

DRAINAGE REPORT

FOR

**FOX RIDGE 2<sup>ND</sup> ADDITION**  
**Wichita, Kansas**

MARCH 2007



## Public Works, Engineering Division Final Drainage Plan Submittal Checklist

Reviewer: _____	Date: _____
Subdivision Name: _____	Location: _____
Total Land Area Of Ownership: _____ Acres	
Type: _____ Residential _____ Commercial _____ Industrial _____ Recreation _____ Municipal _____ Other	
Applicant: _____	Contact: _____ Phone #: _____
Engineer: _____	Contact: _____ Phone #: _____

Please check the appropriate box:

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

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

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



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

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)					
B. Proposed time of concentrations used in calculations					
C. Assumed post-developed runoff curve numbers					
D. Proposed contours for detention facilities (to equal area used in outlet rating curves)					
E. Preliminary sizing calculations for stormwater controls including contributing drainage area, storage, and outlet configuration					
F. Stage-storage-discharge or outlet rating curves and inflow and outflow hydrographs for storage facilities					
G. Final analysis of potential upstream/downstream impact/effects of project, where necessary					
H. Existing and proposed structural elevations (e.g., invert of pipes, manholes, etc.)					
I. Design water surface elevations and normal pool elevation for ponds.					
J. Typical detail for outlet structures, embankments, spillways, grade control structures, conveyance channels, etc. To include height, width, elevation, and/or diameter.					
K. Proposed limits of clearing and grading					
L. Location of existing and proposed roads, buildings, parking lots and other impervious areas.					
M. Location of existing and proposed utilities (e.g., water, sewer) and easements					
N. Location of existing and proposed conveyance systems such as storm drains, inlets, catch basins, channels, swales, and areas of overland flow					
O. Preliminary location and dimensions of proposed channel modifications, such as bridge or culvert crossings					



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

Tab 4. Floodplain Submittal	Applicant			Engr	
	I	NA	Explanation / Location in Plan	I	NA
A. Provide source of flood profile					
B. Nearest base flood elevations					
C. Delineation of pre-developed regulatory floodplain/floodway limits					
D. Delineation of post-developed regulatory floodplain and floodway limits					
E. Floodplain boundary determination per elevation (project limits shown)					
F. Provide source of floodway data table and discharges					
G. Provide all hydrologic and hydraulic study information for site-specific floodplain studies, unnumbered Zone A area elevation determinations and flood plain map revisions or required permits					
H. Provide regulatory floodway and four natural profile models (10,50,100, and 500-yr) for existing and future watershed conditions					
I. Location of floodplain/floodway limits and relationship of site to upstream/downstream properties (floodplain limits to be per elevation and scaled location)					
J. Flood plains and floodways located within a Reserve, where necessary					

Tab 5. Federal, State and Local Permits (to be provided prior to construction unless otherwise specified)	Applicant			Engr	
	I/R	NA	Explanation / Location in Plan	I/R	NA
A. US Army Corps of Engineers - Regulatory program permits (404 water quality certification)					
B. Kansas Department of Agriculture - Division of Water Resources Permits (Stream Obstruction, Channel Change, Flood Plain Fill, Levee, Water Appropriations, Dam safety permit, etc.)					
C. Federal Emergency Management Agency (FEMA) Letter of Map Changes (LOMA, LOMR, LOMR-f, CLOMR, etc.) Shall be included and approved when project modifies the limits of the floodway.					
D. Kansas Department of Transportation					
E. Sedgwick County Right-of-way Permit					

## **Tab 1. Project Narrative**

---

### ***A. Location***

The subject property is in the City of Wichita, Sedgwick County, Kansas. The plat is within the limits of the Fox Ridge Addition. The site is a re-plat of 17 lots in the Fox Ridge Addition. These have been re-platted to provide additional pond area while maintaining the same number of lots. The site is shown on the USGS Map, Figure 1.1.

### ***B. Discussion of Development***

The area of the plat is currently undeveloped. The remaining Fox Ridge Addition has developed as planned, with the exception of the northeast corner which is in a future phase.

### ***C. Discussion of Offsite***

Runoff flows into the Fox Ridge Addition from the north and east. Runoff from the site flows to the south. More detailed description of the site was in the Drainage Report for Fox Ridge Addition November 2003.

### ***D. Summary of Runoff***

The project was modeled using the SCS method in Hydraflow Hydrographs, refer to the Fox Ridge Addition drainage report for detailed flow rates.

### ***E. Best Management Practices***

The site will be seeded or sodded after construction of grading and utilities are complete. The outlet structure of the detention pond will be protected against erosion.

### ***F. Plat***

The plat is included, Figure 1.2.

### ***G. Preliminary Grading Plan***

The preliminary lot grading plan is included, Figure 1.3.

### ***H. Professional Engineer Seal***

The cover of the report will be signed and dated.

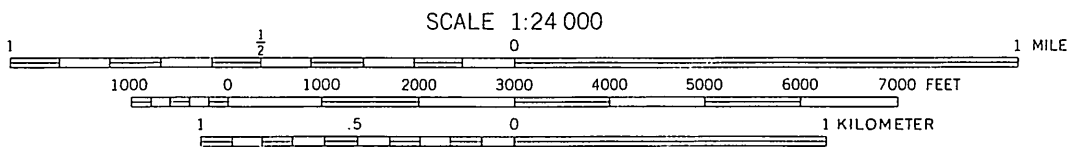
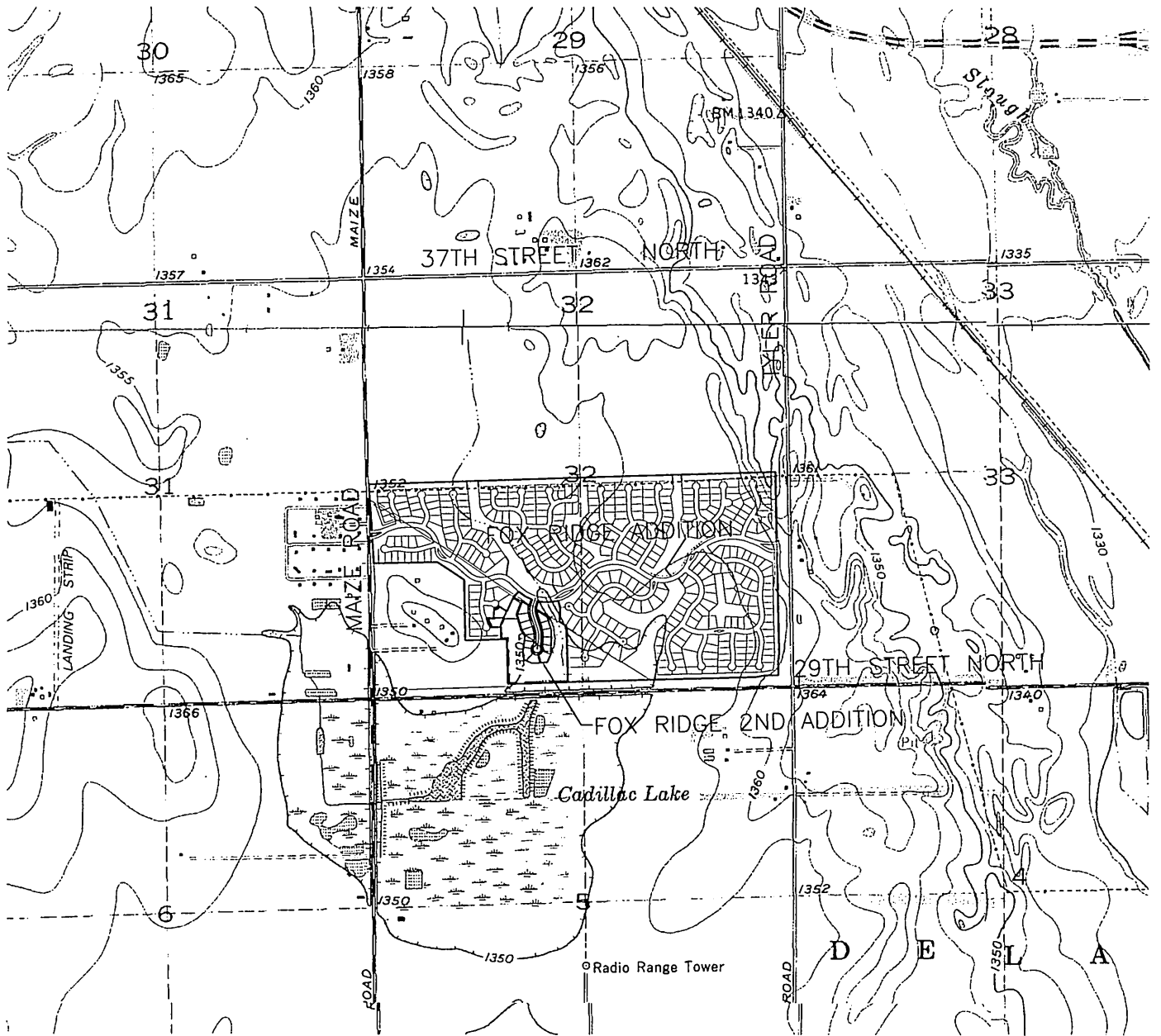
### ***I. CD***

A CD of the drainage report in PDF format is attached to the inside front cover of the bound report. The checklist is included in Tab 0.

**Figure 1.1**

---

USGS Quadrangle Map



CONTOUR INTERVAL 5 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929



**MKEC**  
ENGINEERING  
CONSULTANTS  
411 N. WEBB ROAD  
WICHITA, KS. 67206  
316 - 684 - 9600

**FOX RIDGE 2ND ADDITION**

PROJECT NAME

**USGS GEOLOGICAL SURVEY  
WICHITA WEST, KANSAS QUADRANGLE**

SHEET TITLE

<i>KLA</i>	<i>SMB</i>	<i>GJA</i>
DESIGN BY.	DRAWN BY.	CHECKED BY.
<i>MARCH 2007</i>	<i>07053</i>	<i>1 / 1</i>
DATE	JOB NO.	SHEET/OF

**Figure 1.2**

---

Plat

# FINAL PLAT

## FOX RIDGE SECOND ADDITION

### AN ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS

#### CERTIFICATE OF SURVEY

I, Gregory J. Allison, a registered land surveyor in Kansas, do hereby certify that I have been in responsible charge of surveying and platting of "FOX RIDGE SECOND ADDITION", an addition to Wichita, Sedgwick County, Kansas, into Lots, Blocks, a Reserve and Streets, the same being accurately set forth in the accompanying plat and described herein:

A replat of a contiguous tract of land lying within portions of Reserves "G", "H", and "I", and within all of Lots 22, 24, 25, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, Block 4, and Westlakes Court, Fox Ridge Addition, an addition to Sedgwick County, Kansas; said contiguous tract of land being more particularly described as follows:  
 BEGINNING at the Southwest most corner of said Reserve "G", thence along a westerly line of said Reserve "G" on a platted basis of bearing  $N01^{\circ}48'35''W$ , 566.16 feet; thence along a southerly line of said Reserve "G",  $S88^{\circ}11'25''W$ , 71.16 feet; thence  $N01^{\circ}48'35''W$ , 155.00 feet to the southeast corner of said Lot 22; thence along the south line of said Lot 22,  $S88^{\circ}11'25''W$ , 140.00 feet to the southwest corner of said Lot 22 being at a point on a non-tangent curve to the left, thence along said curve and along the westerly lines of said Lot 22 for the next two courses 56.96 feet, said curve having a central angle of  $65^{\circ}16'15''$ , a radius of 50.00 feet, and a long chord distance of 53.93 feet, bearing  $N28^{\circ}42'21''W$ ; thence along a non-tangent curve to the left 71.62 feet to the northwest corner of said Lot 22, said curve having a central angle of  $1^{\circ}2'28''24''$ , a radius of 329.00 feet, and a long chord distance of 71.48 feet, bearing  $N16^{\circ}39'35''W$ , thence  $N89^{\circ}40'10''E$ , 90.40 feet to the southwest corner of said Lot 24; thence along the west line of said Lot 24,  $N06^{\circ}02'55''E$ , 131.12 feet to a point on a non-tangent curve to the left, thence along said curve 112.51 feet to a westerly corner of said Lot 25, said curve having a central angle of  $128^{\circ}55'26''$ , a radius of 50.00 feet, and a long chord distance of 90.23 feet, bearing  $N31^{\circ}35'13''E$ , thence  $N57^{\circ}07'30''E$ , 175.57 feet to a northerly corner of said Lot 25; thence along a northerly line of said Lot 25,  $S57^{\circ}31'53''E$ , 58.54 feet to the northeast corner of said Lot 25; thence  $N43^{\circ}35'28''E$ , 89.26 feet to the southerly right-of-way of Westlakes Parkway being on a curve to the left, thence along said curve 57.94 feet, said curve having a central angle of  $57^{\circ}44'04''$ , a radius of 51.400 feet, and a long chord distance of 496.30 feet, bearing  $S76^{\circ}26'50''E$ , thence  $S15^{\circ}18'52''E$ , 89.29 feet to the northwest corner of Lot 51, said Block 4, said addition, being coincident with a westerly line of said Reserve "G"; thence  $S02^{\circ}17'19''W$ , 177.54 feet to the southwest corner of said Lot 51; thence along the southerly line of said Lot 51, bearing  $S57^{\circ}31'53''E$ , 91.55 feet; thence  $S20^{\circ}43'12''E$ , 33.38 feet; thence along a westerly line of said Reserve "G",  $S01^{\circ}12'02''E$ , 498.76 feet; thence  $S01^{\circ}12'02''E$ , 184.28 feet to the south line of said Reserve "G"; thence along the south line of said Reserve "G",  $S88^{\circ}11'25''W$ , 732.33 feet to the POINT OF BEGINNING.

All dedications, reserves, streets, utility easements, building setbacks, and access controls, all within the above described property are hereby vacated and replatted by virtue of K.S.A. 12-512(b).

I hereby certify that the details of this plat are correct to the best of my knowledge and belief this \_\_\_\_\_ day of \_\_\_\_\_ 2007.

Gregory J. Allison, PE, LS #1257  
 MKEC Engineering Consultants, Inc.  
 411 North Webb Road  
 Wichita, Kansas 67206

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, Blocks, Reserves and Streets the same to be known as "FOX RIDGE SECOND ADDITION," an addition to Wichita, Sedgwick County, Kansas.

Easements for the construction and maintenance of public utilities and drainage, as indicated on the accompanying plat are hereby granted to the public. The streets and access controls are hereby dedicated to and for the use of the public.

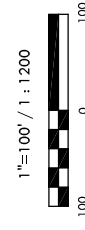
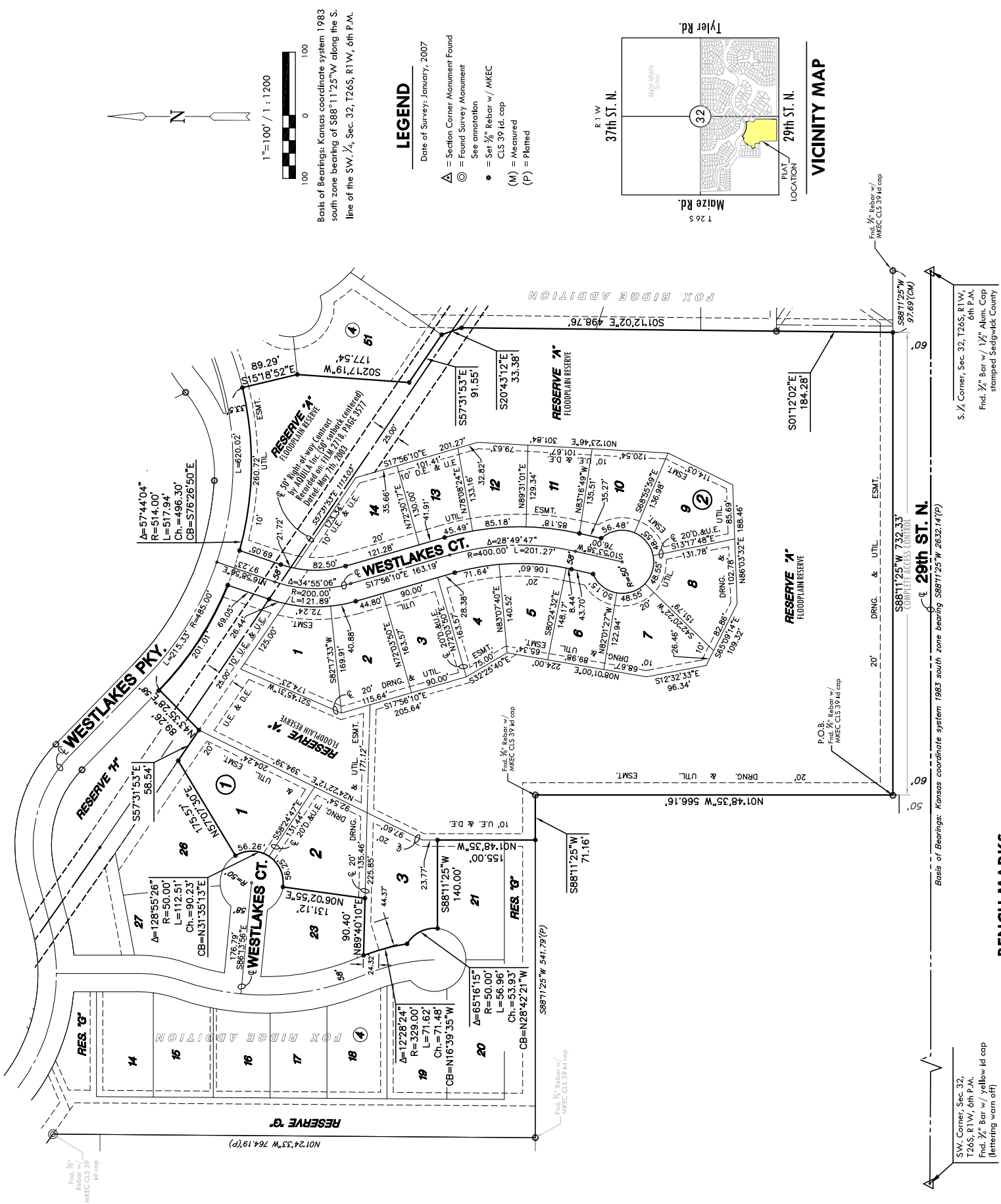
All abutters right to access to or from 29th Street over and across the South line of "FOX RIDGE SECOND ADDITION," are hereby granted to the appropriate governing body, as indicated herein.

Reserves "A", is platted for lakes, drainage, berming, open space, irrigation, landscaping, monuments, sidewalks, utilities confined by easements, and floodplain.

All lots are required to adhere to the minimum pad elevation as shown on the "Minimum Pad Elevations".

A drainage plan has been developed for this plat 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 storm water.

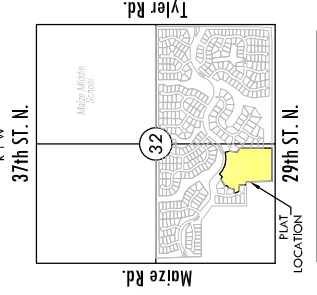
The floodplain reserve shall be the responsibility of the owner until such time as the appropriate governing body exercising jurisdiction elects to assume the responsibility for the maintenance and improvement of the drainage, provided further, that no structure shall be constructed on or within said floodplain, nor shall any fill, change of grade, creation of a channel or any other work on be carried out without the permission of the appropriate engineer.



Basis of Bearings: Kansas coordinate system 1983  
 south zone bearing of  $S88^{\circ}11'25''W$  along the S. line of the SW  $\frac{1}{4}$ , Sec. 32, T26S, R1W, 6th P.M.

#### LEGEND

- Date of Survey: January, 2007
- $\Delta$  = Section Corner Monument Found
  - $\odot$  = Found Survey Monument
  - See annotation
  - $\bullet$  = Set  $\frac{3}{8}$ " Rebar w/ MKEC
  - CL S 39 Id. cap
  - (M) = Measured
  - (P) = Platted



MINIMUM PAD ELEVATIONS LOWEST OPENINGS		
LOTS (inclusive)	BLOCK	ELEVATION NGVD
1, 2, and 3	1	1353.3
1 - 14	2	1353.3

#### BENCH MARKS

- BM#5  $\odot$  RR Spike in South face of South H-pole  
 3rd H-pole West of Tyler Rd. and 1/2  
 Mile N. of 29th St. N.  
 Elev. = 1356.64
- BM#6  $\odot$  RR Spike in South face of South H-pole  
 6th H-pole West of Tyler Rd. and 1/2  
 Mile N. of 29th St. N.  
 Elev. = 1353.77

SW Corner, Sec. 32,  
 T26S, R1W, 6th P.M.  
 Find:  $\frac{3}{8}$ " Bar w/ 1/2" Alum. Cap  
 (bearing worn off)

S.W. Corner, Sec. 32, T26S, R1W,  
 6th P.M.  
 Find:  $\frac{3}{8}$ " Bar w/ 1/2" Alum. Cap  
 stamped Sedgwick County

# FINAL PLAT FOX RIDGE SECOND ADDITION AN ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS

## OWNER'S CERTIFICATES

FOX RIDGE DEVELOPMENT COMPANY, INC.

Marvin L. Schellenberg, President

STATE OF KANSAS, SEDGWICK COUNTY) ss:

This instrument was acknowledged before me on this \_\_\_\_\_ day of \_\_\_\_\_, 2007, Marvin L. Schellenberg, President, Fox Ridge Development Company, Inc.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year last above written.

My Term Expires: \_\_\_\_\_, Notary Public

as to Lot 2, Block 2

Vince Scipack, husband Brenda Scipack, wife

STATE OF KANSAS, SEDGWICK COUNTY) ss:

This instrument was acknowledged before me on this \_\_\_\_\_ day of \_\_\_\_\_, 2007, Vince and Brenda Scipack, husband and wife.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year last above written.

My Term Expires: \_\_\_\_\_, Notary Public

as to Lot 9

Brian J. & Jennifer A. Halbrendt, husband and wife

Brian J. Halbrendt, husband Jennifer A. Halbrendt, wife

STATE OF KANSAS, SEDGWICK COUNTY) ss:

This instrument was acknowledged before me on this \_\_\_\_\_ day of \_\_\_\_\_, 2007, Brian J. and Jennifer A. Halbrendt, husband and wife.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year last above written.

