DRAINAGE REPORT

USD 259 4th Addition

WICHITA, SEDGWICK COUNTY, KANSAS

May 07, 2010

Ruggles & Bohm P.A.

Engineering, Surveying, Land Planning

Adopted: February 23, 2007

CITY OF WICHITA

Public Works, Engineering Division
Final Drainage Plan Submittal Checklist

Reviewer:_____ Date:_____

Subdivision Name:_____ Location:_____

Total Land Area Of Ownership:_____ 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)

	Applicant			Engr	
Tab 1. Project Narrative	**I**	**NA**	**Explanation / Location in Plan**	**I**	**NA**
A. Site Location Map, using USGS Map			Report	✓	
B. Discussion of development, existing conditions, and proposed impacts on stormwater, wetland, riparian, and flood plain			Report	✓	
C. Discussion of offsite conditions			Report	✓	
D. Summary of runoff calculations (pre/post development) No increase in peak discharge for all storm series			Report	✓	
E. Narrative description of the type and function of the permanent best management practices that are incorporated into the site design			Report	✓	
F. Copy of the plat			Report	✓	
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.)			Site Layout is not determined. Lot Grading will be design as site layout Becomes available		X
H. Professional Engineer seal, signature and date on cover of report			Report	✓	
I. CD of drainage plan in PDF format (one file) and one paper copy bound with this checklist included behind the cover			Report	✓	

	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)			Report	✓	
B. Runoff Method (Rational, Hydrograph Method, or other approved methods by Engineering)			Report	✓	
C. Existing topography (no greater than 2-foot contours, 1-foot recommend)			Drainage Map		
D. Total Site Area and Total Impervious Area (acres)					
E. Benchmarks used for site control			Drainage Map		
F. Streams, creeks, and waterway labeled					✓
G. Predominant soils from USDA soil surveys, and/or on site soil borings			Report	✓	
H. Location and boundaries of natural features such as wetlands, lakes, and ponds with the normal water elevation noted			No Ponds Present		✓
I. Location of existing roads, buildings, parking lots and other impervious areas.			No Impervious Areas Present		✓

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

	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)			Drainage Report & Map	X	
B. Proposed time of concentrations used in calculations			Drainage Report	✓	
C. Assumed post-developed runoff curve numbers			Drainage Report	✓	
D. Proposed contours for detention facilities (to equal area used in outlet rating curves)			Drainage Map	✓	
E. Preliminary sizing calculations for stormwater controls including contributing drainage area, storage, and outlet configuration			Drainage Report	✓	
F. Stage-storage-discharge or outlet rating curves and inflow and outflow hydrographs for storage facilities			Drainage Report	✓	
G. Final analysis of potential upstream/downstream impact/effects of project, where necessary			N/A	✓	X
H. Existing and proposed structural elevations (e.g., invert of pipes, manholes, etc.)			Drainage Report. Also site to be designed plan not finalized/site storm sewers later		X
I. Design water surface elevations and normal pool elevation for ponds.			Drainage Report & Map	✓	
J. Typical detail for outlet structures, embankments, spillways, grade control structures, conveyance channels, etc. To include height, width, elevation, and/or diameter.			Drainage Report	✓	
K. Proposed limits of clearing and grading			Future SITE PLANS		X
L. Location of existing and proposed roads, buildings, parking lots and other impervious areas.			Future Site Plans		X
M. Location of existing and proposed utilities (e.g., water, sewer) and easements			Drainage Maps	✓	
N. Location of existing and proposed conveyance systems such as storm drains, inlets, catch basins, channels, swales, and areas of overland flow			Drainage Map	✓	
O. Preliminary location and dimensions of proposed channel modifications, such as bridge or culvert crossings			Drainage Map	✓	

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P. Preliminary selection and location of stormwater controls			Drainage Report.	✓	
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			Drainage Map	✓	
T. Lowest opening elevations table on the plat for structures located adjacent to channels or ponds			Drainage Report	✓	
U. Stormwater Management Facilities located within a Reserve			Site plan not complete. Will be by separate inst. when needed	✓	
V. Maintenance responsibility of stormwater management facility shall be specified in the platters text. (e.g. HOA, Lot Owners Association, or lot)			Plat language	✓	
W. Off-site drainage easements or agreements required, where necessary			N/A		X

	Applicant			Engr	
Tab 4. Floodplain Submittal	**I**	**NA**	**Explanation / Location in Plan**	**I**	**NA**
A. Provide source of flood profile			N/A		X
B. Nearest base flood elevations			N/A		X
C. Delineation of pre-developed regulatory floodplain/floodway limits			N/A		X
D. Delineation of post-developed regulatory floodplain and floodway limits			N/A		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)			N/A		X
J. Flood plains and floodways located within a Reserve, where necessary			N/A		X

	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** X
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.)			N/A		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.			N/A		X
D. Kansas Department of Transportation			N/A		X
E. Sedgwick County Right-of-way Permit			N/A		X

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DRAINAGE REPORT

USD 259 4th Addition

WICHITA, SEDGWICK COUNTY, KANSAS

May 07, 2010

USD 259 4th Addition
DRAINAGE ANALYSIS
May 7, 2010

INTRODUCTION

This report contains supporting documentation and calculations for the proposed USD 4th Addition development. The proposed site is an undeveloped 125 acre parcel of land located in the NE ¼ of Section 3 T28S R2E on Harry Street East of Greenwich Road. The area is currently pasture land and the soil type located on site is an Irwin silty clay loam in hydrologic group D. The site drains in two directions generally with approximately 22 acres draining north to a culvert under Pawnee while the remaining 103 acres drains to a natural channel exiting the site in the approximate midpoint of the south line. The site has three sources of tributary area that drain onto it. 5.9 acres of offsite area enter the northern portion of the site and passes through to the Pawnee culvert. An additional 30.3 acres enters the southern portion of the site along the west line and exits the site in the channel on the south line. The third and final offsite tributary area is 133 acres which enters the site along the south line and then immediately joins the natural channel previously discussed and leaves the site. Additional offsite areas are included in the proposed condition and are discussed in a later section. The information located on the attached FEMA FIRM 20173C0390E indicates the site is located in unshaded Zone X, defined as areas outside of the 0.2% floodplain.

