PUBLIC WORKS/HYDROLOGY
L8/D11A1

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18/D11A1

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DRAINAGE INFORMATION SHEET

PROJECT TITLE: COMMUNICATIONS CENTER ZONE ATLAS/DRNG. FILE #: L-8 / D11A1

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: LOTS 2 THRU 5, BLOCK 6 LANDS OF THE ATRISCO GRANT

CITY ADDRESS: NORTH OF EUCARIZ BETWEEN 114TH AND 118TH STREETS

ENGINEERING FIRM: TIERRA WEST DEV. MAGT. SER. CONTACT: RONALD R. BOHANNAN

ADDRESS: 4421 McCleod Rd. NE Suite D, 87109 PHONE: (505) 883-7592

OWNER: CITY OF ALBUQUERQUE CONTACT: _____

ADDRESS: _____ PHONE: _____

ARCHITECT: VAN GILBERT ARCHITECTS CONTACT: JIM GRAFF

ADDRESS: 319 CENTRAL AVE, NW PHONE: (505) 247 - 9955

SURVEYOR: Precision Surveys CONTACT: Larry Medrano

ADDRESS: 2929 Coors Blvd, NW Suite 105 PHONE: (505) 839 - 0569

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- X DRAINAGE REPORT
- ___ DRAINAGE PLAN
- ___ CONCEPTUAL GRADING & DRAINAGE PLAN
- X GRADING PLAN
- ___ EROSION CONTROL PLAN
- ___ ENGINEER'S CERTIFICATION
- ___ OTHER

PRE-DESIGN MEETING:

- ___ YES
- X NO
- ___ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SKETCH PLAN APPROVAL
- ___ PRELIMINARY PLAT APPROVAL
- ___ S. DEV. PLAN FOR SUB'D. APPROVAL
- X S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ___ SECTOR PLAN APPROVAL
- ___ FINAL PLAT APPROVAL
- ___ FOUNDATION PERMIT APPROVAL
- X BUILDING PERMIT APPROVAL
- ___ CERTIFICATE OF OCCUPANCY APPROVAL
- X GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ S. A. D. DRAINAGE REPORT
- ___ DRAINAGE REQUIREMENTS
- ___ OTHER

RECEIVED
Aug 29 1997
~~AUG 1 0 1997~~
HYDROLOGY SECTION

DATE SUBMITTED: 08/28/97

BY: SARA McCOLLAM

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Tierra West, LLC

August 28, 1997

Mrs. Lisa Manwill
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Communications Center (L8-D11A1)

Dear Mrs. Manwill:

We are resubmitting the Communications Center due to changes in the grades and the storm sewer system. The grades have been changed at the request of the architect. The grades have been lowered on the east side of the site. The doors on the north and south of the building were changed to second level doors. This required regrading and additional retaining walls. As a result of the grade changes, the storm drain system has been modified. We also included the foundation drainage system on the Grading and Drainage Plan. The drainage report and the Grading and Drainage Plan have been included for your review and approval.

If you have any questions regarding this matter, please do not hesitate to call me.

Sincerely,

Sara McCollam

Sara McCollam

Enclosures

cc: Jim Graff

JN: 970004
scm

970004. resubmit2 ltr

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AUG 29 1997
HYDROLOGY SECTION

4421 McLeod Rd. NE, Suite D • Albuquerque, NM 87109 • (505) 883-7592
fax (505) 883-7034 • e-mail: twdms@aol

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DRAINAGE REPORT

for

Communication Center

Prepared by

Tierra West Development Management Services
4421 McLeod Road NE, Suite D
Albuquerque, New Mexico 87109

Prepared for

Van Gilbert Architects
319 Central Ave, NW
Albuquerque, New Mexico 87102

June 1997

Ronald R. Bohannan P.E. No. 7868

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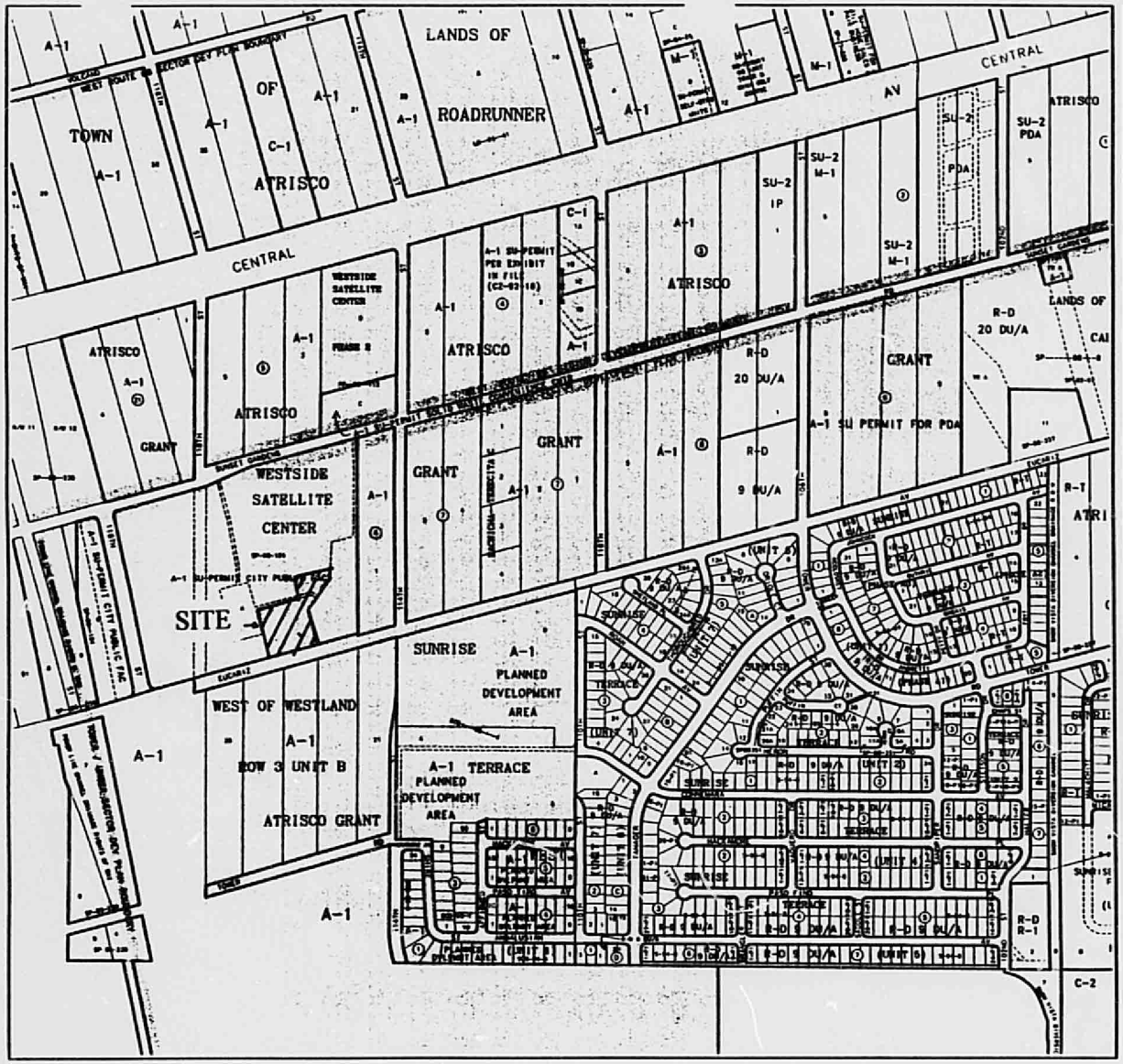
25×10



GRAPHIC SCALE IN FEET

250 0 500 1000

CITY OF Albuquerque

A.G.I.S.

