

DRAINAGE PLAN
MEL HAMBELTON
2ND ADDITION
TO
WICHITA, SEDGWICK COUNTY, KANSAS

PREPARED BY



14 MARCH 2012



DRAINAGE PLAN MEL HAMBELTON 2ND ADDITION

FINAL REPORT

Prepared by Baughman Company, P.A.
14 March 2012

By Trevor R. Kurth, P.E., CFM
N. Brent Wooten, P.E., L.S.

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PROJECT NARRATIVE

EXISTING CONDITIONS

The site is located just east of 119th Street West along the south side of Kellogg Avenue adjacent to Harry Drive. Approximately half of the site is currently platted as Blasi Park Addition with the remaining areas un-platted. The majority of the site is currently developed into a recreational vehicle park and commercial buildings along the frontage road. The site appears very flat and is currently gravel covered with some paving. The northwest un-platted portion of the property is un-developed and is grass covered.

The site appears very flat, but appears to slowly drain to the southwest into a dry detention area and open water surface. These areas do not appear to have an outfall other than overland flow to the west and into a channel section. The channel section accepts offsite runoff from the south residential subdivision, as well as this site, and conveys water to the north and into a box culvert under Kellogg Avenue. The northern portion of the site appears to drain to Harry Drive and into the existing storm water sewer system.

There is no FEMA SFHA located on this property as of this report. The drainage patterns as defined above can be seen on the Existing Conditions Exhibit.

PROPOSED CONDITIONS

The property will be redeveloped into a probable car sales and operations business with associated parking and outbuildings. The undeveloped lots will likely be developed into frontage commercial lots with associated parking, structures, and utilities. The southern portion of the site is expected to drain to the west and into Reserve A where a detention area will be located. The frontage lots will continue to drain to the north and into the ROW and will need to provide detention and water quality features upon site development.

For a half-scale copy of the Plat, see Exhibit 3.

OFFSITE CONDITIONS

There is a uniformly cross sectioned ditch section located along the west line which conveys runoff from the south to the north. A large pond, located to the south of this property, utilizes this drainage ditch section to convey its runoff. The ditch section appears to be 3-4 feet deep and is only partially located on this proposed site. There is currently SWS located in Harry Drive which drains the frontage area and ROW to the west and north into this same drainage basin as the ditch section. The City of Wichita currently maintains this ditch section and box culvert area.

The USGS Quadrangle Sheet can be seen with the site location plotted as Exhibit 1. The Aerial for this area can be viewed as Exhibit 2.

EXISTING CONDITIONS RUNOFF CALCULATIONS

DRAINAGE METHODS & STANDARDS

The following methods and standards, although not a complete list, were used in calculating the existing conditions runoff values.

- STORM SERIES
 - 24-hour; 2-yr, 5-yr, 10-yr, 25-yr, 100-yr Storm Events Modeled
 - 2-yr Rainfall Depth = 3.5 in
 - 10-yr Rainfall Depth = 5.3 in
 - 100-yr Rainfall Depth = 7.9 in

- FLOW DATA
 - Areas per LIDAR data, USGS Quadrangle Sheet, Aerial Photos, and Site Visits
 - Rational Method used for Existing Flows (varies, see text below)
 - Time of Concentration: Lag Method (minimum 15 min)

SITE CHARACTERISTICS

The site consists of approximately 16.8 acres of mostly developed area. There is a 2.3 acre area located in the north west corner which is currently undeveloped. Another 2.5 acres located along the frontage is currently developed and drains to the north and into the ROW. The remaining 12 acres is currently developed into an RV parking lot. It consists of gravel cover and parking stalls with a small main structure in the center of the acreage. The site is very flat but slowly drains to the west and into a wet pond area and dry pond area. These areas do not appear to have a functioning discharge other than overland flow to the adjacent ditch to the west. The existing site characteristics can be seen from the aerial exhibit (Exhibit 2).

EXISTING CONDITIONS HYDROLOGIC ANALYSIS

The existing site was analyzed based on existing conditions using the Rational Method. A Rational 'C' Factor of 0.89 was used for the existing paved and gravel parking areas. A 'C' Factor of 0.68 was used for the undeveloped portion of the property based on undeveloped area in a Soil Type of C/D. A Time of Concentration of 15 was assumed for the onsite analysis due to the site being primarily paved.

DOWNSTREAM DRAINAGE CAPACITY

As described above, the site primarily drains to the existing SWS in Harry Drive and to the west and into detention areas to the west. The SWS in Harry Drive currently conveys the northern portion of the site ultimately to the west and into the City maintained channel and box section. The ditch section appears to be maintained in good working condition and conveys runoff to the north. We are not aware of any flooding or flooding concerns in this area at the time of this report.

POST-DEVELOPMENT HYDROLOGIC ANALYSIS

DRAINAGE METHODS & STANDARDS

The following methods and standards, although not a complete list, were used in developing the drainage and grading plans.

- STORM SERIES
 - 24-hour; 2-yr, 5-yr, 10-yr, 25-yr, 50-yr, 100-yr Storm Events Modeled
 - 1.2" Water Quality Flow used in calculations
 - Rational C Factor used for onsite flows
 - C = 0.91 (Business areas in soil type D)
 - Time of Concentration; Lag Method, minimum Tc = 15min

- GRADING CONSTRAINTS
 - One foot freeboard between 100-yr WSE and adjacent lot corner
 - Match all existing perimeter grades

DEVELOPED CONDITIONS HYDROLOGIC ANALYSIS

A preliminary drainage analysis was done on this property based on developed conditions. At the time of this report, no site plan was available for the redevelopment of the area or any new development. Therefore, these proposed development figures are likely to change and will need to be update and available at the time of specific site development. The site is expected to be commercial in nature and will likely consist of a car parking lot and dealership.

Water Quality calculations have been provided based on anticipated impervious areas. These calculations apply only a 30% factor to the current developed areas based on the City of Wichita's Drainage Manual.

DETENTION FACILITIES

Currently there are two separate detention facilities on the developed portion of the site. These facilities have only an overland flow to the ditch to the west and likely don't have much detention factor during the larger storm events. Upon a site plan for the proposed property, these areas will need to be re-calculated and sized based on the proposed impervious areas.

The northwest, and currently undeveloped area, will need to provide detention for the added impervious area. This can likely be accomplished by over-detaining in the lower detention area located near the south west corner of the site. This would be due to all the drainage ultimately draining to the same ditch and box section. However, if the runoff will flow directly into the ROW SWS then a SWS analysis will need to be performed at the time of site development.

DISCHARGE POINTS SUMMARY

The discharge points will remain the same after development. There are SWS stubs along the ROW frontage which currently drain portions of the north property. This SWS drains back to the west and into the ditch and box culvert under Harry Drive and Kellogg Drive. The remaining site drains to the west and into the channel section along the west line. This channel is partially located on the site and will be located within a Reserve.

WATER QUALITY

Water quality will be achieved on the site at the time of site development. A preliminary water quality calculation has been provided with this report based on assumed impervious areas. The current developed areas will need to provide 30% of the water quality based on the re-development clause for the City of Wichita. Upon site development, these numbers may be lowered based on a site plan that provides pervious areas or low impact development strategies. The frontage lots that are currently undeveloped will need to provide the full water quality volume upon site development before discharging to the ROW or channel section.

DOWNSTREAM CHANNEL PROTECTION

Downstream channel protection may be required on this site based on the amount of impervious area added at the time of site development. By lowering the sites impervious area with re-development, the volume of runoff could be reduced and therefore not need to provide additional channel protection best management practices.

POTENTIAL UPSTREAM/DOWNSTREAM IMPACTS

Due to the site redeveloping and providing detention and water quality on site, we do not anticipate any upstream impacts with this development and redevelopment. The channel section will be located in a Reserve and maintenance will be provided. Therefore downstream impacts are not expected with this development.

