DRAINAGE PLAN
AND
SUPPORTING CALCULATIONS

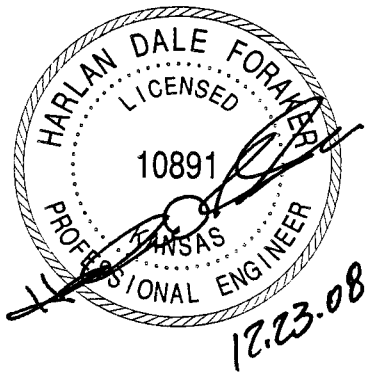
FOR THE
BULLOCH ADDITION
WICHITA, KANSAS

PREPARED FOR:
MR. GORDON BULLOCH
10414 E. HARRY
WICHITA, KANSAS 67207

DECEMBER 23, 2008

PREPARED BY:

CERTIFIED ENGINEERING DESIGN, P.A.
810 WEST DOUGLAS, SUITE C
WICHITA, KANSAS 67203-6105
(316)262-8808 PHONE
(316)262-1669 FAX



DRAINAGE PLAN
AND
SUPPORTING CALCULATIONS

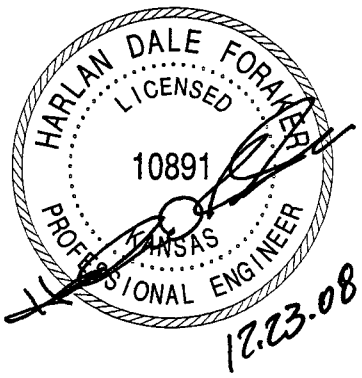
FOR THE
BULLOCH ADDITION
WICHITA, KANSAS

PREPARED FOR:
MR. GORDON BULLOCH
10414 E. HARRY
WICHITA, KANSAS 67207

DECEMBER 23, 2008

PREPARED BY:

CERTIFIED ENGINEERING DESIGN, P.A.
810 WEST DOUGLAS, SUITE C
WICHITA, KANSAS 67203-6105
(316)262-8808 PHONE
(316)262-1669 FAX



Adopted: February 23, 2007

CITY OF WICHITA

Public Works, Engineering Division
Final Drainage Plan Submittal Checklist

Reviewer:_____ Date:_____

Subdivision Name: Bulloch Addition _____ Location: 10414 E. Harry

Total Land Area Of Ownership: 1.66 Acres

Type: _____Residential ___X__Commercial _____Industrial _____Recreation _____Municipal _____Other

Applicant:_____ Contact:_____ Phone #:_____

Engineer: Certified Engineering Design _____ Contact: Harlan Foraker _____ Phone # 316.262.8808 __

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

	Applicant			Engr	
Tab 1. Project Narrative	**I**	**NA**	**Explanation / Location in Plan**	**I**	**NA**
A. Site Location Map, using USGS Map	✓				
B. Discussion of development, existing conditions, and proposed impacts on stormwater, wetland, riparian, and flood plain	✓				
C. Discussion of offsite conditions	✓				
D. Summary of runoff calculations (pre/post development) No increase in peak discharge for all storm series					
E. Narrative description of the type and function of the permanent best management practices that are incorporated into the site design					
F. Copy of the plat	✓				
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.)					
H. Professional Engineer seal, signature and date on cover of report	✓				
I. CD of drainage plan in PDF format (one file) and one paper copy bound with this checklist included behind the cover					

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

Consulting Engineer Initials HC

J. Location of existing utilities (e.g., water, sewer, gas, electric) and easements	✓				
K. Location of existing conveyance systems such as storm drains, inlets, catch basins, channels, swales, and areas of overland flow	✓				
L. Flow paths	✓				
M. Location and dimensions of existing channels, bridges or culvert crossings	✓				
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	✓				
O. Assumed pre-developed runoff curve numbers	✓				
P. Existing time of concentrations used in calculations	✓				
Q. Evaluate immediate downstream drainage capacity, not to exceed more than 0.25 miles downstream of site					
R. Existing structural elevations (e.g., invert of pipes, manholes, etc.)		✓			
S. Cross-section data for open channels		✓			
T. Ground water elevations, if applicable		✓			

	Applicant			Engr	
Tab 3. Post-Development Hydrologic Analysis	**I**	**NA**	**Explanation / Location in Plan**	**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)	✓				
B. Proposed time of concentrations used in calculations	✓				
C. Assumed post-developed runoff curve numbers	✓				
D. Proposed contours for detention facilities (to equal area used in outlet rating curves)		✓			
E. Preliminary sizing calculations for stormwater controls including contributing drainage area, storage, and outlet configuration		✓			
F. Stage-storage-discharge or outlet rating curves and inflow and outflow hydrographs for storage facilities		✓			
G. Final analysis of potential upstream/downstream impact/effects of project, where necessary					
H. Existing and proposed structural elevations (e.g., invert of pipes, manholes, etc.)		✓			
I. Design water surface elevations and normal pool elevation for ponds.		✓			
J. Typical detail for outlet structures, embankments, spillways, grade control structures, conveyance channels, etc. To include height, width, elevation, and/or diameter.		✓			
K. Proposed limits of clearing and grading	✓				
L. Location of existing and proposed roads, buildings, parking lots and other impervious areas.	✓				
M. Location of existing and proposed utilities (e.g., water, sewer) and easements	✓				
N. Location of existing and proposed conveyance systems such as storm drains, inlets, catch basins, channels, swales, and areas of overland flow	✓				
O. Preliminary location and dimensions of proposed channel modifications, such as bridge or culvert crossings		✓			

Consulting Engineer Initials HDF

P. Preliminary selection and location of stormwater controls		✓			
Q. Emergency overflow structure's flow path		✓			
R. Detention facility provides one-foot of freeboard above the HWL and emergency outfall shown (top of berm elevation shown)		✓			
S. The 100-year 24-hour HWL delineated on the plan for detention pond		✓			
T. Lowest opening elevations table on the plat for structures located adjacent to channels or ponds		✓			
U. Stormwater Management Facilities located within a Reserve		✓			
V. Maintenance responsibility of stormwater management facility shall be specified in the platters text. (e.g. HOA, Lot Owners Association, or lot)		✓			
W. Off-site drainage easements or agreements required, where necessary		✓			

	Applicant			Engr	
Tab 4. Floodplain Submittal	**I**	**NA**	**Explanation / Location in Plan**	**I**	**NA**
A. Provide source of flood profile	✓				
B. Nearest base flood elevations					
C. Delineation of pre-developed regulatory floodplain/floodway limits					
D. Delineation of post-developed regulatory floodplain and floodway limits					
E. Floodplain boundary determination per elevation (project limits shown)					
F. Provide source of floodway data table and discharges					
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					
H. Provide regulatory floodway and four natural profile models (10,50,100, and 500-yr) for existing and future watershed conditions					
I. Location of floodplain/floodway limits and relationship of site to upstream/downstream properties (floodplain limits to be per elevation and scaled location)					
J. Flood plains and floodways located within a Reserve, where necessary					

	Applicant			Engr	
Tab 5. Federal, State and Local Permits (to be provided prior to construction unless otherwise specified)	**I/R**	**NA**	**Explanation / Location in Plan**	**I/R**	**NA**
A. US Army Corps of Engineers - Regulatory program permits (404 water quality certification)		✓			
B. Kansas Department of Agriculture - Division of Water Resources Permits (Stream Obstruction, Channel Change, Flood Plain Fill, Levee, Water Appropriations, Dam safety permit, etc.)		✓			
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.		✓			
D. Kansas Department of Transportation		✓			
E. Sedgwick County Right-of-way Permit		✓			

Consulting Engineer Initials ADF

CERTIFIED ENGINEERING DESIGN, P.A
810 West Douglas,Suite C
Wichita, KS 67203-6105
(316)262-8808 Office
(316)262-1669 Fax

LETTER OF TRANSMITTAL

DATE: December 23, 2008

TO: Ms. Julianne Kallman, P.E.,
Engineering Division
455 North Main
Wichita, KS 67202

RE: Drainage Plan
Bulloch Addition
Wichita, KS

FROM: Harlan D. Foraker, P.E.