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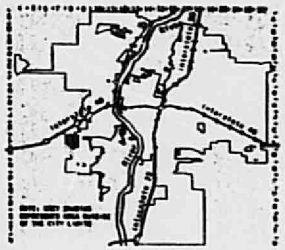
Map Amended through February 21, 1997



LEGAL DESCRIPTION

TWN

RGE

SEC 30

UNIFORM PROPERTY CODE

1-000-000

L-8-Z

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Location

The site is located south of Sunset Gardens Road between 118th Street and 114th Street. The site is shown on the attached Zone Atlas Map L-8 and contains approximately 1.79 acres. The site is a portion of a larger City facility located on this tract. The City is proposing to build a 16,000 SF Communications Center located on the south side of the firefighter's drill pad. The purpose of this report is to provide the drainage analysis and management plan for the continued development of the City Yard.

Existing Drainage Conditions

The site is part of an approved master plan prepared by Scanlon & Associates (L8-D11). The master plan divides the site into four areas as shown on the attached exhibit. Area 1 is undeveloped and drains south with no restrictions. Areas 2 and 3 will drain to Storm Pond 1. Area 4, which includes the Communications Center, will drain to Storm Pond 2. Storm Pond 1 overflows into Storm Pond 2 through an existing 18" RCP pipe. Storm Pond 2 is a retention pond and does not discharge any runoff.

The master plan calls for the area where the Communications Center is located, to drain to a retention pond (Storm Pond 2) located directly east of our site. We will continue to follow the master plan with this site. Currently, the site drains east towards the retention pond with an undeveloped runoff flow of 3.69 cfs.

There are no offsite flows entering the site. The existing drainage ponds on the east and west of the site contain the flows from those directions. Flows from the south are captured by an existing swale and routed east to the retention pond. Flows to the north are intercepted by a firefighter training pond. Flows north of the site, in the entrance road, are conveyed via an

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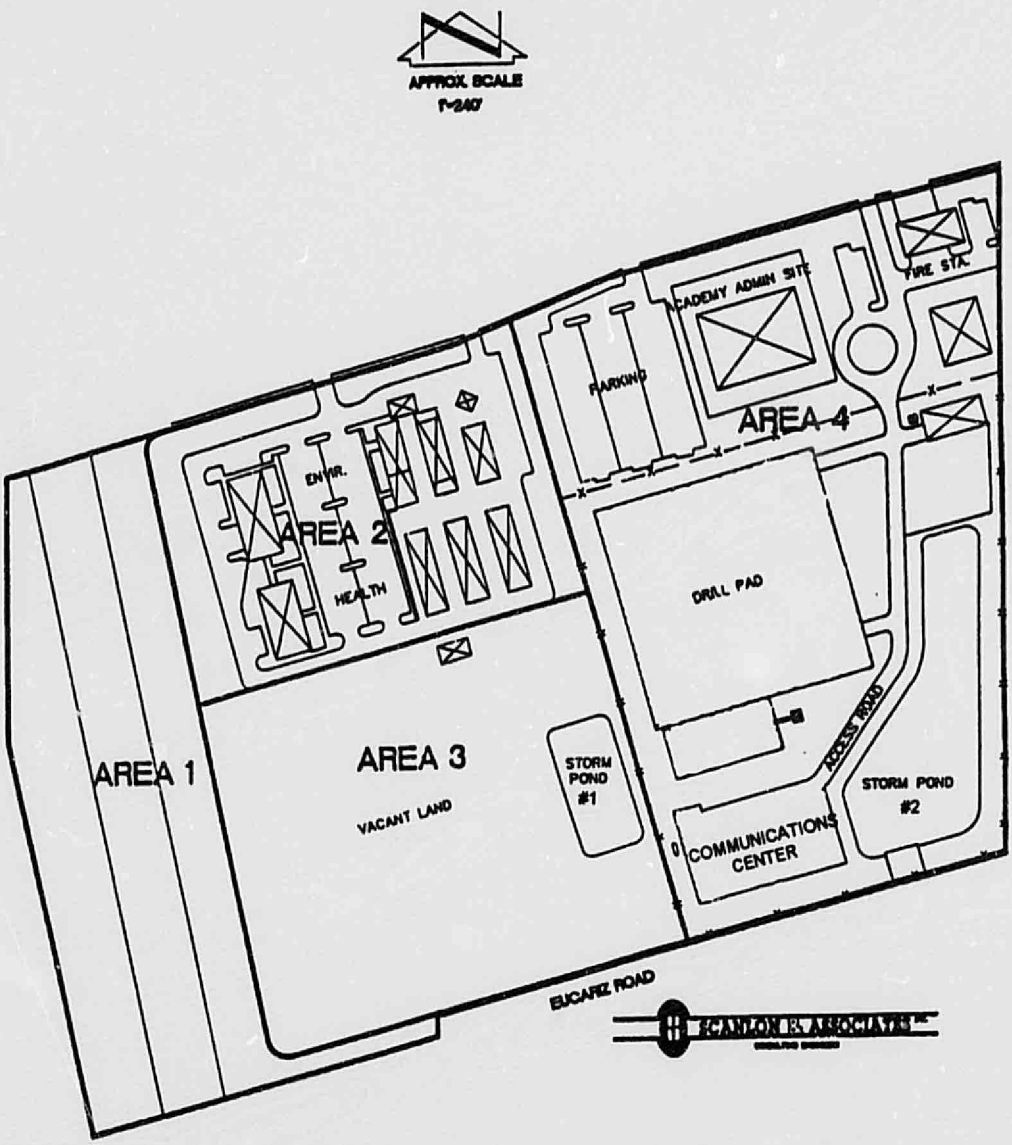

ONSITE DRAINAGE AREAS

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existing valley gutter to the retention pond.

FEMA Map and Soil Conditions

The site is located on FEMA Map section 35001C0306 D as shown on the attached excerpt. The map shows that the site does not lie within any 100-year flood plains.

The site contains two different soil types from the Soil Conservation Service Soil Survey of Bernalillo County. One of the soils is a Madurez loamy fine sand. It has slow runoff and the hazard of soil blowing is severe. This soil also has moderate permeability. The second soil is a Bluepoint-Kokan association. These soils have slow runoff and the hazard of water erosion is moderate or severe. The Bluepoint-Kokan association has rapid permeability.

On-Site Drainage Management Plan

There are three proposed basins in Area 4, where the Communications Center is located. Basins 1 and 2 are on the Communications Center site. Basin 3 is north of the Communications Center and includes the balance of Area 4. The runoff from Basin 3 drains to a existing concrete channel and is routed into the retention pond. Runoff from Basin 3 does not impact the Communications Center.

