



Public Works, Engineering Division Final Drainage Plan Submittal Checklist

Reviewer: _____	Date: <u>10-23-09</u>
Subdivision Name: <u>Lot 9, Rock Island Industrial Park</u>	Location: _____
Total Land Area Of Ownership: <u>5.85</u> Acres	
Type: _____ Residential _____ Commercial _____ Industrial _____ Recreation _____ Municipal _____ Other	
Applicant: _____	Contact: _____ Phone #: _____
Engineer: _____	Contact: _____ Phone #: _____

Please check the appropriate box:

I = Included; NA = Non-Applicable; R= Required prior to development
(If "NA" is checked, an explanation must be entered)

Tab 1. Project Narrative	Applicant			Engr	
	I	NA	Explanation / Location in Plan	I	NA
A. Site Location Map, using USGS Map			DRAINAGE REPORT	X	
B. Discussion of development, existing conditions, and proposed impacts on stormwater, wetland, riparian, and flood plain			DRAINAGE REPORT	X	
C. Discussion of offsite conditions			DRAINAGE REPORT	X	
D. Summary of runoff calculations (pre/post development) No increase in peak discharge for all storm series			DRAINAGE REPORT	X	
E. Narrative description of the type and function of the permanent best management practices that are incorporated into the site design			DRAINAGE REPORT	X	
F. Copy of the plat			DRAINAGE REPORT	X	
G. Preliminary grading plan (The final grading plan shall be sealed, signed and dated prior to Engineering receiving the final sanitary sewer plans. One plan sheet and PDF shall be submitted to the Subdivision Engineer.)			N/A		X
H. Professional Engineer seal, signature and date on cover of report			DRAINAGE REPORT	X	
I. CD of drainage plan in PDF format (one file) and one paper copy bound with this checklist included behind the cover					

Tab 2. Existing Conditions Runoff Calculations	Applicant			Engr	
	I	NA	Explanation / Location in Plan	I	NA
A. Copy of applicable orthophoto showing proposed project boundaries (preferable in color)			DRAINAGE REPORT	X	
B. Runoff Method (Rational, Hydrograph Method, or other approved methods by Engineering)			DRAINAGE REPORT	X	
C. Existing topography (no greater than 2-foot contours, 1-foot recommend)			DRAINAGE MAP	X	
D. Total Site Area and Total Impervious Area (acres)			DRAINAGE MAP	X	
E. Benchmarks used for site control			DRAINAGE MAP	X	
F. Streams, creeks, and waterway labeled			DRAINAGE MAP	X	
G. Predominant soils from USDA soil surveys, and/or on site soil borings			DRAINAGE MAP & REPORT	X	
H. Location and boundaries of natural features such as wetlands, lakes, and ponds with the normal water elevation noted			N/A	X	X
I. Location of existing roads, buildings, parking lots and other impervious areas.			DRAINAGE MAP	X	



J. Location of existing utilities (e.g., water, sewer, gas, electric) and easements			DRAINAGE MAP	X	
K. Location of existing conveyance systems such as storm drains, inlets, catch basins, channels, swales, and areas of overland flow			DRAINAGE MAP	X	
L. Flow paths			DRAINAGE MAP	X	
M. Location and dimensions of existing channels, bridges or culvert crossings			DRAINAGE MAP	X	
N. Existing conditions hydrologic analysis for runoff rates, volumes and velocities showing methodologies used and supporting calculations (2, 5, 10, 25 & 100 year, 24-hour storm events) or Critical Duration			DRAINAGE REPORT	X	
O. Assumed pre-developed runoff curve numbers			DRAINAGE REPORT	X	
P. Existing time of concentrations used in calculations			DRAINAGE REPORT	X	
Q. Evaluate immediate downstream drainage capacity, not to exceed more than 0.25 miles downstream of site			POST DEVELOPMENT RUNOFF DEMONSTRATED TO BE LESS THAN PRE	X	
R. Existing structural elevations (e.g., invert of pipes, manholes, etc.)			DRAINAGE MAP	X	
S. Cross-section data for open channels			N/A		X
T. Ground water elevations, if applicable			N/A		X

Tab 3. Post-Development Hydrologic Analysis	Applicant		Explanation / Location in Plan	Engr	
	I	NA		I	NA
A. Proposed (post-development) conditions hydrologic and hydraulic analysis for runoff rates, volumes, HGL, and velocities showing the methodologies used and supporting calculations for all applicable design storms (2, 5, 10, 25 & 100 year, 24-hour storm events)			DRAINAGE REPORT	X	
B. Proposed time of concentrations used in calculations			DRAINAGE REPORT	X	
C. Assumed post-developed runoff curve numbers			DRAINAGE REPORT	X	
D. Proposed contours for detention facilities (to equal area used in outlet rating curves)			DRAINAGE MAP	X	
E. Preliminary sizing calculations for stormwater controls including contributing drainage area, storage, and outlet configuration			DRAINAGE MAP	X	
F. Stage-storage-discharge or outlet rating curves and inflow and outflow hydrographs for storage facilities			DRAINAGE REPORT	X	
G. Final analysis of potential upstream/downstream impact/effects of project, where necessary			N/A	X	X
H. Existing and proposed structural elevations (e.g., invert of pipes, manholes, etc.)			DRAINAGE MAP & REPORT	X	
I. Design water surface elevations and normal pool elevation for ponds.			N/A DAY BOTTOM POND	X	X
J. Typical detail for outlet structures, embankments, spillways, grade control structures, conveyance channels, etc. To include height, width, elevation, and/or diameter.			N/A OUTLET IS SIMPLE RCP	X	X
K. Proposed limits of clearing and grading			DRAINAGE MAP	X	
L. Location of existing and proposed roads, buildings, parking lots and other impervious areas.			DRAINAGE MAP	X	
M. Location of existing and proposed utilities (e.g., water, sewer) and easements			DRAINAGE MAP	X	
N. Location of existing and proposed conveyance systems such as storm drains, inlets, catch basins, channels, swales, and areas of overland flow			DRAINAGE MAP	X	
O. Preliminary location and dimensions of proposed channel modifications, such as bridge or culvert crossings			N/A	X	X



P. Preliminary selection and location of stormwater controls			DRAINAGE MAP	X	
Q. Emergency overflow structure's flow path			DRAINAGE MAP	X	
R. Detention facility provides one-foot of freeboard above the HWL and emergency outfall shown (top of berm elevation shown)			DRAINAGE MAP	X	
S. The 100-year 24-hour HWL delineated on the plan for detention pond			DRAINAGE MAP	X	
T. Lowest opening elevations table on the plat for structures located adjacent to channels or ponds			DRAINAGE MAP	X	
U. Stormwater Management Facilities located within a Reserve			LOT 9, IS NOT BEING REPLATED		X
V. Maintenance responsibility of stormwater management facility shall be specified in the platters text. (e.g. HOA, Lot Owners Association, or lot)			NO PLATTERS TEXT		X
W. Off-site drainage easements or agreements required, where necessary			N/A		X

