

Drainage Report

Auto Image Addition, To Wichita, Sedgwick County, Kansas



October 2008



516 S. Market
Wichita, Kansas 67202
(316) 264-0242

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Drainage Report

Auto Image Addition

Introduction

The subject property is located on the South of the Harry Street about ¼ mile west of the interstate 35. The property is in northwest corner of Harry St. and South Gouverneur road. The property is currently un-platted, developed and is zoned as General Commercial (GC). The tract of land is about 1.54 acres total. The property is being platted into one lot under the name Auto Image Addition. The tract of land is owned by MB Real Estate LLC.

Current Conditions

The site is served by City of Wichita utilities. The land currently has a asphalt paved parking lot on north of the area and entrance and exist driveways. The subject property has one building in it and the area around the building is paved. The rest of the area is unpaved and covered with grass. There are General commercial developed areas on the west and East of the property. There is a creek one lot east of the area and runs towards south of the area. The soils are a Type D, with a higher runoff coefficient. There are no signs of wetlands and the land is not in a floodplain. Parking area north of existing building and area around the building drains towards the area on south of the property which finally drains towards a ditch. An 18” pipe finally carries the water from ditch to the Gypsum creek through an open inlet. About 1.82 acres of area west of the Gouverneur road (part of Grillot addition) drains to the property by a 15” pipe as shown in drainage plan. The subject area of land drains the water at an average slope of 1.43%.

The attached plat with topography shows existing features including contours, utilities, storm sewer, and proposed easements.

Proposed Improvements

The site will be developed for commercial use with extension on the existing structure. The lot will drain all the water from north including part of Harris Addition to the south as shown on the attached drainage plan. A dry detention pond will be constructed on the South corner of the property to catch water coming out of the property. The runoff from the pond will be drained into the Gypsum Creek through an existing pipe on the south corner of the property. A 2.5’ lf of weir structure will be constructed as an outlet of the pond to detain the excess water. Existing ditch, east of property line will be able to carry the water to the existing open inlet with 18” storm water pipe.

The Auto Image Addition dictates 100 year peak runoff of 6.34 cfs in undeveloped and 9.32 cfs in developed condition. A dry detention pond of 2638.0 sqft on south corner of

the property will be able to detain the excess water from the property. About 7.99 cfs of water coming out of the Grillot Addition is also considered during sizing the pond.

Best management practices for erosion control will include seeding disturbed areas and installing city approved measures. The attached drainage plan shows the calculations of the existing and developed peak runoffs including assumed coefficients and conditions and proposed improvements in storm water.