Basin 1 has a runoff flow of 5.34 cfs and will drain to a single 'D' drop inlet. The flow will be carried from the proposed drop inlet to an existing catch basin in a 12" RCP pipe. The flow from Basin 1 will be limited to 4.57 cfs by a 10" orifice plate. Basin 2 has a developed runoff flow of 2.15 cfs and will also drain to a single 'D' drop inlet. This drop inlet will also drain to the existing catch basin via a 12" RCP pipe. The total developed flow entering the retention pond will be limited to 6.72 cfs which is less than the 7.35 cfs allowable. The existing catch basin

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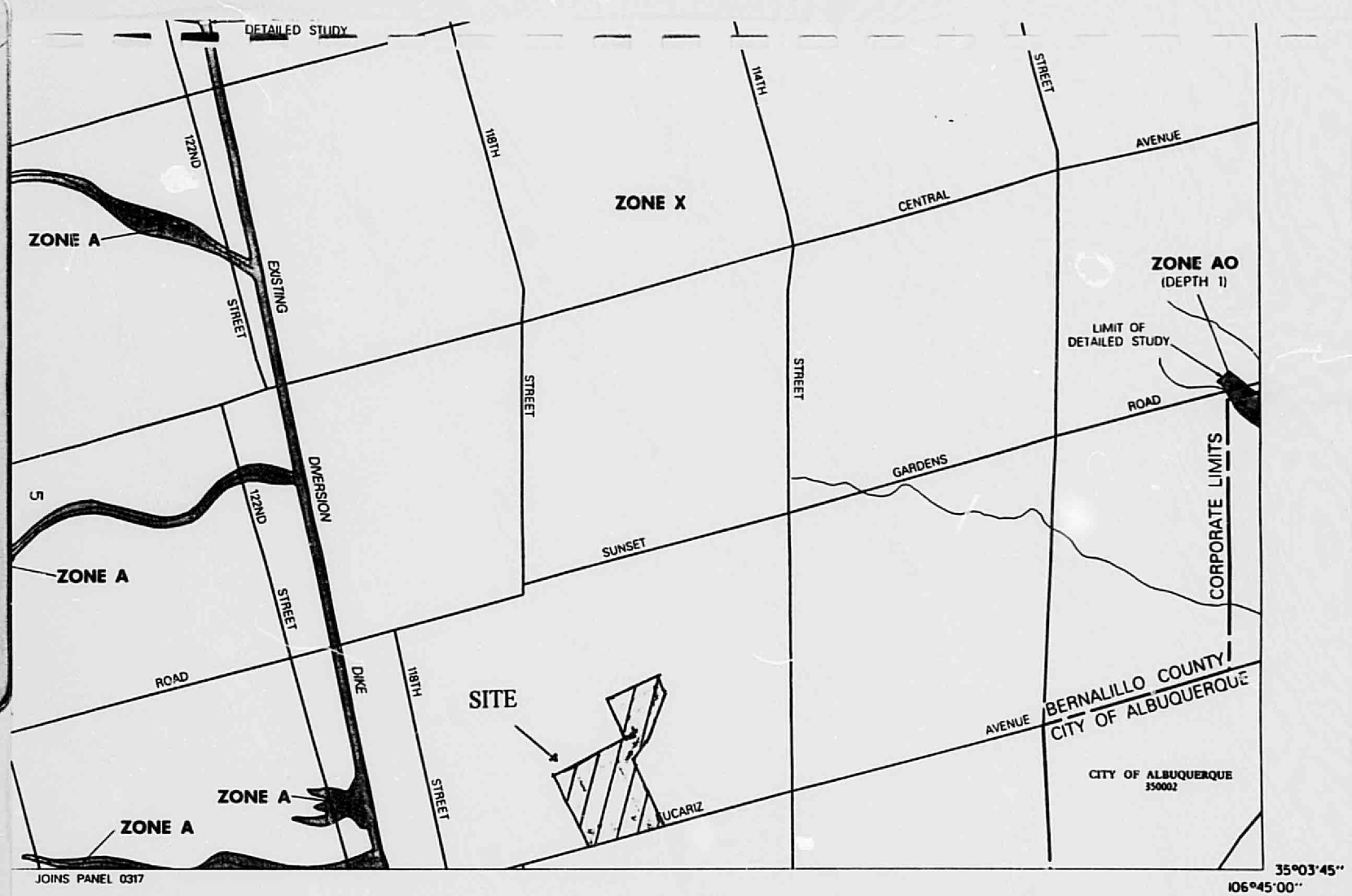

FEMA MAP 35001C0309 D

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drains to the existing retention pond by an existing 24" RCP pipe. The existing 24" RCP pipe has capacity for 46.49 cfs. Currently only 29.91 cfs is being conveyed through the pipe. The developed conditions will increase the flow in the pipe to 36.63 cfs, which the pipe has capacity for.

Summary

The site follows the approved master plan for the area. There are two developed basins on the Communications Center site. These basins will drain to two proposed drop inlets located within each basin. The drop inlets will drain via two 12" RCP pipes to an existing catch basin. The total developed flow entering the retention pond will be limited to 6.72 cfs, which is less than the 7.35 cfs allowable. The developed runoff will then be conveyed by a 24" RCP pipe to the existing retention pond located to the east of the site. The existing 24" pipe has capacity for 46.49 cfs, but it will only be carrying 36.63 cfs with the developed flows.

