CITY OF ALBUQUERQUE

June 16, 2013

Mark Goodwin, P.E.
Mark Goodwin & Associates, PA
P.O. Box 90606
Albuquerque, NM 87199

Re: Lovelace Respiratory Research Institute
Grading and Drainage Plan For Parking Additions
Engineer's Stamp Date 5/29/2013 (M16/D006)

Dear Mr. Goodwin,

Based upon the information provided in your submittal received 6-4-13, the above referenced plan is approved for Building Permit.

Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology. Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

If you have any questions, you can contact me at 924-3695.

Sincerely,

Shahab Biazar, P.E.
Senior Engineer, Planning Dept.
Development and Building Services

C: e-mail

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

Biazar, Shahab

From: Martin Sanchez [Martin@goodwinengineers.com]

Sent: Friday, June 21, 2013 10:30 AM

To: Biazar, Shahab

Subject: Lovelace R.R.I. - Survey

Good morning Mr. Biazar,

The survey used for Lovelace R.R.I. was completed by Vladimir Jirik of Albuquerque Surveying Co. Inc. The date on the survey is May 1999.

Sincerely,

Martin Sanchez, EIT
MARK GOODWIN & ASSOCIATES, PA
(505) 828-2200
(505) 797-9539 fax
martin@goodwinengineers.com

Biazar, Shahab

From: Biazar, Shahab
Sent: Friday, June 21, 2013 10:18 AM
To: 'Martin Sanchez'
Subject: RE: Lovelace R.R.I.

Hi,

Thanks you for sending the calculations. For the BM I was looking for a permanent City BM to make sure it was done using the NAVD 88.

Thanks again and have a nice day.

Shahab Biazar, P.E.
Senior Engineer
Planning Department
Development & Building Services Division
600 2nd St. NW, Suite 201
Albuquerque, NM 87102
t 505-924-3695
f 505-924-3864

From: Martin Sanchez [mailto:Martin@goodwinengineers.com]
Sent: Friday, June 21, 2013 9:57 AM
To: Biazar, Shahab
Subject: Lovelace R.R.I.

Good morning Mr. Biazar,

I have attached the information you requested. Let me know if I can be of further assistance.

Sincerely,

Martin Sanchez, EIT
MARK GOODWIN & ASSOCIATES, PA
(505) 828-2200
(505) 797-9539 fax
martin@goodwinengineers.com

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

M-18 D006

Project Title: Lovelace Respiratory Research Institute Building Permit #: _____ City Drainage #: M-

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

Legal Description: Section 36, Township 10 North, Range 3 East, New Mexico Principal Meridian, Albuquerque, Bernalillo County, New Mexico, Lot C & Lot E

City Address: 2425 Ridgecrest Dr SE Albuquerque NM 87108

Engineering Firm: Mark Goodwin & Associates, P.A Contact: Mark Goodwin

Address: 8916 Adams St. NE Albuquerque, NM 87113

Phone#: (505) 843-9639 Fax#: (505) 843-9683 E-mail: Mark@goodwinengineers.com

Owner: Lovelace Hospital Inc Contact: Cameron Erdmann

Address: 2425 Ridgecrest Dr SE Albuquerque NM 87108

Phone#: (505) 843-9639 Fax#: (505) 843-9683 E-mail: Cerdmann@studiosswarch.com

Architect: Studio Southwest Architects Inc. Contact: Cameron Erdmann

Address: 2101 Mountain Rd NW Albuquerque, NM 87104

Phone#: (505) 843-9639 Fax#: (505) 843-9683 E-mail: Cerdmann@studiosswarch.com

Surveyor: Professional Surveying, LLC Contact: Vladimir Jink

Address: _____

Phone#: (505) 892-4597 Fax#: (505) 620-4228 E-mail: Professional.surveying@comcast.net

Contractor: NA Contact: _____

Address: _____

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

TYPE OF SUBMITTAL:

____ DRAINAGE REPORT
____ DRAINAGE PLAN 1st SUBMITTAL
____ DRAINAGE PLAN RESUBMITTAL
____ CONCEPTUAL G & D PLAN
X GRADING PLAN
____ EROSION & SEDIMENT CONTROL PLAN (ESC)
____ ENGINEER'S CERT (HYDROLOGY)
____ CLOMR/LOMR
____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ ENGINEER'S CERT (TCL)
____ ENGINEER'S CERT (DRB SITE PLAN)
____ ENGINEER'S CERT (ESC)
____ SO-19
____ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

____ SIA/FINANCIAL GUARANTEE RELEASE
____ PRELIMINARY PLAT APPROVAL
____ S. DEV. PLAN FOR SUB'D APPROVAL
____ S. DEV. FOR BLDG. PERMIT APPROVAL
____ SECTOR PLAN APPROVAL
____ FINAL PLAT APPROVAL
____ CERTIFICATE OF OCCUPANCY (PERM)
____ CERTIFICATE OF OCCUPANCY (TCL TEMP)
____ FOUNDATION PERMIT APPROVAL
____ BUILDING PERMIT APPROVAL
X GRADING PERMIT APPROVAL
X PAVING PERMIT APPROVAL
____ WORK ORDER APPROVAL
____ GRADING CERTIFICATION
____ SO-19 APPROVAL
____ ESC PERMIT APPROVAL
____ ESC CERT. ACCEPTANCE
____ OTHER (SPECIFY)

RECEIVED
MAY 31 2013
6-4-13

WAS A PRE-DESIGN CONFERENCE ATTENDED: ____ Yes X No ____ Copy Provided

DATE SUBMITTED: May 30, 2013 By: Martin Sanchez

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal The particular nature, location, and scope to the proposed development defines the degree of drainage detail One or more of the following levels of submittal may be required based on the followin