Site Hydrological Analysis

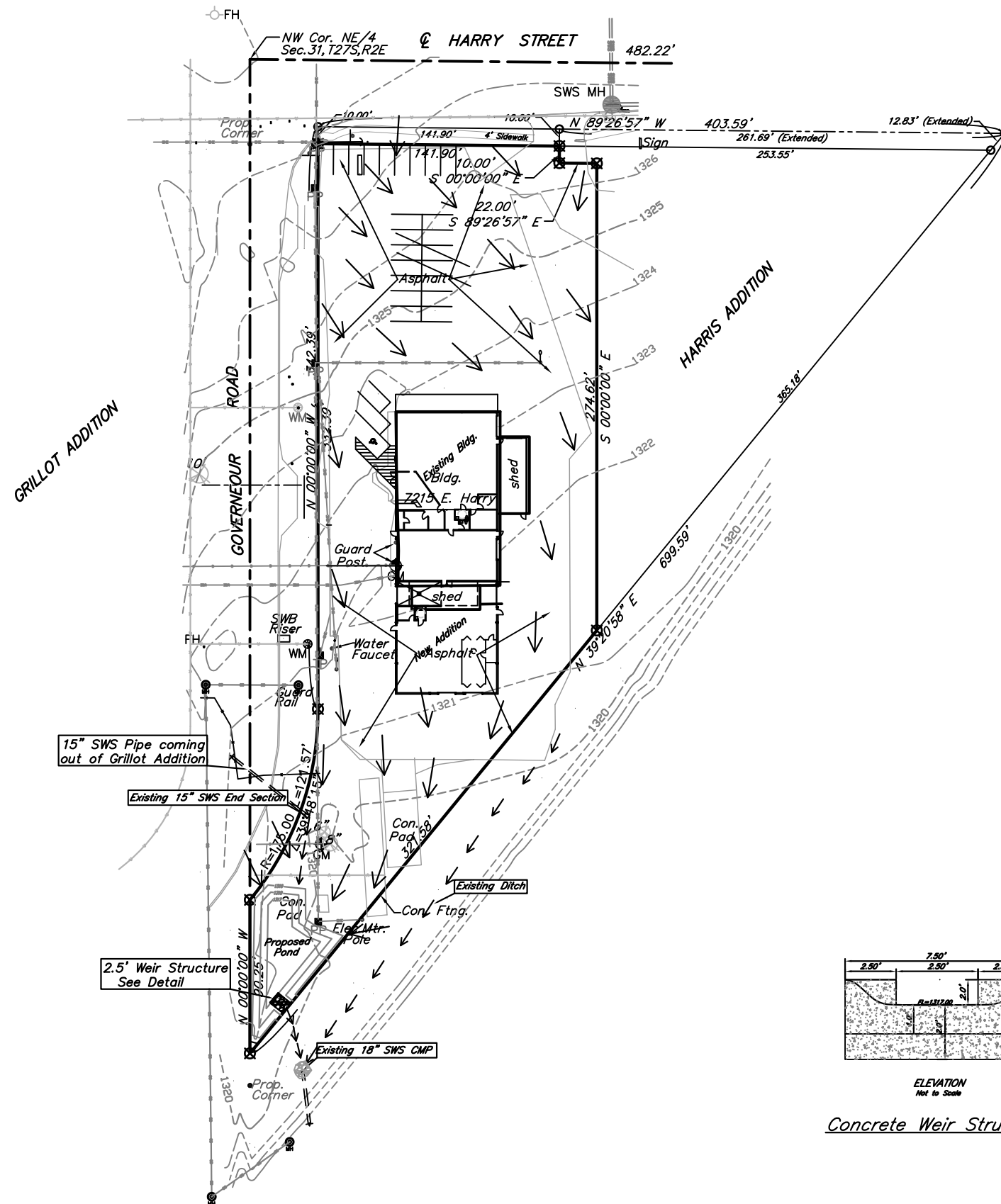
Existing and proposed site conditions have been modeled using the rational method. The Values for Rainfall Intensity and Runoff Coefficients were established using the *Drainage and Storm Sewer Policy for Design Criteria and Documentation, City of Wichita, Kansas*. A time of concentration of 15 minutes was used as it is the minimum inlet time. A proposed time of concentration of 15 minutes was also used.

Future Development

There will be extension of the existing structure at this time as shown in drainage plan.

Appendix A

Drainage Plan
Final Plat
USGS map with area highlighted
Aerial Photograph
Flood Map

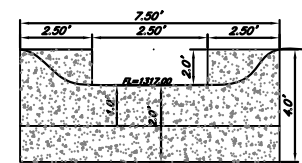


LOCATION MAP
(For Visual Use Only)

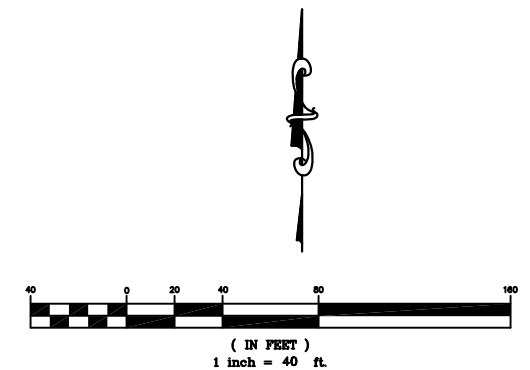
Undeveloped Site Drainage								
Block #	Acres	Tc	C5	I5	C100	I100	Q5	Q100
Proposed Plat	1.58	25 min	0.54	3.57	0.68	5.90	3.89cfs	6.34cfs
Offsite Drainage	1.82	28 min	0.69	3.37	0.80	5.49	4.23cfs	7.99cfs