Tab 4. Floodplain Submittal	Applicant		Explanation / Location in Plan	Engr	
	I	NA		I	NA
A. Provide source of flood profile			FEMA FIRM IN DRAINAGE REPORT DRAINAGE MAP	X	
B. Nearest base flood elevations			DRAINAGE MAP	X	
C. Delineation of pre-developed regulatory floodplain/floodway limits			DRAINAGE MAP	X	
D. Delineation of post-developed regulatory floodplain and floodway limits			NO CHANGE	X	
E. Floodplain boundary determination per elevation (project limits shown)			N/A		X
F. Provide source of floodway data table and discharges			N/A		X
G. Provide all hydrologic and hydraulic study information for site-specific floodplain studies, unnumbered Zone A area elevation determinations and flood plain map revisions or required permits			N/A		X
H. Provide regulatory floodway and four natural profile models (10,50,100, and 500-yr) for existing and future watershed conditions			N/A		X
I. Location of floodplain/floodway limits and relationship of site to upstream/downstream properties (floodplain limits to be per elevation and scaled location)			DRAINAGE MAP	X	
J. Flood plains and floodways located within a Reserve, where necessary			ALMOST ENTIRE SITE IS LOCATED IN FLOODPLAIN, ONLY BUILDING PAD IS REMOVED	X	

Tab 5. Federal, State and Local Permits (to be provided prior to construction unless otherwise specified)	Applicant		Explanation / Location in Plan	Engr	
	I/R	NA		I/R	NA
A. US Army Corps of Engineers - Regulatory program permits (404 water quality certification)			N/A		X
B. Kansas Department of Agriculture - Division of Water Resources Permits (Stream Obstruction, Channel Change, Flood Plain Fill, Levee, Water Appropriations, Dam safety permit, etc.)			COPT of APPLICATION PROVIDED IN DRAINAGE REPORT	X	
C. Federal Emergency Management Agency (FEMA) Letter of Map Changes (LOMA, LOMR, LOMR-f, CLOMR, etc.) Shall be included and approved when project modifies the limits of the floodway.			LOMR-F TO BE PROVIDED BY OTHERS (BENCHMARK) (SURVEYING)		
D. Kansas Department of Transportation					X
E. Sedgwick County Right-of-way Permit					X

DRAINAGE REPORT
Lot 9, Rock Island Industrial Park
WICHITA, SEDGWICK COUNTY,
KANSAS

November 11, 2009



**Lot 9, Rock Island Industrial Park
DRAINAGE ANALYSIS
November 12, 2009**

INTRODUCTION

This report contains supporting documentation and calculations for development on Lot 9, Rock Island Industrial Park. The site is located on Palisade Avenue in the NE ¼ of Section 17-28S-1E. The 5.85 acre site currently exists in an undeveloped condition. The soil type of the site is designated as Waldeck sandy loam. The site is located on FEMA FIRM 20173C0505E in both shaded Zone X and Zone AE. No offsite area drains onto the site. The site generally drains to the southeast to a grouping of inlets located in the Palisade Avenue cul-de-sac. The inlets drain north in a 24" RCP which outlets into the Big Slough South. The 24" storm sewer line is located in a 20' easement along the east property line of Lot 9. Portions of the adjacent lot, Lot 10, also drain into the storm sewer line by way of inlets and manholes located periodically along the sewer.

HYDROLOGY

The lot will be developed with a commercial building and a parking lot. The existing and proposed conditions are modeled using HEC-HMS. The model parameters and results for the pre and proposed conditions are shown in the tables below.

Existing	Area (ac.)	CN	TC (min.)	Q2 (cfs)	Q5 (cfs)	Q10 (cfs)	Q25 (cfs)	Q100 (cfs)
A	5.1	72	23	5.7	9.7	12.3	16.7	24.6
B	0.5	72	5	0.4	0.6	0.8	1.1	1.7
Site	--	--	--	6.1	10.3	13.1	17.8	26.3

Proposed	Area (ac.)	CN	(min.)	Q2 (cfs)	Q5 (cfs)	Q10 (cfs)	Q25 (cfs)	Q100 (cfs)
A	4.1	75.3	5	6.8	10.3	12.5	16.3	22.9
B	0.5	75.3	23	0.4	0.6	0.8	1.1	1.7
C	0.9	88	15	1.1	1.8	2.3	3.1	4.4
Site	--	--	--	1.5	2.5	3.2	5.5	9.0

In the proposed condition Area A will drain the proposed building and the northern portion of the lot to a proposed detention pond. Area B shall remain as it is in the existing condition. The runoff from Area C will drain to Palisade Avenue and be collected into the existing group of inlets.

