

# ENGINEERING SUCCESS



411 N. Webb Rd.  
Wichita, KS 67206  
316.684.9600

## PRELIMINARY DRAINAGE REPORT FOR

Berkeley Square Third Addition  
Wichita, Kansas

PROJECT NUMBER: 1401010053  
DATE: August 29, 2014





## 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.

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

**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
<b>1.0</b>	<b>General</b>		
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.		
<b>2.0</b>	<b>Existing Conditions Information</b>		
<b>2.1</b>	<b>Existing Conditions Drainage Map</b>		
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.).		
<b>2.2</b>	<b>Existing Conditions Hydrology and Hydraulics Analysis</b>		

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.		
<b>3.0 postdevelopment Conditions Information</b>			
<b>3.1 postdevelopment Conditions Drainage Map</b>			
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.)		
<b>3.2 Proposed Conveyances Map</b>			
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.		
<b>3.3 postdevelopment Conditions Hydrology &amp; Hydraulics</b>			
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.		
<b>3.4 Stormwater Quantity Control Sizing</b>			
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.		
<b>3.5 Stormwater Quality Management Facilities</b>			
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.		
<b>4.0 Floodplains</b>			
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").		
<b>5.0 Federal, State and Local Permits</b>			
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.		
<b>6.0 Half Scale Preliminary Master Grading Plan</b>			
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."		
<b>End of Checklist</b>			

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## **General Information**

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### **Location**

The subject property is in the City of Wichita, Sedgwick County, Kansas. The proposed development is northwest of Greenwich Road and 13<sup>th</sup> Street East. The site is bordered by Berkley Square Addition to the north, Home Bank Company Addition to the east, 13<sup>th</sup> Street to the South, and Greenwich Office Park Second Addition to the west. The site lies in the southeast quarter of the southeast quarter of Section 9, Township 27 south, Range 2 East. The plat area is 15.5 acres, Appendix A. The site was previously platted as Berkeley Square Second Addition. The site is shown on the USGS Quadrangle, Appendix B. The site is also shown on the Aerial Photograph, Appendix C.

### **Datum**

The drawings and elevations are in NAVD 88.

### **Soils**

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

- Irwin silty clay loam, 1 to 3 percent slopes, HSG "D"

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

### **Flood Insurance Rate Map (FIRM)**

The site is shown on the FEMA FIRM Panel 20173C0379E effective February 2, 2007, Appendix E. The project is in Zone X (unshaded), areas outside of the 500-year floodplain.

### **Site Conditions**

An existing street crosses the site from east to west. The street will be removed and paved for parking areas of proposed parking. Commercial buildings and parking areas will be constructed on the lots.

### **Drainage**

The site was planned with the Berkeley Square Addition. The area was considered developed for the detention, water quality, and channel protection calculations done with the Berkeley Square Addition Drainage Report dated December 2010 and supplemental January 5, 2011. The drainage and utility plan has been updated to show the lot layout for Berkeley Square Second Addition, Appendix F. Detention, water quality, and channel protection is provided by two dry detention ponds and swales that have been constructed in the Berkeley Square 1<sup>st</sup> Addition. The location and the configuration of the water quality on each site will to be determined with the site plans.

### **Utilities**

The existing pavement will be removed. The existing water line will remain in place within an easement.

### **Lot Grading**

Proposed grading will be determined as the site develops. The site will tie into existing properties on the perimeter. Four corner elevations are shown on the lot grading plan, Appendix G.

## **Summary**

This property was anticipated when the Berkeley Square 1<sup>st</sup> Addition was platted. The required detention, water quality, and channel protection for this site has been constructed with existing phases of the project. No additional detention or channel protection is required for development of this site. The location and configuration of water quality will be determined with the site plan.

## **Appendix A - Plat**

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**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 "BERKELEY SQUARE THIRD ADDITION" an addition to Wichita, Sedgwick County, Kansas, into Lots, a Block, and a Reserve, the same being accurately set forth in the accompanying plat and described herein:

A replat of Lots 1 and 2, Block 1, and Lot 1, Block 2, Berkeley Square Second Addition, an addition to Wichita, Sedgwick County, Kansas, TOGETHER WITH, Lot 1, Block 1, Reserves A and B, and all of Berkeley Square Parkway, Berkeley Square First Addition, an addition to Wichita, Sedgwick County, Kansas.

CONTAINING: 675,612 square feet or 15.51 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 \_\_\_\_\_, 2014.

James C. McClure, LS #1251  
MKEC Engineering, 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 a Reserve, the same to be known as "BERKELEY SQUARE THIRD ADDITION," an addition to Wichita, Sedgwick County, Kansas.

The drainage and utility easements are hereby granted as indicated for drainage and utility purposes and are for the construction and maintenance of all public utilities. The street, lighting, landscape, drainage and utility easement is hereby granted as indicated for street, lighting, landscape, drainage and utility purposes and for the construction and maintenance of all public utilities, streets, and lighting. The municipal water line easement is granted as indicated for municipal water distribution facilities and is for the purpose of accessing, constructing, maintaining and repairing their facilities over, along, and under the lots thereto.

All abutters rights of access to or from 13th Street over and across the south line of "BERKELEY SQUARE THIRD ADDITION," are hereby granted to the appropriate governing body, provided however three full movement openings as indicated hereon. All abutters rights of access to or from Greenwich Road over and across the east line of "BERKELEY SQUARE THIRD ADDITION," are hereby granted to the appropriate governing body, provided however one full movement openings as indicated hereon.

