

ENGINEERING SUCCESS

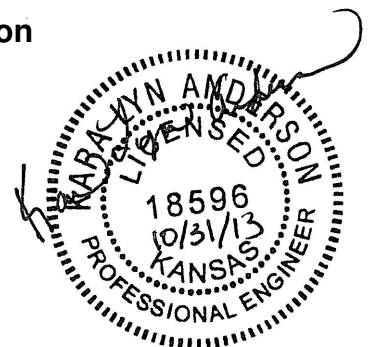


411 N. Webb Rd.
Wichita, KS 67206
316.684.9600

PRELIMINARY DRAINAGE REPORT FOR

River Vista Village Addition
Wichita, Kansas

PROJECT NUMBER: 1301020636
DATE: October 2013





City of Wichita/Sedgwick County Subdivision Drainage Plan Checklist



Submit completed forms to:
City of Wichita Public Works & Utilities, 455 N. Main 8th Floor, Wichita KS 67202; or
Sedgwick County Stormwater Management, 1144 S. Seneca, Wichita KS 67213.

Project Name: _____			
Total Area of Project: _____		acres	
Development Type: _____		Other: _____	
Developer Name: _____		Contact: _____	Phone: _____
Email: _____			
Engineer Name: _____		Contact: _____	Phone: _____
Email: _____			

Directions:

- (1) Fill-out this checklist completely and include it with the Drainage Plan submittal. This checklist should be included in the bound copy, behind the cover sheet for the submittal. Incomplete Drainage Plans and checklists will not be accepted.
- (2) Indicate whether a plan element is included or not included in the submittal by choosing "Yes" or "No" from the dropdown list in the "Element Included?" column. The question must be answered for every plan element for this checklist to be considered complete. An explanation must be provided for all "No" answers.

Drainage Plan Checklist			
#	Plan Element Description	Element Included?	Explanation/Notes
1.0	General		
1.1	Digital copy of drainage plan, including preliminary Master Grading Plan, preliminary plat and proposed plat, in PDF format and one half size, bound, paper copy.		
1.2	Professional Engineer's seal, signature and date on plan cover.		
1.3	Site location map, using color ortho-imagery and showing the project boundaries, a north arrow and an accurate scale.		
1.4	Narrative of the development type, existing conditions and proposed impacts on stormwater runoff, wetlands, riparian zones and floodplains/floodways.		
1.5	Discussion of off-site conditions surrounding the proposed development.		
1.6	Summary table of runoff calculations (pre/post development).		
1.7	Narrative description of the type and function of the permanent structural stormwater management facilities.		
2.0	Existing Conditions Information		
2.1	Existing Conditions Drainage Map		
2.1.1	On-site and off-site topography: NAVD 88 datum, one-foot contours with spot elevations.		
2.1.2	On-site and off-site drainage features, including perennial and intermittent streams (with names labeled), conveyance systems such as open channels, ditches, swales and areas of overland flow. Flow direction must be indicated by arrows.		
2.1.3	Storm sewer system components, including storm drains, inlets, catch basins, gutters, manholes, headwalls, pipes and culverts. Material and size must be noted for all pipes and culverts.		
2.1.4	Location and boundaries of natural features such as wetlands, lakes, ponds with the normal water elevation noted, rock outcroppings, wooded areas and tree rows.		
2.1.5	Location, dimensions and elevations of existing bridges and culvert crossings.		
2.1.6	Location of existing utilities (e.g., water, sewer, gas, electric, cable, etc.) with labels and easement boundaries.		
2.1.7	Groundwater elevations, if applicable.		
2.1.8	Delineation of predominant soil based on USDA soil surveys and/or on-site soil borings; indicate NRCS soil name and Hydrologic Soil Group for undisturbed surface soils.		
2.1.9	Land use types per NRCS nomenclature.		
2.1.10	Footprint of existing impervious areas (labeled, area given in acres).		
2.1.11	Internal drainage subbasin boundaries used for hydrologic calculations (labeled with ID, total area in acres, impervious area in acres and curve number).		
2.1.12	Time of concentration flow paths. Indicate and label each segment separately (i.e., overland flow, shallow concentrated, channel1, channel2, etc.). For each segment, provide the appropriate data to calculate Tc (e.g., length, slope, cover type, paved/unpaved, roughness parameters, geometric properties, etc.).		
2.2	Existing Conditions Hydrology and Hydraulics Analysis		

Drainage Plan Checklist			
#	Plan Element Description	Element Included?	Explanation/Notes
2.2.1	Narrative of the hydrologic analysis methodology used (e.g., unit hydrograph or other approved methods).		
2.2.2	A summary table of drainage subbasin hydrologic parameters (subbasin ID, area in acres, curve number, Tc, etc.).		
2.2.3	Table of existing condition runoff curve numbers with supporting data and calculations.		
2.2.4	Table of existing condition times of concentration with supporting data and calculations.		
2.2.5	A summary table of rainfall data used in the hydrologic analysis, and a reference for the source of the data.		
2.2.6	Cross-sections and other diagrams of existing open channels, bridge and culvert sections and other hydraulic features as required to illustrate the basis for hydraulic analysis.		
2.2.7	Hydrologic and hydraulic analyses for runoff rates, volumes, velocities and elevations. Provide supporting data not specified above and identify assumptions. Include detailed calculations for the 2, 5, 10, 25 & 100-year, 24-hour storm events. Provide results in a tabular form. Provide digital copies of any computer files and models used.		
3.0 postdevelopment Conditions Information			
3.1 postdevelopment Conditions Drainage Map			
3.1.1	Proposed project boundary.		
3.1.2	on-site and off-site topography: NAVD 88 datum, one-foot contours with spot elevations.		
3.1.3	Existing on-site and off-site drainage features that are to remain after development, including perennial and intermittent streams (with names labeled), conveyance systems such as open channels, ditches, swales and areas of overland flow. Flow direction must be indicated by arrows.		
3.1.4	Location and description of off-site through-drainage conveyances which are confined to an easement, dedication and/or reserve.		
3.1.5	Footprint of proposed impervious areas, including roads, parking lots, buildings and other structures.		
3.1.6	Location of proposed utilities (e.g., water, sewer, gas, electric, cable, etc.) with labels and easement boundaries.		
3.1.7	Delineation of predominant soils, based on anticipated soil textures and NRCS guidelines if different from predevelopment soil conditions; indicate NRCS soil name and Hydrologic Soil Group for surface soils.		
3.1.8	Land use cover per NRCS nomenclature.		
3.1.9	Internal drainage subbasin boundaries used for hydrologic calculations (labeled with ID, total area in acres, impervious area in acres and curve number).		
3.1.10	Proposed limits of land disturbing activity (i.e., grading limits).		
3.1.11	Time of concentration flow paths. Indicate and label each segment separately (i.e., overland flow, shallow concentrated, channel1, channel2, etc.). For each segment, provide the appropriate data to calculate Tc (e.g., length, slope, cover type, paved/unpaved, roughness parameters, geometric properties, etc.)		
3.2 Proposed Conveyances Map			
3.2.1	on-site and off-site drainage features, including perennial and intermittent streams (with names labeled), proposed conveyance systems (such as open channels, ditches, swales and areas of overland flow, including backyard drainage). Flow direction must be indicated by arrows.		
3.2.2	Storm sewer system components, including storm drains, inlets, catchbasins, gutters, manholes, headwalls, pipes and culverts. Material and size must be noted for all pipes and culverts.		
3.2.3	For any subbasin or drainage area > 40 acres, show that the stormwater flow is confined to an open channel with required side benches and freeboard, or conformance to applicable policy and design requirements if partially enclosed.		
3.2.4	Location(s) of stormwater management facilities and any associated drainage easements.		
3.2.5	Proposed energy dissipaters and other channel protection devices.		
3.2.6	Location(s) and dimension(s) of proposed channel, bridge and culvert crossings.		
3.2.7	Normal pool and 100-year pool elevations for ponds and lakes.		
3.2.8	Permanent concrete outfall control structure(s) for ponds.		
3.2.9	Emergency overflow spillways and top of berm elevations for ponds and other volume/peak discharge control facilities.		
3.2.10	Floodplains, ponds, and stormwater management facilities located in reserves.		
3.3 postdevelopment Conditions Hydrology & Hydraulics			
3.3.1	Narrative of the hydrologic analysis methodology used (e.g., unit hydrograph or other approved methods).		