I. PROJECT AREA DESCRIPTION

The proposed development site is located at 10414 E. Harry which is north of Harry between Webb and Greenwich. It is in the Southeast Quarter of Section 28, Township 27 South, Range 2 East. The site is currently unplatted. The site is currently zoned as Neighborhood Retail. The ground has grass cover. The soil types present within the proposed site are classified as Rosehill Silty Clay and Elandco Silt Loam. The total site area is 1.66 acres

II. EXISTING AND DEVELOPED CONDITIONS RUNOFF CALCULATIONS

The rational method will be used to determine the peak discharges from the subareas of the study area. Rational 'C' Factors were assigned to the existing site and proposed improvements from "Interim Drainage and Storm Sewer Policy for Design Criteria and Documentation" for the City of Wichita, Kansas.

The rainfall intensity tables for Sedgwick County, Kansas were utilized to calculate the I-D-F curves that were used to determine the rainfall intensity for the 2 thru 100 year design storms.

The Soil Conservation Service TR-55 manual was used to compute the Time of Concentration for the drainage subareas. A design assumption was made as follows that the minimum subarea time of concentration is 15 minutes

Soil types were determined from the Natural Resources Conservation Service's Soil Survey web site. There are two soil types present on the property being platted. The SCS soil types are Rosehill Silty Clay(1 to 3 percent) which is a Class D Soil and and Elandco Silt Loam Irwin silty clay loam, (1 to 3 percent) which is a Class B Soil.

The existing and developed drainage area consisting of 1.66 acres has been delineated on the 1" = 30' site and topographic mapping survey performed for this site by Savoy Company, P.A.

Design Storm Events Evaluated: 2, 5, 10, 25, and 100 yr. storm events

The runoff calculations for surface drainage from the existing and proposed developed site have been computed using the Rational formula for the 2 thru 100 year storm events.

The existing site consists of a single residential home on a grassed and wooded lot. There is residential to the north and south, with light commercial to the west and the Harry Street Electrical Sub-Station to the east.

The existing discharge from the Bulloch Addition sheet flows generally from south to north. After it crosses the property line it continues to sheet flow across a utility corridor into the Unnamed Tributary to Spring Branch. This is a drainage channel of detailed study south of Crystal Creek Addition.

The developed conditions of the property are assumed to consist of a medical/dental office or similar business with approximately 29,400 square feet of structures and parking lots and other impervious areas.

The proposed developed flow follows the same pattern as the existing. Flowing from south to north and discharging into the Unnamed Tributary south of Crystal Creek.

The following table summarizes the peak discharges for existing and developed conditions for the 1.66 acres of the Bulloch Addition. The results show that there is a 1.70 cfs increase in the peak discharge from the property in the 2 year storm, 2.33 cfs increase in the peak discharge in the 10 year storm, and a 3.17 cfs increase in the peak discharge from the 100 year storm event.

PEAK DISCHARGES FROM SITE

Description	Existing Site Q(cfs)	Developed Site Q(cfs)
Drainage Flows (2 yr.)	1.01	2.71
Drainage Flows (5 yr.)	1.42	3.48
Drainage Flows (10 yr.)	1.99	4.32
Drainage Flows (25 yr.)	2.55	5.24
Drainage Flows (100 yr.)	4.00	7.17

IV. FLOODPLAIN SUBMITTAL

The Unnamed Tributary to the Spring Creek detailed study area shows that there is approximately 30' of Zone A encroachment onto the north central part of the property. See FEMA Firmette in the Appendix.

V. FEDERAL, STATE AND LOCAL PERMITS

A. US Army Corp of Engineers- Not Applicable
B. Kansas Dept. of Agriculture-Not Applicable
C. FEMA –Not Applicable
D. Kansas Department of Transportation-Not Applicable.
E. Sedgwick County Right-of-Way Permit-Not Applicable

VI. SUMMARY DISCUSSION:

The developed peak runoff from the site development of the Bulloch Addition will continue to drain in the same general pattern as prior to construction. The development is assumed to be a small office structure with parking. The amount of impervious area being added by the site development is approximately 0.59 acres.

VII. APPENDIX I:

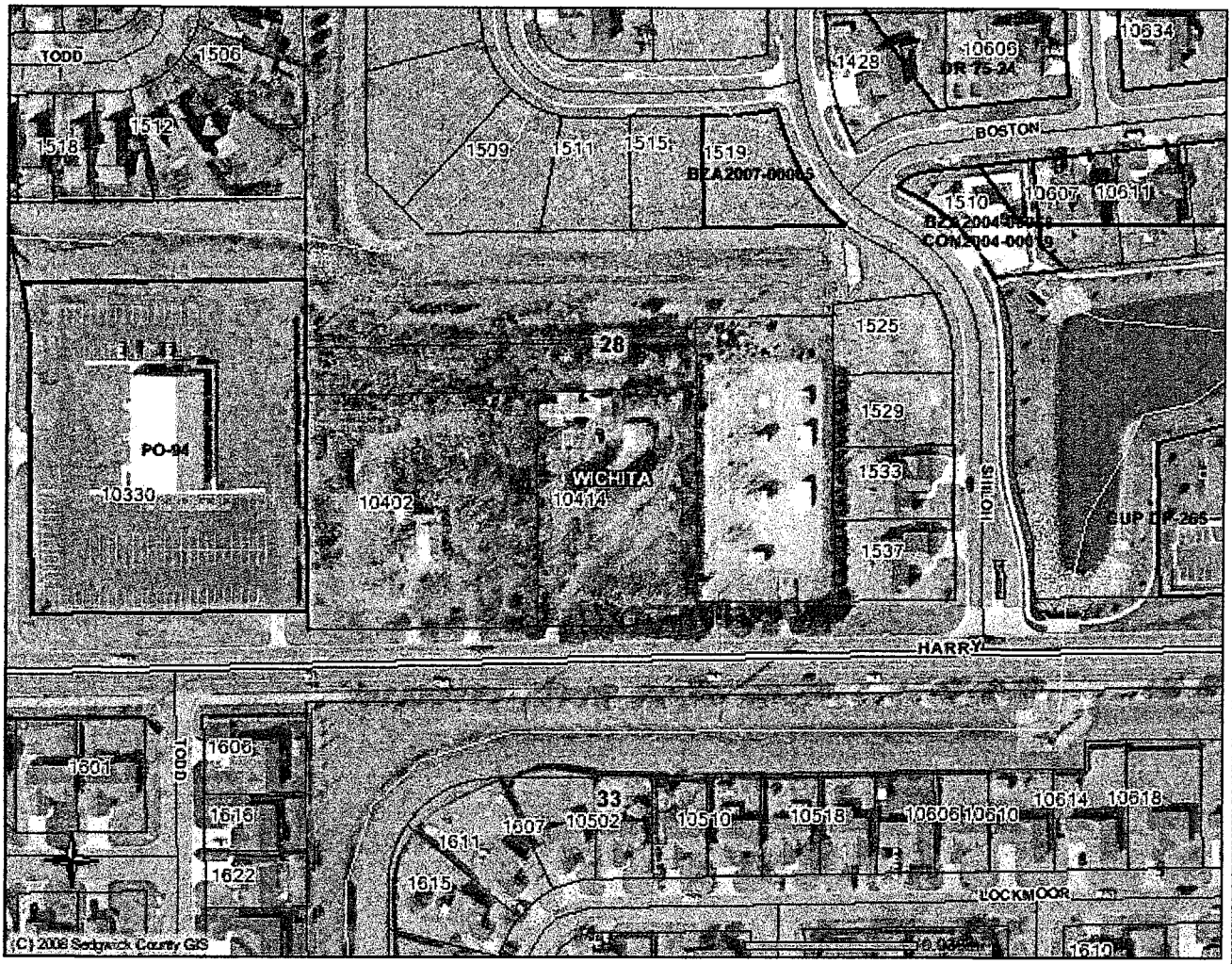
All charts, graphs, tables and nomographs used in the drainage plan design are included.