A drainage plan has been developed for this plat. All drainage easements, rights-of-ways, 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.

as to Lots 1, 2, and 3, Block 1, and Reserve A  
APEX PROPERTIES, LLC,  
a Kansas limited liability company

Steven A. Hatchett, manager

STATE OF KANSAS, SEDGWICK COUNTY) ss:

This instrument was acknowledged before me on \_\_\_ day of \_\_\_\_\_, 2014, by Steven A. Hatchett, manager, Apex Properties, LLC, a Kansas limited liability company.

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: \_\_\_\_\_

as to Lots 4, 5, and 6, Block 1

Thomas R. Devlin, Jr.

STATE OF KANSAS, SEDGWICK COUNTY) ss:

This instrument was acknowledged before me on \_\_\_ day of \_\_\_\_\_, 2014, by Thomas R. Devlin, Jr.

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: \_\_\_\_\_

**FINAL PLAT**  
**BERKELEY SQUARE THIRD ADDITION**  
AN ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS

**BENCHMARKS**

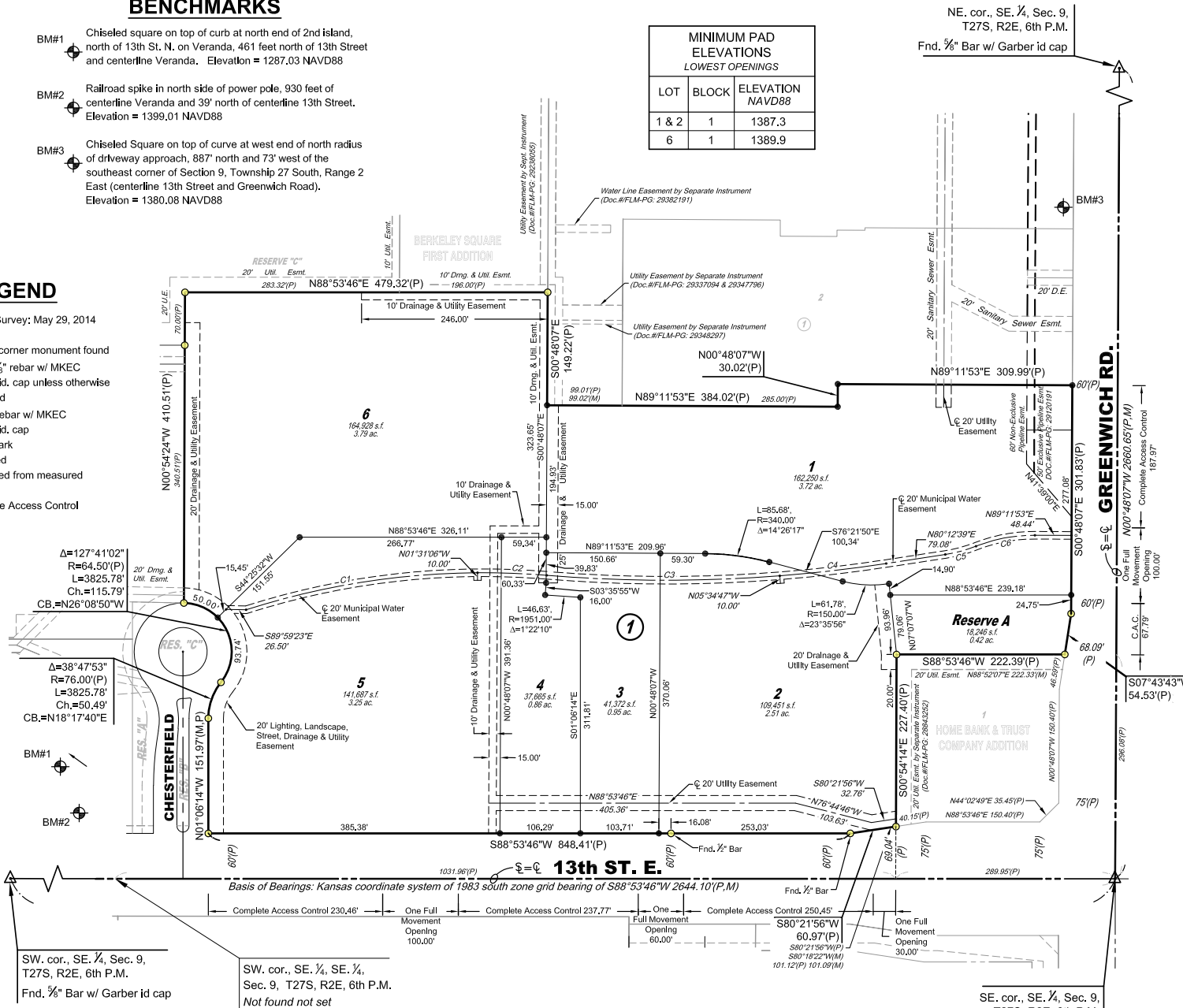
- BM#1 Chiseled square on top of curb at north end of 2nd island, north of 13th St. N. on Veranda, 461 feet north of 13th Street and centerline Veranda. Elevation = 1287.03 NAVD88
- BM#2 Railroad spike in north side of power pole, 930 feet of centerline Veranda and 39' north of centerline 13th Street. Elevation = 1399.01 NAVD88
- BM#3 Chiseled Square on top of curve at west end of north radius of driveway approach, 887' north and 73' west of the southeast corner of Section 9, Township 27 South, Range 2 East (centerline 13th Street and Greenwich Road). Elevation = 1380.08 NAVD88