Drainage Plan Checklist			
#	Plan Element Description	Element Included?	Explanation/Notes
3.3.2	A summary table of drainage subbasin hydrologic parameters (subbasin ID, area in acres, curve number, Tc, etc.).		
3.3.3	Table of postdevelopment condition runoff curve numbers with supporting data and calculations.		
3.3.4	Table of postdevelopment condition times of concentration with supporting data and calculations.		
3.3.5	Cross-sections and other diagrams of existing open channels, bridge and culvert sections and other hydraulic features as		
3.3.6	Hydrologic and hydraulic analyses for runoff rates, volumes, velocities and elevations. Provide supporting data not specified above and identify assumptions. Include detailed calculations for the 2, 5, 10, 25 & 100-year, 24-hour storm events. Provide results in a tabular form. Provide digital copies of any computer files and models used.		
3.3.7	Downstream peak discharge assessment (10% Rule) results and supporting data and calculations. Provide digital copies of any computer files and models used.		
3.3.8	Stage-storage-discharge or other outlet rating curves and inflow/outflow hydrographs for all ponds.		
3.3.9	Demonstrate that the pond contours on the master grading plan and the stage-storage-discharge data are consistent for all ponds.		
3.3.10	Demonstrate that all ponds have one foot of freeboard above the 100-year, 24-hour high water level.		
3.3.11	Demonstrate that runoff from the proposed project site is discharged in the same manner as prior to development, using level spreaders, energy dissipaters, other devices or grading as required, or identify an appropriate flowage easement.		
3.4 Stormwater Quantity Control Sizing			
3.4.1	Hydraulic sizing calculations for all stormwater management controls.		
3.4.2	Table(s) listing all stormwater management controls. Present the types, sizes, elevations, flows, velocities and depths for each control, as applicable. Verify that velocities are self-cleaning and non-erosive.		
3.4.3	Typical details (including cross-sections where applicable) for outlet structures, embankments, spillways, grade control structures, conveyance channels, etc.		
3.5 Stormwater Quality Management Facilities			
3.5.1	Table(s) listing all stormwater management facilities. Present the description, % TSS removal value, water quality volume handled, contributing drainage area in acres and contributing impervious area in acres.		
3.5.2	Indicate the responsible party for maintenance, as shown in the plat text (i.e., Home Owners Association, Lot Owners Association, property owner, etc.).		
3.5.3	Water quality volume (total and by facility), with supporting data and calculations.		
3.5.4	% TSS removal value (total and by facility) with supporting data and calculation. Must be equal to or greater than 80%.		
3.5.5	Channel protection volume with supporting data and calculations.		
3.5.6	Water quality volume and channel protection volume orifice size calculations.		
3.5.7	Other calculations required for each stormwater management facility as specified in the Wichita/Sedgwick County Stormwater Manual.		
3.5.8	Typical details (including cross-sections where applicable) for outlet structures, embankments, internal grading, forebays and other siltation prefilters, filtration/infiltration media, vegetation, check dams, operational controls, etc.		
4.0 Floodplains			
4.1	Reference the source of flood profile, floodplain, floodway and stream discharge information.		
4.2	Delineation of nearest base flood elevations.		
4.3	Delineation of predevelopment regulatory floodplain/floodway limits using FEMA's current GIS database; limits to be per elevation and scaled location.		
4.4	Delineation of postdevelopment regulatory floodplain/floodway limits; limits to be per elevation and scaled location, with project limits shown.		
4.5	Floodway data table and discharges.		
4.6	Hydrologic and hydraulic study information for local floodplain analysis, unnumbered Zone A elevation determinations and floodplain map revisions or required permits.		
4.7	Regulatory floodway and four natural profile models (10, 50, 100 and 500-year) for existing and postdevelopment conditions.		
4.8	Floodplains and floodways located within a reserve, where necessary.		
4.9	Floodplain cut and fill calculations for volume sensitive basins.		

Drainage Plan Checklist			
#	Plan Element Description	Element Included?	Explanation/Notes
4.10	Demonstrate that floodway elevations and velocities do not increase due to construction in the floodway ("No Rise Certification").		
5.0 Federal, State and Local Permits			
5.1	US Army Corps of Engineers regulatory program permits (Section 404 permit).		
5.2	Kansas Department of Agriculture - Division of Water Resources Permits (Stream Obstruction, Channel Change, Floodplain Fill, Levee, Water Appropriations, Dam Safety permit, etc.).		
5.3	FEMA letters of map change/revision - LOMA, LOMR, LOMR-f, CLOMR, etc.; shall be included and approved when project modifies the limits of the floodplain/floodway.		
6.0 Half Scale Preliminary Master Grading Plan			
6.1	One set of plans and associated PDF of plans.		
6.2	Professional Engineer's seal, signature and date.		
6.3	Title block including subdivision name and phase and dated revision documentation.		
6.4	Future phases shown but cross-hatched as information only.		
6.5	Scale, not greater than 1-inch = 60 feet.		
6.6	North arrow.		
6.7	Index or legend key.		
6.8	Benchmarks (minimum of 2) used for site control (NAVD 88 vertical datum).		
6.9	Existing contours of entire site with contour interval of one foot.		
6.10	Proposed contours for channels, ponds, and other permanent stormwater management facilities, with contour interval of one foot.		
6.11	Spot elevations shown to the nearest tenth of a foot for critical locations, including lot and property boundaries.		
6.12	Proposed lot and street layout.		
6.13	Locations of underground storm drains.		
6.14	Overflow locations for storms exceeding storm drain capacity, with elevations.		
6.15	Top elevations of storm drains at all inlets, manholes, and flow line elevations for all outfalls.		
6.16	Locations of open ditches and lakes.		
6.17	Flow direction arrows.		
6.18	Proposed flow line elevations of all open ditches at maximum 100 foot intervals, and 100-year flood elevations thereon.		
6.19	Ponds: Location, bottom elevation, normal pool elevation, 100-year flood elevation, emergency overflow elevation.		
6.20	Proposed top-of-curb elevations at points where drainage will be required to flow over the curb.		
6.21	Platted minimum building opening elevation for each lot, in table form for all lots (excluding basement floor elevations).		
6.22	Standard foundation and elevation detail for slab on grade, full basement, view-out, partial view-out and/or walk-out construction.		
6.23	Top of foundation elevation for each lot.		
6.24	Notation for builders for each lot as to the type of structure that may be constructed and the view-out, walk-out or pad elevation, as applicable.		
6.25	Indicate that all lots are above the 100-year flood elevation.		
6.26	Indicate that grading around structures conforms to perimeter drainage requirements.		
6.27	Indicate that backyard drainage grading conforms to backyard drainage requirements.		
6.28	Adjacent subdivision lot lines, with lot labels and subdivision names.		
6.29	Boundaries and labels for all easements, rights-of-way and reserves.		
6.30	Statement on proposed final plat: "A drainage plan has been developed for the subdivision and all drainage easements, rights-of-way, or reserves shall remain at the established grades and remain unobstructed to allow for the conveyance of stormwater."		
End of Checklist			

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General Information

Location

The subject property is in the City of Wichita, Sedgwick County, Kansas. The proposed development is located south of 1st Street, east of McLean Boulevard, north of Douglas Avenue, and west of the Arkansas River. The development has an area of approximately 9.4 acres. The site lies in the southwest ¼, Section 20, Township 27 South, Range 1 East. The site is shown on the USGS Quadrangle, Appendix A. The site is also shown on the Aerial Photograph, Appendix B.

Datum

The site is shown in NAVD 88 datum.

Soils

According to the NRCS (SCS) Sedgwick County Soil Survey, Appendix C, soils on the site are:

- Urban land-Canadian complex, 0 to 3 percent slopes, HSG "B"

The Hydraulic Soil Group (HSG) used to select runoff coefficients is "B".