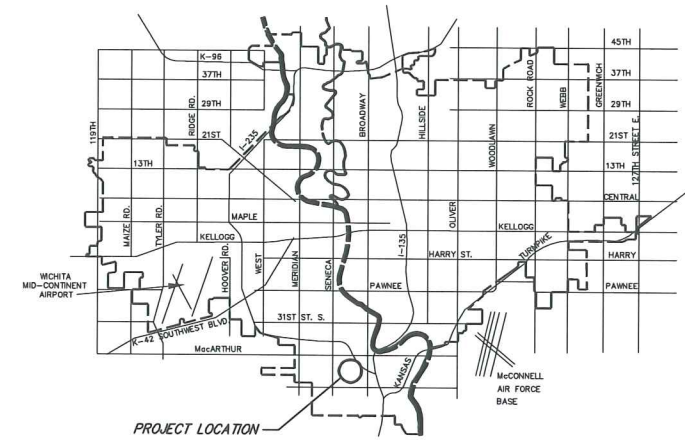
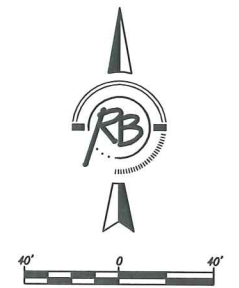
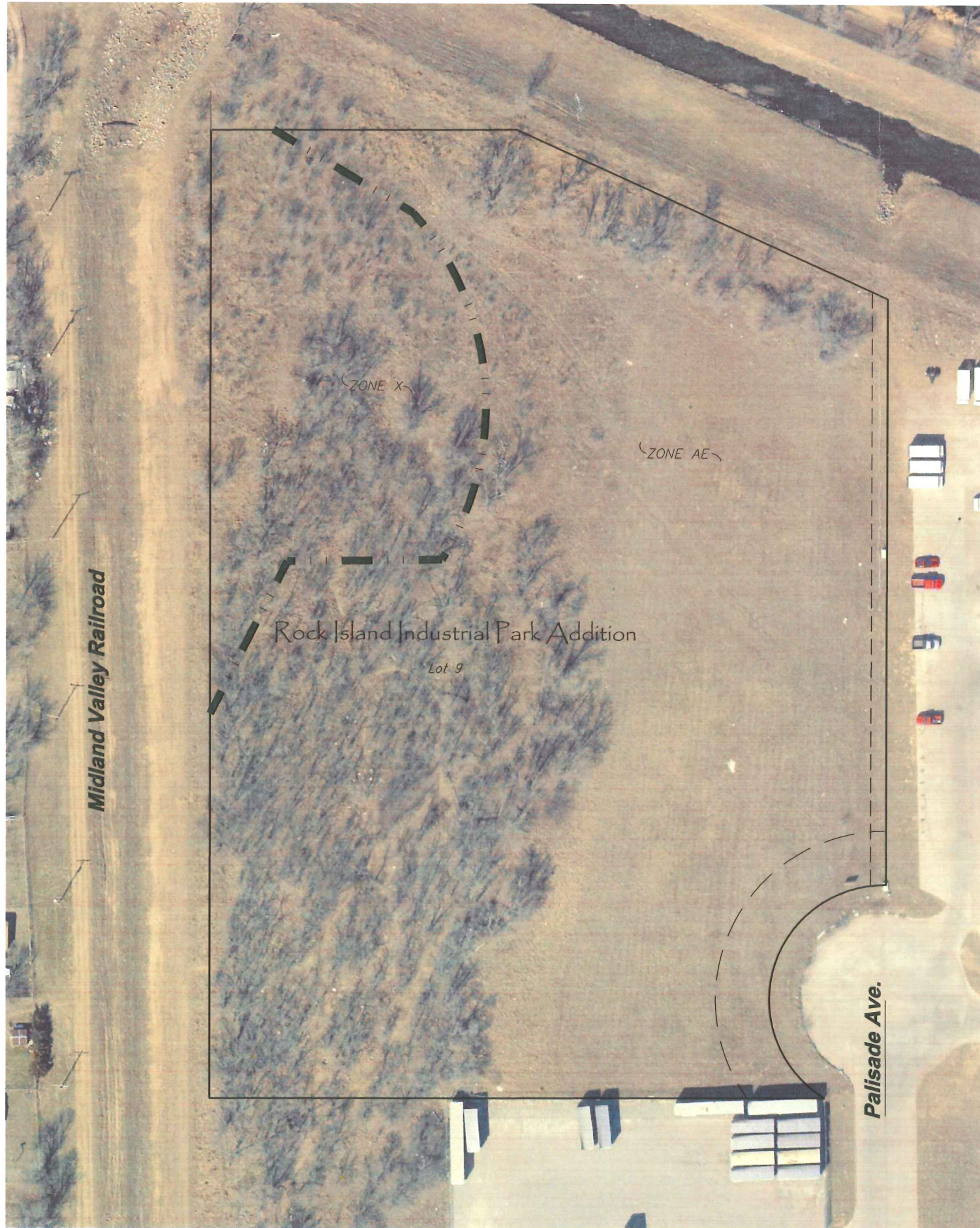
The detention pond located on site shall be a dry bottom pond with a flowline out of 1268.00 while the outlet flow will be controlled by a 15" RCP. The performance of the detention pond is the various design storms is shown in the following table;

Design Storm	Max Flow In	Max Flow Out	Max W.S.	Max Storage
2-yr	6.8 cfs	0.3 cfs	1270.8	0.4 ac.-ft.
5-yr	10.3 cfs	1.1 cfs	1271.1	0.5 ac.-ft.
10-yr	12.5 cfs	1.9 cfs	1271.3	0.5 ac.-ft.
25-yr	16.3 cfs	3.3 cfs	1271.7	0.7 ac.-ft.
100-yr	22.9 cfs	5.5 cfs	1272.3	0.9 ac.-ft.

As noted above, the lot is located within Zone AE and the base flood elevation on the lot is 1277. Fill will be placed to bring the building pad out of the floodplain, and the minimum pad elevation for the lot must be 1278. An application to DWR has been submitted for the floodplain fill while a LOMA-F will be submitted after the fills are completed.

FEMA FIRM

DRAINAGE MAP



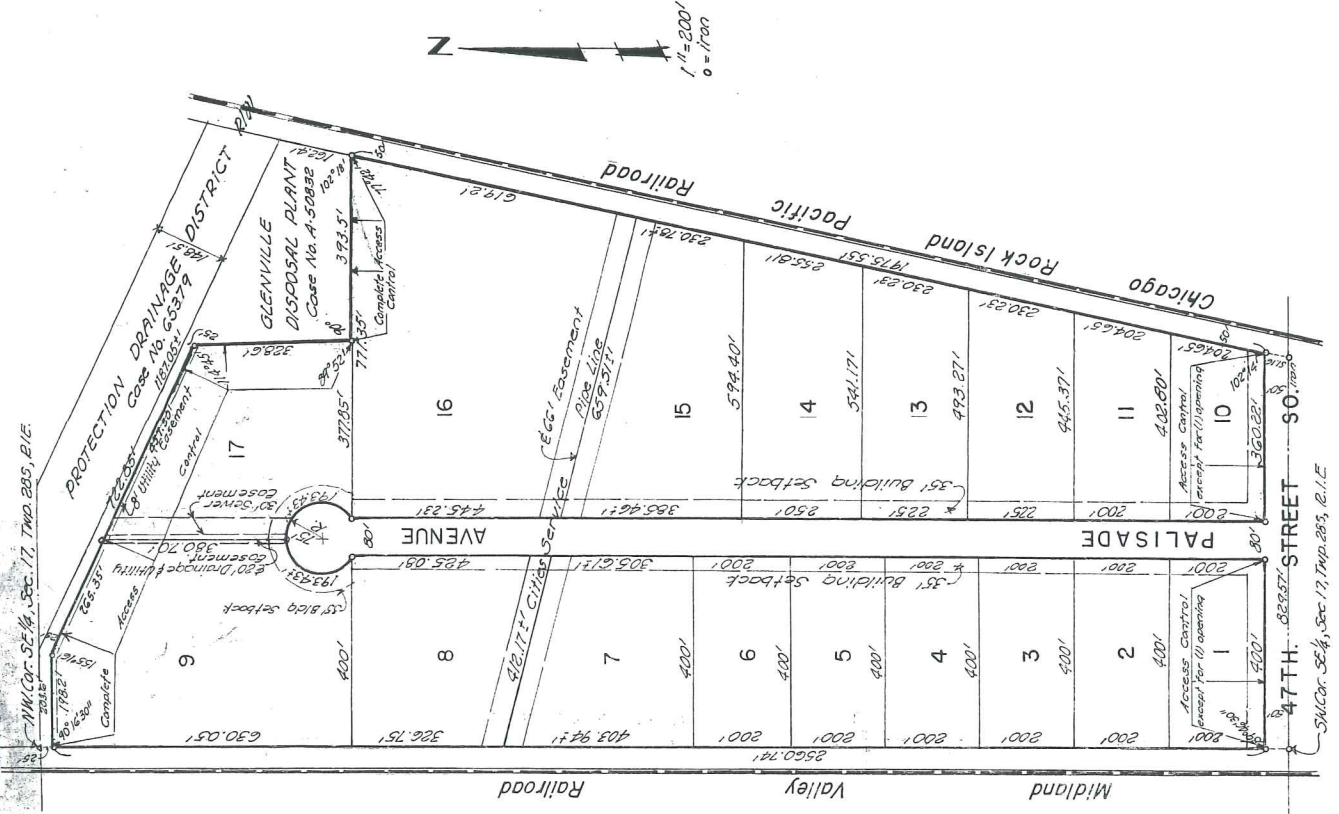
AERIAL
Lot 9 - Rock Island Industrial Park Addition
WICHITA, KANSAS

Ruggles & Bohm, P.A.
 Engineering, Surveying, Land Planning
 924 North Main (316) 264-8008
 Wichita, Kansas 67203 (316) 264-4621 fax
 www.rbkansas.com E-mail: info@rbkansas.com

DRAWING FILE: Drainage Plan [Plan 1] PROJECT NUMBER: .