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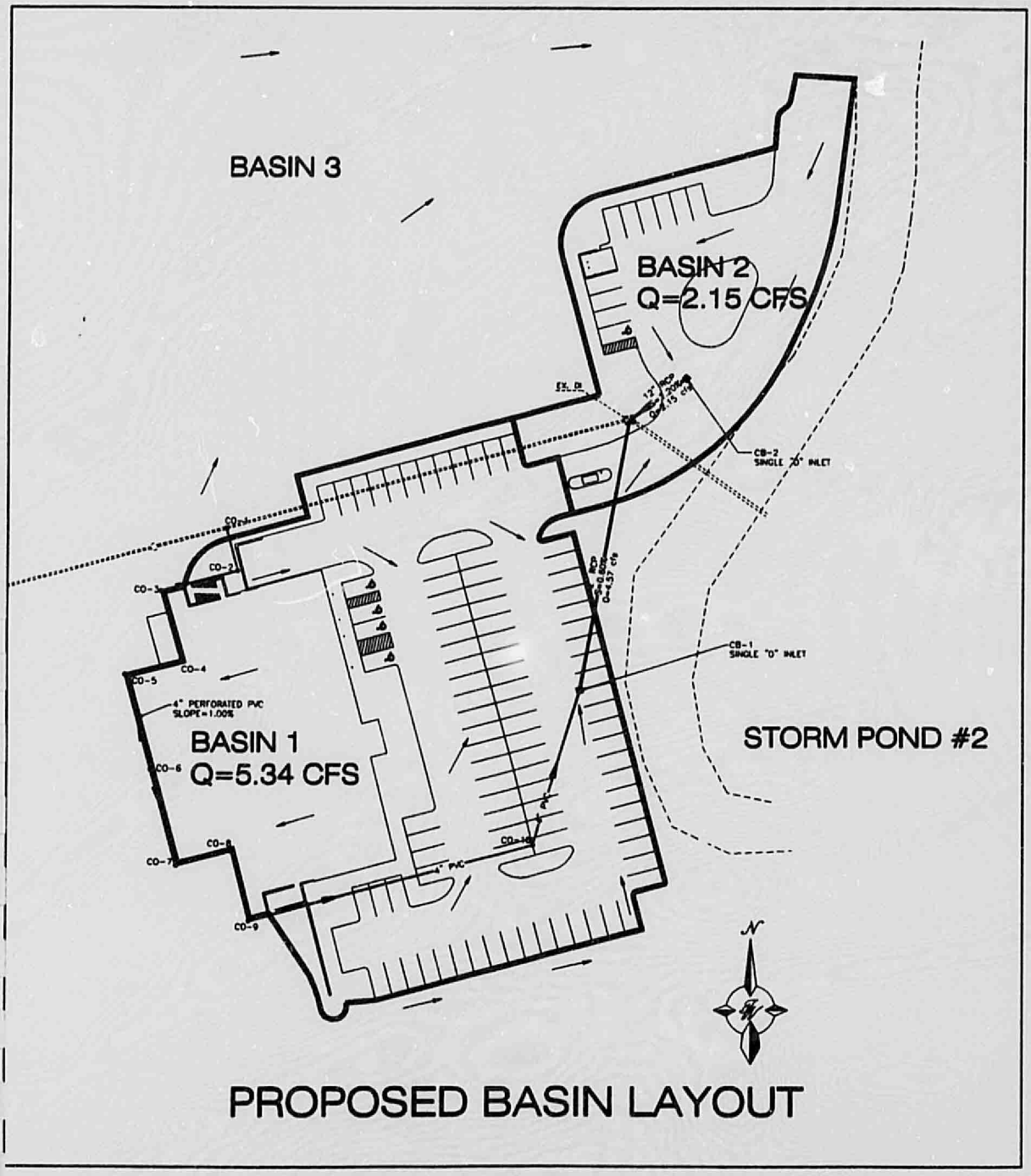

PROPOSED BASIN LAYOUT

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Runoff Calculations

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RUNOFF CALCULATIONS

The site is @ Zone 1

LAND TREATMENT

Proposed
B = 10%
D = 90 %

Existing
B = 100%

DEPTH (INCHES) @ 100-YEAR STORM

P_{60} = 1.87 inches

P_{360} = 2.20 inches

P_{1440} = 2.66 inches

DEPTH (INCHES) @ 10-YEAR STORM

P_{60} = 1.87 x 0.667
= 1.25 inches

P_{360} = 1.47

P_{1440} = 1.77

See the summary output from AHYMO calculations.

Also see the following summary tables.

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Runoff
Summary Tables
for
Proposed and Existing
Drainage Basins

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DRAINAGE BASINS

BASIN	AREA (SF)	AREA (AC)	AREA (MI^2)
1	55744.78	1.2797	0.002000
2	22348.07	0.5130	0.000802

RUNOFF CALCULATION RESULTS

Existing

BASIN	Q-100 CFS	Q-10 CFS	V-100 AC-FT	V-10 AC-FT
1	2.63	0.99	0.071	0.024
2	1.06	0.4	0.029	0.01

Proposed

SUB-BASIN	Q-100 CFS	Q-10 CFS	V-100 AC-FT	V-10 AC-FT
1	5.34	3.46	0.196	0.121
2	2.15	1.39	0.079	0.049

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Storm Sewer

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Pipe Capacity

Manning's Equation:
Q = 1.49/n * A * R^(2/3) * S^(1/2)

A = Area
R = D/4
S = Slope
n = 0.013

EXISTING PIPE CAPACITIES

Pipe	D (in)	Slope (%)	Area (ft^2)	R	Q Provided (cfs)	Q Required (cfs)	Velocity (ft/s)
1	18	4.6	1.77	0.375	22.59	--	0.00
2	12	4.2	0.79	0.25	7.32	--	0.00
3	24	4.2	3.14	0.5	46.49	--	0.00

The existing Pipe 3 drains from the existing drop inlet to the existing retention pond. This pipe has capacity for 46.49 cfs. The pipe is currently only carrying 29.91 cfs. The proposed conditions will add 6.72 cfs to the existing pipe. This is a total of 36.63 cfs. The existing 24" has capacity for the additional flow.

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STORM DRAIN INLET

EFFECTIVE AREA ASSUMING A 50% CLOGGING FACTOR

SINGLE 'D':

Area at the grate:

L = 38.375" - 7 (1/2" $_{\text{middle bars}}$)
= 34.875"
= 2.906'

W = 25.5" - 13 (1/2 $_{\text{middle bars}}$)
= 19"
= 1.583'

Area = 1.583' x 2.906'
= 4.601 ft^2

Effective Area = 4.601 - 0.5 (4.601)
= 2.30 ft^2

Effective Area = 2.30 ft^2

25×

0000 0000 0188

DROP INLET #1
HEAD CAPACITY

Orifice Equation:

$$Q = CA\sqrt{2gH}$$

Q = Flow (cfs)
C = 0.60
A = Area of drop inlet (ft^2)
g = 32.2
H = Height of water above drop inlet (ft)

$$H = \frac{\left(\frac{Q}{C*A}\right)^2}{2g}$$

$$H = \frac{\left(\frac{5.34}{0.6*2.30}\right)^2}{2*32.2}$$

H = 0.23 feet

Allowable depth = 0.50 feet
Required depth = 0.23 feet

0.23 feet < 0.50 feet

25×

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DROP INLET #2
HEAD CAPACITY

Orifice Equation:

$$Q = CA\sqrt{2gH}$$

Q = Flow (cfs)
C = 0.60
A = Area of drop inlet (ft^2)
g = 32.2
H = Height of water above drop inlet (ft)

$$H = \frac{\left(\frac{Q}{C*A}\right)^2}{2g}$$

$$H = \frac{\left(\frac{2.15}{0.6*2.30}\right)^2}{2*32.2}$$

H = 0.038 feet

Allowable depth = 0.50 feet
Required depth = 0.038 feet

0.038 feet < 0.50 feet

25×10

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Pond Calculations

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VOLUME CALCULATIONS

PARKING LOT POND

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 + 0.5 * C * D^2

C = (At - Ab) / Dt

Ab =	6.80	(@ Elevation 5325.71)
At =	1,125.53	(@ Elevation 5326.26)
Dt =	0.50	
C =	2237.46	

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
22.71	0	0	0.0000
25.71	3	0.0005	4.2210
25.81	3.1	0.0007	4.3019
25.91	3.2	0.0015	4.3813
26.01	3.3	0.0028	4.4593
26.11	3.4	0.0046	4.5360
26.21	3.5	0.0070	4.6114
26.26	3.55	0.0083	4.6486

<u>Orifice Equation</u>
Q = CA SQRT(2gH)

C =	0.6
Diameter (in	10
Area (ft^2)=	0.545415
g =	32.2
H (ft) =	Depth of water above center of orifice
Q (cfs)=	Flow