Proposed Site Drainage (Fully Developed Condition)								
Block #	Acres	Tc	C5	I5	C100	I100	Q5	Q100
Proposed Plat	1.58	15 min	0.69	4.56	0.80	7.37	4.97cfs	9.32cfs
Offsite Drainage	1.82	28 min	0.69	3.37	0.80	5.49	4.23cfs	7.99cfs

Site Improvement	
Area	Acres
Building Area	0.25
Asphalt paved Area	1.05
Grassed Area	0.28



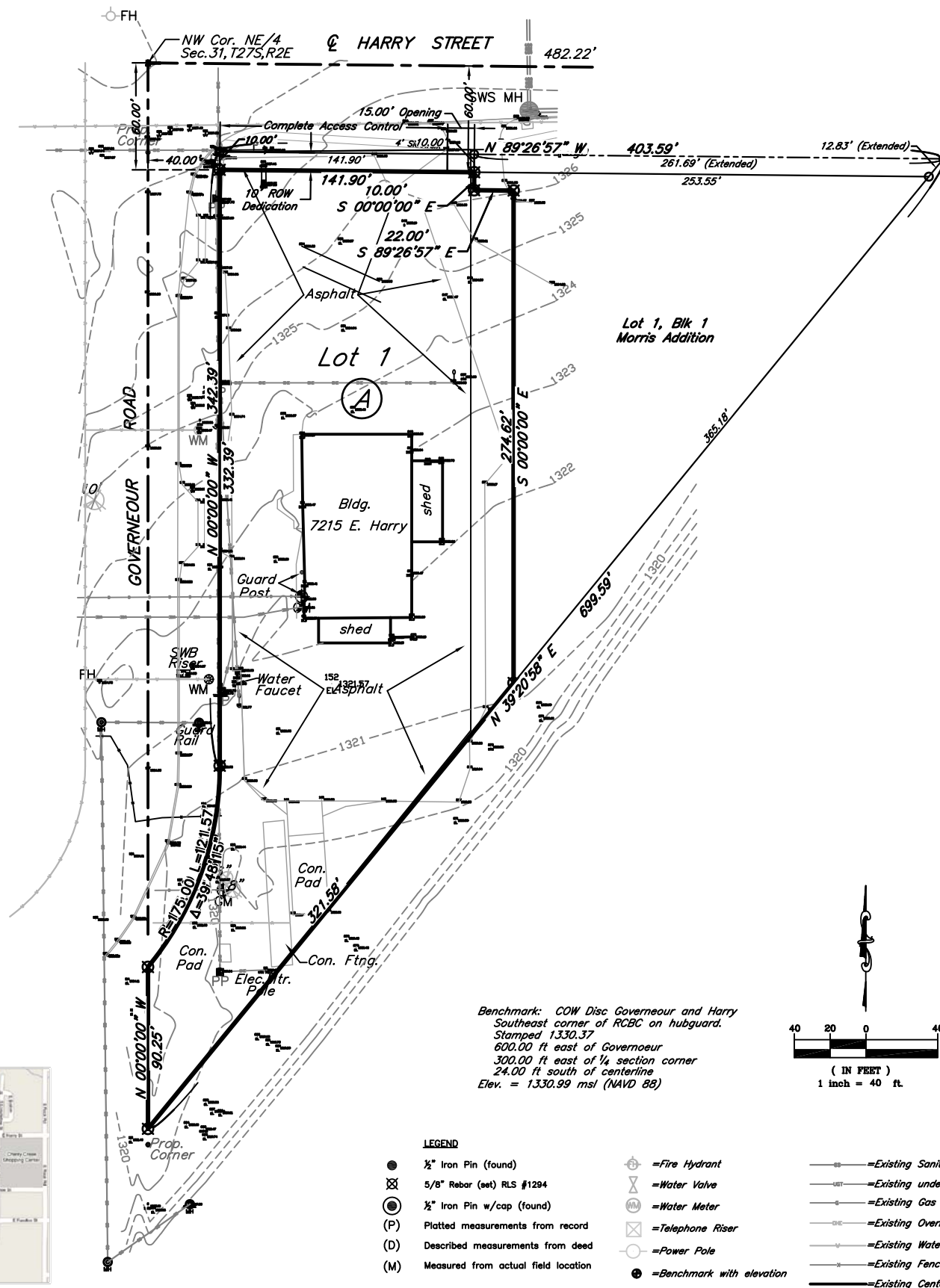
ELEVATION
Not to Scale
Concrete Weir Structure