DESIGN	AML	SHEET 1 OF 1
DRAWN	AML	
REVIEW		
UTILITY		
DATE	Oct. 21, 2009	

**ROCK ISLAND INDUSTRIAL PARK
ADDITION
WICHITA, SEDGWICK COUNTY, KANSAS**



State of Kansas } ss
 County of Sedgwick } ss
 I, Gerald Young, Civil Engineer in said State and County, do hereby certify that I have surveyed and platted "ROCK ISLAND INDUSTRIAL PARK ADDITION" in Wichita, Sedgwick County, Kansas, and that the accompanying plat is a true and correct exhibit of said survey, described as follows: Beginning at the S.W. Cor. of the SE 1/4, Sec. 17, T28S, R1E, of the 6th Principal Meridian, thence North a dist of 260.74 feet more or less to a pt. 250' So. of the NW cor. of said SE 1/4; thence with a deflection to the right of 89-43'30" a dist of 178.2'; thence with a deflection to the right of 244' a dist of 722.85 feet, thence with a deflection to the right of 69'15" a dist of 328.6 feet, thence with a deflection to the left of 97'0" a dist of 393.5 feet to a pt. on the West line of the C.E.I. & Pacific Railroad right-of-way; thence in a Southwesterly direction along said West Eight of way line a dist of 2026.7 ft more or less to a pt. on the South line of said SE 1/4; thence West 829.57 feet to the pt. of beginning.

Gerald Young
 Gerald Young Civil Engineer

I know all men by these presents that we, Sherwood Construction Co. Inc. a corporation by Jay L. Sherwood, President and Howard Sherwood, Secretary, and Eugene M. Kessinger and Dolata M. Kessinger, his wife, and Abbot J. Cook and Wilma M. Cook, his wife, and Leslie Henry and Betty Ann Henry, his wife, have caused the land described in the Civil Engineer's certificate to be platted into lots, Street and Avenue to be known as "ROCK ISLAND INDUSTRIAL PARK ADDITION" to Wichita, Kansas. Easements are hereby granted as indicated for the construction and maintenance of all public utilities. The street and avenue are hereby dedicated to and for the use of the public. All abutters rights of access over and across the north line of lots 9 & 17, east line Lot 17, and the north line Lot 16, also all abutters rights of access to and from 47th Street South, over and across lots 1 & 10, except for (1) opening per lot which may be established by the City of Wichita, is hereby granted to the City of Wichita.

Eugene M. Kessinger
 Eugene M. Kessinger
Abbot J. Cook
 Abbot J. Cook
Leslie Henry
 Leslie Henry
Betty Ann Henry
 Betty Ann Henry
Dolata M. Kessinger
 Dolata M. Kessinger
Wilma M. Cook
 Wilma M. Cook
Jay L. Sherwood
 Jay L. Sherwood
Howard Sherwood
 Howard Sherwood

State of Kansas } ss
 Sedgwick County } ss

Be it remembered that on this 23rd day of December, 1967, before me a Notary Public in aforesaid county and state came Jay L. Sherwood, President, and Howard Sherwood, Secretary of Sherwood Construction Co. Inc. and Eugene M. Kessinger and Dolata M. Kessinger, his wife, and Abbot J. Cook and Wilma M. Cook, his wife, and Leslie Henry and Betty Ann Henry, his wife, to me known to be the same persons who executed the foregoing instrument of writing and duly acknowledged the execution of the same. In testimony whereof I have hereunto set my hand and affixed my notarial seal the day and year above written.

Approved by the Board of City Commissioners this 9th day of January, 1968
Clarence E. Walker Mayor
Robert C. Eberly City Clerk

Approved by the Board of County Commissioners this 24th day of January, 1968.
Elmer S. Peters Chairman
Earl E. Rush Commissioner
Marie Warden County Clerk

this 7th day of February, 1968.
Marie Warden County Clerk

My Commission expires: October 31, 1972
Virginia J. Sell Notary Public

State of Kansas } ss
 Sedgwick County } ss
 This is to certify that this plat was filed for record in the office of the Register of Deeds this 1st day of March, 1968, at 1:13 o'clock P.M., and is duly recorded.
Richard E. Manning Register of Deeds
Robert E. Ospring Deputy
Barry Gilbert Deputy

This plat of "ROCK ISLAND INDUSTRIAL PARK ADDITION" to Wichita, Kansas, has been approved by the Wichita Sedgwick County Metropolitan Area Planning Commission, Wichita, Kansas, and is hereby transmitted to the Board of Commissioners of the City of Wichita, Kansas, with the recommendation that such plat be approved as proposed.
 Dated this 9th day of November, 1967.
Frederick K. Hill Chairman
Theodore E. Kelly Secretary
C. Brock Foster



This digital plat record accurately reproduces in all details the original plat filed with the Sedgwick County Register of Deeds. Digitized under the supervision of Register of Deeds Bill Meek by Sedgwick County Geographic Information Systems.

Bill Meek, Register of Deeds
 Registered retention of original signature

HEC-HMS OUTPUT

Project: 3538D Simulation Run: 002 EXIST

Start of Run: 01Jan2009, 12:00 Basin Model: EXISTING
End of Run: 02Jan2009, 12:15 Meteorologic Model: 002-YR
Compute Time: 22Oct2009, 15:43:29 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
A	0.0078125	5.7	02Jan2009, 00:0
B	.00078125	0.4	02Jan2009, 00:1
SITE	0.0085938	6.1	02Jan2009, 00:0

Project: 3538D Simulation Run: 005 EXIST

Start of Run: 01Jan2009, 12:00 Basin Model: EXISTING
End of Run: 02Jan2009, 12:15 Meteorologic Model: 005-YR
Compute Time: 22Oct2009, 15:43:33 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
A	0.0078125	9.7	02Jan2009, 00:0
B	.00078125	0.6	02Jan2009, 00:0
SITE	0.0085938	10.3	02Jan2009, 00:0

