THE GATEWAY OF E. ACRES ST.

A SIMPLE PLANNED UNIT DEVELOPMENT

117 AND 119 E ACRES STREET

NORMAN, OKLAHOMA

INITIALLY PREPARED AND REVISED BY KATY CONSTRUCTION CO.
Keith M. McCabe, Builder- Owner
Submitted March 1, 2021 – Revised April 1, 2021
Adopted by City Council on May 25, 2021
Ordinance No. O-2021-39

AMENDED BY PLAINVIEW LEGAL GROUP PLLC
On Behalf of Emmanuel Enguerra, Owner
To Amend the Permitted Uses of 117 and 119 E Acres St

PREPARED BY:

PLAINVIEW LEGAL GROUP PLLC
TRAVIS DENNIS
P.O. BOX 847
NORMAN, OK 73070

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COVER LETTER

EMMANUEL ENGUERRA, hereinafter referred to as "Applicant", respectfully submits this SPUD amendment, only for the real property (the "Subject Property") as follows:

LOT 8A
A parcel of land being a part of Lot Eight (8), in Block Sixteen (16), and the West Half (W/2) of vacated Julia Street, of J.A. JONES ADDITION, to the City of Norman, Cleveland County, Oklahoma, according to the recorded plat thereof, and being more particularly described as follows:
COMMENCING at the Northwest corner of Lot 5 of said Block Sixteen (16) of J.A. Jones Addition;
Thence North 89°52'13" East, along the North line of lots 5, 6, 7, and 8 a distance of 83.33 feet to the Point of Beginning;
Thence continuing North 89°52'13" East, along the North line of Lot 8, a distance of 41.67 feet to a point on the East line of the West Half (W/2) of vacated Julia Street;
Thence South 00°13'55" East, a distance of 140.00 feet;
Thence South 89°52'13" West, along the South line of said Lot 8, a distance of 41.67 feet;
Thence North 00°13'55" West a distance of 140.00 feet to the Point of Beginning.
According to the Lot Line Adjustment recorded in Book 6314, Page 982.

, which includes the addresses commonly known as 117 E Acres Street, Norman, Oklahoma 73069 and 119 E Acres Street, Norman, Oklahoma 73069.

The Subject Property is currently zoned as a SPUD, pursuant to O-2021-39 (the "2021 SPUD"). The Applicant seeks this SPUD amendment to update the permitted uses for his property to include Short-Term Rentals. There are no changes to the SPUD boundaries or site plan, and no new construction is requested. The sole purpose of the amendment is to add Short-Term Rentals to the permitted uses for the Subject Property.

For convenience purposes, the entirety of the 2021 SPUD Narrative is contained below. Amendments made to the 2021 SPUD are shown in **bold**.

I. INTRODUCTION

The Gateway of E. Acres St. project (the "Addition") is proposed as a Simple Planned Unit Development (SPUD) generally located at 111, 113, 115, 117, and 119 E Acres Street formerly 111 and 113 East Acres Street. The Addition is approximately 0.4000 acres in land area and proposed to feature a variety of Single-Family residential units, and Accessory Dwelling Units over garages located at the rear of each property.

The Applicant has separately submitted a Lot Line Adjustment that conforms to the SPUD site plan.

This SPUD District will allow the necessary greater flexibility in design to create an affordable community with a variety of family units and building types along with creative circulation patterns.

Upon completion, the SPUD will provide more residentially and pedestrian appealing designs than would otherwise be attainable under conventional practices and regulations of the development guidelines of the City of Norman. Therefore, flexibility in the design and construction of lot sizes, which help to provide a more distinct neighborhood concept, is critical. This more efficient, compact developed area within the Addition will allow for the unique use of Core Norman land for single family residences, along with Accessory Dwelling Units* (ADUs) over garages. This will allow for greater flexibility for the homeowners and still retain the existing character of the neighborhood.

> **ADU - A structure which is subordinate to, and the use of which is incidental to, that of the main structure on the same lot and includes a room or group of rooms forming a single habitable unit with facilities which are used or intended to be used for living, sleeping, cooking and eating*

II. PROPERTY DESCRIPTION - EXISTING SITE CONDITIONS

A. Location

The Gateway of E. Acres St. is located at **111, 113, 115, 117, and 119 E Acres Street.**

B. Existing Land Use and Zoning

The property is currently zoned SPUD, Simple Planned Unit Development and is located in the Central Norman Zoning Overlay District (CNZOD) area.

C. Elevation and Topography

The site consists of flat terrain. The lot drains to the north and south. This environment has influenced the application of this SPUD to change the

building setbacks to allow for redevelopment. The end result is the possibility for open space and scenic views of Core Norman for the residents and passing public. This lot sits just east of the railroad tracks, Legacy Trail, the newly developed Norman Forward project - the Blake Baldwin Skate Park, and the new Norman Public Library. No portion of the site is in the 100-year flood plain.

D. Drainage

A Drainage Impact Analysis has been prepared to illustrate the detention requirements that are required and the solutions planned. A Drainage Impact Analysis has been already been submitted and approved by the City on June 2, 2021. This SPUD will be done in accordance with and not change the previously approved drainage solution.

E. Utility Services

Many of the required utility systems for the project (including water, sewer, gas, telephone and electric) are currently located adjacent to the boundaries of the property, and all have been installed and developed to date.

F. Fire Protection Services

Fire Protection services will be provided by the City of Norman Fire Department and by Owner provided NFRA 13R building sprinkler systems in applicable structures, where required, if required.

G. Traffic Circulation and Access

Primary vehicular access to the site would be provided from East Acres Street for the Main Houses and additionally the alley located to the north of Acres Street, for the ADUs.

III. DEVELOPMENT PLAN AND DESIGN CONCEPT

A. Single-Family Development

The SPUD shall consist of three residential lots with a single-family structure and an accessory dwelling unit over a garage upon each lot.