25×10

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```
*************************************************************
*                  COMMUNICATIONS CENTER                    *
*************************************************************
*         100-YEAR, 6-HR STORM  (PONDING CALCULATIONS)      *
*************************************************************
START              TIME=0.0
*
* ROUTE 1
*
* BASIN 1
*
RAINFALL           TYPE=1 RAIN QUARTER=0.0 IN
                   RAIN ONE=1.87 IN RAIN SIX=2.20 IN
                   RAIN DAY=2.66 IN DT=0.02253 HR
COMPUTE NM HYD     ID=1 HYD NO=101.1 AREA=0.002 SQ MI
                   PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                   TP=-0.1333 HR MASS RAINFALL=-1
* BASIN 1 PONDING
*
ROUTE RESERVOIR    ID=2 HYD NO=501.1 INFLOW ID=1 CODE=24
                   OUTFLOW(CFS)      STORAGE(AC-FT)  ELEVATION(FT)
                       0.0000            0.0000          22.71
                       4.2210            0.0005          25.71
                       4.3019            0.0007          25.81
                       4.3813            0.0015          25.91
                       4.4593            0.0028          26.01
                       4.5360            0.0046          26.11
                       4.6114            0.0070          26.21
                       4.6486            0.0083          26.26
*
*
FINISH
```


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AHYMO SUMMARY TABLE (AHYMO194) - ANAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =08/19/1997
INPUT FILE = a:pond.dat USER NO.= R_BOHAMN.101

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	PAGE = 1 NOTATION
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.200
COMPUTE NM HYD	101.10	-	1	.00200	5.34	.196	1.83567	1.510	4.174	PER IMP= 90.00
ROUTE RESERVOIR	501.10	1	2	.00200	4.57	.196	1.83554	1.555	3.568	AC-FT= .006
FINISH										

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```
AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
     RUN DATE (MON/DAY/YR) = 08/27/1997
     START TIME (HR:MIN:SEC) = 10:25:04     USER NO.= R_BOHANN.I01
     INPUT FILE = A:POND.DAT

*************************************************************
*                  COMMUNICATIONS CENTER                    *
*************************************************************
*         100-YEAR, 6-HR STORM  (PONDING CALCULATIONS)      *
*************************************************************
START              TIME=0.0
*
* ROUTE 1
*
* BASIN 1
*
RAINFALL           TYPE=1 RAIN QUARTER=0.0 IN
                   RAIN ONE=1.87 IN RAIN SIX=2.20 IN
                   RAIN DAY=2.66 IN DT=0.02253 HR

            COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
            DT =    .022530 HOURS       END TIME =     5.992981 HOURS
               .0000   .0011   .0022   .0033   .0045   .0056   .0068
               .0080   .0092   .0105   .0117   .0130   .0143   .0156
               .0169   .0183   .0197   .0211   .0225   .0240   .0255
               .0270   .0286   .0301   .0318   .0334   .0351   .0368
               .0386   .0404   .0423   .0442   .0461   .0481   .0502
               .0523   .0545   .0567   .0590   .0614   .0639   .0664
               .0691   .0718   .0747   .0779   .0814   .0852   .0890
               .0931   .1009   .1168   .1389   .1682   .2060   .2533
               .3113   .3814   .4648   .5627   .6765   .8073   .9567
              1.1258  1.2045  1.2601  1.3098  1.3554  1.3977  1.4374
              1.4748  1.5103  1.5441  1.5763  1.6070  1.6365  1.6648
              1.6919  1.7180  1.7432  1.7673  1.7906  1.8131  1.8348
              1.8557  1.8758  1.8953  1.9141  1.9322  1.9468  1.9509
              1.9548  1.9586  1.9623  1.9659  1.9693  1.9727  1.9759
              1.9791  1.9822  1.9852  1.9881  1.9910  1.9938  1.9965
              1.9992  2.0018  2.0043  2.0068  2.0093  2.0117  2.0141
              2.0164  2.0187  2.0209  2.0231  2.0253  2.0274  2.0295
              2.0316  2.0336  2.0356  2.0376  2.0396  2.0415  2.0434
              2.0453  2.0471  2.0489  2.0507  2.0525  2.0543  2.0560
              2.0577  2.0594  2.0611  2.0627  2.0644  2.0660  2.0676
              2.0692  2.0708  2.0723  2.0738  2.0754  2.0769  2.0784
              2.0798  2.0813  2.0828  2.0842  2.0856  2.0870  2.0884
              2.0898  2.0912  2.0925  2.0939  2.0952  2.0965  2.0979
              2.0992  2.1005  2.1017  2.1030  2.1043  2.1055  2.1068
              2.1080  2.1092  2.1104  2.1117  2.1129  2.1140  2.1152
              2.1164  2.1176  2.1187  2.1199  2.1210  2.1221  2.1233
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              2.1320  2.1331  2.1341  2.1352  2.1362  2.1373  2.1383
              2.1393  2.1404  2.1414  2.1424  2.1434  2.1444  2.1454
              2.1464  2.1473  2.1483  2.1493  2.1502  2.1512  2.1522
              2.1531  2.1541  2.1550  2.1559  2.1569  2.1578  2.1587
              2.1596  2.1605  2.1614  2.1623  2.1632  2.1641  2.1650
              2.1659  2.1668  2.1677  2.1685  2.1694  2.1703  2.1711
              2.1720  2.1728  2.1737  2.1745  2.1754  2.1762  2.1770
              2.1779  2.1787  2.1795  2.1803  2.1812  2.1820  2.1828
              2.1836  2.1844  2.1852  2.1860  2.1868  2.1876  2.1883
              2.1891  2.1899  2.1907  2.1915  2.1922  2.1930  2.1938
```


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```
                2.1945  2.1953  2.1960  2.1968  2.1975  2.1983  2.1990
                2.1998

COMPUTE NM HYD      ID=1 HYD NO=101.1 AREA=0.002 SQ MI
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                    TP=-0.1333 HR MASS RAINFALL=-1

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   UNIT PEAK =   7.1065    CFS   UNIT VOLUME =    .9985       B =   526.28      P60 = 1.8700
   AREA =      .001800 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
   RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .022530


   K =   .130992HR    TP =   .133300HR    K/TP RATIO =   .982685     SHAPE CONSTANT, N =  3.593448
   UNIT PEAK =   .49075    CFS   UNIT VOLUME =    .9721       B =   327.09      P60 = 1.8700
   AREA =      .000200 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
   RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .022530

* BASIN 1 PONDING
*
ROUTE RESERVOIR     ID=2 HYD NO=501.1 INFLOW ID=1 CODE=24
                    OUTFLOW(CFS)      STORAGE(AC-FT)  ELEVATION(FT)
                        0.0000            0.0000          22.71
                        4.2210            0.0005          25.71
                        4.3019            0.0007          25.81
                        4.3813            0.0015          25.91
                        4.4593            0.0028          26.01
                        4.5360            0.0046          26.11
                        4.6114            0.0070          26.21
                        4.6486            0.0083          26.26

