutes (PRESENT)

C₁₀₀ = 1.95 1/HR

T_c (UNDEVELOPED) = 2.52 HRS x 150 minutes

C₁₀₀ = 1.90 1/HR

PEAK DISCHARGE

Q₁₀₀ = C₁₀₀ A

PRESENT

Q₁₀₀ = 0.56 (1.95) (50.40) = 55.0 CFS

UNDEVELOPED

Q₁₀₀ = 0.41 (1.90) (50.40) = 39.3 CFS

PROJECT: Drainage Plan for Stormwater Analysis
 LOCATION: NU 12, S 10, T2D3 E. E.
 CLIENT: Rogge Nevada Inc.

DATE: 2-10-94
 BY: AJF CKD
 JOB NO. _____ SHEET NO. _____ OF _____

CALCULATE RUNOFF VOLUME USING SCS TR55						
FREQUENCY	2	5	10	25	50	100
RAINFALL (IN.)	3.4	4.5	5.2	5.8	6.9	7.9
RUNOFF (IN.)	1.14	1.93	2.97	2.96	3.89	4.77
VOLUME (AC-FT)	4.8	8.1	10.4	12.4	16.3	20.0

SURFACE AREA BETWEEN 1280 CONTOUR ON USGS MAP AND EAST AND SOUTH PROPERTY LINES = 12.0 ACRES

IF WE ASSUME AN ELEVATION OF 1275 AT N.E. CORNER OF THE PROJECT 4, THE AVAILABLE STORAGE VOLUME FOR THIS

AREA = $(12.0 \text{ ACRES}) \times \frac{5.0'}{2} (\text{AVG. DEPTH}) = 30 \text{ AC-FT.}$

PERMEABILITY AT WHICH SOILS ARE SATURATED

NAZOM 0.6 - 2.0 $\text{AVG} = 0.6 \text{ "/hour} \times 24 \text{ HRS} = 14.4 \text{ "/24 HOUR PERIOD}$

PROJECT: RETENTION POND ANALYSIS
 LOCATION: LOT 11, SILVER SPRING EMO ADAPTATION
 CLIENT: POLICE MUNICIPALITY

DATE: 4-13-99
 BY: HOF CKD
 JOB NO: _____ SHEET NO: _____ OF _____

COMPUTE VOLUME OF PROPOSED 175' X 175' RETENTION POND

DEPTH	L	W	AREA	Avg AREA	Accum. Vol (AC-FT.)	STAGE
0	175'	175'	30,625	31,333	0.36	0.5
0.5	179'	179'	32,041	32,765	0.74	1.0
1.0	183'	183'	33,489	34,229	1.13	1.5
1.5	187'	187'	34,969	35,725	1.54	2.0
2.0	191'	191'	36,481	37,253	1.97	2.5
2.5	195'	195'	38,025	38,813	2.41	3.0
3.0	199'	199'	39,601	40,405	2.88	3.5
3.5	203'	203'	41,209	42,029	3.36	4.0
4.0	207'	207'	42,849			

DETERMINE VOLUME OF SURFACE STORAGE @ ELEV. = 88.0

$$\text{SURFACE AREA} = 3.41 \text{ AC. @ ELEV.} = 88.0$$

$$\text{VOL.} = 3.41 \text{ AC} \times \frac{2.0'}{2} = \underline{3.41 \text{ AC-FT.}}$$

$$\begin{array}{r} 3.36 \text{ AC-FT.} \\ 3.41 \text{ AC-FT.} \\ \hline 6.77 \text{ AC-FT.} \end{array}$$

DETERMINE VOLUME OF SURFACE STORAGE @ ELEV. = 90.0

$$\text{SURFACE AREA} = 1800 + 1875 + 940 = \frac{4615 \times 5.74}{2.360} = 11.2 \text{ ACRES (+)}$$

$$\text{VOL. FROM SURFACE AREA @ CONTOUR} = 88.0$$

$$\text{VOL.} = 3.41 \text{ AC} \times 2.0 = 6.82 \text{ AC-FT.}$$

$$\text{VOL. FROM 90.0 TO 88.0 CONTOUR (+)}$$

$$\text{VOL.} = (11.2 - 3.41) \times \frac{2.0}{2} = 7.79 \text{ AC-FT.}$$

$$\therefore \text{ @ CONTOUR} = 90.0 \text{ TOTAL VOL.} = 21.38 \text{ AC-FT.}$$