My Term Expires: \_\_\_\_\_, Notary Public

as to Lot 10

David W. Piper, husband Marie A. Piper, wife

STATE OF KANSAS, SEDGWICK COUNTY) ss:

This instrument was acknowledged before me on this \_\_\_\_\_ day of \_\_\_\_\_, 2007, David W. and Marie A. Piper, husband and wife.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year last above written.

My Term Expires: \_\_\_\_\_, Notary Public

as to Lot 14

Jason M. Mitchell, husband Kari K. Mitchell, wife

STATE OF KANSAS, SEDGWICK COUNTY) ss:

This instrument was acknowledged before me on this \_\_\_\_\_ day of \_\_\_\_\_, 2007, Jason M. and Kari K. Mitchell, husband and wife.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year last above written.

My Term Expires: \_\_\_\_\_, Notary Public

## MORTGAGE CERTIFICATES

We INTRUST Bank, N.A. holders of a mortgage on the above described property, do hereby consent to the plat of "FOX RIDGE SECOND ADDITION."

INTRUST Bank, N.A.

Gary D. Schmitt, Executive Vice President  
Gary D. Schmitt, Executive Vice President

This instrument was acknowledged before me on this \_\_\_\_\_ day of \_\_\_\_\_, 2007, by Gary D. Schmitt, Executive Vice President, INTRUST Bank, N.A.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year last above written.

My Term Expires: \_\_\_\_\_, Notary Public

## PLANNING COMMISSION CERTIFICATE

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

Entered on transfer record this \_\_\_\_\_ day of \_\_\_\_\_, 2007

Don Braces, County Clerk

WICHITA-SEDGWICK COUNTY METROPOLITAN AREA PLANNING COMMISSION

Darrell A. Downing, Chair

Attest: John L. Schlegel, Secretary

AFFIX SEAL

## GOVERNING BODY CERTIFICATE

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 \_\_\_\_\_, 2007

At the direction of the City Council.

Carlos Mayans, Mayor

Attest: Karen Sublett, City Clerk

AFFIX SEAL

## TRANSFER RECORD

STATE OF KANSAS, SEDGWICK COUNTY) ss:

Entered on transfer record this \_\_\_\_\_ day of \_\_\_\_\_, 2007

Don Braces, County Clerk

AFFIX SEAL

## REGISTER OF DEEDS CERTIFICATE

This is to certify that this instrument was filed for record in the Register of Deeds office this \_\_\_\_\_ day of \_\_\_\_\_, 2007, at \_\_\_\_\_ o'clock \_\_\_\_\_ M; and is duly recorded.

Bill Meek, Register of Deeds

Attest:

Tonya E. Buckingham, Deputy

AFFIX SEAL

## COUNTY SURVEYOR

Reviewed in accordance with K.S.A. 58-2005 on this \_\_\_\_\_ day of \_\_\_\_\_, 2007.

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

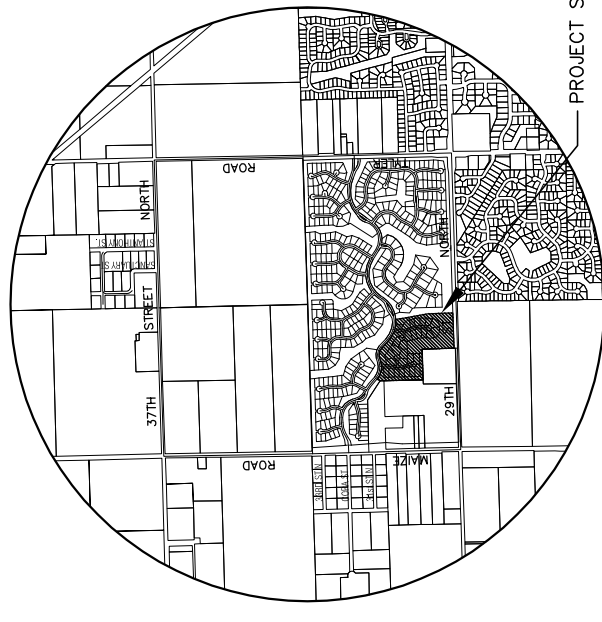
**MKEC**  
ENGINEERING  
CONSULTANTS, INC.

411 N. WEBB ROAD  
WICHITA, KS. 67206  
316-684-9600

**Figure 1.3**

---

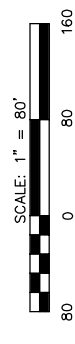
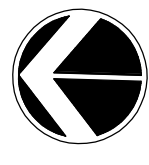
Preliminary Grading Plan



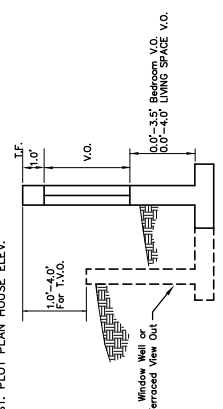
VICINITY MAP

LEGEND

- SKIN - CONIFEROUS TREE & DIAMETER
- SDN - DECIDUOUS TREE & DIAMETER
- SN - SIGN
- BSH - BUSH
- ET - EDGE OF TREES
- F - FENCE
- SSMH - SANITARY SEWER MANHOLE
- GM - GAS METER
- HP - HIGH LINE POLE
- G - GATE
- W - WALL
- LP - LIGHT POLE
- FH - FIRE HYDRANT
- WM - WATER METER
- PM - POWER POLE AND GUY ANCHOR
- TR - TELEPHONE RISER
- IN - INLET
- PA - PROP. HOUSE ELEV.
- ADD 2 STEPS
- PA-1724.8
- ADD 2 STEPS
- PA-1564.5
- PA-1561.1
- PA-1557.1
- PA-1724.8
- ADD 2 STEPS
- EXIST. PLOT PLAN HOUSE ELEV.
- PA-1724.8
- ADD 2 STEPS
- PA-1564.5
- PA-1561.1
- PA-1557.1



VIEW OUT & TERRACED VIEW OUT DETAIL



MINIMUM PAD ELEVATIONS (LOWEST OPENINGS)			
LOTS	BLOCK	ELEVATION (CITY DATUM)	HGL (NGVD)
1	1	165.9	1353.3
2	1	165.9	1353.3
3	1	165.9	1353.3
1	2	165.9	1353.3
2	2	165.9	1353.3
3	2	165.9	1353.3
4	2	165.9	1353.3
5	2	165.9	1353.3
6	2	165.9	1353.3
7	2	165.9	1353.3
8	2	165.9	1353.3
9	2	165.9	1353.3
10	2	165.9	1353.3
11	2	165.9	1353.3
12	2	165.9	1353.3
13	2	165.9	1353.3
14	2	165.9	1353.3

BENCHMARKS

- BM#4 RR Spike in W face of South H-pole East of Tyler Rd, 3320 N Tyler Rd Elev. = 175.53
- BM#5 RR Spike in S face of S H-pole 3rd H-poles West of Tyler Rd, and 1/2 mile N of 29th St N. Elev. = 169.24



Revision Date:

PROJECT NAME

**MKEC**  
ENGINEERING  
CONSULTANTS, INC.

**FOX RIDGE ADDITION**  
**PHASE 6 - VIEWOUT/WALKOUT MAP**

DESIGN BY: **KLA**  
DRAWN BY: **SMB**  
CHECKED BY: **GJA**  
DATE: **MARCH 2007**  
JOB NO.: **99118**  
SHEET OF: **1 / 2**

G:\CIVL\99118\DWG\GRAD\LOT GRADING PLANS\99118\_VO-WO-MAP-PHASE6.DWG

## **Tab 2. Existing Conditions Runoff Calculations**

---

### ***A. Orthophotograph***

The aerial photograph is included with the Fox Ridge Addition shown, the Fox Ridge 2<sup>nd</sup> Addition is also indicated, Figure 2.1.

### ***B. Runoff Method***

The site was modeled using the SCS method; refer to the Fox Ridge drainage report.

### ***C. Existing Topography***

The existing topography is shown on the Existing Conditions Drawing, Figure 2.2.

### ***D. Site Areas***

The total site area of Fox Ridge Addition is 260 acres. The re-plat of Fox Ridge 2<sup>nd</sup> Addition is 19 acres. The Fox Ridge Addition has developed as residential lots, with about 30% impervious. The Fox Ridge 2<sup>nd</sup> Addition is currently undeveloped, 0% impervious.

### ***E. Benchmarks***

Benchmarks used for site control are included on the Existing Conditions Drawing, Figure 2.2.

### ***F. Streams, Creeks, and Waterways***

The site drains into Cadillac Lake. The existing FEMA boundaries are shown on the FIRM map, Figure 2.3. A portion of the site is in Zone A, FIRM panel 330 of 700, Sedgwick County, Kansas. LOMR case number 06-07-BB40P has been approved by FEMA to revise the Zone A floodplain to match current conditions.

### ***G. Soils***

The soils present on site are primarily Vanoss silt loam, 1 to 3 percent slopes, HSG "B". The site is shown on the Soil Survey, Figure 2.4.

### ***H. Natural Features***

Surrounding the second addition is a pond constructed with the first addition. The normal water surface elevation is 159.6 and the 100-year water surface elevation is 163.9.

### ***I. Location of Existing Impervious Areas***

Currently roads cross the site to provide access to the residential houses that have developed. A community pool is also located on the site north of Westlakes Parkway.

### ***J. Location of Existing Utilities***

Water, sewer, and electric has been installed in various locations throughout Fox Ridge Addition to serve both additions. A gas line in an easement crosses both sites.

### ***K. Location of Existing Conveyance Systems***

Storm water sewer has not yet been constructed for Fox Ridge 2<sup>nd</sup> Addition. Ponds and storm water sewer systems have been constructed for Fox Ridge.

#### ***L. Flow Paths***

Flow paths are shown on the Existing Conditions Drawing, Figure 2.2. The site is relatively flat but drains to the existing pond on the east, south, and west sides of the site.

#### ***M. Location and Sizes of Existing Structures***

An existing 8'x3' RCB under 29<sup>th</sup> Street is described in more detail in the Fox Ridge Addition report.

#### ***N. Existing Conditions Hydrologic Analysis***

Hydrologic analysis was completed with the Fox Ridge Addition, including the Fox Ridge 2<sup>nd</sup> Area.

#### ***O. Pre-Developed Runoff Curve Numbers***

The curve number used for pre-developed conditions was 68.

#### ***P. Existing time of Concentration***

The time of concentration was calculated to be 236 minutes using the FAA method. The calculations can be found in the Fox Ridge Drainage Report.

#### ***Q. Downstream Drainage Capacity***

The site drains into Cadillac Lake, further description of how this was modeled is in the Fox Ridge Drainage Report.

#### ***R. Existing Structural Elevations***

Existing elevations for the RCB under 29<sup>th</sup> Street are in the Fox Ridge Addition Drainage Report.

