CITY OF ALBUQUERQUE

Planning Department
Alan Varela, Director

Mayor Timothy M. Keller

July 22, 2022

Shawn Biazar
SBS Construction and Engineering, LLC
10209 Snowflake Ct. NW
Albuquerque, NM 87114

RE: Mobile Home Park
4210 Blake Rd SW
Grading & Drainage Plan and Drainage Report
Engineer's Stamp Date: 06/21/22
Hydrology File: N10D009

Dear Mr. Biazar:

Based upon the information provided in your submittal received on 03/14/2022 and additional information received on 07/18/2022, this site is in Bernalillo County but does discharge into Amole Del Norte Diversion Channel which is maintained by the City of Albuquerque. The project will be utilizing existing pipe penetrations into the Amole Del Norte Channel. Since there is no new pipe penetration into the Amole Del Norte Channel, the City of Albuquerque Hydrology Section does not need to approve either the Grading & Drainage Plan or the Drainage Report.

If you have any questions, please contact me at 924-3995 or rbrissette@cabq.gov .

Sincerely,

Renée C. Brissette

Renée C. Brissette, P.E. CFM
Senior Engineer, Hydrology
Planning Department

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: 4201 BLAKES MOBILE HOME PARK Building Permit #: _____ Hydrology File #: _____

DRB#: _____ EPC#: _____ Work Order#: _____

Legal Description: JOHN HAMILTON MOBILE HOME PARK

City Address: 4201 BLAKE ROAD, SW, ALBUQUERQUE, NM 87121

Applicant: SBS CONSTRUCTION AND ENGINEEING, LLC Contact: SHAWN BIAZAR

Address: 7632 WILLIAM MOYERS AVE., NE, ALBUQUERQUE, NM 87122

Phone#: (505) 804-5013 Fax#: (505) 897-4996 E-mail: AECLLC@AOL.COM

Other Contact: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

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
____ 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
X GRADING PERMIT APPROVAL
____ SO-19 APPROVAL
____ PAVING PERMIT APPROVAL
____ GRADING/ PAD CERTIFICATION
____ WORK ORDER APPROVAL
____ CLOMR/LOMR
____ FLOODPLAIN DEVELOPMENT PERMIT
____ OTHER (SPECIFY) _____

DATE SUBMITTED: 3-10-2022 By: SHAWN BIAZAR

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____

Pond Volume/Discharge Calculation

Ab= Bottom of the pond surface area
At = Top of the pond surface area
D = Water depth
Dt = Total pond depth
C = Change in surface area/water depth

Volume = $Ab*D + 0.50*C*D^2$
C = (At - Ab) / Dt

Retention Area

Ab =	5751.3	(sf) at elev.	4997.50
At =	6883.54	(sf) at elev.	4999.5
Dt =	2.00		4991.50
C =	566.12		

Actual Elev. (ft)	Depth (ft)	Volume (ac-ft) (cf)	Q (cfs) (cfs)
4997.50	0.00	0.00000	0.001
4998.50	1.00	0.13853	0.001
4999.50	2.00	0.29006	0.001
5000.00	2.50	0.38210	1.814
5000.50	3.00	0.50021	2.169
5001.00	3.50	0.64439	2.473
5001.50	4.00	0.81464	2.743

Q=CA SQRT(2gH)

C	0.6	
Orifice Size (in)	8	(dia)
A =	0.349	

Volume = $Ab*D + 0.50*C*D^2$
C = (At - Ab) / Dt

Detention Area

Ab =	6883.54	(sf) at elev.	4999.50
At =	15967.27	(sf) at elev.	5001.50
Dt =	2.00		
C =	4541.865		

Location
SW Mobile Home Park is located at 4201 Blake Rd., SW containing 10.2356 acre. See attached portion of Vicinity
for exact location.

Purpose
The purpose of this drainage report is to present a grading and drainage solution in support of the Administrative Amendment to the Site Plan to increase the number of spaces.