1. Lot Design

The purpose for the SPUD is to allow variances from the previous required lot area, setbacks and coverage for redevelopment of these lots with greater flexibility to create an updated model for increased density and varied lot dimensions in the Core Area of Norman:

a. A variance to the lot width from the required 50-foot street frontage, to a 41.66-foot street frontage. The lot depth is to remain 140-foot.
b. A variance to the 7,000 SF lot area requirement for a single-family home and ADU. The lots are approximately 5,833. Lot dimensions will be equally spaced throughout the Addition.
c. A variance to the required front yard setback of 25 feet. This SPUD instead provides for a 20-foot front yard setback. Such a setback will encourage and allow single family homes, and various living spaces to come forward and greet the streetscape.

The below development standards shall meet the current zoning requirement for current zoning development standards.

d. All single-family homes shall have a 60-foot rear yard setback.
e. The proposed ADUs located at the rear of the lot, off the alley, shall meet the required 20-foot back yard setback.
f. Each lot shall be developed with the typical 5-foot side yard building setback line.

CNZOD, Central Norman Zoning Overlay District

The CNZOD requires Special Use for any development/ redevelopment within the District that contains four (4) or more bedrooms. This development proposal is submitted as a SPUD, Simple Planned Unit Development and included in this SPUD is the request to allow the opportunity of a fourth bedroom in the single family structures. The number of bedrooms will be dependent on the buyer, so at this time there is no way of knowing if the prospective buyer will request three (3) or four (4) bedrooms.

2. Housing Construction

Homes in the SPUD shall be Type VB (non-sprinkled) construction, single family, detached homes that will retain the character of the existing neighborhood and neighborhood manners. Houses shall be of wood frame construction. Houses shall be one (1) or two (2) stories. Garages may have no more than a two-vehicle capacity/or no more than a 500 SF footprint, with ADUs built directly above said garages.

The maximum square foot area requirements for the footprint of single-family structures (Ground Floor Living Area) shall be 1,535

square feet, as demonstrated on the designed site plan, which applies to indoor living space and is exclusive of garages, covered porches, patios, and breezeways.

All the roofs shall be constructed with shingles with a minimum weight of 210 pounds per square or the equivalent. The roofs shall have a minimum pitch slope of 8 on 12. Lower pitch roofs are allowed only for covered porches, patios, and breezeways, but with a minimum of 3 on 12. Metal may be used on lower pitched roofs.

The principal exterior of any residential structure shall be a minimum of thirty percent (30%) masonry and the remaining percent balance of the exterior shall be of frame, wood, or shingles which blend with the masonry.

A single ADU, located directly above a garage, of no more than 500 square feet in total size, may be constructed upon each lot.

3. Storage Buildings

A storage building is defined as a structure, part of a building or part of a structure which is subordinate to and the use of which is incidental to, that of the main building, structure or use on the same lot, including a private garage. A storage building may not be habitable and a storage building may not include a guest house or servant's quarters.

Height regulations for storage buildings (excluding ADUs): Any storage building shall not exceed a wall height of twenty (20) feet unless the required side and rear yard setbacks are increased by one (1) foot for each additional foot of wall height above twenty (20) feet. Provided, however, that no storage building shall exceed the height of the principal building to which it is accessory.

B. Open space and green space

Each lot shall be permitted 51% impervious area (the remaining 49% pervious), as demonstrated in the designed Site Plan and in conformance with the attached Storm Water/Drainage Report.
(See Exhibit B - Storm Water/ Drainage Report)

C. Traffic access/circulation/parking and sidewalks

The SPUD shall have public streets serving all residential lots. The access to the SPUD shall be from East Acres Street and the alley (north) of Acres St., as demonstrated on the Site Plan.

All private sidewalks shall be at least three feet (3') wide and provide adequate access (normal/accessible) to the building structures. A new four-foot-wide (4') sidewalk shall replace the existing sidewalk within the public right-of-way along East Acres Street, constructed to City of Norman Standards.

D. Development Phasing

The project may be developed in phases to begin as soon as the market demand will support. Market demand will be the determining factor of when units are constructed. A maximum of three phases are planned. Phasing may be modified at the discretion of Developer.

E. Site Plan

The site plan submitted shows the three (3) single-family residences, each with an above-garage ADU located at the rear of each lot.
(See Exhibit A)

F. Uses Permitted

The allowed uses in the Addition are:

(a) Detached one family dwelling
(b) One Single-Family dwelling and a garage apartment(*ADU).
(c) Accessory Storage Buildings
(d) **Short-Term Rentals*, for 117 and 119 E Acres Street ONLY**

**ADU - A structure which is subordinate to, and the use of which is incidental to, that of the main structure on the same lot and includes a room or group of rooms forming a single habitable unit with facilities which are used or intended to be used for living, sleeping, cooking and eating.*
****A Short-Term Rental is defined as the rental of an existing or otherwise permitted dwelling structure or any portion thereof, for a period of not more than thirty (30) days, where the owner is engaged in a contract for the rental of that specific dwelling, or any portion thereof.***

G. Trash Service

Trash service will be provided by way of polycarts serviced from the alley.

