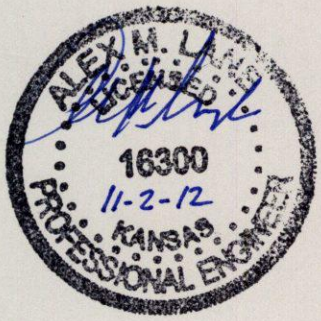
DRAINAGE REPORT

Habitat Hills

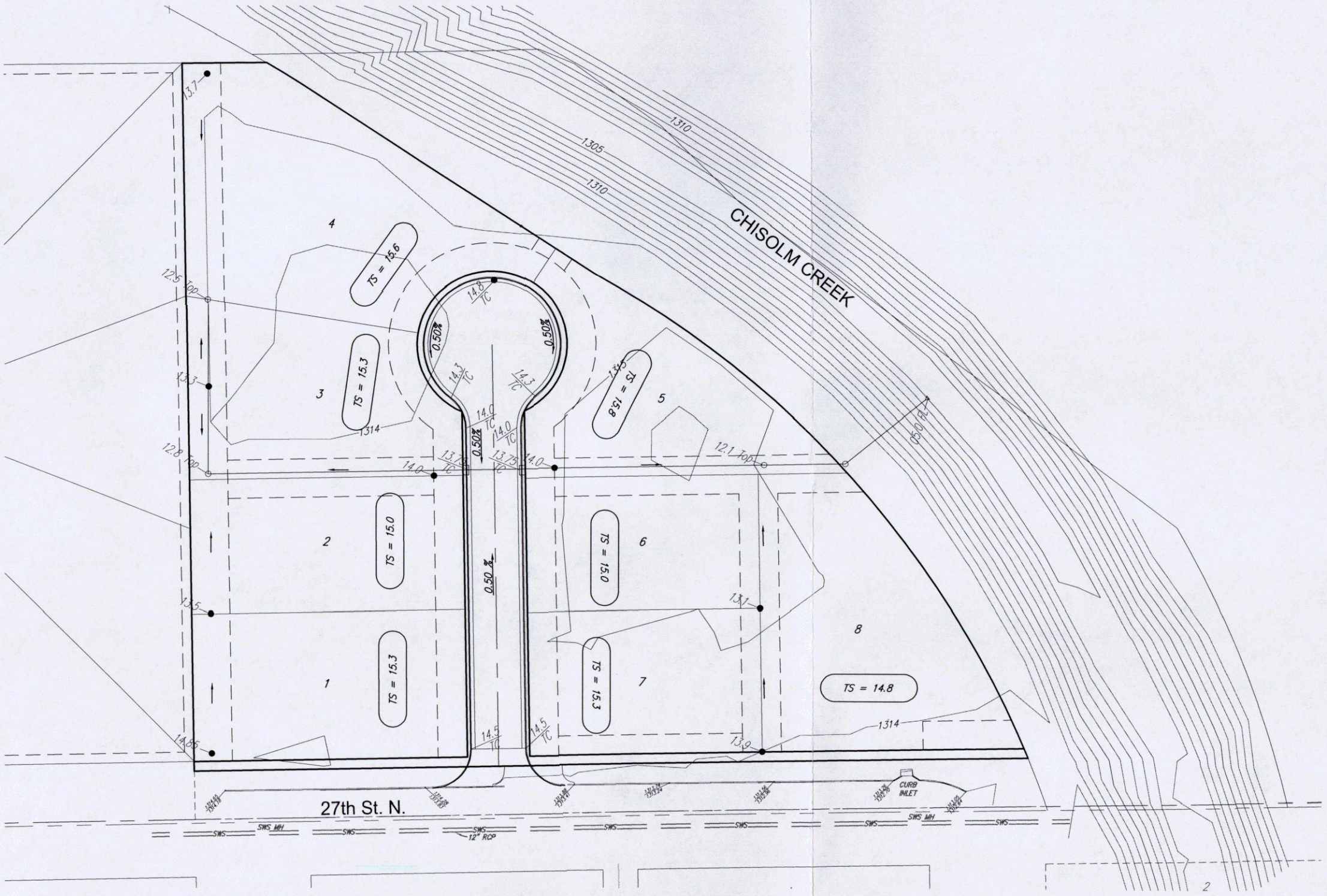
WICHITA, SEDGWICK COUNTY, KANSAS

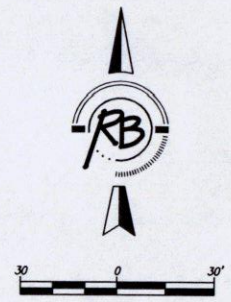
October 30, 2012



Ruggles & Bohm P.A.