1 **Conceptual Grading and Drainage Plan** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
2 **Drainage Plans** Required for building permits, grading permits, paving permits and site plans less than five (5) acres
3 **Drainage Report** Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
4 **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development

Lovelace R.R.I. Increase in Flow	
Undeveloped Flow (Q)	0.46 (CFS)
Developed Flow (Q)	0.62 (CFS)
Developed - Undeveloped =	0.16 (CFS)

□(s16.67h8.5v0T□&l8D

```
        AHYMO PROGRAM (AHYMO_97) -                          - Version:  1997.02d
             RUN DATE (MON/DAY/YR) = 06/21/2013
             START TIME (HR:MIN:SEC) = 08:59:28     USER NO.= AHYMO-I-9702dGoodwinM-AH
             INPUT FILE = C:\PROGRA~1\AHYMO_97\LOVELA~1.DAT

    *S************************************************************
    *S
    *S                   Lovelace RRI Q
    *S
    *S                            Undeveloped
    *S
    *S                   100 YEAR 6 HOUR STORM EVENT
    *S
    *S                   FILE: Lovelace RRI
    *S                   LAST REVISED: 5-22-13
    START                TIME=0.0 HR PUNCH CODE=0 PRINT LINES=-6
    LOCATION             NEW MEXICO
         State of New Mexico soil infiltration values (LAND FACTORS) used for computations.
         Land Treatment     Initial Abstr.(in)    Unif. Infilt.(in/hour)
               A            0.65                  1.67
               B            0.50                  1.25
               C            0.35                  0.83
               D            0.10                  0.04

    RAINFALL             TYPE=2 RAIN QUARTER=0.0
         RAIN ONE=2.14 IN RAIN SIX=2.6 IN
         RAIN DAY=3.1 IN DT=0.0333 HRS

    COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
    DT =     .033300 HOURS        END TIME =    19.946700 HOURS
       .0000   .0027   .0055   .0084   .0113   .0143   .0173
       .0204   .0236   .0268   .0302   .0336   .0371   .0408
       .0445   .0483   .0522   .0563   .0605   .0648   .0693
       .0740   .0788   .0838   .0891   .0945   .1002   .1062
       .1124   .1191   .1260   .1320   .1383   .1450   .1590
       .1909   .2402   .3112   .4081   .5356   .6983   .9010
     1.1485  1.3861  1.4836  1.5656  1.6385  1.7047  1.7657
     1.8223  1.8752  1.9248  1.9714  2.0154  2.0570  2.0963
     2.1336  2.1689  2.2024  2.2343  2.2645  2.2733  2.2803
     2.2871  2.2935  2.2997  2.3057  2.3114  2.3169  2.3223
     2.3274  2.3324  2.3373  2.3420  2.3466  2.3511  2.3555
     2.3598  2.3640  2.3680  2.3720  2.3760  2.3798  2.3835
     2.3872  2.3908  2.3944  2.3979  2.4013  2.4047  2.4080
     2.4113  2.4145  2.4176  2.4208  2.4238  2.4269  2.4298
     2.4328  2.4357  2.4386  2.4414  2.4442  2.4469  2.4497
     2.4524  2.4550  2.4577  2.4603  2.4628  2.4654  2.4679
     2.4704  2.4728  2.4753  2.4777  2.4801  2.4824  2.4848
     2.4871  2.4894  2.4917  2.4939  2.4962  2.4984  2.5006
     2.5027  2.5049  2.5070  2.5092  2.5113  2.5134  2.5154
     2.5175  2.5195  2.5215  2.5235  2.5255  2.5275  2.5295
```