HYDROLOGY

The detention analysis and the hydrology for the pre and post development models were performed using HEC-HMS. The times of concentration were calculated using the velocity method and overland flow rates from attachment E of the City of Wichita Drainage Criteria. The parameters and results of the existing and proposed analysis are shown in the tables below.

Existing	Area (ac.)	CN	TC (min.)	Q2 (cfs)	Q5 (cfs)	Q10 (cfs)	Q25 (cfs)	Q100 (cfs)
North Basin*	39.1	85	30	62	89.5	102.6	134.1	181.6
South Basin*	7.2	85	66	271.6	393.6	468	592.9	805.8

* Comparison point for Existing vs. Proposed conditions.

Proposed	Area (ac.)	CN	TC (min.)	Q2 (cfs)	Q5 (cfs)	Q10 (cfs)	Q25 (cfs)	Q100 (cfs)
HS 1	5.9	85.4	20	10.5	14.9	17.5	22.1	30
HS 2	8.7	84.5	24	14.7	21.2	25.1	31.8	43
HS 3	18.2	87.6	66	58.6	80.2	93.3	115.1	152.1
HS 4	72.4	86.5	36	106.4	151.9	179.5	225.6	303.9
Occidental 1	10.0	95	15	30.0	38.7	44	52.7	67.5
Occidental 2	3.1	95	15	9.3	12.0	13.6	16.3	20.9
Occidental 3	9.5	95	15	28.5	36.7	41.7	50	64.0
ES 1	20.0	88.2	30	38.8	52.9	61.4	75.5	99.4
Pond 1	--	--	--	2.2	2.5	2.6	2.7	3.0

Pond 2	--	--	--	5.4	10.4	15.8	26.6	46.2
Pond 3	--	--	--	50.2	68.1	79.1	97.3	128.2
Pond 4	--	--	--	130.3	183.1	215.7	273.8	377.0
North Pond*	--	--	--	53.6	69.6	79.6	96.8	123.2
Div. Chan.	--	--	--	139.1	201	238.8	302.1	409.8
Total South*	--	--	--	269.4	382.2	453.4	575.9	786.8

* Comparison point for Existing vs. Proposed conditions.

The results demonstrate that the detention provided in the detention ponds will adequately reduce the peak runoff from the site to less than or equal to pre development levels. Design parameters of the proposed detention ponds are discussed in a later section. The proposed condition has additional offsite areas included off the northeast corner of the plat. A commercial development is planned in this location and the detention needs of this offsite parcel will be provided in the detention ponds of the USD 259 4th Addition. The commercial site areas are labeled Occidental 1, 2 and 3 and are 10, 3.1 and 9.5 acres in size for a 22.6 acre total. The remaining 4.0 acres will be allowed to flow to the east under 127th street. The areas from the Occidental site taken into the USD 259 detention ponds are sized such that the remaining area should not release more runoff in the developed condition than in the existing condition. In short the USD 259 4th Addition ponds will provide the detention storage for the Occidental site.

DETENTION PONDS

The SCS Type II Rainfall Distribution as modeled by the HEC-HMS program is used for analysis, with a total 100-year 24 hour rainfall event of 7.8 inches (TR-55). This rainfall model is used for all basins. The attached drainage maps demonstrate the extents of the detained tributary area. The proposed detention system shall be dry bottom detention ponds. A concrete pilot channel will be required for any of the pond bottoms with a slope of less than 1%. The following tables show design parameters of the ponds and the performance of the ponds in the various design storms.

Pond 1		Pond 2		Pond 3	
Stage	Area (ac-ft)	Stage	Area (ac-ft)	Stage	Area (ac-ft)
1350.8	0.00	1350.5	0.00	1344.5	0.00
1351.0	0.00	1351.0	0.37	1345.0	0.20
1352.0	0.53	1352.0	1.33	1346.0	0.37
1353.0	2.17	1353.0	1.59	1347.0	0.93
1354.0	4.09	1354.0	1.69	1348.0	1.10
1355.0	4.34	1355.0	1.79	1349.0	1.19
				1350.0	1.29

N. Pond

Stage	Area (ac-ft)
1349.0	0.00
1350.0	0.39
1351.0	1.57
1352.0	2.49
1353.0	2.62
1349.0	0.00
1350.0	0.39

Pond 4

Stage	Area (ac-ft)
1341.0	0.000
1342.0	0.950
1342.5	1.525
1343.0	2.100
1344.0	3.380
1345.0	3.670

Pond 1

Design Storm	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage (ac-ft.)	Peak Elevation
2-yr	19.6	2.2	1.0	1352.6
5-yr	26.8	2.5	1.4	1353.0
10-yr	31.2	2.6	1.6	1353.1
25-yr	38.5	2.7	2.1	1353.2
100-yr	50.9	3.0	2.9	1353.5

Pond 2

Design Storm	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage (ac-ft.)	Peak Elevation
2-yr	40.5	5.4	2.1	1352.8
5-yr	54.4	10.4	2.7	1353.3
10-yr	62.9	15.8	3.0	1353.4
25-yr	77.0	26.6	3.5	1353.7
100-yr	101.0	46.2	4.2	1354.1

Pond 3

Design Storm	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage (ac-ft.)	Peak Elevation
2-yr	58.6	50.2	1.1	1347.1
5-yr	80.2	68.1	1.5	1347.6
10-yr	93.3	79.1	1.8	1347.9
25-yr	115.1	97.3	2.3	1348.3
100-yr	152.1	128.2	3.2	1349

Pond 4

Design Storm	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage (ac-ft.)	Peak Elevation
2-yr	138.2	130.3	2.3	1343.2
5-yr	191.8	183.1	2.7	1343.3
10-yr	226.2	215.7	3.0	1343.4
25-yr	288.5	273.8	3.5	1343.6
100-yr	398.7	377.0	4.4	1343.9

North Pond

Design Storm	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage (ac-ft.)	Peak Elevation
2-yr	60.9	53.6	0.4	1350.3
5-yr	81.5	69.6	0.6	1350.5
10-yr	93.8	79.6	0.8	1350.7
25-yr	114.3	96.8	1.0	1351.0
100-yr	149.1	123.2	1.5	1351.2

The pond outlets shall be controlled by a variety of outlets and a described as follows; Pond 1 will br controlled by an 18" RCP culvert, Pond 2 will have a 24" RCP culvert as well as a weir structure starting at elevation 1353.0 and a length of 10', Pond 3 will be controlled by a weir structure beginning at elevation 1344.5 and a length of 4', the Pond 4 outlet is designed as a staged weir with a 1' notch at elevation 1341.0 and a 40' weir beginning and elevation 1343.00, North Pond shall be controlled by a weir with a length of 12' beginning at elevation 1349.00.

