

CAPACITY CALCULATIONS FOR  
STORM WATER SEWER DESIGN  
FOR  
**TOWN PARC ADDITION**  
TO  
WICHITA, SEDGWICK COUNTY, KANSAS

Prepared By

 **BAUGHMAN COMPANY, P.A.**  
ENGINEERING, SURVEYING & PLANNING  
316/262-7271 FAX 316/262-0149 WICHITA, KANSAS 67211

June 23, 1997

Inlet I-9 "mini" sump (11'4" inlet)

Drainage Area = 2.2 acres

"C" = 0.54

$Q_2 = 4.5$  cfs

$Q_{100} = 8.8$  cfs

2-yr intercepted flow @ 0.4' depth = 4.5 cfs

2-yr bypass flow = 0 cfs

100-yr intercepted flow @ 0.4' depth = 5.0 cfs

100-yr bypass flow = 3.8 cfs

Inlet I-8 "mini" sump (11'4" inlet)

Drainage Area = 5.2 acres

"C" = 0.54

$Q_2 = 10.8$  cfs

$Q_{100} = 20.7$  cfs

2-yr intercepted flow @ 0.4' depth = 5.0 cfs

2-yr bypass flow = 5.8 cfs

100-yr intercepted flow @ 0.4' depth = 5.0 cfs

100-yr bypass flow = 15.7 cfs

Inlet I-6 "bypass" inlet (11'4" inlet)

Drainage Area = 2.2 acres

"C" = 0.54

$Q_2 = 4.5$  cfs

$Q_{100} = 8.8$  cfs

2-yr flow including bypass flow from upstream = 10.3 cfs

2-yr intercepted flow = 4.2 cfs

2-yr bypass flow = 6.1 cfs

100-yr flow including bypass flow from upstream = 28.3 cfs

100-yr intercepted flow = 5.4 cfs

100-yr bypass flow = 22.9 cfs

Inlet I-7 "bypass" inlet (11'4" inlet)

Drainage Area = 2.9 acres

"C" = 0.54

$Q_2 = 6.0$  cfs

$Q_{100} = 11.5$  cfs

2-yr intercepted flow = 3.0 cfs

2-yr bypass flow = 3.0 cfs

100-yr intercepted flow = 4.5 cfs

100-yr bypass flow = 7.0 cfs

Inlet I-4 "bypass" inlet (11'4" inlet)

Drainage Area = 7.8 acres

"C" = 0.54

$Q_2 = 16.1$  cfs

$Q_{100} = 31.0$  cfs

2-yr flow including bypass flow from upstream = 22.2 cfs

2-yr intercepted flow = 5.4 cfs

2-yr bypass flow = 16.8 cfs

100-yr flow including bypass flow from upstream = 39.7 cfs

half street capacity = 30 cfs, 9.7 cfs spillover crown of road.

100-yr intercepted flow = 5.4 cfs

100-yr bypass flow = 24.6 cfs

Inlet I-5 "bypass" inlet (6'4" inlet)

Drainage Area = 1.1 acres

"C" = 0.54

$Q_2 = 2.3$  cfs

$Q_{100} = 4.4$  cfs

2-yr flow including bypass flow from upstream = 5.3 cfs

2-yr intercepted flow = 1.6 cfs

2-yr bypass flow = 3.7 cfs

100-yr flow including bypass flow from upstream = 21.1 cfs

100-yr intercepted flow = 5.4 cfs

100-yr bypass flow = 15.7 cfs

Inlet I-1 "mini" sump inlet (6'4" inlet)

Drainage Area = 1.6 acres

"C" = 0.54

$Q_2 = 3.3$  cfs

$Q_{100} = 6.4$  cfs

2-yr flow including bypass flow from upstream = 19.1 cfs

half street capacity = 15 cfs, 4.1 cfs spillover crown of road.