Flood Insurance Rate Map (FIRM)

The site is shown on the FEMA FIRM Panels 20173C0365E effective February 2, 2007, Appendix D. The site is in Zone X (shaded), areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

According to the FIRM and FIS profile, the 1% annual chance flood elevation adjacent to the site is 1294.0.

Groundwater

According to the Kansas Geological Survey Water Well Completion Records (<http://www.kgs.ku.edu/Magellan/WaterWell/index.html>) the static water level of existing water wells in the vicinity is 10-20 feet deep.

Hydrologic Analysis

The rainfall depths used for various design storms are shown in Table 1.

Table 1. Rainfall Depths (inches) for 24-Hour Design Storms.

Design Storm	1-Yr	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	500-Yr
Sedgwick County	2.8	3.5	4.5	5.2	6.1	6.9	7.8	9.4

Existing Development

Description

The site is currently undeveloped and unplatted land. The site is currently used as a park and was previously . No existing improvements exist on site.

Land Use

The current land use of the site is park. There is no impervious area on site.

Drainage Patterns

The site generally drains to the east into the Arkansas River.

Utilities

Sanitary Sewer

An existing 8" sanitary sewer line extends to the northwest corner of the property. Another 8" sanitary sewer line extends to the park near the south east side of the property.

Water

An existing 36" water line is located within the street right-of-way along McLean Boulevard. An existing water line flows along the northeast edge of the property.

Storm Water

An existing 42" stormwater sewer system flows from west to east along the north edge of the property. An existing 36" stormwater sewer flows from the park area into the Arkansas River.

Other Utilities

There are no other existing utilities onsite.

Proposed Development

Description

The proposed site will develop as 3 mixed use lots. The net area of the plat will be 5.9 acres with the remainder of the area dedicated to McLean Boulevard. The largest lot will be used for an apartment building with approximately 150 residential 1 and 2 bedroom apartments. The commercial building will be located on McLean Boulevard. Approximately 340 parking spaces will be constructed to accommodate the residential and commercial properties. The adjacent Delano Park will be improved along with the riverfront. The site is shown on the plat, Appendix E.

Land Use

The land use for the proposed site will be approximately 98 percent impervious for the residential and commercial lots. The park will have very little impervious area. A curve number for the residential and commercial is 98. The curve numbers to represent the park is 80. The weighted average for the site is 95.6. Curve numbers for the project were calculated in Excel, Appendix F.

Drainage Patterns

The proposed site will flow from north to south into a proposed stormwater sewer system. The stormwater sewer system will flow to the east into the Arkansas River.

Downstream Peak Discharge Assessment (10% Rule)

The drainage area for the Arkansas River adjacent to the site is approximately 40,000 square miles. When the runoff from the site enters the river the area of the site is much less than ten percent. The peak flows from the site will enter the river much sooner than the peak flow rate or peak elevation occurs in the Arkansas River and therefore would not increase the peak flow rate or water surface elevation in the Arkansas River. Since the site does not increase peak flow rates to the River, detention will not be provided.

Water Quality

The volume required for water quality is 0.15 acre-feet. The water quality volume for the site is based on 5.1 acres of the site 98% impervious and 0.8 acres of disturbed pervious for a redevelopment. Water quality volume for this site was calculated using an Excel Spreadsheet, Appendix H. The water quality volume will be provided in proprietary device before the stormwater sewer leaves the site.

Channel Protection

The site is within the area where channel protection volume is not required according to the map dated January 2013, Appendix I.

Permits

U.S. Army Corps of Engineers

The project is not affecting any jurisdictional waters of the U.S. or any wetlands. Permitting through the U.S. Army Corps of Engineers will not be required.

Kansas Department of Agriculture Division of Water Resources

The drainage area of the basin that flows through the project is less than 640 acres; therefore Water Structures permits will not be required.

There are no proposed ponds on site; therefore water appropriations permitting will not be required.

FEMA

The proposed project will not modify the FEMA floodplain around the Arkansas River. FEMA applications will not be required.

Kansas Department of Health and Environment

A Notice of Intent (NOI) will be filed with KDHE for coverage under NPDES. A Storm Water Pollution Prevention plan will be prepared and will include the NOI.

Utilities

Sanitary Sewer

A proposed sanitary sewer layout is shown on the Drainage and Utility Plan, Appendix F - Curve Number

Appendix G. The sewer will provide service to all lots. The interior layout of the commercial and residential lots will be determined during site design.

Water

The proposed water layout is shown on the Drainage and Utility Plan, Appendix G. Water service will be provided to service to all lots. The interior layout of the commercial and residential lots will be determined during site design. The existing 4" water line along the east side of the lot will be removed.

Stormwater Sewer

Stormwater Sewer will be designed as shown on the Drainage and Utility Plan, Appendix G. The stormwater sewer system will route stormwater runoff along the south into the Arkansas River. The interior layout of the stormwater sewer to serve the commercial and residential lots will be determined during site design. Easements by separate instrument will be provided as needed. The stormwater sewer system will be sized to convey a minimum of a 5-year design storm. Pipe sizes will be determined with site design.

The existing stormwater sewer system along the north property line of the property will be remove and replaced to route the line around the proposed building.

Other Utilities

Easements are provided for electric, telephone, cable, and other utilities.

Lot Grading Plan

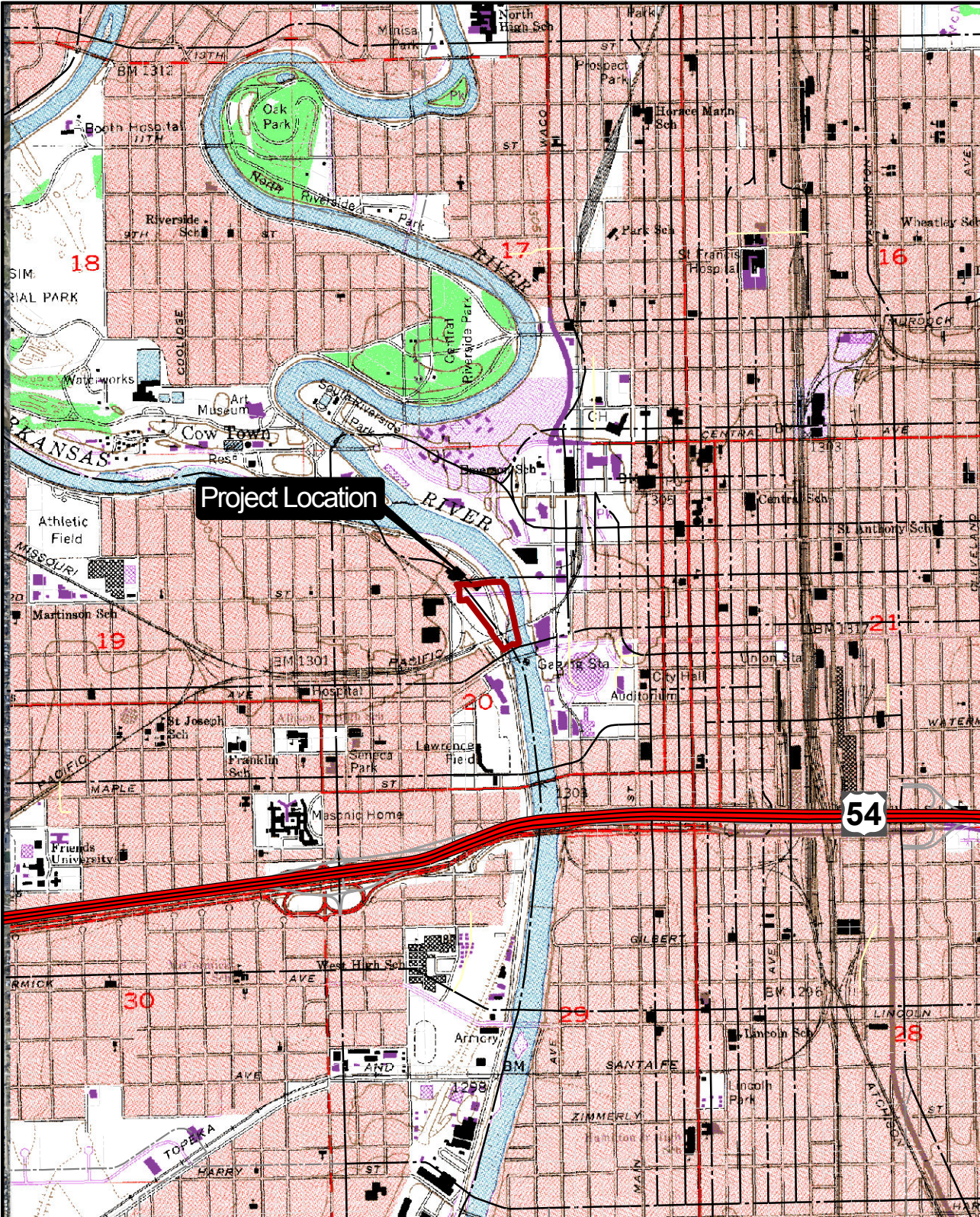
Lot grading will be determined at the time of site design. The lot will match exiting grades and improvements around the perimeter.

