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#

ENGINEERING SUCCESS

PRELIMINARY DRAINAGE REPORT FOR

Campbell's Pond Addition
Wichita, Kansas
Subheading goes here

MKEC

411 N. Webb Rd.
Wichita, KS 67206
316.684.9600

PROJECT NUMBER: 1301010720
DATE: December 2013

City of Wichita/Sedgwick County
Subdivision Drainage Plan Checklist

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

Project Name:	Campbell's Pond Addition				
Total Area of Project:	1.8 **acres**				
Development Type:	Mixed	**Other:**	Commercial/Residential		
Developer Name:	Charles M. and Marilyn E. Campbell	**Contact:**		**Phone:**	(316) 267-5953
Email:					
Engineer Name:	MKEC Engineering Consultants, Inc.	**Contact:**	Kara Anderson	**Phone:**	(316) 684-9600
Email:	kanderson@mkec.com				

Directions:

(1) Fill-out this checklist completely and include it with the Drainage Plan submittal. This checklist should be included in the bound copy, behind the cover sheet for the submittal. Incomplete Drainage Plans and checklists will not be accepted.

*(2) Indicate whether a plan element is included or not included in the submittal by choosing "**Yes**" or "**No**" from the dropdown list in the **"Element Included?"** column. The question must be answered for every plan element for this checklist to be considered complete. An explanation must be provided for all **"No"** answers.*

Drainage Plan Checklist

#	Plan Element Description	Element Included?	Explanation/Notes
1.0	**General**		
1.1	Digital copy of drainage plan, including preliminary Master Grading Plan, preliminary plat and proposed plat, in PDF format and one half size, bound, paper copy.	yes	
1.2	Professional Engineer's seal, signature and date on plan cover.	yes	
1.3	Site location map, using color ortho-imagery and showing the project boundaries, a north arrow and an accurate scale.	yes	
1.4	Narrative of the development type, existing conditions and proposed impacts on stormwater runoff, wetlands, riparian zones and floodplains/floodways.	yes	
1.5	Discussion of off-site conditions surrounding the proposed development.	yes	
1.6	Summary table of runoff calculations (pre/post development).	no	n/a
1.7	Narrative description of the type and function of the permanent structural stormwater management facilities.	yes	
2.0	**Existing Conditions Information**		
2.1	**Existing Conditions Drainage Map**		
2.1.1	On-site and off-site topography: NAVD 88 datum, one-foot contours with spot elevations	yes	
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.	yes	
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.	yes	
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.	yes	
2.1.5	Location, dimensions and elevations of existing bridges and culvert crossings.	yes	
2.1.6	Location of existing utilities (e.g., water, sewer, gas, electric, cable, etc.) with labels and easement boundaries.	yes	
2.1.7	Groundwater elevations, if applicable.	yes	
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.	yes	
2.1.9	Land use types per NRCS nomenclature.	yes	
2.1.10	Footprint of existing impervious areas (labeled, area given in acres).	yes	
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).	yes	
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.).	yes	
2.2	**Existing Conditions Hydrology and Hydraulics Analysis**		

Drainage Plan Checklist			
#	Plan Element Description	Element Included?	Explanation/Notes
2.2.1	Narrative of the hydrologic analysis methodology used (e.g., unit hydrograph or other approved methods).	yes	
2.2.2	A summary table of drainage subbasin hydrologic parameters (subbasin ID, area in acres, curve number, Tc, etc.).	yes	
2.2.3	Table of existing condition runoff curve numbers with supporting data and calculations.	yes	
2.2.4	Table of existing condition times of concentration with supporting data and calculations.	yes	
2.2.5	A summary table of rainfall data used in the hydrologic analysis, and a reference for the source of the data.	yes	
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.	N/A	
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.	yes	
3.0	**postdevelopment Conditions Information**		
3.1	**postdevelopment Conditions Drainage Map**		
3.1.1	Proposed project boundary.	yes	
3.1.2	on-site and off-site topography: NAVD 88 datum, one-foot contours with spot elevations.	yes	
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.	yes	
3.1.4	Location and description of off-site through-drainage conveyances which are confined to an easement, dedication and/or reserve.	yes	
3.1.5	Footprint of proposed impervious areas, including roads, parking lots, buildings and other structures.	yes	
3.1.6	Location of proposed utilities (e.g., water, sewer, gas, electric, cable, etc.) with labels and easement boundaries.	yes	
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.	yes	
3.1.8	Land use cover per NRCS nomenclature.	yes	
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).	yes	
3.1.10	Proposed limits of land disturbing activity (i.e., grading limits).	yes	
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.).	yes	
3.2	**Proposed Conveyances Map**		
3.2.1	on-site and off-site drainage features, including perennial and intermittent streams (with names labeled), proposed conveyance systems (such as open channels, ditches, swales and areas of overland flow, including backyard drainage). Flow direction must be indicated by arrows.	yes	
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.	yes	
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.	yes	
3.2.4	Location(s) of stormwater management facilities and any associated drainage easements.	yes	
3.2.5	Proposed energy dissipaters and other channel protection devices.	yes	
3.2.6	Location(s) and dimension(s) of proposed channel, bridge and culvert crossings.	yes	
3.2.7	Normal pool and 100-year pool elevations for ponds and lakes.	yes	
3.2.8	Permanent concrete outfall control structure(s) for ponds.	yes	
3.2.9	Emergency overflow spillways and top of berm elevations for ponds and other volume/peak discharge control facilities.	yes	
3.2.10	Floodplains, ponds, and stormwater management facilities located in reserves.	yes	
3.3	**postdevelopment Conditions Hydrology & Hydraulics**		
3.3.1	Narrative of the hydrologic analysis methodology used (e.g., unit hydrograph or other approved methods).	yes	

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.).	yes	
3.3.3	Table of postdevelopment condition runoff curve numbers with supporting data and calculations.	yes	
3.3.4	Table of postdevelopment condition times of concentration with supporting data and calculations.	yes	
3.3.5	Cross-sections and other diagrams of existing open channels, bridge and culvert sections and other hydraulic features as	N/A	
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.	yes	
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.	yes	
3.3.8	Stage-storage-discharge or other outlet rating curves and inflow/outflow hydrographs for all ponds.	yes	
3.3.9	Demonstrate that the pond contours on the master grading plan and the stage-storage-discharge data are consistent for all ponds.	yes	
3.3.10	Demonstrate that all ponds have one foot of freeboard above the 100-year, 24-hour high water level.	yes	
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.	yes	
3.4	**Stormwater Quantity Control Sizing**		
3.4.1	Hydraulic sizing calculations for all stormwater management controls.	yes	
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.	yes	
3.4.3	Typical details (including cross-sections where applicable) for outlet structures, embankments, spillways, grade control structures, conveyance channels, etc.	yes	
3.5	**Stormwater Quality Management Facilities**		
3.5.1	Table(s) listing all stormwater management facilities. Present the description, % TSS removal value, water quality volume handled, contributing drainage area in acres and contributing impervious area in acres.	yes	
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.).	yes	
3.5.3	Water quality volume (total and by facility), with supporting data and calculations.	yes	
3.5.4	% TSS removal value (total and by facility) with supporting data and calculation. Must be equal to or greater than 80%.	yes	
3.5.5	Channel protection volume with supporting data and calculations.	yes	
3.5.6	Water quality volume and channel protection volume orifice size calculations.	yes	
3.5.7	Other calculations required for each stormwater management facility as specified in the Wichita/Sedgwick County Stormwater Manual.	yes	
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.	yes	
4.0	**Floodplains**		
4.1	Reference the source of flood profile, floodplain, floodway and stream discharge information.	yes	
4.2	Delineation of nearest base flood elevations.	yes	
4.3	Delineation of predevelopment regulatory floodplain/floodway limits using FEMA's current GIS database; limits to be per elevation and scaled location.	yes	
4.4	Delineation of postdevelopment regulatory floodplain/floodway limits; limits to be per elevation and scaled location, with project limits shown.	N/A	
4.5	Floodway data table and discharges.	N/A	
4.6	Hydrologic and hydraulic study information for local floodplain analysis, unnumbered Zone A elevation determinations and floodplain map revisions or required permits.	N/A	
4.7	Regulatory floodway and four natural profile models (10, 50, 100 and 500-year) for existing and postdevelopment conditions.	N/A	
4.8	Floodplains and floodways located within a reserve, where necessary.	yes	
4.9	Floodplain cut and fill calculations for volume sensitive basins.	N/A	

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").	N/A	
5.0	**Federal, State and Local Permits**		
5.1	US Army Corps of Engineers regulatory program permits (Section 404 permit)	yes	
5.2	Kansas Department of Agriculture - Division of Water Resources Permits (Stream Obstruction, Channel Change, Floodplain Fill, Levee, Water Appropriations, Dam Safety permit, etc.).	yes	
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.	yes	
6.0	**Half Scale Preliminary Master Grading Plan**		
6.1	One set of plans and associated PDF of plans.	yes	
6.2	Professional Engineer's seal, signature and date.	N/A	Will be finalized with future plans.
6.3	Title block including subdivision name and phase and dated revision documentation.	N/A	
6.4	Future phases shown but cross-hatched as information only.	N/A	
6.5	Scale, not greater than 1-inch = 60 feet.	N/A	
6.6	North arrow.	N/A	
6.7	Index or legend key.	N/A	
6.8	Benchmarks (minimum of 2) used for site control (NAVD 88 vertical datum).	N/A	
6.9	Existing contours of entire site with contour interval of one foot.	N/A	
6.10	Proposed contours for channels, ponds, and other permanent stormwater management facilities, with contour interval of one foot.	N/A	
6.11	Spot elevations shown to the nearest tenth of a foot for critical locations, including lot and property boundaries.	N/A	
6.12	Proposed lot and street layout.	N/A	
6.13	Locations of underground storm drains.	N/A	
6.14	Overflow locations for storms exceeding storm drain capacity, with elevations.	N/A	
6.15	Top elevations of storm drains at all inlets, manholes, and flow line elevations for all outfalls.	N/A	
6.16	Locations of open ditches and lakes.	N/A	
6.17	Flow direction arrows.	N/A	
6.18	Proposed flow line elevations of all open ditches at maximum 100 foot intervals, and 100-year flood elevations thereon.	N/A	
6.19	Ponds: Location, bottom elevation, normal pool elevation, 100-year flood elevation, emergency overflow elevation.	N/A	
6.20	Proposed top-of-curb elevations at points where drainage will be required to flow over the curb.	N/A	
6.21	Platted minimum building opening elevation for each lot, in table form for all lots (excluding basement floor elevations).	N/A	
6.22	Standard foundation and elevation detail for slab on grade, full basement, view-out, partial view-out and/or walk-out construction.	N/A	
6.23	Top of foundation elevation for each lot.	N/A	
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.	N/A	
6.25	Indicate that all lots are above the 100-year flood elevation.	N/A	
6.26	Indicate that grading around structures conforms to perimeter drainage requirements.	N/A	
6.27	Indicate that backyard drainage grading conforms to backyard drainage requirements.	N/A	
6.28	Adjacent subdivision lot lines, with lot labels and subdivision names.	N/A	
6.29	Boundaries and labels for all easements, rights-of-way and reserves.	N/A	
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.*"	N/A	
End of Checklist			