Existing Drainage Conditions
The site drains to the southeast corner of the site at a flow rate of 25.63 cfs and then to existing small pond along Blake. From there the runoff drains to the Amole Channel via a 24" storm drain pipe. There is an existing small offsite basin that drains to this site from the west at a flow rate of 4.11 cfs. The offisite runoff along with the on-site runoff drains to the southeast corner of the property.

Proposed Conditions and On-Site Drainage Management Plan
The drainage patterns will remain the same. The site previously is been graded. A swale will be constructed along the easterly wall to carry the runoff to a proposed pond located at the southeast corner of the property. Then from there the ruonff will drain at a controlled discharge rate of the 2.67 cfs via an eight inch pipe to the existing pond along Blake Rd. AHYMO was used to calculate the routing of the runoff through the pond. The pond is designed to retain the 2' of water (0.29006 ac-ft) to meet the 90th Percentile Rain Event volume (0.1798 ac-ft).

EXISTING CONDITIONS

THE ENGINEER HAS PERSONALLY INSPECTED THE LAND, AND NO GRADING, FILLING, OR EXCAVATION HAS OCCURRED THEREON SINCE THE EXISTING CONTOUR MAP WAS PREPARED.

2-17-2022

RUNOFF CALCULATIONS FOR 100 YEAR/6 HOUR STORM

BASIN	*AREA (SF)*	*AREA (AC)*	*AREA (MI^2)*
ON-SITE	445,861.35	10.2356	0.015993
OFFSITE	82,796.46	1.9008	0.002970

$$E = \frac{EA(AA) + EB(AB) + EC(AC) + ED(AD)}{AA + AB + AC + AD}$$

V-360 = Weighted E (AA + AB + AC + AD)/12

EA = 0.55 P-60=1.69
EB = 0.73 P-360=2.17
EC = 0.95 P-1140=2.49
ED = 2.24 P-10 DAY=3.90

LAND TREATMENT

EXISTING (ON-SITE)
AA = 0.00% (0.00 AC)
AB = 75.00% (7.6767 AC)
AC = 15.00% (1.5353 AC)
AD = 11.00% (1.1259 AC)

DEVELOPED (ON-SITE)
AA = 0.00% (0.00 AC)
AB = 75.00% (5.7319 AC)
AC = 15.00% (1.0236 AC)
AD = 11.00% (3.4801 AC)

EXISTING (OFFSITE)
AA = 0.00% (0.00 AC)
AB = 100.00% (10.2356 AC)
AC = 0.00% (0.00 AC)
AD = 0.00% (0.00 AC)

EXISTING (ON-SITE) Weighted E = 0.94
DEVELOPED (ON-SITE) Weighted E = 1.27
EXISTING (OFFSITE) Weighted E = 0.73