**LEGEND**

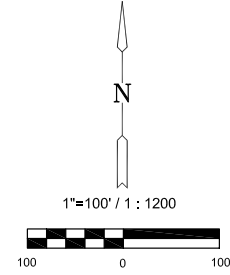
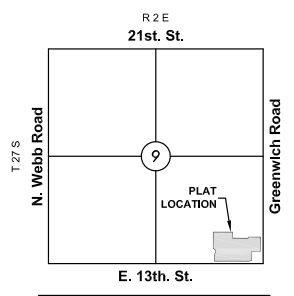
Date of Survey: May 29, 2014

- △ = Section corner monument found
- = Found 3/8" rebar w/ MKEC CLS 39 id. cap unless otherwise annotated
- = Set 3/8" rebar w/ MKEC CLS 39 id. cap
- ⊕ = Benchmark
- (M) = Measured
- (CM) = Calculated from measured
- (P) = Platted
- C.A.C. = Complete Access Control

MINIMUM PAD ELEVATIONS LOWEST OPENINGS		
LOT	BLOCK	ELEVATION NAVD88
1 & 2	1	1387.3
6	1	1389.9



Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	310.79'	1026.00'	17°21'20"	N79°48'14"E	309.60'
C2	91.63'	1026.00'	5°07'01"	S88°57'35"E	91.60'
C3	308.37'	1925.00'	9°10'42"	N89°00'34"E	308.04'
C4	141.43'	1925.00'	4°12'34"	N82°18'56"E	141.39'
C3	42.18'	190.00'	12°43'13"	N73°51'02"E	42.10'
C4	79.56'	210.00'	21°42'27"	N78°20'39"E	79.09'



Basis of Bearings: Kansas coordinate system of 1983 south zone bearing of S88°53'46"W along the S. line of the SE 1/4, Sec. 9, T27S, R2E, 6th P.M.

This plat is surveyed and platted on NAD88 using Kansas state plane south zone coordinates, modified to the surface, having a combined adjustment scale factor of 1.000120014401728

**PLANNING COMMISSION CERTIFICATE**

STATE OF KANSAS, SEDGWICK COUNTY) ss:

This plat of "BERKELEY SQUARE THIRD ADDITION" has been submitted to and approved by the Wichita-Sedgwick County Metropolitan Area Planning Commission, Wichita, Kansas.

Dated this \_\_\_ day of \_\_\_\_\_, 2014.

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 \_\_\_\_\_, 2014.

At the direction of the City Council.

\_\_\_\_\_, Mayor  
Carl Brewer, Mayor

Attest: \_\_\_\_\_ City Clerk  
Karen Sublett, City Clerk

**TRANSFER RECORD**

STATE OF KANSAS, SEDGWICK COUNTY) ss:

Entered on transfer record this \_\_\_ day of \_\_\_\_\_, 2014.

\_\_\_\_\_, County Clerk  
Kelly B. Arnold, County Clerk

**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

**COUNTY SURVEYOR**

STATE OF KANSAS, SEDGWICK COUNTY) ss:

Reviewed in accordance with K.S.A. 58-2005 on this \_\_\_ day of \_\_\_\_\_, 2014.

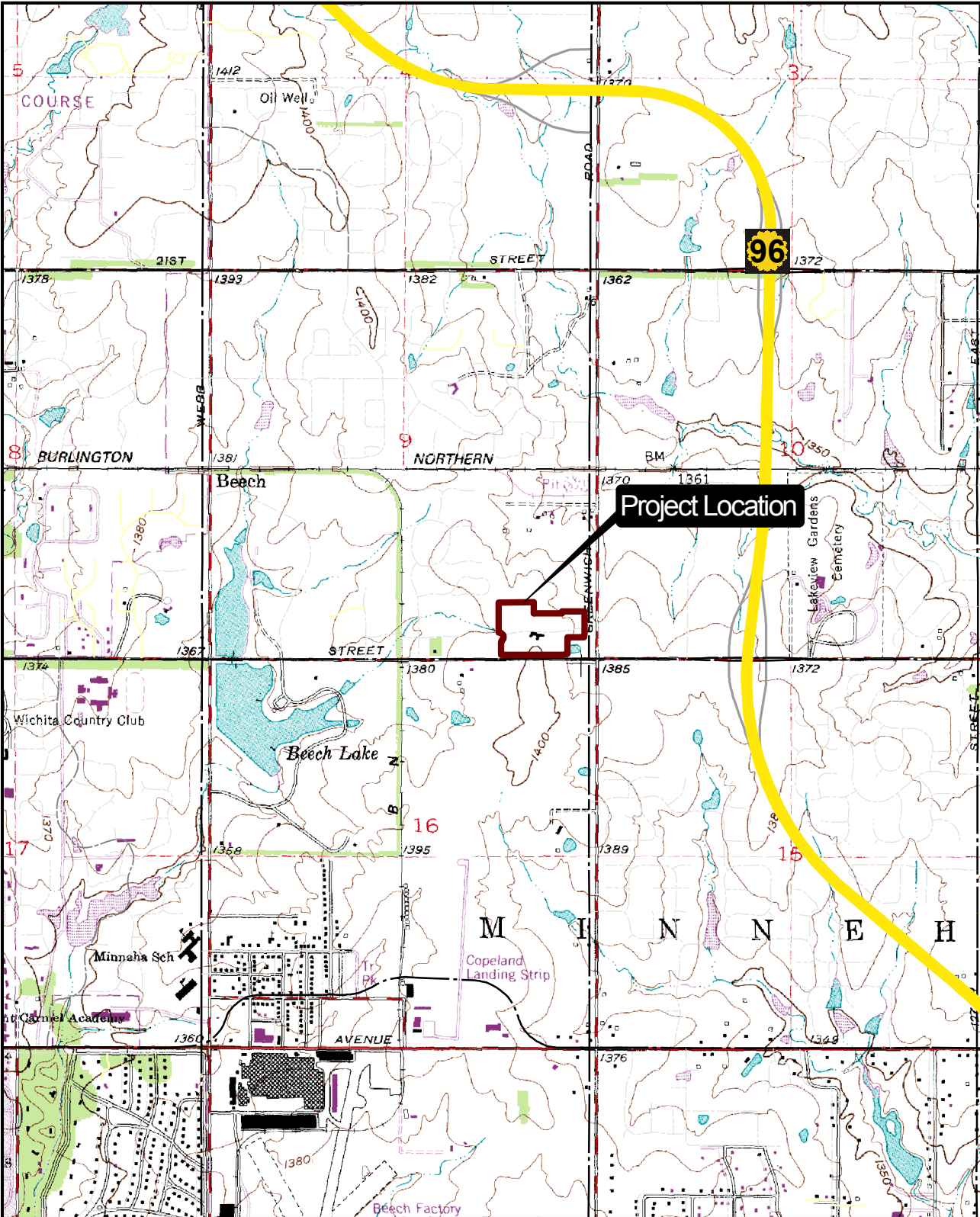
\_\_\_\_\_, Deputy County Surveyor  
Tricia L. Robello, LS #1246  
Deputy County Surveyor  
Sedgwick County, Kansas