FLOODPLAIN SUBMITTAL

SOURCE OF FLOODPLAIN INFORMATION

The site lies within a FEMA Zone X - Unshaded. The location of the property, on FEMA FIRM Panel 340 of 700 for Sedgwick County, Kansas, effective February 2, 2007, is attached as Exhibit 6.

FEDERAL, STATE, & LOCAL PERMITTING

US ARMY CORPS OF ENGINEERS

There does not appear to be any jurisdictional waters of the US on this site.

KANSAS DEPT OF AGRICULTURE – DWR PERMITTING

There does not appear to be any DWR permitting needed on the proposed site at this time. The areas of discharge do not account for more than 240 acres.

FEMA

There is no mapped floodplain located upon the proposed site. Therefore, no FEMA permitting is expected at this time.

KANSAS DEPT OF TRANSPORTATION

There does not appear to be any KDOT permitting needed on the proposed project.

SEDGWICK COUNTY PERMITTING

There does not appear to be any County permitting needed at this time.

EXHIBIT 1: Site Location Map

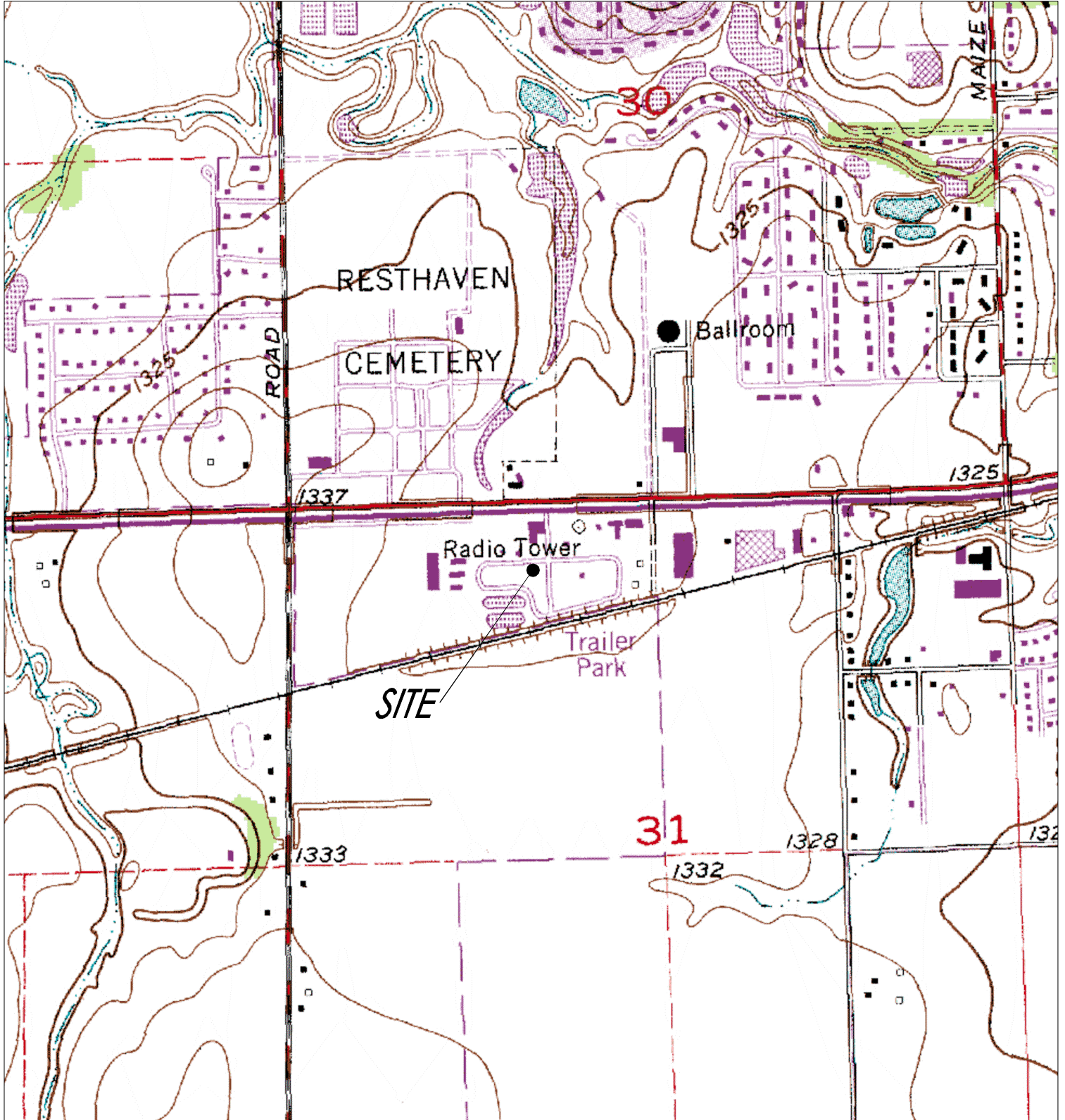
EXHIBIT 2: Aerial Photo Exhibit with Lidar Topography

EXHIBIT 3: Plat – Half Scale

EXHIBIT 4: Drainage Plan – Half Scale

EXHIBIT 5: Floodplain Location (FIRM)