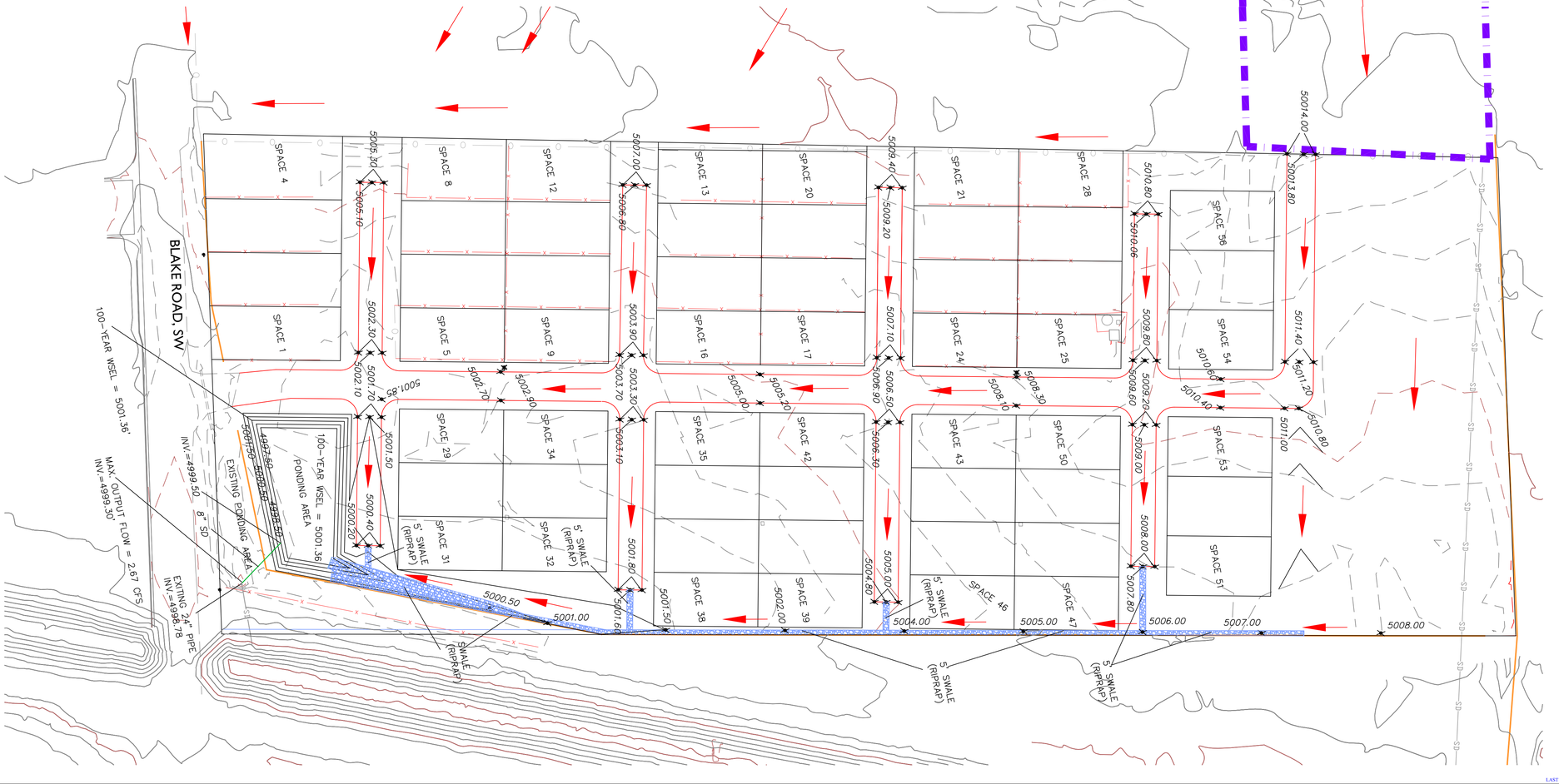
V360/EXISTING (ON-SITE) = 34,792.05 CF
V360/DEVELOPED (ON-SITE) = 47,0168.08 CF
V360/EXISTING (OFFSITE) = 5,036.79 CF

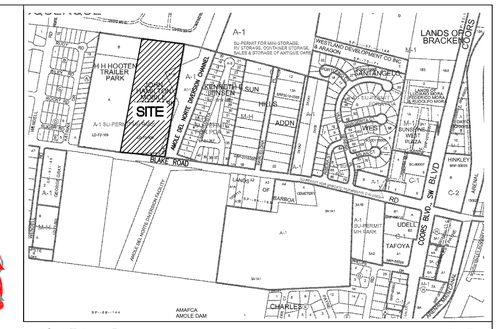
A = 1.54 CFS/AC
B = 2.16 CFS/AC
C = 2.87 CFS/AC
D = 4.12 CFS/AC

TOTAL QP = QPA AA + QPB AB + QPC AC + QPD AD
QP/EXISTING (ON-SITE) = 25.63 CFS
QP/DEVELOPED (ON-SITE) =29.66 CFS
QP/EXISTING (OFFSITE) = 4.11 CFS

VOLUME REQUIREMENTS (90TH PERCENTILE RAIN EVENT)