2.5314	2.5333	2.5353	2.5372	2.5391	2.5409	2.5428
2.5446	2.5465	2.5483	2.5501	2.5519	2.5537	2.5555
2.5573	2.5590	2.5608	2.5625	2.5642	2.5659	2.5676
2.5693	2.5710	2.5727	2.5743	2.5760	2.5776	2.5793
2.5809	2.5825	2.5841	2.5857	2.5873	2.5889	2.5905
2.5920	2.5936	2.5951	2.5967	2.5982	2.5997	2.6012
2.6026	2.6040	2.6054	2.6068	2.6083	2.6097	2.6111
2.6125	2.6139	2.6153	2.6166	2.6180	2.6194	2.6208
2.6222	2.6235	2.6249	2.6263	2.6276	2.6290	2.6304
2.6317	2.6331	2.6344	2.6358	2.6371	2.6384	2.6398
2.6411	2.6424	2.6438	2.6451	2.6464	2.6477	2.6491
2.6504	2.6517	2.6530	2.6543	2.6556	2.6569	2.6582
2.6595	2.6608	2.6621	2.6633	2.6646	2.6659	2.6672
2.6685	2.6697	2.6710	2.6723	2.6735	2.6748	2.6760
2.6773	2.6786	2.6798	2.6811	2.6823	2.6835	2.6848
2.6860	2.6872	2.6885	2.6897	2.6909	2.6922	2.6934
2.6946	2.6958	2.6970	2.6982	2.6995	2.7007	2.7019
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2.7114	2.7126	2.7138	2.7150	2.7161	2.7173	2.7185
2.7197	2.7208	2.7220	2.7232	2.7243	2.7255	2.7266
2.7278	2.7289	2.7301	2.7312	2.7324	2.7335	2.7347
2.7358	2.7370	2.7381	2.7392	2.7403	2.7415	2.7426
2.7437	2.7449	2.7460	2.7471	2.7482	2.7493	2.7504
2.7515	2.7527	2.7538	2.7549	2.7560	2.7571	2.7582
2.7593	2.7604	2.7614	2.7625	2.7636	2.7647	2.7658
2.7669	2.7680	2.7690	2.7701	2.7712	2.7723	2.7733
2.7744	2.7755	2.7765	2.7776	2.7787	2.7797	2.7808
2.7818	2.7829	2.7840	2.7850	2.7861	2.7871	2.7881
2.7892	2.7902	2.7913	2.7923	2.7934	2.7944	2.7954
2.7965	2.7975	2.7985	2.7995	2.8006	2.8016	2.8026
2.8036	2.8046	2.8057	2.8067	2.8077	2.8087	2.8097
2.8107	2.8117	2.8127	2.8137	2.8147	2.8157	2.8167
2.8177	2.8187	2.8197	2.8207	2.8217	2.8227	2.8237
2.8247	2.8257	2.8266	2.8276	2.8286	2.8296	2.8306
2.8315	2.8325	2.8335	2.8344	2.8354	2.8364	2.8374
2.8383	2.8393	2.8402	2.8412	2.8422	2.8431	2.8441
2.8450	2.8460	2.8469	2.8479	2.8488	2.8498	2.8507
2.8517	2.8526	2.8536	2.8545	2.8554	2.8564	2.8573
2.8582	2.8592	2.8601	2.8610	2.8620	2.8629	2.8638
2.8647	2.8657	2.8666	2.8675	2.8684	2.8693	2.8703
2.8712	2.8721	2.8730	2.8739	2.8748	2.8757	2.8766
2.8775	2.8785	2.8794	2.8803	2.8812	2.8821	2.8830
2.8839	2.8848	2.8856	2.8865	2.8874	2.8883	2.8892
2.8901	2.8910	2.8919	2.8928	2.8936	2.8945	2.8954
2.8963	2.8972	2.8980	2.8989	2.8998	2.9007	2.9015
2.9024	2.9033	2.9041	2.9050	2.9059	2.9067	2.9076
2.9085	2.9093	2.9102	2.9111	2.9119	2.9128	2.9136
2.9145	2.9153	2.9162	2.9170	2.9179	2.9187	2.9196
2.9204	2.9213	2.9221	2.9230	2.9238	2.9246	2.9255
2.9263	2.9272	2.9280	2.9288	2.9297	2.9305	2.9313
2.9322	2.9330	2.9338	2.9347	2.9355	2.9363	2.9371
2.9380	2.9388	2.9396	2.9404	2.9412	2.9421	2.9429

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                2.9437  2.9445  2.9453  2.9461  2.9469  2.9478  2.9486
                2.9494  2.9502  2.9510  2.9518  2.9526  2.9534  2.9542
                2.9550  2.9558  2.9566  2.9574  2.9582  2.9590  2.9598
                2.9606  2.9614  2.9622  2.9630  2.9638  2.9646  2.9653
                2.9661  2.9669  2.9677  2.9685  2.9693  2.9701  2.9708
                2.9716  2.9724  2.9732  2.9740  2.9747  2.9755  2.9763
                2.9771  2.9778  2.9786  2.9794  2.9802  2.9809  2.9817
                2.9825  2.9832  2.9840  2.9848  2.9855  2.9863  2.9871
                2.9878  2.9886  2.9893  2.9901  2.9909  2.9916  2.9924
                2.9931  2.9939  2.9946  2.9954  2.9961  2.9969  2.9977
                2.9984  2.9991  2.9999  3.0006  3.0014  3.0021  3.0029
                3.0036  3.0044  3.0051  3.0059  3.0066  3.0073  3.0081
                3.0088  3.0095  3.0103  3.0110  3.0117  3.0125  3.0132
                3.0139  3.0147  3.0154  3.0161  3.0169

*S************************************************************
*S            DEVELOPED CONDITIONS
*s            TOTAL SITE AREA =  0.1536 ACRES
************************************************************
***
COMPUTE NM HYD       ID=1  HYD NO=101 AREA= 0.0002 SQ MI
                     PER A=0   PER B=0   PER C=98   PER D=2
                     TP=-.1333 HR  MASS RAIN=-1

     K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   .15792E-01CFS   UNIT VOLUME =    .8872       B =   526.28      P60 = 2.1400
     AREA =      .000004 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300


     K =   .108912HR    TP =   .133300HR    K/TP RATIO =   .817047     SHAPE CONSTANT, N =  4.373949
     UNIT PEAK =   .55782    CFS   UNIT VOLUME =    .9760       B =   379.38      P60 = 2.1400
     AREA =      .000196 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD            ID=1 CODE=1

                                  PARTIAL HYDROGRAPH   101.00

    RUNOFF VOLUME =     1.31945 INCHES     =        .0141 ACRE-FEET
    PEAK DISCHARGE RATE =        .46 CFS  AT   1.499 HOURS   BASIN AREA =   .0002 SQ. MI.


*S************************************************************
*S
*S                  Lovelace RRI Q
*S
*S                          Developed
*S
*S                  100 YEAR 24 HOUR STORM EVENT
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*S
*S                    FILE: Lovelace RRI
*S                    LAST REVISED: 5-22-13
START                 TIME=0.0 HR PUNCH CODE=0 PRINT LINES=-6
LOCATION              NEW MEXICO
     State of New Mexico soil infiltration values (LAND FACTORS) used for computations.
     Land Treatment     Initial Abstr.(in)     Unif. Infilt.(in/hour)
           A            0.65                   1.67
           B            0.50                   1.25
           C            0.35                   0.83
           D            0.10                   0.04

RAINFALL              TYPE=2 RAIN QUARTER=0.0
                      RAIN ONE=2.14 IN RAIN SIX=2.6 IN
                      RAIN DAY=3.1 IN DT=0.0333 HRS