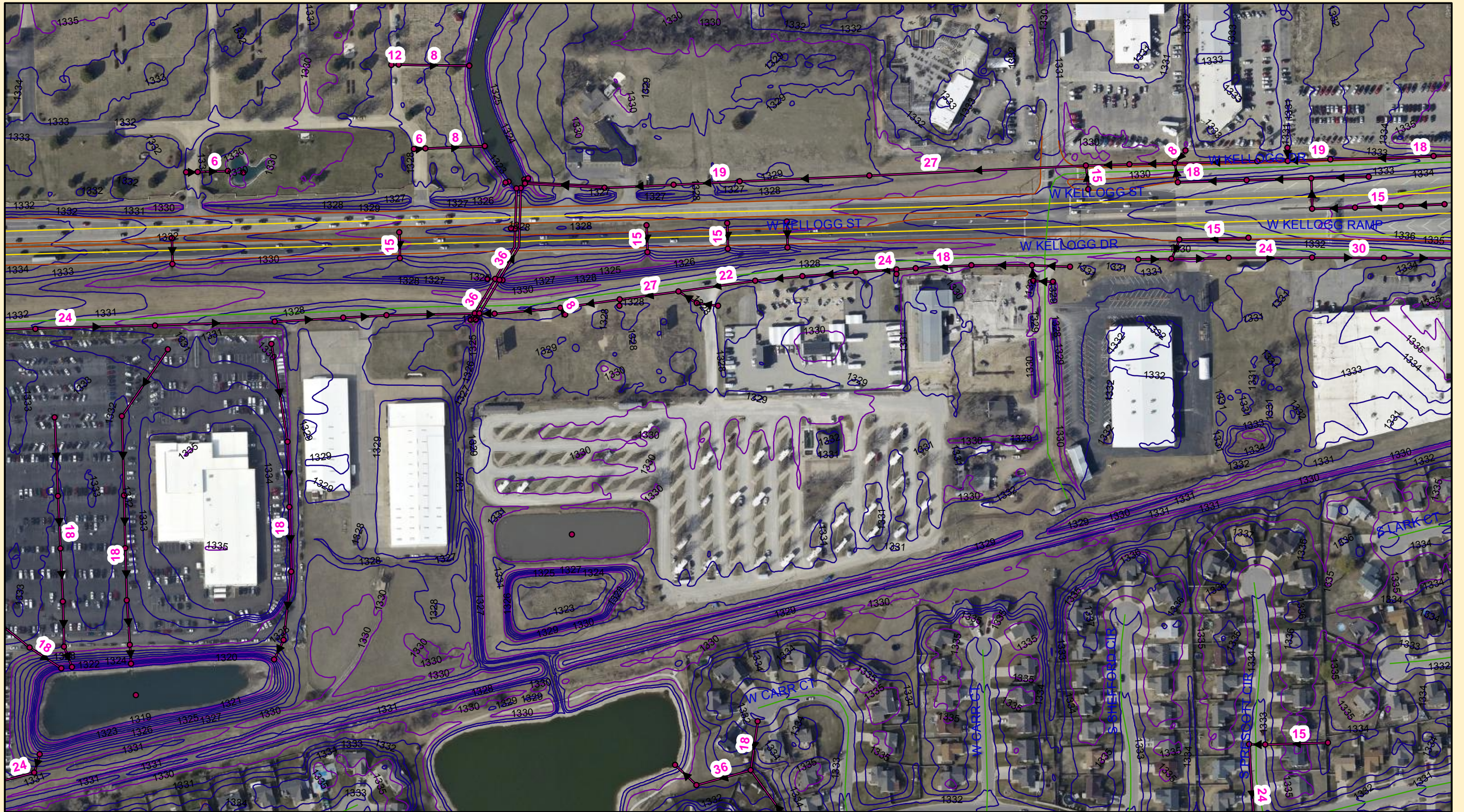
SITE LOCATION MAP
MEL HAMBELTON 2ND ADDITION
WICHITA, SEDGWICK COUNTY, KANSAS



SITE LOCATION MAP
MEL HAMBELTON 2ND ADDITION

16 MAR 2012

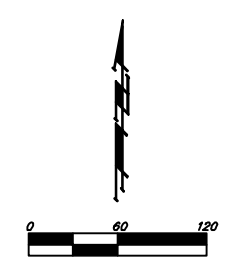
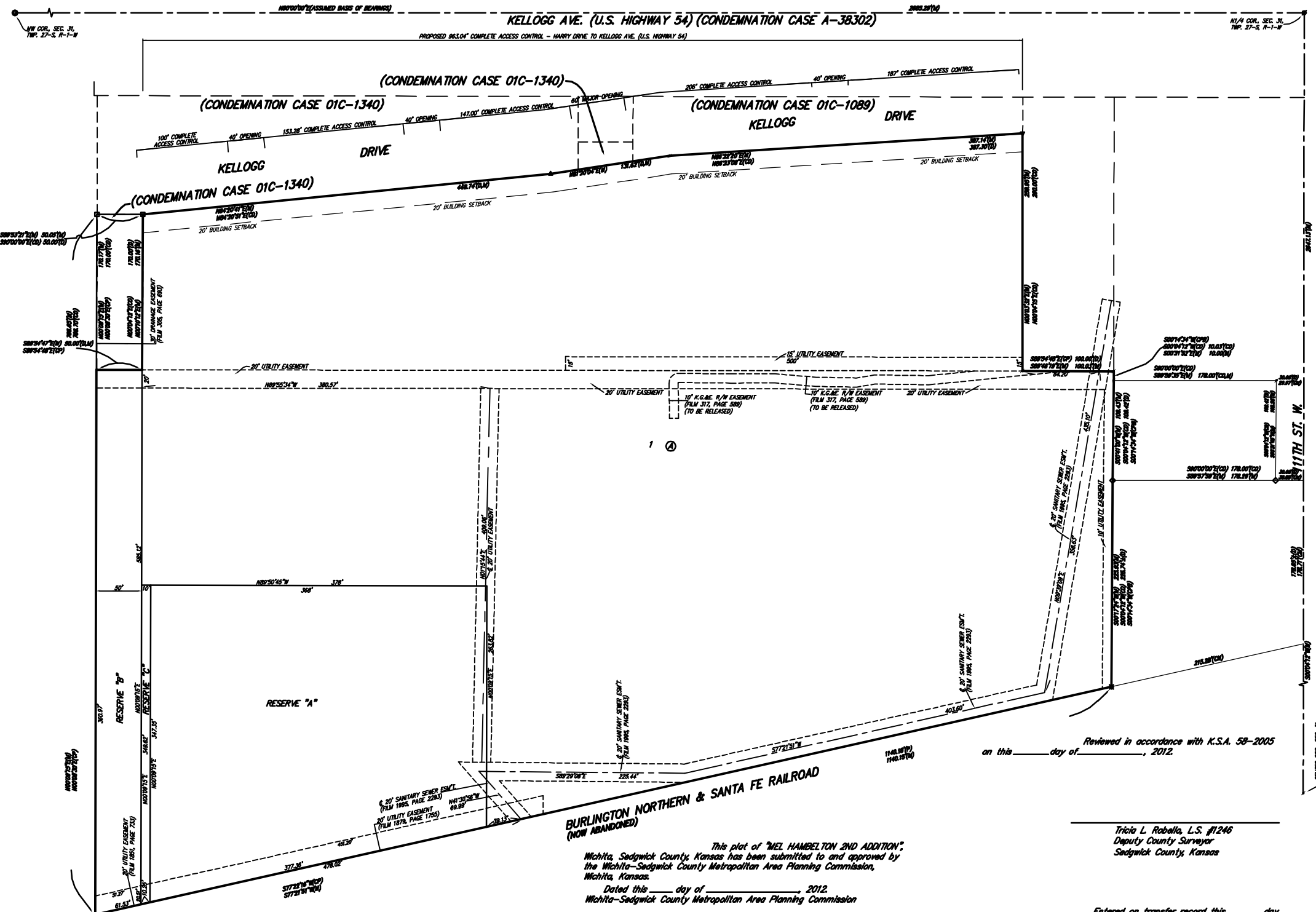
 **Baughman Company, P.A.**
315 Ellis St. Wichita, KS 67211 P 316262-7271 F 316262-0149
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE



Mel Hambelton 2nd Addition
Aerial and Lidar Exhibit



MEL HAMBELTON 2ND ADDITION WICHITA, SEDGWICK COUNTY, KANSAS



- - #1 REBAR W/ "BAUGHMAN" CAP (FOUND)
 - - #1 REBAR W/ "BAUGHMAN" CAP (FOUND)
 - - 1" IRON PIPE (FOUND)
 - - #5 REBAR IN TRIMBLE (FOUND)
 - - 3/4" IRON PIPE W/ "PEC" CAP (FOUND)
 - - ALUMINUM CAP IN TRIMBLE (FOUND)
 - - #1 REBAR (FOUND)
 - - #1 REBAR W/ "BAUGHMAN" CAP SET OVER FOUND 1/2" IRON PIPE 30" DEEP
 - ▲ - 3/4" IRON PIPE (FOUND)
- (M) - MEASURED
(P) - PLATTED
(D) - DESCRIBED
(C) - CALCULATED PER MEASURED INFO.
(CP) - CALCULATED PER PLATTED INFO.
(CD) - CALCULATED PER DESCRIBED INFO.
(CR) - CALCULATED PER PLAT OF BLAS PARK ADDITION

MINIMUM BUILDING PAD ELEVATIONS FOR LOWEST OPENING TO THE STRUCTURES		
LOT	BLOCK	ELEVATION
1	A	1330.0

BENCHMARK:
City of Wichita Benchmark Elm at west end of RBCB Headlock, 17.7' N. & 35.9' E. of the NW corner of Lot 1, Block A, Mel Hambelton 2nd Addition. Elev. = 1328.33 NAVD83

Railroad Spike in Power Pole, 38.8' N. & 1.0' S. of the first deflection corner south of the NE corner of Lot 1, Block A, Mel Hambelton 2nd Addition. Elev. = 1330.00 NAVD83