VOLUME REQUIRED = (0.615/12 x 151,592.86) = 7,832.30 CF (0.1798 AC-FT)
RETENTION VOLUME PROVIDED = 12,634.84 CF (0.29006 AC-FT)





```
*
* ZONE 1
*
*****************************************************************
* 100-YEAR,6-HR STORM OFFSITE BASIN (UNDER EXISTING CONDITIONS)  *
*****************************************************************
*
START                TIME=0.0
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=1.69 IN RAIN SIX=2.17 IN
                     RAIN DAY=2.49 IN DT=0.03333 HR
* ON-SITE
COMPUTE NM HYD       ID=1 HYD NO=101.0 AREA=0.002970 SQ MI
                     PER A=0.00 PER B=100.00 PER C=0.00 PER D=0.00
                     TP=0.1333 HR MASS RAINFALL=-1
*****************************************************************
* 100-YEAR,6-HR STORM ON-SITE BASIN (UNDER PROPOSED CONDITIONS)  *
*****************************************************************
*
START                TIME=0.0
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=1.69 IN RAIN SIX=2.17 IN
                     RAIN DAY=2.49 IN DT=0.03333 HR
* ON-SITE
COMPUTE NM HYD       ID=2 HYD NO=103.1 AREA=0.015993 SQ MI
                     PER A=0.00 PER B=56.00 PER C=10.00 PER D=34.00
                     TP=0.1333 HR MASS RAINFALL=-1
*****************************************************************
*
ADD HYD              ID=20 HYD NO=200.0 ID=1 ID=2
*
*****************************************************************
*                    PONDING CONDITION                          *
*****************************************************************
*
ROUTE RESERVOIR      ID=30 HYD NO=500.0 INFLOW ID=20 CODE=24
                     OUTFLOW(CFS)       STORAGE(AC-FT)  ELEVATION(FT)
                         0.00               0.00000       4997.50
                         0.01               0.13853       4998.50
                         0.01               0.29006       4999.50
                         1.814              0.38210       5000.00
                         2.169              0.50021       5000.50
                         2.473              0.64439       5001.00
                         2.743              0.81464       5001.50
*
*****************************************************************
*
FINISH
```