VIII. DRAINAGE PLAN MAP:

A 1" = ~~30'~~ 60', scale drainage plan map is included for review.

APPENDIX

Bulloch Addition



Legend

Historic Site Buffers

- 1000' National Historic Site Buffers
- 500' Local Historic Site Buffers
- Historic Districts
- Nationally Registered Historic Sites
- Locally Registered Historic Sites
- Special Use Cases

Zoning Districts

- Rural Residential
- Single Family 20,000
- Single Family 10,000
- Single Family 5,000
- Two-Family
- Multi-Family 18 d.u./ac
- Multi-Family 29 d.u./ac
- Multi-Family 75 d.u./ac
- Manufactured Housing
- Neighborhood Office
- General Office
- Neighborhood Retail
- Limited Commercial
- Office Warehouse
- General Commercial
- Industrial Park
- Industrial Park - Airport
- Central Business District
- Limited Industrial
- General Industrial
- University
- Planned Unit Development
- Air Force Base
- Unknown
- Not Zoned

Sedgwick County GIS

Geographic Information Services
Division of Information & Operations
www.sedgwickcounty.org/gis
525 N. Main, Suite 212, Wichita, KS 67203
Tel: 316.660.9290 Fax: 316.262.1174

Base map information shown on this FIRM was provided by Sedgwick County GIS as digital data in Kansas State Plane Coordinate System South at a scale of 1:12,000 from photography dated June 2000.

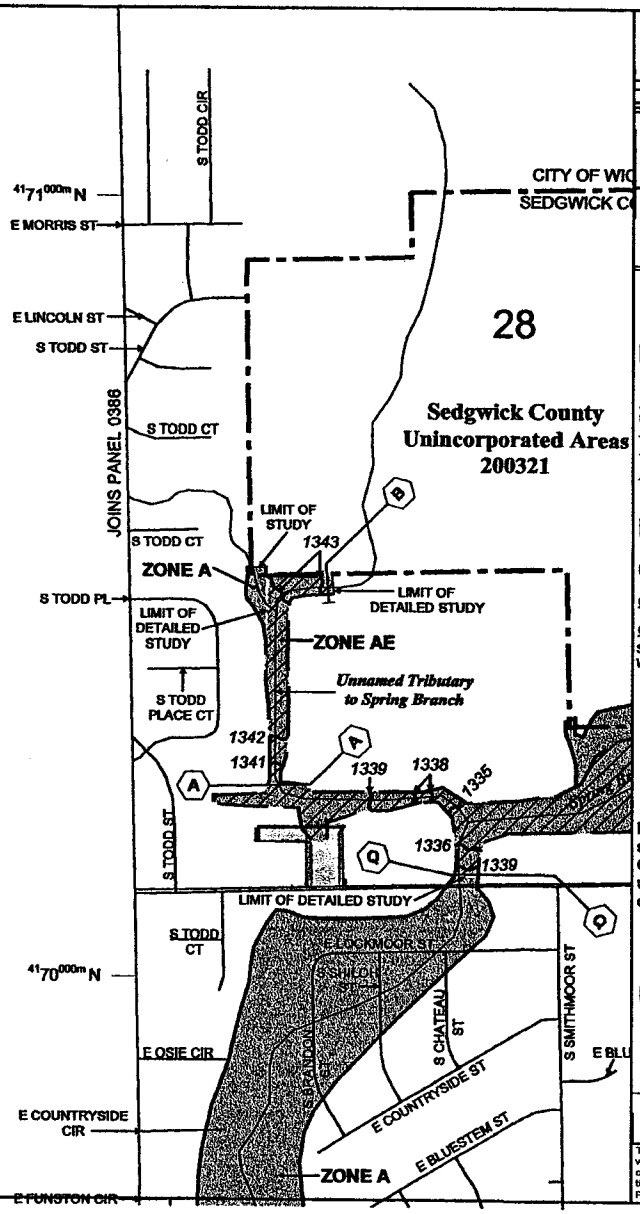
Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

This map reflects more detailed up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and their website at http://www.fema.gov/msc.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1- 877- FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov.



MAP SCALE 1" = 500'

500 1000 FEET

0 150 300 METERS

PANEL 0387E

FIRM

FLOOD INSURANCE RATE MAP

SEDGWICK COUNTY, KANSAS AND INCORPORATED AREAS

PANEL 387 OF 700

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SEDGWICK COUNTY	200321	0387	E
WICHITA, CITY OF	200328	0387	E

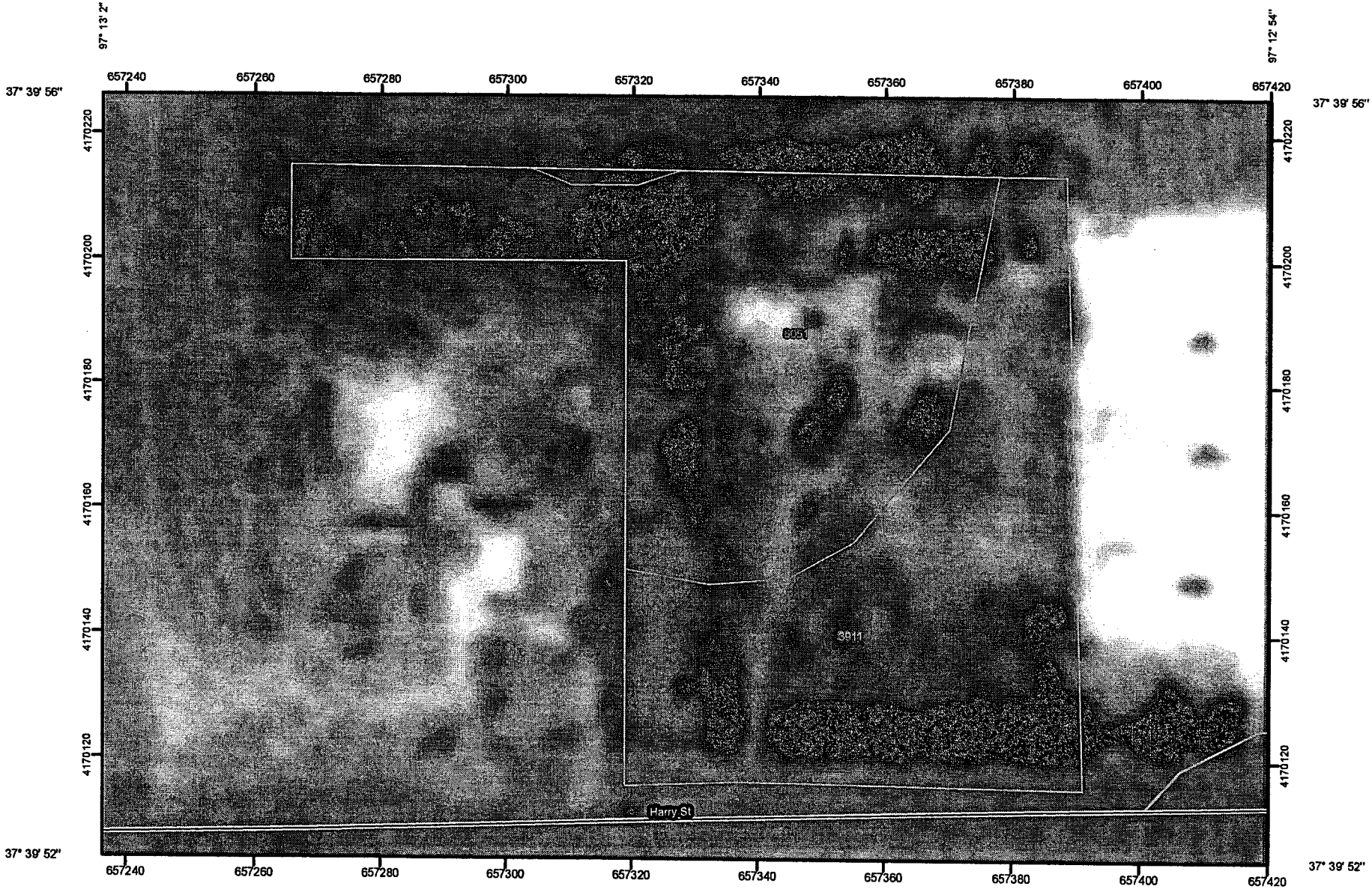
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
20173C0387E