State of Kansas) SS We, Baughman Company, P.A., Surveyors in
Sedgwick County) atforesaid county and state do hereby certify that we have surveyed and
platted "MEL HAMBELTON 2ND ADDITION", Wichita, Sedgwick County, Kansas
and that the accompanying plat is a true and correct exhibit of the
property surveyed, described as Beginning at a point on the south
right-of-way line of U.S. Highway 54 as condemned in Case No. A-38302,
said point being 794.5 feet west of the east line of the Northwest Quarter
of Section 31, Township 27 South, Range 1 West of the Sixth Principal
Meridian, Sedgwick County, Kansas; thence south parallel to the east line
of said Northwest Quarter, 300 feet; thence west parallel to the south
right-of-way line of said Highway, 526.5 feet; thence north parallel to the
east line of said Northwest Quarter, 300 feet to the south right-of-way
line of said Highway, 526.5 feet; thence east, 526.5 feet to the point of beginning,
except that part taken for Highway in Condemnation Case No. 01C1340,
TOGETHER with that part of said Northwest Quarter described as follows:
Beginning at a point on the south right-of-way line of U.S. Highway 54
as condemned in Case No. A-38302, said point being 208 feet west of
the east line of the Northwest Quarter of Section 31, Township 27 South,
Range 1 West of the Sixth Principal Meridian, Sedgwick County, Kansas;
thence south parallel to the east line of said Northwest Quarter, 300 feet;
thence west parallel to said south right-of-way line of said Highway,
526.5 feet; thence north, 300 feet to said south right-of-way line;
thence east, 526.5 feet to the point of beginning, except the east 100
feet thereof, and except that part taken for Highway in Case No. 01C1089,
and TOGETHER with Lot 1, Block A, Blas Park, Sedgwick County, Kansas,
except that part taken for Highway as commencing at a point
on the south right-of-way line of U.S. Highway 54 as condemned in Case
No. A-38302, said point being 794.5 feet west of the east line of the
Northwest Quarter of Section 31, Township 27 South, Range 1 West of the
Sixth Principal Meridian, Sedgwick County, Kansas; thence south parallel
with the east line of said Northwest Quarter, a distance of 50 feet to the
point of beginning; thence south parallel with the east line of said
Northwest Quarter, a distance of 65 feet; thence east parallel with the
south right-of-way line of said Highway, a distance of 60 feet; thence
north parallel with the east line of said Northwest Quarter, a distance of
65 feet to a point on the south right-of-way line of said Highway, a distance
of 60 feet to the point of beginning.

Existing public easements and dedications
being vacated by virtue of K.S.A. 12-512(b).

Baughman Company, P.A.

Michael G. Conroy, Surveyor

Know all men by these presents that we, the undersigned, have caused the land in the surveyors certificate to be platted into Lots, Blocks, and Streets, to be known as "ADDITION", Wichita, Sedgwick County, Kansas. The utility easements are hereby granted as indicated for the construction and maintenance of all public utilities. The drainage and utility easements are hereby granted as indicated for drainage purposes and for the construction and maintenance of all public utilities. The drainage easements are hereby granted as indicated for drainage purposes. The streets are hereby dedicated to and for the use of the public. Reserve "A" is hereby reserved for open space, lakes, barns, landscaping, drainage purposes, and utilities as confined to easements. Reserves "B" and "C" are hereby reserved for open space, landscaping, private drives, public access purposes including drainage maintenance equipment, drainage purposes, and utilities as confined to easements. Private drives and public access purposes shall be restricted to the east 20.00 feet of said Reserve "B" provided, however, that one public access crossing shall be allowed over the west 30.00 feet of said Reserve "B". Drainage structures shall be allowed within said Reserves "A" and "B" provided, however, that no drainage structure within said Reserve "A" or within the east 20.00 feet of said Reserve "B" shall restrict or deny any access purposes. Any open drainage channels in said Reserve "B" shall be restricted to the west 30.00 feet of said Reserve "B". Access controls shall be as depicted on the face of the plat, and are hereby granted to the City of Wichita, Kansas. Reserves "A", "B" and "C" shall be owned by the owner of Lot 1, Block A. Reserves "A" and "C" shall be maintained by the owner of Lot 1, Block A. Reserve "B" shall be maintained by the owner of Lot 1, Block A, and the City of Wichita, Kansas. The permitted opening locations shall be as determined by the City Engineer of the City of Wichita, Kansas. The Minimum Building Pad Elevations for the lowest opening to the structures shall be as indicated on the face of the plat.

Out of the Box Investments, LLC
Lisa A. Hamblton, Member

State of Kansas) SS The foregoing instrument acknowledged before
Sedgwick County) me, this _____ day of _____, 2012, by Lisa A. Hamblton, Member
of Out of the Box Investments, LLC, on behalf of the limited liability
company.

Notary Public

My App't. Exp. _____

This plat of "MEL HAMBELTON 2ND ADDITION",
Wichita, Sedgwick County, Kansas has been submitted to and approved by
the Wichita-Sedgwick County Metropolitan Area Planning Commission,
Wichita, Kansas.
Dated this _____ day of _____, 2012.
Wichita-Sedgwick County Metropolitan Area Planning Commission

Shawn Farney, Chair
John L. Schlegel, Secretary

This plot approved and all dedications
shown hereon accepted by the City Council of the City of Wichita,
Kansas, this _____ day of _____, 2012.
Carl Brewer, Mayor
Karen Sublett, City Clerk

Reviewed in accordance with K.S.A. 58-2005
on this _____ day of _____, 2012.

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

Entered on transfer record this _____ day
of _____, 2012.
Kelly B. Arnold, County Clerk

State of Kansas) SS This is to certify that this plat has been
Sedgwick County) filed for record in the office of the Register of Deeds, this _____ day
of _____, 2012 at _____ o'clock _____ M., and is duly recorded.
Bill Meek, Register of Deeds
Tonya Buckingham, Deputy

We the undersigned holders of a mortgage on the
above described property do hereby consent to this plat of "MEL
HAMBELTON 2ND ADDITION", Wichita, Sedgwick County, Kansas.
Fidelity Bank

State of Kansas) SS The foregoing instrument acknowledged before
Sedgwick County) me, this _____ day of _____, 2012, by _____
of Fidelity Bank, on behalf of the bank.

Notary Public

My App't. Exp. _____

NOTE:
A drainage plan has been developed for this subdivision and is on file with the City of Wichita, Kansas. Drainage ditches shall remain as depicted or as modified with the approval of the City Engineer of the City of Wichita, Kansas. No obstructions which impede the flow of this drainage plan shall be allowed.

MEL HAMBELTON 2ND ADDITION
12 MARCH 2012
Baughman Company, P.A.
315 Ellis St., Wichita, KS 67211 F 316-262-7271 F 316-262-0149
Baughman ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