Auto Image Addition Drainage Plan Wichita, Kansas			
PROJECT NUMBER			
	KEM NO.	FILE	DATE
	08159	drainage	10/2008
516 S. Market, Wichita, KS 67202 316/264-0242	DESIGN	DRAWN	REVISED
	KM	GP	
		SHEET	OF
		1	1

Auto Image Addition WICHITA, SEDGWICK COUNTY, KANSAS

Part of the Northeast 1/4, Section 31, Township 27 South, Range 2 East of the 6th. P.M.



LOCATION MAP
(For Visual Use Only)

State of Kansas)
County of Sedgwick) ss

I, Randall L. Elkins, a licensed land surveyor of the State of Kansas, do hereby certify that the following described tract of land was surveyed on the 8th day of October, 2008 and the accompanying final plat prepared and that all the monuments shown herein actually exist and their positions are correctly shown to the best of my knowledge and belief:

Described as the Auto Image Addition, Wichita, Sedgwick County, Kansas, beginning 50 ft South & 40 ft East of the Northwest Corner of Northeast 1/4 Corner; thence East 141.90 ft; thence South 20 ft; thence East 22 ft; thence South 274.62 ft to the Northwestern Line of Gypsum Creek; thence Southwest 321.58 ft to West line of the Northeast 1/4 Section; thence North 90.25 ft to a curve on the Southeast line of Gouverneur; thence Northeasterly along Curve 121.46 ft, North along the east line of Gouverneur 342.39 ft to beginning.

All being situated in the NE 1/4 of Section 31, Township 27-S, Range 2 East to the 6th P.M., Sedgwick County, Kansas.

Said tract contains 1.54 acres ±.

All easements and rights-of-way within said lots are hereby vacated by virtue of KSA 12-512(b) amended.

Randall L. Elkins, L.S. #1294 Date

State of Kansas)
County of Sedgwick) ss

Know all men by these presents, that we, the undersigned, have caused the land described in the surveyor's certificate to be platted into a Lot and Block to be known as Auto Image Addition, Wichita, Sedgwick County, Kansas. Any easements are hereby granted as indicated for constructing, maintaining, operating, and repairing public utilities. A drainage plan has been developed for the plat and all drainage easements, rights-of-way, or reserves shall remain at established grades or as modified with the approval of the applicable City or County Engineer, and unobstructed to allow for the conveyance of stormwater. And further that the land contained herein is held and shall be conveyed subject to any applicable restrictions, reservations and covenants now on file or hereafter filed in the Office of the Register of Deeds of Sedgwick County, Kansas. Streets shall be dedicated to and for the use of the public.

Access Control is hereby granted as follows:
1. Complete Access Control Except East 15 ft along Harry.

By: Date
Brad Sechler, Manager

State of Kansas)
County of Sedgwick) ss
This instrument was acknowledged before me on this ____ day of _____, 2008, by _____

Notary Public
My Commission Expires: _____

State of Kansas)
County of Sedgwick) ss
This instrument was acknowledged before me on this ____ day of _____, 2008, by _____

Notary Public
My Commission Expires: _____

State of Kansas)
City of Wichita) ss

This plat of Auto Image Addition, Wichita, Sedgwick County, Kansas, has been submitted to and approved by the Wichita-Sedgwick County Metropolitan Area Planning Commission, Wichita, Kansas. Dated this ____ day of _____, 2008. Wichita-Sedgwick County Metropolitan Area Planning Commission.