                 COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                 DT =     .033300 HOURS       END TIME =     19.946700 HOURS
                    .0000   .0027   .0055   .0084   .0113   .0143   .0173
                    .0204   .0236   .0268   .0302   .0336   .0371   .0408
                    .0445   .0483   .0522   .0563   .0605   .0648   .0693
                    .0740   .0788   .0838   .0891   .0945   .1002   .1062
                    .1124   .1191   .1260   .1320   .1383   .1450   .1590
                    .1909   .2402   .3112   .4081   .5356   .6983   .9010
                   1.1485  1.3861  1.4836  1.5656  1.6385  1.7047  1.7657
                   1.8223  1.8752  1.9248  1.9714  2.0154  2.0570  2.0963
                   2.1336  2.1689  2.2024  2.2343  2.2645  2.2733  2.2803
                   2.2871  2.2935  2.2997  2.3057  2.3114  2.3169  2.3223
                   2.3274  2.3324  2.3373  2.3420  2.3466  2.3511  2.3555
                   2.3598  2.3640  2.3680  2.3720  2.3760  2.3798  2.3835
                   2.3872  2.3908  2.3944  2.3979  2.4013  2.4047  2.4080
                   2.4113  2.4145  2.4176  2.4208  2.4238  2.4269  2.4298
                   2.4328  2.4357  2.4386  2.4414  2.4442  2.4469  2.4497
                   2.4524  2.4550  2.4577  2.4603  2.4628  2.4654  2.4679
                   2.4704  2.4728  2.4753  2.4777  2.4801  2.4824  2.4848
                   2.4871  2.4894  2.4917  2.4939  2.4962  2.4984  2.5006
                   2.5027  2.5049  2.5070  2.5092  2.5113  2.5134  2.5154
                   2.5175  2.5195  2.5215  2.5235  2.5255  2.5275  2.5295
                   2.5314  2.5333  2.5353  2.5372  2.5391  2.5409  2.5428
                   2.5446  2.5465  2.5483  2.5501  2.5519  2.5537  2.5555
                   2.5573  2.5590  2.5608  2.5625  2.5642  2.5659  2.5676
                   2.5693  2.5710  2.5727  2.5743  2.5760  2.5776  2.5793
                   2.5809  2.5825  2.5841  2.5857  2.5873  2.5889  2.5905
                   2.5920  2.5936  2.5951  2.5967  2.5982  2.5997  2.6012
                   2.6026  2.6040  2.6054  2.6068  2.6083  2.6097  2.6111
                   2.6125  2.6139  2.6153  2.6166  2.6180  2.6194  2.6208
                   2.6222  2.6235  2.6249  2.6263  2.6276  2.6290  2.6304
                   2.6317  2.6331  2.6344  2.6358  2.6371  2.6384  2.6398
                   2.6411  2.6424  2.6438  2.6451  2.6464  2.6477  2.6491
                   2.6504  2.6517  2.6530  2.6543  2.6556  2.6569  2.6582
                   2.6595  2.6608  2.6621  2.6633  2.6646  2.6659  2.6672
                   2.6685  2.6697  2.6710  2.6723  2.6735  2.6748  2.6760
```

2.6773	2.6786	2.6798	2.6811	2.6823	2.6835	2.6848
2.6860	2.6872	2.6885	2.6897	2.6909	2.6922	2.6934
2.6946	2.6958	2.6970	2.6982	2.6995	2.7007	2.7019
2.7031	2.7043	2.7055	2.7067	2.7079	2.7091	2.7102
2.7114	2.7126	2.7138	2.7150	2.7161	2.7173	2.7185
2.7197	2.7208	2.7220	2.7232	2.7243	2.7255	2.7266
2.7278	2.7289	2.7301	2.7312	2.7324	2.7335	2.7347
2.7358	2.7370	2.7381	2.7392	2.7403	2.7415	2.7426
2.7437	2.7449	2.7460	2.7471	2.7482	2.7493	2.7504
2.7515	2.7527	2.7538	2.7549	2.7560	2.7571	2.7582
2.7593	2.7604	2.7614	2.7625	2.7636	2.7647	2.7658
2.7669	2.7680	2.7690	2.7701	2.7712	2.7723	2.7733
2.7744	2.7755	2.7765	2.7776	2.7787	2.7797	2.7808
2.7818	2.7829	2.7840	2.7850	2.7861	2.7871	2.7881
2.7892	2.7902	2.7913	2.7923	2.7934	2.7944	2.7954
2.7965	2.7975	2.7985	2.7995	2.8006	2.8016	2.8026
2.8036	2.8046	2.8057	2.8067	2.8077	2.8087	2.8097
2.8107	2.8117	2.8127	2.8137	2.8147	2.8157	2.8167
2.8177	2.8187	2.8197	2.8207	2.8217	2.8227	2.8237
2.8247	2.8257	2.8266	2.8276	2.8286	2.8296	2.8306
2.8315	2.8325	2.8335	2.8344	2.8354	2.8364	2.8374
2.8383	2.8393	2.8402	2.8412	2.8422	2.8431	2.8441
2.8450	2.8460	2.8469	2.8479	2.8488	2.8498	2.8507
2.8517	2.8526	2.8536	2.8545	2.8554	2.8564	2.8573
2.8582	2.8592	2.8601	2.8610	2.8620	2.8629	2.8638
2.8647	2.8657	2.8666	2.8675	2.8684	2.8693	2.8703
2.8712	2.8721	2.8730	2.8739	2.8748	2.8757	2.8766
2.8775	2.8785	2.8794	2.8803	2.8812	2.8821	2.8830
2.8839	2.8848	2.8856	2.8865	2.8874	2.8883	2.8892
2.8901	2.8910	2.8919	2.8928	2.8936	2.8945	2.8954
2.8963	2.8972	2.8980	2.8989	2.8998	2.9007	2.9015
2.9024	2.9033	2.9041	2.9050	2.9059	2.9067	2.9076
2.9085	2.9093	2.9102	2.9111	2.9119	2.9128	2.9136
2.9145	2.9153	2.9162	2.9170	2.9179	2.9187	2.9196
2.9204	2.9213	2.9221	2.9230	2.9238	2.9246	2.9255
2.9263	2.9272	2.9280	2.9288	2.9297	2.9305	2.9313
2.9322	2.9330	2.9338	2.9347	2.9355	2.9363	2.9371
2.9380	2.9388	2.9396	2.9404	2.9412	2.9421	2.9429
2.9437	2.9445	2.9453	2.9461	2.9469	2.9478	2.9486
2.9494	2.9502	2.9510	2.9518	2.9526	2.9534	2.9542
2.9550	2.9558	2.9566	2.9574	2.9582	2.9590	2.9598
2.9606	2.9614	2.9622	2.9630	2.9638	2.9646	2.9653
2.9661	2.9669	2.9677	2.9685	2.9693	2.9701	2.9708
2.9716	2.9724	2.9732	2.9740	2.9747	2.9755	2.9763
2.9771	2.9778	2.9786	2.9794	2.9802	2.9809	2.9817
2.9825	2.9832	2.9840	2.9848	2.9855	2.9863	2.9871
2.9878	2.9886	2.9893	2.9901	2.9909	2.9916	2.9924
2.9931	2.9939	2.9946	2.9954	2.9961	2.9969	2.9977
2.9984	2.9991	2.9999	3.0006	3.0014	3.0021	3.0029
3.0036	3.0044	3.0051	3.0059	3.0066	3.0073	3.0081
3.0088	3.0095	3.0103	3.0110	3.0117	3.0125	3.0132
3.0139	3.0147	3.0154	3.0161	3.0169		