EFFECTIVE DATE
FEBRUARY 2, 2007

Federal Emergency Management Agency

Soil Map—Sedgwick County, Kansas
(Bulloch Addition)



Map Scale: 1:872 if printed on A size (8.5" x 11") sheet.

N

Meters
0 10 20 40 60

Feet
0 45 90 180 270

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:872 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 14N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Sedgwick County, Kansas
Survey Area Data: Version 5, Dec 3, 2008

Date(s) aerial images were photographed: 10/1/1991

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Sedgwick County, Kansas (KS173)				
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI	
3911	Rosehill silty clay, 1 to 3 percent slopes	0.9	48.4%	D
6051	Elandco silt loam, frequently flooded	1.0	51.6%	B
Totals for Area of Interest		**1.9**	**100.0%**	

WORKSHEET 3: TIME OF CONCENTRATION

Project: Bulloch Addition By Date

Section: _____ Sec 28, T27S, R2E, Sedgwick Co. Checked Date

Parcel Description: _____

Existing ~~Developed~~

Sheet Flow

1	Surface Description (Table 3-1): _____ Lawn	
2	Manning's Roughness Coeffiecient, n (Table 3-1)	0.24
3	Flow Length, L<=300 ft	300 ft.
4	Two-yr 24-hr rainfall, P2	3.5 in
5	Land Slope, s	0.008 ft./ft.
6	T= 0.007 (nL)^0.8 / (P2^0.5)(s^0.4)	0.79012 hr

Shallow Concentrated Flow

7	Surface Desription (Paved or Unpaved)	Unpaved
8	Flow Length, L	70 ft.
9	Watercourse Slope, s	0.008 ft./ft.
10	Average Velocity, V (Figure 3-1)	1.4 ft./s
11	T = L / 3600 V	0.01389 hr

Channel Flow

12	Cross sectional Flow Area, a	0.32 ft^2
13	Wetted Perimeter, P	3.25 ft.
14	Hydraulic Radius r = a / P	0.09846 ft.
15	Channel Slope , S	0.008 ft./ft.
16	Mannin's Roughness Coeff., n	0.035
17	V = 1.49 (r^2/3)(s^1/2) / n	0.81191 ft./s
18	Flow Length, L	0 ft.
19	T = L / 3600 V	0 hr
20	T= T + T + T	0.80 hr

48 minutes

PROJECT: Bulloch Addition

LOCATION: Sec 28, T27S, R2E, Sedg Co

CLIENT:

DATE

BY CKD

JOB NO. SHEET NO. OF

Existing

Drainage Area 1.66 acres use soils 48% D
52% B

Time of Concentration

t_c = 48 min

i_2 = 1.97
i_5 = 2.51
i_{10} = 2.89
i_{25} = 3.42
i_{100} = 4.25

"C" Factor

wtd c

.48 less than 1% D .52 single Fam D

C_2 = .48 (.28) .52 (.33) = .31
C_5 = .48 (.33) .52 (.35) = .34
C_{10} = .48 (.43) .52 (.40) = .41
C_{25} = .48 (.48) .52 (.43) = .45
C_{100} = .48 (.63) .52 (.51) = .57

Peak Flow

$Q = c i A$

Q_2 = .31 1.59 1.66 = 1.01
Q_5 = .34 2.51 1.66 = 1.42
Q_{10} = .41 2.89 1.66 = 1.99
Q_{25} = .45 3.42 1.66 = 2.55
Q_{100} = .57 4.25 1.66 = 4.00

WORKSHEET 3: TIME OF CONCENTRATION

Project: Bulloch Addition By Date

Section: _____ Sec 28, T27S, R2E, Sedgwick Co. Checked Date

Parcel Description: _____

Existing Developed

Sheet Flow

1	Surface Description (Table 3-1): _____ Lawn	
2	Manning's Roughness Coeffiecient, n (Table 3-1)	0.24
3	Flow Length, L<=300 ft	100 ft.
4	Two-yr 24-hr rainfall, P2	3.5 in
5	Land Slope, s	0.008 ft./ft.
6	$T = \frac{0.007 (nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	0.32809 hr

Shallow Concentrated Flow

7	Surface Desription (Paved or Unpaved)	paved
8	Flow Length, L	270 ft.
9	Watercourse Slope, s	0.008 ft./ft.
10	Average Velocity, V (Figure 3-1)	2.1 ft./s
11	T = L / 3600 V	0.03571 hr

Channel Flow

12	Cross sectional Flow Area, a	0.32 ft^2
13	Wetted Perimeter, P	3.25 ft.
14	Hydraulic Radius r = a / P	0.09846 ft.
15	Channel Slope , S	0.008 ft./ft.
16	Mannin's Roughness Coeff., n	0.035
17	V = 1.49 (r^2/3)(s^1/2) / n	0.81191 ft./s
18	Flow Length, L	0 ft.
19	T = L / 3600 V	0 hr
20	T= T + T + T	0.36 hr

22 minutes

PROJECT: Bullock Addition

LOCATION: Sec 28, T27S, R2E

CLIENT:

DATE

BY CKD

JOB NO. SHEET NO. OF

Proposed

Drainage Area 1.66 acres

use Undeveloped Urban Area

Time of Concentration

T_c = 22 min

$i_2 = 3.14$
$i_5 = 3.88$
$i_{10} = 4.41$
$i_{25} = 5.17$
$i_{100} = 6.35$

"C" Factor

$C_2 = .52$
$C_5 = .54$
$C_{10} = .59$
$C_{25} = .61$
$C_{100} = .68$

Peak Flow

$Q = CiA$

$Q_2 = .52 \quad 3.14 \quad 1.66 = 2.71$

$Q_5 = .54 \quad 3.88 \quad 1.66 = 3.48$

$Q_{10} = .59 \quad 4.41 \quad 1.66 = 4.32$

$Q_{25} = .61 \quad 5.17 \quad 1.66 = 5.24$

$Q_{100} = .68 \quad 6.35 \quad 1.66 = 7.17$

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:					
Single Family (Soil Group D)					
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
Multi-Family (Soil Group D)					
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
Single Family (Soil Group C)					
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
Multi-Family (Soil Group C)					
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
Single-Family (Soil Group B)					
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
Multi-Family (Soil Group B)					
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 face Characteristics	Percent Impervious	Frequency 2	5	10	100
Single Family (Soil Group A)					
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
Multi-Family (Soil Group A)					
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
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):					
Soil Group A					
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
Soil Group B					
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
Soil Group C					
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 face Characteristics	Percent Impervious	Frequency 2	5	10	100
Soil Group D					
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.