I:\Projects\2014\131010053 - Berkeley Square Second-Curtis\CD\Plan\Title3a - 3rd.dwg 07/26/2014 10:56:26 AM CST

## **Appendix B - USGS Quadrangle Map**

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**USGS QUAD EXHIBIT**  
**BERKELEY SQUARE THIRD ADDITION**

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**SEC: 9**  
**TWP: T27S**  
**RNG: R3E**

PROJECT NO. 1401010053

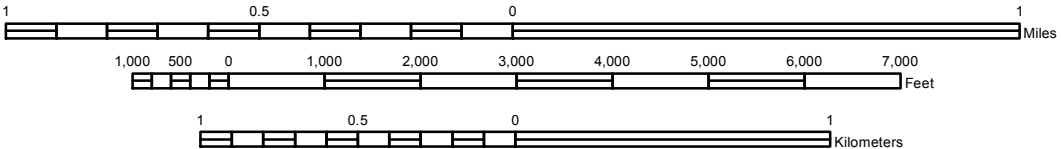
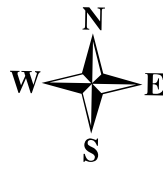
DATE 7/28/2014

SCALE 1"=2000'

DESIGNED DRAWN CHECKED  
JGD JGD KLA


NO. REVISION DATE

SHEET NO.