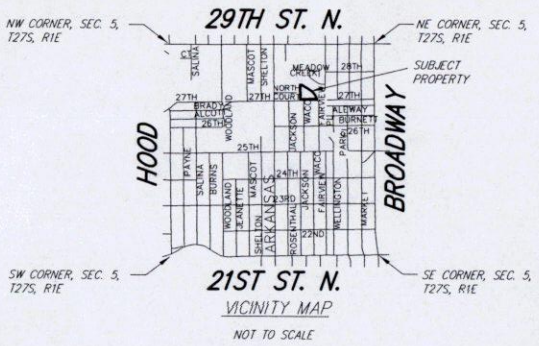
Engineering, Surveying, Land Planning





30 0 30'

BENCH MARK: CHISELED SQUARE ON THE TOP OF CURB ON THE NORTH SIDE OF 27TH ST. N., 125' E. OF THE CENTERLINE OF WACO AVE.
ELEVATION = 1314.17 (NAVD88)



VICINITY MAP

NOT TO SCALE

Hiatt Hills
4-CORNER LOT GRADING PLAN
WICHITA, KANSAS

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

DESIGN	AML
DRAWN	AML
REVIEW	
UTILITY	
DATE	Nov. 1, 2012
RB JOB	3995P
SHEET	1 OF 1
DRAWING FILE	SURVEY BASE {4 CORNER}
PROJECT NUMBER	.

Adopted: February 23, 2007

CITY OF WICHITA

Public Works, Engineering Division
Final Drainage Plan Submittal Checklist

Reviewer: _____ Date: 10-30-12

Subdivision Name: Habitat Hills Location: 27th St. N. & Arkansas

Total Land Area Of Ownership: 2.33 Acres

Type: X Residential _____ Commercial _____ Industrial _____ Recreation _____ Municipal _____ Other

Applicant: _____ Contact: _____ Phone #: _____

Engineer: Ruggles & Bohm, P.A. Contact: Alex M. Lane PE Phone # 316-264-8008

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	X		Drainage Report	X	
C. Discussion of offsite conditions	X		Drainage Report	X	
D. Summary of runoff calculations (pre/post development) No increase in peak discharge for all storm series	X		Drainage Map	X	
E. Narrative description of the type and function of the permanent best management practices that are incorporated into the site design			Drainage Rep.	X	
F. Copy of the plat	X		Drainage Report	X	
G. Preliminary grading plan (The final grading plan shall be sealed, signed and dated prior to Engineering receiving the final sanitary sewer plans. One plan sheet and PDF shall be submitted to the Subdivision Engineer.)	X		4-Corner Grading Plan	X	
H. Professional Engineer seal, signature and date on cover of report	X			X	
I. CD of drainage plan in PDF format (one file) and one paper copy bound with this checklist included behind the cover			w/ Final 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)			Drainage Report	X	
B. Runoff Method (Rational, Hydrograph Method, or other approved methods by Engineering)			Rational Drainage Map	X	
C. Existing topography (no greater than 2-foot contours, 1-foot recommend)			Drainage Map, 4-corner	X	
D. Total Site Area and Total Impervious Area (acres)			Residential Development		X
E. Benchmarks used for site control			4-Corner	X	
F. Streams, creeks, and waterway labeled			Drainage Map, 4-Corner	X	
G. Predominant soils from USDA soil surveys, and/or on site soil borings			Drainage Report	X	
H. Location and boundaries of natural features such as wetlands, lakes, and ponds with the normal water elevation noted					X
I. Location of existing roads, buildings, parking lots and other impervious areas.			Drainage Map	X	

Consulting Engineer Initials AML

J. Location of existing utilities (e.g., water, sewer, gas, electric) and easements			Drainage Map	X	
K. Location of existing conveyance systems such as storm drains, inlets, catch basins, channels, swales, and areas of overland flow			Drainage Map	X	
L. Flow paths			DRAINAGE MAP, 4-CORNER	X	
M. Location and dimensions of existing channels, bridges or culvert crossings			DRAINAGE MAP, 4-CORNER	X	
N. Existing conditions hydrologic analysis for runoff rates, volumes and velocities showing methodologies used and supporting calculations (2, 5, 10, 25 & 100 year, 24-hour storm events) or Critical Duration			DRAINAGE MAP	X	
O. Assumed pre-developed runoff curve numbers			DRAINAGE MAP	X	
P. Existing time of concentrations used in calculations			DRAINAGE MAP	X	
Q. Evaluate immediate downstream drainage capacity, not to exceed more than 0.25 miles downstream of site					X
R. Existing structural elevations (e.g., invert of pipes, manholes, etc.)			NO PIPES ETC. ON SITE		X
S. Cross-section data for open channels					X
T. Ground water elevations, if applicable					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 MAP	X	
B. Proposed time of concentrations used in calculations			DRAINAGE MAP	X	
C. Assumed post-developed runoff curve numbers			DRAINAGE MAP	X	
D. Proposed contours for detention facilities (to equal area used in outlet rating curves)			NO DETENTION		X
E. Preliminary sizing calculations for stormwater controls including contributing drainage area, storage, and outlet configuration			DRAINAGE MAP	X	
F. Stage-storage-discharge or outlet rating curves and inflow and outflow hydrographs for storage facilities					X
G. Final analysis of potential upstream/downstream impact/effects of project, where necessary					X
H. Existing and proposed structural elevations (e.g., invert of pipes, manholes, etc.)			4-CORNER		
I. Design water surface elevations and normal pool elevation for ponds.					X
J. Typical detail for outlet structures, embankments, spillways, grade control structures, conveyance channels, etc. To include height, width, elevation, and/or diameter.					X
K. Proposed limits of clearing and grading			EXTENTS OF PLAT	X	
L. Location of existing and proposed roads, buildings, parking lots and other impervious areas.			DRAINAGE MAP, 4-CORNER	X	
M. Location of existing and proposed utilities (e.g., water, sewer) and easements			DRAINAGE MAP, 4-CORNER	X	
N. Location of existing and proposed conveyance systems such as storm drains, inlets, catch basins, channels, swales, and areas of overland flow			DRAINAGE MAP, 4-CORNER	X	
O. Preliminary location and dimensions of proposed channel modifications, such as bridge or culvert crossings					X