Project: 3538D Simulation Run: 010 EXIST

Start of Run: 01Jan2009, 12:00 Basin Model: EXISTING
End of Run: 02Jan2009, 12:15 Meteorologic Model: 010-YR
Compute Time: 22Oct2009, 15:43:37 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
A	0.0078125	12.3	02Jan2009, 00:0
B	.00078125	0.8	02Jan2009, 00:0
SITE	0.0085938	13.1	02Jan2009, 00:0

Project: 3538D Simulation Run: 025 EXIST

Start of Run: 01Jan2009, 12:00 Basin Model: EXISTING
End of Run: 02Jan2009, 12:15 Meteorologic Model: 025-YR
Compute Time: 22Oct2009, 15:43:40 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
A	0.0078125	16.7	02Jan2009, 00:0
B	.00078125	1.1	02Jan2009, 00:0
SITE	0.0085938	17.8	02Jan2009, 00:0

Project: 3538D Simulation Run: 100 EXIST

Start of Run: 01Jan2009, 12:00 Basin Model: EXISTING
End of Run: 02Jan2009, 12:15 Meteorologic Model: 100-YR
Compute Time: 27Oct2009, 07:39:10 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
A	0.0078125	24.6	02Jan2009, 00:0
B	.00078125	1.7	02Jan2009, 00:0
SITE	0.0085938	26.3	02Jan2009, 00:0

Project: 3538D Simulation Run: PROP 002

Start of Run: 01Jan2009, 12:00 Basin Model: PROPOSED
End of Run: 02Jan2009, 12:15 Meteorologic Model: 002-YR
Compute Time: 11Nov2009, 09:23:51 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
A	0.0064000	6.8	02Jan2009, 00:0
B	.00078125	0.4	02Jan2009, 00:1
SITE	0.0085912	1.5	02Jan2009, 00:0
Reservoir-1	0.0064000	0.3	02Jan2009, 03:1
C	0.0014100	1.1	02Jan2009, 00:0

Project: 3538D Simulation Run: PROP 005

Start of Run: 01Jan2009, 12:00 Basin Model: PROPOSED
End of Run: 02Jan2009, 12:15 Meteorologic Model: 005-YR
Compute Time: 11Nov2009, 09:23:58 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
A	0.0064000	10.3	02Jan2009, 00:0
B	.00078125	0.6	02Jan2009, 00:0
SITE	0.0085912	2.5	02Jan2009, 00:0
Reservoir-1	0.0064000	1.1	02Jan2009, 01:0
C	0.0014100	1.8	02Jan2009, 00:0

Project: 3538D Simulation Run: PROP 010

Start of Run: 01Jan2009, 12:00 Basin Model: PROPOSED
End of Run: 02Jan2009, 12:15 Meteorologic Model: 010-YR
Compute Time: 11Nov2009, 09:24:05 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
A	0.0064000	12.5	02Jan2009, 00:0
B	.00078125	0.8	02Jan2009, 00:0
SITE	0.0085912	3.2	02Jan2009, 00:1
Reservoir-1	0.0064000	1.9	02Jan2009, 00:4
C	0.0014100	2.3	02Jan2009, 00:0

Project: 3538D Simulation Run: PROP 025

Start of Run: 01Jan2009, 12:00 Basin Model: PROPOSED
End of Run: 02Jan2009, 12:15 Meteorologic Model: 025-YR
Compute Time: 11Nov2009, 09:24:12 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
A	0.0064000	16.3	02Jan2009, 00:0
B	.00078125	1.1	02Jan2009, 00:0
SITE	0.0085912	5.5	02Jan2009, 00:1
Reservoir-1	0.0064000	3.3	02Jan2009, 00:3
C	0.0014100	3.1	02Jan2009, 00:0

Project: 3538D Simulation Run: PROP 100

Start of Run: 01Jan2009, 12:00 Basin Model: PROPOSED
End of Run: 02Jan2009, 12:15 Meteorologic Model: 100-YR
Compute Time: 11Nov2009, 09:17:41 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI ²)	Peak Discharge (CFS)	Time of Peak
A	0.0064000	22.9	02Jan2009, 00:0
B	.00078125	1.7	02Jan2009, 00:0
SITE	0.0085912	9.0	02Jan2009, 00:1
Reservoir-1	0.0064000	5.5	02Jan2009, 00:3
C	0.0014100	4.4	02Jan2009, 00:0

Project: 3538D
 Simulation Run: PROP 002 Reservoir: Reservoir-1
 Start of Run: 01Jan2009, 12:00 Basin Model: PROPOSED
 End of Run: 02Jan2009, 12:15 Meteorologic Model: 002-YR
 Compute Time: 11Nov2009, 09:23:51 Control Specifications: Control 1

Volume Units: IN

Computed Results

Peak Inflow :	6.8 (CFS)	Date/Time of Peak Inflow :	02Jan2009, 00:00
Peak Outflow :	0.3 (CFS)	Date/Time of Peak Outflow :	02Jan2009, 03:15
Total Inflow :	1.63 (IN)	Peak Storage :	0.4 (AC-FT)
Total Outflow :	0.58 (IN)	Peak Elevation :	1270.8 (FT)

Project: 3538D

Simulation Run: PROP 005 Reservoir: Reservoir-1

Start of Run: 01Jan2009, 12:00 Basin Model: PROPOSED
End of Run: 02Jan2009, 12:15 Meteorologic Model: 005-YR
Compute Time: 11Nov2009, 09:23:58 Control Specifications: Control 1

Volume Units: IN

Computed Results

Peak Inflow :	10.3 (CFS)	Date/Time of Peak Inflow :	02Jan2009, 00:00
Peak Outflow :	1.1 (CFS)	Date/Time of Peak Outflow :	02Jan2009, 01:00
Total Inflow :	2.42 (IN)	Peak Storage :	0.5 (AC-FT)
Total Outflow :	1.35 (IN)	Peak Elevation :	1271.1 (FT)

Project: 3538D
 Simulation Run: PROP 010 Reservoir: Reservoir-1
 Start of Run: 01Jan2009, 12:00 Basin Model: PROPOSED
 End of Run: 02Jan2009, 12:15 Meteorologic Model: 010-YR
 Compute Time: 11Nov2009, 09:24:05 Control Specifications: Control 1

Volume Units: IN

Computed Results

Peak Inflow :	12.5 (CFS)	Date/Time of Peak Inflow :	02Jan2009, 00:00
Peak Outflow :	1.9 (CFS)	Date/Time of Peak Outflow :	02Jan2009, 00:45
Total Inflow :	2.92 (IN)	Peak Storage :	0.5 (AC-FT)
Total Outflow :	1.83 (IN)	Peak Elevation :	1271.3 (FT)

Project: 3538D

Simulation Run: PROP 025 Reservoir: Reservoir-1

Start of Run: 01Jan2009, 12:00 Basin Model: PROPOSED
End of Run: 02Jan2009, 12:15 Meteorologic Model: 025-YR
Compute Time: 11Nov2009, 09:24:12 Control Specifications: Control 1