## **Appendix C - Aerial Photograph**

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**Project Location**

BERKELEY  
SQUARE  
1ST ADD

HOME BANK  
& TRUST  
COMPANY ADD

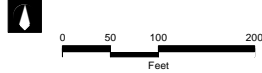
GREENWICH RD

DILLON 12TH ADD

BERKELEY SQUARE PKY

13TH ST

SEC: 9  
TWP: T27S  
RNG: R3E



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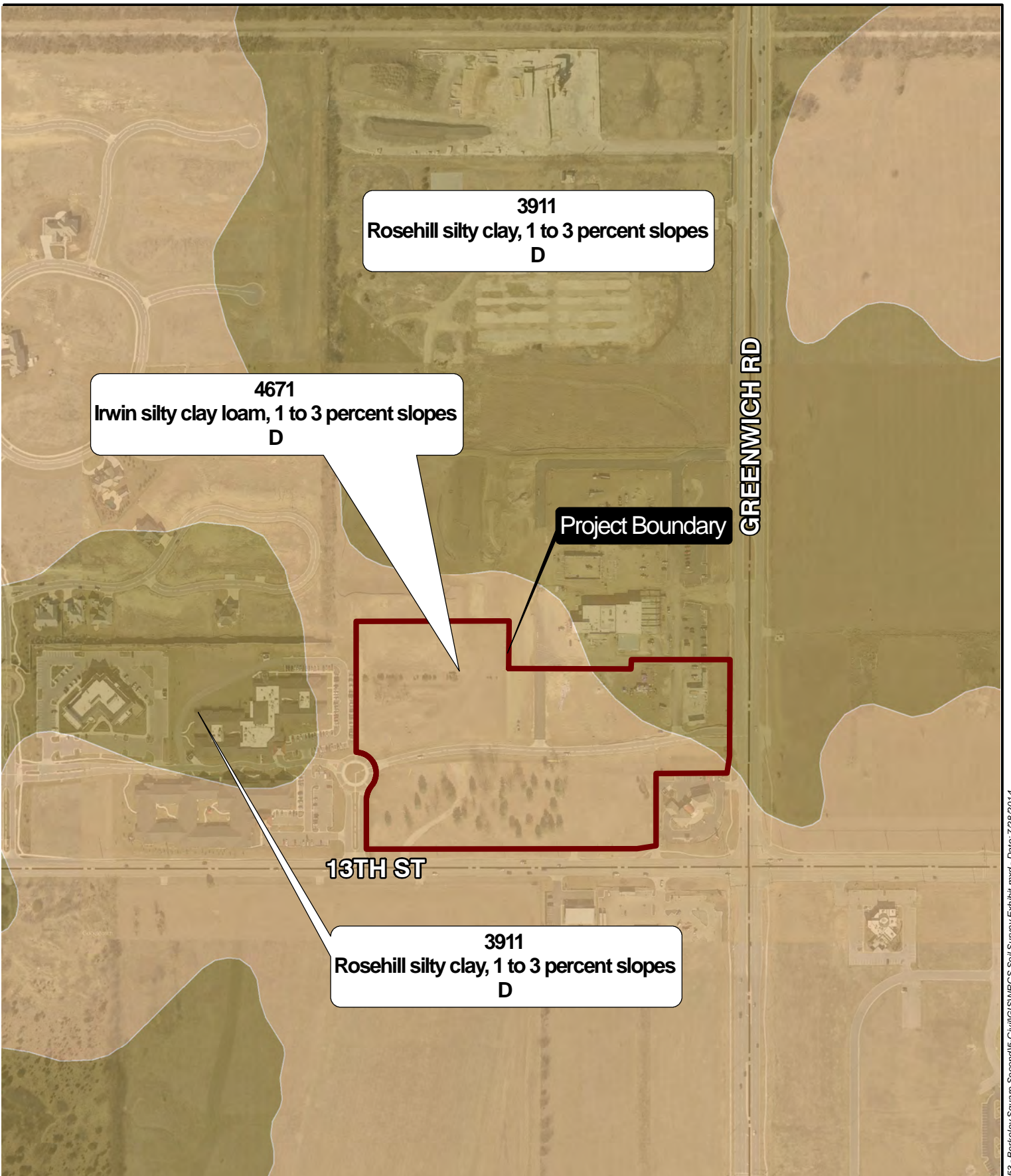


**AERIAL EXHIBIT**  
**BERKELEY SQUARE THIRD ADDITION**

PROJECT NO. 1401010053	DATE: 7/28/2014	SHEET NO.
DRAWN BY: JGD	DESIGNED BY: JGD	APPROVED BY: KLA
		1 OF 1

## **Appendix D - NRCS Soil Survey**

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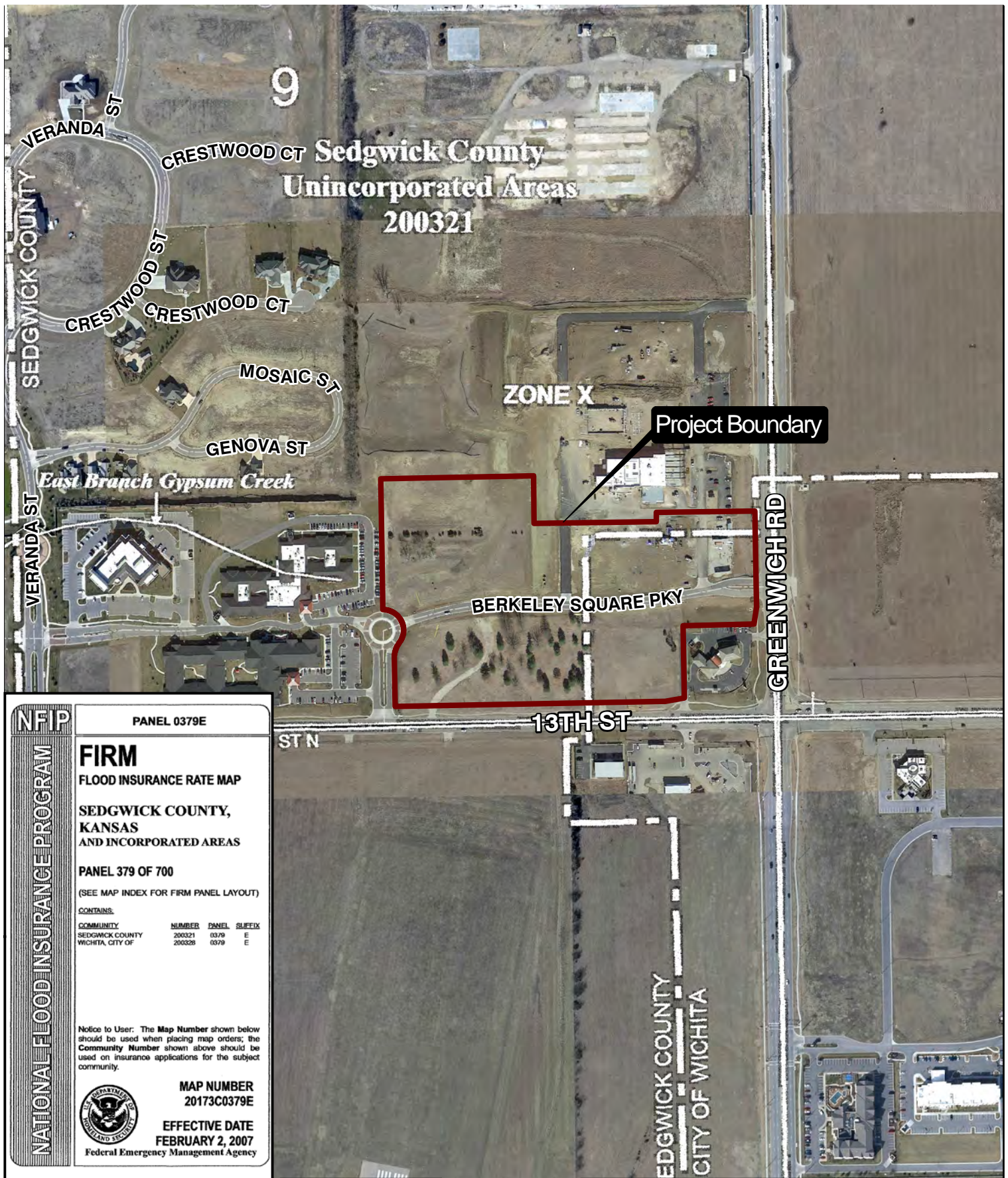
SEC: 9  
TWP: T27S  
RNG: R3E