Exhibit A
Proposed Preliminary Site Development Plan

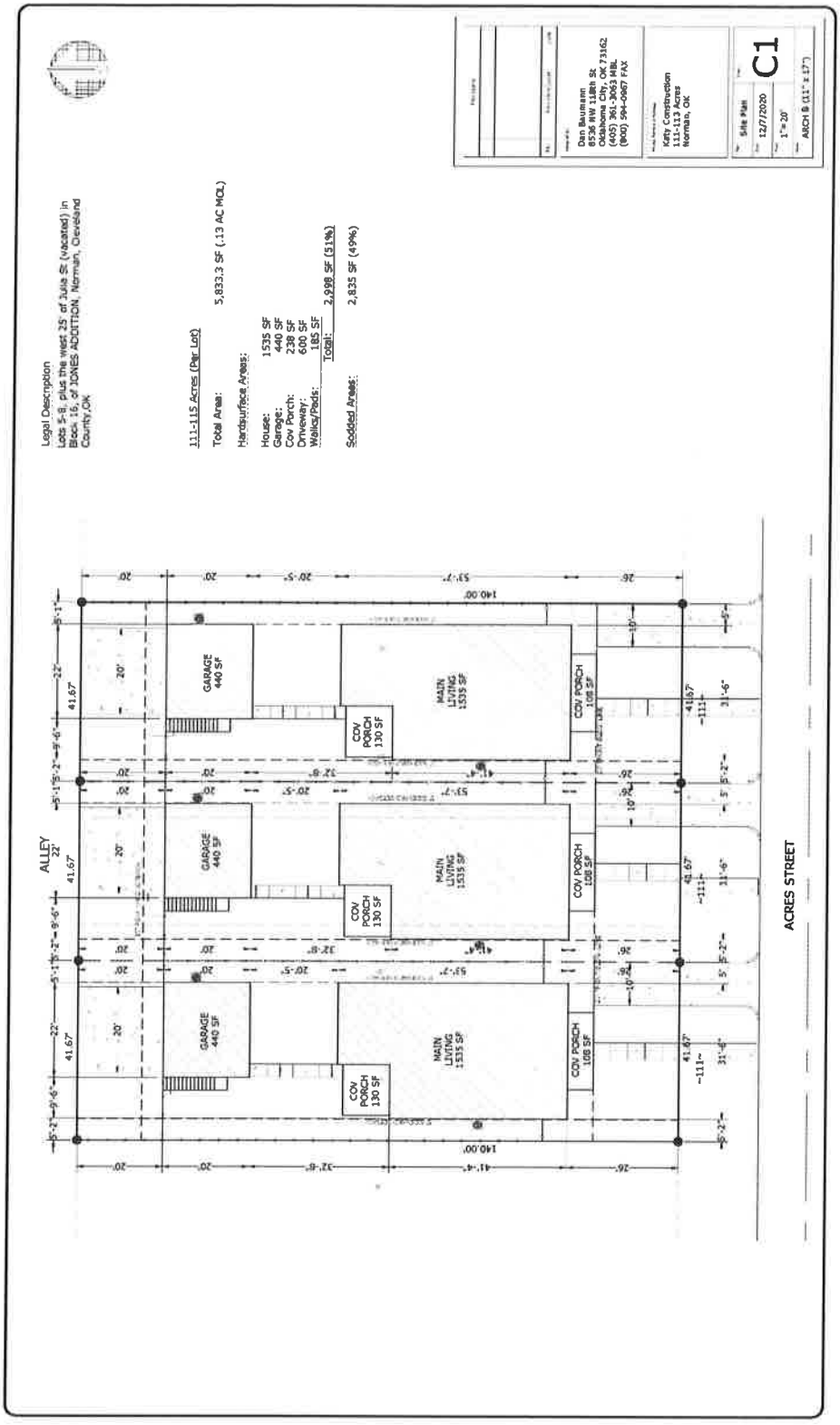


Exhibit B
Proposed Storm Water/ Drainage Report

S·T·P SOLUTIONS, INC.

ENGINEERING ♦ LAND SURVEYING ♦ GEOTECHNICAL SERVICES
OK CA 8422

DRAINAGE REPORT

FOR

THE GATEWAY ON ACRES STREET
111-113 Acres Street
Norman, OK 73069

March 1, 2021

LICENSED PROFESSIONAL ENGINEER
Darin Teeman 25180
OKLAHOMA
03/01/21

CERTIFICATE OF AUTHORIZATION
STP SOLUTIONS, INC
8422
OKLAHOMA

Corp. Office: 218 West Side Blvd. ♦ Muskogee, OK 74403 ♦ 918.438.7966
West Oklahoma Office: 7006 NW 63rd Street, Suite 102 ♦ Bethany, OK 73008 ♦ 405.210.3169

City Engineer

PROJECT:

The Gateway on Acres Street
111-113 Acres Street
Norman, OK 73069

Katy Construction proposes to develop this parcel of land into three (3) individual lots with a two story residential unit and an auxiliary dwelling unit on each lot. At the time of this report, the existing two homes, outbuildings and all pavements have been removed.

The property has 125 feet of frontage on the north side of Acres Street and 125 feet frontage at the existing city alley. The property is 17,000 s.f. or 0.40 acres. The alley will be used as access for the auxiliary dwelling units.

HISTORIC DATA

The historical drainage area used for this report is the entire 125'X140' plus the city right-of-way to the back of existing curb on Acres Street. This makes the Historic DA=0.45 acres. of the property is 1.16 acres. The property drains both to the NW and the SW, so two Historic basins were calculated to determine the total Historic release rate. Basin A drains SW to Acres Street and has a DA of 0.32 acres, and a Q100 of 1.79 cfs. Basin B drains NW to the alley and has a DA of 0.13 acres, and a Q100 of 0.81 cfs.

The total Historic release for a 100 year storm event is 2.70 cfs.

DEVELOPED DATA

The developed project has been divided by into two (2) basins. They are as follows:

BASIN A

The developed drainage area for Basin A is 0.30 acres and drains SW to Acres Street. The Developed Q100 = 2.01 cfs.

BASIN B

The developed drainage area for Basin B is 0.15 acres and drains NW to the existing alley. The Developed Q100 = 1.06 cfs.

Total Developed release for a 100 year storm event is 3.07 cfs.

This development will cause an increase of 0.37 cfs. during the 100 year storm. This 0.37 cfs. has been mitigated by the construction of three (3) Porous Paver parking areas in Basin B. The 3 parking areas have a total of 1200 s.f. of surface area and will allow water to be absorbed below grade and when the aggregate section is saturated it will flow in 4" pvc piping to Acres Street and released through the concrete curb. Refer to Exhibit B in this report for details of the Porous Paver Parking details.