Volume Units: IN

Computed Results

Peak Inflow :	16.3 (CFS)	Date/Time of Peak Inflow :	02Jan2009, 00:00
Peak Outflow :	3.3 (CFS)	Date/Time of Peak Outflow :	02Jan2009, 00:30
Total Inflow :	3.78 (IN)	Peak Storage :	0.7 (AC-FT)
Total Outflow :	2.68 (IN)	Peak Elevation :	1271.7 (FT)

Project: 3538D

Simulation Run: PROP 100 Reservoir: Reservoir-1

Start of Run: 01Jan2009, 12:00 Basin Model: PROPOSED
End of Run: 02Jan2009, 12:15 Meteorologic Model: 100-YR
Compute Time: 11Nov2009, 09:17:41 Control Specifications: Control 1

Volume Units: IN

Computed Results

Peak Inflow :	22.9 (CFS)	Date/Time of Peak Inflow :	02Jan2009, 00:00
Peak Outflow :	5.5 (CFS)	Date/Time of Peak Outflow :	02Jan2009, 00:30
Total Inflow :	5.31 (IN)	Peak Storage :	0.9 (AC-FT)
Total Outflow :	4.17 (IN)	Peak Elevation :	1272.3 (FT)

USGS

DWR PERMIT APPLICATION

THE STATE OF KANSAS



KANSAS DEPARTMENT OF AGRICULTURE
Adrian J. Polansky, Secretary of Agriculture

DIVISION OF WATER RESOURCES
David W. Barfield, Chief Engineer

APPLICATION FOR APPROVAL
of PLANS FOR CONSTRUCTION or MAINTENANCE of LEVEES
or FLOODPLAIN FILLS
(K.S.A. 24-126)

Application is hereby made for written consent or permit of the Chief Engineer, Division of Water Resources, by
(PLEASE TYPE OR PRINT CLEARLY):

1. Owner: Lies Trash Service

Agent: _____

Title: _____

Mailing Address: 4631 S Palisade St. Wichita KS 67217

E-Mail Address: _____

Telephone No.: 316-522-1699 FAX No.: _____

2. Designer: _____

Firm: Ruggles & Bohm P.A.

Contact Person: Alex M. Lane P.E.

Mailing Address: 924 N. Main Wichita, KS 67203

E-Mail Address: alane@rbkansas.com

Telephone No.: 316-264-8008 FAX No.: 316-264-4021

For Office Use Only: Code _____ Fee \$ _____ TR# _____ Receipt Date _____ Check # _____

Description of proposed construction:

Site Name: Lot 9, Rock Island Industrial Park Addition

a. If the project is a floodplain fill, check the locations that apply (check all that apply):

- floodway
- floodway fringe
- floodplain (Zone A for example)
- unmapped
- other (describe): _____

Does the community (city or county) in which the project is located participate in the National Flood Insurance Program: Yes No

b. If the project is a levee, proposed levee is Class _____ (A, B, or C. See rules and regulations, K.A.R. 5-45-8 for definitions)

c. The project purpose is (check all that apply):

- new construction
- repair
- modification
- maintenance
- erosion control
- replacement
- flood control
- road embankment
- the beneficial use of water (see Appropriation of Water, File No. _____)
- other (describe): _____

d. The project will (complete all that apply): be 180 feet long, 3 feet high, average feet in height with a maximum height of 4 feet; have 3:1 side slopes, 140 feet top width, 2800 cubic yards of fill; constrict the channel and floodplain by N/A %; cause a hydraulic restriction or backwater of N/A feet.

Further description: The fill is to construct a building pad for a maintenance facility & office space for a trash service.

4. **Legal description of location** (for levees please describe the beginning and ending points of the levee. For floodplain fills, please use the geographical center or midpoint of the project):

Beginning in the NW Quarter of the NW Quarter of the SE Quarter of Section 17, Township 28 South, Range 1E, SEDGWICK County, Kansas;

Additional description: _____

Ending in the _____ Quarter of the _____ Quarter of the _____ Quarter of Section _____,

Township _____ South, Range _____, _____ County, Kansas

Additional description: _____

Across, along, or in (stream or watercourse name): _____

5. Attach copies of Environmental Reviews, Assessments or Impact Statements, letters of comment and other pertinent information to the Water Projects Environmental Coordination Act, K.S.A. 82a-325 to 327, as amended. The following information should be provided in consultation with biologists, archaeologists, foresters or other professionals.

a. The project will (check all that apply):

- | | |
|--|---|
| <input type="checkbox"/> fill a channel | <input type="checkbox"/> fill or drain deep pools |
| <input type="checkbox"/> remove gravel, sand or silt bars | <input type="checkbox"/> disturb or endanger historic sites or structures |
| <input type="checkbox"/> fill or drain a wetland | <input type="checkbox"/> inundate a stream |
| <input type="checkbox"/> create deep pools | <input type="checkbox"/> affect threatened and endangered species |
| <input type="checkbox"/> relocate a channel | <input type="checkbox"/> widen a channel |
| <input checked="" type="checkbox"/> remove streamside vegetation, including _____ acres of trees and <u>0.58</u> acres of vegetation | |

b. Describe actions planned to minimize the project impact:

Describe any vegetative strip planned: dry bottom detention pond and 4.9 acres of 5.6 acres site shall be grass or other vegetation.

Describe erosion control measures to be used during construction: silt fence @ boundaries of disturbed area & detention pond can serve as temp. siltation basin.

Describe mitigation or replacement of environmental impacts or values: _____

Project work will be halted and the Kansas State Historical Society contacted when historical sites or artifacts are encountered: Yes No

Describe other planned activities: _____

6. The design, construction, operation, and maintenance of the stream obstruction or channel change must conform to the requirements of the rules and regulations adopted by the Chief Engineer. Applicable regulations are K.A.R. 5-45-1 through 5-45-18. Please visit our web site, www.ksda.gov/dwr, or contact our office to obtain those rules and regulations.

7. **Progress of construction (check the appropriate line and enter requested date):**

Construction

on:

Construction has not begun. Planned date to begin construction: Jan., 2010

8. **By signing this application, I hereby certify that the information contained in this application is true, correct and complete, and that I am the owner or I am authorized by the owner to make this application.**

Signature of Owner or Agent: *[Handwritten Signature]*

Date: 11-11-09

Title: Professional Engineer

INSTRUCTIONS

1. Incomplete applications will be returned to applicant. Make sure you have filled in all applicable blanks, signed the application, and included the required fee (see below). Plans and other materials listed in item 6 must accompany application for it to be complete.
2. If the owner is a governmental entity, please identify on the first page the governmental unit responsible for construction and maintenance.
3. Questions regarding environmental impacts may be referred to the following environmental review agencies:

Kansas Corporation Commission	Kansas Biological Survey
Kansas Dept. Of Health & Environment	State Conservation Commission
Kansas State Historical Society	Kansas Forest Service
Kansas Dept. Of Wildlife and Parks	