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<b>NRCS Soil Survey Exhibit</b>		
<b>BERKELEY SQUARE THIRD ADDITION</b>		
PROJECT NO. 1401010053	DATE: 7/28/2014	SHEET NO.
DRAWN BY: JGD	DESIGNED BY: JGD	APPROVED BY: KLA
		<b>1 OF 1</b>

## **Appendix E - Flood Insurance Rate Map (FIRM)**



**NFIP**  
**NATIONAL FLOOD INSURANCE PROGRAM**

PANEL 0379E

**FIRM**  
 FLOOD INSURANCE RATE MAP

SEDGWICK COUNTY,  
 KANSAS  
 AND INCORPORATED AREAS

PANEL 379 OF 700  
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SEDGWICK COUNTY	200321	0379	E
WICHITA, CITY OF	200328	0379	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  
 20173C0379E

EFFECTIVE DATE  
 FEBRUARY 2, 2007  
 Federal Emergency Management Agency

SEC: 9  
 TWP: T27S  
 RNG: R3E

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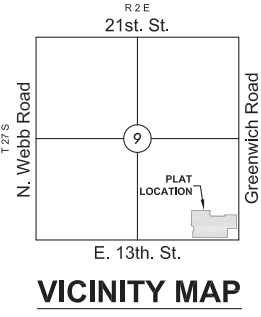
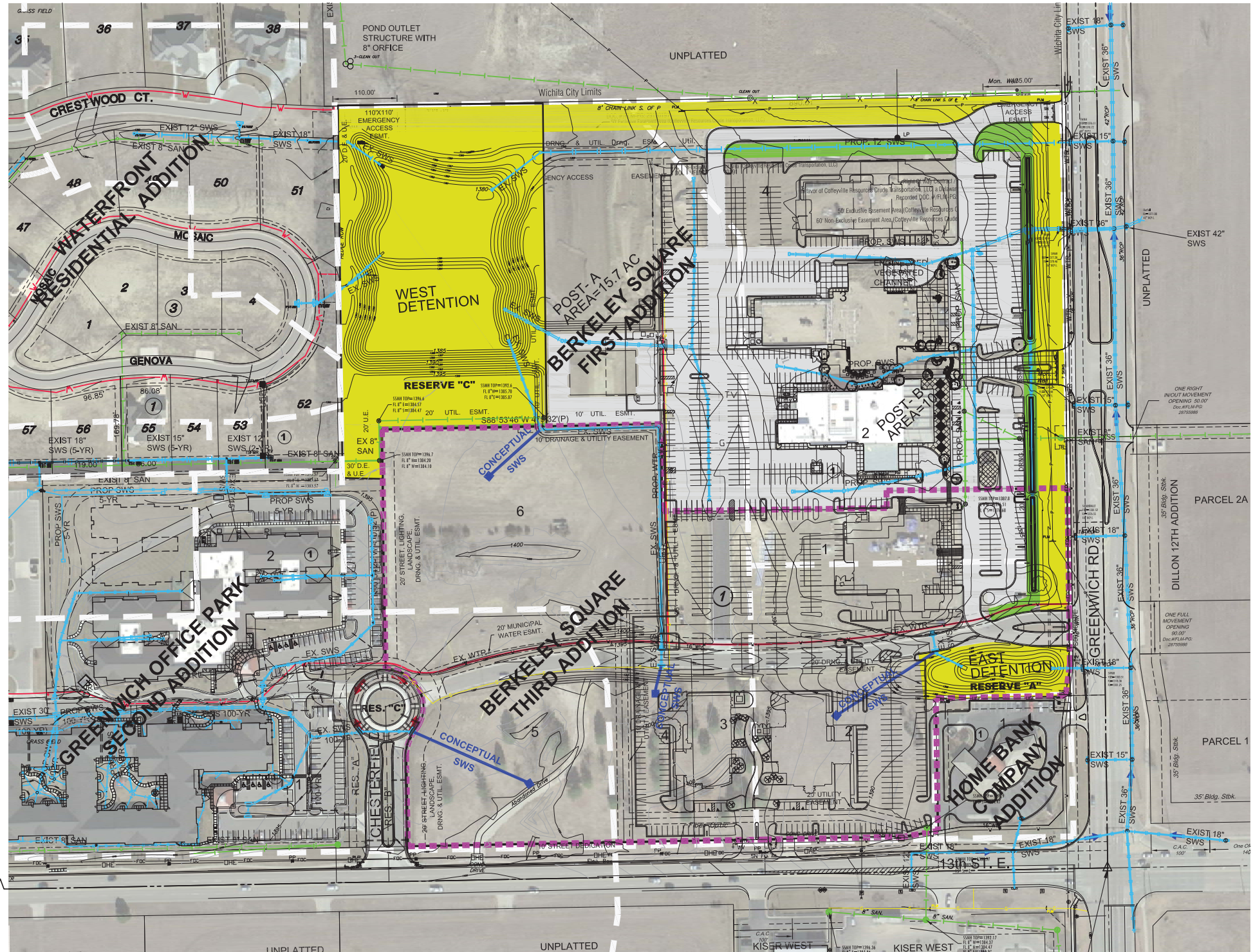
**FEMA FIRM EXHIBIT**  
**BERKELEY SQUARE THIRD ADDITION**