Table of Contents

General Information

Location

The subject property is in the City of Wichita, Sedgwick County, Kansas. The site is southeast of the intersection of Topeka Avenue and Galena Street. The site is east of Hydraulic Avenue, south of 31st Street South, west of and north of MacArther Road. The site has an area of approximately 1.8 acres. The site lies in the northwest ¼ of the southwest ¼, Section 9, Township 28 South, Range 1 East. The site is shown on the USGS Quadrangle, Appendix A. The site is also shown on the Aerial Photograph, Appendix B.

Datum

The site is shown in NAVD 88 datum.

Soils

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

- Naron fine sandy loam, 0 to 1 percent slopes, HSG "B"
- Canadian fine sandy loam, rarely flooded

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

Flood Insurance Rate Map (FIRM)

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

According to the FIRM and FIS profile, the 1% annual chance flood elevation adjacent to the site is 1279.5.

Groundwater

According to the Kansas Geological Survey Water Well Completion Records (http://www.kgs.ku.edu/Magellan/WaterWell/index.html) the static water level of existing water wells in the vicinity is approximately 14 feet deep.

Hydrologic Analysis

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

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

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

Existing Development

Description

The site is currently zoned as general commercial and single family residential. There are currently two sheds on the site and an existing pond.

Land Use

There are currently no significant structures or impervious area on site.

Drainage Patterns

A ridge runs from north to south along the center of the property. The east half of the site generally drains to the east to a low point near the existing pond. There is a berm around the pond that prevents runoff from entering the pond. The west half is extremely flat and does not have a defined drainage pattern. Currently, the runoff does not leave the site.

Utilities

Sanitary Sewer

There is no existing sanitary sewer service connection to the site.

Water

An existing water line is located within the street right-of-way along the east side of Topeka Avenue.

Storm Water

An existing stormwater sewer system flows from south to north along the west side of Topeka Avenue.

Other Utilities

There are no other existing utilities onsite.

Proposed Development

Description

The proposed site will develop as 2 lots. Lot 1 will be approximately 1.3 acres and Lot 2 will be 0.3 acres. The remaining area of the plat will be a reserve. The site is shown on the plat, Appendix E.

Land Use

The final land use for the lots has not been determined. The lots may develop as storage units if a feasible sanitary sewer service solution can not be determined. If sanitary a feasible sanitary service option is determined, then the lots may be used for another use. The curve number for calculations was calculated in an excel spreadsheet, Appendix F.

Drainage Patterns

The west 1/3 of the proposed development will drain to the west into a proposed retention facility with a capacity of 0.3 acre-feet for the 100-year design storm. The location and details of the retention facility will be determined at the time of development. The east portion of the proposed site will drain into the existing pond. The pond will be modified to accept runoff from the proposed site and the normal pool will be lowered 4-6 feet to accommodate 0.9 acre-feet of retention for the

100-year design storm. Retention volumes were calculated in Hydraflow Hydrographs, Appendix G. The drainage patterns are shown on the drainage and utility plan, Appendix H.

Downstream Peak Discharge Assessment (10% Rule)

There is no runoff exiting the site in existing or proposed conditions. There is no increase in runoff at downstream properties at the 10% point.

Water Quality

The volume required for water quality is 0.17 acre-feet. The water quality volume for the site is based on 1.8 acres of the site 85% impervious. Water quality volume for this site was calculated using an Excel Spreadsheet, Appendix I. The water quality volume will be provided in retention ponds or a proprietary device before the stormwater sewer leaves the site.

Channel Protection

The site project will not add 5 acres of impervious area; therefore channel protection is not required.

Permits

U.S. Army Corps of Engineers

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

Kansas Department of Agriculture Division of Water Resources

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

The size of the pond on site is below the KDWR requirements; therefore water appropriations permitting will not be required.

FEMA

The proposed project will not modify the Zone AE FEMA floodplain. FEMA applications will not be required.

Kansas Department of Health and Environment

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

Utilities

Sanitary Sewer

At the time of development, the proposed project will develop as a use that does not require a sanitary sewer service connection or an alternative sanitary sewer system will be installed.

Water

The existing water line will serve both proposed lots.

Stormwater Sewer

There is no proposed stormwater sewer on site at this time.

Other Utilities

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

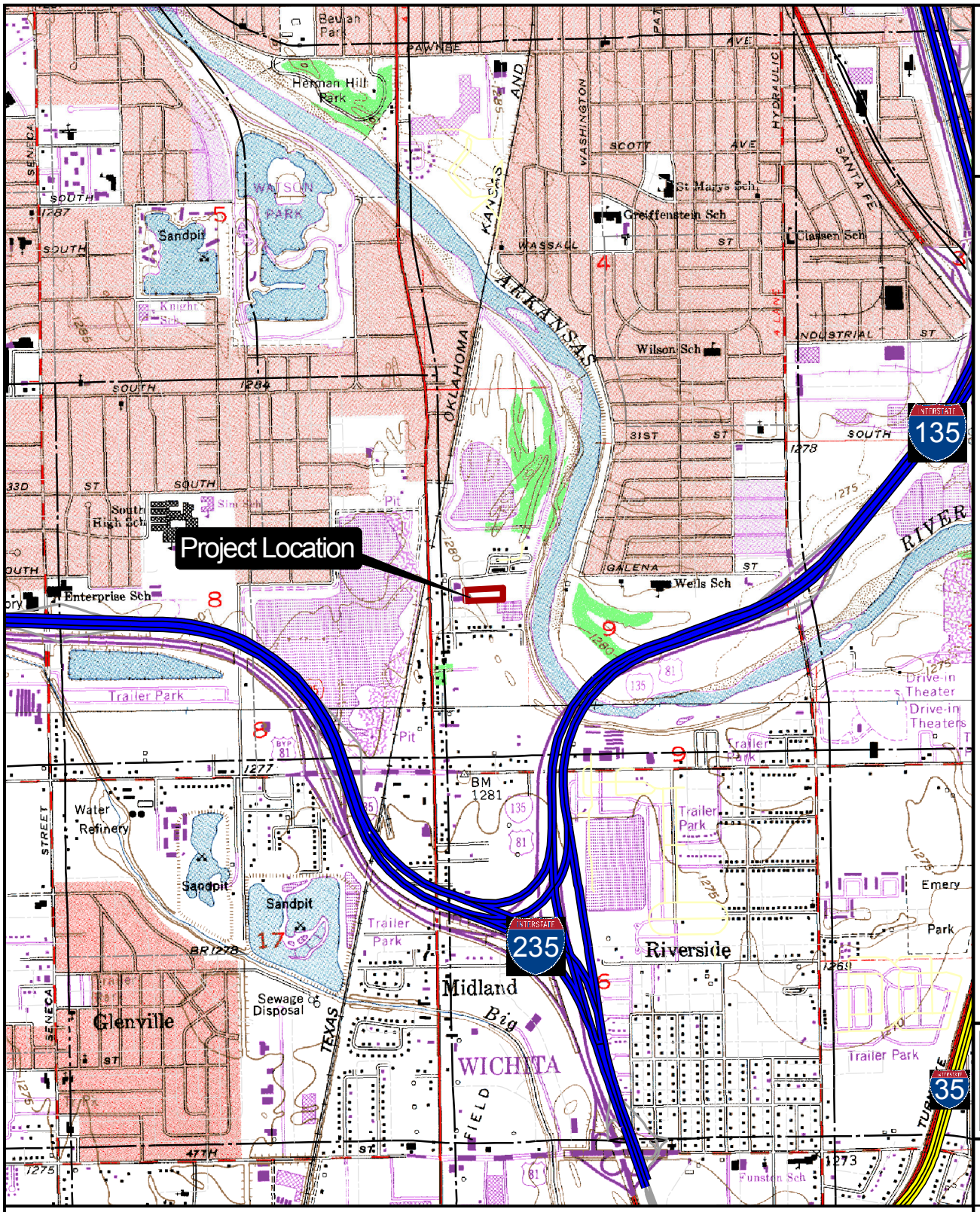
Lot Grading Plan

Lot grading will tie into existing elevations around the perimeter, Appendix J. Final grading will be determined when the proposed use is determined. The lot will match exiting grades and improvements around the perimeter.

Summary

The proposed Campbell's Pond Addition is located near Topeka Avenue and Galena Road. The site will develop as industrial/commercial land use in the future. Due to the existing grading on site, runoff does not exit the site. Proposed retention ponds in the east and west will keep proposed runoff from leaving the site. Final details of the retention systems will be determined at the time of development.