2-yr intercepted flow @ 0.2' depth = 2 cfs

2-yr bypass flow = 13 cfs

100-yr flow including bypass flow from upstream = 31.3 cfs

right-of-way capacity = 60 cfs,

100-yr intercepted flow = 2.0 cfs

100-yr bypass flow = 22.9 cfs

Inlet I-2 "mini" sump inlet (6'4" inlet)

Drainage Area = 1.6 acres

"C" = 0.54

$Q_2 = 3.3$  cfs

$Q_{100} = 6.4$  cfs

2-yr flow including bypass and crown overspill flow from upstream = 11.1 cfs

2-yr intercepted flow @ 0.2' depth = 2 cfs

2-yr bypass flow = 9.1 cfs

100-yr flow including bypass flow from upstream = 23.4 cfs

right-of-way capacity = 60 cfs,

100-yr intercepted flow = 2.0 cfs

100-yr bypass flow = 21.4 cfs

Total bypassed 100-yr flow at inlets 1 and 2 = 44.3 cfs.

depth of 44.3 cfs at curb on 0.32% slope = 0.58'

**SUMMARY:**

The total quantity of runoff intercepted by inlets for the 2-yr storm is 31 cfs

The design capacity of the 24" SWS pipe with 4 ft of headwater is 35 cfs.

The capacity of the pipe exceeds the amount that is actually intercepted.

The total accumulated interception for the 100-yr storm is 40.7 cfs.

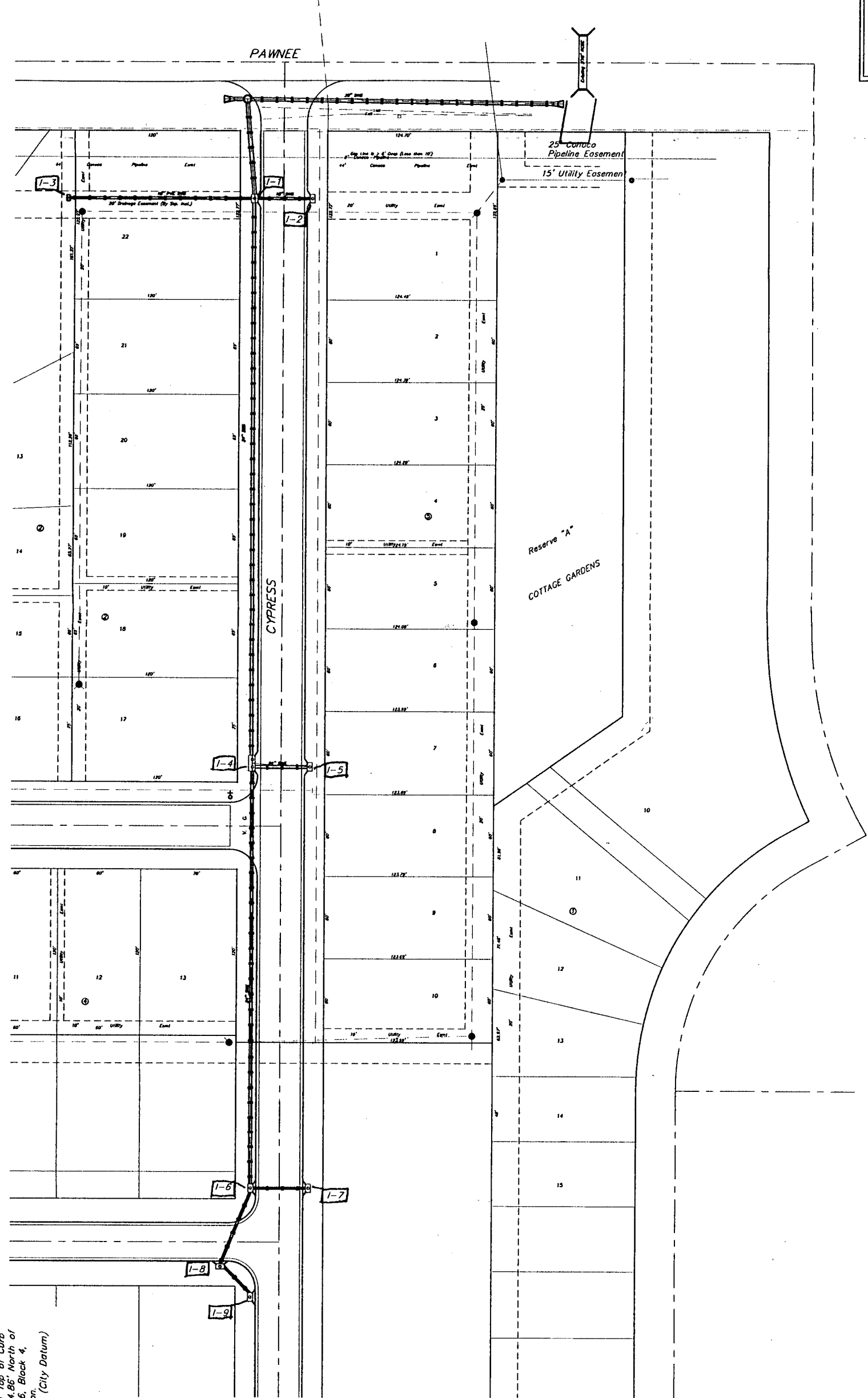
The Right-of-way has enough capacity remaining to convey the difference in the capacity and the possible maximum interception rate for the 100-yr event.