SUMMARY

This project has been prepared under my direct supervision; the attached Plans comply with the City of Norman governing ordinances. The discharge from this site will not exceed the historical rates for this property prior to development for the 2 year, 5 year, 10 year, 25 year 50 year and 100 year frequency storm.

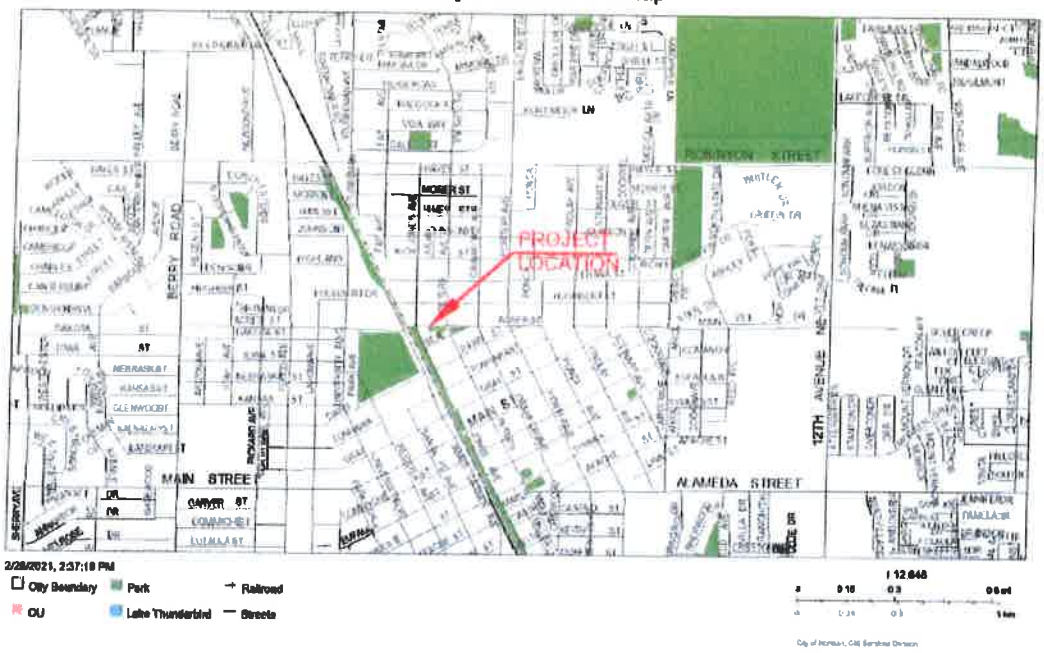
Respectfully submitted,

LICENSED PROFESSIONAL ENGINEER
Darin Teeman
25180
OKLAHOMA

Date: 03/01/21

Darin Teeman, PE 25180

City of Norman WebMap



S·T·P SOLUTIONS, INC. ◆ ENGINEERING ◆ LAND SURVEYING ◆ GEOTECHNICAL SERVICES	THE GATEWAY ON E. ACRES ST. KEITH McCABE 111-113 ACRES ST. NORMAN, OK	NORTH	LOCATION MAPS
			Drawn By: TLP / Scale: NONE
			Checked By: DT / Date: 03/01/21
			Project No.: E21-100.1 / EXHIBIT A

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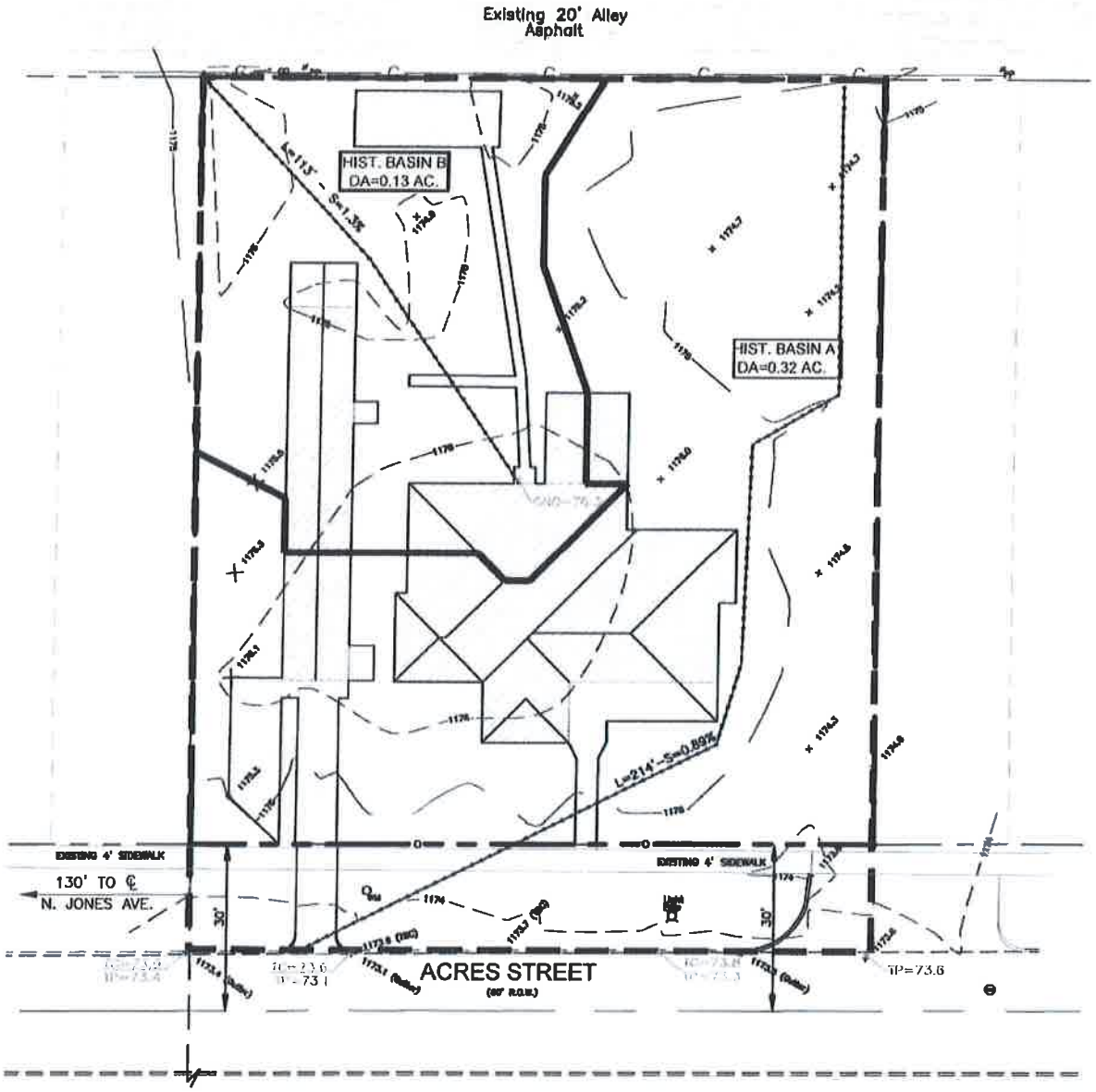
G:\Shared drives\Engineering Department\05-ENGINEERING CONTRACTS\E20-116.1-KEITH McCABE-111-113 E. ACRES\05-DWG\01- MacABE BASE_21-02-25.dwg 2/27/2021 1:55:53 PM 11