FEE SCHEDULE
Effective July 1, 2002

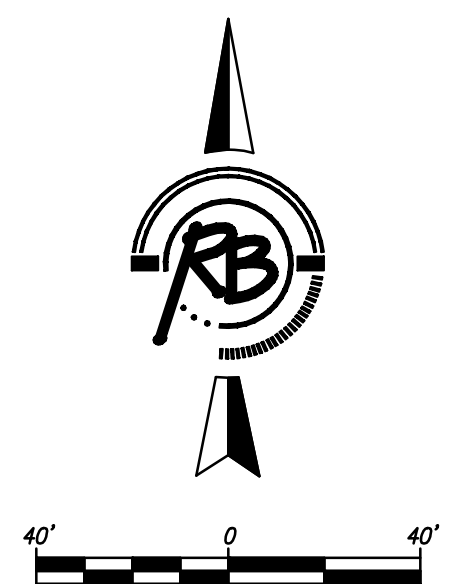
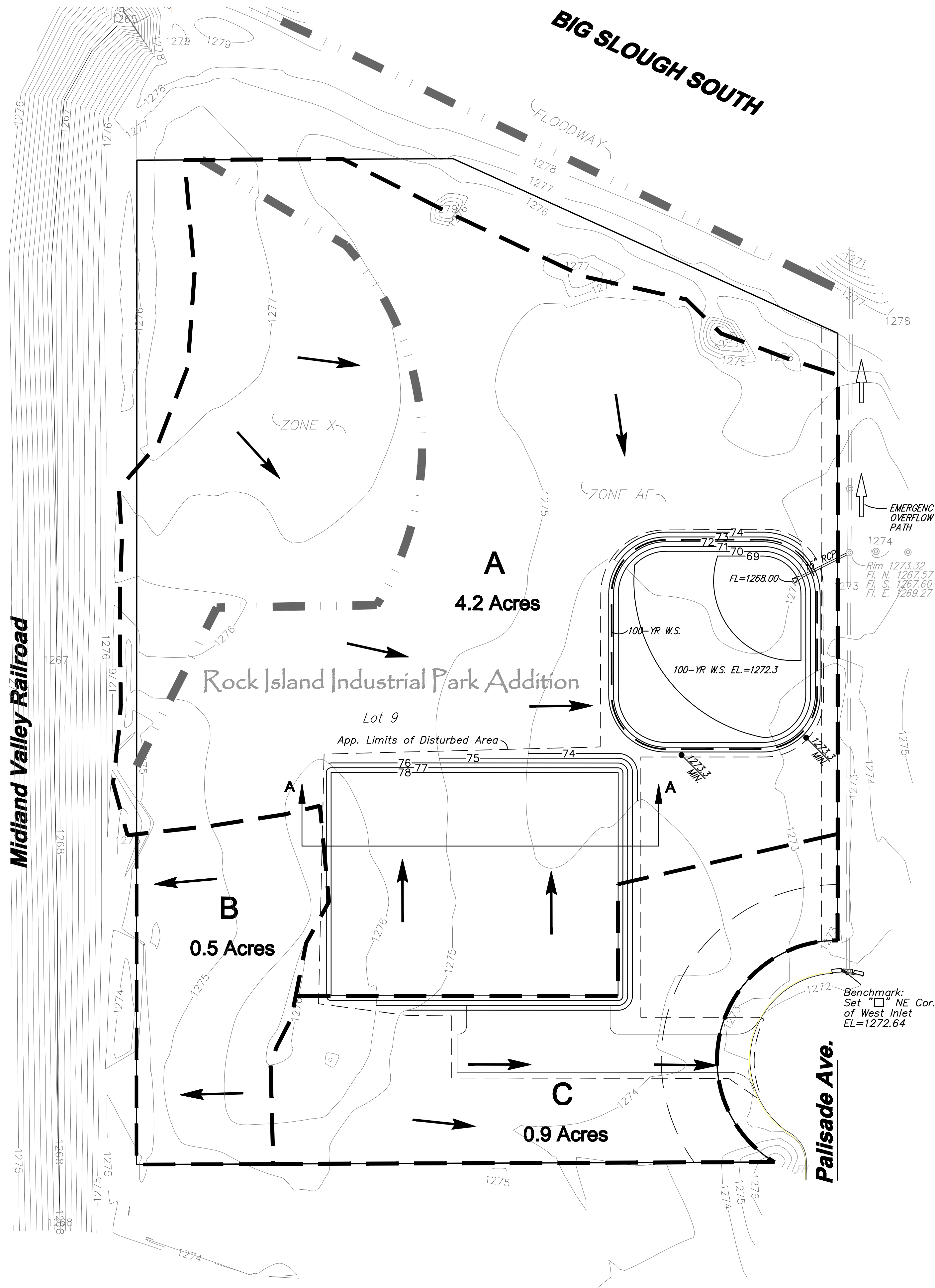
Applications for Levees and Floodplain Fills			
Levee hazard class:	Floodplain fill located in:	Pre-construction	Construction in progress*
Class A levee	Floodway fringe	\$100	\$200
Class B levee	Floodplain without defined floodway	\$300	\$600
Class C levee	Floodway	\$500	\$1,000

*"Construction in progress" fees apply to projects where construction began before the project was approved by the Chief Engineer. These fees are in addition to any other penalties applicable under law.

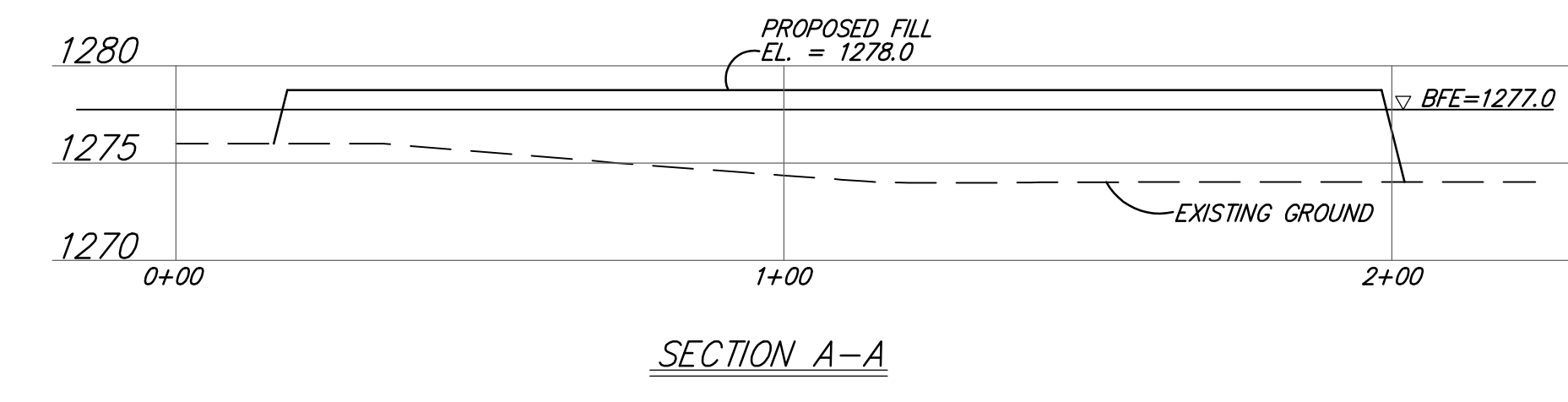
Make checks payable to the **Kansas Department of Agriculture**