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02d RUN DATE (MON/DAY/YR) =12/12/2021
INPUT FILE = 1_8A.TXT USER NO.= AHYMO-I-9702c01000R31-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.170
COMPUTE NM HYD	101.00	-	1	.00297	3.50	.094	.59456	1.500	1.842	PER IMP= .00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.170
COMPUTE NM HYD	103.10	-	2	.01599	26.98	.912	1.06955	1.500	2.636	PER IMP= 34.00
ADD HYD	200.00	1& 2	20	.01896	30.48	1.006	.99514	1.500	2.512	
ROUTE RESERVOIR	500.00	20	30	.01896	2.67	.726	.71791	2.166	.220	AC-FT= .768
FINISH										

```
    AHYMO PROGRAM (AHYMO_97) -                        - Version:  1997.02d
         RUN DATE (MON/DAY/YR) = 12/12/2021
         START TIME (HR:MIN:SEC) = 18:40:40     USER NO.= AHYMO-I-9702c01000R31-AH
         INPUT FILE = 1_8A.TXT


*
* ZONE 1
*
*****************************************************************
* 100-YEAR,6-HR STORM OFFSITE BASIN (UNDER EXISTING CONDITIONS)  *
*****************************************************************
*
START              TIME=0.0
RAINFALL           TYPE=1 RAIN QUARTER=0.0 IN
                   RAIN ONE=1.69 IN RAIN SIX=2.17 IN
                   RAIN DAY=2.49 IN DT=0.03333 HR

               COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
               DT =    .033330 HOURS       END TIME =     5.999400 HOURS
                  .0000   .0037   .0075   .0114   .0153   .0193   .0234
                  .0276   .0319   .0363   .0408   .0455   .0502   .0551
                  .0601   .0652   .0705   .0759   .0815   .0873   .0933
                  .0995   .1060   .1126   .1196   .1268   .1344   .1423
                  .1505   .1593   .1685   .1731   .1781   .1835   .1949
                  .2206   .2600   .3167   .3941   .4958   .6254   .7868
                  .9839  1.1668  1.2432  1.3076  1.3650  1.4172  1.4652
                 1.5098  1.5515  1.5905  1.6273  1.6620  1.6947  1.7258
                 1.7551  1.7830  1.8094  1.8345  1.8583  1.8646  1.8705
                 1.8761  1.8815  1.8867  1.8918  1.8967  1.9014  1.9060
                 1.9105  1.9149  1.9191  1.9233  1.9273  1.9313  1.9352
                 1.9390  1.9427  1.9464  1.9500  1.9535  1.9569  1.9603
                 1.9637  1.9670  1.9702  1.9734  1.9766  1.9797  1.9827
                 1.9857  1.9887  1.9916  1.9945  1.9974  2.0002  2.0030
                 2.0058  2.0085  2.0112  2.0139  2.0165  2.0191  2.0217
                 2.0242  2.0268  2.0293  2.0317  2.0342  2.0366  2.0390
                 2.0414  2.0438  2.0461  2.0485  2.0508  2.0530  2.0553
                 2.0575  2.0598  2.0620  2.0642  2.0664  2.0685  2.0707
                 2.0728  2.0749  2.0770  2.0791  2.0811  2.0832  2.0852
                 2.0872  2.0892  2.0912  2.0932  2.0952  2.0971  2.0991
                 2.1010  2.1029  2.1048  2.1067  2.1086  2.1105  2.1123
                 2.1142  2.1160  2.1178  2.1197  2.1215  2.1233  2.1251
                 2.1268  2.1286  2.1304  2.1321  2.1338  2.1356  2.1373
                 2.1390  2.1407  2.1424  2.1441  2.1458  2.1474  2.1491
                 2.1507  2.1524  2.1540  2.1556  2.1573  2.1589  2.1605
                 2.1621  2.1637  2.1653  2.1668  2.1684  2.1700

* ON-SITE
COMPUTE NM HYD     ID=1 HYD NO=101.0 AREA=0.002970 SQ MI
                   PER A=0.00 PER B=100.00 PER C=0.00 PER D=0.00
                   TP=0.1333 HR MASS RAINFALL=-1

      K =   .134159HR    TP =   .133300HR    K/TP RATIO =  1.006445     SHAPE CONSTANT, N =
3.507492
      UNIT PEAK =   7.1493    CFS   UNIT VOLUME =    .9984       B =   320.88      P60 = 1.6900

      AREA =      .002970 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

*****************************************************************
* 100-YEAR,6-HR STORM ON-SITE BASIN (UNDER PROPOSED CONDITIONS)  *
*****************************************************************
*
START              TIME=0.0
RAINFALL           TYPE=1 RAIN QUARTER=0.0 IN
                   RAIN ONE=1.69 IN RAIN SIX=2.17 IN
                   RAIN DAY=2.49 IN DT=0.03333 HR

               COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
               DT =    .033330 HOURS       END TIME =     5.999400 HOURS
                  .0000   .0037   .0075   .0114   .0153   .0193   .0234
                  .0276   .0319   .0363   .0408   .0455   .0502   .0551
```