Exhibit B
Drainage Report 4 of 11



HISTORIC RUNOFF CALCULATIONS

BASIN A		BASIN B	
DA=	.32 AC.	DA=	.13 AC.
L=	214'	L=	113'
S=	0.89%	S=	1.33%
Tc=	12.40 MIN.	Tc=	9.60 MIN.
Q100=	1.79 CFS	Q100=	0.81 CFS

TOTAL HIST. Q100 = 2.70 CFS

LICENSED PROFESSIONAL ENGINEER
Darin Teeman
25180
OKLAHOMA
03/01/21

S·T·P SOLUTIONS, INC.
• ENGINEERING
• LAND SURVEYING
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THE GATEWAY ON E. ACRES ST.
KEITH McCABE
111-113 ACRES ST.
NORMAN, OK

NORTH

HISTORIC DRAINAGE MAP

Drawn By: TLP	Scale: 1"=30'
Checked By: DT	Date: 03/01/21
Project No.: E21-100.1	HIST. 1.0

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RUNOFF CALCULATION BY

OKC RATIONAL METHOD

CITY OF NORMAN

FILE McCABE - ACRES STREET
PROJECT NO E21-100.1
BY DT/TLP
DATE 21/02/24
SHEET NO 1 **OF** 1
SUBJECT 02-HIST. BASIN A

Project Location: 111 to 113 ACRES STREET
Drainage Area: 02-HISTORIC CONDITIONS - BASIN A
Structure Number: N/A
Area: 0.32 Acres (0.00 Sq. Mi.) **Avg. Slope:** % (ft/mi.)

WEIGHTED RUNOFF COEFFICIENT:

Land Use:	Area (Ac)	% Total Area	C	Lo	K Factor
Landscaped	0.234	73.13%	0.55	154.0	0.775
Undeveloped	0.000	0.00%	0.30	0.0	0.775
Cultivated	0.000	0.00%	0.50	0.0	0.775
Commercial	0.000	0.00%	0.95	0.0	0.445
Residential	0.000	0.00%	0.70	0.0	0.511
Paved	0.086	26.88%	0.95	60.0	0.372

Weighted C: 0.66

Weighted K Factor: 0.662

TIME OF CONCENTRATION:

Time Overland:

Length of Overland Flow, L:	214.00	ft
Drop in Ft.	1.90	ft
Overland Average Slope, S:	0.0089	ft/ft
Overland K Factor (K):	0.6620	

Overland Time of Concentration, $T_C = K^*(L^{0.33}) / S^{0.20}$

Time In System:

Total Time Overland: 12.40 min. **Total Time In System:** min.
Total TC: 12.40 min.

RAINFALL INTENSITY:

$I = A / (B + Tc)^E$

I_{50} = 7.64 I_{25} = 6.72
I_{10} = 5.80 I_5 = 5.09
I_2 = 4.32

Where: I_{10c} = 8.49 Intensity of rainfall (inches / hour)
A, B, and E = ... Intensity, Frequency and Duration (I-F-D) Equation Parameters; shown below in Table 1-1.
Tc = ... Time of Concentration unique to the sub-basin

Table 1-1

Frequency	Parameters					
(Year)	2 year	5 year	10 year	25 year	50 year	100 year
D	56.43	72	82	95	108	120
E	11.5	15	15	15	15	15
F	0.81	0.80	0.80	0.80	0.80	0.80

HISTORIC PEAK DISCHARGE:

	C		I (in/hr)		A (Ac)		
Q_{100}=	0.66	*	8.49	*	0.32	=	1.79 cfs
Q_{50}=	0.66	*	7.64	*	0.32	=	1.61 cfs
Q_{25}=	0.66	*	6.72	*	0.32	=	1.41 cfs
Q_{10}=	0.66	*	5.80	*	0.32	=	1.22 cfs
Q_5=	0.66	*	5.09	*	0.32	=	1.07 cfs
Q_2=	0.66	*	4.32	*	0.32	=	0.91 cfs

HIST A

FILE McCABE - ACRES STREET
PROJECT NO E21-100.1
BY DT/TLP
DATE 21/02/24
SHEET NO 1 OF 1
SUBJECT 02-HIST. BASIN B

RUNOFF CALCULATION BY OKC RATIONAL METHOD

CITY OF NORMAN

Project Location: 111 to 113 ACRES STREET
Drainage Area: 02-HISTORIC CONDITIONS - BASIN B
Structure Number: N/A
Area: 0.13 Acres (0.00 Sq. Mi.) **Avg. Slope:** % (ft/mi.)