RAINFALL INTENSITY TABLE
SEDGWICK COUNTY
KANSAS

THIS TABLE CONTAINS AVERAGE RAINFALL INTENSITIES
IN INCHES PER HOUR.

Time of Conc.

DURATION, HR:MIN	RETURN PERIOD 1 YR	2 YR	5 YR	10 YR	25 YR	50 YR	100 YR
0:05	4.91	5.64	6.64	7.38	8.48	9.34	10.20
0:06	4.62	5.34	6.33	7.07	8.15	9.00	9.84
0:07	4.38	5.09	6.08	6.80	7.86	8.69	9.52
0:08	4.17	4.87	5.85	6.56	7.60	8.41	9.22
0:09	4.00	4.68	5.63	6.33	7.34	8.14	8.93
0:10	3.84	4.50	5.43	6.11	7.10	7.87	8.64
0:11	3.70	4.34	5.25	5.90	6.86	7.61	8.36
0:12	3.56	4.19	5.07	5.71	6.64	7.36	8.09
0:13	3.44	4.05	4.91	5.53	6.43	7.14	7.84
0:14	3.33	3.92	4.76	5.36	6.24	6.92	7.61
0:15	3.22	3.80	4.62	5.21	6.06	6.73	7.40
0:16	3.12	3.69	4.49	5.07	5.91	6.56	7.21
0:17	3.03	3.58	4.37	4.94	5.76	6.40	7.04
0:18	2.94	3.48	4.26	4.82	5.63	6.26	6.88
0:19	2.85	3.39	4.16	4.71	5.50	6.12	6.74
0:20	2.77	3.30	4.06	4.60	5.38	5.99	6.60
0:21	2.70	3.22	3.97	4.50	5.27	5.87	6.47
0:22	2.63	3.14	3.88	4.41	5.17	5.76	6.35
0:23	2.56	3.07	3.80	4.32	5.07	5.65	6.23
0:24	2.50	3.00	3.72	4.23	4.97	5.54	6.12
0:25	2.44	2.93	3.64	4.15	4.88	5.44	6.01
0:26	2.38	2.87	3.57	4.07	4.79	5.35	5.90
0:27	2.33	2.81	3.50	4.00	4.70	5.26	5.80
0:28	2.27	2.75	3.44	3.92	4.62	5.17	5.71
0:29	2.23	2.69	3.37	3.86	4.54	5.08	5.61
0:30	2.18	2.64	3.31	3.79	4.47	4.99	5.52
0:31	2.14	2.59	3.26	3.72	4.39	4.91	5.43
0:32	2.09	2.54	3.20	3.66	4.32	4.83	5.34
0:33	2.05	2.50	3.14	3.60	4.25	4.76	5.26
0:34	2.02	2.45	3.09	3.54	4.18	4.68	5.18
0:35	1.98	2.41	3.04	3.48	4.12	4.61	5.10
0:36	1.94	2.37	2.99	3.43	4.05	4.54	5.02
0:37	1.91	2.33	2.94	3.38	3.99	4.47	4.95
0:38	1.88	2.29	2.90	3.32	3.93	4.40	4.87
0:39	1.85	2.25	2.85	3.27	3.87	4.34	4.80
0:40	1.82	2.22	2.81	3.23	3.82	4.28	4.73
0:41	1.79	2.18	2.77	3.18	3.76	4.22	4.67
0:42	1.76	2.15	2.73	3.13	3.71	4.16	4.60
0:43	1.73	2.12	2.69	3.09	3.66	4.10	4.54
0:44	1.71	2.09	2.65	3.05	3.61	4.04	4.48
0:45	1.68	2.06	2.62	3.01	3.56	3.99	4.42

RAINFALL INTENSITY TABLE
SEDGWICK COUNTY
KANSAS

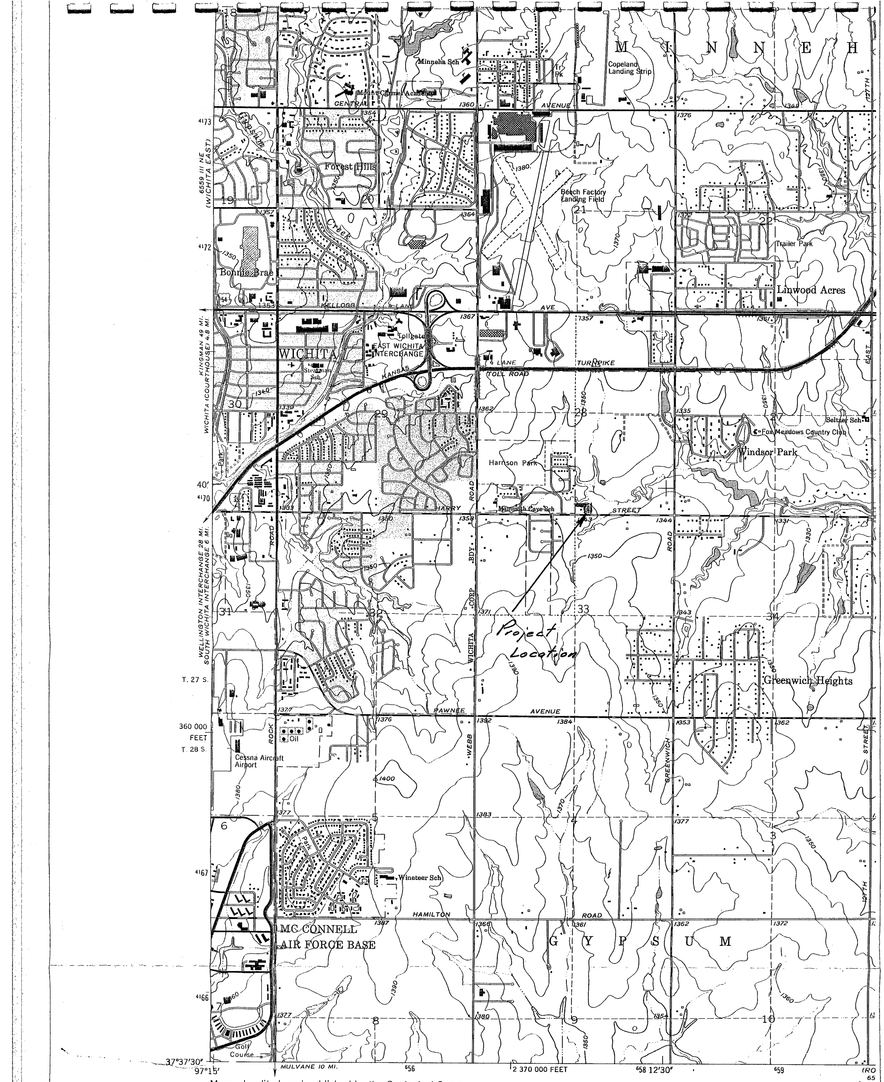
THIS TABLE CONTAINS AVERAGE RAINFALL INTENSITIES
IN INCHES PER HOUR.

