MEMO

- ☐ Overnight
- ☐ Regular Mail
- ☐ Hand Delivery
- ☐ Other: _____

TO:	City of Lee's Summit Attn: Gene Williams, PE 220 SE Green Street Lee's Summit, MO 64063
FROM:	Brock Worthley, PE
RE:	Osage Development Design and Construction Manual Design Modification Request
DATE:	March 17, 2020
PROJECT #:	A19-2339
PHASE:	300
TASK:	300008

NOTES:

Dear Mr. Williams,

We are requesting the following waiver for the allowable release rate prescribed within KC-APWA Section 5608.4.C.1.a for the discharge location and storm event described, below.

Waiver Summary
The release rate for the 2-year storm event at Point C1 per the drainage study will be exceeded, but the peak flow rate will be less than existing.

See the attached Exhibit 1. While the detention facility was strategically placed to capture the majority of the developed, on-site area, drainage area C will bypass the facility. However, changes in ridgeline resulting from proposed grading will decrease the area draining to this discharge point from 11.27 acres in existing conditions to 8.25 acres in proposed conditions, of which only 2.6 acres is developed with Osage. The 2-year existing storm event for this discharge point was analyzed and compared to the proposed conditions. The proposed conditions peak flow rate at this point is 17.8% lower than existing conditions, resulting from the previously mentioned decrease in drainage area. The modeled 2-year peak discharge rate at this point for proposed conditions is 20.9 cfs. The modeled 2-year peak discharge rate in existing conditions is 25.4 cfs and the allowable release rate is 18.3 cfs. This means that the proposed release rate is 2.6 cfs higher than the prescribed allowable release rate, but 4.8 cfs lower than the existing peak flow rate. The 10-year and 100-year storm events meet Section 5608.4.C.1.a requirements for allowable discharge, so this waiver is only for the 2-year event for Point C1.

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Potential benefits to the City that are lost by approval of this waiver and benefits gained by approval of this waiver are listed, below:

- As mentioned, proposed peak flow rates are 17.8% lower than existing peak flow rates in the 2-year event and are below the allowable and existing peak flow rates in the 10-year and 100-year events.
- Water quality treatment (40-hr detention) is not provided for drainage area C; however, treatment is provided for 80% of the total on-site area. Furthermore, only 2.6 acres of drainage area C will bypass treatment, since the rest of drainage area C is unaffected by the Osage Development. This developed area represents about 3.5 lots and public right-of-way, which will minimize the amount of pollutants from private lawns and streets that will bypass treatment.
- Since area C drains directly to the City's MS4 system crossing under MO-150, and since the two-, 10-, and 100-year storm events will be reduced from existing conditions, the MS4 system will experience lower peak flow rates after Osage is developed.

If you have any questions or need additional information, please do not hesitate to contact me by phone at 816-361-1177.

Sincerely,

Olsson

Brock Worthley, PE

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LEE'S SUMMIT
MISSOURI

DESIGN AND CONSTRUCTION MANUAL DESIGN MODIFICATION REQUEST

PROJECT NAME: Osage

PREMISE ADDRESS: NW Pryor Road and Highway 150, Lee's Summit, MO 64082

PERMIT NUMBER: _____

OWNER'S NAME: Clayton Properties Group, Inc. DBA Summit Homes

TO: The City Engineer

In accordance with the Lee's Summit Design and Construction Manual (DCM) Section 1002.A, I wish to apply for a modification to one or more specification (s). The following articulates my request for your review and action. (NOTE: Cite specific code sections and engineering justification and drawings.)
A waiver is requested from the criteria outline in KC-APWA Section 5608.4.C.1.A. Specifically, a waiver is requested for the release rate requirements for the two-year storm event for the northwest discharge point of the site, C1. This proposed condition two-year storm event discharge from this area is already significantly less than the existing conditions value due to changes in the ridgeline of the site, with 25.4 cfs in existing conditions and 20.9 cfs in proposed conditions (a 17.8% reduction). The difference between the aforementioned KC-APWA criteria, which requires 18.3 cfs, and the post-development discharge for this point during the two-year event is 2.6 cfs. The 10-year and the 100-year storm events meet the KC-APWA criteria. Meeting the criteria for the two-year event would require a small detention facility to be placed in the northwest corner of the facility, which would impact the feasibility of the development and offer little to no benefit. More detail is provided with the enclosed attachments. For these reasons, a waiver is requested.