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

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

    .00        .00     22.71      .000       .00
    .54        .00     22.71      .000       .00
   1.08        .00     22.71      .000       .00
   1.62       3.34     26.00      .003      4.45
   2.16        .62     23.15      .000       .62
   2.70        .10     22.78      .000       .10
   3.24        .04     22.74      .000       .04
   3.79        .03     22.73      .000       .03
   4.33        .03     22.73      .000       .03
   4.87        .03     22.73      .000       .03
   5.41        .03     22.73      .000       .03
   5.95        .04     22.74      .000       .04
   6.49        .00     22.71      .000       .00
 PEAK DISCHARGE =        4.567 CFS - PEAK OCCURS AT HOUR    1.55
 MAXIMUM WATER SURFACE ELEVATION =       26.151
 MAXIMUM STORAGE =         .0056 AC-FT      INCREMENTAL TIME=     .022530HRS

*
*
FINISH

   NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 10:25:05
```


25×10

0000 0000 0196

AHYMO
Runoff Input
and
Summary Output
for
Proposed and Existing
Drainage Basins

25×

0000 0000 0197

```
*****************************************************************
*                    COMMUNICATION CENTER                       *
*****************************************************************
*      100-YEAR, 6-HR STORM  (UNDER PROPOSED CONDITIONS)        *
*****************************************************************
*
START               TIME=0.0
*
* BASIN 1
*
RAINFALL            TYPE=1 RAIN QUARTER=0.0 IN
                    RAIN ONE=1.87 IN RAIN SIX=2.20 IN
                    RAIN DAY=2.66 IN DT=0.02253 HR
COMPUTE NM HYD      ID=1 HYD NO=100.1 AREA=0.002 SQ MI
                    PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                    TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=1 CODE=1
*
* BASIN 2
*
COMPUTE NM HYD      ID=1 HYD NO=100.2 AREA=0.000802 SQ MI
                    PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                    TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=1 CODE=1
*
*****************************************************************
*       10-YEAR, 6-HR STORM  (UNDER PROPOSED CONDITIONS)        *
*****************************************************************
*
START               TIME=0.0
*
* BASIN 1
*
RAINFALL            TYPE=1 RAIN QUARTER=0.0 IN
                    RAIN ONE=1.25 IN RAIN SIX=1.47 IN
                    RAIN DAY=1.77 IN DT=0.02253 HR
COMPUTE NM HYD      ID=1 HYD NO=110.1 AREA=0.002 SQ MI
                    PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                    TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=1 CODE=1
*
* BASIN 2
*
COMPUTE NM HYD      ID=1 HYD NO=110.2 AREA=0.000802 SQ MI
                    PER A=0.00 PER B=10.00 PER C=0.00 PER D=90.00
                    TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=1 CODE=1
*
*
FINISH
```


25×10

0000 0000 0 148

ANYMO SUMMARY TABLE (ANYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =06/04/1997
INPUT FILE = A:P.DAT USER NO.= R_BOHANN.101

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	PAGE = 1 NOTATION
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.200
COMPUTE NM HYD	100.10	-	1	.00200	5.34	.196	1.83567	1.510	4.174	PER IMP= 90.00
COMPUTE NM HYD	100.20	-	1	.00080	2.15	.079	1.83567	1.510	4.193	PER IMP= 90.00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.470
COMPUTE NM HYD	110.10	-	1	.00200	3.46	.121	1.13632	1.510	2.702	PER IMP= 90.00
COMPUTE NM HYD	110.20	-	1	.00080	1.39	.049	1.13631	1.510	2.712	PER IMP= 90.00
FINISH										

25×10

0000 0000 0199