Mail application, check, and all supporting documents to:

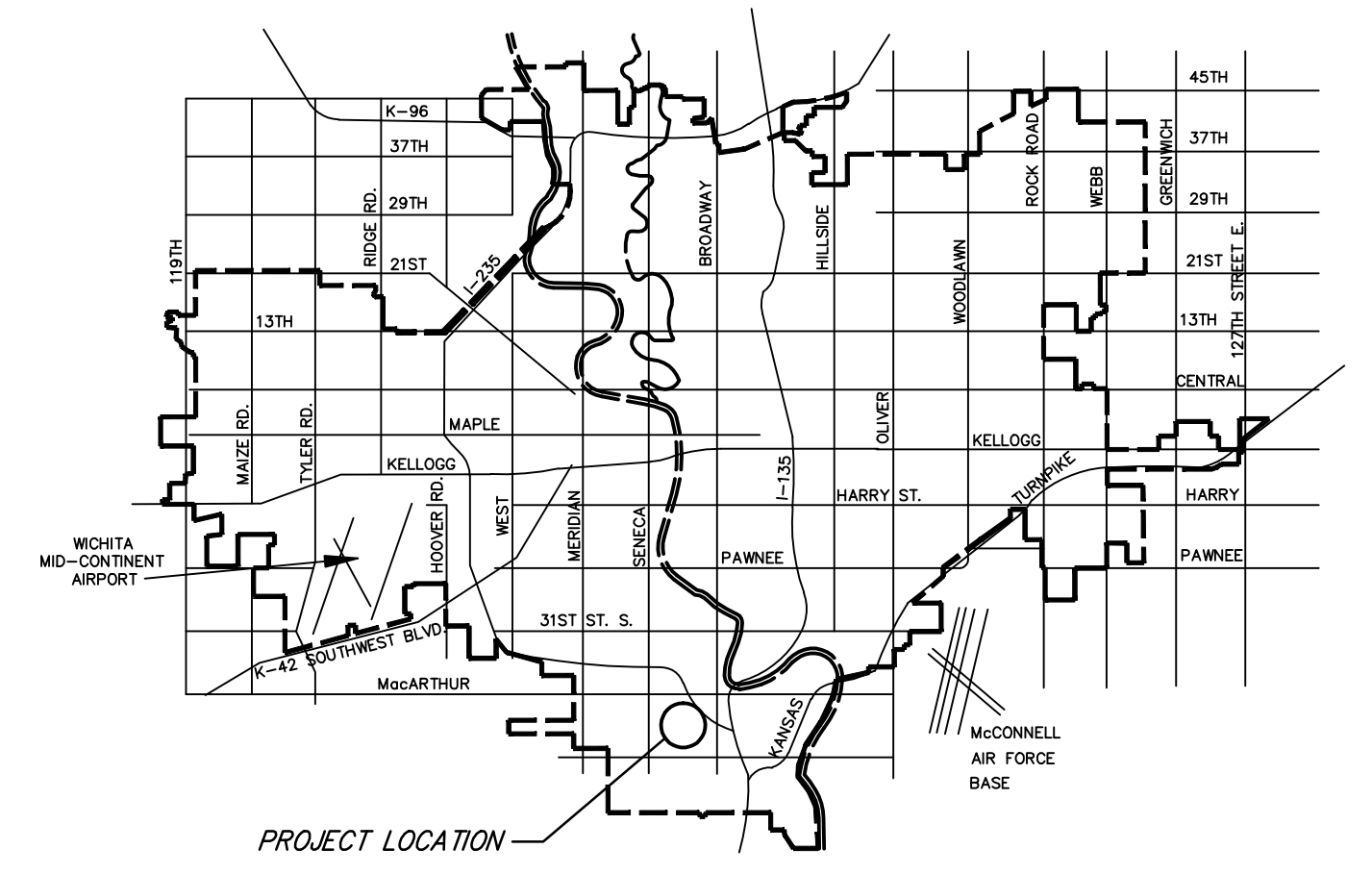
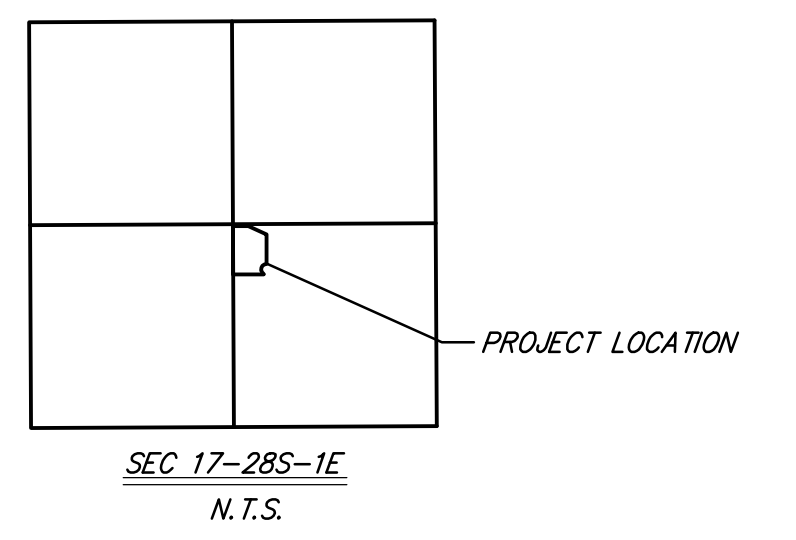
Kansas Department of Agriculture
Division of Water Resources
109 SW 9th Street 2nd Floor
Topeka KS 66612-1283
Telephone: (785) 296-2933 Fax: (785) 296-4835



SOIL TYPE : WALDECK SANDY LOAM
 HYDROLOGIC GROUP : C
 PROPOSED CONDITION : 0.72 AC. IMPERVIOUS AREA
 TOTAL SITE AREA: 5.85 AC.



MINIMUM PAD ELEVATION	
LOT	MIN. PAD
9	1278.0



DRAINAGE PLAN
Lot 9 - Rock Island Industrial Park Addition
WICHITA, KANSAS

Ruggles & Bohm, P.A.
 Engineering, Surveying, Land Planning

224 North Main
 Wichita, Kansas 67203
 www.rba.com

(913) 264-8000
 (913) 264-4821 fax
 E-mail: info@rba.com

DATE	REV	BY
Oct. 21, 2009	1	AML
	1	AML
	1	AML
	1	AML

Drawn: AML
 Checked: AML
 Project Number: .
 Drawing Title: Drainage Plan {Plan 1}