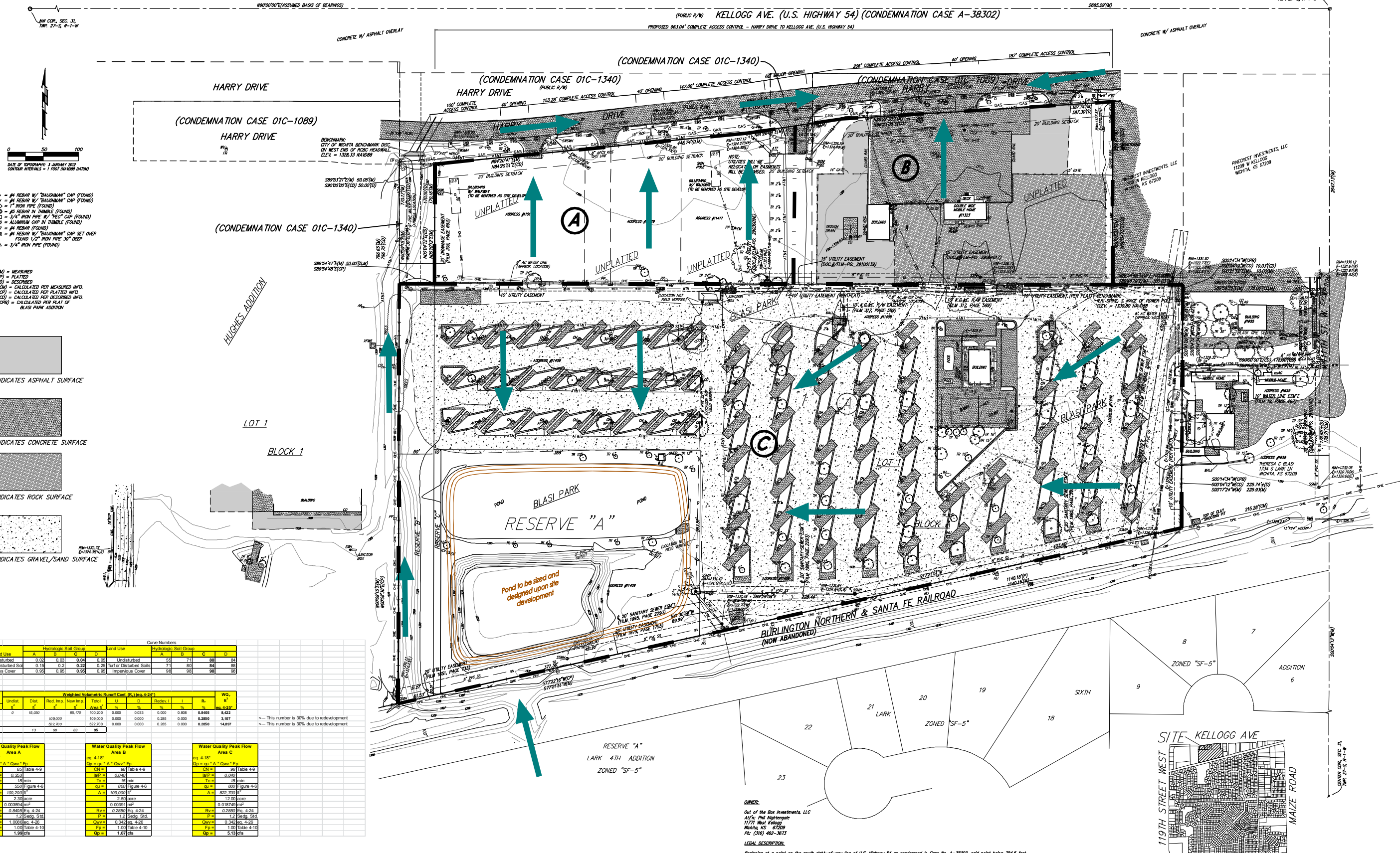
DRAINAGE PLAN

MEL HAMBELTON 2ND ADDITION

WICHITA, SEDGWICK COUNTY, KANSAS

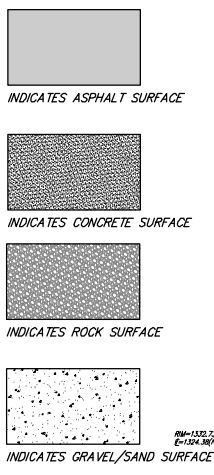
(PUBLIC R/W) KELLOGG AVE. (U.S. HIGHWAY 54) (CONDEMNATION CASE A-38302)

M1/4 COR. SEC. 31, TWP. 27-S, R-1-W



- = #4 REBAR W/ "BAUGHMAN" CAP (FOUND)
- = #4 REBAR W/ "BAUGHMAN" CAP (FOUND)
- = 1" IRON PIPE (FOUND)
- = #5 REBAR IN TRIMBLE (FOUND)
- = 3/4" IRON PIPE W/ "TEC" CAP (FOUND)
- = ALUMINUM CAP IN TRIMBLE (FOUND)
- ⊖ = #4 REBAR (FOUND)
- ⊖ = #4 REBAR W/ "BAUGHMAN" CAP SET OVER FOUND 1/2" IRON PIPE 30" DEEP
- △ = 3/4" IRON PIPE (FOUND)

- (M) = MEASURED
- (P) = PLATTED
- (D) = DESCRIBED
- (C) = CALCULATED PER MEASURED INFO.
- (CP) = CALCULATED PER PLATTED INFO.
- (CD) = CALCULATED PER DESCRIBED INFO.
- (CR) = CALCULATED PER PLAT OF BLASI PARK ADDITION



Land Use	Hydrologic Soil Group				Impervious Cover	Curve Numbers			
	A	B	C	D		A	B	C	D
Undisturbed	0.02	0.03	0.04	0.05	Undisturbed	55	71	80	84
Turf or Disturbed Soil	0.15	0.22	0.25	0.28	Turf or Disturbed Soils	71	80	84	88
Impervious Cover	0.95	0.95	0.95	0.95	Impervious Cover	99	99	99	99

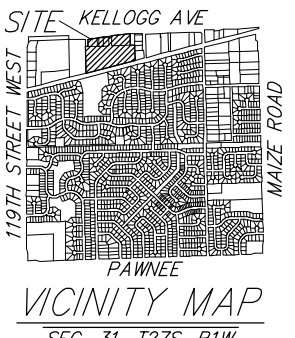
Basin	Unst. A	Dist. B	Reed Imp. C	New Imp. D	Weighted Volumetric Runoff Coef. (Eq. 4-24)				WQ ₂ R ²
					A	B	C	D	
A	0	16,000	0	0	0.033	0.050	0.068	0.8495	4.421
B	0	159,000	159,000	0.000	0.285	0.000	0.285	0.2859	3.197
C	0	522,700	522,700	0.000	0.285	0.000	0.285	0.2859	14.897
CH	13	0	0	0					

Water Quality Peak Flow Area A				Water Quality Peak Flow Area B				Water Quality Peak Flow Area C			
Eq. 4-18	Eq. 4-18	Eq. 4-18	Eq. 4-18	Eq. 4-18	Eq. 4-18	Eq. 4-18	Eq. 4-18	Eq. 4-18	Eq. 4-18	Eq. 4-18	Eq. 4-18
Qp = 0.01 A ^{0.77} C ^{0.77}	Qp = 0.01 A ^{0.77} C ^{0.77}	Qp = 0.01 A ^{0.77} C ^{0.77}	Qp = 0.01 A ^{0.77} C ^{0.77}	Qp = 0.01 A ^{0.77} C ^{0.77}	Qp = 0.01 A ^{0.77} C ^{0.77}	Qp = 0.01 A ^{0.77} C ^{0.77}	Qp = 0.01 A ^{0.77} C ^{0.77}	Qp = 0.01 A ^{0.77} C ^{0.77}	Qp = 0.01 A ^{0.77} C ^{0.77}	Qp = 0.01 A ^{0.77} C ^{0.77}	Qp = 0.01 A ^{0.77} C ^{0.77}
Qp = 0.01 A ^{0.77} C ^{0.77}	Qp = 0.01 A ^{0.77} C ^{0.77}	Qp = 0.01 A ^{0.77} C ^{0.77}	Qp = 0.01 A ^{0.77} C ^{0.77}	Qp = 0.01 A ^{0.77} C ^{0.77}	Qp = 0.01 A ^{0.77} C ^{0.77}	Qp = 0.01 A ^{0.77} C ^{0.77}	Qp = 0.01 A ^{0.77} C ^{0.77}	Qp = 0.01 A ^{0.77} C ^{0.77}	Qp = 0.01 A ^{0.77} C ^{0.77}	Qp = 0.01 A ^{0.77} C ^{0.77}	Qp = 0.01 A ^{0.77} C ^{0.77}

NOTES: No FEMA SFHA exists on this property as of this date per FEMA FRM Panel 336 of 700 for Sedgwick County, Kansas; effective February 2, 2007.