Darrell Drowning, Chairman

John L. Schlegel, Secretary

State of Kansas)
City of Wichita) ss

This plat approved and all dedications shown hereon accepted by the City Council of the City of Wichita, Kansas, this ____ day of _____, 2008.

At the Direction of the City Council

Carl Brewer, Mayor

Karen Sublett, City Clerk

Entered on transfer record this ____ day of _____, 2008.

Donald Brace, County Clerk

State of Kansas)
County of Sedgwick) ss

This is to certify that this plat has been filed for record in the Office of the Register of Deeds this ____ day of _____, 2008, at ____ o'clock ____ M; and is duly recorded.

Bill Meek, Register of Deeds

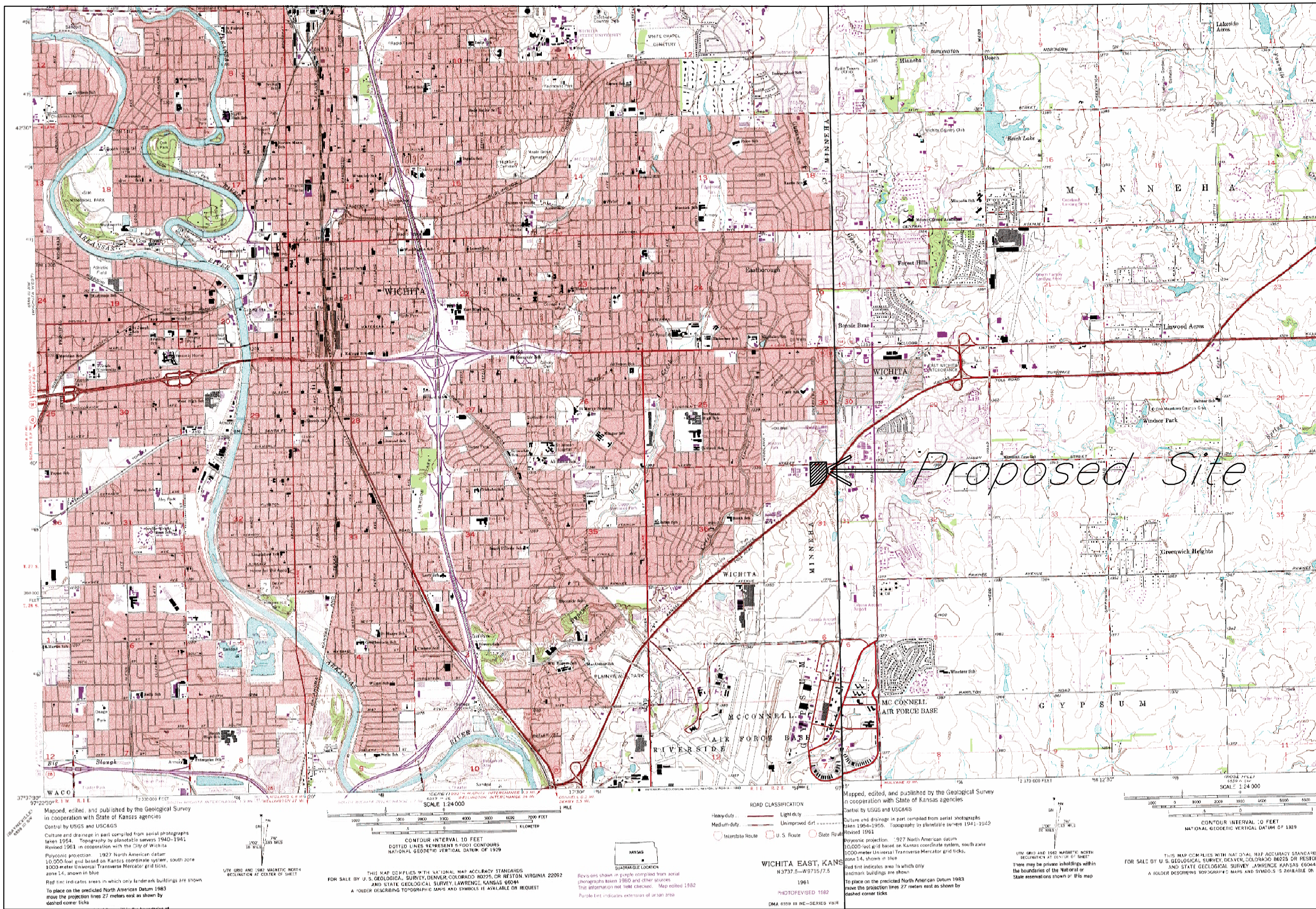
Tonya Buckingham, Deputy

Reviewed in accordance with K.S.A. 58-2005 on this ____ day of _____, 2008.

Tricia L. Robello, L.S. #1246
Deputy County Surveyor
Sedgwick County, Kansas

Filename: 08138 TRANS-NET PLAT





Map produced, edited, and published by the Geological Survey in cooperation with State of Kansas agencies. Control by USGS and USCA/GS. Culture and drainage in part compiled from aerial photographs taken 1954. Topography by stadia surveys 1940-1941. Revised 1961 in cooperation with the City of Wichita. 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 areas in which only landmark buildings are shown. To place on the projected North American Datum 1983 from the projection lines 27 meters east as shown by dashed corner ticks.

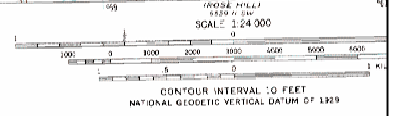
CONTOUR INTERVAL 10 FEET
 DOTTED LINES REPRESENT 5-FOOT CONTOURS
 NATIONAL GEODETIC VERTICAL DATUM OF 1929