SUBMITTED BY:
NAME: Brock Worthley ( ) OWNER (x) OWNER'S AGENT
ADDRESS: 1301 Burlington St, Suite 100 Tel.# (816) 361.1177
CITY, STATE, ZIP: North Kansas City, MO 64116
Email: bworthley@olsson.com SIGNATURE: _____

FORWARDING MANAGER: _____RECOMMENDATION ( ) APPROVAL ( ) DENIAL

SIGNATURE:_____ DATE:_____

GEORGE BINGER III, P.E. – CITY ENGINEER: ( ) APPROVED ( ) DENIED

SIGNATURE:_____ DATE:_____

COMMENTS_____

_____

_____

A COPY MUST BE ATTACHED TO THE APPROVED PLANS

OSAGE

WAIVER REQUEST C1
DRAINAGE MAP
EXHIBIT 1

Point of Interest C1
(Waiver Request)

DRAINAGE AREA C

DRAINAGE AREA B

DRAINAGE AREA B2

DRAINAGE AREA A

BYPASS AREA A

Point of Interest A1

Point of Interest B1

SW PRYOR RD

SW NAPA VALLEY DR

150

LEGEND

- SITE BOUNDARY
- BYPASS AREA BOUNDARIES
- PROPOSED DRAINAGE AREA BOUNDARIES
- EXISTING DRAINAGE AREA BOUNDARIES
- PROPOSED 2-FT CONTOURS
- EXISTING 10-FT CONTOURS

N

0 250 500 Feet

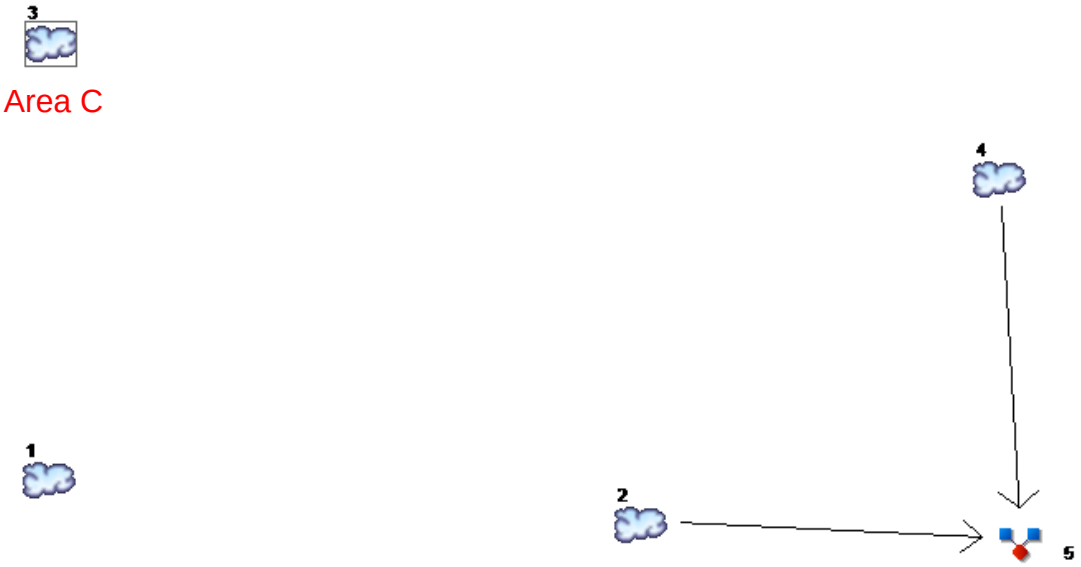
1 ' = 250 "

Drawn: B. Fairchild 3/11/2020

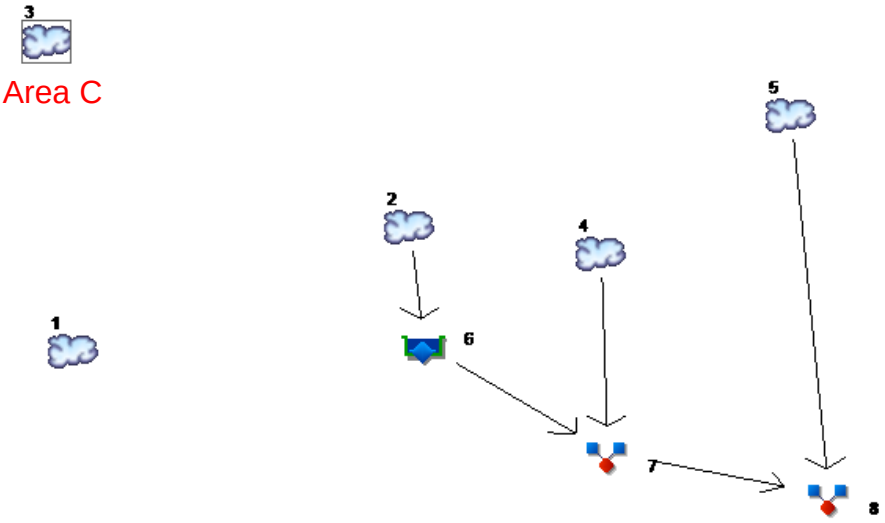
olsson

Location: F:\2019\2001-2500\019-2339-A\40-Design\GIS\MXD\019-2339 Waiver Exhibit.mxd