Detention areas and values to be determined based on site specific development plans. Water quality will be provided on the site per the above table for any re-development or disturbance of 1 acre of land. These values are subject to change based on site specific plans.

Basin A Currently Undeveloped Area = 2.3 acres	Basin B Currently Developed Area = 2.5 acres	Basin C Currently Developed Area = 12 acres
C' = 0.68	C' = 0.89	C' = 0.89
Tc = 15 min	Tc = 15 min	Tc = 15 min
Q2 = 6.0 cfs	Q2 = 8.5 cfs	Q2 = 41 cfs
Q5 = 7.1 cfs	Q5 = 10 cfs	Q5 = 49 cfs
Q10 = 8.2 cfs	Q10 = 12 cfs	Q10 = 56 cfs
Q100 = 12 cfs	Q100 = 16 cfs	Q100 = 79 cfs



DRAINAGE PLAN MEL HAMBELTON 2ND ADDITION

Baughman Company, P.A.
 315 Elm St. Wichita, KS 67201 | P: 316.262.7271 | F: 316.262.0189
 Sedgwick County, Kansas | Planning & Landmarks Architecture

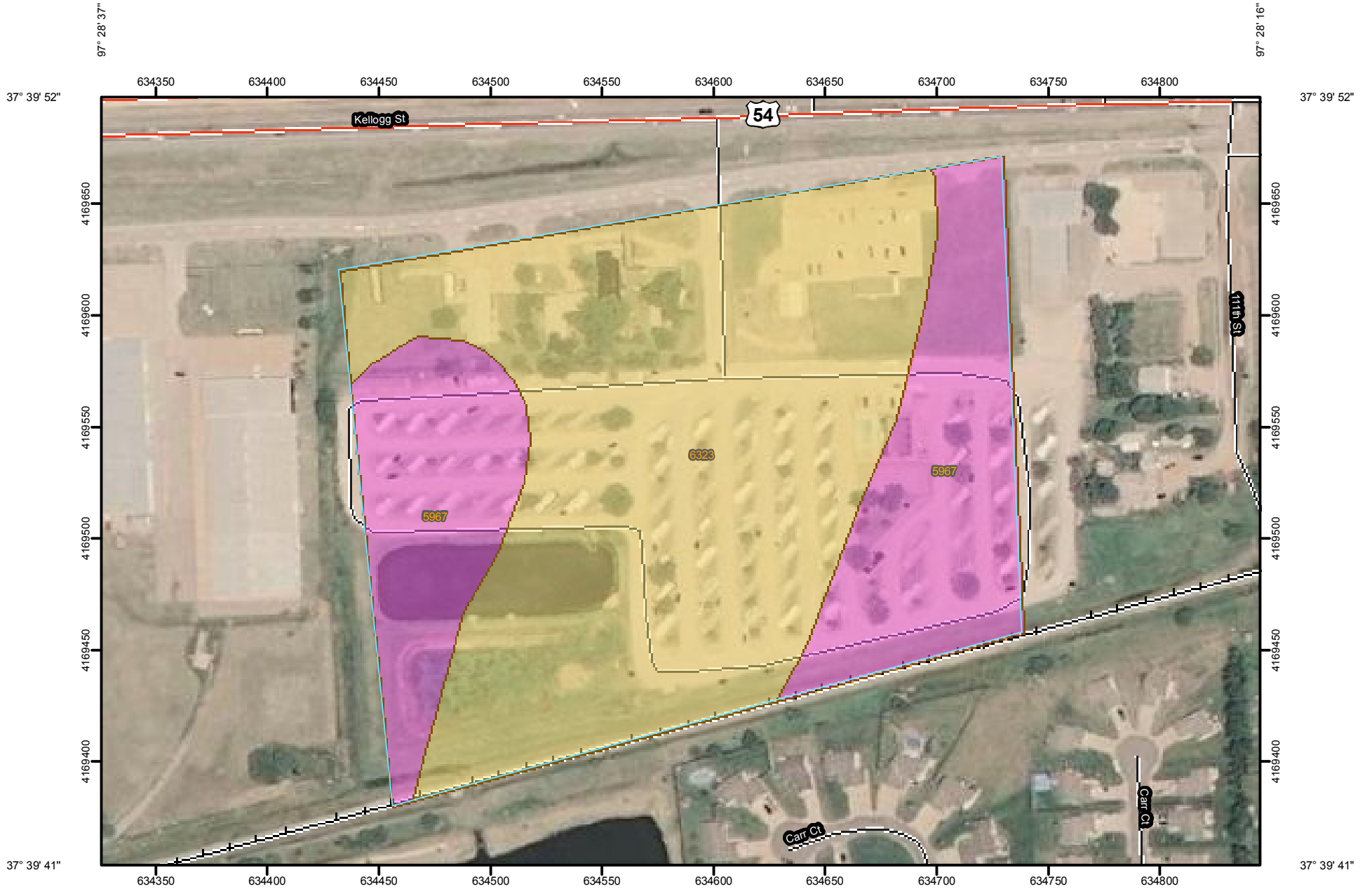
SUPPORTING CALCULATIONS

APPENDIX A: USGS Soils Survey

APPENDIX B : Water Quality Calculations

USGS Soils Survey

Hydrologic Soil Group—Sedgwick County, Kansas
(Mel Hamblton 2nd)



97° 28' 37"




Map Scale: 1:2,460 if printed on A size (8.5" x 11") sheet.



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Units

Soil Ratings

 A

 A/D


 B

 B/D

 C

 C/D


 D

 Not rated or not available

Political Features

 Cities

Water Features

 Streams and Canals


Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

MAP INFORMATION

Map Scale: 1:2,460 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: UTM Zone 14N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Sedgwick County, Kansas
Survey Area Data: Version 7, Nov 30, 2010

Date(s) aerial images were photographed: 6/30/2006

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Sedgwick County, Kansas (KS173)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
5967	Tabler silty clay loam, 0 to 1 percent slopes	D	5.6	34.2%
6323	Blanket silt loam, 1 to 3 percent slopes	C	10.8	65.8%
Totals for Area of Interest			16.5	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie.

The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

Water Quality Calculations

Table 4-13 Volumetric Runoff Coefficients by Land Use and Hydrologic Soil Group

Land Use	Hydrologic Soil Group				Land Use	Hydrologic Soil Group			
	A	B	C	D		A	B	C	D
Undisturbed	0.02	0.03	0.04	0.05	Undisturbed	55	71	80	84
Turf or Disturbed Soil	0.15	0.2	0.22	0.25	Turf or Disturbed Soils	71	80	84	88
Impervious Cover	0.95	0.95	0.95	0.95	Impervious Cover	98	98	98	98

Curve Numbers

Basin #	Weighted Volumetric Runoff Coef. (R _v) (eq. 4-24*)									WQ _v ft ³ eq. 4-25*	
	Undist. ft ²	Dist. ft ²	Red. Imp. ft ²	New Imp. ft ²	Total Area ft ²	U %	D %	Redev. I %	I %		R _v %
A	0	15,030		85,170	100,200	0.000	0.033	0.000	0.808	0.8405	8,422
B			109,000		109,000	0.000	0.000	0.285	0.000	0.2850	3,107
C			522,700		522,700	0.000	0.000	0.285	0.000	0.2850	14,897
CN	13	98	83	95							

<--- This number is 30% due to redeveloper
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Water Quality Peak Flow Area A	
eq. 4-18* Qp = qu * A * Qwv * Fp	
CN =	85 Table 4-9
la/P =	0.353
Tc =	15 min
qu =	550 Figure 4-6
A =	100,200 ft ²
	2.30 acre
	0.003594 mi ²
Rv =	0.8405 Eq. 4-24
P =	1.2 Sedg. Std.
Qwv =	1.0086 eq. 4-26
Fp =	1.00 Table 4-10
Qp =	1.99 cfs