PROJECT NO. 1401010053	DATE: 7/28/2014	SHEET NO.
DRAWN BY: JGD	DESIGNED BY: JGD	APPROVED BY: KLA
		1 OF 1

## **Appendix F - Drainage and Utility Plan**

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PLOTTED: Friday, August 29, 2014 @ 11:08AM



- ### LEGEND
- CONIFEROUS TREE
  - DECIDUOUS TREE
  - SIGN
  - POWER POLE
  - ELECTRIC BOX
  - LIGHT POLE
  - FIRE HYDRANT
  - WATER VALVE
  - WATER METER
  - SECTION CORNER
  - BENCHMARK
  - EASEMENT
  - BUILDING SETBACK
  - FENCE
  - STORM SEWER PIPE
  - WATER LINE
  - SANITARY SEWER LINE
  - GAS LINE
  - GAS PIPELINE
  - TELEPHONE LINE
  - UNDERGROUND ELEC.
  - OVERHEAD ELECTRIC
  - FIBER OPTIC CABLE
  - DRAINAGE SUB BASIN
  - DRAINAGE BASIN
  - FLOW ARROW
  - AREA FOR SWS SIZING
  - SITE BOUNDARY
  - OPEN AREA
  - SWALE
  - CONCEPTUAL SWS

FOR ALL LOTS WATER QUALITY DEVICE OR SWALE TO BE DETERMINED WITH SITE PLAN.

**SWALES**  
2.3 AC-FT BY OTHERS

**WEST DETENTION/ RESERVE "C"**  
OUTLET: 8" CIRCULAR ORFICE AT 1380.0  
2'X2' RISER AT 1386.0  
12" PIPE

YEARS	STORAGE AC-FT.	ELEVATION FT.
2-YEAR	3.1	1384.2
5-YEAR	4.4	1385.1
10-YEAR	5.4	1385.6
25-YEAR	6.5	1386.2
50-YEAR	7.2	1386.5
100-YEAR	8.1	1386.9

**EAST DETENTION/ RESERVE "A"**  
OUTLET: 8" CIRCULAR ORFICE AT 1380.0  
4'X4' RISER AT 1382.9  
24" RCP

YEARS	STORAGE AC-FT.	ELEVATION FT.
2-YEAR	0.3	1383.3
5-YEAR	0.4	1383.5
10-YEAR	0.4	1383.6
25-YEAR	0.4	1383.8
50-YEAR	0.5	1384.1
100-YEAR	0.6	1384.3

**FLOW TO GREENWICH ROAD**

	1-YR	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
PRE PROJECT	47.2	67.2	99.7	121.3	153.9	178.8	200.5
POST PROJECT	6.7	14.5	78.3	108.7	139.8	159.1	173.7

\* FROM BERKELEY SQUARE 1ST. DRAINAGE REPORT JANUARY 5, 2011.

**FLOW OUT OF BEECH LAKE (CFS)**

	2-YR	5-YR	10-YR	100-YR
PRE PROJECT	224	396	527	1167
POST PROJECT	219	392	517	1111

\* FROM WATERFRONT COMMERCIAL, WATERFRONT RESIDENTIAL AND GREENWICH OFFICE PARK AUGUST 2007.

SW COR., SE 1/4, SEC. 9, T27S, R2E, 6TH P.M. FND. 5/8" BAR W/ GARBER ID CAP

SE COR., SE 1/4, SEC. 9, T27S, R2E, 6TH P.M. FND. 5/8" BAR W/ GARBER ID CAP



**DRAINAGE & UTILITY PLAN**  
**BERKELEY SQUARE THIRD ADDITION**  
 WICHITA, KANSAS

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**DRAINAGE & UTILITY PLAN**

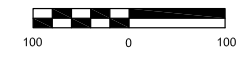
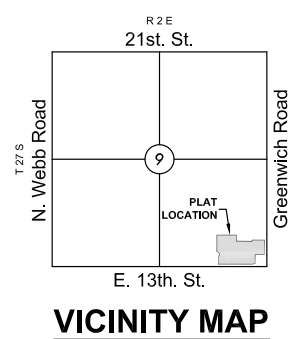
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DATE	JULY 2014	
SCALE	AS NOTED	
DESIGNED	KLA	
DRAWN	JGD	
CHECKED	KLA	
Detention Ref.	8/29/14	
NO.	REVISION	DATE