SCALE:  
1" = 80'

**BENCHMARK:**  
 BM #1: Cut in Top of Curb  
 5.35' West and 14.55' South of  
 SE Corner of Lot 9, Block 2,  
 Addition  
 Elev. = 200.40 (City Datum)

BM #2: Top of Cut in Top of Curb  
 14.85' West and 14.85' North of  
 NE Corner of Lot 6, Block 4,  
 Towne Parc Addition  
 Elev. = 202.28 (City Datum)



SWS KEY SHEET FOR  
**TOWNE PARC**  
 ADDITION

**BAUGHMAN COMPANY P. A.**  
 ENGINEERING SURVEYING & PLANNING

PROJECT NUMBER: 2112-252-237-1 - 2112-252-237-1 - 2112-252-237-1  
 SHEET: 1 OF 1  
 DATE: 6/23/97  
 SCALE: 1" = 80'

State of Kansas

Bill Graves



Governor

Department of Health and Environment

Gary R. Mitchell, Secretary

June 25, 1997

Irma N. Jacoby  
I.T.J. Investors, Inc.  
118 S. Forestview Ct.  
Wichita, Kansas 67235

Re: Kansas Water Pollution Control General Permit for Stormwater Runoff  
from Construction Activities, General Permit No.: S-MCST $\phi$ -9601-1,  
Kansas Permit No.: S-AR94-0005, Towne Parc Addition, Phase 3

Dear Permittee:

You have fulfilled all filing requirements for the Kansas Water Pollution Control Permit for Stormwater Runoff from Construction Activities. We are pleased to forward your new permit. While it is permissible to make as many copies as needed, you need to retain the original permit for your files.

We suggest you carefully read the terms and conditions of your permit to ensure your Stormwater Pollution Prevention Plan meets all the requirements of the permit. The terms and conditions of the attached permit are enforceable under State law.

Please remember to send a copy of page 1 and the Notice of Termination (NOT), located on page 2, to KDHE when coverage under this general permit is no longer needed. The NOT must contain an original signature.

We look forward to working with you in achievement and maintenance of high quality water for the State of Kansas. If you have any questions concerning this permit, please contact David Freise at (913) 296-5557.

Sincerely,

A handwritten signature in cursive script that reads "Karl Mueldener".

Karl Mueldener, P.E.  
Director, Bureau of Water

Enclosure

pc: Chris Breitenstein - City of Wichita  
Brian Glenn - Baughman Company  
South Central District Office  
Permit File

General Permit No.: S-MCSTϕ-9601-1

Kansas Permit No.: S-AR94-0005

Federal Permit No.: KS-R100072

Kansas Water Pollution Control General Permit  
and Authorization to Discharge

STORMWATER RUNOFF FROM CONSTRUCTION ACTIVITIES

Under the National Pollutant Discharge Elimination System

Pursuant to the Provisions of Kansas Statutes Annotated 65-164 and 65-165, the Federal Water Pollution Control Act as amended (33 U.S.C. 1251 et seq.; the "Clean Water Act"),

Owner: Irma N. Jacoby  
I.T.J. Investors, Inc.

Owner's Address: 118 S. Forestview Ct.  
Wichita, Kansas 67235

Name of Contact Person: Irma Jacoby Phone Number: 316-721-5844

Name of Facility/Project to be Constructed: Towne Parc Addition, Phase 3

Facility/Project Address or Location: NW ¼ of NE ¼ of S5, T28S, R2E, Wichita  
Sedgwick County

Receiving Stream & Basin: Gypsum Creek via City of Wichita storm sewer, Lower Arkansas River Basin

is authorized to discharge stormwater runoff from construction activities at the site described herein in accordance with the limitations and conditions set forth in this general NPDES permit and shall comply with Kansas Surface Water Quality Standards (K.A.R. 28-16-28 et seq.).