 SCALE 1:24,000
 THIS MAP COMPLETES WITH NATIONAL MAP ACCURACY STANDARDS AND STATE GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092 FOR SALE BY U.S. GEOLOGICAL SURVEY, LAWRENCE, KANSAS 66044. A HOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST.

Revisions shown in purple compiled from aerial photographs taken 1980 and other sources. This information not 1988 checked. Map revised 1982. Purple tint indicates extension of urban area.

ROAD CLASSIFICATION
 Heavy-duty — Light-duty
 Medium-duty — Unimproved dirt
 Interstate Route — U.S. Route — State Route
 WICHITA EAST, KANSAS
 N 3737.5 — W 9715.7
 1961
 PHOTO REVISOR 1582
 DMA 6559 IN NE-SERIES Y8R

Map produced, edited, and published by the Geological Survey in cooperation with State of Kansas agencies. Control by USGS and USCA/GS. Culture and drainage in part compiled from aerial photographs taken 1954-1955. Topography by stadia 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 areas in which only landmark buildings are shown. To place on the projected North American Datum 1983 from the projection lines 27 meters east as shown by dashed corner ticks.

UTM GRID AND 1983 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET. There may be private buildings within the boundaries of the National or State Reservations shown by this map. THIS MAP COMPLETES WITH NATIONAL MAP ACCURACY STANDARDS FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225 OR RESTON, AND STATE GEOLOGICAL SURVEY, LAWRENCE, KANSAS 66044. A HOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST.