```
*S************************************************************
*S             DEVELOPED CONDITIONS
*s             TOTAL SITE AREA =  0.1536 ACRES
************************************************************
***
COMPUTE NM HYD        ID=2  HYD NO=102 AREA= 0.0002 SQ MI
                      PER A=0  PER B=0  PER C=22  PER D=78
                      TP=-.1333 HR  MASS RAIN=-1

     K =   .072649HR     TP =   .133300HR     K/TP RATIO =   .545000      SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   .61590     CFS    UNIT VOLUME =    .9814        B =   526.28       P60 = 2.1400
     AREA =       .000156 SQ MI     IA =    .10000 INCHES     INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300


     K =   .108912HR     TP =   .133300HR     K/TP RATIO =   .817047      SHAPE CONSTANT, N =  4.373949
     UNIT PEAK =   .12523     CFS    UNIT VOLUME =    .8990        B =   379.38       P60 = 2.1400
     AREA =       .000044 SQ MI     IA =    .35000 INCHES     INF =    .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD             ID=2 CODE=1

                                   PARTIAL HYDROGRAPH   102.00


    RUNOFF VOLUME =      2.44309 INCHES      =         .0261 ACRE-FEET
         PEAK DISCHARGE RATE =         .62 CFS  AT    1.499 HOURS    BASIN AREA =    .0002 SQ. MI.