The general NPDES Permit S-MCSTϕ-9601-1 is effective January 1, 1997 through December 31, 2001. This general NPDES permit authorization supersedes all previous permits, agreements, decrees, or orders, in effect between KDHE and the permittee for the discharge of stormwater runoff from construction activities at the site described herein. The use of this general NPDES permit for the project described herein shall become effective on June 25, 1997, and shall expire on December 31, 2001.

PROJECT DESCRIPTION:

Single family residential subdivision consisting of 33 lots on 9 acres.



Secretary, Kansas Department of Health and Environment

June 25, 1997  
Date

See Attached Sheet for Instructions



NOTICE OF INTENT (NOI)
For Stormwater Discharges Associated with Construction Activity
Authorized by a Kansas Water Pollution Control General Permit
Under the National Pollutant Discharge Elimination System

Submission of this Notice of Intent constitutes notice that the party identified in Section I of this form requests authorization for coverage under a Kansas Water Pollution Control general permit issued for stormwater runoff from construction activities in the State of Kansas. Becoming a permittee obligates the discharger to comply with the terms and conditions of the general permit. Completion of this NOI does not provide automatic coverage under the general permit. You will be notified when the Kansas Department of Health and Environment (KDHE) accepts the NOI. INCOMPLETE APPLICATIONS WILL BE RETURNED TO THE APPLICANT. Please Print or Type.

I. OWNER & RECORD LOCATION INFORMATION

Owners Name: Irma N. Jacoby

Will permit records be located on site? [X] Y: [ ] N

Name of Company: I.T.J. Investors, Inc.

If no, provide address where records will be kept:

Mailing Address: 118 S. Forestview Ct.

Business Name: \_\_\_\_\_

Street Address: \_\_\_\_\_

City: Wichita State: KS Zip Code: 67235

City: \_\_\_\_\_

II. SITE INFORMATION

A. LOCATION

Name of Project: Town Parc Addition

NW Quarter of the NE Quarter of Section 5

Address: \_\_\_\_\_

Township: 28 South, Range: 2 [X] E: [ ] W

City: Wichita State: KS Zip Code: \_\_\_\_\_

County: \_\_\_\_\_

Contact Person: Irma Jacoby

Phone: (316)-721-5844

B. EXISTING CONDITIONS/USES

Is any part of the project located on Indian Lands? [ ] Y: [X] N

If site runoff goes into a Municipal Separate Storm Sewer System: Owner/Operator's Name: City of Wichita

Name of the first receiving water, stream, or lake: Gypsum Creek

Are there any known soil contamination areas which will be disturbed by the construction activity? [ ] Y: [X] N

Are there any intakes for public drinking water supplies located within 1/2 mile of the site discharge points? [ ] Y: [X] N

Are there any known historical or archeological sites present? [ ] Y: [X] N

Are any threatened or endangered species known to be present near the site or in the receiving water body? [ ] Y: [X] N

If yes, list species and describe habitat location in relation to project location: \_\_\_\_\_

Are any Critical Water Quality Management Areas, Special Aquatic Life Use Waters,

or Outstanding Natural Resource Waters located within one-half mile of the site boundary? [ ] Y: [X] N

Describe the site soil types: Rosehill Silty Clay and Clime Silty Clay

If you have other existing environmental permits at this site, list their permit numbers (e.g. I-UA44-C277):

C. FUTURE SITE ACTIVITY/USES

Description of Planned Project: Single Family Residential Subdivision

COPY

C. FUTURE SITE ACTIVITIES/USES CONTINUED:

Anticipated Start Date: July 97 and Completion Date: July 99 Estimate of final runoff coefficient: 0.60  
Estimated area to be disturbed: 9 Acres Total area of the site: 9 Acres Increase in Impervious Area: 4 Acres  
Types of fill materials and source: On-site soil manipulation

D. STORMWATER POLLUTION CONTROL MEASURES

Do you plan to disturb ten or more acres that are within a common drainage area?  Y:  N

If yes, will a sediment basin be installed in that drainage area?  Y:  N

If no, on a separate sheet, explain why and what other erosion and sediment control measures that will be implemented in lieu of a sediment basin.