Summary

The proposed River Vista Village Addition is located in downtown Wichita on the Arkansas River. The site is currently undeveloped land used as park and open space. The site will be developed for multi story apartments, a retail building, and park. Improvements will be made to the River adjacent to the site. The site will drain directly into the Arkansas River. Due to the proximity of the site to the River and the large drainage basin of the River, detention will not be provided and increased flow rates from the sit will not increase the peak flow rate or elevation of the river.

On site storm water sewer will drain the site to the River. Final layout and pipe sizes will be determined as the site is designed. Proposed pipe systems will be designed to convey a minimum of a 5-year design storm.

Appendix A - USGS Quadrangle Map



USGS QUAD EXHIBIT
RIVER VISTA VILLAGE

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SEC: 20
TWP: T27S
RNG: R1E

PROJECT NO. 1301020636

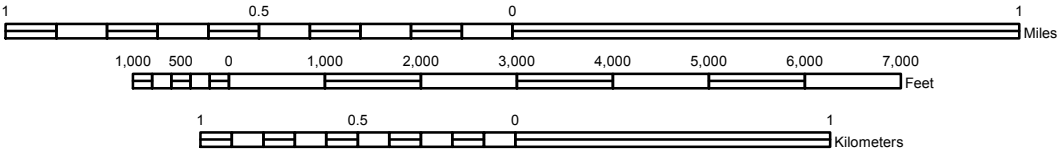
DATE 10/28/2013

SCALE 1"=2000'

DESIGNED DRAWN CHECKED
MKEC MKEC MKEC

NO.	REVISION	DATE

SHEET NO.



Appendix B - Aerial Photograph



2ND ST

1ST ST

Project Location

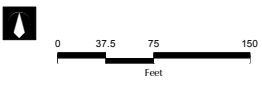
ARKANSAS RIVER

SYCAMORE ST

MCLEAN BLVD

DOUGLAS AVE

SEC: 20
TWP: T27S
RNG: R1E



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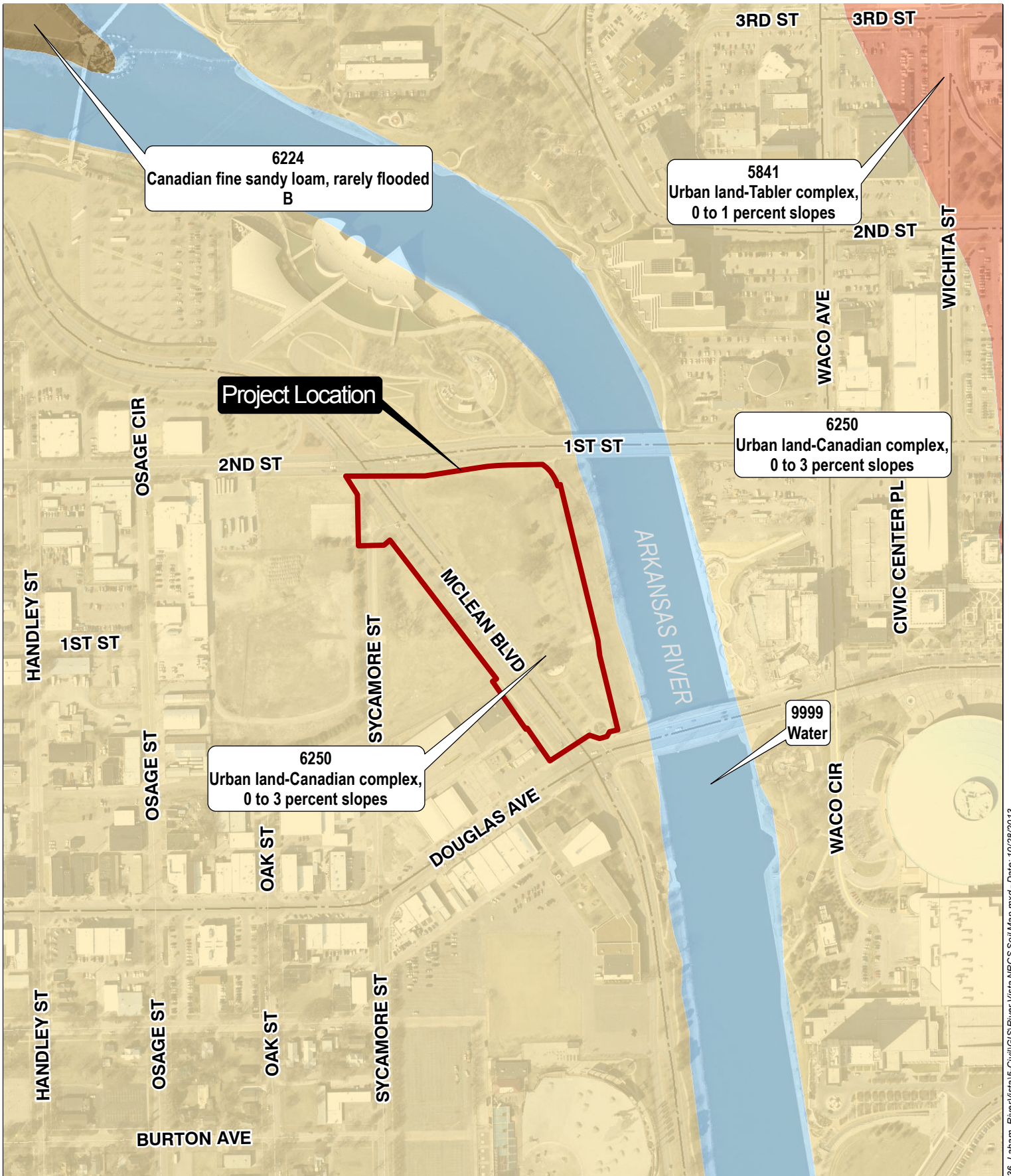


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**AERIAL EXHIBIT
RIVER VISTA VILLAGE**