    FINISH

         NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 08:59:28
□(s0p10h4099T□&16D□□
```

DRAINAGE INFORMATION

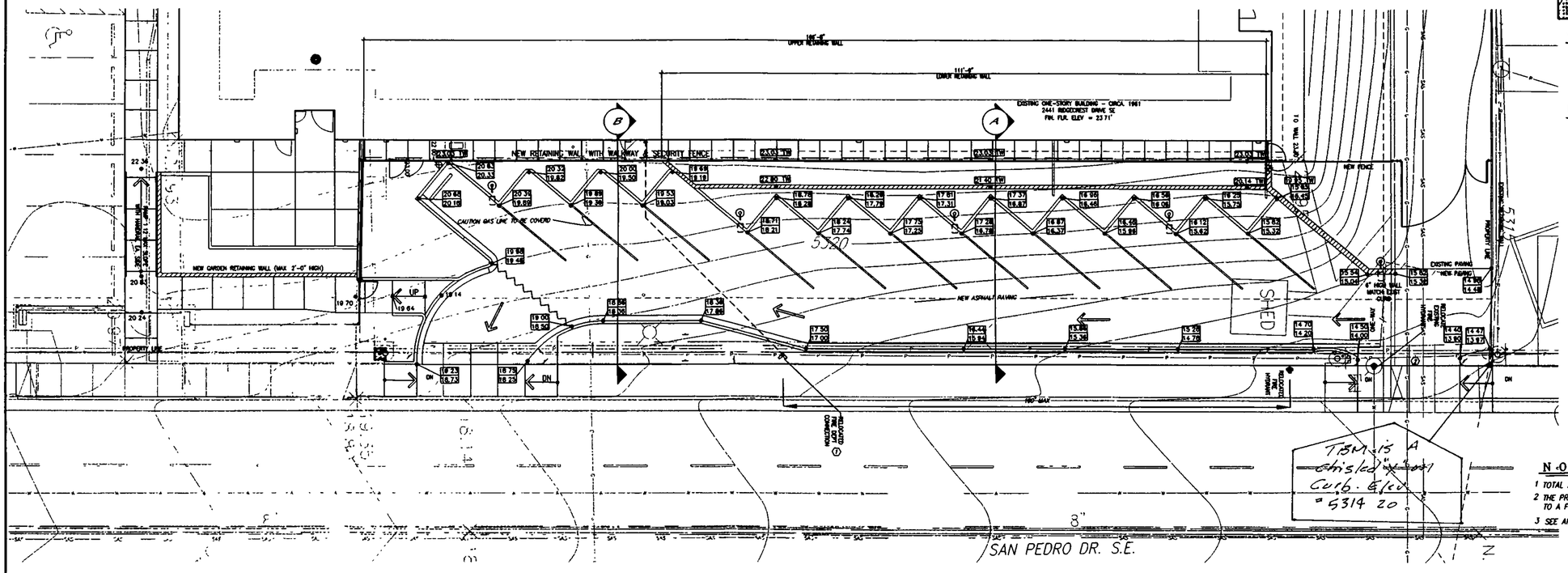
THIS PROJECT ENTAILS TAKING A STEEP SLOPED LANDSCAPED AREA AND CREATING A NEW PARKING LOT

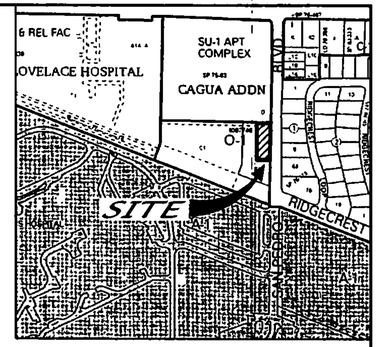
UNDEVELOPED

P1 = 2.14 P6 = 2.60 P24 = 3.10
BASIN AREA = 6691 SF
LAND TREATMENT C = 6559 SF = 98%
LAND TREATMENT D = 132 SF = 2%
Q = 0.46 CFS
VOLUME = 0.014 AC-FT

DEVELOPED

P1 = 2.14 P6 = 2.60 P24 = 3.10
BASIN AREA = 6691 SF
LAND TREATMENT C = 1462 SF = 22%
LAND TREATMENT D = 5230 SF = 78%
Q = 0.62 CFS
VOLUME = 0.027 AC-FT





VICINITY MAP ZONE MAP: M-18-Z

LEGEND

- × 13.03 — EXISTING SPOTS
- 5320 — EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- EXISTING CURB & GUTTER
- EXISTING FENCE
- EXISTING WALL
- EXISTING ELECTRIC PEDESTAL
- EXISTING POWER POLE
- EXISTING ELECTRIC GUY WIRE
- EXISTING FIRE HYDRANT
- EXISTING GATE VALVE
- E — E — EXISTING UNDERGROUND ELECTRIC
- T — T — EXISTING UNDERGROUND TELEPHONE
- U — U — EXISTING OVERHEAD LINE
- W — W — EXISTING WATERLINE
- SAS — SAS — EXISTING SAS
- P — P — EXISTING POWER
- G — G — EXISTING GAS
- EXISTING STREET LIGHT
- EXISTING EASEMENT LINE
- EXISTING BOUNDARY LINE

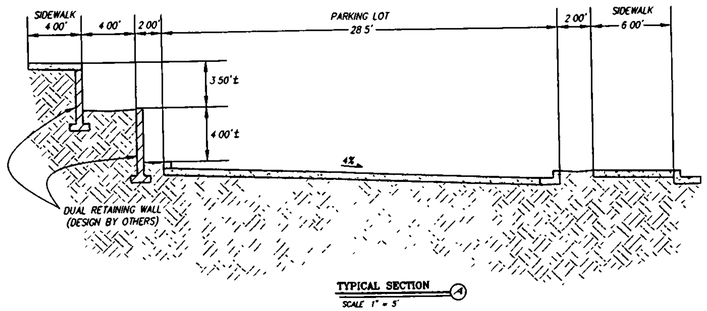
NOTES

1 TOTAL AFFECTED AREA IS APPROXIMATELY 0.154 AC.
2 THE PROJECT SITE DOES NOT LIE WITHIN NOR CONTRIBUTE FLOWS TO A FLOOD ZONE AS PER F.E.M.A. FIRM PANEL NO. 35001C0362H.
3 SEE ARCHITECTUAL SITE PLAN FOR DIMENSIONS.

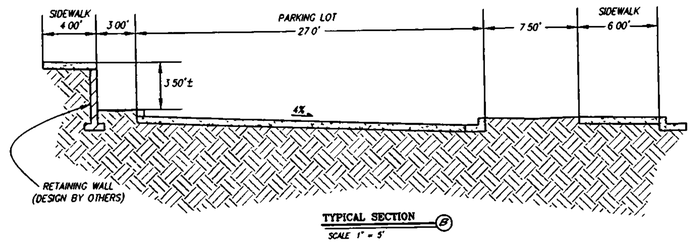
KEYED NOTES

(1) EXISTING FIRE DEPARTMENT CONNECTION TO BE RELOCATED FROM BUILDING TO LANDSCAPED AREA OUTSIDE NEW PARKING LOT. MINIMUM COVER BENEATH NEW PAVING SHALL BE 3'. NEW POST INDICATOR VALVE SHALL ALSO BE PROVIDED. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL PRIOR TO CONSTRUCTION.

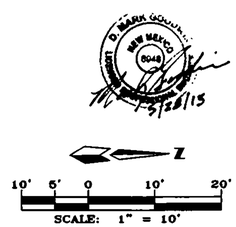
(2) FIRE HYDRANT TO BE RELOCATED PER APPROVED WORK ORDER



TYPICAL SECTION (A)
SCALE 1" = 5'



TYPICAL SECTION (B)
SCALE 1" = 5'



LOVELACE RESPIRATORY RESEARCH INSTITUTE
GRADING & DRAINAGE PLAN

MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505)828-2200, FAX (505)797-9539

Designed: DMG	Drawn: MJS	Checked: DMG	Sheet 1 of 1
Scale: 1" = 10'	Date: 05-16-13	Job: A13002	

A13002 LOVELACE RESPIRATORY\GRADE & DRAIN\A13002-GD10\05-17-13\ACH

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

October 16, 2001

Victor J. Chavez, P.E.
Chavez Grieves Consult. Engr.
5639 Jefferson St NE Suite 1
Albuquerque, New Mexico 87109

RE: LOVELACE RESPIRATORY RESEARCH (M-18/D6)
(Ridgecrest & San Pedro SE)
ENGINEERS CERTIFICATION FOR CERTIFICATE OF OCCUPANCY
ENGINEERS STAMP DATED 4/21/2000
ENGINEERS CERTIFICATION DATED 10/10/2001

Dear Mr. Chavez:

Based upon the information provided in your Engineers Certification submittal dated 10/11/2001, the above referenced site is approved for a Permanent Certificate of Occupancy.

If I can be of further assistance, please contact me at 924-3981.

Sincerely,

Teresa A. Martin

Teresa A. Martin
Hydrology Plan Checker
Public Works Department

BLB

C: Vickie Chavez, COA
drainage file
approval file

DRAINAGE INFORMATION

M-18/D6

PROJECT TITLE: Lovelace Respiratory Research Institute **ZONE ATLAS/DRNG. FILE #:** M-18

DRB #: **EPC #:** **WORK ORDER #:**

LEGAL DESCRIPTION: San Pedro Blvd. South of Gibson Blvd.

CITY ADDRESS:

ENGINEERING FIRM:	CHAVEZ-GRIEVES CONSULTING ENGINEERS, INC.	**CONTACT:**	James Kelley
ADDRESS:	5639 JEFFERSON NE, SUITE 1, ALBUQUERQUE, NM, 87109	**PHONE:**	(505) 344-4080
OWNER:		**CONTACT:**	
ADDRESS:		**PHONE:**	
ARCHITECT:	DCSW	**CONTACT:**	Cameron Erdmann
ADDRESS:		**PHONE:**	843.9639
SURVEYOR:		**CONTACT:**	
ADDRESS:		**PHONE:**	
CONTRACTOR:	Gerald Martin	**CONTACT:**	Tim Coughenour
ADDRESS:		**PHONE:**	262.7927

TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN
- ☐ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☐ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☒ ENGINEER'S CERTIFICATION
- ☐ OTHER

PRE-DESIGN MEETING:

- ☐ YES
- ☐ NO
- ☐ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

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

DATE SUBMITTED: October 10, 2001

SUBMITTED BY: James Kelley

G:\D06\156\DOCUMENT\Drainage Information.doc

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