```
*****************************************************************
*                    COMMUNICATION CENTER                       *
*****************************************************************
*      100-YEAR, 6-HR STORM  (UNDER EXISTING CONDITIONS)        *
*****************************************************************
*
START              TIME=0.0
*
* BASIN 1
*
RAINFALL           TYPE=1 RAIN QUARTER=0.0 IN
                   RAIN ONE=1.87 IN RAIN SIX=2.20 IN
                   RAIN DAY=2.66 IN DT=0.02253 HR
COMPUTE NM HYD     ID=1 HYD NO=100.1 AREA=0.002 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
PRINT HYD          ID=1 CODE=1
*
* BASIN 2
*
COMPUTE NM HYD     ID=1 HYD NO=100.2 AREA=0.000802 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
PRINT HYD          ID=1 CODE=1
*
*****************************************************************
*       10-YEAR, 6-HR STORM  (UNDER EXISTING CONDITIONS)        *
*****************************************************************
*
START              TIME=0.0
*
* BASIN 1
*
RAINFALL           TYPE=1 RAIN QUARTER=0.0 IN
                   RAIN ONE=1.25 IN RAIN SIX=1.47 IN
                   RAIN DAY=1.77 IN DT=0.02253 HR
COMPUTE NM HYD     ID=1 HYD NO=110.1 AREA=0.002 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
PRINT HYD          ID=1 CODE=1
*
* BASIN 2
*
COMPUTE NM HYD     ID=1 HYD NO=110.2 AREA=0.000802 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
PRINT HYD          ID=1 CODE=1
*
*
FINISH
```


25×10

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =06/04/1997
INPUT FILE = A:E.DAT USER NO.= R_BOHANN.I01

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	PAGE = 1 NOTATION
START										
RAINFALL TYPE= 1										TIME= .00
										RAIN6= 2.200
COMPUTE NM HYD	100.10	-	1	.00200	2.63	.071	.66800	1.532	2.055	PER IMP= .00
COMPUTE NM HYD	100.20	-	1	.00080	1.06	.029	.66800	1.532	2.064	PER IMP= .00
START										
RAINFALL TYPE= 1										TIME= .00
										RAIN6= 1.470
COMPUTE NM HYD	110.10	-	1	.00200	.99	.024	.22418	1.532	.770	PER IMP= .00
COMPUTE NM HYD	110.20	-	1	.00080	.40	.010	.22418	1.532	.773	PER IMP= .00
FINISH										

0000 0000 0201

CITY OF
Albuquerque

Martin J. Chávez, Mayor

October 9, 1997

Ronald Bohannan, P.E.
Tierra West
4421 McLeod NE
Albuquerque, NM 87109

RE: COMMUNICATIONS CENTER (L8-D11A1). GRADING AND DRAINAGE PLAN FOR SITE DEVELOPMENT AND BUILDING PERMIT APPROVALS. ENGINEER'S STAMP DATED SEPTEMBER 24, 1997.

Dear Mr. Bohannan:

Based on the information provided on your September 24, 1997 submittal, the above referenced project is approved for Site Development and Building Permit.

An Engineer's Certification will be required prior to Certificate of Occupancy.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

Lisa Ann Manwill, P.E.
Hydrology

c: Andrew Garcia
File

25×10

0000 0000 0202

CITY OF
Albuquerque

September 17, 1997

Martin J. Chávez, Mayor

Ronald Bohannan, P.E.
Tierra West
4421 McLeod NE
Albuquerque, NM 87109

RE: COMMUNICATIONS CENTER (L8-D11A1). UPDATED GRADING AND DRAINAGE PLAN FOR BUILDING PERMIT APPROVAL. ENGINEER'S STAMP DATED AUGUST 28, 1997.

Dear Mr. Bohannan:

Based on the information provided on your August 29, 1997 submittal, City Hydrology has the following comments:

1. Label all storm drain pipe (new and existing).
2. Label all inlets, cleanouts, and manholes (new and existing).
3. Use a minimum of 6-inch storm drain pipe.
4. The master plan indicates that Pond #2 is actually a detention facility with a very small release rate.
5. This project is located out of City limits. The project should be reviewed and accepted by Bernalillo County.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

Lisa Ann Manwill, P.E.
Hydrology

c: Andrew Garcia
File

Good for You, Albuquerque!

25 x 10

0000 0000 0203

CITY OF
Albuquerque

July 9, 1997

Martin J. Chávez, Mayor

Ronald Bohannan, P.E.
Tierra West
4421 McCleod Rd. NE
Suite D
Albuquerque, NM 87109

RE: COMMUNICATIONS CENTER (L8-D11A1). DRAINAGE REPORT FOR SITE DEVELOPMENT PLAN (FOR BUILDING PERMIT), BUILDING PERMIT, AND GRADING PERMIT APPROVALS. ENGINEER'S STAMP DATED JULY 7, 1997.

Dear Mr. Bohannan:

Based on the information provided on your July 8, 1997 submittal, the above referenced project is approved for Site Development Plan for Building Permit and Building Permit.

An Engineer's Certification will be required prior to Certificate of Occupancy.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

Lisa Ann Manwill, P.E.
Engineering Assoc./Hyd.

c: Andrew Garcia
File

25×10

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CITY OF
Albuquerque
Public Works Department

June 20, 1997

Martin J. Chávez, Mayor

Robert E. Gurulé, Director

Ronald Bohannan, P.E.
Tierra West
4421 McCleod Rd. NE
Suite D
Albuquerque, NM 87109

RE: COMMUNICATIONS CENTER (L8-D11A1). DRAINAGE REPORT FOR SITE DEVELOPMENT PLAN (FOR BUILDING PERMIT), BUILDING PERMIT, AND GRADING PERMIT APPROVALS. ENGINEER'S STAMP DATED JUNE 9, 1997.

Dear Mr. Bohannan:

Based on the information provided on your June 16, 1997 submittal, City Hydrology has the following comments:

1. The master plan indicates that Pond #2 actually has a very small release rate of 0.75 cfs. The reason for the low release rate is due to no storm drain facility in the vicinity. In other words, this pond is supposed to be a "temporary" retention pond. Please discuss any proposed or existing storm drain facilities in this area since the master plan was published.

2. Discuss pond capacity. It appears to me, that you are slightly above the allowable discharge for this area.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

Lisa Ann Manwill

Lisa Ann Manwill, P.E.
Engineering Assoc./Hyd.

c: Andrew Garcia
File

25

0000 0000 0205

CITY OF
Albuquerque

Martin J. Chávez, Mayor

December 1, 1997

Ronald Bohannan, P.E.
Tierra West
4421 McLeod NE
Albuquerque, NM 87109

RE: COMMUNICATIONS CENTER (L8-D11A1). UPDATED GRADING AND DRAINAGE PLAN FOR SITE DEVELOPMENT AND BUILDING PERMIT APPROVALS. ENGINEER'S STAMP DATED OCTOBER 31, 1997.

Dear Mr. Bohannan:

Based on the updated information provided on your November 3, 1997 submittal, the above referenced project is approved for Site Development and Building Permit.

An Engineer's Certification will be required prior to Certificate of Occupancy.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

Lisa Ann Manwill, P.E.
Hydrology

c: Andrew Garcia
File

Good for You, Albuquerque!

25×10

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DRAINAGE INFORMATION SHEET

PROJECT TITLE: COMMUNICATIONS CENTER ZONE ATLAS/DRNG. FILE #: L-8 / D11A1

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: LOTS 2 THRU 5, BLOCK 6 LANDS OF THE ATRISCO GRANT

CITY ADDRESS: NORTH OF EUCARIZ BETWEEN 114TH AND 118TH STREETS

ENGINEERING FIRM: TIERRA WEST DEV. MAGT. SER. CONTACT: RONALD R. BOHANNAN

ADDRESS: 4421 McCleod Rd. NE Suite D, 87109 PHONE: (505) 883-7592

OWNER: CITY OF ALBUQUERQUE CONTACT: _____

ADDRESS: _____ PHONE: _____

ARCHITECT: VAN GILBERT ARCHITECTS CONTACT: JIM GRAFF

ADDRESS: 319 CENTRAL AVE. NW PHONE: (505) 247 - 9955

SURVEYOR: Precision Surveys CONTACT: Larry Medrano

ADDRESS: 2929 Coors Blvd, NW Suite 105 PHONE: (505) 839 - 0569

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- X DRAINAGE REPORT
- ___ DRAINAGE PLAN
- ___ CONCEPTUAL GRADING & DRAINAGE PLAN
- X GRADING PLAN
- ___ EROSION CONTROL PLAN
- ___ ENGINEER'S CERTIFICATION
- ___ OTHER

PRE-DESIGN MEETING:

- ___ YES
- X NO
- ___ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SKETCH PLAN APPROVAL
- ___ PRELIMINARY PLAT APPROVAL
- ___ S. DEV. PLAN FOR SUB'D. APPROVAL
- X S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ___ SECTOR PLAN APPROVAL
- ___ FINAL PLAT APPROVAL
- ___ FOUNDATION PERMIT APPROVAL