Consulting Engineer Initials DNL

DRAINAGE REPORT

Habitat Hills

WICHITA, SEDGWICK COUNTY, KANSAS

October 30, 2012

Habitat Hills
DRAINAGE ANALYSIS
October 30, 2012

INTRODUCTION

This report contains supporting documentation and calculations for the proposed Habitat Hills development. The proposed site is an undeveloped 2.33 acre parcel of land located in the NE ¼ of Section 5 T27S R1E on 27th St. N. just east of Arkansas. The area is currently undeveloped urban grassed area and the soil type located on site is urban land part Tabler, in hydrologic group D. The site is very flat and generally drains to the storm sewer system in 27th St. N. Street East. No offsite tributary drain onto the proposed project site. The information located on the attached FEMA FIRM 20173C0355E, effective date Feb. 2, 2007, indicates the site is located in shaded Zone X, defined as areas in the 0.2% floodplain.

DETENTION

The site is directly adjacent to Chisholm Creek and therefore to provide detention on this site may serve to actually increase the peak flow in the downstream channel. For this reason the site will not provide stormwater detention.

CHANNEL PROTECTION AND WATER QUALITY VOLUMES

The site is 2.33 acres in area, less than the 5 acre threshold that would trigger a channel protection. Therefore provisions for channel protection are not provided in this development. Water quality will be provided by a filter inlet or other proprietary device in the proposed storm sewer system and will treat the stormwater generated from the development before it is released to Chisholm Creek.

INTERNAL DRAINAGE

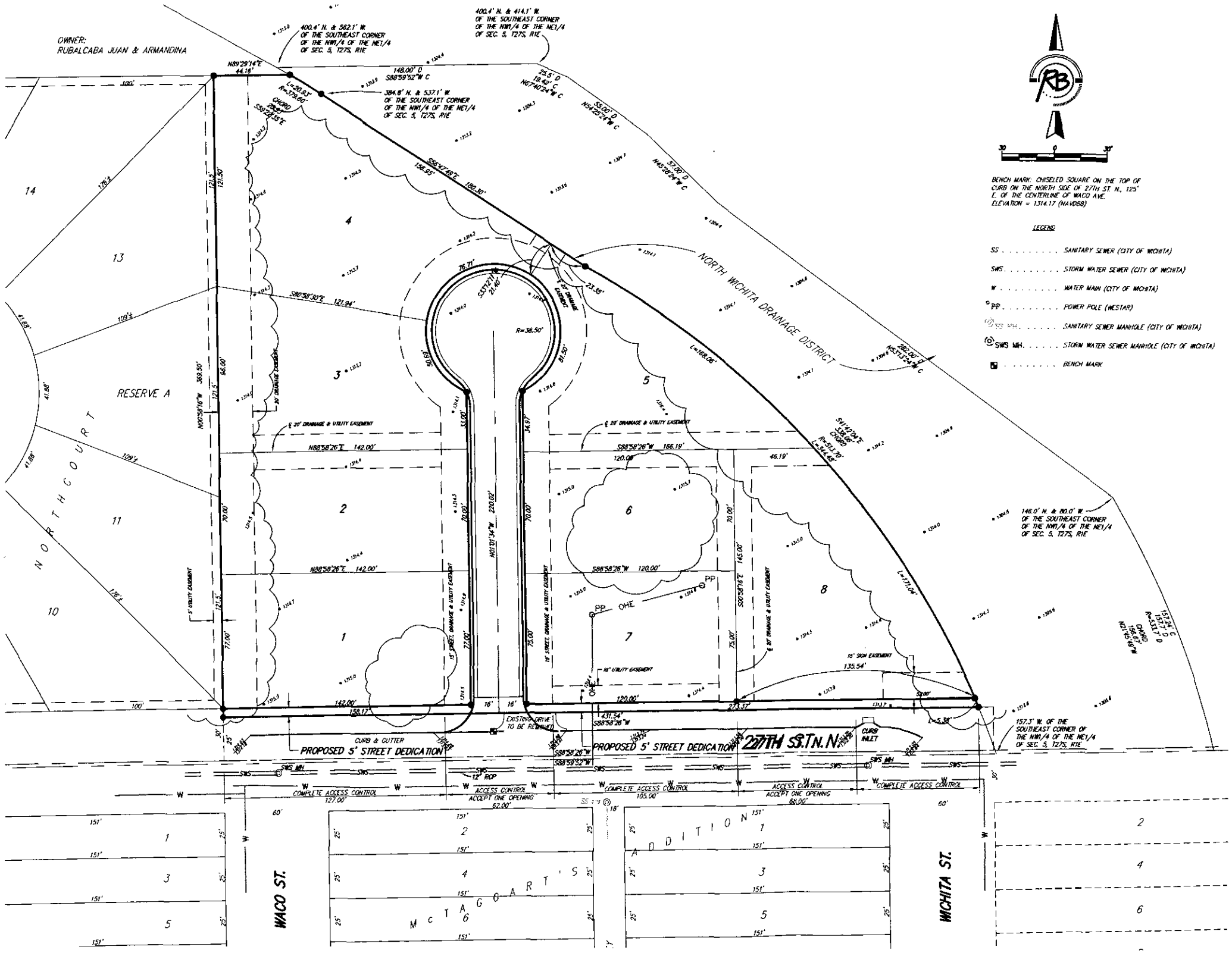
The internal drainage system shall utilize grassed swales and storm sewer to direct the runoff to the Chisholm Creek. The details of the internal drainage system are shown on the attached drainage map.