DURATION,	RETURN PERIOD						
HR:MIN	1 YR	2 YR	5 YR	10 YR	25 YR	50 YR	100 YR
0:46	1.66	2.03	2.58	2.96	3.51	3.94	4.36
0:47	1.63	2.00	2.55	2.93	3.47	3.89	4.30
0:48	1.61	1.97	2.51	2.89	3.42	3.84	4.25
0:49	1.59	1.95	2.48	2.85	3.38	3.79	4.20
0:50	1.57	1.92	2.45	2.81	3.34	3.74	4.15
0:51	1.55	1.90	2.42	2.78	3.30	3.70	4.10
0:52	1.53	1.87	2.39	2.75	3.26	3.65	4.05
0:53	1.51	1.85	2.36	2.71	3.22	3.61	4.00
0:54	1.49	1.83	2.33	2.68	3.18	3.57	3.95
0:55	1.47	1.80	2.30	2.65	3.14	3.53	3.91
0:56	1.45	1.78	2.28	2.62	3.11	3.49	3.86
0:57	1.43	1.76	2.25	2.59	3.07	3.45	3.82
0:58	1.41	1.74	2.22	2.56	3.04	3.41	3.78
0:59	1.40	1.72	2.20	2.53	3.01	3.37	3.74
1:00	1.38	1.70	2.17	2.50	2.97	3.34	3.70
1:05	1.30	1.61	2.06	2.38	2.82	3.17	3.52
1:10	1.23	1.53	1.96	2.26	2.69	3.02	3.35
1:15	1.17	1.45	1.87	2.16	2.57	2.89	3.20
1:20	1.11	1.38	1.79	2.06	2.46	2.77	3.07
1:25	1.06	1.32	1.71	1.98	2.36	2.65	2.95
1:30	1.01	1.27	1.64	1.90	2.27	2.55	2.83
1:35	0.97	1.21	1.58	1.83	2.18	2.46	2.73
1:40	0.93	1.16	1.52	1.76	2.10	2.37	2.63
1:45	0.89	1.12	1.46	1.70	2.03	2.29	2.54
1:50	0.86	1.08	1.41	1.64	1.96	2.21	2.46
1:55	0.82	1.04	1.36	1.58	1.89	2.13	2.38
2:00	0.79	1.00	1.31	1.53	1.83	2.07	2.30
2:05	0.76	0.97	1.27	1.48	1.77	2.00	2.23
2:10	0.74	0.93	1.23	1.43	1.72	1.94	2.16
2:15	0.71	0.90	1.19	1.39	1.67	1.88	2.10
2:20	0.69	0.87	1.15	1.35	1.62	1.83	2.04
2:25	0.66	0.85	1.12	1.31	1.57	1.78	1.98
2:30	0.64	0.82	1.09	1.27	1.53	1.73	1.93
2:35	0.62	0.80	1.06	1.24	1.49	1.68	1.88
2:40	0.61	0.78	1.03	1.21	1.45	1.64	1.83
2:45	0.59	0.75	1.01	1.18	1.42	1.60	1.79
2:50	0.57	0.74	0.98	1.15	1.38	1.56	1.74
2:55	0.56	0.72	0.96	1.12	1.35	1.53	1.70
3:00	0.55	0.70	0.94	1.10	1.32	1.49	1.67

EXHIBIT NO. 1

SOIL LEGEND

SYMBOL	HYDROLOGIC GROUP	NAME
Aa	B	Albion-Shellabarger sandy loams, 1 to 4 percent slopes
Ab	B	Albion and Shellabarger sandy loans, 7 to 15 percent slopes
Ba	C	Blanket silt loam, 0 to 1 percent slopes
Bb	C	Blanket silt loan, 1 to 3 percent slopes
Ca	B	Canadian fine sandy loan
Cb	B	Canadian-Waldeck fine sandy loams
Cc	D	Carwile fine sandy loam
Cd	B	Clark-Ost clay loams, 1 to 4 percent slopes
Ce	C	Clime silty clay, 3 to 6 percent slopes
Ea	B	Elandco silt loam
Eb	B	Elandco silt loam, occasionally flooded
Ec	B	Elandco silt loam, frequently flooded
Fa	B	Farnum loam, 0 to 1 percent slopes
Fb	B	Farnum loam, 1 to 3 percent slopes
Fc	B	Farnum loam, sandy substratum, 0 to 1 percent slopes
Ga	D	Goessel silty clay, 0 to 1 percent slopes
Gb	D	Goessel silty clay, 1 to 2 percent slopes
Ia	D	Irwin silty clay loam, 1 to 3 percent slopes
Ib	D	Irwin silty clay loam, 3 to 6 percent slopes
Ic	D	Irwin silty clay loam, 2 to 6 percent slopes, eroded
La	C	Lesho loam
Lb	A	Lincoln soils
Ma	B	Milan loam, 1 to 3 percent slopes
Mb	B	Milan form, 3 to 6 percent slopes
Mc	B	Milan clay loam, 2 to 6 percent slopes, eroded
Na	B	Naron fine sandy loam
Oc	D	Owens clay loam, 1 to 3 percent slopes
Od	D	Owens-Rock outcrop complex, 3 to 10 percent slopes
Pa		Pits
Pb	D	Plevna fine sandy loam
Pc	A	Pratt loamy fine sand, undulating
Pd	A	Pratt-Tivoli complex, rolling
Ra	D	Renfrow silty clay loam, 1 to 3 percent slopes
Rb	D	Renfrow silty clay loam, 3 to 6 percent slopes
Rc	D	Renfrow-Owens clay loams, 1 to 4 percent slopes
Rd	D	Rosehill silty clay, 1 to 3 percent slopes
Sa	B	Shellabarger sandy loam, 1 to 3 percent slopes
Sb	B	Shellabarger sandy loam, 3 to 6 percent slopes
Sc	B	Shellabarger sandy loam, 3 to 6 percent slopes, eroded
Ta	D	Tabler silty clay loam
Tb	D	Tabler-Drummond complex
Ua	B	Urban land-Canadian complex
Ub	B	Urban land-Elandco complex
Uc	B	Urban land-Farnum complex, 0 to 3 percent slopes
Ud	D	Urban land-Irwin complex, 1 to 3 percent slopes
Ue	D	Urban land-Tabler complex
Va	B	Vanoss silt loam, 0 to 1 percent slopes
Vb	B	Vanoss silt loam, 1 to 3 percent slopes
Vc	B	Vanoss silt loam, 3 to 6 percent slopes
Vd	B	Vanoss silt loam, 3 to 6 percent slopes, eroded
Ve	D	Vernon sandy loam, 1 to 3 percent slopes
Vf	D	Vernon sandy loam, 3 to 6 percent lopes
Wa	C	Waldeck sandy loam
Wb	D	Waurika silt loam



Mapped, edited, and published by the Geological Survey in cooperation with State of Kansas agencies

Control by USGS and USC&GS

Culture and drainage in part compiled from aerial photographs taken 1954–1955. Topography by planetable surveys 1941–1942 Revised 1961

Polyconic projection. 1927 North American datum 10,000-foot grid based on Kansas coordinate system, south zone 1000-meter Universal Transverse Mercator grid ticks, zone 14, shown in blue

Red tint indicates area in which only landmark buildings are shown

To place on the predicted North American Datum 1983 move the projection lines 27 meters east as shown by dashed corner ticks