#### ***S. Open Channels***

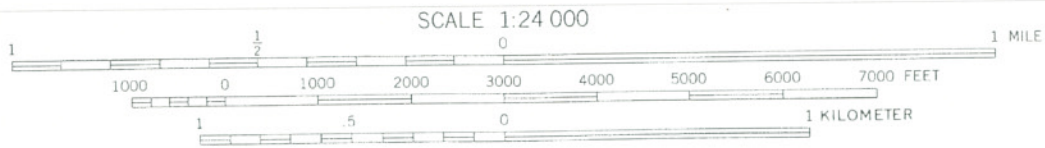
There are no open channels onsite.

#### ***T. Groundwater Elevations***

When the new well was dug north of Westlakes Parkway the groundwater was 25 feet deep.

**Figure 2.1**  
Orthophotograph

---



CONTOUR INTERVAL 5 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929

G:\CIVIL\991118.DWG\DRNG\2ND\_ADDITION\99118AERIAL.DWG



**FOX RIDGE 2ND ADDITION**  
PROJECT NAME

**WICHITA WEST, KANSAS AERIAL**  
SHEET TITLE

<i>KLA</i> DESIGN BY.	<i>SMB</i> DRAWN BY.	<i>GJA</i> CHECKED BY.
<i>MARCH 2007</i> DATE	<i>07053</i> JOB NO.	<i>1 / 1</i> SHEET/OF

**Figure 2.2**

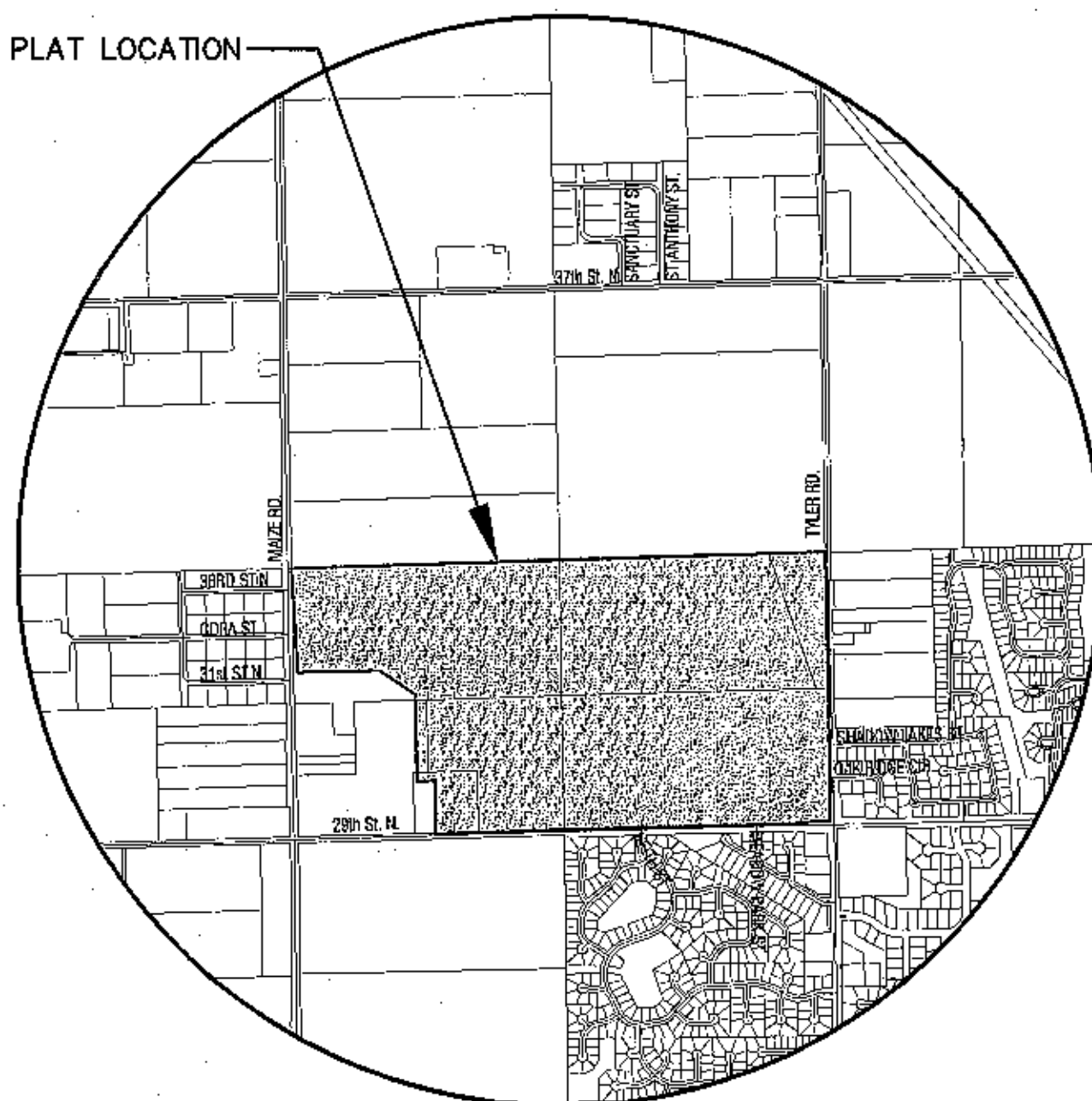
---

Existing Conditions Drawing

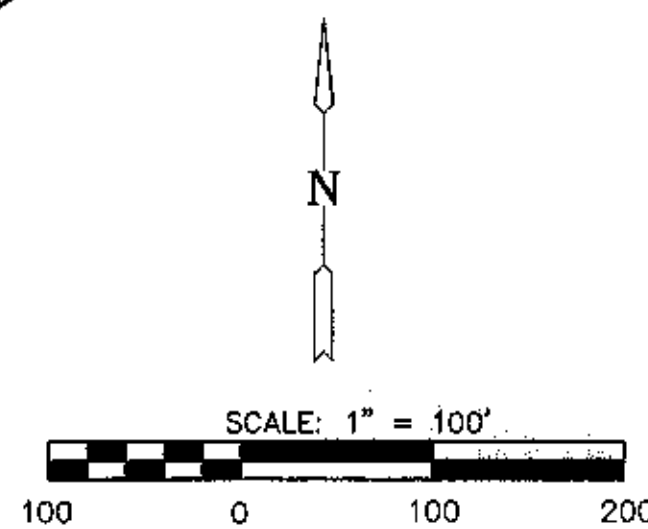
**LEGEND**

- EDGE OF TREES
- ★ 6IN - CONIFEROUS TREE & DIAMETER
- 3IN - DECIDUOUS TREE & DIAMETER
- SN - SIGN
- - BUSH
- PA - POWER POLE AND GUY ANCHOR
- WESTAR BOX - WESTAR ELECTRIC BOX
- GM - GAS METER
- LP - LIGHT POLE
- PH - FIRE HYDRANT
- WV - WATER VALVE
- WM - WATER METER
- ICV - IRRIGATION CONTROL VALVE
- GI - GRATE INLET
- TR - TELEPHONE RISER
- INLET - INLET
- △ - SECTION CORNER
- BM - BENCHMARK
- SSMH - STORM WATER MANHOLE
- SSMH - SANITARY SEWER MANHOLE
- SVB - TELEPHONE MANHOLE
- 20' UTILITY EASEMENT
- DRAINAGE EASEMENT
- FENCE
- STORM SEWER PIPE
- WATER LINE
- SANITARY SEWER LINE
- GAS LINE
- GAS PIPELINE
- TELEPHONE LINE
- UNDERGROUND ELECTRIC LINE
- OVERHEAD ELECTRIC
- FIBER OPTIC CABLE
- \* - AREA DESIGNATED FOR PRIVATE PLAYGROUND, POOL, OR CLUBHOUSE

PLAT LOCATION



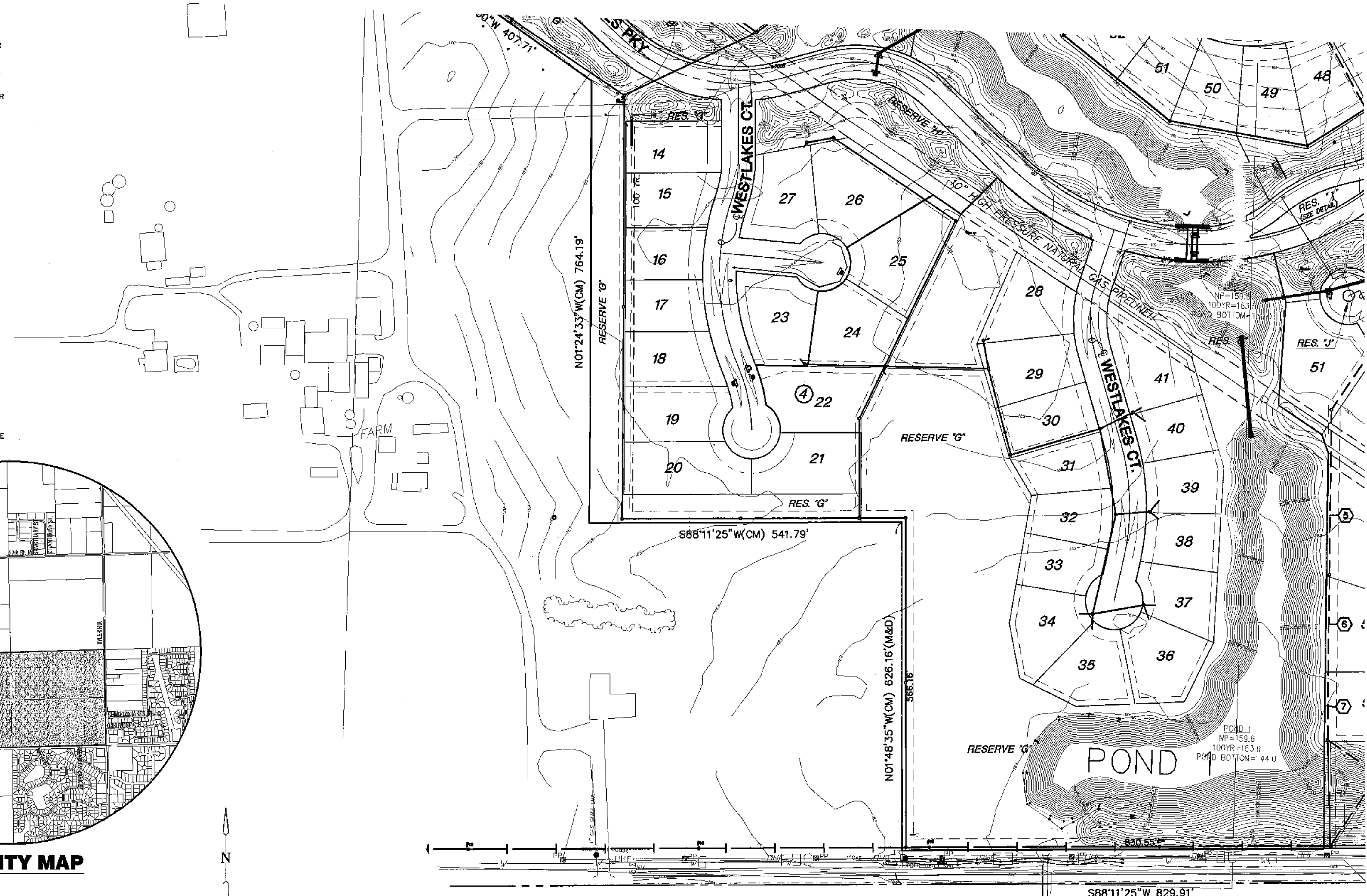
**VICINITY MAP**



# EXISTING CONDITIONS FOX RIDGE ADDITION

DEVELOPER: Fox Ridge Development Co. Inc. 7926 W 21st Wichita, KS 67205 (316) 721-2153  
 OWNERS: Leo M. and Vivian L. Rink 3100 N. Maize Rd. Wichita, KS 67205 (316) 722-0318  
 Curtis Q & Karen S. Rink 3124 N. Maize Rd. Wichita, KS 67205 (316) 722-8083