Planning Department
Transportation Development Services Section

July 17, 2003

Cameron Erdmann, Registered Architect
DCSW Architects
320 Central Ave. SW
Albuquerque, NM 87102

Re: Certification Submittal for Final Building Certificate of Occupancy for
Lovelace Respiratory Research Institute, ~~[M-18/D75]~~ M-18/DC3
2425 Ridgecrest Dr. SE
Architect's Stamp Dated 7-09-03

Dear Mr. Erdmann,

The TCL / Letter of Certification submitted on July 16,2003 is approved by this office for final Certificate of Occupancy (C.O.) for Transportation. Notification has been made to the Building and Safety Section.

Please note that in the future use a copy of the City stamped approved TCL for certification.

Sincerely,

Richard Dourte, P.E.
Traffic Engineer
Development and Building Services
Planning Department

c: File
Hydrology file

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

M-18/D6

PROJECT TITLE: Lovelace Respitory Research ZONE MAP/DRG. FILE #: ~~M18/D78~~

DRB #: — EPC#: — WORK ORDER#: —

LEGAL DESCRIPTION:

CITY ADDRESS: 2425 Ridgecrest Drive SE

ENGINEERING FIRM: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

OWNER: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

ARCHITECT: ~~City~~ DCSW CONTACT: Cameron EROMAN
ADDRESS: 320 Central SW PHONE: 843-9639
CITY, STATE: ABQ, NM ZIP CODE: 87102

SURVEYOR: CONTACT:
ADDRESS PHONE:
CITY, STATE: ZIP CODE:

CONTRACTOR: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

CHECK TYPE OF SUBMITTAL:

____ DRAINAGE REPORT
____ DRAINAGE PLAN 1st SUBMITTAL, *REQUIRES TCL or equal*
____ DRAINAGE PLAN RESUBMITTAL
____ CONCEPTUAL GRADING & DRAINAGE PLAN
____ GRADING PLAN
____ EROSION CONTROL PLAN
____ ENGINEER'S CERTIFICATION (HYDROLOGY)
____ CLOMR/LOMR
__X__ TRAFFIC CIRCULATION LAYOUT (TCL)
____ ENGINEERS CERTIFICATION (TCL)
____ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
____ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

____ SIA / FINANCIAL GUARANTEE RELEASE
____ PRELIMINARY PLAT APPROVAL
____ S. DEV. PLAN FOR SUB'D. APPROVAL
____ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
____ SECTOR PLAN APPROVAL
____ FINAL PLAT APPROVAL
____ FOUNDATION PERMIT APPROVAL
____ BUILDING PERMIT APPROVAL
____ CERTIFICATE OF OCCUPANCY (PERM.)
__X__ CERTIFICATE OF OCCUPANCY (TEMP.)
____ GRADING PERMIT APPROVAL
____ PAVING PERMIT APPROVAL
____ WORK ORDER APPROVAL
____ OTHER (SPECIFY)

RECEIVED
JUL 16
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:

____ YES
____ NO
____ COPY PROVIDED

DATE SUBMITTED _____ BY: _____

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal The particular nature , location and scope ot the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report**: Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

DCSW ARCHITECTS

July 7, 2003

Richard Dourte P.E.
Head Transportation Department
Development Services Center
Plaza Del Sol / 600 2nd Street N.W.
Albuquerque, NM 87102
Tel. 924-~~3620~~ 3990 / Fax 924-3864

DESIGN COLLABORATIVE SOUTHWEST, INC.

Marc E Schiff AIA
Principal
Architect / Interior Designer

J David Dekker AIA
Principal / Architect

Robert Gerard Heiser AIA
Principal
Architect / Interior Designer

Del L Dixon
Principal / Architect

Richard Braun AIA
Principal / Architect

RE:
LOVELACE RESPIRATORY RESEARCH INSTITUTE
2425 RIDGECREST DRIVE S.E.
ALBUQUERQUE, NM 87108

SUBJECT:
ARCHITECTS CERTIFICATION
OF TRANSPORTATION CIRCULATION LAYOUT

FROM:
CAMERON ERDMANN AIA, PROJECT ARCHITECT
J. DAVID DEKKER AIA, PRINCIPAL ARCHITECT
Tel: 843-9639/Fax: 843-9683

Dear Mr. Dourte,
This follow-up letter constitutes our Certification of the Transportation Circulation Layout / TCL. Your approval will fulfill all City Review/Inspection requirements for release of Owner's Certificate of Occupancy. Construction of all Ridgecrest R.O.W. Parking has now been completed (November 2002). Previously on October 8, 2001, we issued a Site Layout Certification for a Temporary Certificate of Occupancy, as the Abandoned Ridgecrest Drive Parking was not yet completed due to construction logistics and on-going use of the existing R.O.W. parking.