I:\PROJECTS\2014\1401010053 - BERKELEY SQUARE SECOND-CIVIL\DRAWING\DRN\DRN14053\_3RD.DWG



























## **Appendix G - Lot Grading Plan**

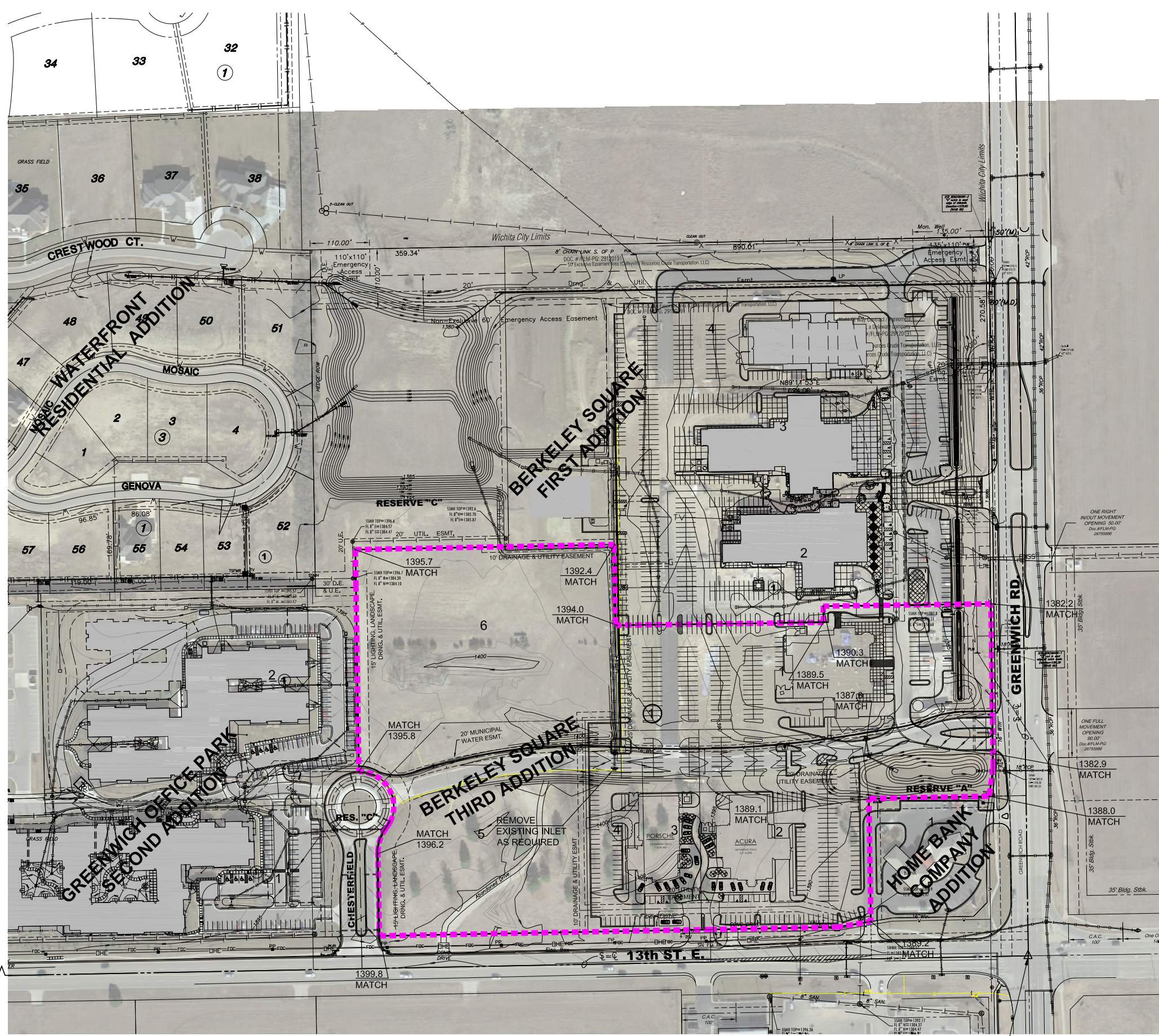
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**LOT GRADING PLAN**  
**BERKELEY SQUARE THIRD ADDITION**  
 WICHITA, KANSAS



**LEGEND**

-  - CONIFEROUS TREE
-  - DECIDUOUS TREE
-  - SIGN
-  - POWER POLE
-  - ELECTRIC BOX
-  - LIGHT POLE
-  - FIRE HYDRANT
-  - WATER VALVE
-  - WATER METER
-  - SECTION CORNER
-  - BENCHMARK
-  - SPOT ELEVATION
-  - EASEMENT
-  - BUILDING SETBACK
-  - FENCE
-  - STORM SEWER PIPE
-  - WATER LINE
-  - SANITARY SEWER LINE
-  - GAS LINE
-  - GAS PIPELINE
-  - TELEPHONE LINE
-  - UNDERGROUND ELEC.
-  - OVERHEAD ELECTRIC
-  - FIBER OPTIC CABLE
-  - SITE BOUNDARY
-  - EXISTING STRUCTURE



SW COR., SE 1/4, SEC. 9, T27S,  
R2E, 6TH P.M. FND. 5/8" BAR  
W/ GARBER ID CAP

SE COR., SE 1/4, SEC. 9, T27S,  
R2E, 6TH P.M. FND. 5/8" BAR  
W/ GARBER ID CAP

J:\PROJECTS\2014\1401010053 - BERKELEY SQUARE SECOND/CIVIL/DRAIN/GRADING\1403\_LGP\_3RD.DWG

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LOT GRADING PLAN		
PROJECT NO.	1401010053	
DATE	JULY 2014	
SCALE	AS NOTED	
DESIGNED	DRAWN	CHECKED
KLA	JGD	KLA
NO.	REVISION	DATE
SHEET NO.		
1 OF 1		