Appendix A - USGS Quadrangle Map



CAMPBELL'S POND ADDITION

USGS QUAD EXHIBIT

MKEC
Wichita, KS · 316.684.9600

SEC: 9
TWP: T28S
RNG: R1E

PROJECT NO.	1301010720
DATE	11/14/2013
SCALE	1"=2000'

DESIGNED	DRAWN	CHECKED
MKEC	MKEC	MKEC

NO.	REVISION	DATE

SHEET NO.
1 OF 1

N
W E
S

1 0.5 0 1 Miles

1,000 500 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 0.5 0 1 Kilometers

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Appendix B - Aerial Photograph

SEC: 9
TWP: T28S
RNG: R1E

0 37.5 75 150
Feet

MKEC
Wichita, KS · 316.684.9600

AERIAL EXHIBIT

CAMPBELL'S POND ADDITION

PROJECT NO. 1301010720	DATE: 11/14/2013	SHEET NO.
DRAWN BY: JGD	DESIGNED BY: JGD	APPROVED BY: KLA	1 OF 1

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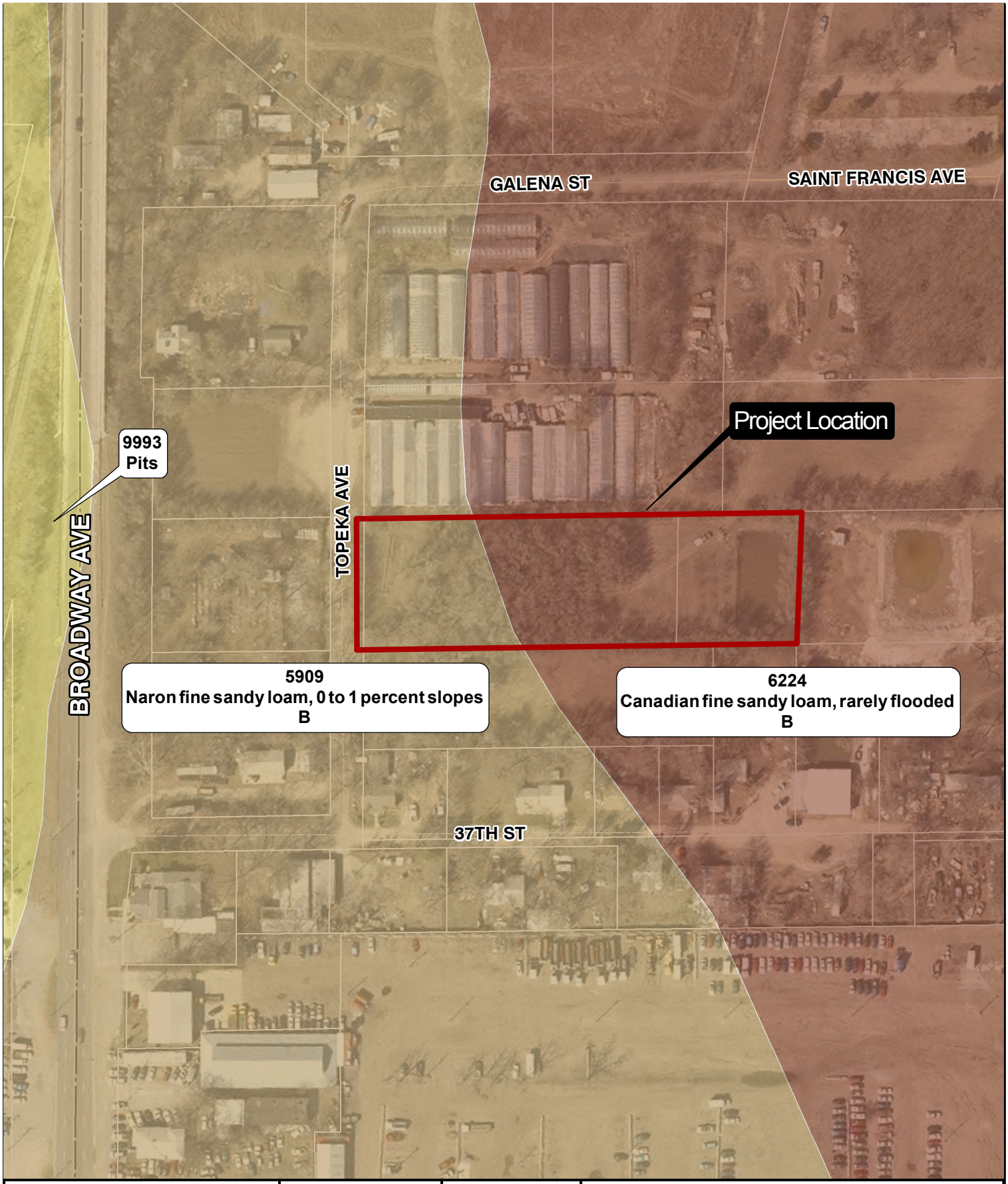
Appendix C - Soil Survey



SEC: 9
TWP: T28S
RNG: R1E

0 37.5 75 150
Feet

MKEC
Wichita, KS • 316.684.9600

NRCS SOIL SURVEY EXHIBIT

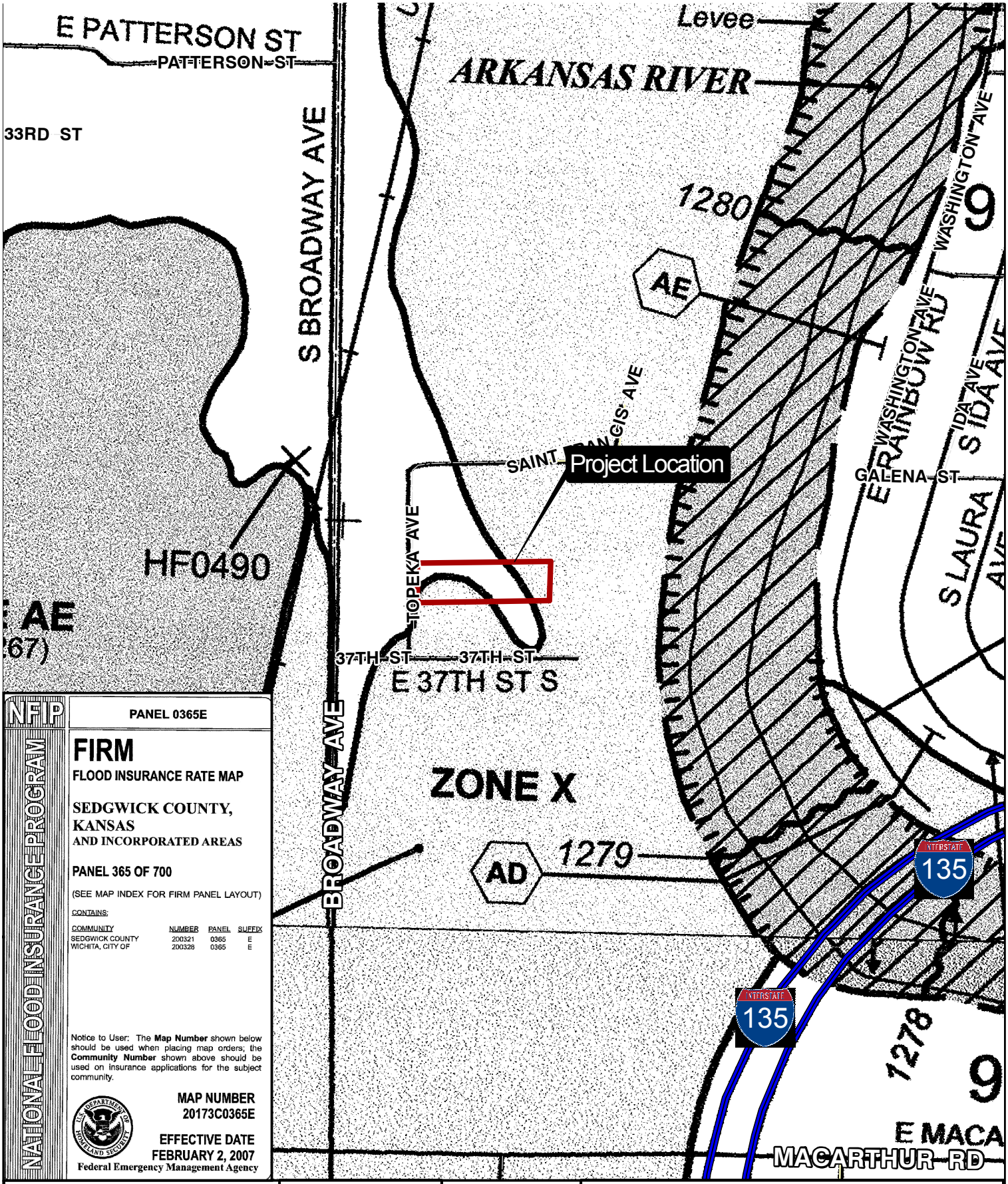
CAMPBELL'S POND ADDITION

PROJECT NO.	DATE:	SHEET NO.
1301010720	11/14/2013	1 OF 1

DRAWN BY:	DESIGNED BY:	APPROVED BY:
JGD	JGD	KLA

Path: J:\Projects\2013\1301010720_Campbell Surveying and Platting\5-Civil\GIS\Dmg-NRCS-Soil_Campbell.mxd - Date: 11/14/2013

Appendix D - Flood Insurance Rate Map (FIRM)



SEC: 9
TWP: T28S
RNG: R1E

0 125 250 500
Feet

MKEC
Wichita, KS - 316.684.9600

FEMA FIRM EXHIBIT

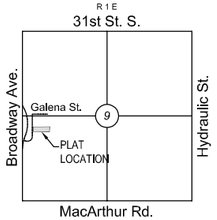
CAMPBELL'S POND ADDITION

PROJECT NO.	DATE:	SHEET NO.
1301010720	11/14/2013	1 OF 1

DRAWN BY:	DESIGNED BY:	APPROVED BY:
JGD	JGD	KLA

Path: J:\Projects\2013\1301010720_Campbell Surveying and Platting\5-Civil\GIS\Dmg-FEMA-FIRM-Campbell.mxd - Date: 11/14/2013

Appendix E - Plat



VICINITY MAP

PRELIMINARY PLAT

A portion of the SW. ¼, Sec. 9, T28S, R1E, 6th P.M.