Ricky D. & Darlene D. Barton 9926 W. 29th St. N. Wichita, KS 67205 (316) 722-4897  
 First Mennonite Brethren Church 8000 W. 21st St. Wichita, KS 67205 (316) 722-5885



**BENCHMARKS**

- BM#1 C.O.W. disc 0.5 miles east of Maize Rd. on 29th St. N. 25' +/- N. of centerline of 29th St. Elev. = 160.86
- BM#2 Square cut top of curb N. end of island at Meadow Park, S. side of 29th St. N. Elev. = 168.33
- BM#3 Square cut top curb W. end of island at Shadow Lakes, East side of Tyler Rd. Elev. = 175.81
- BM#4 RR spike in W. face of South H-pole East of Tyler Rd., 3320 N. Tyler Rd. Elev. = 175.53
- BM#5 RR Spike in South face of South H-pole 3rd H-poles West of Tyler Rd. and 1/2 Mile N. of 29th St. N. Elev. = 169.24
- BM#6 RR Spike in South face of South H-pole 6th H-poles West of Tyler Rd. and 1/2 Mile N. of 29th St. N. Elev. = 166.37
- BM#7 PK nail (point numbered 201) in asphalt on bike path 60 feet South of 33rd St. N. on East side of Maize Rd. 28 feet NW. of PP. Elev. = 163.97
- BM#8 RR spike in W. face of PP East side Maize Rd., 100 feet ± S. of Cora St. Elev. = 165.58
- BM#9 RR spike in NW face of PP N. side of 29th St. N., 6th PP West of C.O.W. Disc (Disc 1/2 mile East of Maize Rd.) Elev. = 164.55

**LEGAL DESCRIPTION**

A tract of land lying in the Southwest and Southeast Quarters of Section 32, Township 26 South, Range 1 West, of the 6th Principal Meridian, Sedgwick County, Kansas; said tract described as follows:  
 All of said Southeast Quarter EXCEPT; that portion dedicated for road right-of-way; AND ALSO; all of the said Southwest Quarter EXCEPT; that portion dedicated for road right-of-way; AND EXCEPT; a tract of land lying in the Southwest portion of said Southwest Quarter containing 41.7 acres of land more or less.

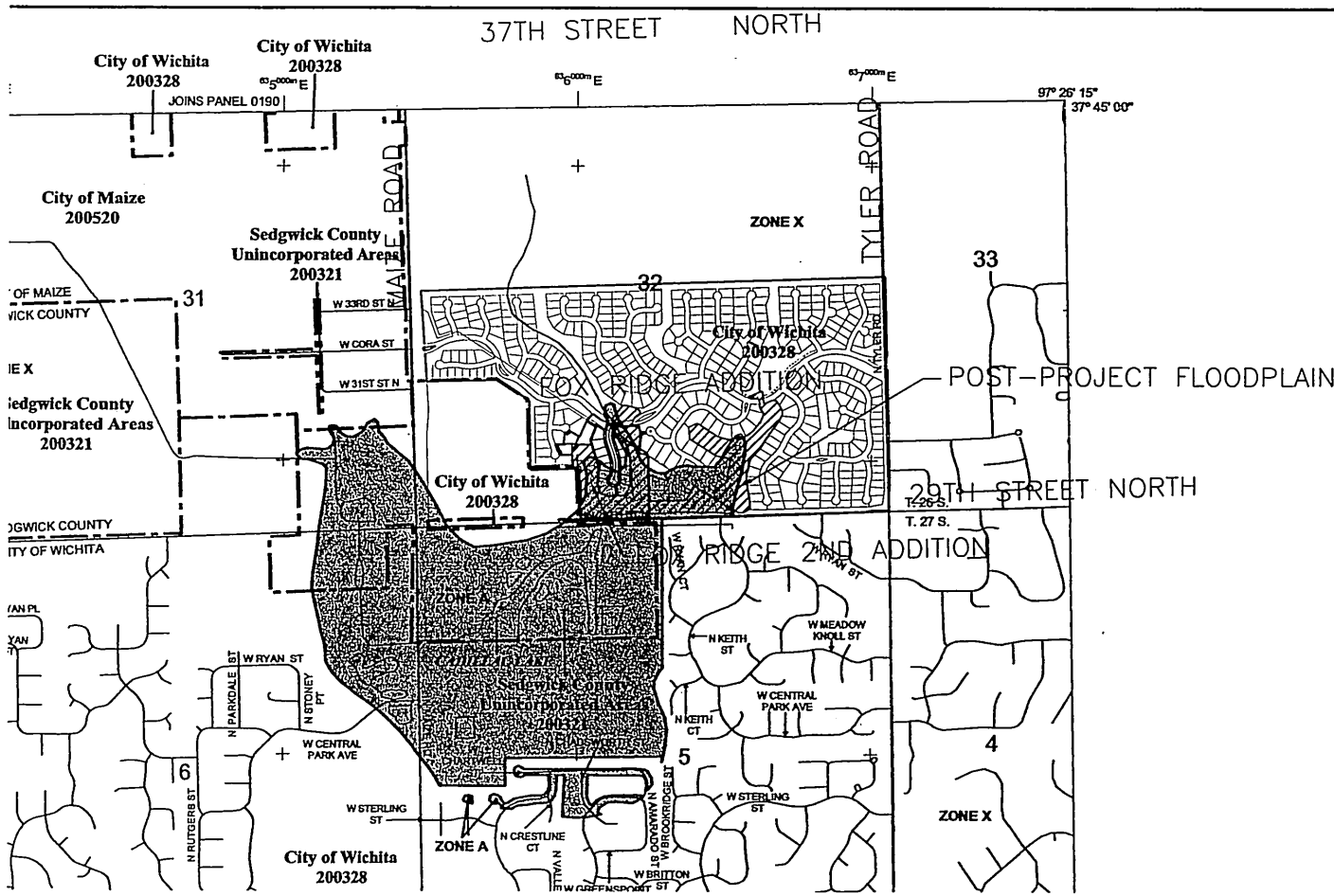


**DATE: MARCH 2007**

**Figure 2.3**

---

FIRM



**NATIONAL FLOOD INSURANCE PROGRAM**

**FIRM**  
**FLOOD INSURANCE RATE MAP**

**SEDGWICK COUNTY, KANSAS AND INCORPORATED AREAS**

PANEL 330 OF 700  
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

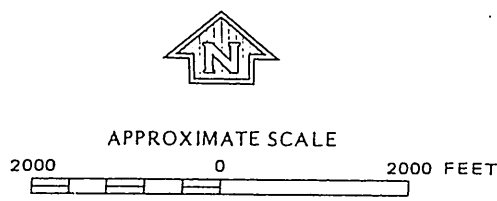
**CONTAINS:**

COMMUNITY	NUMBER	PANEL	SUFFIX
MAIZE, CITY OF	200520	0330	E E
SEDGWICK COUNTY	200321	0330	E E
WICHITA, CITY OF	200328	0330	E 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**  
20173C0330E

**EFFECTIVE DATE**  
FEBRUARY 2, 2007  
Federal Emergency Management Agency



**MKEC**  
**ENGINEERING CONSULTANTS**  
 411 N. WEBB ROAD  
 WICHITA, KS. 67206  
 316 - 684 - 9600

**FOX RIDGE 2ND ADDITION**  
 PROJECT NAME

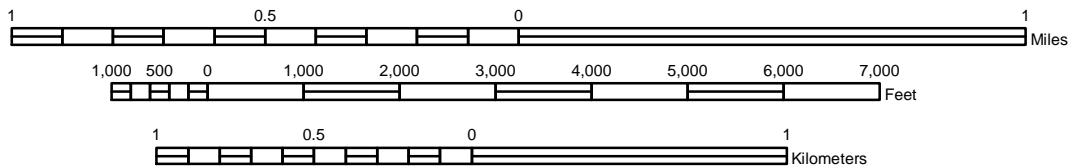
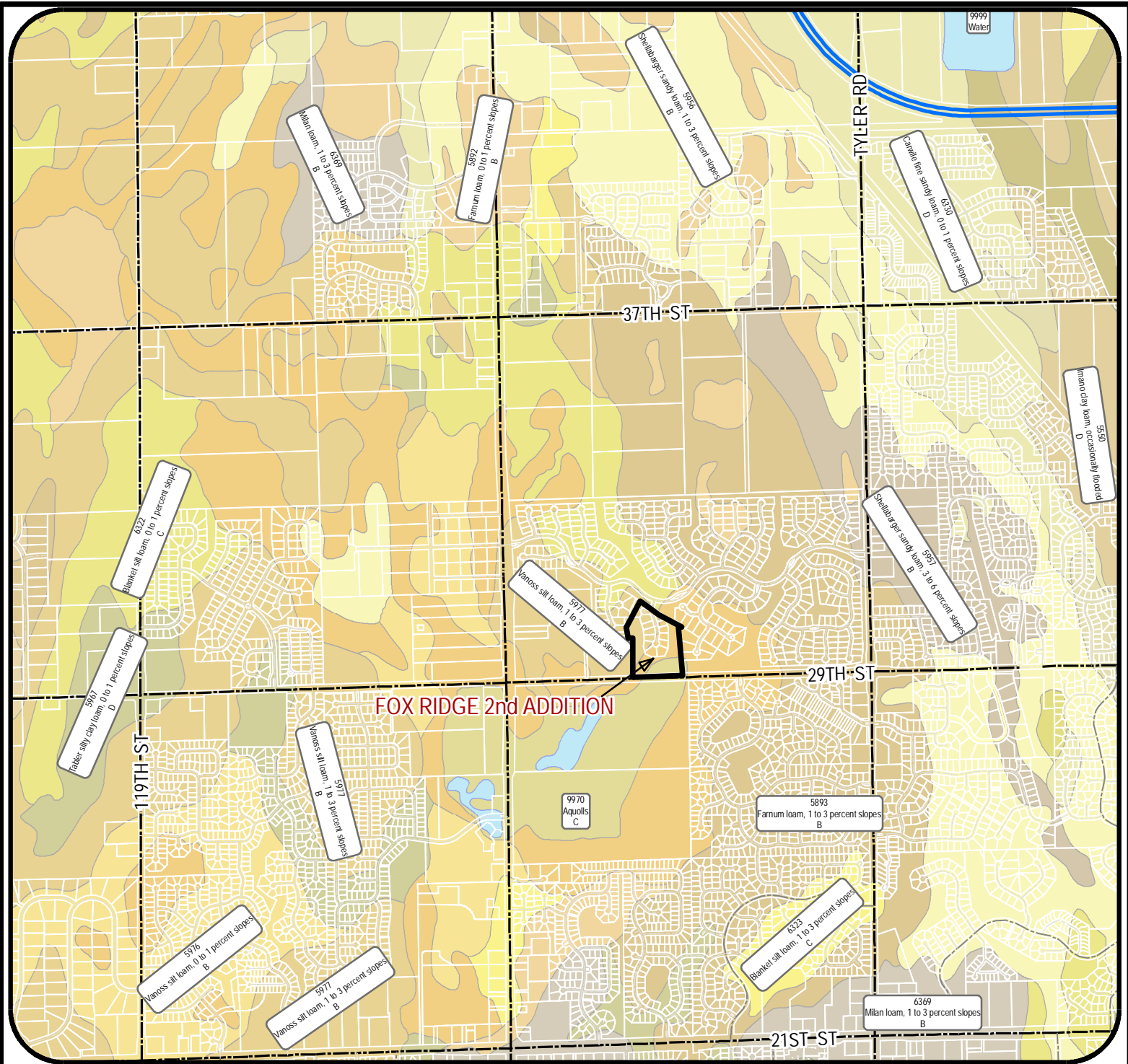
**FIRM PANEL 330 OF 700**  
**SEDGWICK COUNTY, KANSAS**  
 SHEET TITLE