Water Quality Peak Flow Area B	
eq. 4-18* Qp = qu * A * Qwv * Fp	
CN =	98 Table 4-9
la/P =	0.040
Tc =	15 min
qu =	800 Figure 4-6
A =	109,000 ft ²
	2.50 acre
	0.00391 mi ²
Rv =	0.2850 Eq. 4-24
P =	1.2 Sedg. Std.
Qwv =	0.342 eq. 4-26
Fp =	1.00 Table 4-10
Qp =	1.07 cfs

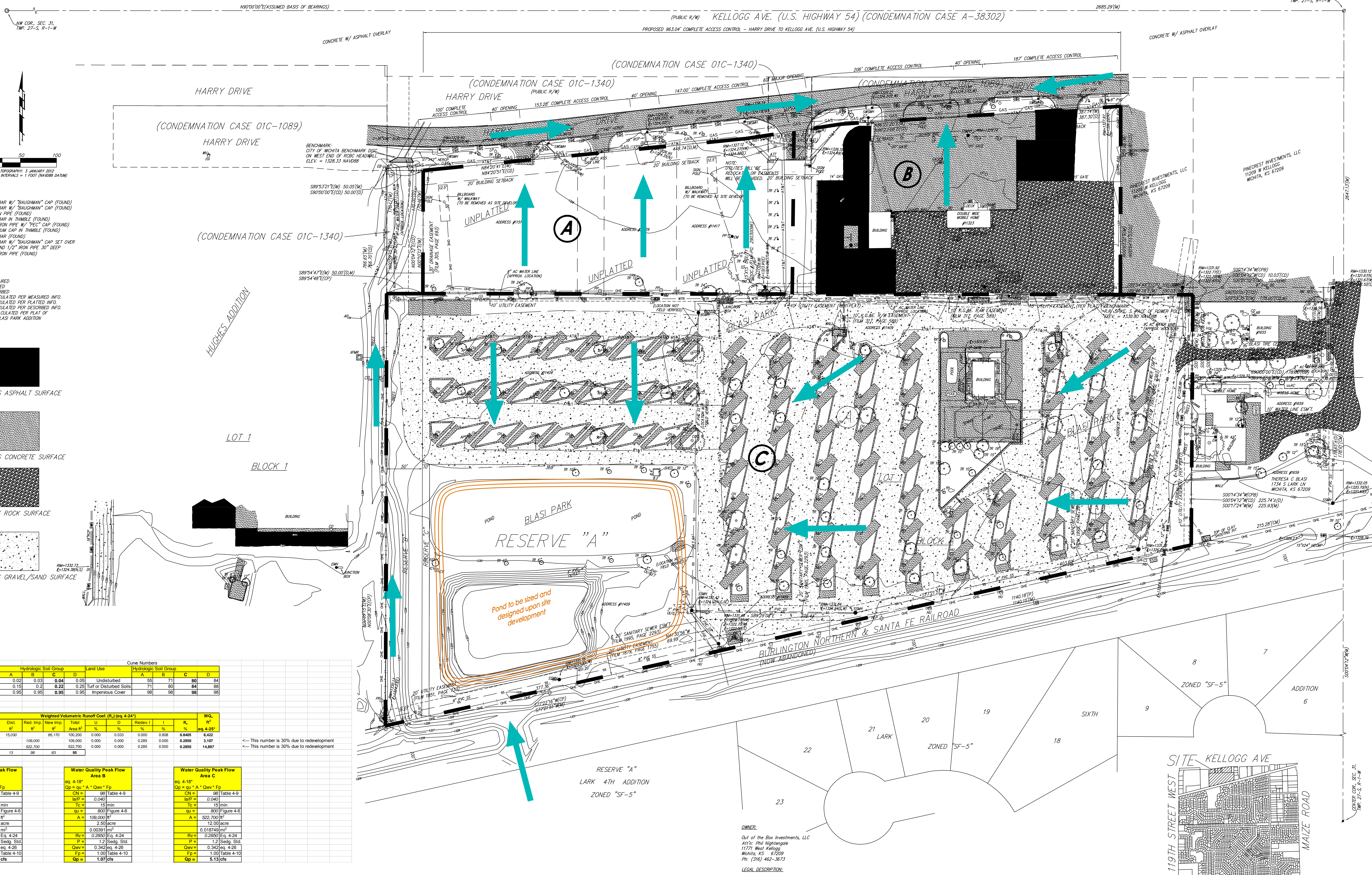
Water Quality Peak Flow Area C	
eq. 4-18* Qp = qu * A * Qwv * Fp	
CN =	98 Table 4-9
la/P =	0.040
Tc =	15 min
qu =	800 Figure 4-6
A =	522,700 ft ²
	12.00 acre
	0.018749 mi ²
Rv =	0.2850 Eq. 4-24
P =	1.2 Sedg. Std.
Qwv =	0.342 eq. 4-26
Fp =	1.00 Table 4-10
Qp =	5.13 cfs

Drainage Plan
1:100 Scale

DRAINAGE PLAN

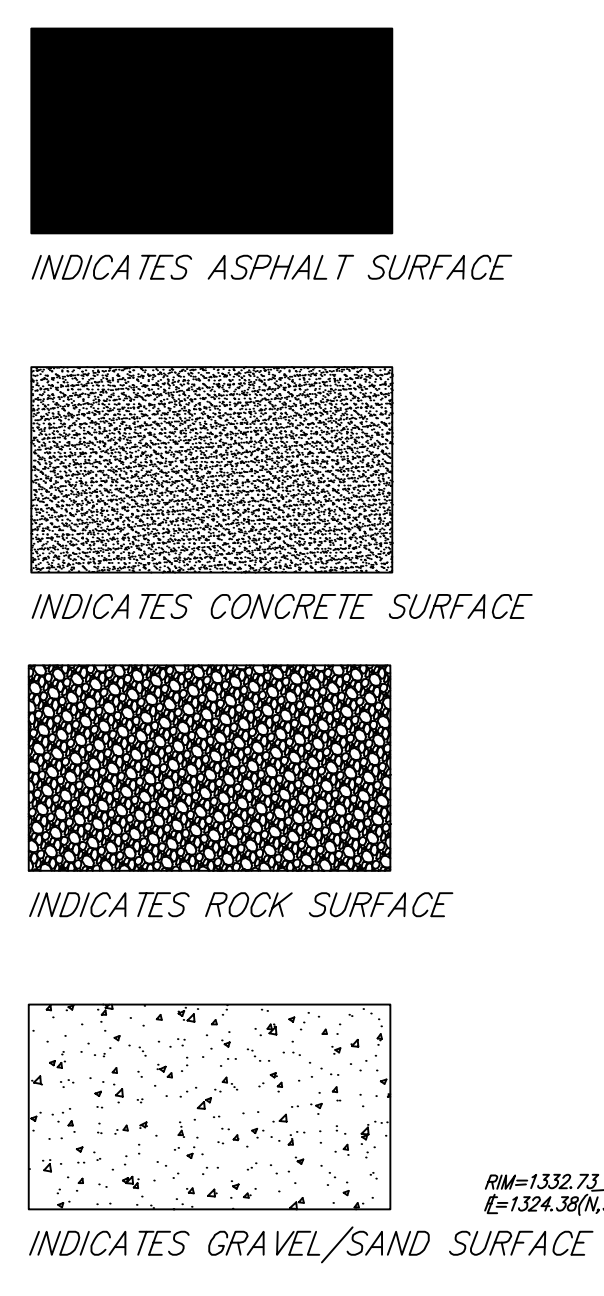
MEL HAMBELTON 2ND ADDITION

WICHITA, SEDGWICK COUNTY, KANSAS



- = #4 REBAR W/ "BAUGHMAN" CAP (FOUND)
- = #4 REBAR W/ "BAUGHMAN" CAP (FOUND)
- = #1 IRON PIPE (FOUND)
- = #5 REBAR IN TRIMBLE (FOUND)
- = 3/4" IRON PIPE W/ "PEC" CAP (FOUND)
- = ALUMINUM CAP IN TRIMBLE (FOUND)
- ▽ = #4 REBAR (FOUND)
- ▽ = #4 REBAR W/ "BAUGHMAN" CAP SET OVER FOUND 1/2" IRON PIPE 30" DEEP
- △ = 3/4" IRON PIPE (FOUND)