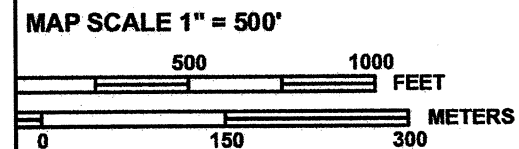
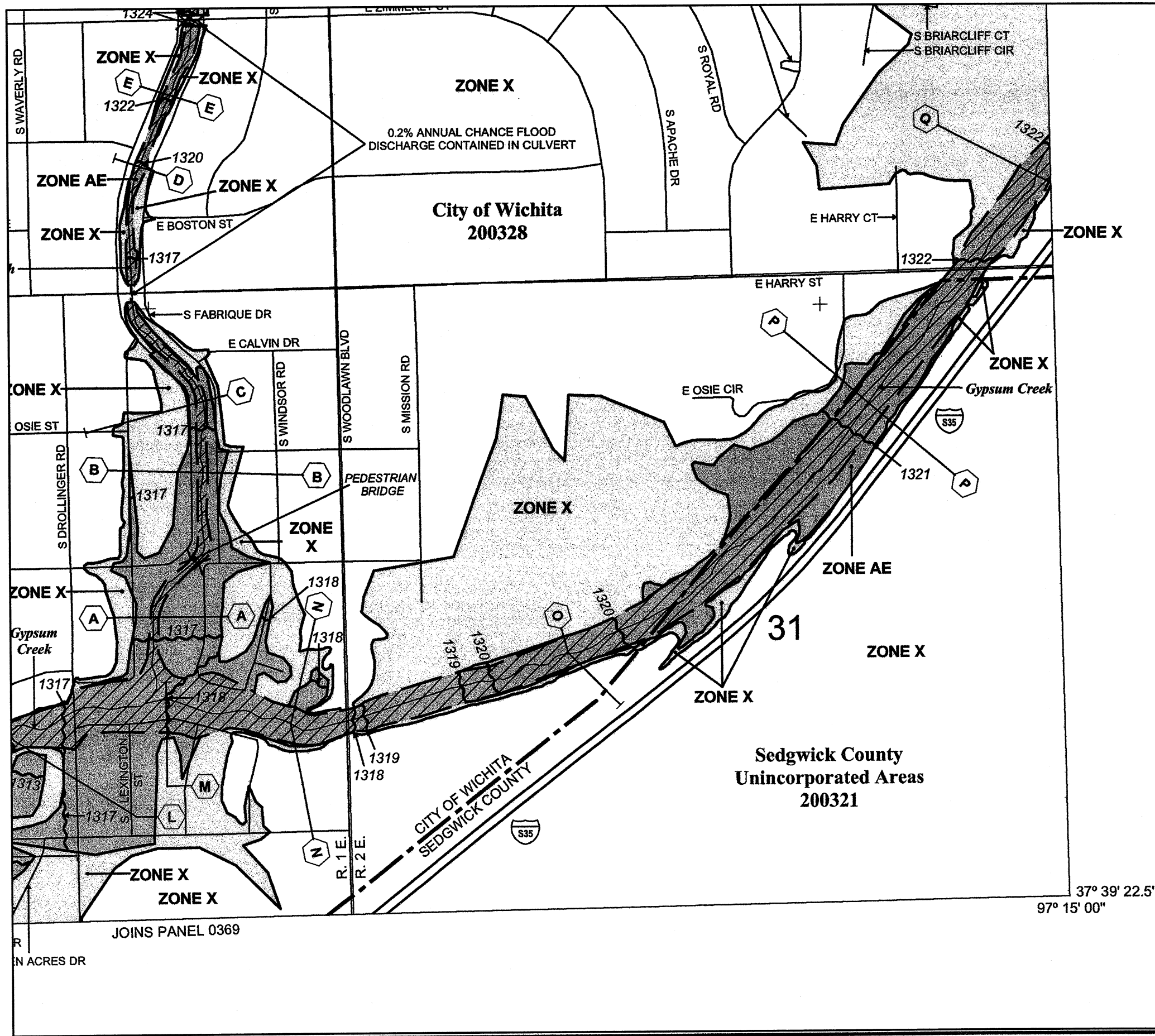
Auto Image Addition
USGS Map
 Wichita, Kansas

	PROJECT NUMBER			
	KEM NO. 08159	FILE USGS	DATE 10/2008	SHEET 1
DESIGN KM	DRAWN GP	REVISED	OF 1	

516 S. Market, Wichita, KS 67202 316/264-0242



Auto Image Addition Aerial Map Wichita, Kansas				
PROJECT NUMBER				
kemiller <i>engineering</i>	KEM NO. 08159	FILE aerial	DATE 10/2008	SHEET 1
	DESIGN KM	DRAWN GP	REVISED	OF 1
516 S. Market, Wichita, KS 67202		316/264-0242		