<b>KLA</b> DESIGN BY:	<b>SMB</b> DRAWN BY:	<b>GJA</b> CHECKED BY:
<b>MARCH 2007</b> DATE	<b>07053</b> JOB NO.	<b>1 / 1</b> SHEET/OF

C:\CIVIL\99118\DWG\DRNG\2ND ADDITION\99118FIRM.DWG

**Figure 2.4**  
Soil Survey

---



G:\Civil\199118\dwg\DRNG\2ND\trcs-soil.mxd

### Fox Ridge 2nd Addition

Project Name:

Soil Survey -Wichita, KS

Sheet Title:



CMJ

Drawn By:

KLATMH

Design / Review:

March 2007

Date:

99118

Job No.:

## **Tab 3. Post-Development Hydrologic Analysis**

---

### ***A. Proposed Conditions Hydrologic and Hydraulic Analysis***

Hydrologic analysis was completed with the Fox Ridge Addition, including the Fox Ridge 2<sup>nd</sup> Area.

### ***B. Proposed Time of Concentration***

The time of concentration was calculated using the FAA method. The calculations can be found in the Fox Ridge Drainage Report.

### ***C. Assumed Post-Developed Curve Numbers***

The curve number used for pre-developed conditions was 75.

### ***D. Proposed Contours for Detention***

The proposed contours are shown on the drainage and utility plan, Figure 3.1. Pond 1 designed with the original Fox Ridge development will be expanded to provide additional earth work. Detention capacity for this site has increased.

### ***E. Preliminary SWS Sizing Calculations***

The pipes have been sized using Hydraflow Storm Sewer by Intelisolve, Figure 3.2.

### ***F. Stage-Storage-Discharge***

The stage-storage-discharge rating curve given for Fox Ridge addition. The pond area has been increased with the new layout, which would slightly increase the storage in the pond.

### ***G. Analysis of upstream/downstream impact***

The impacts upstream and downstream of the site will not be changed from Fox Ridge Addition.

### ***H. Existing and Proposed Structural Elevations***

The proposed storm water elevations are included in the pipe sizing calculations, Figure 3.2. Sanitary Sewer plans are complete and have been submitted as Phase 9 Sanitary Sewer Plans; Fox Ridge Addition; Lateral 3, Main 6, Part D Northwest Interceptor, Project No. 468-84202.

### ***I. Pond Design Elevations***

The normal pool elevation of the pond is 159.6. The 100-year water surface elevation for the pond is 163.9.

### ***J. Structure Details***

The pond outlet was designed with Fox Ridge Addition. The final design will be completed with the pond grading and will be re-evaluated at that time.

### ***K. Limits of Clearing and Grading***

The entire site will be cleared and graded.

### ***L. Location of Impervious Areas***

The Roads will be located as shown on the drainage and utility plan, Figure 3.1. Residential houses will be constructed on each lot.

***M. Location of Utilities***

Proposed utilities are shown on the drainage and utility plan, Figure 3.1.

***N. Location of Conveyance Systems***

Proposed utilities are shown on the drainage and utility plan, Figure 3.1. Stormwater sewer will carry runoff from the undeveloped area to the west into the pond. Stormwater sewer will carry pipes from the paving and backyards into the pond.

***O. Location of Channel Modifications***

Not applicable to this project.

***P. Selection and Location of Stormwater Controls***

A weir structure will be constructed at the south edge of the Fox Ridge property to control water surface elevations of the ponds.

***Q. Emergency Overflow***

The pond will outflow to the south in emergency situations.

***R. Freeboard***

The outlet structure for the pond was designed with Fox Ridge Addition.

***S. 100-Year High Water Line***

The 100-year water surface elevation is 163.9 as defined with the LOMR.

***T. Lowest Openings***

The lowest openings for all lots in this plat are set at an elevation of 165.9 as shown in the table on the plat.

***U. Stormwater Management Facilities***

The detention ponds onsite are located within reserves.

***V. Maintenance Responsibility***

The maintenance of the reserves will be the responsibility of the owner until it is turned over to the homeowners association.

***W. Offsite-Drainage Easements***

Not applicable to this project.