The entire plat is to be only one lot, therefore, different minimum pad elevations will have to be set for different areas of the lot. North Ponds zone of influence shall be the area labeled ES 1 on the Drainage Map and shall have a minimum pad elevation of 1353.2. Ponds 1 and 2 shall effect any structures north of the south line of the ponds and shall have a minimum pad elevation of 1356.1. Pond 3 shall be constructed such that any pond overflows will be directed either into Pond 4 or south away from any potential structures however any adjacent structures shall have a minimum pad elevation of 1351.00. And finally Pond 4 shall control the minimum pad elevation of any structures located upstream of the pond to the point where Ponds 1 and 2 begin to control. Structures in the Pond 4 area of influence shall have a minimum pad elevation of 1346.00.

The diversion channel is required to keep the onsite drainage separate from the offsite are which enters the site along the south boundary and exits the site a short distance later after joining the onsite channel. The separated flows allow for a smaller outflow structure in Pond 4 and allow the water surface elevation in the pond to be lower. The proposed diversion channel shall have a flat bottom with a width of 15' and a longitudinal slope of 0.42%.

EXISTING CONDITIONS

Project: 3612P Simulation Run: Exist 002-yr

Start of Run: 01Jan2010, 12:00 Basin Model: Exist
End of Run: 02Jan2010, 12:10 Meteorologic Model: 002-yr
Compute Time: 07May2010, 14:09:33 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
North Basin	0.06109	62.0	02Jan2010, 00:1
South Basin	0.43000	271.6	02Jan2010, 00:3

Project: 3612P Simulation Run: Exist 005-yr

Start of Run: 01Jan2010, 12:00 Basin Model: Exist
End of Run: 02Jan2010, 12:10 Meteorologic Model: 005-yr
Compute Time: 06May2010, 09:18:24 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
North Basin	0.06109	89.5	02Jan2010, 00:1
South Basin	0.43000	393.6	02Jan2010, 00:3

Project: 3612P Simulation Run: Exist 010-yr

Start of Run: 01Jan2010, 12:00 Basin Model: Exist
End of Run: 02Jan2010, 12:10 Meteorologic Model: 010-yr
Compute Time: 06May2010, 09:18:27 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
North Basin	0.06109	106.2	02Jan2010, 00:1
South Basin	0.43000	468.0	02Jan2010, 00:3

Project: 3612P Simulation Run: Exist 025-yr

Start of Run: 01Jan2010, 12:00
End of Run: 02Jan2010, 12:10
Compute Time: 06May2010, 09:18:30

Basin Model: Exist
Meteorologic Model: 025-yr
Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
North Basin	0.06109	134.1	02Jan2010, 00:1
South Basin	0.43000	592.9	02Jan2010, 00:3

Project: 3612P Simulation Run: Exist 100-yr

Start of Run: 01Jan2010, 12:00
End of Run: 02Jan2010, 12:10
Compute Time: 06May2010, 09:15:27

Basin Model: Exist
Meteorologic Model: 100-yr
Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
North Basin	0.06109	181.6	02Jan2010, 00:1
South Basin	0.43000	805.8	02Jan2010, 00:3

PROPOSED CONDITIONS

Project: 3612P Simulation Run: Prop 002-yr

Start of Run: 01Jan2010, 12:00 Basin Model: Proposed
End of Run: 02Jan2010, 12:10 Meteorologic Model: 002-yr
Compute Time: 07May2010, 15:12:31 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
Pond 1	0.01405	2.2	02Jan2010, 01:0
Pond 2	0.02840	5.4	02Jan2010, 00:5
Pond 3	0.07580	50.2	02Jan2010, 00:5
Pond 4	0.23135	130.3	02Jan2010, 00:3
North Pond	0.04685	53.6	02Jan2010, 00:1
HS 1	0.00921	10.5	02Jan2010, 00:1
HS 2	0.01360	14.7	02Jan2010, 00:1
HS 3	0.07580	58.6	02Jan2010, 00:3
HS 4	0.11310	106.4	02Jan2010, 00:1
Occidental 1	0.01560	30.0	02Jan2010, 00:0
Occidental 2	0.00484	9.3	02Jan2010, 00:0
Occidental 3	0.01480	28.5	02Jan2010, 00:0
ES 1	0.03125	38.8	02Jan2010, 00:1
Diversion Channel	0.20800	139.1	02Jan2010, 00:3
Total South	0.43935	269.4	02Jan2010, 00:3
Road	0.04245	7.6	02Jan2010, 01:0

Project: 3612P Simulation Run: Prop 005-yr

Start of Run: 01Jan2010, 12:00 Basin Model: Proposed
End of Run: 02Jan2010, 12:10 Meteorologic Model: 005-yr
Compute Time: 07May2010, 15:12:48 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
Pond 1	0.01405	2.5	02Jan2010, 01:1
Pond 2	0.02840	10.4	02Jan2010, 00:4
Pond 3	0.07580	68.1	02Jan2010, 00:5
Pond 4	0.23135	183.1	02Jan2010, 00:2
North Pond	0.04685	69.6	02Jan2010, 00:1
HS 1	0.00921	14.9	02Jan2010, 00:1
HS 2	0.01360	21.2	02Jan2010, 00:1
HS 3	0.07580	80.2	02Jan2010, 00:3
HS 4	0.11310	151.9	02Jan2010, 00:1
Occidental 1	0.01560	38.7	02Jan2010, 00:0
Occidental 2	0.00484	12.0	02Jan2010, 00:0
Occidental 3	0.01480	36.7	02Jan2010, 00:0
ES 1	0.03125	52.9	02Jan2010, 00:1
Diversion Channel	0.20800	201.0	02Jan2010, 00:3
Total South	0.43935	382.2	02Jan2010, 00:3
Road	0.04245	12.9	02Jan2010, 00:4

