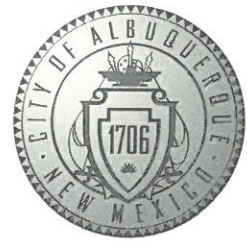# CITY OF ALBUQUERQUE

May 2, 2018

Hugh Floyd
Respec
5971 Jefferson St NE
Albuquerque, NM 87109

RE: **Bosque Brewery**
        I-25 west Frontage Rd between Venice & Pasadena
        Drainage Report (For Variance)
        Engineer's Stamp Date: 4/23/18
        Hydrology File: B18D022

Dear Mr. Floyd:

Based on the information provided in your submittal received 4/25/18, the above referenced report is approved for a reduced waterblock in support of Work Order.

If you have any questions, please contact me at 924-3695 or dpeterson@cabq.gov.

Sincerely,

Dana Peterson, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file

April 23, 2018

Dana Peterson
Senior Engineer, Planning Dept.
Development Review Services
600 2nd Street NW
Albuquerque, NM 87102

Dear Dana Peterson:

RE: Venice Avenue Offsite Infrasturcture Improvements
Water Block Analysis
DRC Project: 741083
Hydrology File: B18D022

RESPEC would like to request a variance for the standard water block height of 0.87 feet. The existing grade of Venice Avenue varies but is greater than 5% in this location. In order to reduce the grade of the private parking lot as the proposed driveway ties to the existing roadway, it is proposed that the water block height at the upstream end of the driveway (eastern end) be reduced. The subbasin contributing to this location is shown in the attached exhibit. The total area of the subbasin is 0.16 acres with 87.5% impervious area. The resulting flow from this subbasin is 0.8 cfs. The hydrology calculations are included in this letter report. This flow rate was used to determine the flow depth at the eastern water block. See Manning's calculation attached. The depth of flow at this location is 0.077 feet. The hydraulic jump depth was calculated to be 0.238 feet. The proposed water block height is 0.37 feet, which is greater than 0.238 feet. Therefore, the proposed water block is sufficient.
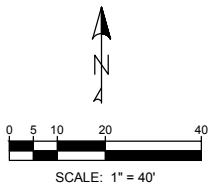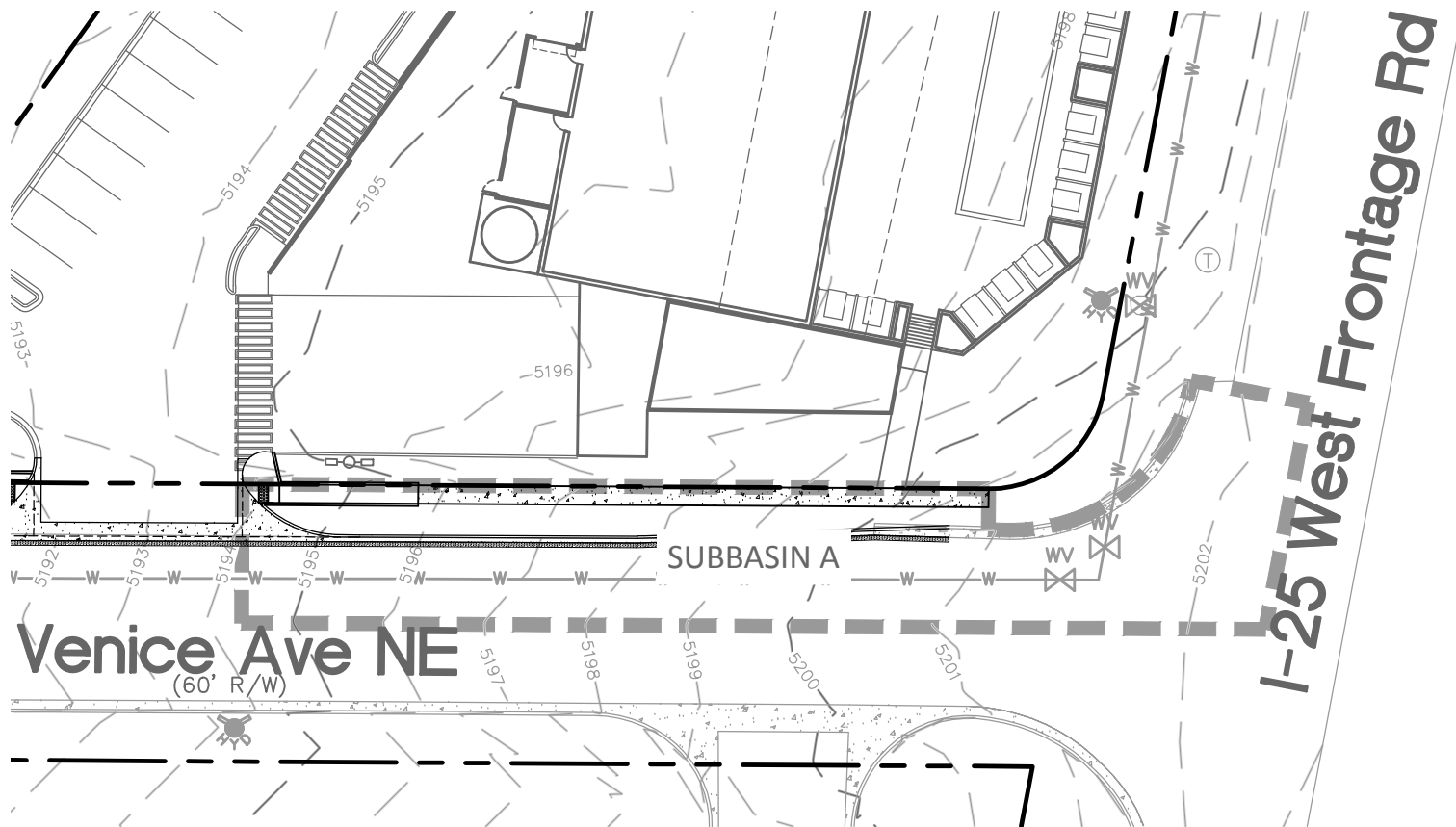
If you have any comments or concerns, please feel free to contact me at (505) 366-4187.

Sincerely,

Hugh Floyd, P.E.
New Mexico Area Manager, Water & Natural Resources

5194

5195

5193

5196

I-25 West Frontage Rd

WV

T

WV

SUBBASIN A

5192 5193 5194 5195 5196 5202

Venice Ave NE
(60' R/W)

5197 5198 5199 5200 5201

N

0 5 10 20 40

SCALE: 1" = 40'

VENICE AVENUE OFFSITE
INFRASTRUCTURE IMPROVEMENTS
WATER BLOCK ANALYSIS
APRIL, 2018

Hydrology Calculations

The following calcualtions are based on Albuquerque's Development Process Manual, Seciton 22.2

Runoff Rate:

Treatment Type Areas

Subbasin	Area$_A$ (ac)	Area$_B$ (ac)	Area$_C$ (ac)	Area$_D$ (ac)	Total (ac)
Subbasin A	0	0.0103	0.0103	0.1438	0.1643

Peak Discharge values based on Zone 3 from Table A-9

Q_A = 1.87 cfs/ac Q_B = 2.60 cfs/ac Q_C = 3.45 cfs/ac Q_D = 5.02 cfs/ac

Peak Discharge calculation for a 100-yr, 24-hr storm event from equation A-10

Subbasin	Discharge (cfs)
Subbasin A	0.8

Manning Formula:

Irregular Section
Input

    Flow   0.8 cfs

    Slope   0.0546 ft/ft

Sta	Elev	n	Sta	Elev	n	Sta	Elev	n	Sta	Elev	n
0	0.3	0.017	16.61	0.03	0.017	16.611	0.03	0.013	18.61	0	0.013
20.61	0.1	0.013	20.611	0.1	0.017	24.05	0.28	0.017	30	0.37	0.017

Output

    WSElev   0.077 ft

    Flow Area   0.248 sf

    Velocity   3.22 fps

    Velocity Head   0.162 ft

    Top Width   6.39 ft

    Froude Number   2.89

    Critical WSElev   0.117 ft

    Critical Slope   ft/ft

Hydraulic Jump Calculation:

$$Y_2 = Y_1 + \frac{v^2}{2g}$$

$$= 0.077 + \frac{3.22^2}{2 \cdot 32.2}$$

$$= 0.238' \quad < 0.37' \ [OK]$$