(M) = MEASURED
 (P) = PLATTED
 (D) = DESCRIBED
 (CM) = CALCULATED PER MEASURED INFO.
 (CP) = CALCULATED PER PLATTED INFO.
 (CD) = CALCULATED PER DESCRIBED INFO.
 (CPR) = CALCULATED PER PLAT OF BLASI PARK ADDITION



Land Use	Hydrologic Soil Group				Land Use	Hydrologic Soil Group			
	A	B	C	D		A	B	C	D
Undisturbed	0.02	0.03	0.04	0.05	Undisturbed	56	71	80	84
Turf or Disturbed Soil	0.15	0.2	0.22	0.25	Turf or Disturbed Soils	71	80	84	88
Impervious Cover	0.95	0.95	0.95	0.95	Impervious Cover	98	98	98	98

Basin #	Undist. Area #	Dist. Area #	Red. Imp. Area #	New Imp. Area #	Totol Area #	U		R _v		WQ, #
						%	%	%	%	
A	0	15,030	109,000	100,200	0.000	0.030	0.000	0.806	0.8405	8,422
B					0.000	0.000	0.285	0.000	0.2850	3,197
C					0.000	0.000	0.285	0.000	0.2850	14,897
GN	13	98	83	95						

Water Quality Peak Flow Area A				Water Quality Peak Flow Area B				Water Quality Peak Flow Area C			
Req. 4-18'	Op = qu * A * Qwv * Fp	Req. 4-18'	Op = qu * A * Qwv * Fp	Req. 4-18'	Op = qu * A * Qwv * Fp	Req. 4-18'	Op = qu * A * Qwv * Fp				
CH = 85 Table 4-9		CH = 85 Table 4-9		CH = 85 Table 4-9		CH = 85 Table 4-9					
WQ = 0.263		WQ = 0.040		WQ = 0.040		WQ = 0.040					
Tc = 15 min		Tc = 15 min		Tc = 15 min		Tc = 15 min					
qu = 500 Figure 4-6		qu = 800 Figure 4-6		qu = 800 Figure 4-6		qu = 800 Figure 4-6					
A = 100,200 ft ²		A = 109,000 ft ²		A = 522,700 ft ²		A = 522,700 ft ²					
Rv = 2.30		Rv = 2.30		Rv = 2.30		Rv = 2.30					
Rv = 0.8405 Eq. 4-24		Rv = 0.2850 Eq. 4-24		Rv = 0.2850 Eq. 4-24		Rv = 0.2850 Eq. 4-24					
Fp = 1.2 Sedg. Std.		Fp = 1.2 Sedg. Std.		Fp = 1.2 Sedg. Std.		Fp = 1.2 Sedg. Std.					
Qwv = 1.0088 Eq. 4-28		Qwv = 0.342 Eq. 4-28		Qwv = 0.342 Eq. 4-28		Qwv = 0.342 Eq. 4-28					
Fp = 1.00 Table 4-10		Fp = 1.00 Table 4-10		Fp = 1.00 Table 4-10		Fp = 1.00 Table 4-10					
Op = 1.99 cfs		Op = 1.07 cfs		Op = 5.13 cfs		Op = 5.13 cfs					

NOTES: No FEMA SFHA exists on this property as of this date per FEMA FIRM Panel 340 of 700 for Sedgwick County, Kansas; effective February 2, 2007.

Detention areas and values to be determined based on site specific development plans. Water quality will be provided on the site per the above table for any re-development or disturbance of 1 acre or land. These values are subject to change based on site specific plans.

Basin A Currently Undeveloped Area = 2.3 acres 'c' = 0.68 Tc = 15 min Q2 = 6.0 cfs Q5 = 7.1 cfs Q10 = 8.2 cfs Q100 = 12 cfs	Basin B Currently Developed Area = 2.5 acres 'c' = 0.89 Tc = 15 min Q2 = 8.5 cfs Q5 = 10 cfs Q10 = 12 cfs Q100 = 16 cfs	Basin C Currently Developed Area = 12 acres 'c' = 0.89 Tc = 15 min Q2 = 41 cfs Q5 = 49 cfs Q10 = 56 cfs Q100 = 79 cfs
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OWNER:
 Out of the Box Investments, LLC
 ATTN: Phil Nightingale
 11771 West Kellogg
 Wichita, KS 67209
 Ph: (316) 462-3673

LEGAL DESCRIPTION:
 Beginning at a point on the south right-of-way line of U.S. Highway 54 as condemned in Case No. A-38302, said point being 794.5 feet west of the east line of the Northwest Quarter of Section 31, Township 27 South, Range 1 West of the Sixth Principal Meridian, Sedgwick County, Kansas; thence south parallel to the east line of said Northwest Quarter, 300 feet; thence west parallel to the south right-of-way line of said Highway, 526.5 feet; thence north parallel to the east line of said Northwest Quarter, 300 feet to the south right-of-way line of said Highway, thence east, 526.5 feet to the point of beginning, except that part taken for Highway in Case No. 01C1340, TOGETHER with that part of said Northwest Quarter described as follows: Beginning at a point on the south right-of-way line of U.S. Highway 54 as condemned in Case No. A-38302, said point being 208 feet west of the east line of the Northwest Quarter of Section 31, Township 27 South, Range 1 West of the Sixth Principal Meridian, Sedgwick County, Kansas; thence south parallel to the east line of said Northwest Quarter, 300 feet; thence west parallel to the south right-of-way line of said Highway, 526.5 feet; thence north, 300 feet to said south right-of-way line; thence east, 526.5 feet to the point of beginning, except the east 100 feet thereof, and except that part taken for Highway in Case No. 01C1089, and TOGETHER with Lot 1, Block A, Blasi Park, Sedgwick County, Kansas, except that part taken for highway described as commencing at a point on the south right-of-way line of U.S. Highway 54 as condemned in Case No. A-38302, said point being 794.5 feet west of the east line of the Northwest Quarter of Section 31, Township 27 South, Range 1 West of the Sixth Principal Meridian, Sedgwick County, Kansas; thence south parallel with the east line of said Northwest Quarter, a distance of 50 feet to the point of beginning; thence south parallel with the east line of said Northwest Quarter, a distance of 65 feet; thence east parallel with the south right-of-way line of said Highway, a distance of 60 feet; thence north parallel with the east line of said Northwest Quarter, a distance of 65 feet to a point on the south right-of-way line of said Highway, thence west along the south right-of-way line of said Highway, a distance of 60 feet to the point of beginning.

BENCHMARK:
 City of Wichita Benchmark Disc on West End of Ridge Road, 17.7' N. & 35.9' W. of the NW corner of Lot 1, Block A, Mel Hamblton 2nd Addition, Elev. = 1328.33 NAVD88

RAILROAD SPIKE IN POWER POLE:
 38.6' N. & 1.0' S. of the West collection corner south of the NE corner of Lot 1, Block A, Mel Hamblton 2nd Addition, Elev. = 1330.00 NAVD88

VICINITY MAP
 SEC. 31, T27S, R1W

DRAINAGE PLAN
MEL HAMBELTON 2ND ADDITION
 03/15/2012

Baughman Baughman Company, P.A.
 315 Ellis St. Wichita, KS 67211 P: 316.262.7271 F: 316.262.0149
 ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE