CITY OF ALBUQUERQUE

Planning Department
Brennon Williams, Director

Mayor Timothy M. Keller

October 3, 2019

Dennis Lorenz, P.E.
Lorenz Design & Consulting
2501 Rio Grande NW, Suite A
Albuquerque, NM 87104

RE: Springstone Parking Lot and Garage
Davenport St NW
Grading Plan Stamp Date: 9/18/19
Drainage Report Stamp Date: 9/18/19
Hydrology File: C12D003B2

Dear Mr. Lorenz:

Based on the submittal received on 9/18/19, cannot be approved until the following corrections are made:

Prior to Building Permit:

1. This site must comply with the City-approved Drainage Master Plan for Fountain Hills (BHI, 2007, C12D003). This DMP shows this site and the Springstone site directly north as discharging to Davenport at a rate of 8.06cfs (aggregated).

2. As an alternative, you could provide onsite 100-yr, 10-day retention ponding, or obtain an easement to discharge across the carwash and out to Education Pl.

3. Please provide the street address.

4. Any work proposed on other's property, must include written and signed permission from that property owner.

5. Provide sections through the external boundaries showing proposed slopes, retaining walls, garden walls, property/ROW lines, existing and proposed grades. In accordance with DPM Ch.22, section 5 part B, grading and wall construction near the property line may not endanger adjacent property or constrain its use.

6. With AHYMO S4, be sure to use NOAA Atlas 14 precipitation depths in conjunction with the NOAA Atlas 14 distribution. Include the location map and tables obtained from the NOAA website. Using the NOAA Atlas 2 Precipitation depths (Found in the DPM), with the NOAA Atlas 14 Distributions results in an over-prediction of peak runoff (Q_{100}).

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

See AHYMO AppNote-01, and the Hydrology website for more information regarding this.

7. Include project benchmark and datum; all existing survey, proposed grades, and benchmarks must be provided in NAVD 88.

8. As a reminder, if the project total area of disturbance (including the staging area and any work within the adjacent Right-of-Way) is 1 acre or more, then an Erosion and Sediment Control (ESC) Plan and Owner's certified Notice of Intent (NOI) is required to be submitted to the Stormwater Quality Engineer (Doug Hughes, PE, jhughes@cabq.gov, 924-3420) 14 days prior to any earth disturbance.

Prior to Certificate of Occupancy (For Information):

9. Engineer's Certification, per the DPM Chapter 22.7: *Engineer's Certification Checklist For Non-Subdivision* is required.

10. A Bernalillo County Recorded Drainage Covenant (No Public Easement) is required for the stormwater control pond. The original notarized form, exhibit A (legible on 8.5x11 paper), and recording fee ($25, payable to Bernalillo County) must be turned into DRC (4th, Plaza del Sol) for routing. Please contact Charlotte LaBadie (clabadie@cabq.gov, 924-3996) regarding the routing and recording process for covenants. The routing and recording process for covenants can take a month or longer; Hydrology recommends beginning this process as soon as possible as to not delay approval for certificate of occupancy.

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

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 6/2018)

Project Title: SPRINGSTONE Building Permit #: — Hydrology File #: —

DRB#: — EPC#: — Work Order#: —

Legal Description: LOT 18, BLK B, ALBUQUERQUE WEST

City Address: DAVENPORT ST NW

Applicant: DENNIS LORENZ Contact: D. LORENZ

Address: 2501 RIO GRANDE NW STE A, ABQ NM 87104

Phone#: 220.0869 Fax#: E-mail:

Other Contact: CONSTRUCTION ENTERPRISES Contact: R. FRAKES

Address: 6421 THUNDERBIRD CT NW, ABQ, NM 87120

Phone#: 220.6255 Fax#: — E-mail: CEISWH@AOL.COM

TYPE OF DEVELOPMENT: ____ PLAT (# of lots) ____ RESIDENCE ____ DRB SITE X ADMIN SITE

IS THIS A RESUBMITTAL? ____ Yes X No

DEPARTMENT ____ TRANSPORTATION X HYDROLOGY/DRAINAGE

Check all that Apply:

TYPE OF SUBMITTAL:

____ ENGINEER/ARCHITECT CERTIFICATION
____ PAD CERTIFICATION
____ CONCEPTUAL G & D PLAN
X GRADING PLAN
X DRAINAGE REPORT
____ DRAINAGE MASTER PLAN
____ FLOODPLAIN DEVELOPMENT PERMIT APPLIC
____ ELEVATION CERTIFICATE
____ CLOMR/LOMR
____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ TRAFFIC IMPACT STUDY (TIS)
____ STREET LIGHT LAYOUT
____ OTHER (SPECIFY) ____
____ PRE-DESIGN MEETING?

TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

X BUILDING PERMIT APPROVAL
____ CERTIFICATE OF OCCUPANCY

____ PRELIMINARY PLAT APPROVAL
____ SITE PLAN FOR SUB'D APPROVAL
____ SITE PLAN FOR BLDG. PERMIT APPROVAL
____ FINAL PLAT APPROVAL

____ SIA/ RELEASE OF FINANCIAL GUARANTEE
____ FOUNDATION PERMIT APPROVAL
____ GRADING PERMIT APPROVAL
____ SO-19 APPROVAL
____ PAVING PERMIT APPROVAL
____ GRADING/ PAD CERTIFICATION
____ WORK ORDER APPROVAL
____ CLOMR/LOMR
____ FLOODPLAIN DEVELOPMENT PERMIT
____ OTHER (SPECIFY) ____

DATE SUBMITTED: 9.18.19 By: DENNIS LORENZ

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: ____

FEE PAID: ____

LOCATION & DESCRIPTION

LOT 1-B, BLOCK B OF THE ALBUQUERQUE WEST SUBDIVISION IS SITUATED SOUTH OF PARADISE HILLS BLVD. ON DAVENPORT ST. NW. THE AREA IS PREDOMINANTLY ZONED FOR SPECIAL/COMMERCIAL USE AND IS UNDEVELOPED, EXCEPT FOR THE NEW WESTSIDE ELEMENTARY SCHOOL NOW UNDER CONSTRUCTION.

DRAINAGE CHARACTERISTICS

(EXISTING): THE 0.5939-ACRE PARCEL IS BORDERED BY THE PARTIALLY DEVELOPED RIGHT-OF-WAY OF DAVENPORT ST. TO THE WEST. THE REMAINDER OF THE SURROUNDING PROPERTIES HAVE BEEN MASS GRADED AS PART OF THE RIVERVIEW MASS GRADING BUT IS NOT DEVELOPED. THIS SITE DOES NOT ACCEPT ANY OFFSITE STORM WATERS BUT FUTURE ALLOWANCE WILL BE MADE. PRESENTLY, ALL UNDEVELOPED STORM WATERS SHEET FLOW TO THE EAST AND ARE INTERCEPTED BY THE DESILTATION/DETENTION PONDS AT THE SOUTHERLY TERMINUS OF THE EAGLE RANCH STORM DRAIN.

HYDROLOGY

(EXISTING): THE SITE IS WITHIN THE BOUNDARIES OF PRECIPITATION ZONE NO. 1 (WEST OF RIO GRANDE BLVD.); AS SUCH THE P_{360} (6 HR.-100 YR. STORM) HAS A DEPTH OF 2.2 INCHES.

THE TOTAL ONSITE DRAINAGE AREA IS 0.594 ACRES OF VACANT GRASS LAND, HAVING A CORRESPONDING LAND TREATMENT B CLASSIFICATION.

PEAK DISCHARGE (USING A 10-MINUTE TIME OF CONCENTRATION), CFS/AC. 100 YR., ZONE 3 (TABLE 9) = 1.40 CFS/AC.

DETERMINE TOTAL Q_p = $Q_{PA} A_A$
= (1.91) (0.594)
= 1.13 CFS

VOLUME = EA
= (0.48)(0.594)(43560)
= 12,420 CU. FT.

PROPOSED IMPROVEMENTS

THE SITE SHALL BE IMPROVED TO ALLOW FOR THE FOLLOWING:

1. SITE SHALL ACCEPT PARTIAL FLOWS FROM REMNANT OF LOT 1 (LOT 1-A) ADJACENT TO THE NORTH.
2. ALL FUTURE OFFSITE AND ONSITE DEVELOPED FLOWS SHALL BE ROUTED TO THE SITE'S SOUTHEASTERLY CORNER AND DETAINED BY AN ONSITE POND. OUTFALL SHALL BE LIMITED TO 76% OF THE DEVELOPED PEAK.
3. INITIAL POND OUTFALL SHALL BE WITHIN THE LIMITS OF THE 20' DRAINAGE EASEMENT AT THE SOUTHEAST CORNER OF THE SITE.
4. DOWNSTREAM CONTAINMENT OF DISCHARGED STORM WATER FLOWS SHALL NOT BE A CONCERN DUE TO A LETTER OF ACCEPTANCE FROM THE DOWNSTREAM PROPERTY OWNER.

HYDROLOGY

(PROPOSED): THE PROPOSED SITE IMPROVEMENTS CONSIST OF A SINGLE BUILDING, ASPHALTIC PARKING AND ACCESS SURFACES AND LANDSCAPING. THE ANALYSIS FOR DETERMINING THE MAXIMUM PEAK DISCHARGE IS BASED ON LAND TREATMENTS.

LAND TREATMENT	AC.	SQ. FT.
B	0.164	7,128
D	0.43	18,742

TOTAL Q_p = $Q_{pB}A_B + Q_{pD}A_D$
= (1.91)(0.164) + (4.37)(0.43)
= 0.313 + 1.879 = 2.19 CFS

ALLOWABLE DISCHARGE = (0.76)(2.19) = 1.67 CFS

VOLUME OF RUNOFF

WEIGHTED E = $\frac{(0.61)(0.164) + (1.93)(0.43)}{0.594}$

= 1.56 INCHES

VOLUME = $\frac{1.56}{12}$ x 0.594 = 0.77 AC. FT.

= 3,376 CU.FT.

POND VOLUME IS DETERMINED BY SOLVING FOR THE DIFFERENCE IN THE HYDROGRAPH FOR SMALL WATERSHED (DPM SECTION 22.2, A.8) BETWEEN THE ALLOWABLE DISCHARGE RATE AND THE PEAK RATE.

t_b = $\frac{(121)(1.56)(0.594)}{2.19} - \frac{(15)(0.43)}{0.594}$

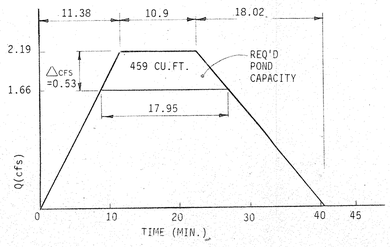
= 51.2 - 10.8 = 40.3 MIN.

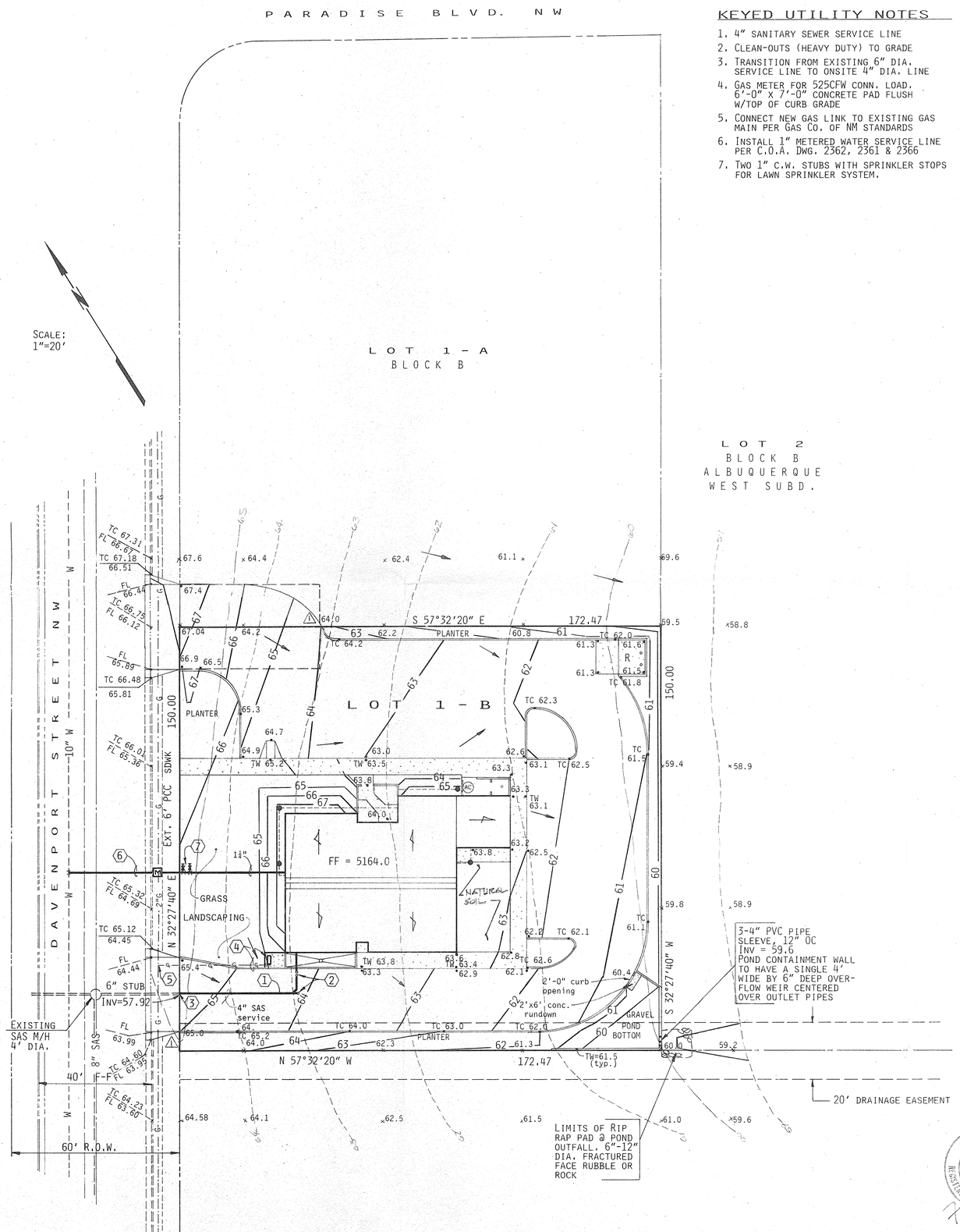
t_p = $(0.7)(10) + 8 - \frac{(5)(0.43)}{0.594}$

= 11.38 MIN.

t_{pc} = $(15)\frac{0.43}{0.594}$

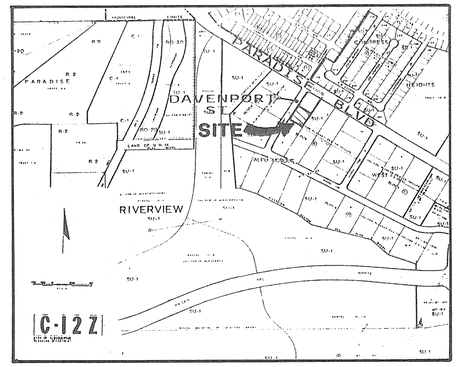
= 10.9 MIN.





KEYED UTILITY NOTES

1. 4" SANITARY SEWER SERVICE LINE
2. CLEAN-OUTS (HEAVY DUTY) TO GRADE
3. TRANSITION FROM EXISTING 6" DIA. SERVICE LINE TO ONSITE 4" DIA. LINE
4. GAS METER FOR 525CFW CONN. LOAD. 6'-0" x 7'-0" CONCRETE PAD FLUSH W/TOP OF CURB GRADE
5. CONNECT NEW GAS LINK TO EXISTING GAS MAIN PER GAS CO. OF NM STANDARDS
6. INSTALL 1" METERED WATER SERVICE LINE PER C.O.A. DWG. 2362, 2361 & 2366
7. TWO 1" C.W. STUBS WITH SPRINKLER STOPS FOR LAWN SPRINKLER SYSTEM.



VICINITY MAP 1"=750'±

GENERAL NOTES

LEGAL DESCRIPTION: LOT 1-B BEING THE SOUTHERLY 150.00 FEET OF LOT 1, BLOCK B OF THE ALBUQUERQUE WEST SUBDIVISION, FILED FOR RECORD IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO ON JANUARY 3, 1985, VOLUME C 26, FOLIO 18.

ENGINEER: ISAACSON & ARFMAN, P.A.
128 MONROE STREET NE
ALBUQUERQUE, N.M. 87108
ATTN: FRED C. ARFMAN
(505) 268-8828

SURVEYOR: WILLIAM P. PETTIT
NMRLS NO. 3243
DATE OF SURVEY: SEPT. 6, 1991

BENCHMARK: ACS B.M. NO. "2-C12", 1 3/4" ALUM. DISK SET ON TOP OF CURB @ WNW RETURN OF PARADISE BLVD. AND DAVENPORT STREET NW.
ELEVATION: 5175.79

TBM: RAILROAD SPIKE IN POWER POLE APPROX. 1 BLOCK EAST OF GOLF COURSE RD. ON SOUTH R.O.W. LINE OF PARADISE BLVD.
ELEVATION: 5199.82

ZONING: SU-1 FOR C-3 USES

AREA: 0.5939 ACRES (25,870 SQ.FT.)

FLOOD HAZARD: NO PART OF THIS LOT NOR THE ADJACENT RIGHT-OF-WAY OF DAVENPORT ST. ARE SUBJECT TO A FLOOD HAZARD AREA AS DETERMINED BY PANEL NO. 350002-0008 OF THE OCTOBER 14, 1983 EDITION OF THE F.E.M.A. MAPS.

APR 2 1992

no.	date	revision
△	10/30/91	D.R.B. COMMENTS

dekker & associates p.c.
architecture • planning • engineering • interior & graphic design • facilities programming
6501 Americas Parkway N.E. Suite 675 Albuquerque New Mexico 87110 Telephone 505 888-3111

The Pet Doctor
Davenport Street, N.W.
Albuquerque, NM

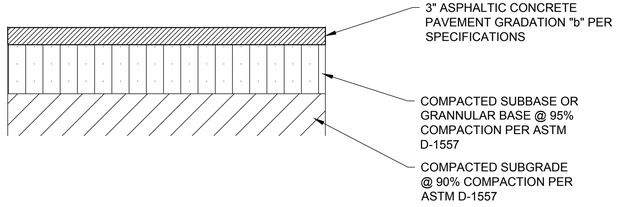
Utility, Grading & Drainage Plan

job no. 91021
drn. by IGA
ckd. by F.A.
issued 3/30/92

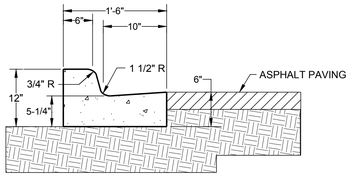
sheet C-2 2 of 22

FRED C. ARFMAN N.M. MEXICO 7322 REGISTERED PROFESSIONAL ENGINEER
10/30/91
4/2/92

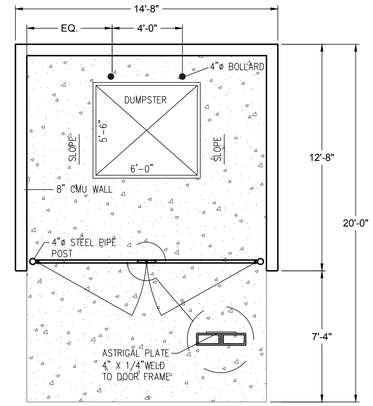
STATE OF NEW MEXICO DALE A. DEKKER 1054 REGISTERED ARCHITECT



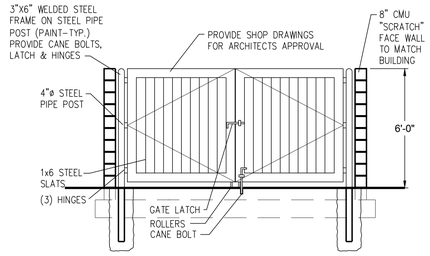
ASPHALT PAVEMENT SECTION — A / C.3
NTS



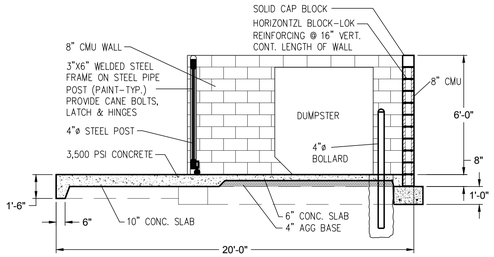
CONCRETE CURB AND GUTTER — B / C.3
NTS



DUMPSTER PLAN

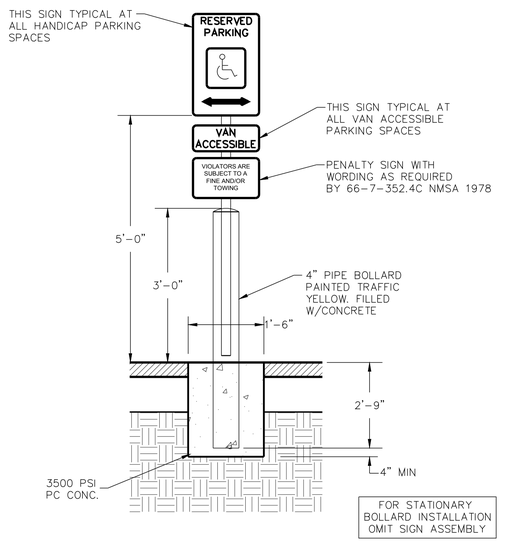


GATE ELEVATION

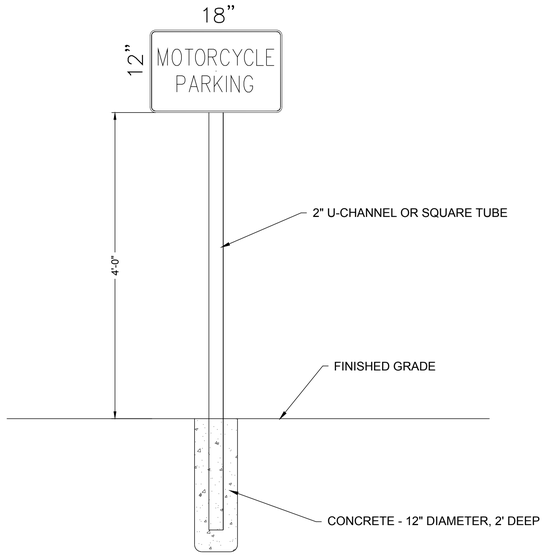


DUMPSTER PAD SECTION

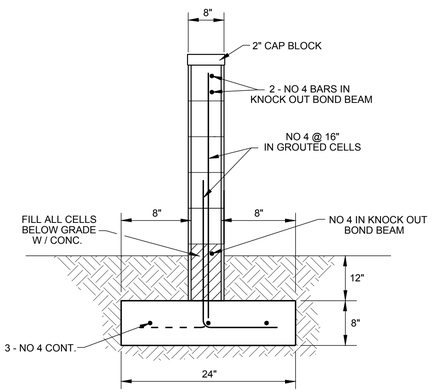
REFUSE ENCLOSURE DETAILS — D / C.3
NTS



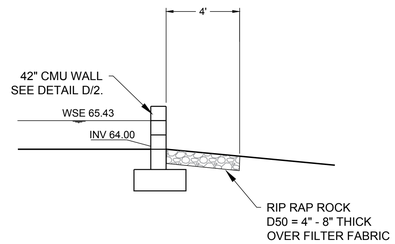
HC SIGN ASSEMBLY / BOLLARD DETAIL — D / C.3
NTS



MOTORCYCLE SIGN DETAIL — E / C.3
NTS



CMU GARDEN WALL DETAIL — F / C.3
NTS



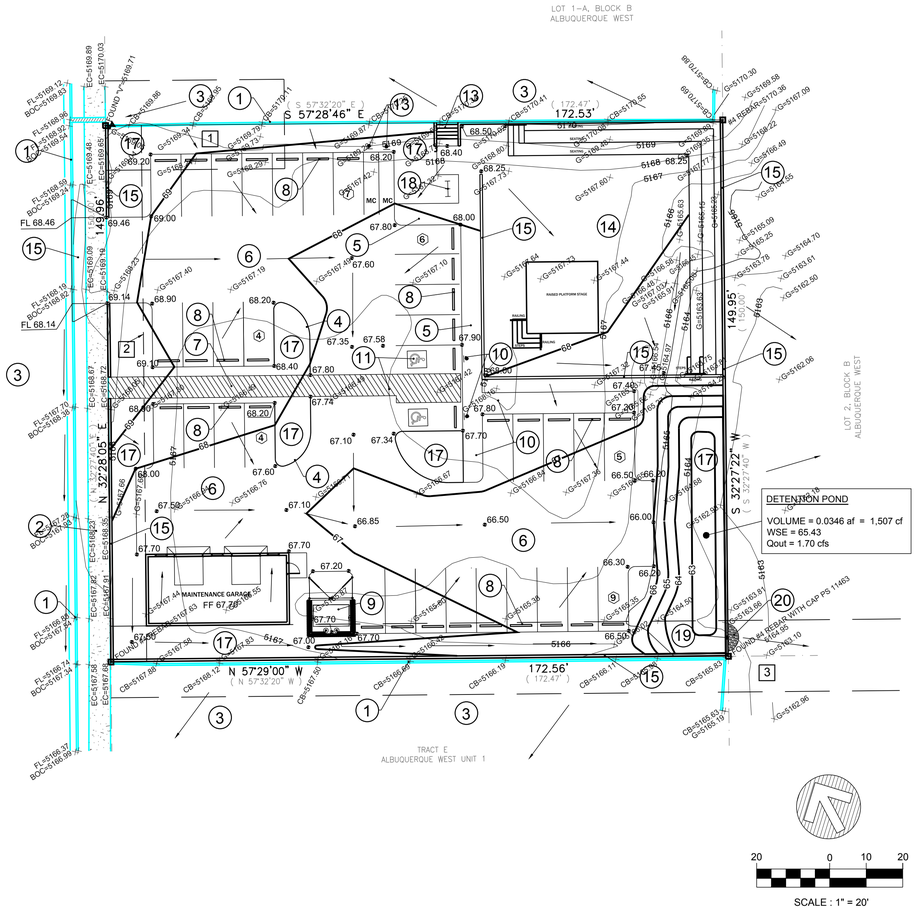
EROSION CONTROL AT POND OUTLET — G / C.3
NTS

SPRINGSTONE PARKING LOT AND GARAGE SITE DETAILS

DENNIS A. LORENZ NEW MEXICO 9647 REGISTERED PROFESSIONAL ENGINEER 04-10-2019

LORENZ ENGINEERING, LLC
Civil Engineering | Construction Management
2501 Rio Grande Blvd NW, Suite A
Albuquerque, New Mexico 87104
Ph: 505-888-6088 Fax: 505-242-6655

DRAWN BY: DAL	DATE: September 2019
CHECKED BY: DAL	C.3
FILE: 19-018	

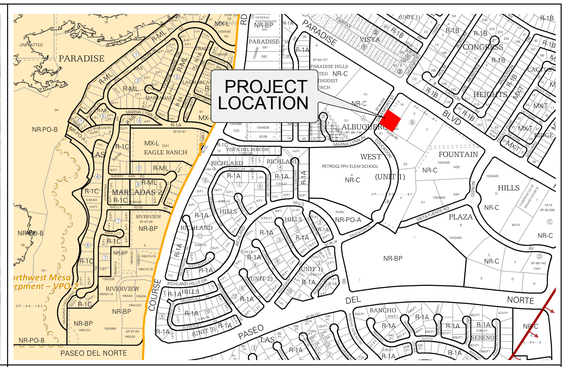


EASEMENTS

1. PRIVATE COMMOM ACCESS & DRAINAGE EASEMENT.
2. 10' PUBLIC UTILITY EASEMENT.
3. 20' PRIVATE DRAINAGE AND PUBLIC UTILITY EASEMENT.

IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE DRAINAGE ORDINANCE, EFFECTIVE MAY 12, 2014, ALL NEW DEVELOPMENT PROJECT S ARE REQUIRED TO MANAGE THE RUNOFF WHICH OCCURS DURING THE 90TH PERCENTILE STORM EVENT. IN ORDER TO COMPLY WITH THIS CRITERIA, WHERE PRACTICAL, ALL SURFACE DRAINAGE SHALL BE ROUTED THROUGH LANDSCAPED AREAS BEFORE RELEASE INTO DOWNSTREAM DRAINAGE FACITLITIES. THIS PLAN RECOMMENDS ALL LANDSCAPED AREAS BE DEPRESSED A MINIMUM OF 3-INCHES BELOW THE ADJACENT PAVED SURFACE TO RETAIN THE FIRST FLUSH RUNOFF.

FIRM PANEL 35001C0116G
NOT TO SCALE



LOCATION MAP
NOT TO SCALE

GRADING AND DRAINAGE PLAN

PURPOSE AND SCOPE

Pursuant to the Drainage Ordinance for the City of Albuquerque and the Development Process Manual, this Grading and Drainage Plan outlines the drainage management criteria for controlling developed runoff from the project site. The project consists of the design and construction of the a maintenance garage, amphitheater and parking lot for Springstone Montessori, located Davenport Street NW. The project also includes paving, landscaping, utility, grading, and drainage improvements to support the project. The purpose of this Plan is to support building permit approval and construction. The scope of this plan is to present grading and drainage criteria for the safe management of excess runoff impacting the site from upstream drainage basins, and controlling excess runoff from the project site in a well-managed, non-erosive manner.

EXISTING CONDITIONS

The property is located at Davenport Street NW, southwest of Paradise Blvd NW. The site is bounded by Davenport Street on the northwest, developed properties on the northeast and southwest, and undeveloped property on the southeast. The site is presently undeveloped. Site topography slopes away from Davenport Street to the southeast. The site presently drains southeast into a temporary ponding area on undeveloped property. No off site flows impact the site. As shown by the attached FIRM Panel the site does not lie within a mapped 100 year Flood Zone.

PROPOSED IMPROVEMENTS

As stated above, the project consists of the construction of a maintenance garage, amphitheater and parking lot for Springstone Montessori, with paving, landscaping, utility, grading, and drainage improvements. A previous Grading and Drainage Plan prepared by Issacson & Arfman, 1992, recommended limiting developed discharge from the site to 76% of the developed peak flow rate, which is equivalent to undeveloped existing conditions (1.90 cfs). Therefore, this project will rout all developed runoff through a deteiton pond that limits discharge to 1.70 cfs. The pond will discharge in a non-erosive manner to a 20' private drainage easement. Flows from the pond will drain to an existing temporary retention pond located on the adjacent undeveloped parcel, northwest of Nunzio Avenue NW.

First flush storage will be attained within the proposed landcsaping improvements and detention pond. Construction will disturb an area of less than 1.0 acres; therefore a Storm Water Pollution Prevention Plan will not be required.

CALCULATIONS

The calculations shown hereon define the 100-year/6 hour design storm falling within the project area under existing and proposed conditions. The hydrology is per "Section 22.2, Part A, Development Process Manual, Vol 2". Supplemental calculations are provided separately to demonstrate First Flush requirements and Detention Pond design.

LEGEND

ITEM	EXISTING	PROPOSED
RIGHT OF WAY		
EASEMENT		
CURB AND GUTTER		
6" CONCRETE CURB		
SPOT ELEVATION	× 75.5	01.5 ⊕
CONTOUR W/ ELEVATION	5800	5800
DIRECTION OF FLOW		
CONCRETE		
RIP RAP ROCK		

KEYED NOTES

1. EXISTING CONCRETE CURB AND GUTTER.
2. EXISTING 6' PUBLIC SIDEWALK.
3. EXISTING ASPHALT PAVEMENT
4. CONSTRUCT 6-INCH CONCRETE CURB. SEE DETAIL B/C.3.
5. CONSTRUCT 6' CONCRETE SIDEWALK.
6. CONSTRUCT ASPHALT PAVEMENT. SEE DETAIL A/C.3.
7. CONSTRUCT 6' ASPHALT PEDESTRIAN ACCESS.
8. INSTALL CONCRETE TIRE STOPS.
9. CONSTRUCT NEW REFUSE ENCLOSURE. SEE DETAIL D/C.3.
10. CONSTRUCT ADA ACCESSIBLE PARKING SIGN ASSEMBLY. SEE DETAIL C/C.3.
11. CONSTRUCT HANDICAP STRIPING PER CODE.
12. CONSTRUCT MOTOR CYCLE PARKING SIGN. SEE DETAIL E/C.3.
13. CONSTRUCT ACCESS STAIRS. SEE ARCHITECTURAL PLAN.
14. CONSTRUCT AMPHITHEATER AND SEATING. SEE ARCHITECTURAL PLAN.
15. CONSTRUCT 42 INCH CMU SCREEN WALL. SEE DETAIL F/C.3.
16. CONSTRUCT 24' CONCRETE DRIVEPAD. SEE COA STANDARD DRAWING 2425.
17. NEW LANDSCAPING. SEE LANDSCAPE PLAN.
18. INSTALL NEW BICYCLE RACK - 3 SPACES MINIMUM.
19. CONSTRUCT POND OUTLET - PROVIDE 6-INCH GAP IN BLOCK WALL (WEIR).
20. CONSTRUCT RIP RAP EROSON CONTROL PAD AT POND OUTLET. SEE DETAIL G/C.3

GENERAL NOTES

1. **LDC recommends that the Owner obtain a Geotechnical Evaluation of the on-site soils prior to foundation/structural design.**
2. **This Plan recommends positive drainage away from all structures to prohibit ponding of runoff which may cause structural settlement. Future alteration of grades adjacent to the proposed structures is not recommended.**
3. **Irrigation within 10 feet of any proposed structure is not recommended. Introduction of irrigation water into subsurface soils adjacent to the structure could cause settlement.**
4. **This Plan is prepared to establish on-site drainage and grading criteria only. LDC assumes no responsibility for subsurface analysis, foundation/structural design, or utility design.**
5. **Local codes may require all footings to be placed in natural undisturbed soil. If the Contractor plans to place footings on engineered fill, a certification by a registered Professional Engineer will be required. If the contractor wishes LDC to prepare the Certification, we must be notified PRIOR to placement of the fill.**
6. **LDC recommends that the Owner obtain the services of a Geotechnical Engineer to test and inspect all earthwork aspects of the project.**
7. **The property boundary shown on this Plan is given for information only to describe the project limits. Property boundary information shown hereon does not constitute a boundary survey. A boundary survey performed by a licensed New Mexico Registered Professional Surveyor is recommended prior to construction.**
8. **All spot elevations are finished grade or top of pavement, unless noted otherwise.**
9. **The City of Albuquerque has received its EPA MS4 Permit for stormwater quality with an effective date of March 1, 2012.**
10. **See Site Plan for dimension control and location of all site improvements.**

PROJECT DATA

PROPERTY ADDRESS:

DAVENPORT STREET NW
ALBUQUERQUE, NEW MEXICO 87120

LEGAL DESCRIPTION:

LOT 1B, BLOCK B, ALBUQUERQUE WEST

SURVEY:

ALL PROJECT SURVEYING BY
ANTHONY L. HARRIS NMPLS 11463
DATE OF SURVEY: APRIL 2019

SPRINGSTONE PARKING LOT AND GARAGE GRADING & DRAINIAGE PLAN

DENNIS A. LORENZ NEW MEXICO 9647 REGISTERED PROFESSIONAL ENGINEER 04.16.2019

LORENZ DESIGN & CONSULTING, LLC
Civil Engineering | Construction Management
2501 Rio Grande Blvd NW, Suite A
Albuquerque, New Mexico 87104
Ph: 505-888-6088 Fax: 505-242-6655

DRAWN BY: DAL	DATE: September 2019
CHECKED BY: DAL	C.2
FILE: 19-018	

SUPPLEMENTAL
FOR
SPRINGSTONE PARKING LOT AND GARAGE

Albuquerque, New Mexico

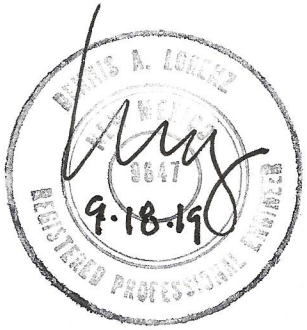
Prepared For:

Roger Frakes
Construction Enterprises Inc.
Albuquerque, New Mexico 87120

Prepared by:

LORENZ
DESIGN & CONSULTING, LLC
Civil Engineering | Construction Management

September 2019



FIRST FLUSH CRITERIA

By ordinance the site is required to retain the 90th percentile rainfall depth. In order to comply with this criterion, where practical, all surface areas will be routed through landscaped areas before release to downstream public drainage facilities. The proposed plan will rout runoff through a permanent retention pond with flush storage. Storage in excess of the 90th percentile rainfall will be provided as illustrated below.

90th percentile depth	0.44"
Less initial abstraction	0.10"
Total retained depth	034"

Site Area Type D = 0.46 ac.
Storage requirement = Ad(0.34") = 0.46 ac(43,560 sf/ac)(0.34"/12"/ft) = 568 cf

First flush storage to be provided within the retention pond, below the outlet invert elevation of 5164.00.

First flush volume within landscaping = 5,800sf(0.34"/12)=164 cf
First flush volume within pond = 0.032 ac(43,560sf/ac)(1.0')=964 cf

Total First flush volume provide = 1,128 cf

DETENTION POND CRITERIA

The DMP for this site recommended on-site detention ponding to limit discharge from the developed site to 76% of the developed peak flowrate , which is equivalent to existing conditions. As determined by Ahymo, the existing conditions discharge from the site is 1.90 cfs.

The proposed detention pond capacity is summarized below:

ON-SITE DETENTION POND

ELEVATION feet	Q OUT cfs		VOLUME acre feet
5164.00	0.00		0.0000
5165.00	0.42		0.0220
5166.00	3.39		0.0513

As illustrated by the AHYMO Output file, the discharge from the Pond is calculated at 1.70 cfs, with a maximum water surface elevation of 5165.43 feet.

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    AHYMO PROGRAM (AHYMO-S4)                    - Version: S4.02a - Rel: 02a
         RUN DATE (MON/DAY/YR) = 09/18/2019
         START TIME (HR:MIN:SEC) = 10:26:03     USER NO.= AHYMO-S4TempUser05901704
         INPUT FILE = C:\Projects\19-018 - Albuquerque West\Ahymo\19-018.txt

**************************************************************************
*                    SPRINGSTONE PARKING LOT AND GARAGE
*                            PROJECT HYDROLOGY
**************************************************************************
START               TIME=0.0  PUNCH CODE=0
RAINFALL            TYPE=1  RAIN QUARTER=0.0  RAIN ONE=1.87
                    RAIN SIX=2.20  RAIN DAY=2.66  DT=0.03333 HRS

               6-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE AREAS (NM & AZ) - D1
               DT =   0.033330 HOURS       END TIME =     5.999400 HOURS
                 0.0000  0.0015  0.0029  0.0045  0.0061  0.0077  0.0096
                 0.0114  0.0133  0.0154  0.0175  0.0219  0.0264  0.0311
                 0.0361  0.0412  0.0466  0.0521  0.0577  0.0635  0.0693
                 0.0753  0.0814  0.0878  0.0946  0.1014  0.1091  0.1168
                 0.1296  0.1477  0.1657  0.1898  0.2140  0.2429  0.2767
                 0.3105  0.3612  0.4120  0.4810  0.5686  0.6562  0.8890
                 1.1224  1.3042  1.4336  1.5629  1.6282  1.6932  1.7463
                 1.7873  1.8282  1.8567  1.8850  1.9097  1.9304  1.9512
                 1.9670  1.9827  1.9942  2.0015  2.0087  2.0151  2.0215
                 2.0273  2.0326  2.0378  2.0426  2.0474  2.0521  2.0568
                 2.0614  2.0636  2.0659  2.0681  2.0702  2.0724  2.0744
                 2.0764  2.0784  2.0803  2.0823  2.0842  2.0860  2.0879
                 2.0896  2.0914  2.0931  2.0948  2.0965  2.0982  2.0999
                 2.1015  2.1030  2.1046  2.1062  2.1077  2.1092  2.1107
                 2.1122  2.1136  2.1150  2.1164  2.1178  2.1192  2.1206
                 2.1220  2.1233  2.1246  2.1260  2.1273  2.1286  2.1299
                 2.1312  2.1324  2.1337  2.1349  2.1362  2.1374  2.1386
                 2.1398  2.1410  2.1422  2.1434  2.1446  2.1457  2.1469
                 2.1480  2.1492  2.1503  2.1514  2.1525  2.1536  2.1547
                 2.1558  2.1569  2.1580  2.1591  2.1601  2.1612  2.1622
                 2.1633  2.1643  2.1653  2.1663  2.1673  2.1684  2.1693
                 2.1703  2.1713  2.1723  2.1733  2.1742  2.1752  2.1762
                 2.1771  2.1781  2.1790  2.1799  2.1809  2.1818  2.1827
                 2.1836  2.1845  2.1854  2.1863  2.1872  2.1881  2.1890
                 2.1898  2.1907  2.1916  2.1924  2.1933  2.1941  2.1950
                 2.1958  2.1967  2.1975  2.1983  2.1992  2.2000

* UNDEVELOPED SITE -  0.59 ACRES
COMPUTE NM HYD      ID=1  HYD NO=EX-SITE  DA=0.000922 SQ MI
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```
                    PER A=0  PER B=0  PER C=100  PER D=0
                    TP=0.1333 HR  MASS RAIN=-1

     K =  0.105867HR    TP =  0.133300HR    K/TP RATIO =  0.794199     SHAPE CONSTANT, N =  4.514592
     UNIT PEAK =   2.6846    CFS   UNIT VOLUME =   0.9958       B =   388.14      P60 = 1.8700
     AREA =     0.000922 SQ MI    IA =   0.35000 INCHES    INF =   0.83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =  0.033330

PRINT HYD           ID=1  CODE=20

                                    HYDROGRAPH FROM AREA EX-SITE

     TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
      HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS
     0.000      0.0          0.667      0.0          1.333      0.3          2.000      0.2          2.666      0.0

    RUNOFF VOLUME =     1.08627 INCHES     =       0.0534 ACRE-FEET
    PEAK DISCHARGE RATE =       1.90 CFS  AT   1.533 HOURS   BASIN AREA =  0.0009 SQ. MI.


* DEVELOPED SITE - 0.59 ACRES
COMPUTE NM HYD      ID=2  HYD NO=DEV-SITE  DA=0.000922 SQ MI
                    PER A=0 PER B=6 PER C=9 PER D=85
                    TP=0.1333 HR  MASS RAIN=-1

     K =  0.072649HR    TP =  0.133300HR    K/TP RATIO =  0.545000     SHAPE CONSTANT, N =  7.106428
     UNIT PEAK =   3.0941    CFS   UNIT VOLUME =   0.9955       B =   526.28      P60 = 1.8700
     AREA =     0.000784 SQ MI    IA =   0.10000 INCHES    INF =   0.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =  0.033330


     K =  0.115917HR    TP =  0.133300HR    K/TP RATIO =  0.869594     SHAPE CONSTANT, N =  4.085527
     UNIT PEAK =  0.37437    CFS   UNIT VOLUME =   0.9655       B =   360.83      P60 = 1.8700
     AREA =     0.000138 SQ MI    IA =   0.41000 INCHES    INF =   0.99800 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =  0.033330

PRINT HYD           ID=2  CODE=20

                                    HYDROGRAPH FROM AREA DEV-SITE

     TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
      HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS           HRS       CFS
     0.000      0.0          1.333      0.7          2.666      0.0          4.000      0.0          5.333      0.0
     0.667      0.0          2.000      0.4          3.333      0.0          4.666      0.0          5.999      0.0
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```
    RUNOFF VOLUME =     1.80835 INCHES     =       0.0889 ACRE-FEET
    PEAK DISCHARGE RATE =       2.53 CFS  AT   1.500 HOURS   BASIN AREA =  0.0009 SQ. MI.


*******************************************************************************
* ROUTE DEVELOPED SITE A THROUGH DETENTION POND TO DOWNSTREAM EC POND
* ALLOWABLE DISCHARGE IS 1.90 CFS FOR THE SITE (6" WEIR THRU WALL)
*******************************************************************************
ROUTE RESERVOIR     ID=3 HYD NO=POND-OUT  INFLOW ID=2  CODE=10
                    OUT (CFS)   STORAGE (AC-FT)    ELEV (FT)
                    0           0                    64.0
                    0.42        0.0220               65.0
                    3.39        0.0513               66.0

  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *

    TIME      INFLOW    ELEV      VOLUME    OUTFLOW
    (HRS)     (CFS)     (FEET)    (AC-FT)   (CFS)

     0.00       0.00     64.00       0.000      0.00
     0.33       0.00     64.00       0.000      0.00
     0.67       0.00     64.00       0.000      0.00
     1.00       0.08     64.02       0.000      0.01
     1.33       0.71     64.34       0.008      0.14
     1.67       1.43     65.42       0.034      1.67
     2.00       0.36     65.07       0.024      0.62
     2.33       0.10     64.80       0.018      0.34
     2.67       0.02     64.52       0.011      0.22
     3.00       0.01     64.32       0.007      0.13
     3.33       0.00     64.19       0.004      0.08
     3.67       0.00     64.12       0.003      0.05
     4.00       0.00     64.07       0.002      0.03
     4.33       0.01     64.05       0.001      0.02
     4.67       0.01     64.03       0.001      0.01
     5.00       0.01     64.03       0.001      0.01
     5.33       0.01     64.02       0.001      0.01
     5.67       0.01     64.02       0.001      0.01
     6.00       0.01     64.02       0.001      0.01
     6.33       0.00     64.02       0.000      0.01
     6.67       0.00     64.01       0.000      0.00
 PEAK DISCHARGE =        1.695 CFS - PEAK OCCURS AT HOUR    1.63
 MAXIMUM WATER SURFACE ELEVATION =       65.429
 MAXIMUM STORAGE =        0.0346 AC-FT      INCREMENTAL TIME=    0.033330HRS
```

PRINT HYD ID=3 CODE=20

HYDROGRAPH FROM AREA POND-OUT

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.0	2.000	0.6	4.000	0.0	5.999	0.0		
0.667	0.0	2.666	0.2	4.666	0.0	6.666	0.0		
1.333	0.1	3.333	0.1	5.333	0.0	7.333	0.0		

RUNOFF VOLUME = 1.80803 INCHES = 0.0889 ACRE-FEET
PEAK DISCHARGE RATE = 1.70 CFS AT 1.633 HOURS BASIN AREA = 0.0009 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 10:26:03

AHYMO PROGRAM SUMMARY TABLE (AHYMO-S4) - Ver. S4.02a, Rel: 02a RUN DATE (MON/DAY/YR) =09/18/2019
INPUT FILE = C:\Projects\19-018 - Albuquerque West\Ahymo\19-018.txt USER NO.= AHYMO-S4TempUser05901704

COMMAND	IDENTIFICATION	FROM HYDROGRAPH NO.	TO ID NO.	PEAK AREA (SQ MI)	RUNOFF DISCHARGE (CFS)	VOLUME (AC-FT)	VOLUME (INCHES)	TIME TO RUNOFF (HOURS)	CFS PEAK ACRE	PER NOTATION	
START										TIME=	0.00
RAINFALL TYPE= 1 NOAA 14										RAIN6=	2.200
COMPUTE NM HYD	EX-SITE	-	1	0.00092	1.90	0.053	1.08627	1.533	3.219	PER IMP=	0.00
COMPUTE NM HYD	DEV-SITE	-	2	0.00092	2.53	0.089	1.80835	1.500	4.286	PER IMP=	85.00
ROUTE RESERVOIR	POND-OUT	2	3	0.00092	1.70	0.089	1.80803	1.633	2.873	AC-FT=	0.035
					FINISH						