PROJECT NO. 1301020636	DATE: 10/28/2013	SHEET NO.
DRAWN BY: JGD	DESIGNED BY: JGD	APPROVED BY: KLA
		1 OF 1

Appendix C - Soil Survey



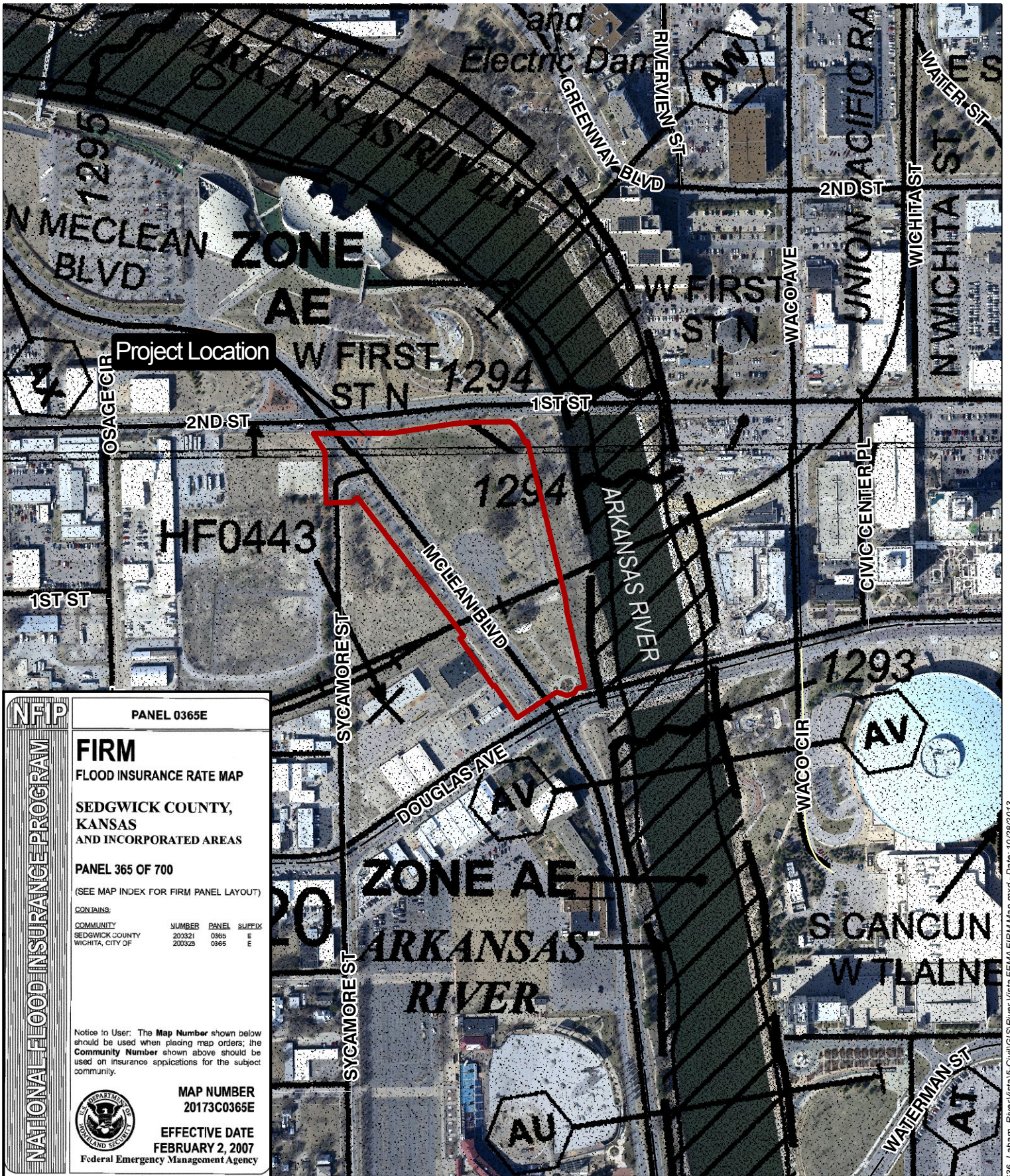
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NRCS SOIL SURVEY EXHIBIT RIVER VISTA VILLAGE			
PROJECT NO. 1301020636	DATE: 10/28/2013	SHEET NO.	
DRAWN BY: JGD	DESIGNED BY: JGD	APPROVED BY: KLA	1 OF 1

Appendix D - Flood Insurance Rate Map (FIRM)



NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0365E

FIRM
FLOOD INSURANCE RATE MAP

SEDGWICK COUNTY,
KANSAS
AND INCORPORATED AREAS

PANEL 365 OF 700
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SEDGWICK COUNTY	201321	0365	E
WICHITA, CITY OF	200325	0365	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
20173C0365E

EFFECTIVE DATE
FEBRUARY 2, 2007

Federal Emergency Management Agency

SEC: 20
TWP: T27S
RNG: R1E

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FEMA FIRM EXHIBIT
RIVER VISTA VILLAGE

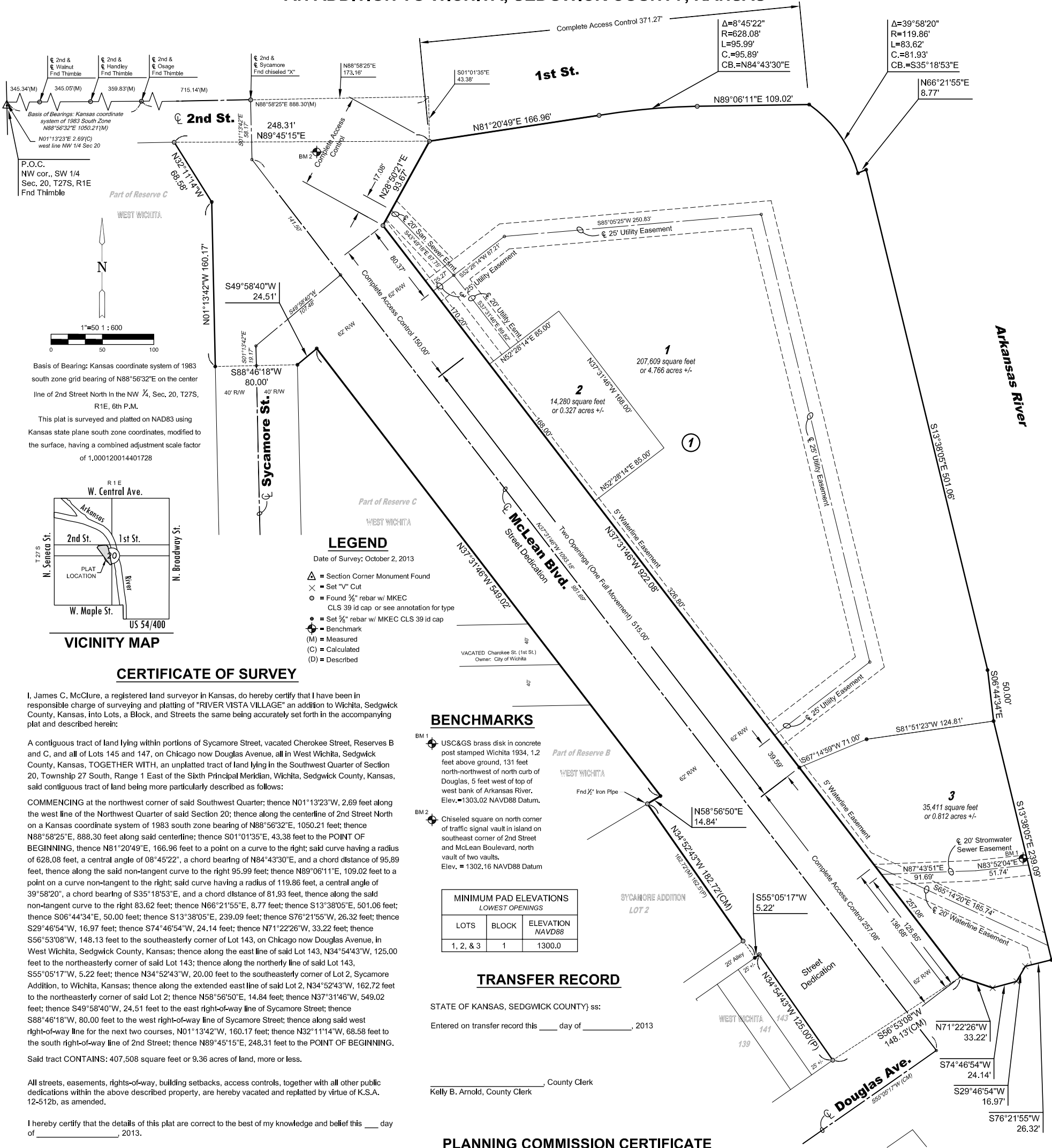
PROJECT NO. 1301020636	DATE: 10/28/2013	SHEET NO.
DRAWN BY: JGD	DESIGNED BY: JGD	APPROVED BY: KLA
		1 OF 1

Appendix E - Plat

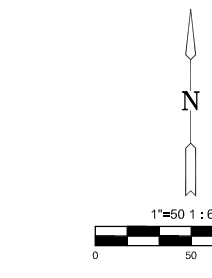
FINAL PLAT

RIVER VISTA VILLAGE

AN ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS



P.O.C.
NW cor., SW 1/4
Sec. 20, T27S, R1E
Fnd Thimble



Basis of Bearing: Kansas coordinate system of 1983 south zone grid bearing of N88°56'32"E on the center line of 2nd Street North in the NW 1/4, Sec. 20, T27S, R1E, 6th P.M.

This plat is surveyed and platted on NAD83 using Kansas state plane south zone coordinates, modified to the surface, having a combined adjustment scale factor of 1.000120014401728

LEGEND
Date of Survey: October 2, 2013

- △ = Section Corner Monument Found
- × = Set "V" Cut
- = Found 3/4" rebar w/ MKEC CLS 39 id cap or see annotation for type
- = Set 3/4" rebar w/ MKEC CLS 39 id cap
- ⊕ = Benchmark
- (M) = Measured
- (C) = Calculated
- (D) = Described

BENCHMARKS

BM 1
USC&GS brass disk in concrete post stamped Wichita 1934, 1.2 feet above ground, 131 feet north-northwest of north curb of Douglas, 5 feet west of top of west bank of Arkansas River. Elev. = 1303.02 NAVD88 Datum.

BM 2
Chiseled square on north corner of traffic signal vault in island on southeast corner of 2nd Street and McLean Boulevard, north vault of two vaults. Elev. = 1302.16 NAVD88 Datum

MINIMUM PAD ELEVATIONS LOWEST OPENINGS		
LOTS	BLOCK	ELEVATION NAVD88
1, 2, & 3	1	1300.0

TRANSFER RECORD

STATE OF KANSAS, SEDGWICK COUNTY) ss:
Entered on transfer record this ____ day of _____, 2013

_____, County Clerk
Kelly B. Arnold, County Clerk

PLANNING COMMISSION CERTIFICATE

STATE OF KANSAS, SEDGWICK COUNTY) ss:
This plat of "RIVER VISTA VILLAGE" has been submitted to and approved by the Wichita-Sedgwick County Metropolitan Area Planning Commission, Wichita, Kansas.

Dated this ____ day of _____, 2013

WICHITA-SEDGWICK COUNTY METROPOLITAN AREA PLANNING COMMISSION

_____, Chair
Don Klausmeyer, Chair

Attest: _____, Secretary
John L. Schlegel, Secretary

GOVERNING BODY CERTIFICATE

STATE OF KANSAS, SEDGWICK COUNTY) ss:
The dedications shown on this plat are hereby accepted and this plat is hereby approved by the governing body of the City of Wichita, Kansas.

Dated this ____ day of _____, 2013

At the direction of the City Council.
_____, Mayor
Carl Brewer, Mayor

Attest: _____, City Clerk
Karen Sublett, City Clerk

COUNTY SURVEYOR

STATE OF KANSAS, SEDGWICK COUNTY) ss:
Reviewed in accordance with K.S.A. 58-2005 on this ____ day of _____, 2013.

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

REGISTER OF DEEDS' CERTIFICATE

STATE OF KANSAS, SEDGWICK COUNTY) ss:
This is to certify that this instrument was filed for record in the Register of Deeds office this ____ day of _____, 2014, at ____ o'clock ____ M; and is duly recorded.

_____, Register of Deeds
Bill Meek, Register of Deeds

Attest: _____, Deputy
Tonya E. Buckingham, Deputy

CERTIFICATE OF SURVEY

I, James C. McClure, a registered land surveyor in Kansas, do hereby certify that I have been in responsible charge of surveying and platting of "RIVER VISTA VILLAGE" an addition to Wichita, Sedgwick County, Kansas, into Lots, a Block, and Streets the same being accurately set forth in the accompanying plat and described herein:

A contiguous tract of land lying within portions of Sycamore Street, vacated Cherokee Street, Reserves B and C, and all of Lots 145 and 147, on Chicago now Douglas Avenue, all in West Wichita, Sedgwick County, Kansas, TOGETHER WITH, an unplatted tract of land lying in the Southwest Quarter of Section 20, Township 27 South, Range 1 East of the Sixth Principal Meridian, Wichita, Sedgwick County, Kansas, said contiguous tract of land being more particularly described as follows:

COMMENCING at the northwest corner of said Southwest Quarter; thence N01°13'23"W, 2.69 feet along the west line of the Northwest Quarter of said Section 20; thence along the centerline of 2nd Street North on a Kansas coordinate system of 1983 south zone bearing of N88°56'32"E, 1050.21 feet; thence N88°58'25"E, 888.30 feet along said centerline; thence S01°01'35"E, 43.38 feet to the POINT OF BEGINNING, thence N81°20'49"E, 166.96 feet to a point on a curve to the right; said curve having a radius of 628.08 feet, a central angle of 08°45'22", a chord bearing of N84°43'30"E, and a chord distance of 95.89 feet, thence along the said non-tangent curve to the right 95.99 feet; thence N89°06'11"E, 109.02 feet to a point on a curve non-tangent to the right; said curve having a radius of 119.86 feet, a central angle of 39°58'20", a chord bearing of S35°18'53"E, and a chord distance of 81.93 feet, thence along the said non-tangent curve to the right 83.62 feet; thence N66°21'55"E, 8.77 feet; thence S13°38'05"E, 501.06 feet; thence S06°44'34"E, 50.00 feet; thence S13°38'05"E, 239.09 feet; thence S76°21'55"W, 26.32 feet; thence S29°46'54"W, 16.97 feet; thence S74°46'54"W, 24.14 feet; thence N71°22'26"W, 33.22 feet; thence S56°53'08"W, 148.13 feet to the southeasterly corner of Lot 143, on Chicago now Douglas Avenue, in West Wichita, Sedgwick County, Kansas; thence along the east line of said Lot 143, N34°54'43"W, 125.00 feet to the northeasterly corner of said Lot 143; thence along the northerly line of said Lot 143, S55°05'17"W, 5.22 feet; thence N34°52'43"W, 20.00 feet to the southeasterly corner of Lot 2, Sycamore Addition, to Wichita, Kansas; thence along the extended east line of said Lot 2, N34°52'43"W, 162.72 feet to the northeasterly corner of said Lot 2; thence N58°56'50"E, 14.84 feet; thence N37°31'46"W, 549.02 feet; thence S49°58'40"W, 24.51 feet to the east right-of-way line of Sycamore Street; thence S88°46'18"W, 80.00 feet to the west right-of-way line of Sycamore Street; thence along said west right-of-way line for the next two courses, N01°13'42"W, 160.17 feet; thence N32°11'14"W, 68.58 feet to the south right-of-way line of 2nd Street; thence N89°45'15"E, 248.31 feet to the POINT OF BEGINNING.

Said tract CONTAINS: 407,508 square feet or 9.36 acres of land, more or less.

All streets, easements, rights-of-way, building setbacks, access controls, together with all other public dedications within the above described property, are hereby vacated and replatted by virtue of K.S.A. 12-512b, as amended.

I hereby certify that the details of this plat are correct to the best of my knowledge and belief this ____ day of _____, 2013.

James C. McClure, R.L.S. #1251
MKEC Engineering Consultants, Inc.
411 North Webb Road
Wichita, Kansas 67206

OWNER'S CERTIFICATE

Know all men by these presents that we the undersigned property owners of the land above set forth in the Registered Land Surveyor's Certificate, have caused the same to be surveyed and platted into Lots, a Block, and Streets, the same to be known as "RIVER VISTA VILLAGE" an addition to Wichita, Sedgwick County, Kansas.

Easements for the construction and maintenance of drainage and utilities, as indicated hereon, are hereby granted to the public.

All abutters rights of access to or from McLean Boulevard over and across the west line of "RIVER VISTA VILLAGE" are hereby granted to the appropriate governing body, provided however two openings are allowed one of which being a full movement as indicated hereon.

A drainage plan has been developed for this plat. 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.