PANEL 0367E

FIRM
FLOOD INSURANCE RATE MAP
SEDGWICK COUNTY,
KANSAS
AND INCORPORATED AREAS

PANEL 367 OF 700

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
EASTBOROUGH, CITY OF	200491	0367	E
SEDGWICK COUNTY	200321	0367	E
WICHITA, CITY OF	200328	0367	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
20173C0367E

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

Appendix B

Public Works, Eng. Div. Storm water checklist



Public Works, Engineering Division Stormwater Management Subdivision Submittal Checklist

Reviewer: _____	Date: _____
Subdivision Name: <u>Auto Image Addition</u>	Location: <u>7215 East Harry St.</u>
Total Land Area Of Ownership: <u>1.54</u> Acres	
Type: _____ Residential <input checked="" type="checkbox"/> Commercial _____ Industrial _____ Recreation _____ Municipal _____ Other _____	
Applicant: <u>MB Real Estate, LLC</u>	Contact: <u>Brad Sechler</u> Phone #: <u>688-6535</u>
Engineer: <u>K E Miller Eng. PA</u>	Contact: <u>Kirk Miller</u> Phone #: <u>264-0242</u>

Please check the appropriate box:

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

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

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



Stormwater Management Subdivision Submittal Checklist

J. Location of existing utilities (e.g., water, sewer, gas, electric) and easements	X		Plan		
K. Location of existing conveyance systems such as storm drains, inlets, catch basins, channels, swales, and areas of overland flow	X		Plan		
L. Flow paths	X		Plan		
M. Location and dimensions of existing channels, bridges or culvert crossings		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	X		Plan		
O. Assumed pre-developed runoff curve numbers	X		Plan		
P. Existing time of concentrations used in calculations	X		Plan		
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.)		X			
S. Cross-section data for open channels		X			
T. Ground water elevations, if applicable		X	Not Required		

Tab 3. Post-Development Hydrologic Analysis	Applicant			Engr	
	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)	X		Plan		
B. Proposed time of concentrations used in calculations	X		Plan		
C. Assumed post-developed runoff curve numbers	X		Plan		
D. Proposed contours for detention facilities (to equal area used in outlet rating curves)		X			
E. Preliminary sizing calculations for stormwater controls including contributing drainage area, storage, and outlet configuration		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. Dam safety analysis, where necessary		X			
I. Existing and proposed structural elevations (e.g., invert of pipes, manholes, etc.)		X			
J. Design water surface elevations and normal pool elevation for ponds.		X			
K. Typical detail for outlet structures, embankments, spillways, grade control structures, conveyance channels, etc. To include height, width, elevation, and/or diameter.		X			
L. Proposed limits of clearing and grading		X	Includes Entire Site		
M. Location of existing and proposed roads, buildings, parking lots and other impervious areas.	X		Plan		
N. Location of existing and proposed utilities (e.g., water, sewer) and easements	X		Plan		
O. Location of existing and proposed conveyance systems such as storm drains, inlets, catch basins, channels, swales, and areas of overland flow	X		Plan		
P. Preliminary location and dimensions of proposed channel modifications, such as bridge or culvert crossings		X	No Downstream Improv		



Stormwater Management Subdivision Submittal Checklist

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

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

	Applicant		Engr	
	I/R	NA	I/R	NA
Tab 5. Federal, State and Local Permits (to be provided prior to construction unless otherwise specified)		NA	Explanation / Location in Plan	
A. US Army Corps of Engineers - Regulatory program permits (404 water quality certification)		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.)		X		
C. Federal Emergency Management Agency (FEMA) Letter of Map Changes (LOMA, LOMR, LOMR-f, CLOMR, etc.) CLOMR shall be included and approved for fill placed in the regulatory floodway		X		
D. Kansas Department of Transportation		X		
E. Sedgwick County Right-of-way Permit		X		

Appendix C

Electronic copies of Report