- X BUILDING PERMIT APPROVAL
- ___ CERTIFICATE OF OCCUPANCY APPROVAL
- X GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ S. A. D. DRAINAGE REPORT
- ___ DRAINAGE REQUIREMENTS
- ___ OTHER

RECEIVED
NOV 03 1997
HYDROLOGY SECTION

DATE SUBMITTED: 11/03/97

BY: SARA McCOLLAM

25 x 10

0000 0000 0207

Tierra West, LLC

November 3, 1997

Mrs. Lisa Manwill
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Communications Center (L8-D11A1)

Dear Mrs. Manwill:

We are resubmitting the grading and drainage plan for the Communications Center because of modifications that were requested by the architect, Van H. Gilbert, Inc. The slopes in the southwest corner were reduced to 5%. We also moved the retaining wall near the loading dock on the north end of the site. The foundation drainage line has been changed to 6" PVC and routed into an existing manhole. Per our discussion at the October 22, 1997, DRC meeting, the 12" RCP storm drain lines have been changed to 10" PVC. There were no changes to the drainage report.

If you have any questions regarding this matter, please do not hesitate to call me.

Sincerely,

Sara McCollam

Sara McCollam

Enclosures

cc: Jim Graff

JN: 970004
scm

970004: resubmit4.ltr

RECEIVED
NOV 03 1997
HYDROLOGY SECTION

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fax (505) 883-7034 • e-mail: twdms@aol

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0000 0000 0208

DRAINAGE INFORMATION SHEET

PROJECT TITLE: COMMUNICATIONS CENTER
ZONE ATLAS/DRNG. FILE #: L-8 / D11A1
DRB #: _____ EPC #: _____ WORK ORDER #: _____
LEGAL DESCRIPTION: LOTS 2 THRU 5, BLOCK 6 LANDS OF THE ATRISCO GRANT
CITY ADDRESS: NORTH OF EUCARIZ BETWEEN 114TH AND 118TH STREETS

ENGINEERING FIRM:	TIERRA WEST DEV. MAGT. SER.	CONTACT:	RONALD R. BOHANNAN
ADDRESS:	4421 McCleod Rd. NE Suite D, 87109	PHONE:	(505) 883-7502
OWNER:	CITY OF ALBUQUERQUE	CONTACT:	
ADDRESS:		PHONE:	
ARCHITECT:	VAN GILBERT ARCHITECTS	CONTACT:	JIM GRAFF
ADDRESS:	319 CENTRAL AVE. NW	PHONE:	(505) 247 - 9955
SURVEYOR:	Precision Surveys	CONTACT:	Larry Medrano
ADDRESS:	2929 Coors Blvd, NW Suite 105	PHONE:	(505) 839 - 0569
CONTRACTOR:		CONTACT:	
ADDRESS:		PHONE:	

TYPE OF SUBMITTAL:

- X DRAINAGE REPORT
- ___ DRAINAGE PLAN
- ___ CONCEPTUAL GRADING & DRAINAGE PLAN
- X GRADING PLAN
- ___ EROSION CONTROL PLAN
- ___ ENGINEER'S CERTIFICATION
- ___ OTHER

PRE-DESIGN MEETING:

- ___ YES
- X NO
- ___ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SKETCH PLAN APPROVAL
- ___ PRELIMINARY PLAT APPROVAL
- ___ S. DEV. PLAN FOR SUB'D. APPROVAL
- X S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ___ SECTOR PLAN APPROVAL
- ___ FINAL PLAT APPROVAL
- ___ FOUNDATION PERMIT APPROVAL
- X BUILDING PERMIT APPROVAL
- ___ CERTIFICATE OF OCCUPANCY APPROVAL
- X GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ S. A. D. DRAINAGE REPORT
- ___ DRAINAGE REQUIREMENTS
- ___ OTHER

RECEIVED
SEP 24 1997
HYDROLOGY SECTION

DATE SUBMITTED: 09/24/97

BY: SARA McCOLLAM

25 x 10

0000 0000 0209

Tierra West, LLC

September 23, 1997

Mrs. Lisa Manwill
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Communications Center (L8-D11A1)

Dear Mrs. Manwill:

This is a letter is response to your comments regarding the Grading and Drainage Plan for the above referenced project. At the request of the architect, Van H. Gilbert, the grading plan has been plotted on the architect's title block.

1. All the existing and new storm drains pipes have been labeled.

2. All the existing and new inlets, cleanouts, and manholes have been labeled.

3. The 4" storm drain pipe has been upgraded to 8" at the request of DRC.

4. Pond #2 is not a retention pond but a detention pond.

5. Although the project is out of the City limits, Bernalillo County has elected to have the City review the project due to the fact that the project will be owned and maintained by the City of Albuquerque.

If you have any questions regarding this matter, please do not hesitate to call me.

Sincerely,

Sara McCollam

Sara McCollam

Enclosures

cc: Jim Graff

JN: 970004
scm

RECEIVED
SEP 24 1997
HYDROLOGY SECTION

970004: resubmit3.ltr

4421 McLeod Rd. NE, Suite D • Albuquerque, NM 87109 • (505) 883-7592
fax (505) 883-7034 • e-mail: twdms@aol

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DRAINAGE INFORMATION SHEET

PROJECT TITLE: COMMUNICATIONS CENTER ZONE ATLAS/DRNG. FILE #: L-8 / D11A1

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: LOTS 2 THRU 5, BLOCK 6 LANDS OF THE ATRISCO GRANT

CITY ADDRESS: NORTH OF EUCARIZ BETWEEN 114TH AND 118TH STREETS

ENGINEERING FIRM: TIERRA WEST DEV. MAGT. SER. CONTACT: RONALD R. BOHANNAN

ADDRESS: 4421 McCleod Rd. NE Suite D, 87109 PHONE: (505) 883-7592

OWNER: CITY OF ALBUQUERQUE CONTACT: _____

ADDRESS: _____ PHONE: _____

ARCHITECT: VAN GILBERT ARCHITECTS CONTACT: JIM GRAFF

ADDRESS: 319 CENTRAL AVE. NW PHONE: (505) 247 - 9955

SURVEYOR: Precision Surveys CONTACT: Larry Medrano

ADDRESS: 2929 Coors Blvd, NW Suite 105 PHONE: (505) 839 - 0569

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- X DRAINAGE REPORT
- ___ DRAINAGE PLAN
- ___ CONCEPTUAL GRADING & DRAINAGE PLAN
- X GRADING PLAN
- ___ EROSION CONTROL PLAN
- ___ ENGINEER'S CERTIFICATION
- ___ OTHER

PRE-DESIGN MEETING:

- ___ YES
- X NO
- ___ COPY PROVIDED

RECEIVED FEB 1 2 1998 HYDROLOGY SECTION

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SKETCH PLAN APPROVAL
- ___ PRELIMINARY PLAT APPROVAL
- ___ S. DEV. PLAN FOR SUB'D. APPROVAL
- X S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ___ SECTOR PLAN APPROVAL
- ___ FINAL PLAT APPROVAL
- ___ FOUNDATION PERMIT APPROVAL
- X BUILDING PERMIT APPROVAL
- ___ CERTIFICATE OF OCCUPANCY APPROVAL
- X GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ S. A. D. DRAINAGE REPORT
- ___ DRAINAGE REQUIREMENTS
- ___ OTHER

Engr. stamp date did not change from last letter ∴ prev. dated 10/31/97 is still approved. CAM 3-3-98

DATE SUBMITTED: 02/13/98

BY: SARA McCOLLAM

25 × 10

0000 0000 0211

Tierra West, LLC

February 13, 1998

Mrs. Lisa Manwill
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Communications Center (L8-D11A1)

Dear Mrs. Manwill:

We are resubmitting the grading and drainage plan for the Communications Center site. The only change was an update of the architect's title block. No changes were made to the previously approved plan and drainage report.

If you have any questions regarding this matter, please do not hesitate to call me.

Sincerely,

Sara McCollam

Sara McCollam

Enclosures

cc: Jim Graff

JN: 970004
scm

970004: resubmit3.ltr

RECEIVED
FEB 12 1998
HYDROLOGY SECTION

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fax (505) 883-7034 • e-mail: twdms@aol

25×10

0000 0000 0212

Tierra West, LLC

July 8, 1997

Mrs. Lisa Manwill
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Communications Center (L8-D11A1)

Dear Mrs. Manwill:

This is a letter is response to your comments regarding the drainage report for the above referenced project.

1. There are no existing or proposed storm sewer improvements in this area since the master plan was completed. We are proposing to continue the existing drainage pattern with this project.

2. We have added an orifice plate to one of the drop inlets. This will limit the flow from the site to 7.23 cfs, which is less than the allowable of 7.35 cfs.

If you have any questions regarding this matter, please do not hesitate to call me.

Sincerely,

Sara McCollam

Sara McCollam

Enclosures

cc: Jim Graff

JN: 970004
scm

RECEIVED
JUL 08 1997
HYDROLOGY SECTION

970004: resubmit.ltr

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fax (505) 883-7034 • e-mail: twdms@aol

25×10

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PLANS/PLATS ON FILE

FILE DESC: 18/D11A1

PLANS/PLATS 4

25×10

AI 20 0000 0000