Project: 3612P Simulation Run: Prop 010-yr

Start of Run: 01Jan2010, 12:00
End of Run: 02Jan2010, 12:10
Compute Time: 07May2010, 15:13:04

Basin Model: Proposed
Meteorologic Model: 010-yr
Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
Pond 1	0.01405	2.6	02Jan2010, 01:2
Pond 2	0.02840	15.8	02Jan2010, 00:3
Pond 3	0.07580	79.1	02Jan2010, 00:5
Pond 4	0.23135	215.7	02Jan2010, 00:2
North Pond	0.04685	79.6	02Jan2010, 00:2
HS 1	0.00921	17.5	02Jan2010, 00:0
HS 2	0.01360	25.1	02Jan2010, 00:1
HS 3	0.07580	93.3	02Jan2010, 00:3
HS 4	0.11310	179.5	02Jan2010, 00:1
Occidental 1	0.01560	44.0	02Jan2010, 00:0
Occidental 2	0.00484	13.6	02Jan2010, 00:0
Occidental 3	0.01480	41.7	02Jan2010, 00:0
ES 1	0.03125	61.4	02Jan2010, 00:1
Diversion Channel	0.20800	238.8	02Jan2010, 00:3
Total South	0.43935	453.4	02Jan2010, 00:3
Road	0.04245	18.4	02Jan2010, 00:4

Project: 3612P Simulation Run: Prop 025-yr

Start of Run: 01Jan2010, 12:00 Basin Model: Proposed
End of Run: 02Jan2010, 12:10 Meteorologic Model: 025-yr
Compute Time: 07May2010, 15:13:20 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
Pond 1	0.01405	2.7	02Jan2010, 01:4
Pond 2	0.02840	26.6	02Jan2010, 00:3
Pond 3	0.07580	97.3	02Jan2010, 00:5
Pond 4	0.23135	273.8	02Jan2010, 00:3
North Pond	0.04685	96.8	02Jan2010, 00:2
HS 1	0.00921	22.1	02Jan2010, 00:0
HS 2	0.01360	31.8	02Jan2010, 00:1
HS 3	0.07580	115.1	02Jan2010, 00:3
HS 4	0.11310	225.6	02Jan2010, 00:1
Occidental 1	0.01560	52.7	02Jan2010, 00:0
Occidental 2	0.00484	16.3	02Jan2010, 00:0
Occidental 3	0.01480	50.0	02Jan2010, 00:0
ES 1	0.03125	75.5	02Jan2010, 00:1
Diversion Channel	0.20800	302.1	02Jan2010, 00:3
Total South	0.43935	575.9	02Jan2010, 00:3
Road	0.04245	29.3	02Jan2010, 00:3

Project: 3612P Simulation Run: Prop 100-yr

Start of Run: 01Jan2010, 12:00 Basin Model: Proposed
End of Run: 02Jan2010, 12:10 Meteorologic Model: 100-yr
Compute Time: 07May2010, 15:13:36 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak
Pond 1	0.01405	3.0	02Jan2010, 02:0
Pond 2	0.02840	46.2	02Jan2010, 00:2
Pond 3	0.07580	128.2	02Jan2010, 00:5
Pond 4	0.23135	377.0	02Jan2010, 00:3
North Pond	0.04685	123.2	02Jan2010, 00:2
HS 1	0.00921	30.0	02Jan2010, 00:0
HS 2	0.01360	43.0	02Jan2010, 00:1
HS 3	0.07580	152.1	02Jan2010, 00:3
HS 4	0.11310	303.9	02Jan2010, 00:1
Occidental 1	0.01560	67.5	02Jan2010, 00:0
Occidental 2	0.00484	20.9	02Jan2010, 00:0
Occidental 3	0.01480	64.0	02Jan2010, 00:0
ES 1	0.03125	99.4	02Jan2010, 00:1
Diversion Channel	0.20800	409.8	02Jan2010, 00:3
Total South	0.43935	786.8	02Jan2010, 00:3
Road	0.04245	49.0	02Jan2010, 00:2

DETENTION PONDS

Project: 3612P

Simulation Run: Prop 002-yr Reservoir: Pond 1

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	002-yr
Compute Time:	07May2010, 15:12:31	Control Specifications:	Control 1

Volume Units: AC-FT

Computed Results

Peak Inflow :	19.6 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:00
Peak Outflow :	2.2 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 01:00
Total Inflow :	1.9 (AC-FT)	Peak Storage :	1.0 (AC-FT)
Total Outflow :	1.8 (AC-FT)	Peak Elevation :	1352.6 (FT)

Project: 3612P

Simulation Run: Prop 002-yr Reservoir: Pond 2

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	002-yr
Compute Time:	07May2010, 15:12:31	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	40.5 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:00
Peak Outflow :	5.4 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 00:50
Total Inflow :	2.71 (IN)	Peak Storage :	2.1 (AC-FT)
Total Outflow :	2.45 (IN)	Peak Elevation :	1352.8 (FT)

Project: 3612P

Simulation Run: Prop 002-yr Reservoir: Pond 3

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	002-yr
Compute Time:	07May2010, 15:12:31	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	58.6 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:30
Peak Outflow :	50.2 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 00:50
Total Inflow :	2.54 (IN)	Peak Storage :	1.1 (AC-FT)
Total Outflow :	2.53 (IN)	Peak Elevation :	1347.1 (FT)

Project: 3612P

Simulation Run: Prop 002-yr Reservoir: Pond 4

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	002-yr
Compute Time:	07May2010, 15:12:31	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	138.2 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:20
Peak Outflow :	130.3 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 00:30
Total Inflow :	2.31 (IN)	Peak Storage :	2.3 (AC-FT)
Total Outflow :	2.24 (IN)	Peak Elevation :	1343.2 (FT)

Project: 3612P

Simulation Run: Prop 002-yr Reservoir: North Pond

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	002-yr
Compute Time:	07May2010, 15:12:31	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	60.9 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:10
Peak Outflow :	53.6 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 00:10
Total Inflow :	2.84 (IN)	Peak Storage :	0.4 (AC-FT)
Total Outflow :	2.84 (IN)	Peak Elevation :	1350.3 (FT)

Project: 3612P

Simulation Run: Prop 005-yr Reservoir: Pond 1

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	005-yr
Compute Time:	07May2010, 15:12:48	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	26.8 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:00
Peak Outflow :	2.5 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 01:10
Total Inflow :	3.47 (IN)	Peak Storage :	1.4 (AC-FT)
Total Outflow :	3.04 (IN)	Peak Elevation :	1353.0 (FT)

Project: 3612P

Simulation Run: Prop 005-yr Reservoir: Pond 2

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	005-yr
Compute Time:	07May2010, 15:12:48	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	54.4 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:00
Peak Outflow :	10.4 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 00:40
Total Inflow :	3.65 (IN)	Peak Storage :	2.7 (AC-FT)
Total Outflow :	3.32 (IN)	Peak Elevation :	1353.3 (FT)

Project: 3612P

Simulation Run: Prop 005-yr Reservoir: Pond 3

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	005-yr
Compute Time:	07May2010, 15:12:48	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	80.2 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:30
Peak Outflow :	68.1 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 00:50
Total Inflow :	3.47 (IN)	Peak Storage :	1.5 (AC-FT)
Total Outflow :	3.47 (IN)	Peak Elevation :	1347.6 (FT)

Project: 3612P

Simulation Run: Prop 005-yr Reservoir: Pond 4

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	005-yr
Compute Time:	07May2010, 15:12:48	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	191.8 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:20
Peak Outflow :	183.1 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 00:20
Total Inflow :	3.21 (IN)	Peak Storage :	2.7 (AC-FT)
Total Outflow :	3.13 (IN)	Peak Elevation :	1343.3 (FT)

Project: 3612P

Simulation Run: Prop 005-yr Reservoir: North Pond

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	005-yr
Compute Time:	07May2010, 15:12:48	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	81.5 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:10
Peak Outflow :	69.6 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 00:10
Total Inflow :	3.81 (IN)	Peak Storage :	0.6 (AC-FT)
Total Outflow :	3.80 (IN)	Peak Elevation :	1350.5 (FT)

Project: 3612P

Simulation Run: Prop 010-yr Reservoir: Pond 1

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	010-yr
Compute Time:	07May2010, 15:13:04	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	31.2 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:00
Peak Outflow :	2.6 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 01:20
Total Inflow :	4.04 (IN)	Peak Storage :	1.6 (AC-FT)
Total Outflow :	3.41 (IN)	Peak Elevation :	1353.1 (FT)

Project: 3612P

Simulation Run: Prop 010-yr Reservoir: Pond 2

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	010-yr
Compute Time:	07May2010, 15:13:04	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	62.9 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:00
Peak Outflow :	15.8 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 00:30
Total Inflow :	4.22 (IN)	Peak Storage :	3.0 (AC-FT)
Total Outflow :	3.85 (IN)	Peak Elevation :	1353.4 (FT)

Project: 3612P

Simulation Run: Prop 010-yr Reservoir: Pond 3

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	010-yr
Compute Time:	07May2010, 15:13:04	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	93.3 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:30
Peak Outflow :	79.1 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 00:50
Total Inflow :	4.04 (IN)	Peak Storage :	1.8 (AC-FT)
Total Outflow :	4.04 (IN)	Peak Elevation :	1347.9 (FT)

Project: 3612P

Simulation Run: Prop 010-yr Reservoir: Pond 4

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	010-yr
Compute Time:	07May2010, 15:13:04	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	226.2 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:20
Peak Outflow :	215.7 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 00:20
Total Inflow :	3.76 (IN)	Peak Storage :	3.0 (AC-FT)
Total Outflow :	3.68 (IN)	Peak Elevation :	1343.4 (FT)

Project: 3612P

Simulation Run: Prop 010-yr Reservoir: North Pond

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	010-yr
Compute Time:	07May2010, 15:13:04	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	93.8 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:10
Peak Outflow :	79.6 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 00:20
Total Inflow :	4.39 (IN)	Peak Storage :	0.8 (AC-FT)
Total Outflow :	4.39 (IN)	Peak Elevation :	1350.7 (FT)

Project: 3612P

Simulation Run: Prop 025-yr Reservoir: Pond 1

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	025-yr
Compute Time:	07May2010, 15:13:20	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	38.5 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:00
Peak Outflow :	2.7 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 01:40
Total Inflow :	5.00 (IN)	Peak Storage :	2.1 (AC-FT)
Total Outflow :	3.91 (IN)	Peak Elevation :	1353.2 (FT)

Project: 3612P

Simulation Run: Prop 025-yr Reservoir: Pond 2

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	025-yr
Compute Time:	07May2010, 15:13:20	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	77.0 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:00
Peak Outflow :	26.6 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 00:30
Total Inflow :	5.19 (IN)	Peak Storage :	3.5 (AC-FT)
Total Outflow :	4.77 (IN)	Peak Elevation :	1353.7 (FT)

Project: 3612P

Simulation Run: Prop 025-yr Reservoir: Pond 3

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	025-yr
Compute Time:	07May2010, 15:13:20	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	115.1 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:30
Peak Outflow :	97.3 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 00:50
Total Inflow :	5.00 (IN)	Peak Storage :	2.3 (AC-FT)
Total Outflow :	5.00 (IN)	Peak Elevation :	1348.3 (FT)

Project: 3612P

Simulation Run: Prop 025-yr Reservoir: Pond 4

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	025-yr
Compute Time:	07May2010, 15:13:20	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	288.5 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:20
Peak Outflow :	273.8 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 00:30
Total Inflow :	4.67 (IN)	Peak Storage :	3.5 (AC-FT)
Total Outflow :	4.59 (IN)	Peak Elevation :	1343.6 (FT)

Project: 3612P

Simulation Run: Prop 025-yr Reservoir: North Pond

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	025-yr
Compute Time:	07May2010, 15:13:20	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	114.3 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:10
Peak Outflow :	96.8 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 00:20
Total Inflow :	5.36 (IN)	Peak Storage :	1.0 (AC-FT)
Total Outflow :	5.36 (IN)	Peak Elevation :	1351.0 (FT)

Project: 3612P

Simulation Run: Prop 100-yr Reservoir: Pond 1

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	100-yr
Compute Time:	07May2010, 15:13:36	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	50.9 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:00
Peak Outflow :	3.0 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 02:00
Total Inflow :	6.65 (IN)	Peak Storage :	2.9 (AC-FT)
Total Outflow :	4.52 (IN)	Peak Elevation :	1353.5 (FT)

Project: 3612P

Simulation Run: Prop 100-yr Reservoir: Pond 2

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	100-yr
Compute Time:	07May2010, 15:13:36	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	101.0 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:00
Peak Outflow :	46.2 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 00:20
Total Inflow :	6.85 (IN)	Peak Storage :	4.2 (AC-FT)
Total Outflow :	6.33 (IN)	Peak Elevation :	1354.1 (FT)

Project: 3612P

Simulation Run: Prop 100-yr Reservoir: Pond 3

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	100-yr
Compute Time:	07May2010, 15:13:36	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	152.1 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:30
Peak Outflow :	128.2 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 00:50
Total Inflow :	6.65 (IN)	Peak Storage :	3.2 (AC-FT)
Total Outflow :	6.64 (IN)	Peak Elevation :	1349.0 (FT)

Project: 3612P

Simulation Run: Prop 100-yr Reservoir: Pond 4

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	100-yr
Compute Time:	07May2010, 15:13:36	Control Specifications:	Control 1

Volume Units: IN

Computed Results

Peak Inflow :	398.7 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:20
Peak Outflow :	377.0 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 00:30
Total Inflow :	6.24 (IN)	Peak Storage :	4.4 (AC-FT)
Total Outflow :	6.15 (IN)	Peak Elevation :	1343.9 (FT)

Project: 3612P

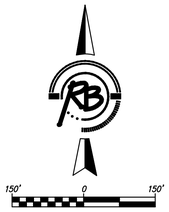
Simulation Run: Prop 100-yr Reservoir: North Pond

Start of Run:	01Jan2010, 12:00	Basin Model:	Proposed
End of Run:	02Jan2010, 12:10	Meteorologic Model:	100-yr
Compute Time:	07May2010, 15:13:36	Control Specifications:	Control 1

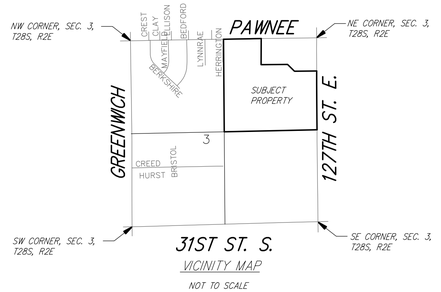
Volume Units: IN

Computed Results

Peak Inflow :	149.1 (CFS)	Date/Time of Peak Inflow :	02Jan2010, 00:10
Peak Outflow :	123.2 (CFS)	Date/Time of Peak Outflow :	02Jan2010, 00:20
Total Inflow :	7.04 (IN)	Peak Storage :	1.5 (AC-FT)
Total Outflow :	7.03 (IN)	Peak Elevation :	1351.2 (FT)



BENCH MARK: CHISELED SQUARE ON THE TOP OF CURB AT THE SOUTH END OF THE ISLAND AT THE ENTRANCE OF CASA BELLA ADDITION, AT THE INTERSECTION OF TARA FALLS AND PAWNEE
ELEVATION = 1354.46 (NAVD88)



VICINITY MAP

NOT TO SCALE

USD 259 4TH ADDITION
AERIAL
WICHITA, KANSAS

Ruggles & Bohm, P.A.
Engineering, Surveying, Land Planning
924 North Main
Wichita, Kansas 67203
(316) 264-6696
(316) 264-4821 fax
www.rbkansas.com
E-mail: info@rbkansas.com

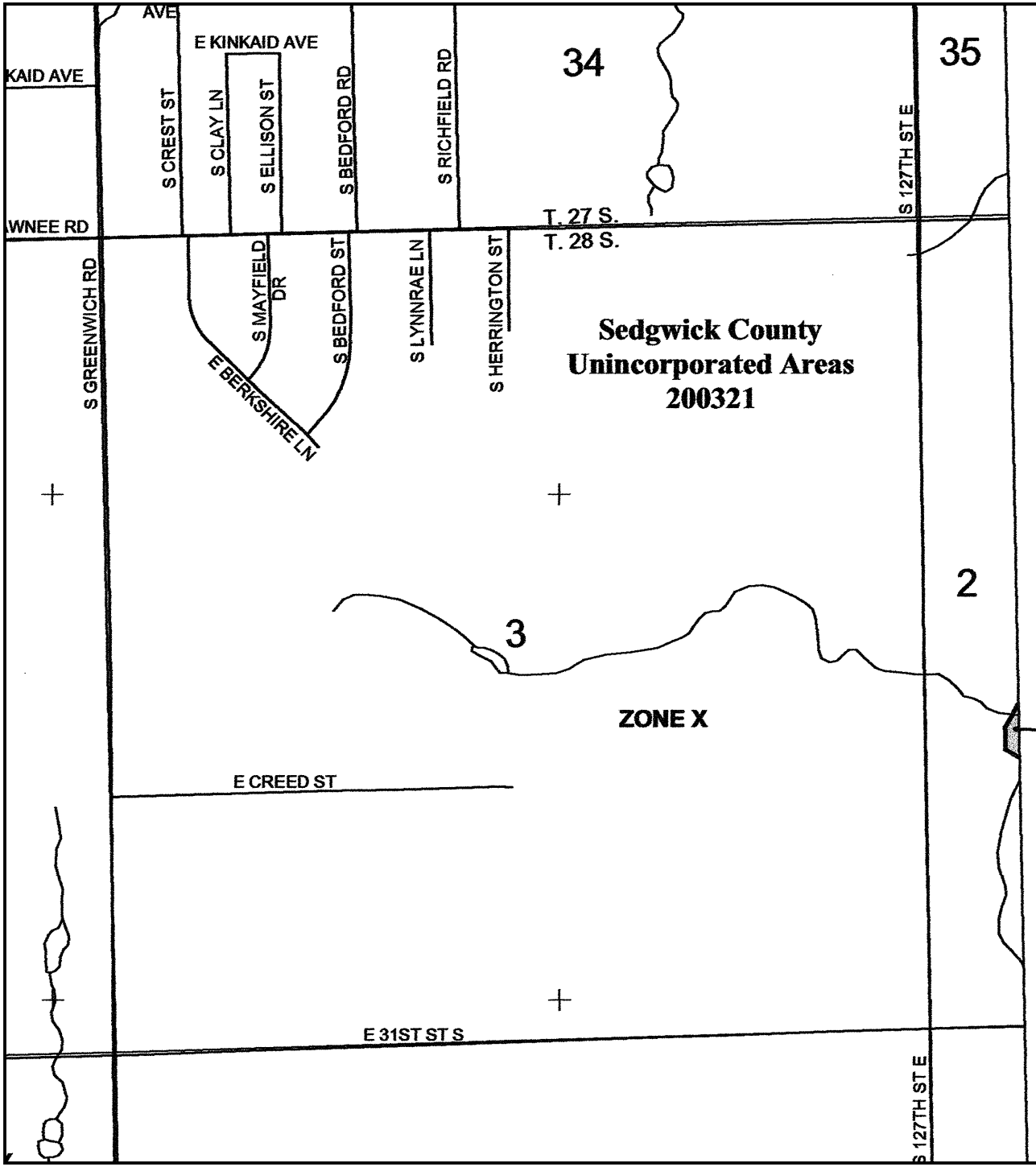
DRAWN: AML
CHECKED: AML
SURVEY:
UTILITY:
DATE: May 7, 2010

DRAWING FILE: Drainage Plan {AERIAL}
PROJECT NUMBER: --

3612P

SHEET 1 of 1

FEMA FIRM



MAP SCALE 1" = 1000'

1000 2000 FEET

0 300 600 METERS

PANEL 0390E

FIRM

FLOOD INSURANCE RATE MAP

SEDGWICK COUNTY, KANSAS
AND INCORPORATED AREAS

PANEL 390 OF 700

SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SEDGWICK COUNTY	200321	0390	E
WICHITA, CITY OF	200328	0390	E

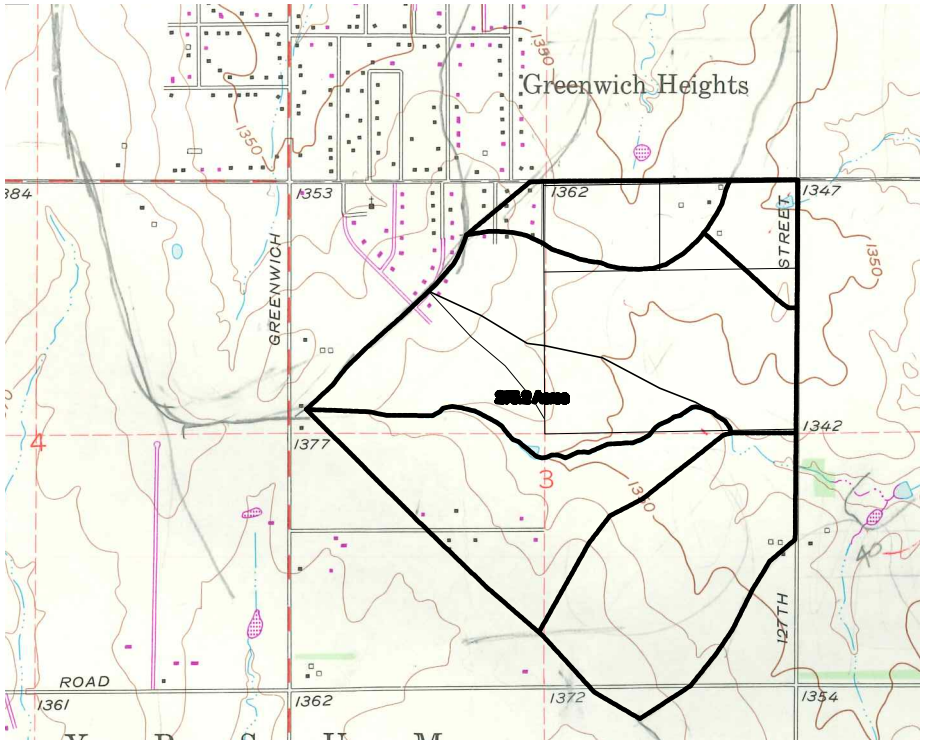
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
20173C0390E

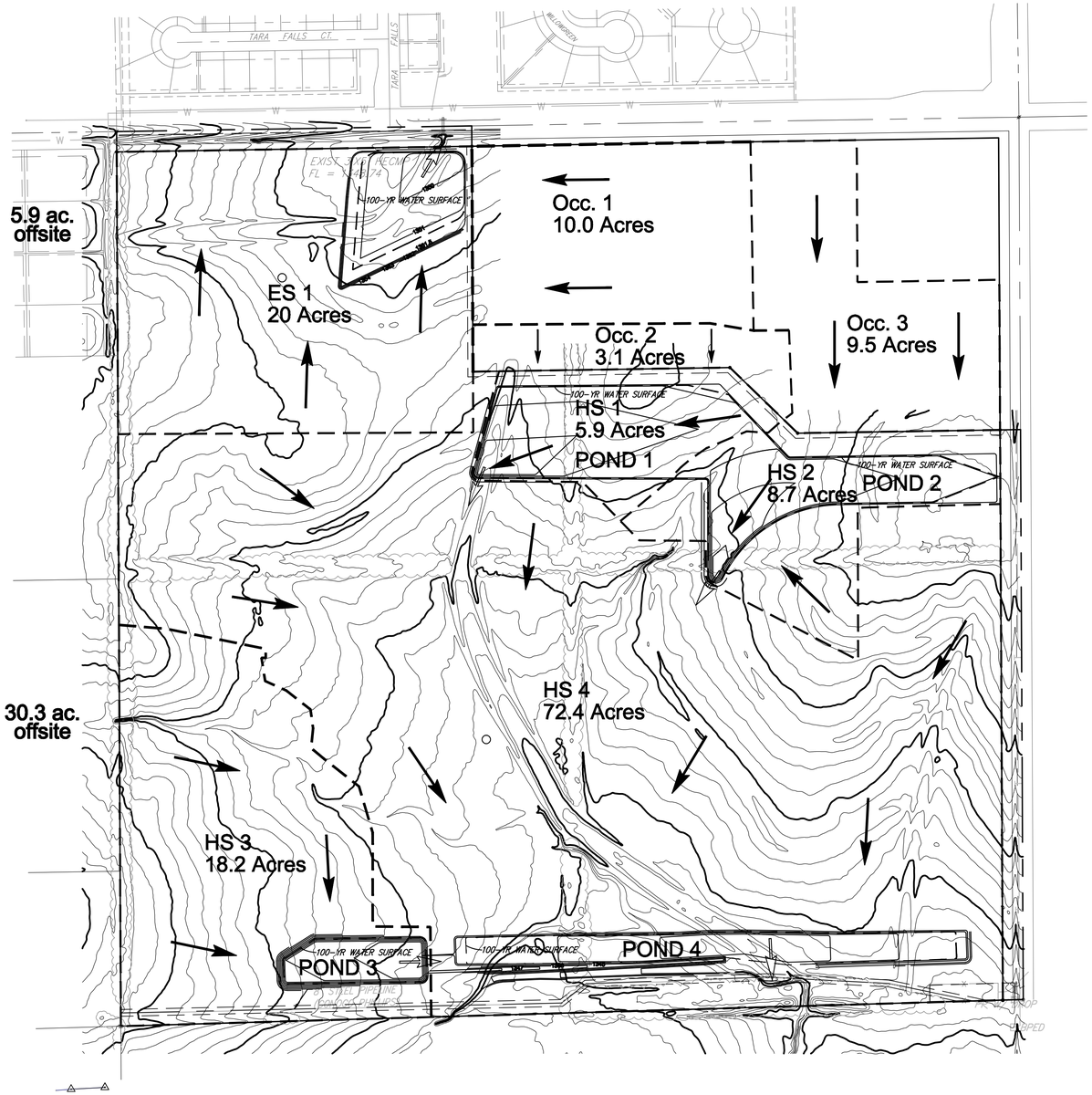
EFFECTIVE DATE
FEBRUARY 2, 2007

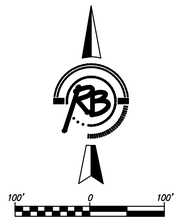
Federal Emergency Management Agency

USGS MAP


Greenwich Heights
1390
1350
1353
1362
1347
GREENWICH
STREET
1350
1342
1377
4
3
1361
1362
1372
1354
ROAD
12TH

DRAINAGE MAP

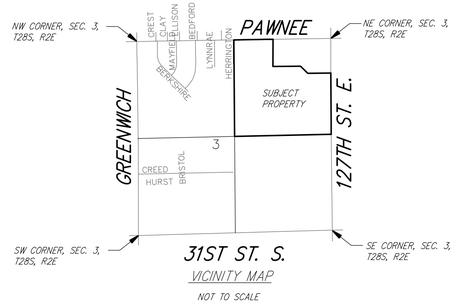




BENCH MARK: CHISELED SQUARE ON THE TOP OF CURB AT THE SOUTH END OF THE ISLAND AT THE ENTRANCE OF CASA BELLA ADDITION, AT THE INTERSECTION OF TARA FALLS AND PAWNEE
ELEVATION = 1,354.46 (NAVD88)

Basin	Area	CN	Tc	Q2	Q5	Q10	Q25	Q100
Proposed	Area(ac)	CN	TC (min)	Q2 (cfs)	Q5 (cfs)	Q10 (cfs)	Q25 (cfs)	Q100 (cfs)
HS1	5.9	85.4	20	10.5	14.9	17.5	22.1	30
HS2	8.7	84.5	24	14.7	21.2	25.1	31.8	43
HS3	18.2	87.6	66	58.6	80.2	98.3	115.1	152.1
HS4	72.4	85.5	36	106.4	151.9	179.5	225.6	303.9
Residential 1	10.0	95	15	30.0	38.7	44	52.7	67.5
Residential 2	3.1	95	15	9.3	12.0	13.6	16.3	20.9
Residential 3	9.5	95	15	28.5	36.7	41.7	50	64.0
ES1	20.0	88.2	30	38.8	52.9	61.4	75.5	99.4
Pond1	--	--	--	2.2	2.5	2.6	2.7	3.0
Pond2	--	--	--	5.4	10.4	13.8	23.6	45.2
Pond3	--	--	--	50.2	68.1	79.1	97.3	128.2
Pond4	--	--	--	130.3	183.1	215.7	273.8	367.0
North Pond	--	--	--	53.6	69.6	79.6	96.8	123.2
Div Chan	--	--	--	139.1	201	238.8	302.1	403.8
Total Stuff	--	--	--	289.4	382.2	453.4	575.9	786.8

NOTE:
DENOTES EMERGENCY OVERFLOW PATH



VICINITY MAP
NOT TO SCALE

REVISED

USD 259 4TH ADDITION
DRAINAGE MAP
WICHITA, KANSAS

Ruggles & Bohm, P.A.
Engineering, Surveying, Land Planning
624 North Main
Wichita, Kansas 67203
www.rbkansas.com
(316) 264-6669
(316) 264-4621 fax
E-mail: info@rbkansas.com

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PROJECT NUMBER 36130

SHEET 1 OF 1

DRAWING FILE: Drainage Plan {Drainage Plan}