CITY OF WICHITA
At the direction of City Council
_____, Mayor
Carl Brewer, Mayor

STATE OF KANSAS, SEDGWICK COUNTY) ss:
This instrument was acknowledged before me on ____ day of _____, 2013, by
Carl Brewer, Mayor, City of Wichita.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year last above written.
_____, Notary Public
My Term Expires: _____



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Appendix F - Curve Number

**Curve Number Calculations
River Vista Village**

Estimate Imperviousness per Land Use

HSG A			HSG B			HSG C			HSG D		
Land Use	Average % Impervious	Area (ac)	Land Use	Average % Impervious	Area (ac)	Land Use	Average % Impervious	Area (ac)	Land Use	Average % Impervious	Area (ac)
Commercial and Business	85%		Commercial and Business	85%		Commercial and Business	85%		Commercial and Business	85%	
Industrial	72%		Industrial	72%		Industrial	72%		Industrial	72%	
Residential 1/8 acre or less (townhouse)	65%		Residential 1/8 acre or less (townhouse)	65%		Residential 1/8 acre or less (townhouse)	65%		Residential 1/8 acre or less (townhouse)	65%	
Residential 1/4 acre	38%		Residential 1/4 acre	38%		Residential 1/4 acre	38%		Residential 1/4 acre	38%	
Residential 1/3 acre	30%		Residential 1/3 acre	30%		Residential 1/3 acre	30%		Residential 1/3 acre	30%	
Residential 1/2 acre	25%		Residential 1/2 acre	25%		Residential 1/2 acre	25%		Residential 1/2 acre	25%	
Residential 1 acre	20%		Residential 1 acre	20%		Residential 1 acre	20%		Residential 1 acre	20%	
Residential 2 acres	12%		Residential 2 acres	12%		Residential 2 acres	12%		Residential 2 acres	12%	
Impervious Area (acres)		0	Impervious Area (acres)		0	Impervious Area (acres)		0	Impervious Area (acres)		0

Composite Curve Number (CN)

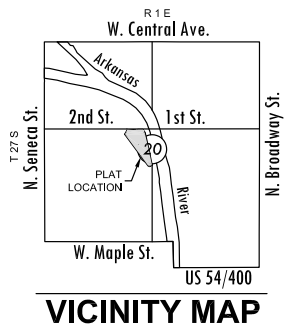
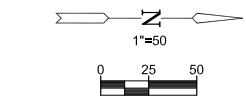
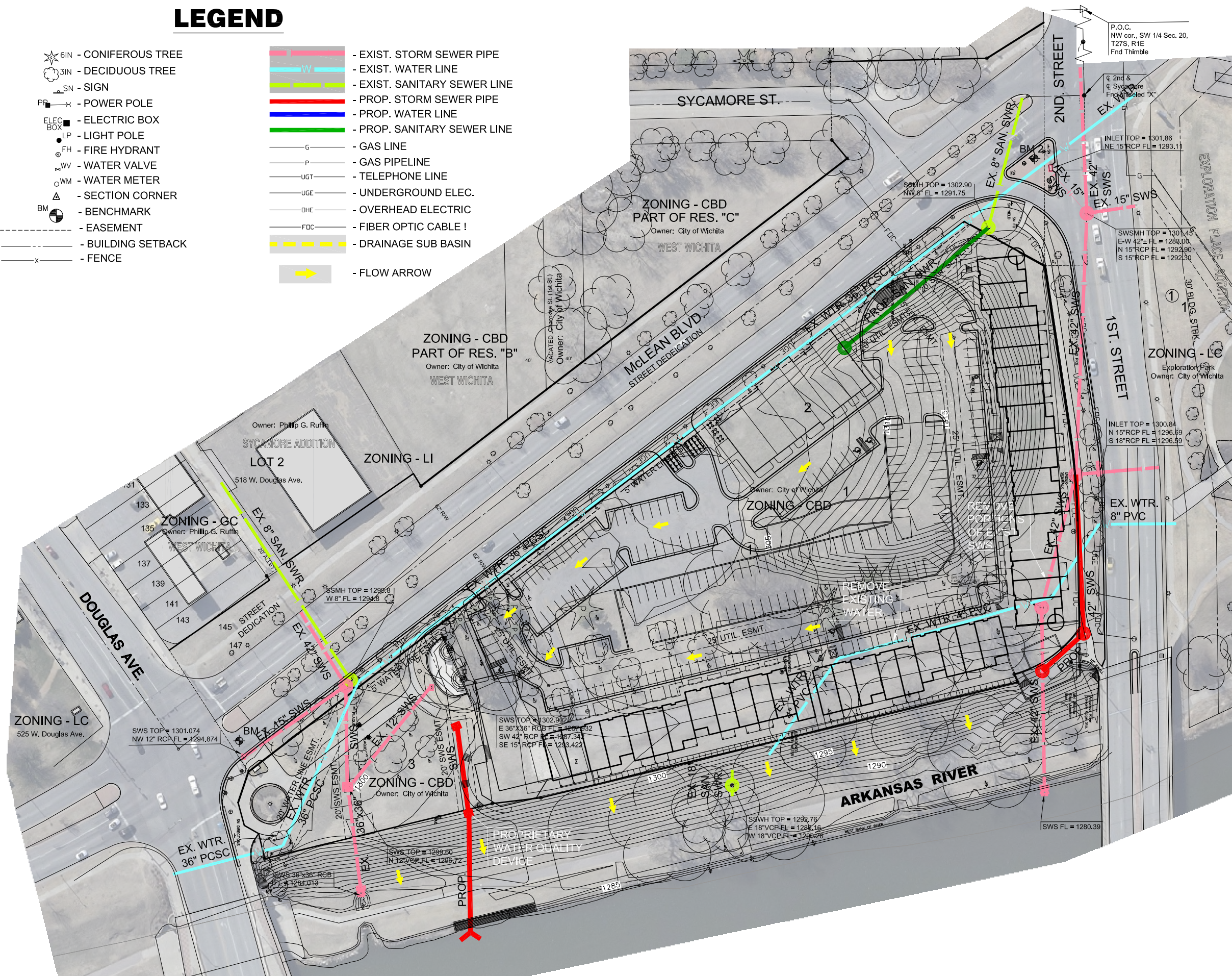
HSG A			HSG B			HSG C			HSG D		
Land Use	CN	Area (ac)	Land Use	CN	Area (ac)	Land Use	CN	Area (ac)	Land Use	CN	Area (ac)
Pre-Developed or Undisturbed Pervious	55		Pre-Developed or Undisturbed Pervious	71		Pre-Developed or Undisturbed Pervious	80		Pre-Developed or Undisturbed Pervious	84	
Developed or Disturbed Pervious	71		Developed or Disturbed Pervious	80	0.8	Developed or Disturbed Pervious	84		Developed or Disturbed Pervious	88	
Impervious	98	0	Impervious	98	5.1	Impervious	98	0	Impervious	98	0
Composite Curve Number HSG A (CN)	0.0	0	Composite Curve Number HSG B (CN)	95.6	5.9	Composite Curve Number HSG C (CN)	0.0	0	Composite Curve Number HSG D (CN)	0.0	0

Total Weighted Composite Curve Number (CN)	95.6
Total Area (A) (acres)	5.9

Appendix G - Drainage and Utility Plan

LEGEND

- 6IN - CONIFEROUS TREE
- 3IN - DECIDUOUS TREE
- SN - SIGN
- PP - POWER POLE
- ELEC BOX - ELECTRIC BOX
- LP - LIGHT POLE
- FH - FIRE HYDRANT
- WV - WATER VALVE
- WM - WATER METER
- Δ - SECTION CORNER
- BM - BENCHMARK
- - - - - EASEMENT
- - - - - BUILDING SETBACK
- x - FENCE
- - - - - EXIST. STORM SEWER PIPE
- - - - - EXIST. WATER LINE
- - - - - EXIST. SANITARY SEWER LINE
- - - - - PROP. STORM SEWER PIPE
- - - - - PROP. WATER LINE
- - - - - PROP. SANITARY SEWER LINE
- G - GAS LINE
- P - GAS PIPELINE
- UGT - TELEPHONE LINE
- UGE - UNDERGROUND ELEC.
- DHE - OVERHEAD ELECTRIC
- FDC - FIBER OPTIC CABLE
- - - - - DRAINAGE SUB BASIN
- - FLOW ARROW



MINIMUM PAD ELEVATIONS LOWEST OPENINGS		
LOTS	BLOCK	ELEVATION NAVD88
1, 2, & 3	1	1300.0

- ### BENCHMARKS
- BM 1 - USC&GS brass disk in concrete post stamped Wichita 1934, 1.2 feet above ground, 131 feet north-northwest of north curb of Douglas, 5 feet west of top of west bank of Arkansas River. Elev.=1303.02 NAVD88 Datum.
 - BM 2 - Chiseled square on north corner of traffic signal vault in Island on southeast corner of 2nd Street and McLean Boulevard, north vault of two vaults. Elev. = 1302.16 NAVD88 Datum



DRAINAGE & UTILITY PLAN FOR RIVER VISTA VILLAGE WICHITA, KANSAS

DRAINAGE & UTILITY PLAN

PROJECT NO.	13102636		
DATE	OCT. 2013		
SCALE	AS NOTED		
DESIGNED	DRAWN	CHECKED	
KLA	DM	GJA	
#	NO.	REVISION	DATE

SHEET NO.
1 OF 1

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Appendix H - Water Quality

Water Quality Volume Calculations River Vista Village

Volumetric Runoff Coefficients by Land Use and Hydraulic Soil Group

Land Use	Hydrologic Soil Group								Total Area (ac)
	A		B		C		D		
	Area (ac)	R _v	Area (ac)	R _v	Area (ac)	R _v	Area (ac)	R _v	
Undisturbed		0.02		0.03		0.04		0.05	0
Disturbed Pervious		0.15		0.20	0.8	0.22		0.25	0.8
Impervious Cover		0.95		0.95	5.1	0.95		0.95	5.1
Total Area (ac)	0.00		0.00		5.90		0		5.9
Volumetric Runoff Coefficient (R_v)	0.00		0.00		0.85		0.00		0.85

Rainfall Depth (P) (in)	1.2
Water Quality Protection Volume (WQ _v) (ac-ft)	0.50
Water Quality Protection Volume (Q _{wv}) (in)	1.02
Redevelopment	Yes
Redevelopment Water Quality Protection Volume (WQ _v) (ac-ft)	0.15

Appendix I - Channel Protection Volume

Appendix G-1

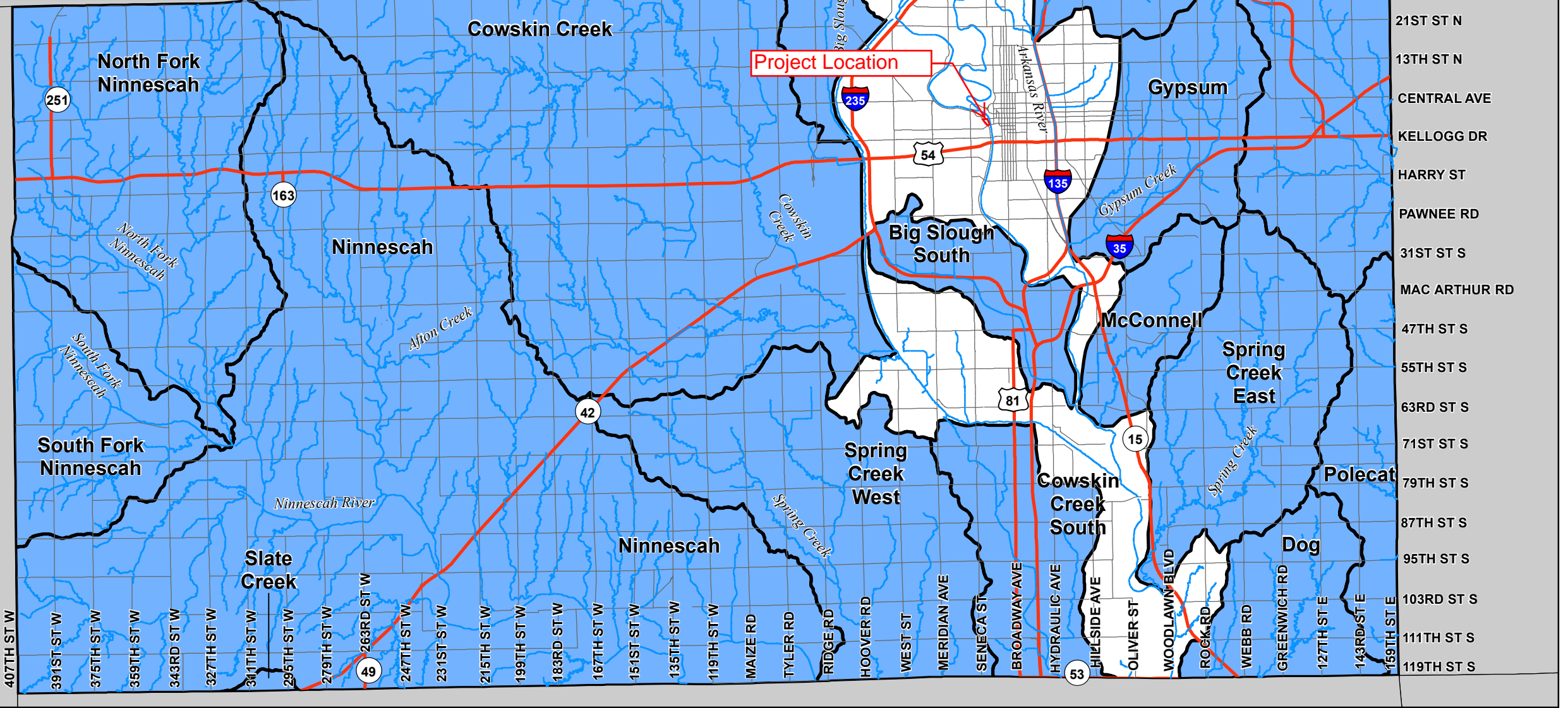
Map of Downstream Stabilization Standard Watershed and Streams

Notes to User: New developments and redevelopments located in areas subject to the Downstream Stabilization Standard may be exempt with approval of the governing authority. Example of possible exemption: Proposed site discharges to a regional stormwater management facility that provides sufficient downstream control for the 1-yr storm event. Refer to the Stormwater Manual for further clarification and adopted policies.

Those areas shown as not being subject to the Downstream Stabilization Standard are basins determined to have adequate capacity to convey the 1-yr storm event without causing significant downstream concerns, or are areas that are fully served by stormwater drainage systems.

This map is intended to supplement the City of Wichita/Sedgwick County Stormwater Manual and shall be used as a guide and not considered absolute.

Map Date: January 2013



Downstream Stabilization

- Not Required
- Required

- 125TH ST N
- 117TH ST N
- 109TH ST N
- 101ST ST N
- 93RD ST N
- 85TH ST N
- 77TH ST N
- 69TH ST N
- 61ST ST N
- 53RD ST N
- 45TH ST N
- 37TH ST N
- 29TH ST N
- 21ST ST N
- 13TH ST N
- CENTRAL AVE
- KELLOGG DR
- HARRY ST
- PAWNEE RD
- 31ST ST S
- MAC ARTHUR RD
- 47TH ST S
- 55TH ST S
- 63RD ST S
- 71ST ST S
- 79TH ST S
- 87TH ST S
- 95TH ST S
- 103RD ST S
- 111TH ST S
- 119TH ST S

407TH ST W

391ST ST W

375TH ST W

359TH ST W

343RD ST W

327TH ST W

311TH ST W

295TH ST W

279TH ST W

263RD ST W

247TH ST W

231ST ST W

215TH ST W

199TH ST W

183RD ST W

167TH ST W

151ST ST W

135TH ST W

119TH ST W

MAIZER RD

TYLER RD

RIDGE RD

HOOVER RD

WEST ST

MERIDIAN AVE

SENECA ST

BROADWAY AVE

HYDRAULIC AVE

HILLSIDE AVE

OLIVER ST

WOODLAWN BLVD

ROCK RD

WEBB RD

GREENWICH RD

127TH ST E

143RD ST E

159TH ST E