PROJECT: DRAINAGE POND ANALYSIS

DATE: 4-13-90

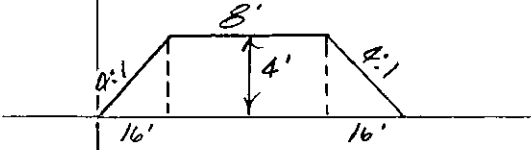
LOCATION: LOT 1, SILVER SPRING 2ND ADDITION

BY: HOE GKD

CLIENT: ROGER MENDENHALL

JOB NO. SHEET NO. OF

DETERMINE REQUIRED BERT VOLUME



END AREA = 96 FT²

$$VOL. = \frac{470 \left(\frac{0+96}{2} \right) + 630 \left(\frac{0+96}{2} \right)}{27} = 1956 C.Y.$$

$$\times 1.2$$

$$\rightarrow \underline{\underline{2,347 C.Y.}}$$

PROJECT: DRAINAGE PLAN FOR STORMWATER ANALYSIS

DATE: 2-10-94

LOCATION: NW 1/4, S 10, T 20 S, R 1 E.

BY: LDF CKD

CLIENT: Roger McDaniel

JOB NO. SHEET NO. OF

CALCULATE RUNOFF VOLUME USING SCS TR55						
FREQUENCY	2	5	10	25	50	100
RAINFALL (IN)	3.4	4.5	5.2	5.8	6.9	7.9
RUNOFF (IN)	1.14	1.93	2.47	2.96	3.89	4.77
VOLUME (AC-FT)	4.8	8.1	10.4	12.4	16.3	20.0

SURFACE AREA BETWEEN 1280 CONTOUR ON USGS MAP AND EAST AND SOUTH PROPERTY LINE = 12.0 ACRES

IF WE ASSUME AN ELEVATION OF 1275 AT THE S.E. CORNER OF THE PROPERTY, THE AVAILABLE STORAGE VOLUME FOR THIS AREA = $(12.0 \text{ ACRES}) \times \frac{5.0'}{2} (\text{AVG. DEPTH}) = 30 \text{ AC-FT.}$

PERMEABILITY AT WHICH SOILS ARE SATURATED

NATURAL 0.6 - 2.0 AVG = 0.6"/HR x 24 HRS = 14.4"/24 HOUR PERIOD

PROJECT: <u>RETENTION POND ANALYSIS</u>	DATE: <u>4-13-94</u>
LOCATION: <u>LOT 1, SILVER SPRING 2ND ADDITION</u>	BY: <u>HOF</u> CKD
CLIENT: <u>POWER MUNICIPAL</u>	JOB NO. _____ SHEET NO. _____ OF _____

COMPUTE VOLUME OF PROPOSED 175' X 175' RETENTION POND

DEPTH	L	W	AREA	Avg. AREA	Accum. VOL (AC-FT.)	STAGE
0	175'	175'	30,625	31,333	0.36	0.5
0.5	179'	179'	32,041	32,765	0.74	1.0
1.0	183'	183'	33,489	34,229	1.13	1.5
1.5	187'	187'	34,969	35,725	1.54	2.0
2.0	191'	191'	36,481	37,253	1.97	2.5
2.5	195'	195'	38,025	38,813	2.41	3.0
3.0	199'	199'	39,601	40,405	2.88	3.5
3.5	203'	203'	41,209	42,029	3.36	4.0
4.0	207'	207'	42,849			

DETERMINE VOLUME OF SURFACE STORAGE @ ELEV. = 88.0

SURFACE AREA = 3.41 AC @ ELEV. = 88.0

VOL. = $3.41 \text{ AC} \times \frac{2.0}{2} = 3.41 \text{ AC-FT.}$

$\frac{3.36 \text{ AC-FT.}}{3.41 \text{ AC-FT.}} = 6.77 \text{ AC-FT.}$

DETERMINE VOLUME OF SURFACE STORAGE @ ELEV. = 90.0

SURFACE AREA = $1800 + 1875 + 940 = 4615 \times \frac{5.74}{2.360} = 11.2 \text{ ACRES}$ (+)

VOL. FROM SURFACE AREA @ CONTOUR = 88.0

VOL. = $3.41 \text{ AC} \times 2.0 = 6.82 \text{ AC-FT.}$

VOL. FROM 90.0 TO 88.0 CONTOUR

VOL. = $(11.2 - 3.41) \times \frac{2.0}{2} = 7.79 \text{ AC-FT.}$ (+)

\therefore @ CONTOUR = 90.0 TOTAL VOL. = 21.38 AC-FT.