WEIGHTED RUNOFF COEFFICIENT:

Land Use:	Area (Ac)	% Total Area	C	Lo	K Factor
Landscaped	0.09	69.23%	0.55	93.0	0.775
Undeveloped	0.00	0.00%	0.30	0.0	0.775
Cultivated	0.00	0.00%	0.50	0.0	0.775
Commercial	0.00	0.00%	0.95	0.0	0.445
Residential	0.00	0.00%	0.70	0.0	0.511
Paved	0.04	30.77%	0.95	20.0	0.372

Weighted C: 0.67

Weighted K Factor: 0.704

TIME OF CONCENTRATION:

Time Overland:

Length of Overland Flow, L: 113.00 ft
6 1.50 ft
Overland Average Slope, S: 0.0133 ft/ft
Overland K Factor (K): 0.7037
Overland Time of Concentration, $T_C = K*(L^{0.33}) / S^{0.20}$

Time In System:

Total Time Overland: 9.60 min.
Total TC: 9.60 min.
Total Time in System: min.

RAINFALL INTENSITY:

$I = A / (B + Tc)^{\wedge E}$

I_{50} = 8.33 I_{25} = 7.33
I_{10} = 6.32 I_5 = 5.55
I_2 = 4.77

Where: I_{10c} = 9.26 Intensity of rainfall (inches / hour)
A, B, and E = ... Intensity, Frequency and Duration (I-F-D) Equation Parameters; shown below in Table 1-1.
Tc = ... Time of Concentration unique to the sub-basin

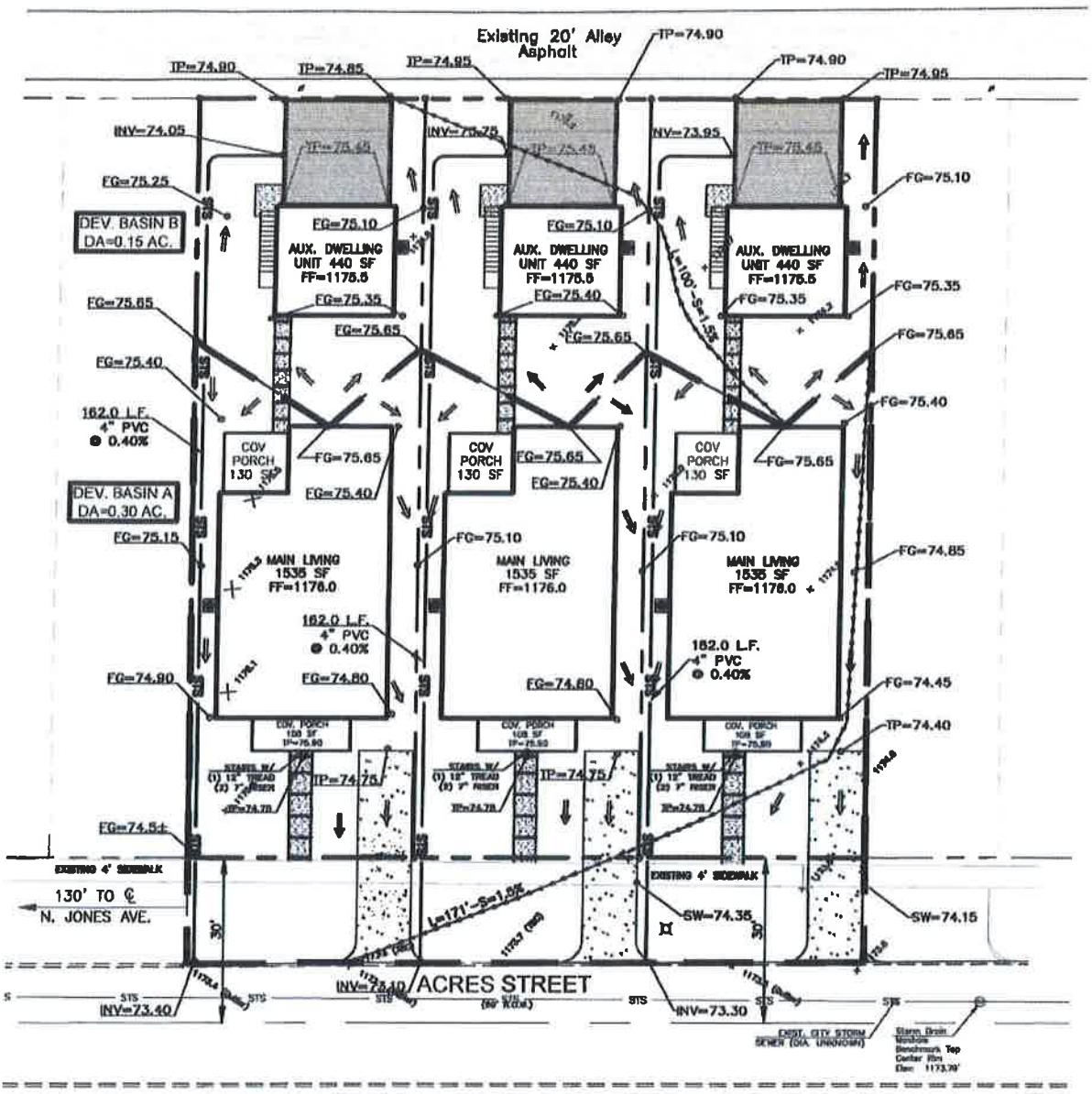
Table 1-1

Frequency (Year)	Parameters					
	2 year	5 year	10 year	25 year	50 year	100 year
D	56.43	72	82	95	108	120
E	11.5	15	15	15	15	15
F	0.81	0.80	0.80	0.80	0.80	0.80