UTM GRID AND 1982 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

There may be private inholdings within the boundaries of the National or State reservations shown on this map

SCAL

1000 0 1000 2000

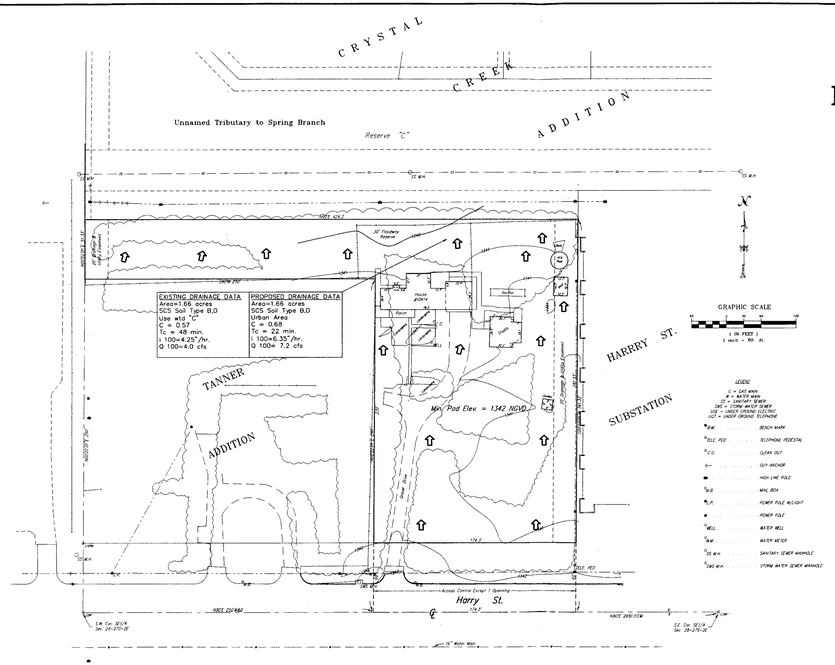
1 5

CONTOUR IN
NATIONAL GEODETIC

THIS MAP COMPLIES WITH NA
FOR SALE BY U.S. GEOLOGICAL SURVEY, DEN
AND STATE GEOLOGICAL SU
A FOLDER DESCRIBING TOPOGRAPHIC MA

Drainage Plan for Preliminary Plat
BULLOCH ADDITION

Wichita, Sedgwick County, Kansas



LEGEND

C = CAT. MAIN
W = WATER MAIN
SS = SANITARY SEWER
SD = STORM WATER SEWER
UGE = UNDER GROUND ELECTRIC
UGT = UNDER GROUND TELEPHONE

- BM ..... BENCH MARK
- TELE PED ..... TELEPHONE PEDESTAL
- CO ..... CLEAN OUT
- ..... GUY ANCHOR
- ..... HIGH LINE POLE
- MB ..... MAIL BOX
- PL ..... POWER POLE W/LIGHT
- ..... POWER POLE
- WELL ..... WATER WELL
- WM ..... WATER METER
- SS M.H. ..... SANITARY SEWER MANHOLE
- SWS M.H. ..... STORM WATER SEWER MANHOLE

Legal Description:

The north 51.33 feet of the south 341.33 feet of the west 424.3 feet of the SE1/4 of Sec. 28, Twp. 27-S, R-2-E of the 6th P.M., Sedgwick County, Kansas
AND
Beginning 250 feet east of the S.W. Corner of the SE1/4 of Sec. 28, Twp. 27-S, R-2-E of the 6th P.M., Sedgwick County, Kansas; thence east, along the south line of said SE1/4, 174.3 feet; thence north, parallel with the west line of said SE1/4, 290 feet; thence west, parallel with the south line of said SE1/4, 174.3 feet; thence south, 290 feet to the place of beginning.

OWNER:
Gordon A. Bulloch
Barbara G. Bulloch
10414 E. Harry
Wichita, Kansas 67207

Phone:

GROSS SIZE:
72329.29 Sq. Ft.
1.66 Acres±

NET SIZE OF PLAT:
61670.77 Sq. Ft.
1.42 Acres±

MINIMUM LOT SIZE:
61670.77 Sq. Ft.
1.42 Acres±

ZONING:
NR-Neighborhood Retail

CONTROL NUMBER:
135270

DRAINAGE KEY

- = Proposed Surface Drainage Direction
- = Existing Contours
- = Proposed Contours

HARLAN DALE FURNAS
LICENSED
10891
PROFESSIONAL ENGINEER
12.23.08

UTILITIES SHOWN REPRESENT THE BEST INFORMATION AVAILABLE FOR DESIGN. ADDITIONAL UTILITIES MAY BE PRESENT ON THIS PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY THE FAILURE TO DO SO.

SURVEY DISCLAIMER:
TOPOGRAPHIC SURVEY AND CONTOUR MAP USED IN PREPARING PLANS WAS PROVIDED BY SAVOY COMPANY, P.A., 539 S. EMPORIA, SUITE 104, WICHITA, KS. ENGINEER DOES NOT GUARANTEE SURVEY ELEVATIONS FOR ACCURACY. CONTRACTOR SHALL VERIFY ELEVATIONS AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

Minimum Building Pad Elevations For Lowest Opening to the Structures	
Lot 1	*1342 NGVD*

IMPERVIOUS AREA CALCULATION
Gross Area =72,329 sq.ft. (1.66 acres)

Existing Buildings:
Impervious Area=3,800 sq.ft. (0.09 acres)

Proposed Houses and Improvements
Impervious Area=29,400 sq.ft. (0.68 acres)

Pervious Area to remain in Gross=42,689 sq.ft. (0.98 acres)

CEDPROJNO: 20081688

CERTIFIED ENGINEERING DESIGN, P.A.
810 WEST DOUGLAS, SUITE C
WICHITA, KANSAS 67203
PH: (316) 262-8808
FAX: (316) 262-1669