**Figure 3.1**

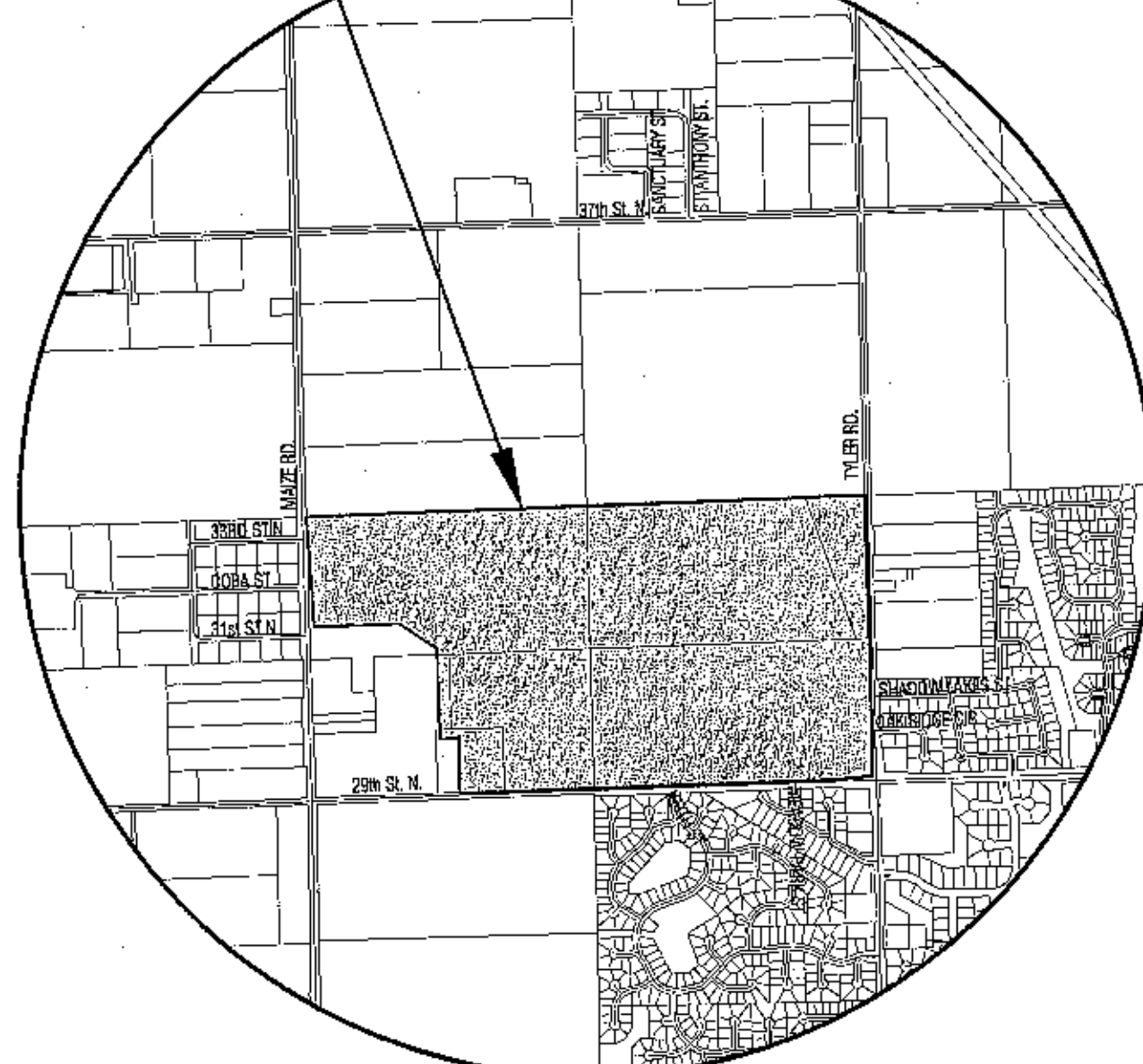
---

Drainage and Utility Plan

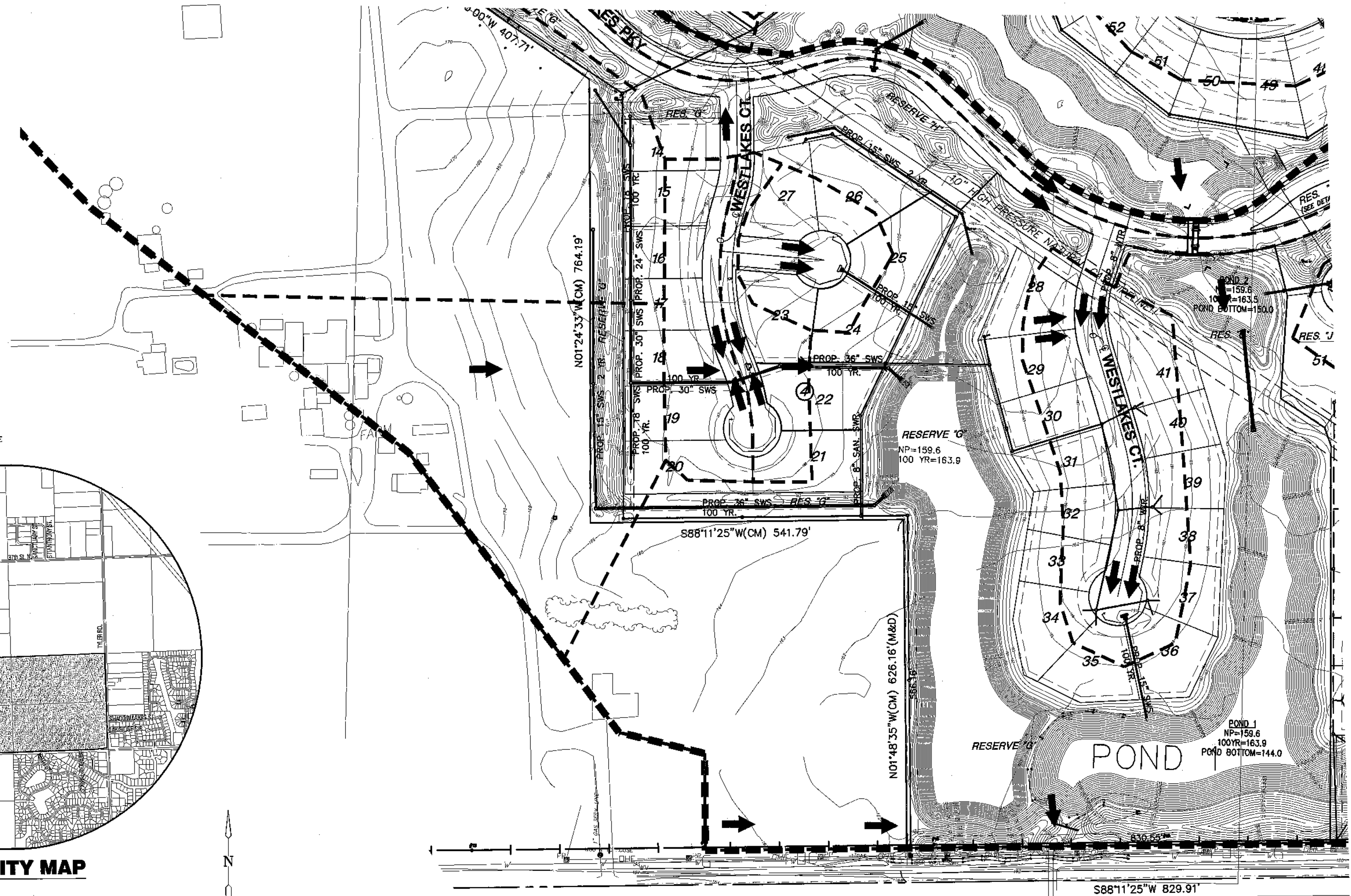
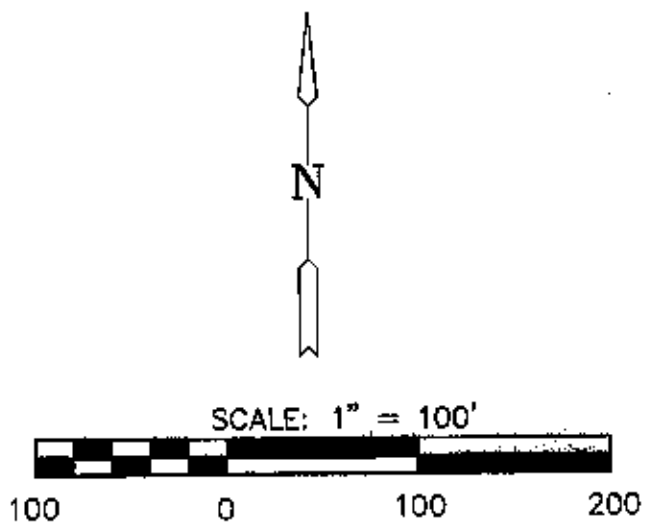
**LEGEND**

- EDGE OF TREES
- ⊗ - CONIFEROUS TREE & DIAMETER
- - DECIDUOUS TREE & DIAMETER
- ⊙ - SIGN
- - BUSH
- ⊕ - POWER POLE AND GUY ANCHOR
- ⊠ - WESTAR ELECTRIC BOX
- ⊙ - GAS METER
- ⊕ - LIGHT POLE
- ⊕ - FIRE HYDRANT
- ⊕ - WATER VALVE
- ⊕ - WATER METER
- ⊕ - IRRIGATION CONTROL VALVE
- ⊕ - GRATE INLET
- ⊕ - TELEPHONE RISER
- ⊕ - INLET
- ⊕ - SECTION CORNER
- ⊕ - BENCHMARK
- ⊕ - STORM WATER MANHOLE
- ⊕ - SANITARY SEWER MANHOLE
- ⊕ - TELEPHONE MANHOLE
- - - 20' UTILITY EASEMENT
- - - DRAINAGE EASEMENT
- - - FENCE
- - - STORM SEWER PIPE
- - - WATER LINE
- - - SANITARY SEWER LINE
- - - GAS LINE
- - - GAS PIPELINE
- - - TELEPHONE LINE
- - - UNDERGROUND ELECTRIC LINE
- - - OVERHEAD ELECTRIC
- - - FIBER OPTIC CABLE
- \* - AREA DESIGNATED FOR PRIVATE PLAYGROUND, POOL, OR CLUBHOUSE

**PLAT LOCATION**



**VICINITY MAP**



**BENCHMARKS**

- BM#1 C.O.W. disc 0.5 miles east of Maize Rd. on 29th St. N. 25' +/- N. of centerline of 29th St. Elev. = 160.86
- BM#2 Square cut top of curb N. end of island at Meadow Park, S. side of 29th St. N. Elev. = 168.33
- BM#3 Square cut top curb W. end of island at Shadow Lakes, East side of Tyler Rd. Elev. = 175.81
- BM#4 RR spike in W. face of South H-pole East of Tyler Rd., 3320 N. Tyler Rd. Elev. = 175.53
- BM#5 RR Spike in South face of South H-pole 3rd H-poles West of Tyler Rd. and 1/2 Mile N. of 29th St. N. Elev. = 169.24
- BM#6 RR Spike in South face of South H-pole 6th H-poles West of Tyler Rd. and 1/2 Mile N. of 29th St. N. Elev. = 166.37
- BM#7 PK nail (point numbered 201) in asphalt on bike path 60 feet South of 33rd St. N. on East side of Maize Rd. 28 feet NW. of PP. Elev. = 163.97
- BM#8 RR spike in W. face of PP East side Maize Rd., 100 feet ± S. of Cora St. Elev. = 165.58
- BM#9 RR spike in NW face of PP N. side of 29th St. N., 6th PP West of C.O.W. Disc (Disc 1/2 mile East of Maize Rd.) Elev. = 164.55

**LEGAL DESCRIPTION**

A tract of land lying in the Southwest and Southeast Quarters of Section 32, Township 26 South, Range 1 West, of the 6th Principal Meridian, Sedgwick County, Kansas; said tract described as follows:  
 All of said Southeast Quarter EXCEPT; that portion dedicated for road right-of-way; AND ALSO; all of the said Southwest Quarter EXCEPT; that portion dedicated for road right-of-way; AND EXCEPT; a tract of land lying in the Southwest portion of said Southwest Quarter containing 41.7 acres of land more or less.

**DRAINAGE AND UTILITY PLAN  
 FOX RIDGE ADDITION**

DEVELOPER: Fox Ridge Development Co. Inc. 7926 W 21st Wichita, KS 67205 (316) 721-2153  
 OWNERS: Leo M. and Vivian L. Rink 3100 N. Maize Rd. Wichita, KS 67205 (316) 722-0318  
 Curtis Q & Karen S. Rink 3124 N. Maize Rd. Wichita, KS 67205 (316) 722-8083  
 Ricky D. & Darlene D. Barton 9926 W. 29th St. N. Wichita, KS 67205 (316) 722-4897  
 First Mennonite Brethren Church 8000 W. 21st St. Wichita, KS 67205 (316) 722-5885