Existing Conditions Model Schematic



Proposed Conditions Model Schematic

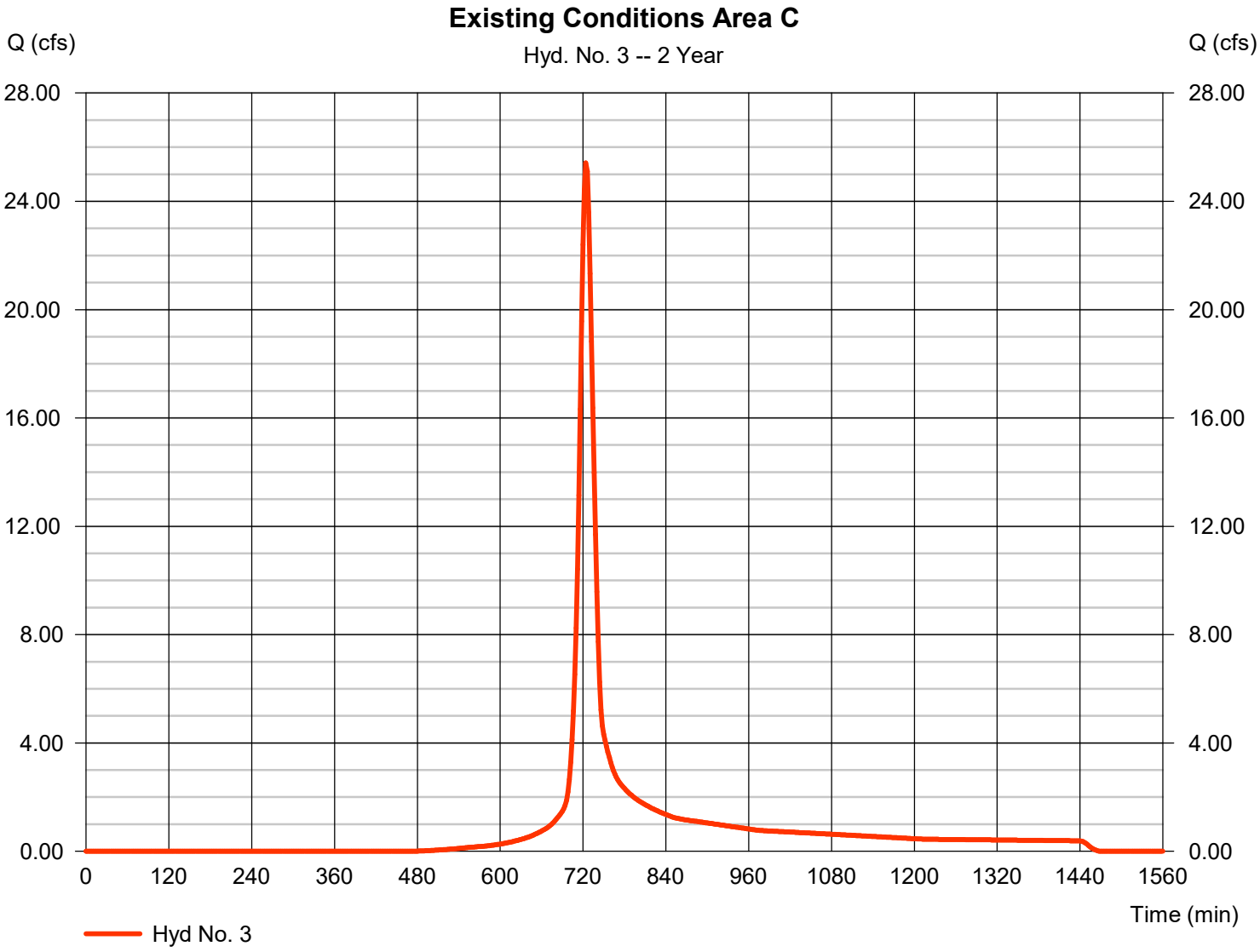


Hydrograph Report

Hyd. No. 3

Existing Conditions Area C

Hydrograph type	= SCS Runoff	Peak discharge	= 25.41 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 79,488 cuft
Drainage area	= 11.270 ac	Curve number	= 83
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 20.00 min
Total precip.	= 3.60 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

Hyd. No. 3

Proposed Area C

Hydrograph type	=	SCS Runoff	Peak discharge	=	20.92 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.07 hrs
Time interval	=	2 min	Hyd. volume	=	65,498 cuft
Drainage area	=	8.250 ac	Curve number	=	86
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	19.60 min
Total precip.	=	3.60 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484