SHEET 1
TOTAL 1

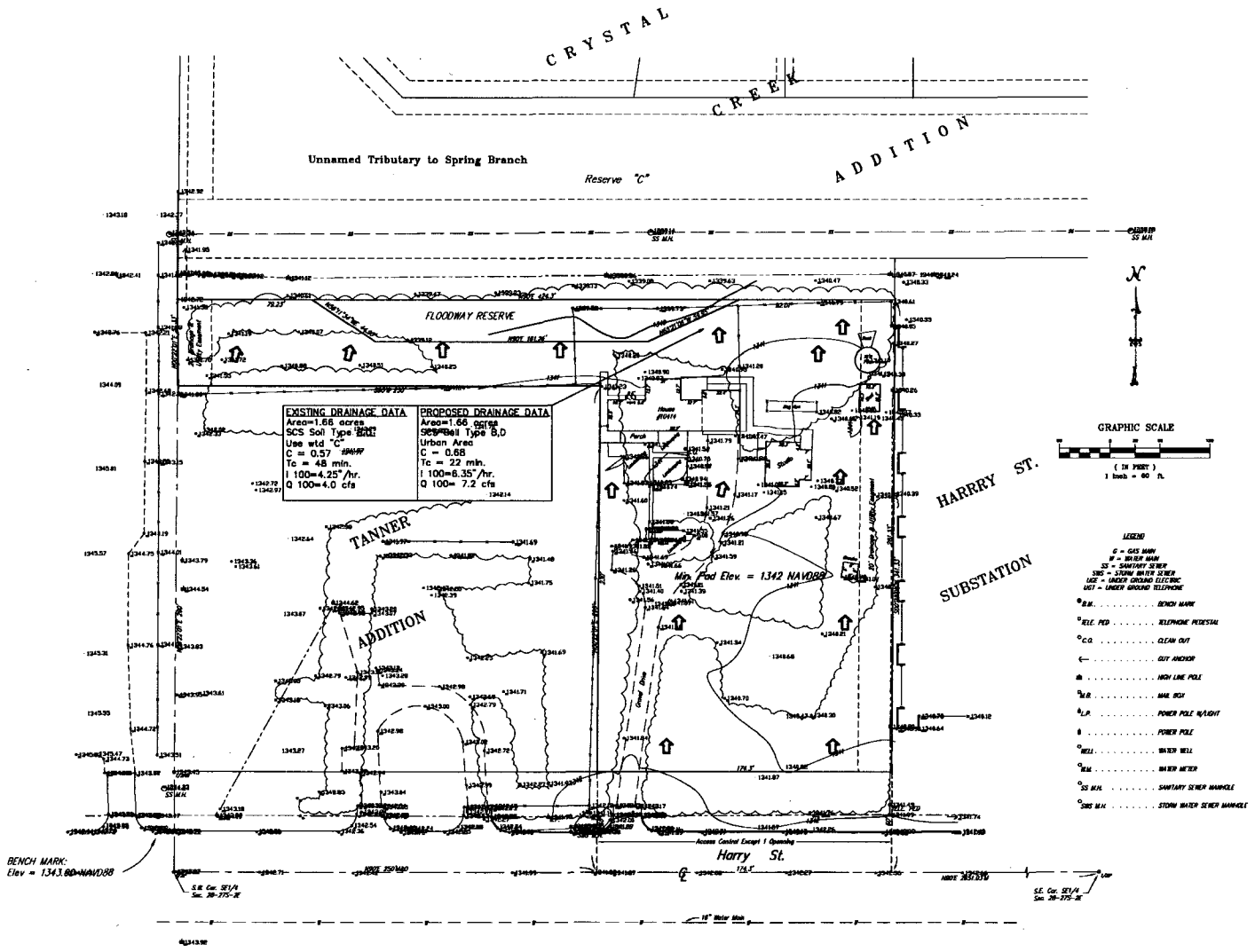
PROJECT NO. 08100421

Savoy Company, P.A.
Land Surveyors
633 S. Hydraulic, Wichita, KS. 67211-1911
PH (316) 265-6888
FAX (316) 265-8279
www.savoyco.com

3 MAY 08

Drainage Plan
for
Preliminary Plat
BULLOCH ADDITION

Wichita, Sedgwick County, Kansas



Legal Description:

The north 51.33 feet of the south 341.33 feet of the west 424.3 feet of the SE1/4 of Sec. 28, Twp. 27-S, R-2-E of the 6th P.M., Sedgwick County, Kansas
AND
Beginning 250 feet east of the S.W. Corner of the SE1/4 of Sec. 28, Twp. 27-S, R-2-E of the 6th P.M., Sedgwick County, Kansas; thence east, along the south line of said SE1/4, 174.3 feet; thence north, parallel with the west line of said SE1/4, 290 feet; thence west, parallel with the south line of said SE1/4, 174.3 feet; thence south, 290 feet to the place of beginning.

OWNER:
Gordon A. Bulloch
Barbara D. Bulloch
10414 E. Harry
Wichita, Kansas 67207

Phone:

GROSS SIZE:
72329.29 Sq. Ft.
1.66 Acres±

NET SIZE OF PLAT:
61870.77 Sq. Ft.
1.42 Acres±

MINIMUM LOT SIZE:
61870.77 Sq. Ft.
1.42 Acres±

ZONING:
NR-Neighborhood Retail

CONTROL NUMBER:
135270

DRAINAGE KEY
= Proposed Surface Drainage Direction
= Existing Contours
= Proposed Contours

HARLAN DALE FORAKER
LICENSED
10891
KANSAS
PROFESSIONAL ENGINEER

UTILITIES SHOWN REPRESENT THE BEST INFORMATION AVAILABLE FOR DESIGN. ADDITIONAL UTILITIES MAY BE PRESENT ON THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY THE FAILURE TO DO SO.

BENCH MARK:
Square Cut on Top of North Curb 24.5 feet north and 9 feet west of the S.W. Cor. of the SE1/4 of Sec 28-27S-2E.
Elevation = 1343.00 NAVD88

SURVEY DISCLAIMER:
TOPOGRAPHIC SURVEY AND CONTOUR MAP USED IN PREPARING PLANS WAS PROVIDED BY SAVOY COMPANY, P.A., 535 S. EMPORIA, SUITE 104, WICHITA, KS. ENGINEER DOES NOT GUARANTEE SURVEY ELEVATIONS FOR ACCURACY. CONTRACTOR SHALL VERIFY ELEVATIONS AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

Minimum Building Pad Elevations For Lowest Opening to the Structures	
Lot 1	*1342 NAVD88*

IMPERVIOUS AREA CALCULATION
Gross Area =72,329 sq.ft. (1.66 acres)

Existing Buildings:
Impervious Area=3,800 sq.ft. (0.09 acres)

Proposed Houses and Improvements
Impervious Area=29,400 sq.ft. (0.68 acres)

Pervious Area to remain in Grass=42,689 sq.ft. (0.98 acres)

CEDPROJ.NO.: 20081688
CERTIFIED ENGINEERING DESIGN, P.A.
CED
810 WEST DOUGLAS, SUITE C
WICHITA, KANSAS 67203
PH: (316) 262-8808
FAX: (316) 262-1669
SHEET 1
TOTAL 1

PROJECT NO. 08080421 P

Savoy Company, P.A.
Land Surveyors
535 S. Hydraulic, Wichita, KS. 67211-1911
PH (316) 265-6808
FAX (316) 265-6875
www.savoyco.com

8 MAY 08

Lindebak, Scott

From: H Foraker [hforaker@cedpa.com]
Sent: Wednesday, December 24, 2008 8:25 AM
To: Lindebak, Scott; Kallman, Julianne
Subject: Additional information Bulloch drainage plan
Attachments: Bulloch--DrainagePlan.pdf

Scott/Julianne: Attached is additional information presented on a 11"x17" pdf of the drainage plan with a floodway reserve shown along a portion of the north 25' feet of this plat. I have also included the spot elevations which were requested in order to delineate the floodway reserve. As mentioned yesterday to Scott there is no current site plan for the development on this property as Ms. Bulloch is platting in order to improve the market value as she is currently marketing the property for sale and when sold will no longer have her residence there. Therefore we would like to request that the detention requirement be designed at the time of the future site development when it is known. With this being a 1.4 acre site we should be able to incorporate detention into the proposed parking lot or a shallow detention area. Harlan Foraker.

Lindebak, Scott

From: H Foraker [hforaker@cedpa.com]
Sent: Tuesday, December 23, 2008 4:52 PM
To: Lindebak, Scott
Subject: Bulloch Addition drainage plan

Scott: It is not know what the proposed site plan for the Bulloch Addition will be as the current owner resides on the property until she finds a buyer. Therefore we would like to configure the detention requirements when we know if it can be accomplished in a parking lot or shallow detention storage. If the drainage plan could be conditionally approved with detention being required as part of the site development when its' configuration is known we would be agreeable to this. The floodplain elevation on the lot is halfway between the 1339 and 1341 BFE so we used 1340 and added 2 feet to set the minimum pad of 1342. The contour map was drawn from a Tin generated from spot elevations and I am having Savoy provide me a plat drawing with the spot elevations depicted. IHarlan.