**DATE: MARCH 2007**

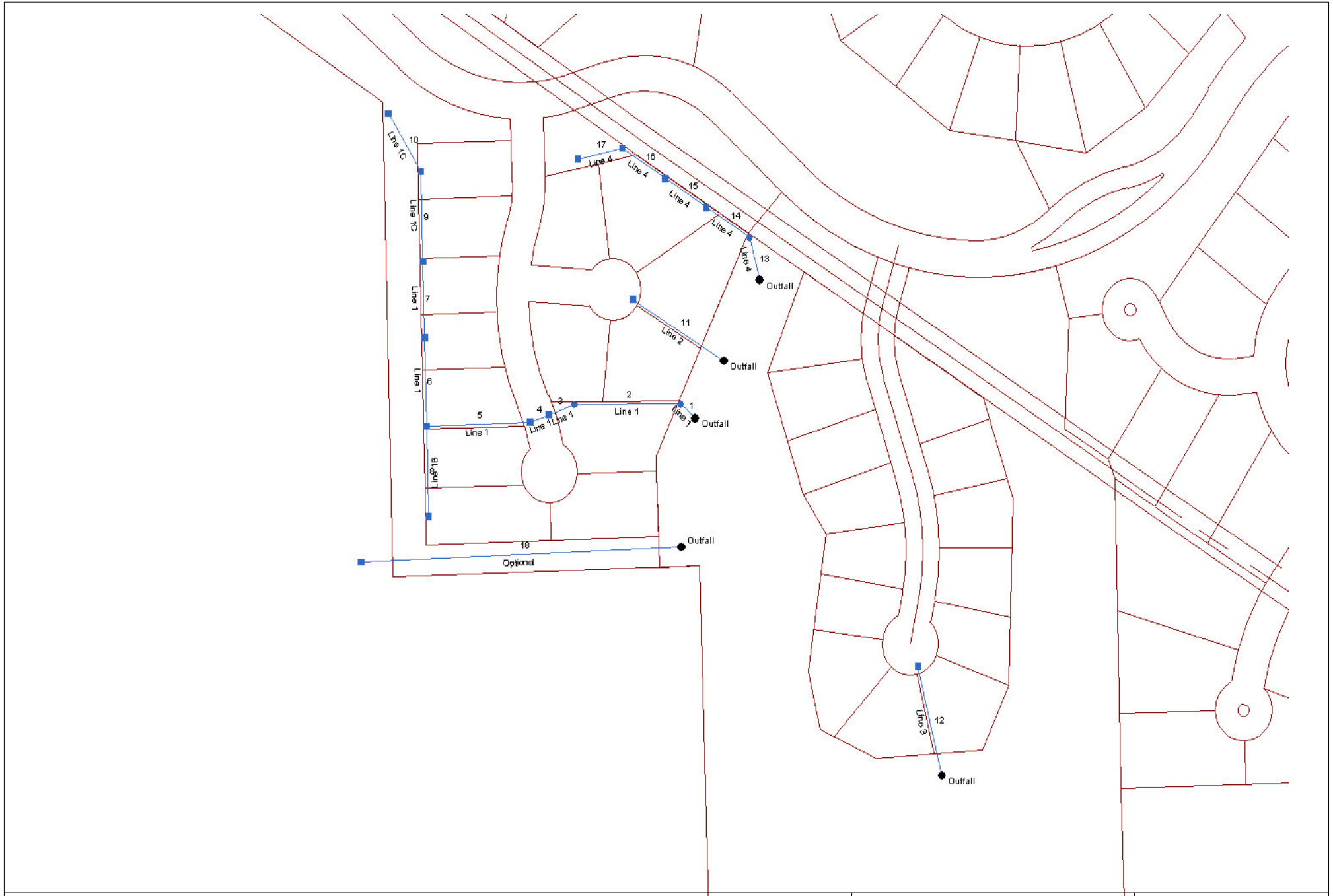


**Figure 3.2**

---

Pipe Sizing Calculations

# Hydraflow Plan View



Fox Ridge

No. Lines: 18

03-07-2007

# Storm Sewer Tabulation

Station		Len (ft)	Drng Area		Rnoff coeff (C)	Area x C		Tc		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID	
Line	To Line		Incr (ac)	Total (ac)		Incr	Total	Inlet (min)	Syst (min)					Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)		
1	End	34.0	0.00	4.45	0.57	0.00	2.54	15.0	22.8	6.2	15.60	185.5	2.21	36	7.74	156.38	153.75	163.92	163.90	163.10	0.00	Line 1	
2	1	188.4	0.00	4.45	0.57	0.00	2.54	15.0	21.5	6.3	16.03	21.18	2.27	36	0.10	156.97	156.78	164.08	163.97	166.40	163.10	Line 1	
3	2	47.6	1.00	4.45	0.57	0.57	2.54	15.0	21.2	6.4	16.14	21.62	2.28	36	0.11	157.04	156.99	164.14	164.11	166.30	166.40	Line 1	
4	3	35.3	1.20	3.45	0.57	0.68	1.97	15.0	20.9	6.4	12.60	22.44	1.78	36	0.11	157.18	157.14	164.22	164.21	166.30	166.30	Line 1	
5	4	183.4	0.33	2.25	0.57	0.19	1.28	15.0	19.2	6.7	8.53	12.85	1.74	30	0.10	157.86	157.68	164.33	164.25	164.50	166.30	Line 1	
6	5	142.5	0.33	1.59	0.57	0.19	0.91	15.0	17.3	6.9	6.30	25.94	1.28	30	0.40	158.93	158.36	164.49	164.46	164.50	164.50	Line 1	
7	6	122.5	0.33	1.26	0.57	0.19	0.72	15.0	16.1	7.2	5.15	15.16	1.64	24	0.45	159.98	159.43	164.57	164.51	164.50	164.50	Line 1	
8	5	146.0	0.33	0.33	0.57	0.19	0.19	15.0	15.0	7.4	1.39	5.96	0.78	18	0.32	160.83	160.36	164.50	164.48	164.50	164.50	Line 1B	
9	7	145.0	0.33	0.93	0.57	0.19	0.53	15.0	15.6	7.3	3.85	2.66	4.90	12	0.56	161.29	160.48	166.28	164.59	164.20	164.50	Line 1C	
10	9	109.5	0.60	0.60	0.57	0.34	0.34	15.0	15.0	7.4	2.52	3.65	3.21	12	1.05	162.69	161.54	167.36	166.81	165.50	164.20	Line 1C	
11	End	188.8	1.20	1.20	0.57	0.68	0.68	15.0	15.0	7.4	5.04	10.81	4.11	15	2.80	161.20	155.91	165.55	164.40	166.16	0.00	Line 2	
12	End	180.3	1.60	1.60	0.57	0.91	0.91	15.0	15.0	7.4	6.72	12.08	5.47	15	3.50	162.31	156.00	166.37	164.42	166.71	0.00	Line 3	
13	End	70.5	0.00	1.12	0.57	0.00	0.64	15.0	18.1	6.8	4.35	14.45	3.55	15	5.01	160.03	156.50	164.22	163.90	164.20	0.00	Line 4	
14	13	90.0	0.28	1.12	0.57	0.16	0.64	15.0	17.7	6.9	4.39	4.08	3.58	15	0.40	160.43	160.07	164.78	164.36	164.50	164.20	Line 4	
15	14	86.7	0.28	0.84	0.57	0.16	0.48	15.0	17.2	7.0	3.34	4.10	2.72	15	0.40	160.78	160.43	165.19	164.96	164.50	164.50	Line 4	
16	15	90.0	0.28	0.56	0.57	0.16	0.32	15.0	16.4	7.1	2.27	4.08	1.85	15	0.40	161.14	160.78	165.42	165.31	164.50	164.50	Line 4	
17	16	80.0	0.28	0.28	0.57	0.16	0.16	15.0	15.0	7.4	1.18	4.08	0.96	15	0.40	161.56	161.24	165.55	165.52	166.50	164.50	Line 4	
18	End	567.4	17.80	17.80	0.39	6.94	6.94	60.0	60.0	3.7	25.89	42.19	3.66	36	0.40	156.02	153.75	164.76	163.90	164.50	164.50	Optional	
<b>Fox Ridge</b>																Number of lines: 18				Run Date: 03-07-2007			
NOTES: Intensity = 62.28 / (Inlet time + 10.10) ^ 0.66; Return period = 100 Yrs.																							

# Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data							Line ID	
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)		Inlet/ Rim El (ft)
1	End	34.0	-138.7	MH	0.00	0.00	0.57	15.0	153.75	7.74	156.38	36	Cir	0.013	0.71	163.10	Line 1
2	1	188.4	-41.6	MH	0.00	0.00	0.57	15.0	156.78	0.10	156.97	36	Cir	0.013	0.38	166.40	Line 1
3	2	47.6	-19.4	Curb	0.00	1.00	0.57	15.0	156.99	0.11	157.04	36	Cir	0.013	0.50	166.30	Line 1
4	3	35.3	0.0	Curb	0.00	1.20	0.57	15.0	157.14	0.11	157.18	36	Cir	0.013	0.53	166.30	Line 1
5	4	183.4	17.7	DrGrt	0.00	0.33	0.57	15.0	157.68	0.10	157.86	30	Cir	0.013	2.25	164.50	Line 1
6	5	142.5	90.6	DrGrt	0.00	0.33	0.57	15.0	158.36	0.40	158.93	30	Cir	0.013	0.50	164.50	Line 1
7	6	122.5	0.0	DrGrt	0.00	0.33	0.57	15.0	159.43	0.45	159.98	24	Cir	0.013	0.50	164.50	Line 1
8	5	146.0	-89.4	DrGrt	0.00	0.33	0.57	15.0	160.36	0.32	160.83	18	Cir	0.013	1.00	164.50	Line 1B
9	7	145.0	0.0	DrGrt	0.00	0.33	0.57	15.0	160.48	0.56	161.29	12	Cir	0.013	0.84	164.20	Line 1C
10	9	109.5	-30.2	DrGrt	0.00	0.60	0.57	15.0	161.54	1.05	162.69	12	Cir	0.013	1.00	165.50	Line 1C
11	End	188.8	-148.5	Curb	0.00	1.20	0.57	15.0	155.91	2.80	161.20	15	Cir	0.013	1.00	166.16	Line 2
12	End	180.3	-103.4	Curb	0.00	1.60	0.57	15.0	156.00	3.50	162.31	15	Cir	0.013	1.00	166.71	Line 3
13	End	70.5	-105.2	MH	0.00	0.00	0.57	15.0	156.50	5.01	160.03	15	Cir	0.013	0.72	164.20	Line 4
14	13	90.0	-42.2	DrGrt	0.00	0.28	0.57	15.0	160.07	0.40	160.43	15	Cir	0.013	0.50	164.50	Line 4
15	14	86.7	0.0	DrGrt	0.00	0.28	0.57	15.0	160.43	0.40	160.78	15	Cir	0.013	0.50	164.50	Line 4
16	15	90.0	0.0	DrGrt	0.00	0.28	0.57	15.0	160.78	0.40	161.14	15	Cir	0.013	1.13	164.50	Line 4
17	16	80.0	-45.1	DrGrt	0.00	0.28	0.57	15.0	161.24	0.40	161.56	15	Cir	0.013	1.00	166.50	Line 4
18	End	567.4	177.6	DrGrt	0.00	17.80	0.39	60.0	153.75	0.40	156.02	36	Cir	0.013	1.00	164.50	Optional
Fox Ridge												Number of lines: 18				Date: 03-07-2007	

# Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns line No.
1	Line 1	15.60	36 c	34.0	153.75	156.38	7.735	163.90*	163.92*	0.05	163.97	End
2	Line 1	16.03	36 c	188.4	156.78	156.97	0.101	163.97*	164.08*	0.03	164.11	1
3	Line 1	16.14	36 c	47.6	156.99	157.04	0.105	164.11*	164.14*	0.04	164.18	2
4	Line 1	12.60	36 c	35.3	157.14	157.18	0.113	164.21*	164.22*	0.03	164.25	3
5	Line 1	8.53	30 c	183.4	157.68	157.86	0.098	164.25*	164.33*	0.11	164.44	4
6	Line 1	6.30	30 c	142.5	158.36	158.93	0.400	164.46*	164.49*	0.01	164.51	5
7	Line 1	5.15	24 c	122.5	159.43	159.98	0.449	164.51*	164.57*	0.02	164.59	6
8	Line 1B	1.39	18 c	146.0	160.36	160.83	0.322	164.48*	164.50*	0.01	164.51	5
9	Line 1C	3.85	12 c	145.0	160.48	161.29	0.559	164.59*	166.28*	0.31	166.60	7
10	Line 1C	2.52	12 c	109.5	161.54	162.69	1.050	166.81*	167.36*	0.16	167.52	9
11	Line 2	5.04	15 c	188.8	155.91	161.20	2.802	164.40*	165.55*	0.26	165.81	End
12	Line 3	6.72	15 c	180.3	156.00	162.31	3.500	164.42*	166.37*	0.47	166.84	End
13	Line 4	4.35	15 c	70.5	156.50	160.03	5.006	163.90*	164.22*	0.14	164.36	End
14	Line 4	4.39	15 c	90.0	160.07	160.43	0.400	164.36*	164.78*	0.10	164.88	13
15	Line 4	3.34	15 c	86.7	160.43	160.78	0.404	164.96*	165.19*	0.06	165.25	14
16	Line 4	2.27	15 c	90.0	160.78	161.14	0.400	165.31*	165.42*	0.06	165.48	15
17	Line 4	1.18	15 c	80.0	161.24	161.56	0.400	165.52*	165.55*	0.01	165.56	16
18	Optional	25.89	36 c	567.4	153.75	156.02	0.400	163.90*	164.76*	0.21	164.96	End

<b>Fox Ridge</b>	Number of lines: 18	Run Date: 03-07-2007
------------------	---------------------	----------------------

NOTES: c = cir; e = ellip; b = box; Return period = 100 Yrs. ; \*Surcharged (HGL above crown).

#### **Tab 4. Floodplain Submittal**

---

A partial LOMR has been completed for the Fox Ridge Addition. Another LOMR will need to be done once all pond construction is complete.

## **Tab 5. Permits**

---

### ***A. US Army Corps of Engineers***

The US Army Corps of Engineers permits for the Fox Ridge Addition will cover this project.

### ***B. Kansas Department of Agriculture***

Permits from Kansas Department of Agriculture Division of Water Resources have been obtained. SSG-0459 and SSG-0460 are permits to build the structures for a culvert under Westlakes Parkway and the outlet structure for Pond 1. LSG-0266 is a floodplain fill permit for the fill to be placed within the floodplain on site. Applications have been approved to change the water rights for wells 9,883 and 24,018. The wells are set up to irrigate community portions of the property and also maintain full ponds for recreational use.

### ***C. Federal Emergency Agency (FEMA)***

A CLOMR for this project was submitted and approved by FEMA as Case Number: 05-07-0395R. A partial LOMR was submitted and approved by FEMA as Case Number: 06-07-BB40P. An additional LOMR will need to be prepared and submitted once all construction connected with the ponds is complete.

### ***D. Kansas Department of Transportation***

Not applicable to this project.

### ***E. Sedgwick County Right-of-way Permit***

Not applicable to this project.