HISTORIC PEAK DISCHARGE:

	C		I (in/hr)		A (Ac)		
Q_{100}=	0.67	*	9.26	*	0.13	=	0.81 cfs
Q_{50}=	0.67	*	8.33	*	0.13	=	0.73 cfs
Q_{25}=	0.67	*	7.33	*	0.13	=	0.64 cfs
Q_{10}=	0.67	*	6.32	*	0.13	=	0.55 cfs
Q_5=	0.67	*	5.55	*	0.13	=	0.49 cfs
Q_2=	0.67	*	4.77	*	0.13	=	0.42 cfs

HIST B



DEVELOPED RUNOFF CALCULATIONS

BASIN A		BASIN B	
DA=	.30 AC.	DA=	.15 AC.
L=	171'	L=	100'
S=	1.5%	S=	0.80%
Tc=	10.29 MIN.	Tc=	9.73 MIN.
Q100=	2.01 CFS	Q100=	1.06 CFS

TOTAL DEV. Q100 = 3.07 CFS

LICENSED PROFESSIONAL ENGINEER
Darin Teeman
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03/01/21

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● LAND SURVEYING
● GEOTECHNICAL SERVICES

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A NATIVE AMERICAN OWNED FIRM

THE GATEWAY ON E. ACRES ST.
KEITH McCABE
111-113 ACRES ST.
NORMAN, OK

NORTH

DEVELOPED DRAINAGE MAP

Drawn By: TLP	Scale: 1"=30'
Checked By: DT	Date: 03/01/21
Project No.:E21-100.1	DEV. 1.0

Exhibit B
Drainage Report 8 of 11

RUNOFF CALCULATION BY

OKC RATIONAL METHOD

CITY OF NORMAN

FILE McCABE - ACRES STREET
PROJECT NO E21-100.1
BY DT/TLP
DATE 21/02/24
SHEET NO 1 **OF** 1
SUBJECT 02-DEV. BASIN A

Project Location: 111 to 113 ACRES STREET
Drainage Area: 02-DEV. CONDITIONS - BASIN A
Structure Number: N/A
Area: 0.30 Acres (0.00 Sq. Mi.) **Avg. Slope:** % (ft/mi.)

WEIGHTED RUNOFF COEFFICIENT:

Land Use:	Area (Ac)	% Total Area	C	Lo	K Factor
Landscaped	0.140	46.67%	0.50	123.0	0.775
Undeveloped	0.000	0.00%	0.30	0.0	0.775
Cultivated	0.000	0.00%	0.50	0.0	0.775
Commercial	0.000	0.00%	0.95	0.0	0.445
Residential	0.000	0.00%	0.70	0.0	0.511
Paved	0.160	53.33%	0.95	48.0	0.372

Weighted C: 0.74

Weighted K Factor: 0.662

TIME OF CONCENTRATION:

Time Overland:

Length of Overland Flow, L:	171.00	ft
Drop in Ft.	2.55	ft
Overland Average Slope, S:	0.0149	ft/ft
Overland K Factor (K):	0.6619	

Overland Time of Concentration, $T_C = K*(L^{0.33}) / S^{0.20}$

Time in System:

Total Time Overland: 10.29 min. **Total Time in System:** min.
Total TC: 10.29 min.

RAINFALL INTENSITY:

$I = A / (B + Tc)^{E}$

Where: I_{10C} = 9.05 Intensity of rainfall (inches / hour)
A, B, and E = ... Intensity, Frequency and Duration (I-F-D) Equation Parameters; shown below in Table 1-1.
Tc = ... Time of Concentration unique to the sub-basin

I_{50} = 8.15 I_{25} = 7.17
I_{10} = 6.19 I_5 = 5.43
I_2 = 4.65

Table 1-1

Frequency	Parameters					
(Year)	2 year	5 year	10 year	25 year	50 year	100 year
D	56.43	72	82	95	108	120
E	11.5	15	15	15	15	15
F	0.81	0.80	0.80	0.80	0.80	0.80

HISTORIC PEAK DISCHARGE:

	C		I (in/hr)		A (Ac)		
Q_{100}=	0.74	*	9.05	*	0.30	=	2.01 cfs
Q_{50}=	0.74	*	8.15	*	0.30	=	1.81 cfs
Q_{25}=	0.74	*	7.17	*	0.30	=	1.59 cfs
Q_{10}=	0.74	*	6.19	*	0.30	=	1.37 cfs
Q_5=	0.74	*	5.43	*	0.30	=	1.21 cfs
Q_2=	0.74	*	4.65	*	0.30	=	1.03 cfs

RUNOFF CALCULATION BY

OKC RATIONAL METHOD

FILE McCABE - ACRES STREET
PROJECT NO E21-100.1
BY DT/TLP
DATE 21/02/24
SHEET NO 1 **OF** 1
SUBJECT 02-DEV BASIN B

CITY OF NORMAN

Project Location: 111 to 113 ACRES STREET
Drainage Area: 02-DEV. CONDITIONS - BASIN B
Structure Number: N/A
Area: 0.15 Acres (0.00 Sq. Mi.) **Avg. Slope:** % (ft/mi.)

WEIGHTED RUNOFF COEFFICIENT:

Land Use:	Area (Ac)	% Total Area	C	Lo	K Factor
Landscaped	0.060	40.00%	0.50	75.0	0.775
Undeveloped	0.000	0.00%	0.30	0.0	0.775
Cultivated	0.000	0.00%	0.50	0.0	0.775
Commercial	0.000	0.00%	0.95	0.0	0.445
Residential	0.000	0.00%	0.70	0.0	0.511
Paved	0.090	60.00%	0.95	25.0	0.372

Weighted C: 0.77

Weighted K Factor: 0.674

TIME OF CONCENTRATION:

Time Overland:

Length of Overland Flow, L:	100.00	ft
Drop in Ft.	0.80	ft
Overland Average Slope, S:	0.0080	ft/ft
Overland K Factor (K):	0.6743	

Overland Time of Concentration, $T_C = K^*(L^{0.5})\ /\ S^{0.20}$

Time In System:

Total Time Overland: 9.73 min. **Total Time in System:** min.
Total TC: 9.73 min.

RAINFALL INTENSITY:

I= A / (B + Tc)^E

I_{50} =	8.29	I_{25} =	7.30
I_{10} =	6.30	I_5 =	5.53
I_2 =	4.75		

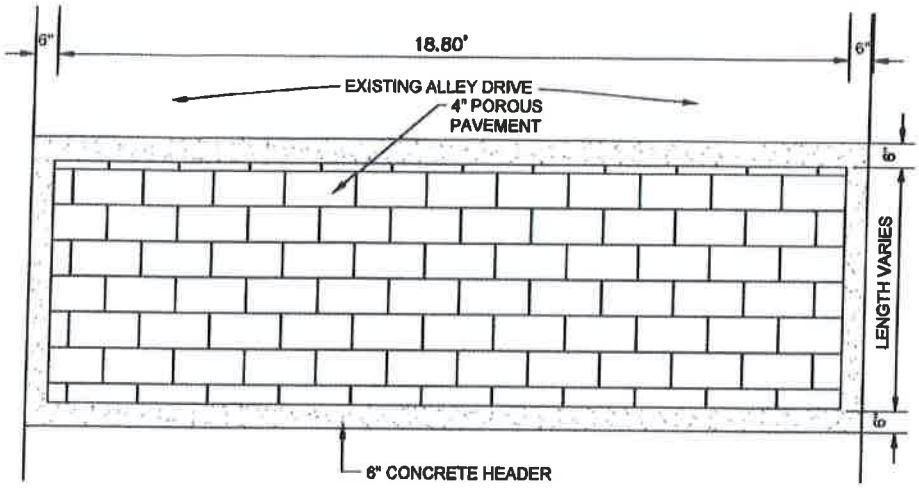
Where: I_{10C} = 9.22 Intensity of rainfall (inches / hour)
A, B, and E = ... Intensity, Frequency and Duration (I-F-D) Equation Parameters; shown below in Table 1-1.
Tc = ... Time of Concentration unique to the sub-basin

Table 1-1

Frequency	*Parameters*					
(Year)	*2 year*	*5 year*	*10 year*	*25 year*	*50 year*	*100 year*
D	56.43	72	82	95	108	120
E	11.5	15	15	15	15	15
F	0.81	0.80	0.80	0.80	0.80	0.80

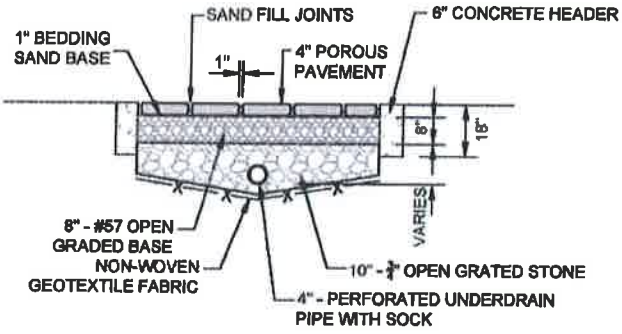
HISTORIC PEAK DISCHARGE:

	C		I (in/hr)		A (Ac)		
Q_{100}=	0.77	*	9.22	*	0.15	=	1.06 cfs
Q_{50}=	0.77	*	8.29	*	0.15	=	0.96 cfs
Q_{25}=	0.77	*	7.30	*	0.15	=	0.84 cfs
Q_{10}=	0.77	*	6.30	*	0.15	=	0.73 cfs
Q_5=	0.77	*	5.53	*	0.15	=	0.64 cfs
Q_2=	0.77	*	4.75	*	0.15	=	0.55 cfs



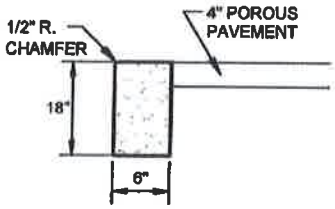
PAVESTONE PARKING AREA

SCALE: NTS



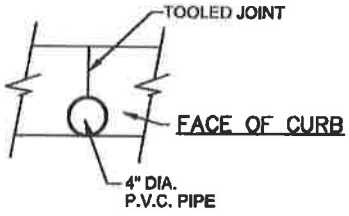
POROUS PAVER SECTION

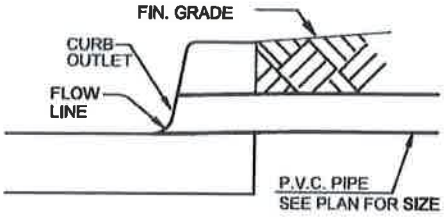
SCALE: NTS



CONCRETE HEADER

NO SCALE





DRAIN LINE @ CURB OUTLET DETAIL

SCALE: NTS

LICENSED PROFESSIONAL ENGINEER
Darin Teeman
25180
OKLAHOMA
03/01/21

S·T·P SOLUTIONS, INC.
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◆ LAND SURVEYING
◆ GEOTECHNICAL SERVICES

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A NATIVE AMERICAN OWNED FIRM

THE GATEWAY ON E. ACRES ST.
KEITH McCABE
111-113 ACRES ST.
NORMAN, OK

NORTH

PAVESTONE PARKING AREA	
Drawn By: TLP	Scale: NONE
Checked By: DT	Date: 03/01/21
Project No.: E21-100.1	EXHIBIT B