.0601	.0652	.0705	.0759	.0815	.0873	.0933
.0995	.1060	.1126	.1196	.1268	.1344	.1423
.1505	.1593	.1685	.1731	.1781	.1835	.1949
.2206	.2600	.3167	.3941	.4958	.6254	.7868
.9839	1.1668	1.2432	1.3076	1.3650	1.4172	1.4652
1.5098	1.5515	1.5905	1.6273	1.6620	1.6947	1.7258
1.7551	1.7830	1.8094	1.8345	1.8583	1.8646	1.8705
1.8761	1.8815	1.8867	1.8918	1.8967	1.9014	1.9060
1.9105	1.9149	1.9191	1.9233	1.9273	1.9313	1.9352
1.9390	1.9427	1.9464	1.9500	1.9535	1.9569	1.9603
1.9637	1.9670	1.9702	1.9734	1.9766	1.9797	1.9827
1.9857	1.9887	1.9916	1.9945	1.9974	2.0002	2.0030
2.0058	2.0085	2.0112	2.0139	2.0165	2.0191	2.0217
2.0242	2.0268	2.0293	2.0317	2.0342	2.0366	2.0390
2.0414	2.0438	2.0461	2.0485	2.0508	2.0530	2.0553
2.0575	2.0598	2.0620	2.0642	2.0664	2.0685	2.0707
2.0728	2.0749	2.0770	2.0791	2.0811	2.0832	2.0852
2.0872	2.0892	2.0912	2.0932	2.0952	2.0971	2.0991
2.1010	2.1029	2.1048	2.1067	2.1086	2.1105	2.1123
2.1142	2.1160	2.1178	2.1197	2.1215	2.1233	2.1251
2.1268	2.1286	2.1304	2.1321	2.1338	2.1356	2.1373
2.1390	2.1407	2.1424	2.1441	2.1458	2.1474	2.1491
2.1507	2.1524	2.1540	2.1556	2.1573	2.1589	2.1605
2.1621	2.1637	2.1653	2.1668	2.1684	2.1700	

```
* ON-SITE
COMPUTE NM HYD      ID=2 HYD NO=103.1 AREA=0.015993 SQ MI
                    PER A=0.00 PER B=56.00 PER C=10.00 PER D=34.00
                    TP=0.1333 HR MASS RAINFALL=-1

      K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =
7.106420
      UNIT PEAK =   21.468    CFS   UNIT VOLUME =    .9988       B =   526.28      P60 = 1.6900

      AREA =      .005438 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


      K =   .129565HR    TP =   .133300HR    K/TP RATIO =   .971979     SHAPE CONSTANT, N =
3.633913
      UNIT PEAK =   26.129    CFS   UNIT VOLUME =    .9998       B =   329.98      P60 = 1.6900

      AREA =      .010555 SQ MI    IA =    .47727 INCHES    INF =   1.18636 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

*****************************************************************
*
ADD HYD             ID=20 HYD NO=200.0 ID=1 ID=2
*
*****************************************************************
*                   PONDING CONDITION                           *
*****************************************************************
*
ROUTE RESERVOIR     ID=30 HYD NO=500.0 INFLOW ID=20 CODE=24
                    OUTFLOW(CFS)      STORAGE(AC-FT)  ELEVATION(FT)
                        0.00              0.00000      4997.50
                        0.01              0.13853      4998.50
                        0.01              0.29006      4999.50
                        1.814             0.38210      5000.00
                        2.169             0.50021      5000.50
                        2.473             0.64439      5001.00
                        2.743             0.81464      5001.50

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

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

     .00        .00   4997.50       .000       .00
     .80        .12   4997.50       .000       .00
    1.60      22.19   5000.51       .503      2.17
    2.40       1.14   5001.30       .748      2.64
    3.20        .25   5000.90       .616      2.41
```

```
     4.00        .15   5000.41       .479      2.10
     4.80        .14   4999.90       .363      1.44
     5.60        .15   4999.64       .315       .50
     6.40        .01   4999.55       .300       .20
     7.20        .00   4999.51       .292       .06
     8.00        .00   4999.50       .290       .02
     8.80        .00   4999.50       .290       .01
     9.60        .00   4999.50       .290       .01
    10.40        .00   4999.50       .290       .01
    11.20        .00   4999.50       .290       .01
    12.00        .00   4999.50       .290       .01
    12.80        .00   4999.50       .290       .01
    13.60        .00   4999.50       .290       .01
    14.40        .00   4999.50       .290       .01
    15.20        .00   4999.50       .290       .01
    16.00        .00   4999.50       .290       .01
    16.80        .00   4999.50       .290       .01
    17.60        .00   4999.50       .290       .01
    18.40        .00   4999.50       .290       .01
    19.20        .00   4999.50       .290       .01
 PEAK DISCHARGE =        2.669 CFS - PEAK OCCURS AT HOUR    2.17
 MAXIMUM WATER SURFACE ELEVATION =     5001.362
 MAXIMUM STORAGE =         .7678 AC-FT      INCREMENTAL TIME=     .033330HRS

*
**************************************************************
*
FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 18:40:40
```