PROJECT:

DEWATERAGE POND ANALYSIS

DATE

4-13-94

LOCATION:

LOT 1, SILVER SAKE 2ND ADDITION

BY

HOF

CKD

CLIENT:

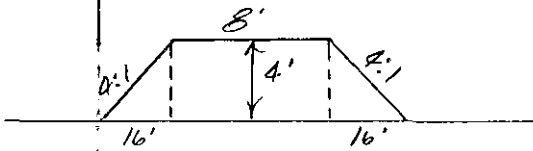
ROGER MENDENHALL

JOB NO.

SHEET NO.

OF

DETERMINE REQUIRED BERM VOLUME



END AREA = 96 FT²

$$VOL. = \frac{470 \left(\frac{0+96}{2} \right) + 630 \left(\frac{0+96}{2} \right)}{27} = 1956 C.Y.$$

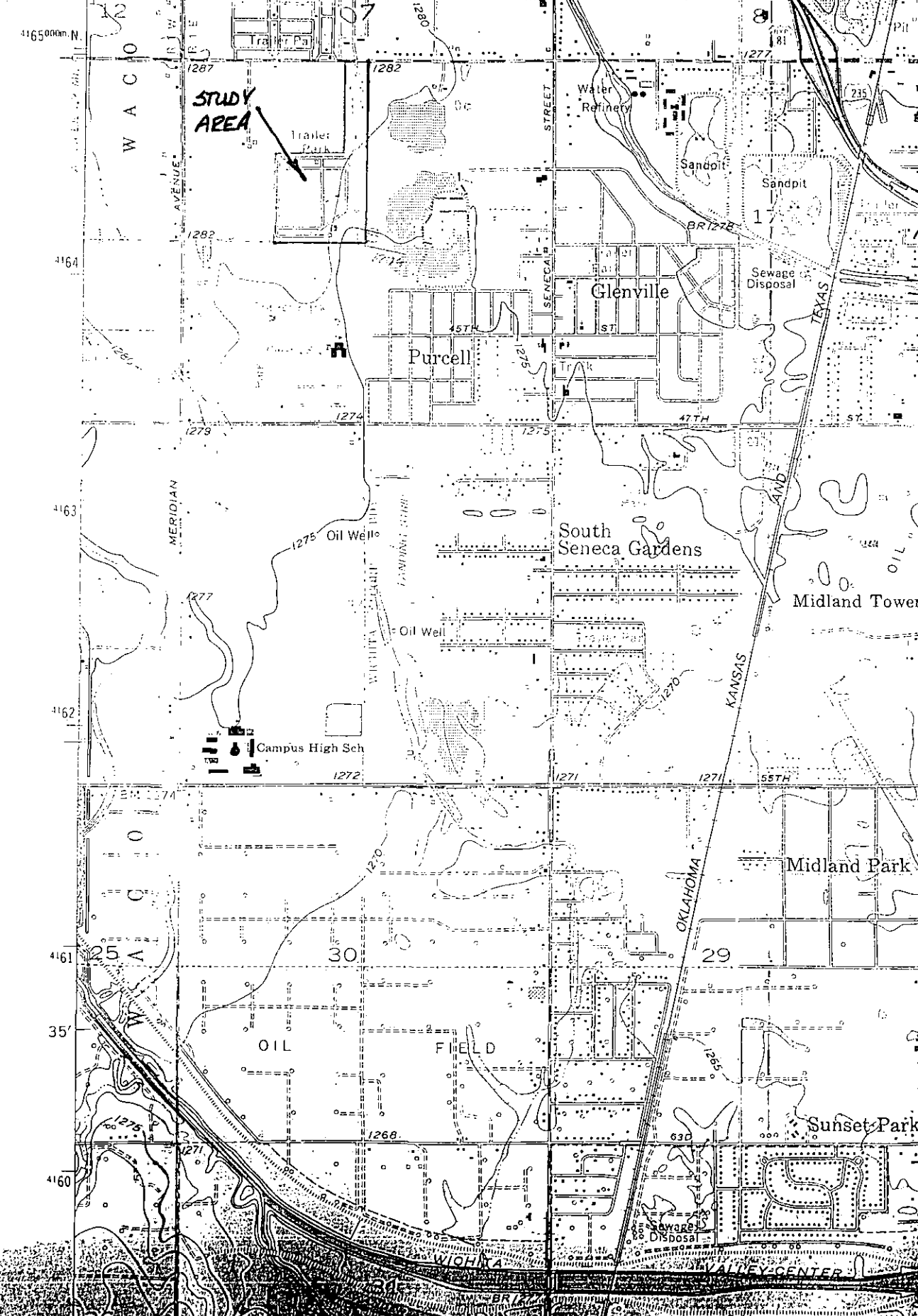
x 1.2

→ 2,347 C.Y.

6559 II (REV. 11-15-67)
WICHITA WEST

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

97°22'30" 644000m.E. 645 15 MI. TO INTERSTATE 135 6 MI. TO U.S. 54 647



(Joins sheet 42)

RAILROAD

5,000 Feet

(Joins sheet 49)

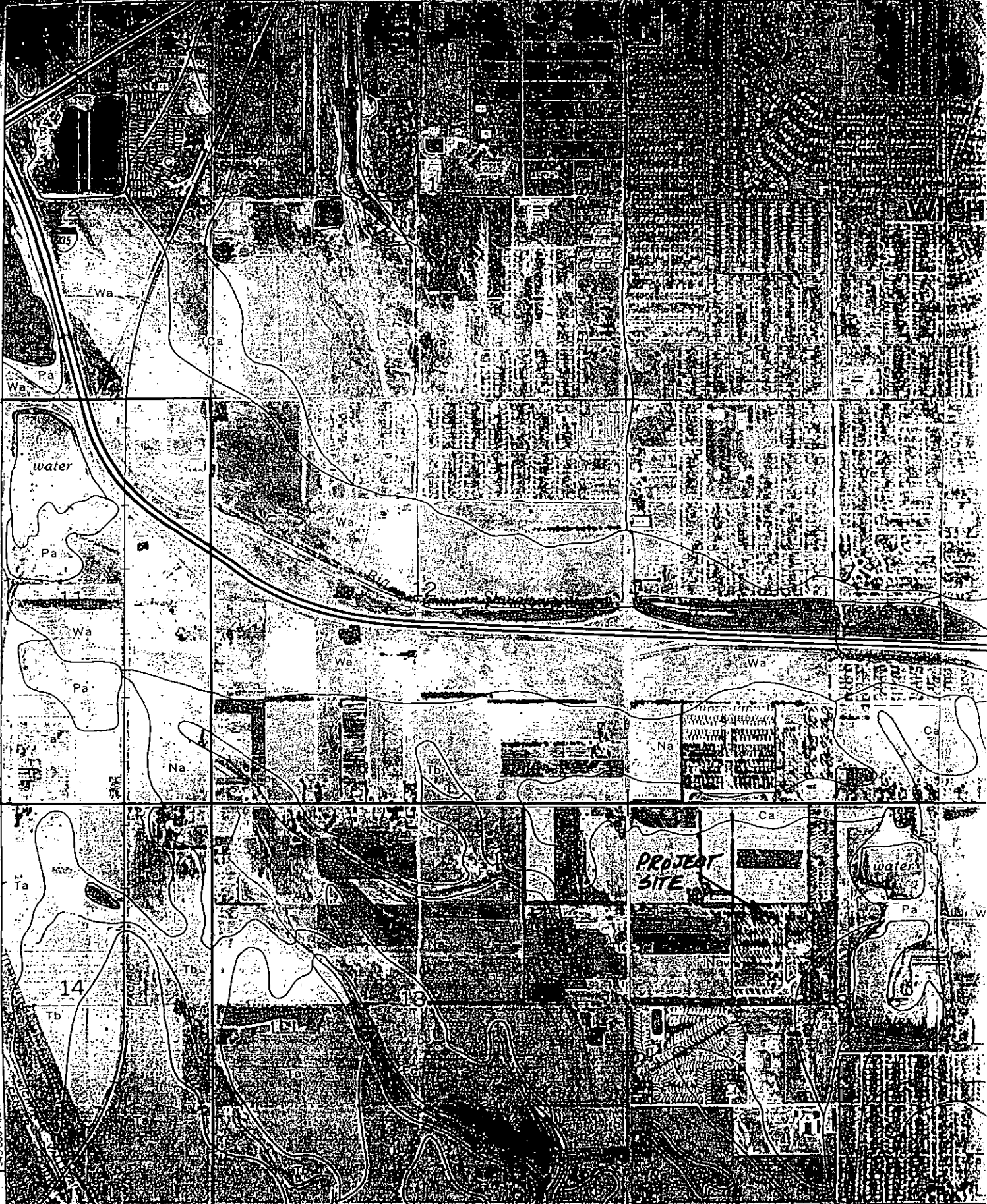
Scale 1:10,000

0
1,000
2,000
3,000
4,000
5,000

1:345,000 FEET

1:2,320,000 FEET

(Joins sheet 58)



Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project: DRAINAGE PLAN FOR STEADY STATE ANALYSIS By: XXX Date: _____

Location: NO. 12, S. 18, T. 205, R. 1E Checked: _____ Date: _____

Circle one: Present Developed
 Circle one: T_c T_t through subarea

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to T_c only)	Segment ID	
1. Surface description (table 3-1)		DENSE GRASS
2. Manning's roughness coeff., n (table 3-1) ..		0.24
3. Flow length, L (total L < 300 ft)	ft	300
4. Two-yr 24-hr rainfall, P_2	in	3.5
5. Land slope, s ^{2/1300'}	ft/ft	.0015
6. $T_c = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$ Compute T_c	hr	1.54 + = 1.54

Shallow concentrated flow	Segment ID	
7. Surface description (paved or unpaved)		PAVED UNPAVED
8. Flow length, L	ft	1000' 1200'
9. Watercourse slope, s	ft/ft	.0015 .0015
10. Average velocity, V (figure 3-1)	ft/s	0.79 0.62
11. $T_t = \frac{L}{3600 V}$ Compute T_t	hr	0.35 + 0.54 = 0.89

UNPAVED
 $\sqrt{16.1395 (.0015)^{.5}}$
 PAVED
 $\sqrt{20.3282 (.0015)^{.5}}$

Channel flow	Segment ID	
12. Cross sectional flow area, a	ft ²	
13. Wetted perimeter, p_w	ft	
14. Hydraulic radius, $r = \frac{a}{p_w}$ Compute r	ft	
15. Channel slope, s	ft/ft	
16. Manning's roughness coeff., n		
17. $v = \frac{1.49 r^{2/3} s^{1/2}}{n}$ Compute V	ft/s	
18. Flow length, L	ft	
19. $T_t = \frac{L}{3600 v}$ Compute T_t	hr	+ = 0.00
20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19)	hr	12.43

$T_c = 146$ minutes

C FACTOR

Worksheet 2: Runoff curve number and runoff

Project: Drainage Plan for Sewerage Pump By: HR Date: _____

Location: NW 1/4, S 10, T 20 S, R 1 E Checked: _____ Date: _____

Circle one: (Present) Developed

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	C FACTOR CN			Area <input checked="" type="checkbox"/> acres <input type="checkbox"/> mi ² <input type="checkbox"/> x	Product of CN x area 'C' FACTOR X AREA
		Table 2-2	FIG. 2-3	FIG. 2-4		
Co, Canadian B	OPEN SPACE GRASSED AREAS 163' x 343' = 55,909 / 42560 = 1.3	0.39			1.3	0.51
Na, Mazon B	1/4 ACRES SINGLE FARM Y	0.39 (U) 0.61 (D)			34.1	13.3 (U) 20.80 (D)
Wa, Woodcock C	OPEN SPACE GRASSED AREAS	0.53			8	4.24
Na, Nodwi B	OPEN SPACE GRASSED AREAS	0.39			7	2.73
Totals =					50.4	28.28

1/ Use only one CN source per line.

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{30.33}{50.4} = 0.60$

Use CN = DEVELOPED
0.56

UNDEVELOPED
0.41

2. Runoff

Frequency yr
 Rainfall, P (24-hour) in
 Runoff, Q in
 (Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4)

Storm #1	Storm #2	Storm #3

ATTACHMENT D

DRAINAGE CRITERIA

CITY OF WICHITA, KANSAS

RECOMMENDED RUNOFF COEFFICIENTS FOR RATIONAL METHOD
AND PERCENT IMPERVIOUS FOR UNIT HYDROGRAPH METHOD

Land Use or Surface Characteristics	Percent Impervious	Frequency			
		2	5	10	100
1. Business:					
Downtown Areas	95	0.84	0.85	0.87	0.91
Neighborhood Areas	70	0.68	0.69	0.73	0.80
2. Residential:					
<u>Single Family (Soil Group D)</u>					
1/8 Acre	50	0.57	0.61	0.66	0.79
1/4 Acre	38	0.50	0.54	0.62	0.76
1/3 Acre	30	0.46	0.50	0.59	0.73
1/2 Acre	25	0.42	0.48	0.56	0.72
3/4 Acre	22	0.42	0.46	0.55	0.71
1 Acre	20	0.41	0.45	0.54	0.71
<u>Multi-Family (Soil Group D)</u>					
Multi-Unit (detached)	60	0.62	0.66	0.72	0.82
Multi-Unit (attached)	65	0.64	0.68	0.73	0.83
Apartments	75	0.70	0.73	0.79	0.86
<u>Single Family (Soil Group C)</u>					
1/8 Acre	50	0.55	0.58	0.64	0.73
1/4 Acre	38	0.48	0.51	0.57	0.68
1/3 Acre	30	0.43	0.46	0.53	0.65
1/2 Acre	25	0.40	0.43	0.50	0.63
3/4 Acre	22	0.39	0.42	0.49	0.62
1 Acre	20	0.37	0.40	0.48	0.61
<u>Multi-Family (Soil Group C)</u>					
Multi-Unit (detached)	60	0.60	0.63	0.69	0.77
Multi-Unit (attached)	65	0.63	0.66	0.71	0.79
Apartments	75	0.68	0.72	0.77	0.83
<u>Single-Family (Soil Group B)</u>					
1/8 Acre	50	0.52	0.54	0.59	0.67
1/4 Acre	38	0.44	0.46	0.52	0.61
1/3 Acre	30	0.39	0.41	0.47	0.57
1/2 Acre	25	0.36	0.38	0.44	0.54
3/4 Acre	22	0.34	0.36	0.42	0.52
1 Acre	20	0.33	0.35	0.40	0.51
<u>Multi-Family (Soil Group B)</u>					
Multi-Unit (detached)	60	0.58	0.60	0.65	0.72
Multi-Unit (attached)	65	0.61	0.64	0.68	0.75
Apartments	75	0.67	0.70	0.74	0.80

Land Use or Surface Characteristics	Percent Impervious	Frequency			
		2	5	10	100
<u>Single Family (Soil Group A)</u>					
1/8 Acre	50	0.47	0.50	0.54	0.60
1/4 Acre	38	0.39	0.41	0.45	0.52
1/3 Acre	30	0.33	0.35	0.39	0.47
1/2 Acre	25	0.30	0.31	0.35	0.44
3/4 Acre	22	0.28	0.29	0.33	0.42
1 Acre	20	0.26	0.28	0.32	0.40
<u>Multi-Family (Soil Group A)</u>					
Multi-Unit (detached)	60	0.55	0.57	0.61	0.67
Multi-Unit (attached)	65	0.58	0.60	0.64	0.70
Apartments	75	0.65	0.68	0.72	0.77
3. Industrial:					
Light Areas	70	0.68	0.69	0.73	0.80
Heavy Areas	80	0.74	0.76	0.79	0.84
4. Playgrounds:					
	15	0.33	0.35	0.42	0.55
5. Schools:					
	40	0.49	0.51	0.56	0.66
6. Railroad Yard Areas:					
	30	0.43	0.45	0.50	0.62
7. Undeveloped Urban Areas: Offsite Flow Analysis (when land use not defined)					
	45	0.52	0.54	0.59	0.68
8. Streets:					
Paved	99	0.87	0.88	0.90	0.93
Gravel	00	0.24	0.26	0.33	0.48
9. Drive, Parking Lots and Walks:					
	96	0.87	0.87	0.88	0.89
10. Roofs:					
	90	0.80	0.85	0.90	0.93
11. Urban Lawn Areas (See Note No. 1 below):					
<u>Soil Group A</u>					
Slope less than 1%	00	0.08	0.09	0.13	0.23
Slope 1% to 4%	00	0.12	0.13	0.17	0.27
Slope more than 4%	00	0.16	0.17	0.21	0.31
<u>Soil Group B</u>					
Slope less than 1%	00	0.16	0.18	0.24	0.37
Slope 1% to 4%	00	0.20	0.22	0.28	0.41
Slope more than 4%	00	0.24	0.26	0.32	0.45
<u>Soil Group C</u>					
Slope less than 1%	00	0.24	0.27	0.35	0.51
Slope 1% to 4%	00	0.26	0.29	0.37	0.53
Slope more than 4%	00	0.28	0.31	0.39	0.55

Land Use or Surface Characteristics	Percent Impervious	Frequency			
		<u>2</u>	<u>5</u>	<u>10</u>	<u>100</u>
<u>Soil Group D</u>					
Slope less than 1%	00	0.28	0.33	0.43	0.63
Slope 1% to 4%	00	0.30	0.35	0.45	0.65
Slope more than 4%	00	0.32	0.37	0.47	0.67

Note No. 1: Coefficients shown in the above table are for pervious open space areas with thick turf which includes pervious areas in parks and cemeteries. Coefficients shown above must be increased 0.02 for use with agricultural pasture areas. Coefficients shown above must be reduced by 0.04 for use with agricultural cultivated areas. Group A soils are well-drained, coarse textured sands with high infiltration rates. Group B soils are moderately well-drained, moderately coarse textured soils with moderate infiltration rates. Group C soils are moderately poor-drained, moderately fine textured soils with slow infiltration rates. Group D soils are poor-drained, fine textured soils with very slow infiltration rates.

GENERAL NOTE: These Rational Formula Coefficients may not be valid for basins 320 acres or larger.

bl

WICHITA STORM WATER UTILITY
(WSWU)

NOTICE OF REQUEST FOR REVIEW
RETENTION CREDIT

STORM WATER MANAGEMENT

The undersigned attests that the RETENTION INFORMATION supplied here is accurate.

The legal description, service address, and account # of the property in question is:

Legal Description: Lot 1, Silver Spur 2nd Addition and vacated Clarence Avenue
Service Address: 1915 W. Macarthur Road
Account No.: 84029-00

An adjustment of the service charge applied to this property is requested based on the following:

A levee will be constructed around a portion of the property described above in order to eliminate surface runoff from this property. A retention pond will collect surface runoff from this property and no surface drainage will be conveyed into a public drainage system.

The above information is supported by the enclosed site specific information:

	Yes	No
a) Approved Drainage Plan for the Property	<u>X</u>	<u> </u>
b) Inflow Hydrograph for a 100 Year Storm Supported by Hydrologic Analysis for the Property	<u>X</u>	<u> </u>
c) Facility Design With Outlet Configuration	<u> </u>	<u>X</u>
d) Depth/Storage Relationship at 0.5' Intervals	<u>X</u>	<u> </u>
e) Depth/Outflow Relationship at 0.5' Intervals	<u> </u>	<u>X</u>
f) Amount of Impervious Area Designed to be Serviced by the Facility	<u>X</u>	<u> </u>
g) Current Drainage Charge	<u>X</u>	<u> </u>
h) Retention Basin Easement Plat (If Applicable)	<u> </u>	<u>N.A.</u>

The retention facility must be certified by a licensed professional engineer to have sufficient storage capacity for the 100-year storm with no outlet to a public drainage system. The appropriate supporting information must be provided with this application.

ATTEST:

The applicant certifies that the information contained in this request for review is, to the best of his/her knowledge, a complete and accurate statement of the property's condition.

The applicant hereby declares the maintenance of this drainage detention facility shall be performed by the property owner to standards acceptable to the WSWU for continued effective functioning of the facility.

If any construction is performed on this property which would increase the amount of impervious area for this parcel, the applicant agrees to notify the Wichita Storm Water Utility Office with the revised amount of impervious area (Sq. Ft.).


Applicant's Signature

4-20-94
Date


Preparer's Signature

4-20-94
Date

Name: Mr. Roger Mendenhall, South Seneca Construction Co. Inc.

Mailing Address: 3825 South Seneca

City: Wichita, KS 67217

Phone: (316) 524-7961

STORM WATER UTILITY INCENTIVES FOR STORMWATER MANAGEMENT

The City of Wichita encourages the use of storm water management practices which enhance the effectiveness of our drainage facilities and the quality of our storm water discharges. Well-designed and maintained private storm water facilities and management practices can result in:

- * Decreased Sizing requirements for the system downstream
- * Decreased Maintenance costs to the system downstream
- * Removal of pollutants in storm water runoff
- * Capture of water as a resource
- * Recharging of groundwater supplies

For this reason, the City is introducing an incentive program to reward private development of facilities that help accomplish these objectives.

The Incentive Program:

The City's program utilizes the Storm Water Utility as the means to encourage private management of storm water. The Utility charges a monthly fee to all developed properties in the City, with the amount charged being directly proportional to the amount of runoff generated by the property. The City's program allows for the fees to be reduced for properties with detention facilities or other improvements exceeding the City's requirements, to reflect the benefits or savings to the public.

A reduced utility rate is available for large generators (APPROXIMATELY 50 ERU's or more) meeting the program requirements. Reductions of up to 40% can be gained for the most effective storm water management facilities which discharge into the City's public drainage system. Approved totally-contained retention systems with no outfall or runoff from the site can be eligible for credits of 80%.

Eligibility/Requirements:

(1) The Incentive Program applies only to parcels which are charged with 50 ERU's. (Equivalent Residential Units) or more. This allows a program to be administered to address the major storm runoff generators in the city, including large industrial or commercial sites which have significant runoff from material yards, rooftops, or parking lots. The program recognizes that large, heavily-developed parcels have the highest storm water utility fees. They also have the largest impact on the quantity and quality of storm water runoff affecting the system downstream. Administration of a program for large units is most cost effective, and most environmentally feasible.

(2) Incentives will be allowed only for privately constructed and maintained improvements or practices that exceed the normal development requirements for storm water management, and result in savings to the City. Storm water containment which is implemented as a requirement of development to meet City standards is not eligible for credits. The improvements or practices must exceed the City's normal requirements, and be able to demonstrate a savings to the City in order to be eligible. Detention and retention reservoirs that

retain volumes exceeding the required amounts, or that receive and successfully retain water from other properties beyond the noted requirements are examples of eligible properties.

All facilities approved for credits must be properly maintained by the owner, and will be inspected by the City on a regular basis to maintain credit eligibility.

(3) Incentives or credits for detention are available for up to 40% of the total Storm Water fee for the property involved. Credits ranging up to 40% will be allowed based on the effect of the facility or management practice on the overall system downstream.

(4) Approved totally contained retention systems with no outfall or runoff from the site can be eligible for credits of 80%. These credits will apply to properties which are able to contain all drainage on site in an approved retention facility, with no discharge from the property at any time (including a 100-year storm event).

(5) Applicant must provide the necessary engineering verification of the effectiveness of the facility. An engineering evaluation certified by a Licensed Professional Engineer will be required to verify the effectiveness of facilities requested for credits. Applicable information such as construction cost data may also be required to determine the savings to the City.

Procedure:

All owners or occupants of property wishing to be considered for the incentive program may obtain an application from the Storm Water Management Division, 8th Floor, City Hall. Upon return of the completed application and all required supporting information, the Storm Water Engineer will review and make a determination of the eligibility of the property for a credit. Site inspection and verification of data may be required. The Storm Water Engineer will advise the applicant of his/her determination as promptly as possible. If a credit is allowed, the credit will be applied from the date of the application, provided there were no errors or omissions causing substantial delay.

Any credit or incentive will be immediately disqualified if an inspection of the site reveals the facility no longer is effectively performing, due to maintenance, or other changed condition.

All questions should be directed to The Storm Water Management Division at 268-4498.

79-1

TOPOGRAPHIC MAP OF LANDS LOCATED AT
SILVER SPUR MOBILE HOME PARK
WICHITA, KANSAS

CERTIFIED ENGINEERING DESIGN
1330 EAST 1ST ST., WICHITA, KS 67214

0 100 200 300

TARGET SCALE: 1:1,200 (100'-1") CONTOUR INTERVAL: 2 FT

Photogrammetry by
JAMES EAR THORNTON SURVEY
200 ZEEBULE ROAD
WICHITA, KANSAS 67202
(913)529-3100 FAX (913)529-3253

Aerial photography
TYPE: HELICOPTER AIR SURVEY
ALTITUDE: 2,500 FT. A.M.S.L.
DATE FLIGHT: 22 JANUARY 1994
FREQ: 24" 231" P=327

This map has been compiled using
aerial photography within the specifications
for the scale and contour interval
given above. Any scale, location or
value change brought about by any
factor of aerial interpretation will
render all guarantees, other than
as indicated, both null and void.

LEGAL DESCRIPTION:

LOT 1, SILVER SPUR 2ND ADDITION
AND VACATED CLARENCE AVENUE



79-1

DRAINAGE PLAN	
CERTIFIED ENGINEERING DESIGN	
CED	1330 E. 1ST, # 113
	WICHITA, KANSAS 67203
	(913) 522-3899
SHEET 1	TOTAL 1