CAMPBELL'S POND ADDITION

DEVELOPER/OWNER: Charles M. Campbell and Marilyn E. Campbell

2445 Greenwood Wichita, KS 67216 (316) 267-5953

NOTES

1. LOCATION: Located in south Wichita, east of Broadway Avenue and a half of mile north of MacArthur Road in an area of mixed uses having single family residential, plant nursery, outdoor recreation (Go Lake), and outdoor storage. Broadway Bridge and grade change over the Union Pacific Rail Road is under construction.
2. LOT TOTAL - 2
3. ANNEXATION: City of Wichita
4. EXISTING/PROPOSED USES: Existing - Vacant land
   Proposed - Highest and best use / unknown
5. ZONING DISTRICT: Existing GC - General Commercial (west ~260') and SF-5 Single Family Residential District
6. PLAT AREA: Gross = 1.84 Acres
7. SURVEY DATE: November 5, 2013 (by MKEC)
8. PUBLIC UTILITIES: Municipal water is available on the east side of Topeka Avenue and municipal sanitary sewer is not available.
9. ACCESS / ACCESS CONTROLS: NA
10. RESERVE: Reserve A is platted for open space, recreation, landscaping, irrigation, monuments, accessory structures, fences, walls, sidewalks, fountains, drainage, and uses permitted by the Zoning that are not in conflict with the conveyance of stormwater and utilities confined by easement(s) or rights-of-way. The Reserve shall be owned and maintained by the owner of Lot 1.
11. FLOOD: According to FEMA FIRM Community Unit Panel 20173C0365E, effective date February 7th, 2007; this property lies within flood zone "X", *"Areas determined to be outside the 0.2% annual chance floodplain."*
12. DRAINAGE: A drainage report shall accompany this plat and will be submitted to the Public Works Department.
13. BUILDING SETBACK: 10' as shown hereon.

BENCHMARK

BM#14 Northwest bolt of top flange fire hydrant on southeast corner of Galena Street South and Topeka, 7.8' west of east right-of-way of Topeka and 34.9' south of the north line of Govt. Lot 10.
Elev.=1284.42 NAVD 88.

NORTH

1"=40' / 1 : 480

0 20 40 80

Basis of Bearing: Kansas coordinate system of 1983 south zone grid bearing of N02°10'23"W along the W. line of SW. ¼, Sec. 9, T28S, R1E, 6th P.M.

This plat is surveyed and platted on NAVD88-09 using Kansas state plane south zone coordinates, modified to the surface, having a combined adjustment scale factor of 1.000120014401728

LEGAL DESCRIPTION

The West Half of the following described tract:
Beginning at a point on the West line of Lot 10, 366 South of the Northwest corner of Lot 10, in the Southwest Quarter of Section 9, Township 28 South, Range 1 East of the 6th P.M., Sedgwick County, Kansas, as established in District Court Case No. 19897; thence South along said West line of Lot 10 a distance of 154 feet; thence East parallel with the North line of Lot 10 to the West bank of the Arkansas River; thence North along the West bank of said River to a point 366 feet south of the North line of Lot 10; thence West to the point of beginning, subject to those portions condemned for State Highway and Flood Control purposes, in Sedgwick County, Kansas, and except the West 296.9 feet of said above described parcel.

LEGEND

- Edge Of Trees
- 6IN - Coniferous Tree
- 3IN - Deciduous Tree
- SN - Sign
- PP - Power Pole
- ELEC BOX - Electric Box
- LP - Light Pole
- FH - Fire Hydrant
- WV - Water Valve
- WM - Water Meter
- SVB - Telephone Manhole
- TR - Telephone Riser
- GM - Gas Meter
- Benchmark
- -⅝" Rebar / MKEC CLS 39
- Propery Corner Found
- Section Corner
- (M) - Measured
- (C) - Calculated
- (D) - Described
- (P) - Platted
- Easement
- FENCE
- Storm Sewer Pipe
- Water Line
- Sanitary Sewer Line
- Gas Line
- Overhead Electric
- Existing Structure

Date submitted: November 8th, 2013
Subdivision Hearing: November 27th

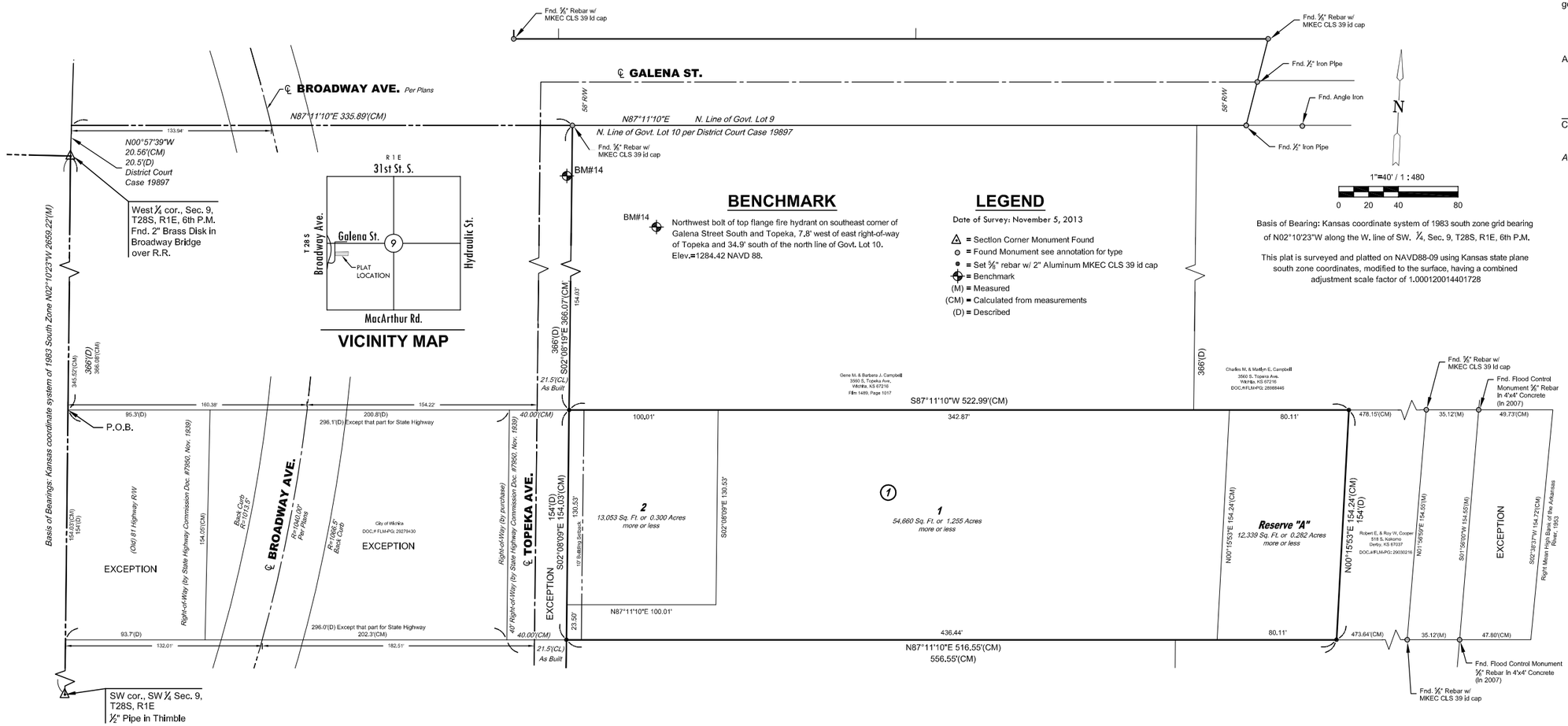
MKEC
Wichita, KS • 316.684.9600

J:\Projects\2013\1301610720_Campbell Surveying and Platting\5-Civil\CAD\Plat\13720pre.dwg 11/13/2013 11:18:01 AM CST

FINAL PLAT

CAMPBELL'S POND ADDITION

AN ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS



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

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 "CAMPBELL'S POND 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:

The West Half of the following described tract:
Beginning at a point on the West line of Lot 10, 366 South of the Northwest corner of Lot 10, in the Southwest Quarter of Section 9, Township 28 South, Range 1 East of the 6th P.M., Sedgwick County, Kansas, as established In District Court Case No. 19897; thence South along said West line of Lot 10 a distance of 154 feet; thence East parallel with the North line of Lot 10 to the West bank of the Arkansas River; thence North along the West bank of said River to a point 366 feet south of the North line of Lot 10; thence West to the point of beginning, subject to those portions condemned for State Highway and Flood Control purposes, in Sedgwick County, Kansas, and except the West 296.9 feet of said above described parcel.

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

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

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

OWNER'S CERTIFICATE

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

Reserve "A" is platted for drainage, landscaping, open space, recreation, irrigation, monuments, accessory structures, sidewalks, fences, walls, fountains, and uses permitted by the Zoning that are not in conflict with the conveyance of stormwater, and utilities confined by easement(s) or rights-of-way. The Reserve shall be owned and maintained by the owner of Lot 1, Block 1.

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 storm water.

_____ _____
Charles M. Campbell Marilyn E. Campbell

STATE OF KANSAS, SEDGWICK COUNTY} ss:

This instrument was acknowledged before me on ____ day of _____, 2013, by Charles M. Campbell and Marilyn E. Campbell, husband and wife.

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

_____, Notary Public
Notary Public:
My Term Expires: _____

PLANNING COMMISSION CERTIFICATE

STATE OF KANSAS, SEDGWICK COUNTY} ss:

This plat of "CAMPBELL'S POND ADDITION" has been submitted to and approved by the Wichita-Sedgwick County Metropolitan Area Planning Commission, Wichita, Kansas.

Dated this ____ day of _____, 2013.

WICHITA-SEDGWICK COUNTY METROPOLITAN AREA PLANNING COMMISSION

_____, Chair
Don Klausmeyer, Chair

Attest:

_____, Secretary
John L. Schlegel, Secretary

COUNTY SURVEYOR

STATE OF KANSAS, SEDGWICK COUNTY} ss:

Reviewed in accordance with K.S.A. 58-2005 on this ____ day of _____, 201__.

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

MKEC
Wichita, KS • 316.684.9600

Appendix F- Curve Number Calculations

Curve Number Calculations
Campbell's Pond

Estimate Imperviousness per Land Use

HSG A			HSG B			HSG C			HSG D		
Land Use	Average % Impervious	Area (ac)	Land Use	Average % Impervious	Area (ac)	Land Use	Average % Impervious	Area (ac)	Land Use	Average % Impervious	Area (ac)
Commercial and Business	85%		Commercial and Business	85%	1.8	Commercial and Business	85%		Commercial and Business	85%	
Industrial	72%		Industrial	72%		Industrial	72%		Industrial	72%	
Residential 1/8 acre or less (townhouse)	65%		Residential 1/8 acre or less (townhouse)	65%		Residential 1/8 acre or less (townhouse)	65%		Residential 1/8 acre or less (townhouse)	65%	
Residential 1/4 acre	38%		Residential 1/4 acre	38%		Residential 1/4 acre	38%		Residential 1/4 acre	38%	
Residential 1/3 acre	30%		Residential 1/3 acre	30%		Residential 1/3 acre	30%		Residential 1/3 acre	30%	
Residential 1/2 acre	25%		Residential 1/2 acre	25%		Residential 1/2 acre	25%		Residential 1/2 acre	25%	
Residential 1 acre	20%		Residential 1 acre	20%		Residential 1 acre	20%		Residential 1 acre	20%	
Residential 2 acres	12%		Residential 2 acres	12%		Residential 2 acres	12%		Residential 2 acres	12%	
Impervious Area (acres)		0	Impervious Area (acres)		1.53	Impervious Area (acres)		0	Impervious Area (acres)		0

Composite Curve Number (CN)

HSG A			HSG B			HSG C			HSG D		
Land Use	CN	Area (ac)	Land Use	CN	Area (ac)	Land Use	CN	Area (ac)	Land Use	CN	Area (ac)
Pre-Developed or Undisturbed Pervious	55		Pre-Developed or Undisturbed Pervious	71		Pre-Developed or Undisturbed Pervious	80		Pre-Developed or Undisturbed Pervious	84	
Developed or Disturbed Pervious	71		Developed or Disturbed Pervious	80	0.3	Developed or Disturbed Pervious	84		Developed or Disturbed Pervious	88	
Impervious	98	0	Impervious	98	1.5	Impervious	98	0	Impervious	98	0
Composite Curve Number HSG A (CN)	0.0	0	Composite Curve Number HSG B (CN)	95.0	1.8	Composite Curve Number HSG C (CN)	0.0	0	Composite Curve Number HSG D (CN)	0.0	0

Total Weighted Composite Curve Number (CN)	95.0
Total Area (A) (acres)	1.8

Appendix G – Hydraflow Hydrographs

Watershed Model Schematic

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

1 - Campbell's Pond West

2 - Campbell's Pond East

Legend

Hyd.	Origin	Description
1	SCS Runoff	Campbell's Pond West
2	SCS Runoff	Campbell's Pond East

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)								Hydrograph description
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	
1	SCS Runoff	------	-------	2.798	-------	3.641	4.311	5.061	5.726	6.473	Campbell's Pond West
2	SCS Runoff	------	-------	6.994	-------	9.102	10.78	12.65	14.32	16.18	Campbell's Pond East

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

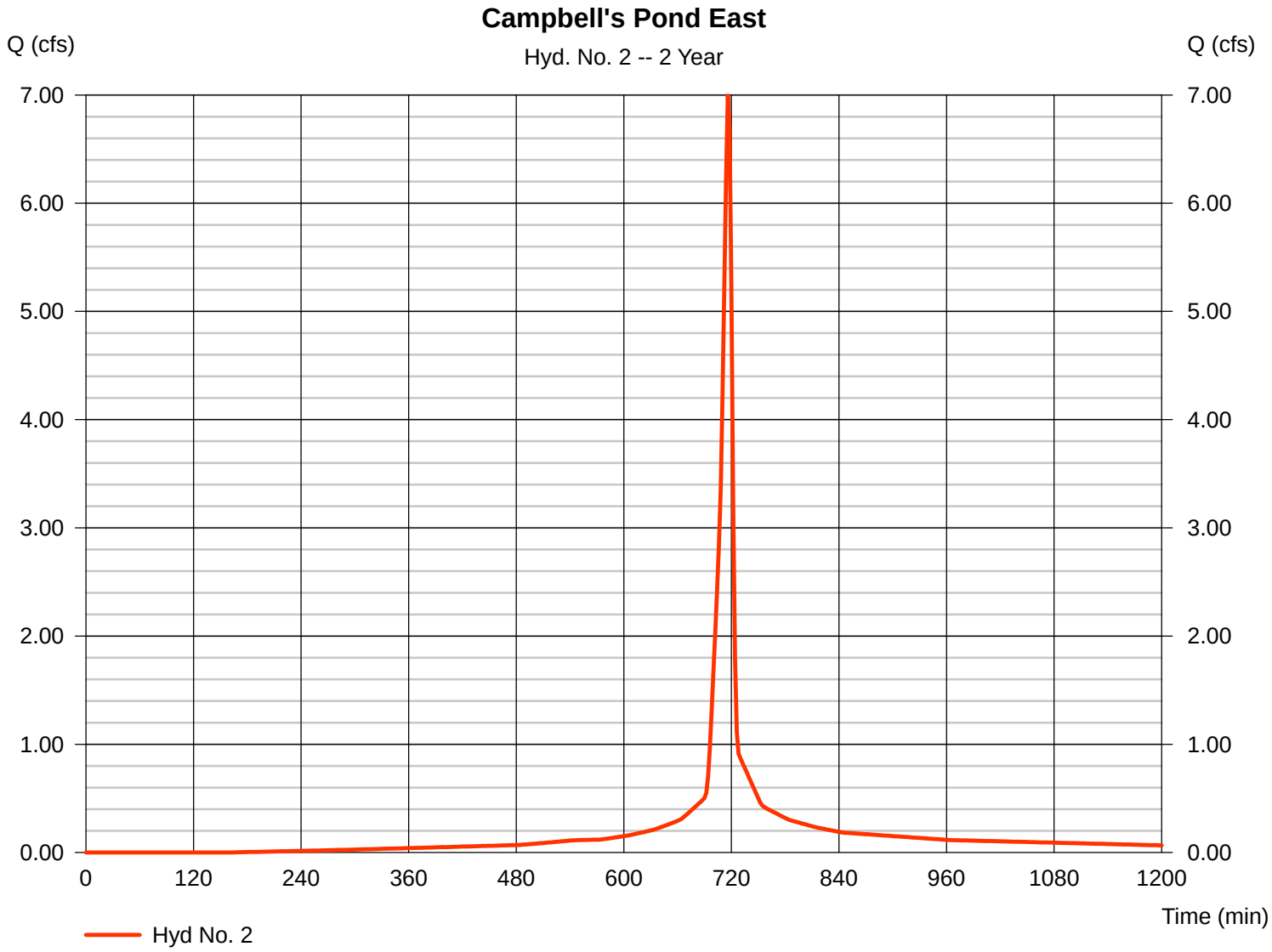
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph description
1	SCS Runoff	2.798	2	716	0.142	------	------	------	Campbell's Pond West
2	SCS Runoff	6.994	2	716	0.356	------	------	------	Campbell's Pond East

Hydrograph Report

Hyd. No. 2

Campbell's Pond East

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.994 cfs
Storm frequency	=	2 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	0.356 acft
Drainage area	=	1.500 ac	Curve number	=	95
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

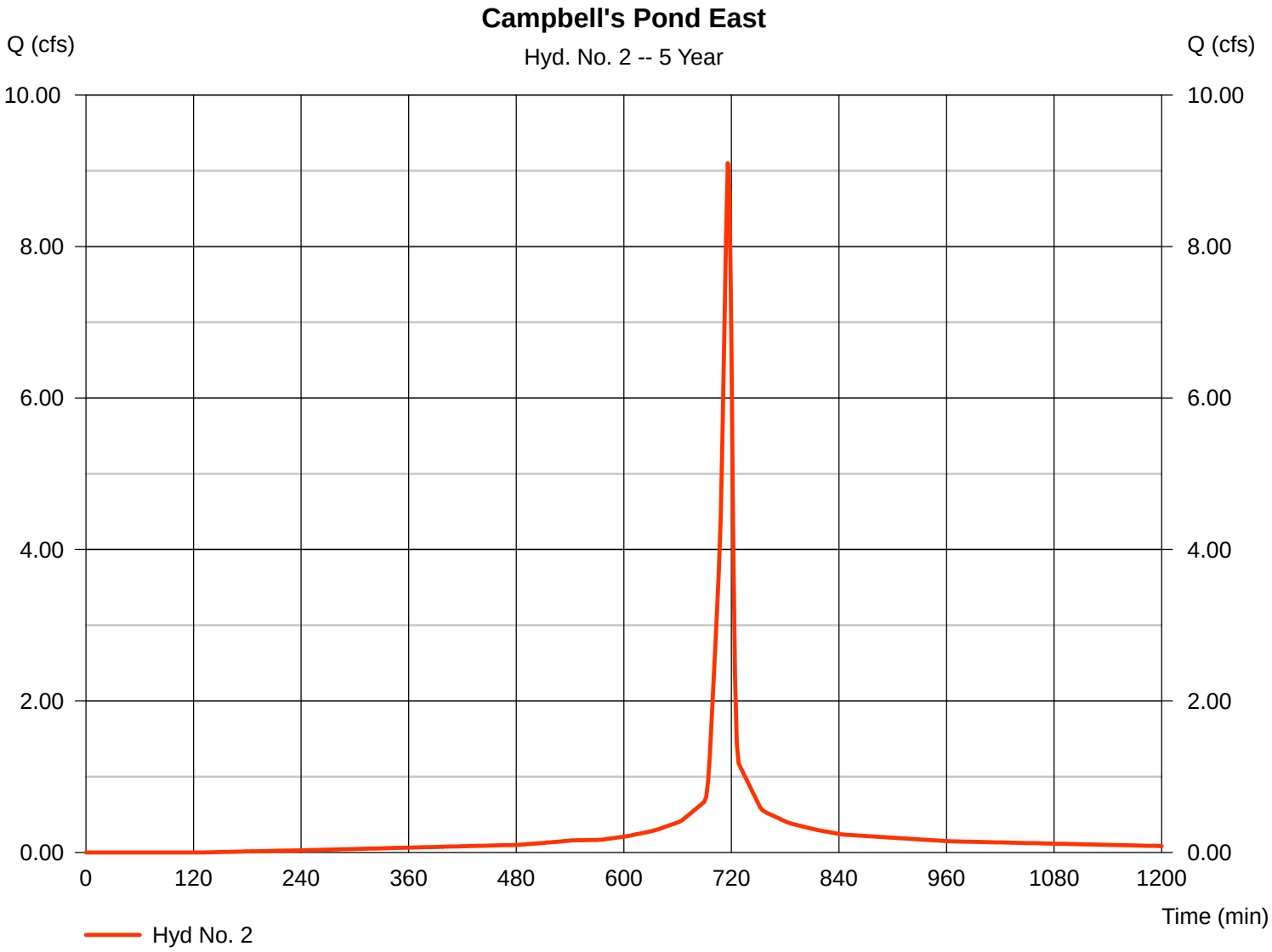
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph description
1	SCS Runoff	3.641	2	716	0.189	------	------	------	Campbell's Pond West
2	SCS Runoff	9.102	2	716	0.472	------	------	------	Campbell's Pond East

Hydrograph Report

Hyd. No. 2

Campbell's Pond East

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.102 cfs
Storm frequency	=	5 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	0.472 acft
Drainage area	=	1.500 ac	Curve number	=	95
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

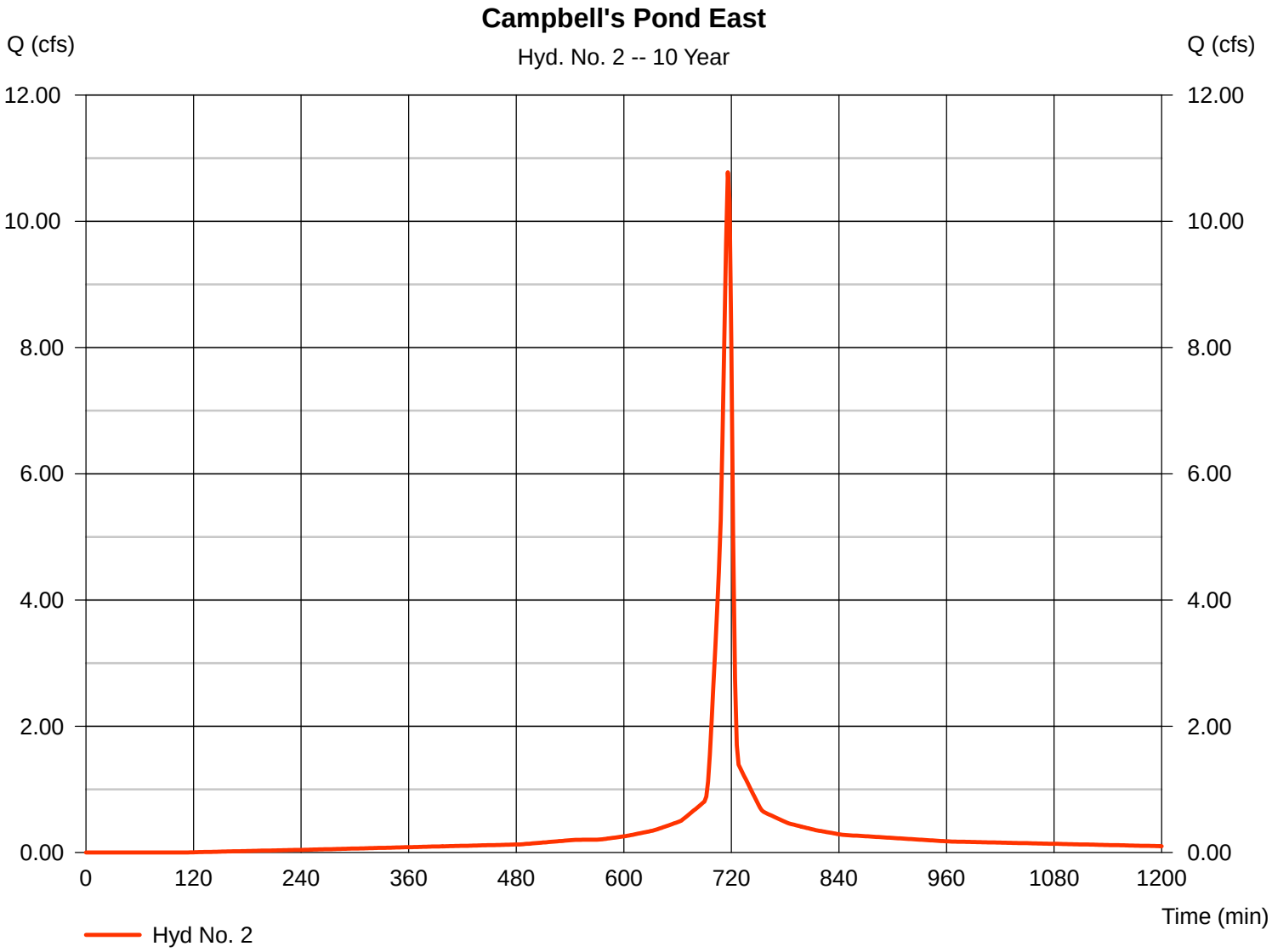
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph description
1	SCS Runoff	4.311	2	716	0.226	------	------	------	Campbell's Pond West
2	SCS Runoff	10.78	2	716	0.564	------	------	------	Campbell's Pond East

Hydrograph Report

Hyd. No. 2

Campbell's Pond East

Hydrograph type	=	SCS Runoff	Peak discharge	=	10.78 cfs
Storm frequency	=	10 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	0.564 acft
Drainage area	=	1.500 ac	Curve number	=	95
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.40 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

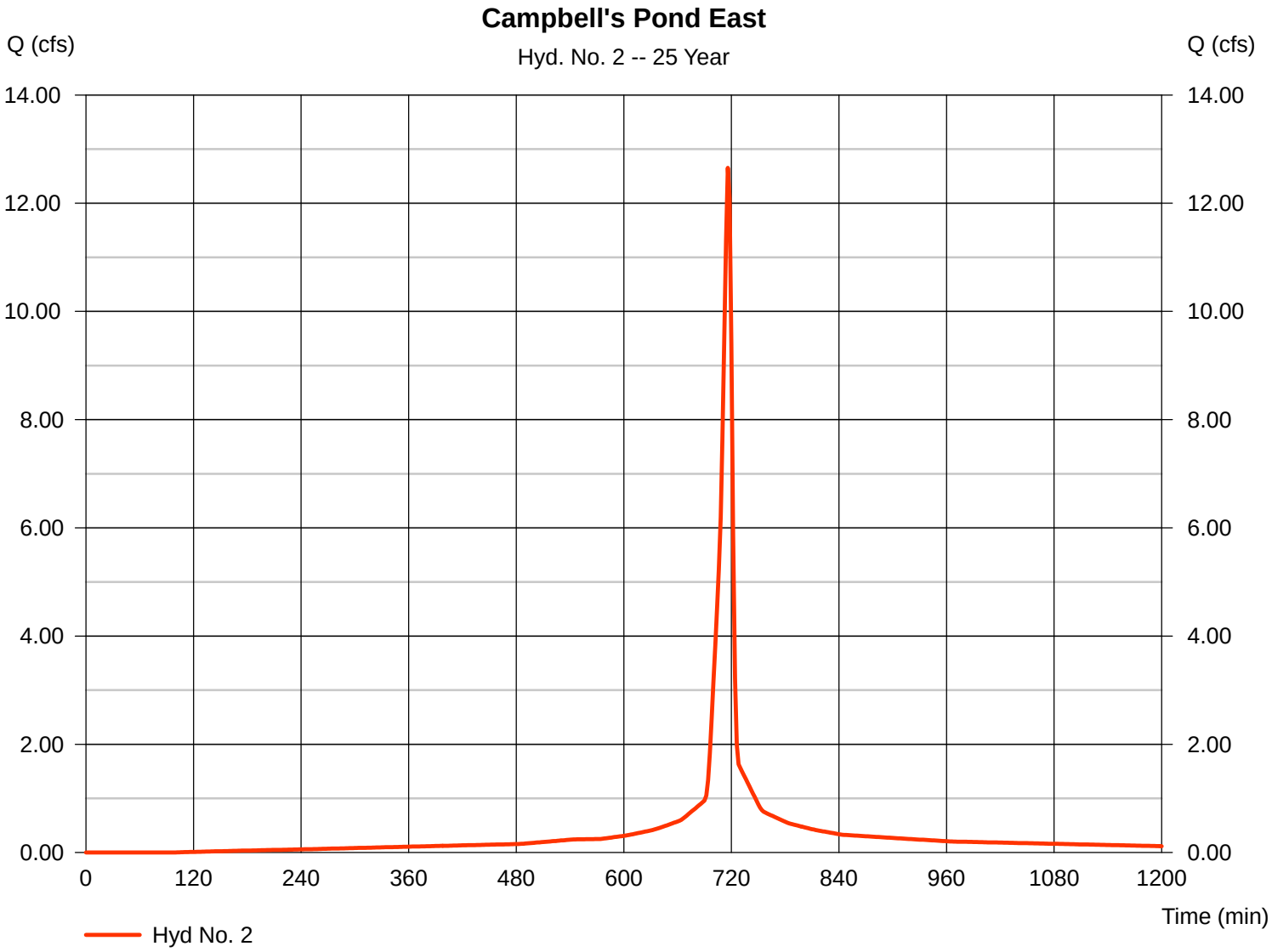
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph description
1	SCS Runoff	5.061	2	716	0.268	------	------	------	Campbell's Pond West
2	SCS Runoff	12.65	2	716	0.669	------	------	------	Campbell's Pond East

Hydrograph Report

Hyd. No. 2

Campbell's Pond East

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.65 cfs
Storm frequency	=	25 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	0.669 acft
Drainage area	=	1.500 ac	Curve number	=	95
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	6.30 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

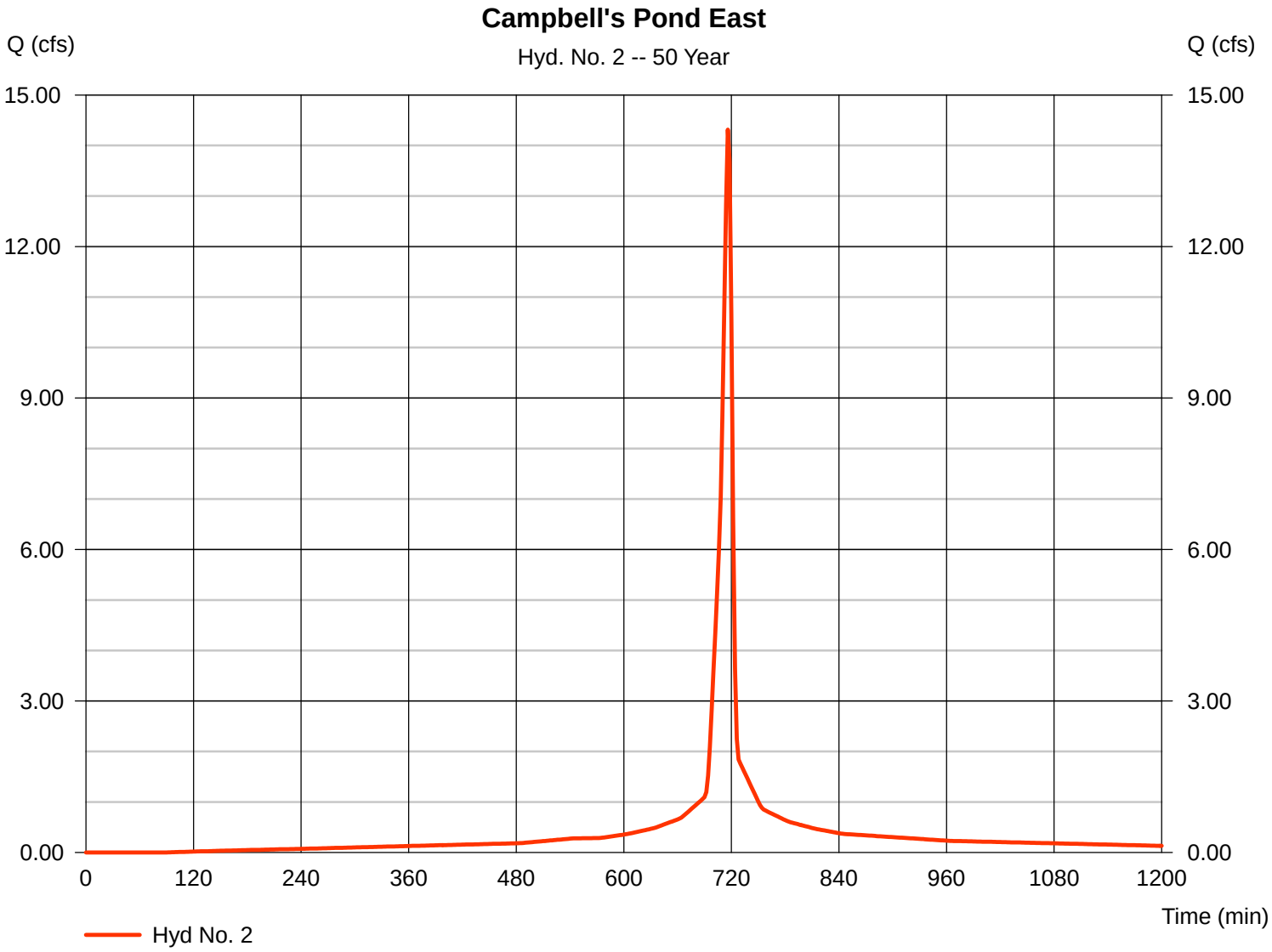
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph description
1	SCS Runoff	5.726	2	716	0.305	------	------	------	Campbell's Pond West
2	SCS Runoff	14.32	2	716	0.762	------	------	------	Campbell's Pond East

Hydrograph Report

Hyd. No. 2

Campbell's Pond East

Hydrograph type	=	SCS Runoff	Peak discharge	=	14.32 cfs
Storm frequency	=	50 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	0.762 acft
Drainage area	=	1.500 ac	Curve number	=	95
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	7.10 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

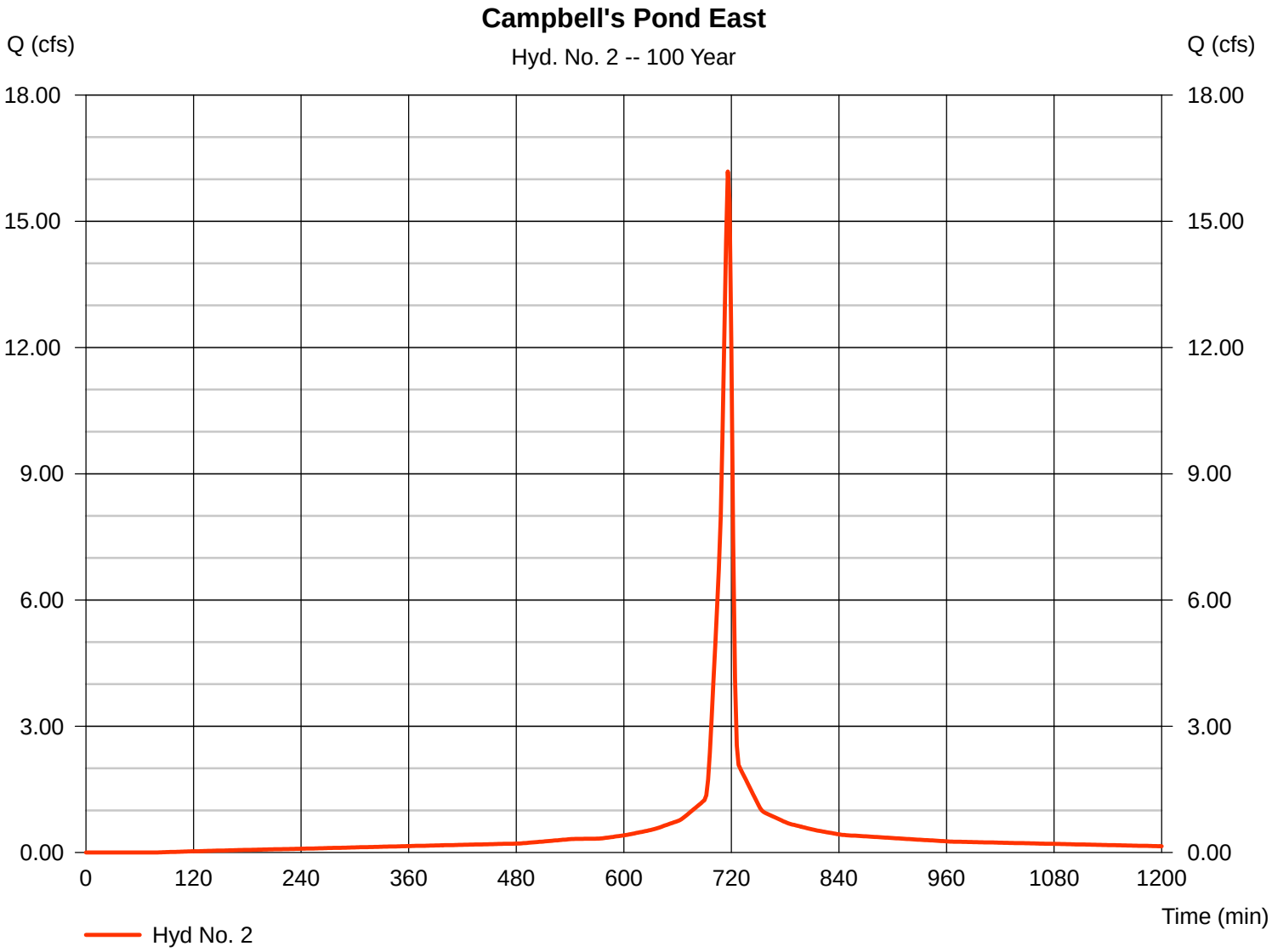
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph description
1	SCS Runoff	6.473	2	716	0.347	------	------	------	Campbell's Pond West
2	SCS Runoff	16.18	2	716	0.867	------	------	------	Campbell's Pond East

Hydrograph Report

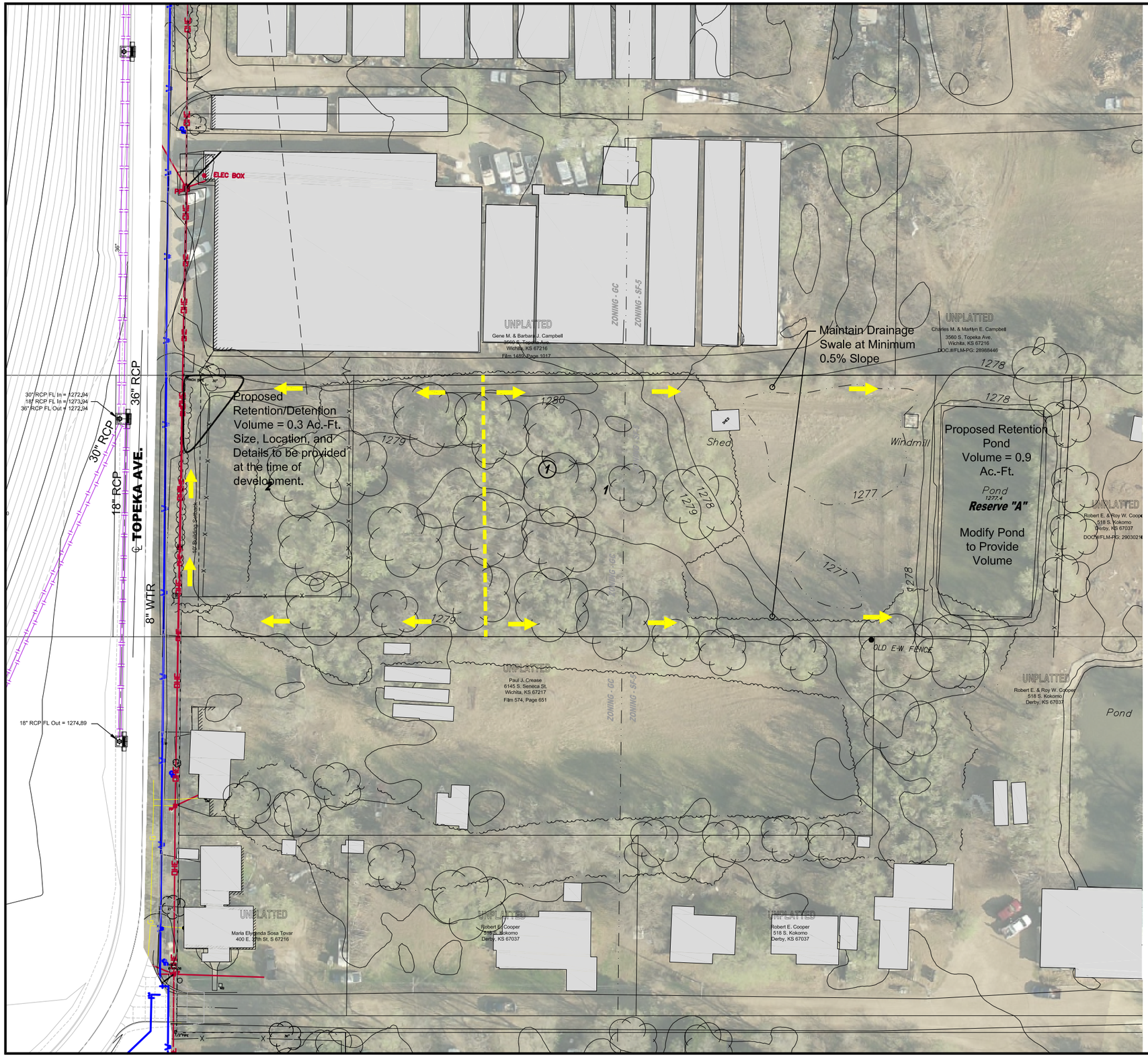
Hyd. No. 2

Campbell's Pond East

Hydrograph type	=	SCS Runoff	Peak discharge	=	16.18 cfs
Storm frequency	=	100 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	0.867 acft
Drainage area	=	1.500 ac	Curve number	=	95
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	8.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Appendix H - Drainage and Utility Plan



Source: Pictometry Aerial Photo Date: 3-25-11

N

SCALE: 1"=30'

0 15 30 60

R1E

31ST STREET SOUTH

T28S

BROADWAY AVENUE

GALENA ST.

9

HYDRAULIC STREET

PLAT LOCATION

MACARTHUR ROAD

VICINITY MAP

No Scale

LEGEND

- Edge Of Trees
- 6IN - Coniferous Tree
- 3IN - Deciduous Tree
- SN - Sign
- PP - Power Pole
- ELEC BOX - Electric Box
- LP - Light Pole
- FH - Fire Hydrant
- WV - Water Valve
- WM - Water Meter
- SWB - Telephone Manhole
- TR - Telephone Riser
- GM - Gas Meter
- Benchmark
- 5/8" Rebar / MKEC CLS 39
- Propery Corner Found
- Section Corner
- (M) - Measured
- (C) - Calculated
- (D) - Described
- (P) - Platted
- Easement
- Fence
- Storm Sewer Pipe
- Water Line
- Sanitary Sewer Line
- Gas Line
- Overhead Electric
- Existing Structure
- Proposed Drainage Boundary
- Flow Arrows

MKEC
Wichita, KS · 316-684-9300

DRAINAGE & UTILITY PLAN

CAMPBELL'S POND ADDITION

WICHITA, KANSAS

DRAINAGE & UTILITY PLAN

PROJECT NO.	1301010720
DATE	DECEMBER 2013
SCALE	AS NOTED

DESIGNED	DRAWN	CHECKED
KLA	JGD	GJA

NO.	REVISION	DATE
#	----	##/##/##

SHEET NO.

1 OF 1

J:\PROJECTS\2013\1301010720_CAMPBELL SURVEYING AND PLATTING\5-CIVIL\CAD\DRAINAGE\13720_DUP.DWG

Appendix I - Water Quality

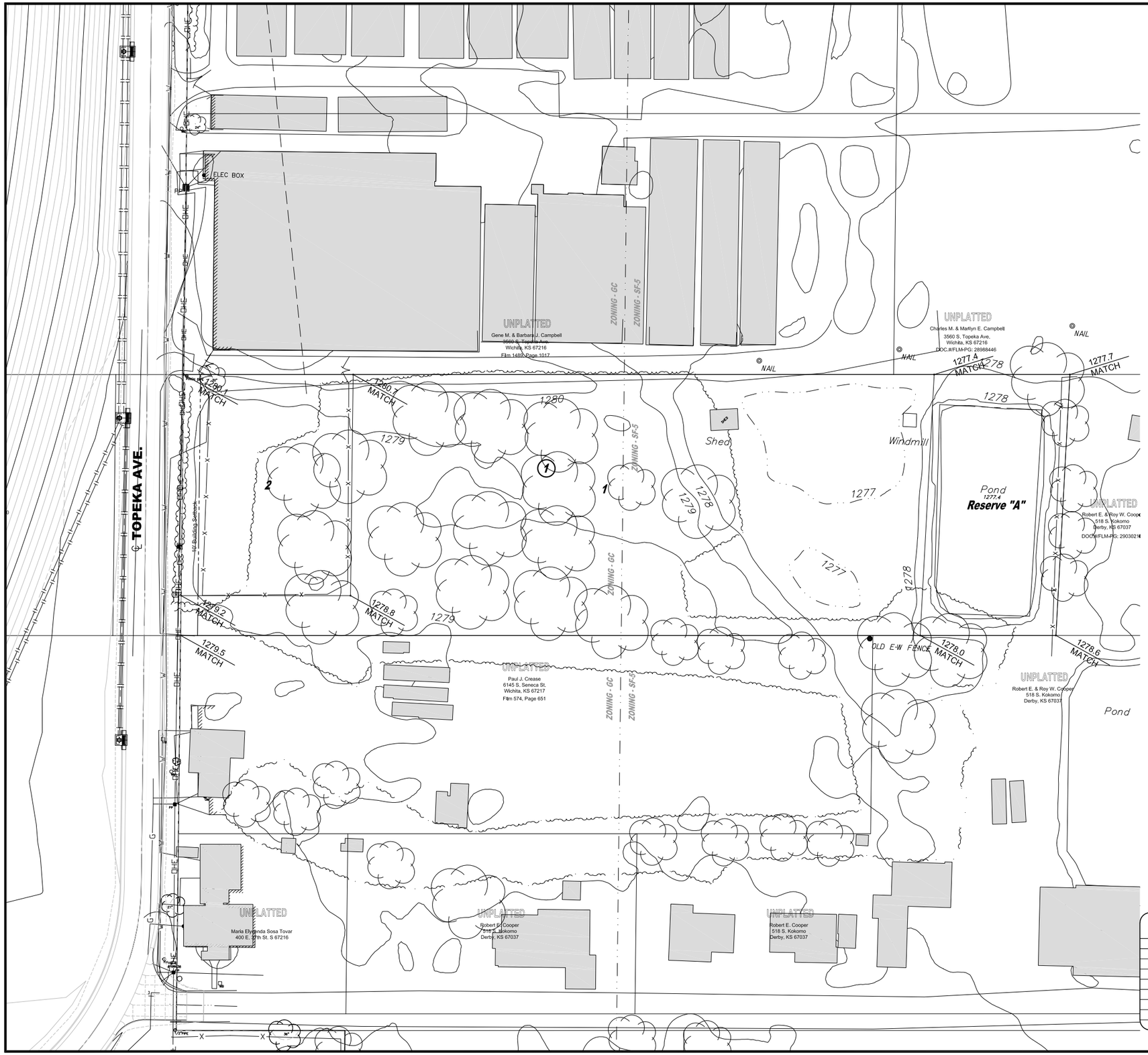
Water Quality Volume Calculations
Campbell's Pond Addition

Volumentric Runoff Coefficients by Land Use and Hydraulic Soil Group

	Hydrologic Soil Group								Total
	A		B		C		D		
Land Use	Area (ac)	R_V	Area (ac)	R_V	Area (ac)	R_V	Area (ac)	R_V	Area (ac)
Undisturbed		0.02		0.03		0.04		0.05	0
Disturbed Pervious		0.15		0.20		0.22		0.25	0
Impervious Cover		0.95	1.8	0.95		0.95		0.95	1.8
Total Area (ac)	0.00		1.80		0.00		0		**1.8**
Volumetric Runoff Coefficient (R_V)	0.00		0.95		0.00		0.00		**0.95**

Rainfall Depth (P) (in)	1.2
Water Quality Protection Volume (WQ_V) (ac-ft)	0.17
Water Quality Protection Volume (Q_{WV}) (in)	1.14
Redevelopment	No

Appendix J – Lot Grading Plan



REVISION HISTORY

DATE	REVISION	REASON

MKEC
Wichita, KS · 316-684-9600

LOT GRADING PLAN

CAMPBELL'S POND ADDITION

WICHITA, KANSAS

LOT GRADING PLAN

PROJECT NO.	1301010720
DATE	DECEMBER 2013
SCALE	AS NOTED

DESIGNED	DRAWN	CHECKED
KLA	JGD	GJA

NO.	REVISION	DATE
#	-----	###/###/###

SHEET NO.

1 OF 1