PLAT

Preliminary Plat

HABITAT HILLS

an Addition to Wichita, Sedgwick County, Kansas



BENCH MARK: CHISELED SQUARE ON THE TOP OF CURB ON THE NORTH SIDE OF 27TH ST. N., 125' E. OF THE CENTERLINE OF WACO AVE.
ELEVATION = 1314.17 (NAVD88)

LEGEND

SS	SANITARY SEWER (CITY OF WICHITA)
SWS	STORM WATER SEWER (CITY OF WICHITA)
W	WATER MAIN (CITY OF WICHITA)
PP	POWER POLE (WESTAR)
SS MH	SANITARY SEWER MANHOLE (CITY OF WICHITA)
SWS MH	STORM WATER SEWER MANHOLE (CITY OF WICHITA)
	BENCH MARK

LEGAL DESCRIPTION:
Beginning 1320 feet north of the southeast corner of the W1/2 of the NE1/4 of Sec. 5, T27S, R1E of the 6th P.M., Sedgwick County, Kansas; thence West, parallel with the south line of said quarter section, 599 feet to a point 730 feet east of the west line of said W1/2; thence 394-1/2 feet north to a point 730 feet east and 1068.3 feet south of the northwest corner of the W1/2 of the NE1/4 aforesaid; thence East, parallel with the north line of said quarter section, 180 feet to the center of Chisholm Creek; thence southeasterly along the center of said creek to the east line of said W1/2; thence South, 83.2 feet to the place of beginning, except that part condemned by North Wichita Drainage District, Sedgwick County, Kansas.

OWNER:
Wichita Habitat for Humanity, Inc.
Attn: Laurie Walker
P.O. Box 114
Wichita, KS 67201-114

Ph. (316) 269-0755

SURVEYOR & ENGINEER:
Ruggles & Bohm P.A.

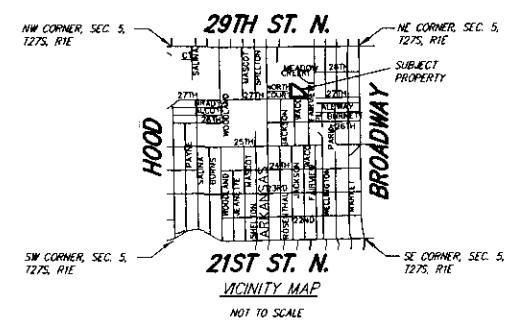
PROPOSED ZONING:
SF-5

EXISTING ZONING:
Property to the east is zoned B. Properties to the north, west and south are zoned TF-3. Subject property and the property to the northwest are zoned SF-5. Existing use is a vacant lot.

FLOOD ZONE:
According to the FEMA/FIRM Map No. 20173C0355E, effective February 2, 2007; the property shown hereon is located in Zone X

GROSS AREA:
103,289.3 Sq. Ft.±
2.37 Acres±

DATE OF TOPOGRAPHY:
AUGUST 10, 2012



VICINITY MAP

NOT TO SCALE

DWG FILE: SURVEY BASE
PROJECT NO. 3995P
OCTOBER 19, 2012

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Engineering, Surveying, Land Planning
924 North Main
Wichita, Kansas 67203
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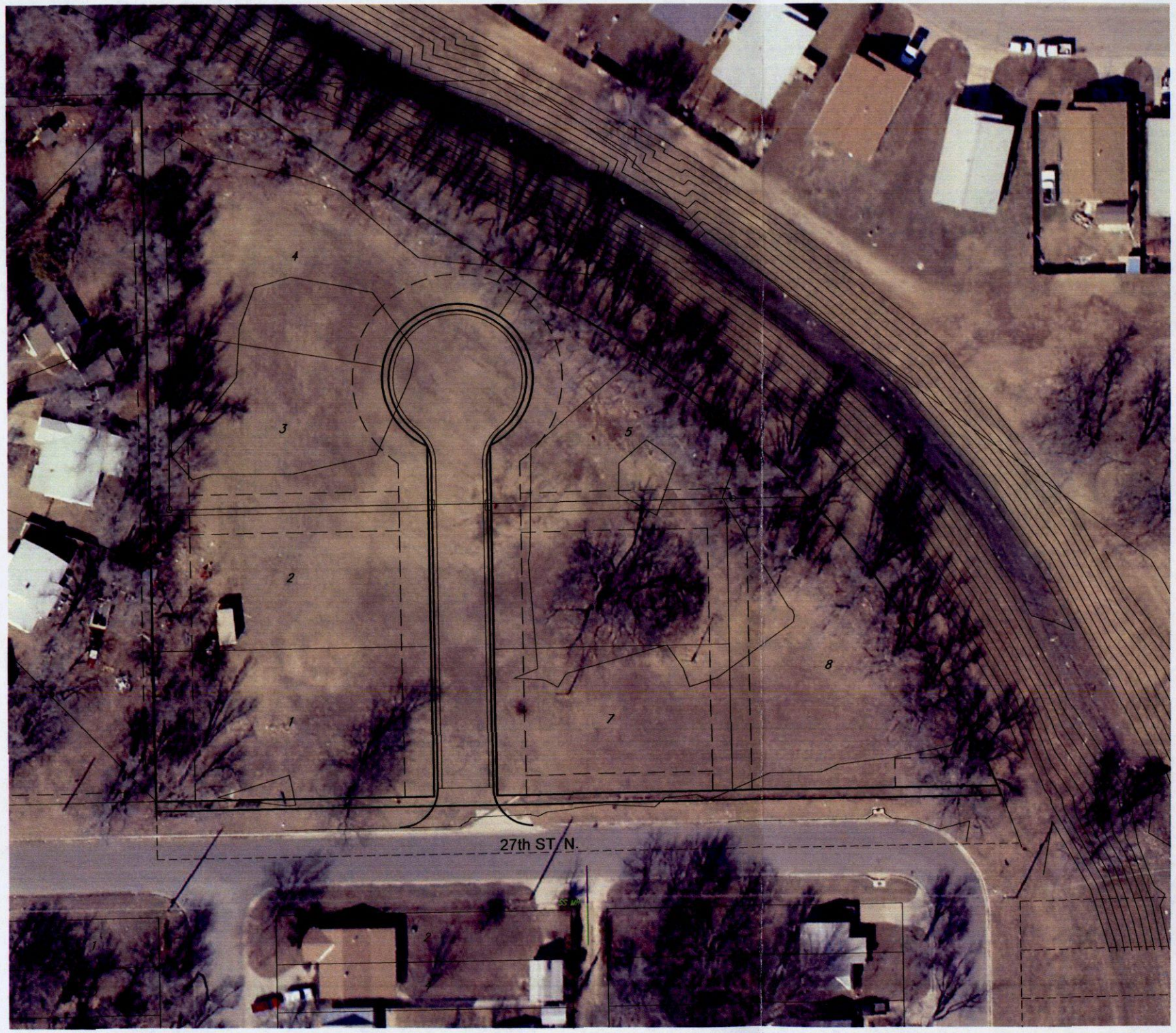
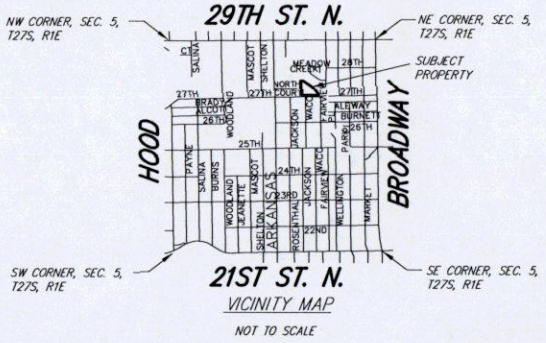
E-mail: info@rbkansas.com

AERIAL



20' 0 20'



VICINITY MAP

NOT TO SCALE

HABITAT HILLS
AERIAL
WICHITA, KANSAS

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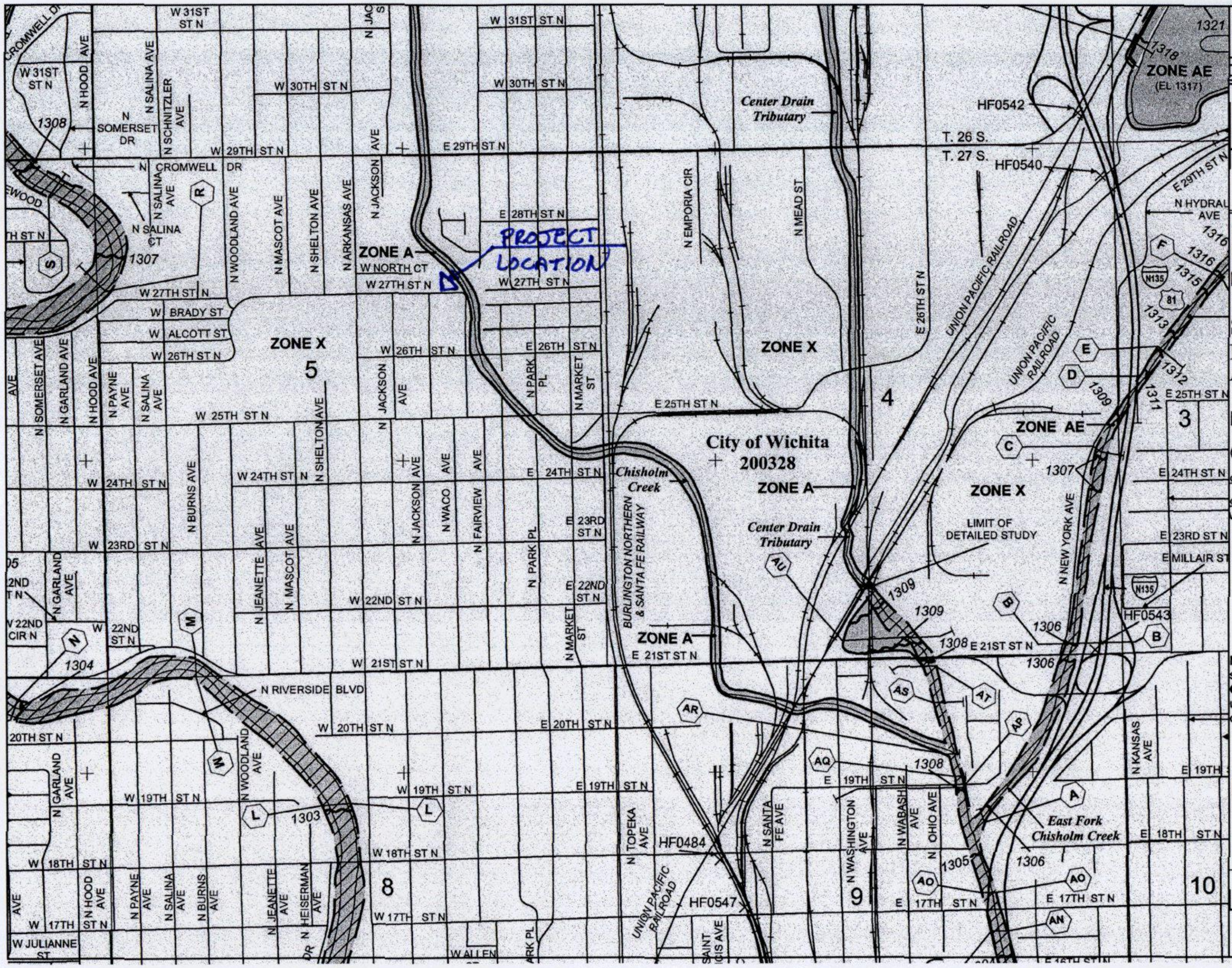
(316) 264-4621 fax
E-mail: info@rbkansas.com

DESIGN	AML
DRAWN	AML
REVIEW	
UTILITY	
DATE	Oct. 30, 2012
RB JOB	XXX
SHEET	1 OF 1
DRAWING FILE	SURVEY BASE {Aerial}
PROJECT NUMBER	-

FEMA FIRM



MAP SCALE 1" = 1000'

1000 2000 FEET

0 300 600 METERS

PANEL 0355E

FIRM
FLOOD INSURANCE RATE MAP

SEDGWICK COUNTY, KANSAS
AND INCORPORATED AREAS

PANEL 355 OF 700

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
WICHITA, CITY OF	200328	0355	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
20173C0355E

EFFECTIVE DATE
FEBRUARY 2, 2007

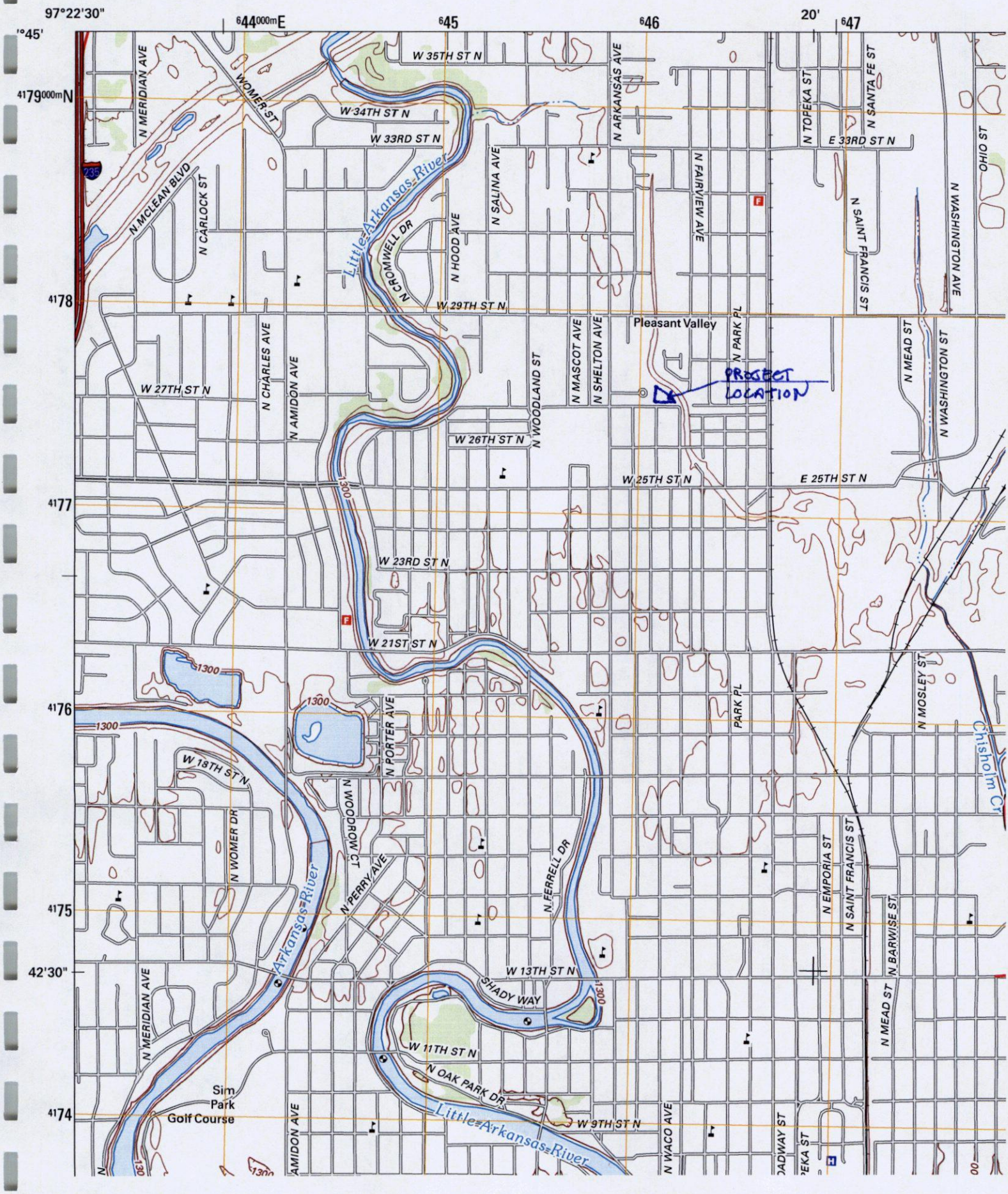
Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

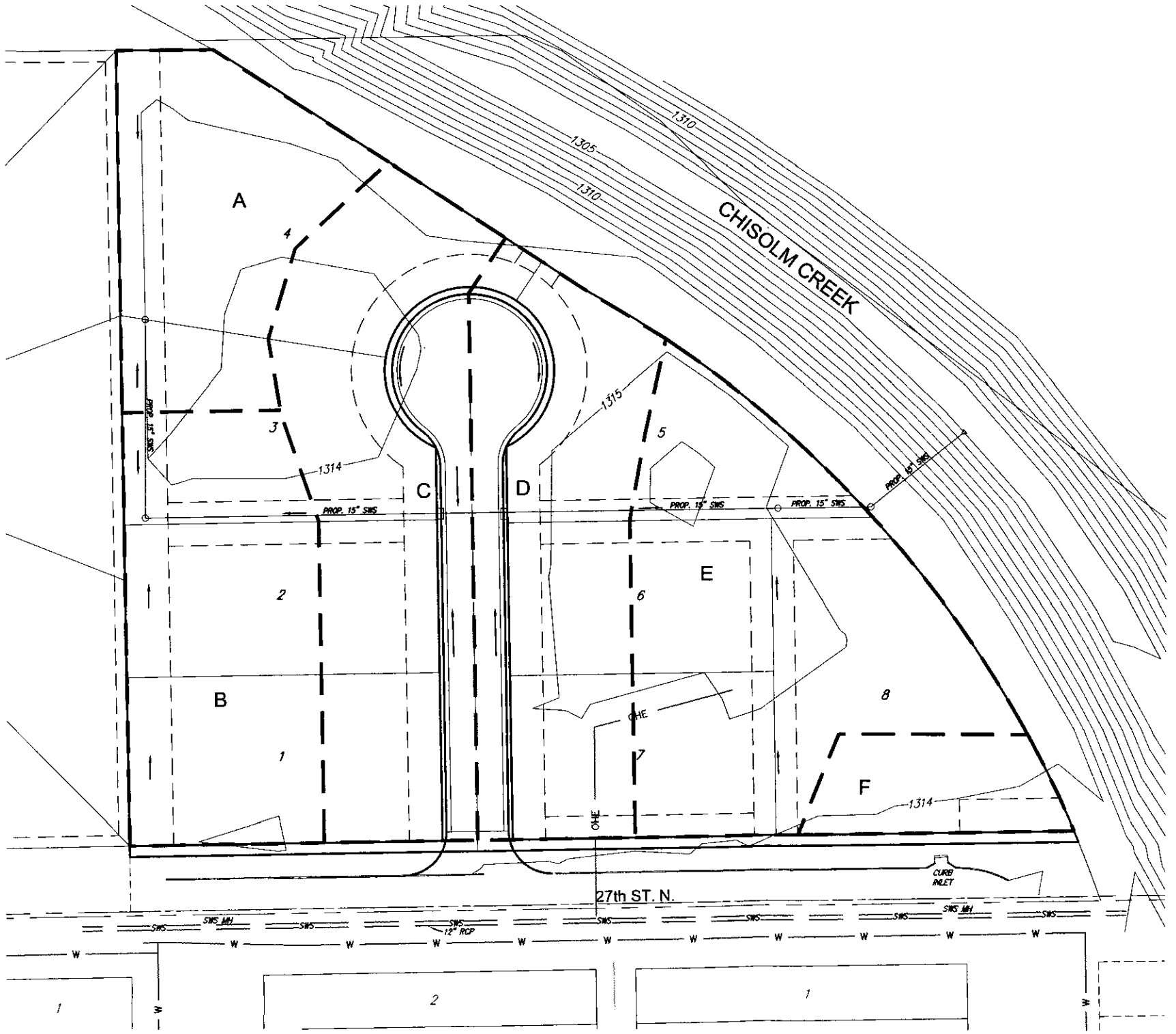
USGS MAP

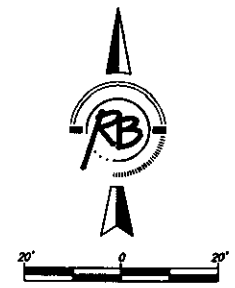
USGS
science for a changing world

U.S. DEPARTMENT OF THE INTERIOR
U. S. GEOLOGICAL SURVEY



DRAINAGE MAP



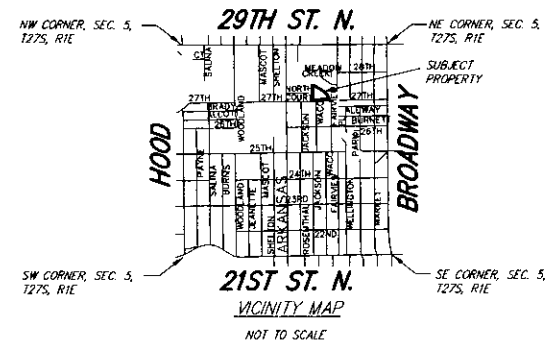


Existing Conditions

	Area (ac.)	Tc (mins.)	C_2	C_5	C_{10}	C_{100}	I_2	I_5	I_{10}	I_{100}	2-yr	5-yr	10-yr	100-yr
SITE	2.32	15	0.28	0.33	0.43	0.63	3.83	4.56	5.22	7.37	2.5	3.5	5.2	10.8

Proposed Conditions

	Area (ac.)	Tc (mins.)	Cum. Area	C_2	C_5	C_{10}	C_{100}	I_2	I_5	I_{10}	I_{100}	2-yr	5-yr	10-yr	100-yr
A	0.31	15	0.31	0.39	0.41	0.45	0.52	3.83	4.56	5.22	7.37	0.5	0.6	0.7	1.5
B	0.39	15	0.70	0.39	0.41	0.45	0.52	3.83	4.56	5.22	7.37	1.0	1.3	1.6	2.7
C	0.52	15	1.22	0.39	0.41	0.45	0.52	3.83	4.56	5.22	7.37	1.8	2.3	2.9	4.7
D	0.44	15	1.66	0.39	0.41	0.45	0.52	3.83	4.56	5.22	7.37	2.5	3.1	3.9	6.4
E	0.54	15	2.20	0.39	0.41	0.45	0.52	3.83	4.56	5.22	7.37	3.3	4.1	5.2	8.4
F	0.11	15	0.11	0.39	0.41	0.45	0.52	3.83	4.56	5.22	7.37	0.2	0.2	0.3	0.4



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DATE	Oct. 30, 2012
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SHEET	1 OF 1
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