DRAINAGE REPORT
FOR

MOBILE HOME PARK
4201 BLAKE ROAD

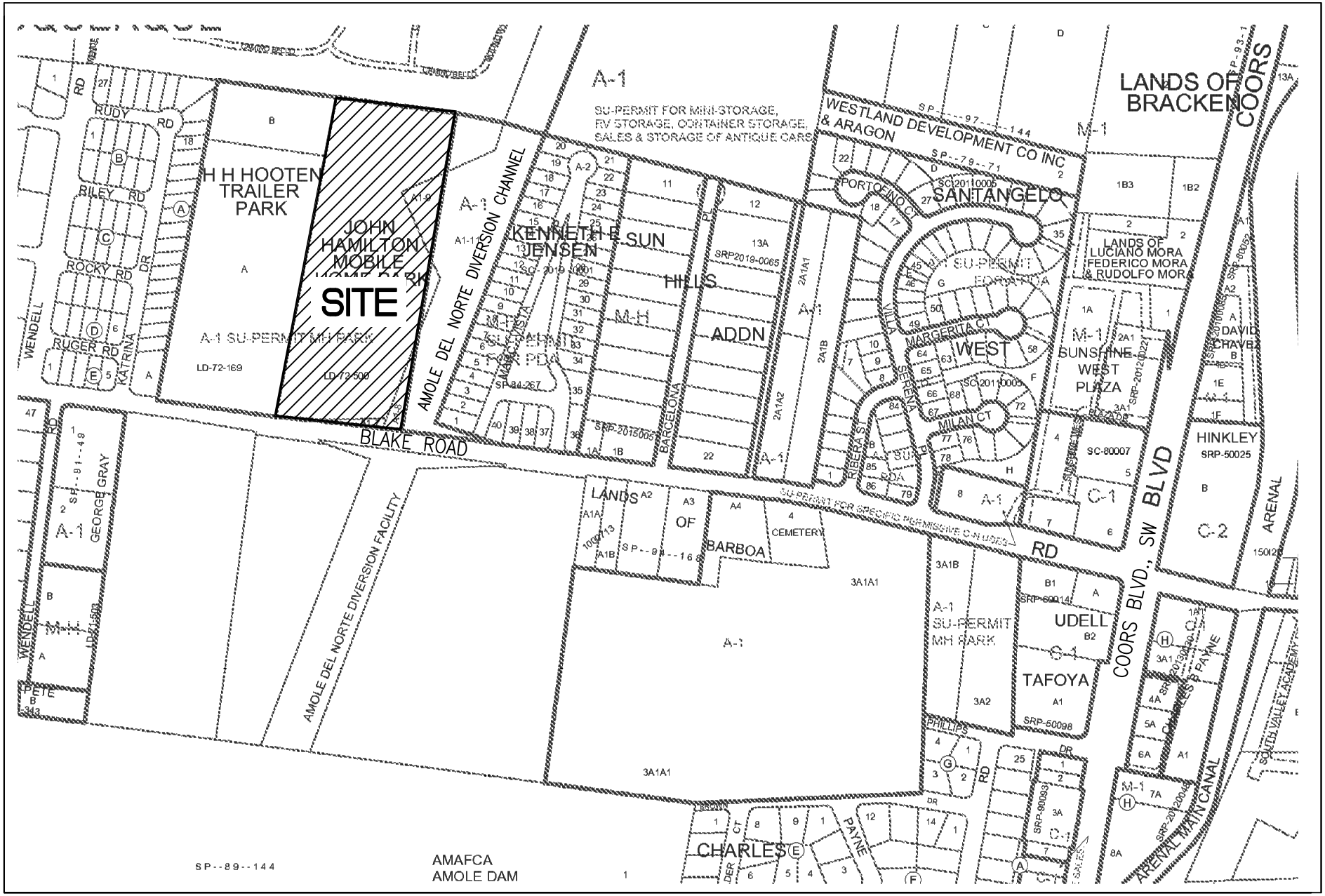
Prepared by:

SBS CONSTRUCTION AND
ENGINEERING, LLC

7632 WILLIAM MOYERS AVE., NE
ALBUQUERQUE, NEW MEXICO
87122 (505) 804-5013
EMAIL: AECLLC@AOL.COM

June 21, 2022

REZA AFAGHPOUR
PE NO. 11814



VICINITY MAP:

N–10–Z

Location

SW Mobile Home Park is located at 4201 Blake Rd., SW containing 10.2356 acre. See attached portion of Vicinity

for exact location.

Purpose

The purpose of this drainage report is to present a grading and drainage solution in support of the Administrative Amendment to the Site Plan to increase the number of spaces.

Existing Drainage Conditions

The site drains to the southeast corner of the site at a flow rate of 25.63 cfs and then to existing small pond along Blake. From there the runoff drains to the Amole Channel via a 24" storm drain pipe. There is an existing small offsite basin that drains to this site from the west at a flow rate of 4.11 cfs. The offsite runoff along with the on-site runoff drains to the southeast corner of the property.

Proposed Conditions and On-Site Drainage Management Plan

The drainage patterns will remain the same. The site previously is been graded. A swale will be constructed along the easterly wall to carry the runoff to a proposed pond located at the southeast corner of the property. Then from there the runoff will drain at a controlled discharge rate of the 2.67 cfs via an eight-inch pipe to the existing pond along Blake Rd. AHYMO was used to calculate the routing of the runoff through the pond. The pond is designed to retain the 2' of water (0.29006 ac-ft) to meet the 90th Percentile Rain Event volume (0.1798 ac-ft).

FIRM MAP: 35001C0336H

RUNOFF CALCULATIONS FOR 100 YEAR/6 HOUR STORM

BASIN	*AREA (SF)*	*AREA (AC)*	*AREA (MI^2)*
ON-SITE	445,861.35	10.2356	0.015993
OFFSITE	82,796.46	1.9008	0.002970

$$E = \frac{EA(AA) + EB(AB) + EC(AC) + ED(AD)}{AA + AB + AC + AD}$$

V-360 = Weighted E (AA + AB + AC + AD)/12

EA = 0.55 P-60=1.69
EB = 0.73 P-360=2.17
EC = 0.95 P-1140=2.49
ED = 2.24 P-10 DAY=3.90

LAND TREATMENT

EXISTING (ON-SITE)	DEVELOPED (ON-SITE)	EXISTING (OFFSITE)
AA = 0.00% (0.00 AC)	AA = 0.00% (0.00 AC)	AA = 0.00% (0.00 AC)
AB = 75.00% (7.6767 AC)	AB = 75.00% (5.7319 AC)	AB = 100.00% (10.2356 AC)
AC = 15.00% (1.5353 AC)	AC = 15.00% (1.0236 AC)	AC = 0.00% (0.00 AC)
AD = 11.00% (1.1259 AC)	AD = 11.00% (3.4801 AC)	AD = 0.00% (0.00 AC)

EXISTING (ON-SITE) Weighted E = 0.94
DEVELOPED (ON-SITE) Weighted E = 1.27
EXISTING (OFFSITE) Weighted E = 0.73

V360/EXISTING (ON-SITE) = 34,792.05 CF
V360/DEVELOPED (ON-SITE) = 47,0168.08 CF
V360/EXISTING (OFFSITE) = 5,036.79 CF

A = 1.54 CFS/AC
B = 2.16 CFS/AC
C = 2.87 CFS/AC
D = 4.12 CFS/AC

TOTAL QP = QPA AA + QPB AB + QPC AC + QPD AD
QP/EXISTING (ON-SITE) = 25.63 CFS
QP/DEVELOPED (ON-SITE) =29.66 CFS
QP/EXISTING (OFFSITE) = 4.11 CFS

VOLUME REQUIREMENTS (90TH PERCENTILE RAIN EVENT)

VOLUME REQUIRED = (0.615/12 x 151,592.86) = 7,832.30 CF (0.1798 AC-FT)
RETENTION VOLUME PROVIDED = 12,634.84 CF (0.29006 AC-FT)