Attach a description of the best management practices, planned to be utilized to control erosion and sedimentation and other pollutants in stormwater discharges during construction. Include a description of applicable local erosion and sediment control requirements.

Describe on a separate sheet of paper the best management practices that will be installed during the project construction which will be left in place after construction is complete in order to control pollutants which will be generated by the final land use. Include a description of applicable local stormwater pollution control requirements for permanent stormwater management features.

On a separate sheet describe the intended sequence of major activities which disturb soils for major portions of the site.

E. MAPS

Attach to this NOI the appropriate maps as described in the instructions. Include the required information on the maps.

III. ANNUAL FEE

Enclose a check for the first year of the annual fee specified in K.A.R. 28-16-1 et seq. as amended (Make check payable to "KDHE-Water Pollution Control Permit").

IV. APPLICANT CERTIFICATIONS

I, the undersigned, certify that a Stormwater Pollution Prevention Plan will be or has been developed for the construction site listed in Section II of this NOL. I further certify that the plan will be implemented at the time construction begins, and, as required by the NPDES general permit for Stormwater Runoff from Construction Activity, will revise the SWP2 plan if necessary.

I certify that I have read and understand the Part I requirements relating to criteria for coverage under the NPDES general permit for Stormwater Runoff from Construction Activity, including those requirements relating to the protection of Threatened or Endangered Species identified in K.A.R. 115-15-1 and sites listed or eligible for listing on the National Register of Historic Places; and

To the best of my knowledge, the discharges which will be covered under this NPDES general permit for Stormwater Runoff from Construction Activity and the construction of BMPs to control stormwater runoff are not likely to and will not likely adversely affect any species identified in K.A.R. 115-15-1; or the discharges and construction are eligible for coverage under the NPDES general permit due to a previous authorization from the Kansas Department of Wildlife and Parks; and

I further certify to the best of my knowledge such discharges and construction of BMPs to control stormwater runoff do not have an effect on properties listed or eligible for listing on the National Register of Historic Places under the National Historic Preservation Act; or the discharges and construction are eligible for coverage under the NPDES general permit due to a previous agreement with the State Historic Preservation Officer.

I understand that continued coverage under the NPDES general permit for Stormwater Runoff from Construction Activity is contingent upon maintaining eligibility as provided for in Part I of the general permit.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on the inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Iman Jacoby Signature 5-23-97 Date

### **Controls to be Implemented Instead of a Sediment Basin**

Due to the configuration of the site, a sediment basin will not be installed on this site. The existing channel will remain undisturbed and existing vegetation will aid in the filtration of sediment from runoff. Since the channel has an abundant amount of natural grasses and trees, the velocity of the 100-yr event will be less than 3 f.p.s. In addition to the natural effects of the vegetation the contractor shall erect silt fences perpendicular to the flow of the channel. The contractor shall place the silt fences at locations specified by the engineer, governing authority, or agents of either. The use of the silt fences will aid in the collection of sediment that is not contained by other erosion control measures.

### **Controls to be Implemented During Construction**

The contractor shall be responsible for the implementation of controls as outlined in the Storm Water Pollution Prevention Plan Guidelines. In addition to the controls outlined, the contractor shall construct and maintain approved inlet sediment barriers as directed by the engineer, governing entity, or agents of either. Rip-rap shall be placed at all storm water sewer discharge points, to protect surrounding areas from erosion. The contractor shall be responsible for the protection of existing pavements from sediment latent runoff by one or more approved means shown in the Storm Water Pollution Prevention Plan Guidelines.

### **Controls to be Implemented After Construction**

The contractor shall be responsible for the permanent stabilization of all worked areas. The contractor shall also be responsible for the removal of any silt fences, sediment barriers, or any other temporary controls following permanent stabilization of that area. Rip-rap placed at outlet structures shall remain in place to protect areas from future erosion.

### **Soil Disturbance Activities**

Initial construction will consist of installation of sanitary sewer and water lines. Following this construction storm water sewers will be installed. The last phase of the construction will be the installation of pavement along with the major earthwork activities.