Attached is a copy of TCL Site Plan A-101 Revision 01 and a copy of our REVISED SITE PLAN SHEET A-101 Revision 07 indicating all existing site as-built conditions as constructed for the referenced project. We have walked and visually observed the site and taken random measurements to confirm installed layout complies with the Site Plan / TCL. All site paving, parking spaces, HCP parking spaces, striping, curbs, and wheel stops were found to be in place as indicated. Any Exceptions are listed and indicated on revised drawing as follows:

1) **Existing Parking lot at Existing Building No. 20: New layout adjacent to building to accommodate a new building entrance and utilize all existing parking spaces. There is a gain of (4) parking spaces and 33 total spaces in this parking lot.**
2) **Ridgecrest R.O.W.: Provided 23 full-size parking spaces in lieu of 23 Compact Spaces indicated at the newly constructed paved area (previously was parking spaces on dirt. There is a net gain of (1) parking space along south side of R.O.W. for a new total of 76. Existing paved parking spaces along south side of R.O.W. were cleaned, patched and restriped. The East/West Circulation drive ended up 34'-6" wide in lieu of a desired 30'-0" width as indicated on TCL. Speed bumps (for 15 mph) were added to control traffic speed. The width seems acceptable and provides a less congested situation for this very long drive, which also provides drive-thru access to the Adjacent Hospital parking lots to the East. We attempted to minimize this drive width as much as possible to**

Albuquerque
320 Central Ave SW
Albuquerque, NM 87102
505.843.9639
Fax 505.843 9683

Santa Fe
130 Grant Ave., Suite 102
Santa Fe, NM 87501
505.982.7191
Fax.505.982.0585

Dallas
2930 Commerce St
Dallas, TX 75226
214 748 3081
Fax 214 748 3383

Web Site
www.dcswarchitects.com
E Mail
dcsw@dcswarchitects.com

Richard — M-18/D-78

Please call Dave Dekker
with any questions.
I will be out of the office
thru the 30th of July.

thanks,
Cameron July 2003

comply with your directives. The directive requiring Owner to provide 24'-6" deep parking spaces with concrete wheel-stops at 18'-0" deep and diagonal "no-parking" striping at remaining space at back of parking space was not desirable to Owner, due to the additional cost and an unsightly appearance.

3) **Site Area between the small West Addition & Existing Detention Pond: Added required trash compactor/container with enclosure walls and a depressed concrete loading dock area to facilitate specialized inter-lab deliveries from the South Facility on Kirtland AFB. Added new concrete paving at west and north sides of west addition, replacing existing asphalt paving in poor condition and improving site drainage.**
4) **Added 35' x 35' water meter easement, and lost (2) parking spaces due to enlarged planter in this area to accomodate a large water meter vault.**
5) **Total Number of Parking Spaces on Site increased by (3) to 182.**

A Reminder that this Owner is leasing the Abandoned Ridgecrest R.O.W. from the City of Albuquerque for Parking.

Please provide your approval and pass on notification to necessary staff to initiate release of the Certificate of Occupancy. The Owner's Representative is John A. Lopez, Corporate Facilities Director, Lovelace Respiratory Research Institute (L.R.R.I.), 2425 Ridgecrest Drive S.E., Albuquerque NM 87108, (505) 348-9468.

Please contact me anytime for further discussion, questions, or comments.

Sincerely,

Cameron Erdmann AIA
Project Architect/Mgr.
DCSW Architects
(505) 843-9639

cc:
Architects File
John Lopez, Facilities Director / L.R.R.I.
Johnny Barton, Project Manager / Gerald Martin G.C.

Attachments:
Site Plan A-101 Rev. 07 As-Built Revisions/Site Cert.
Site Plan A-101 Rev. 01 Approved TCL

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

Public Works Department
Transportation Development Services Section

October 24, 2000

Cameron Erdmann,Registered Architect,
DCSW Architects
320 Central S.W.
Albuquerque, New Mexico 87102

Re: Lovelace Respiratory Research [M18/D006],
2425 Ridgecrest Drive S.E.,
Engineer's Stamp dated 10/8/2001.

Dear Mr. Erdmann,

Based on the information provided on your submittal, the above referenced project is approved for a 60-day Temporary Certificate of Occupancy(C.O.).

A Temporary C.O. has been issued for 60 days allowing the completion of the south parking which was described on the TCL submitted to this office for the Temp. C.O. This wil include the concrete wheel stops that were also mentioned. This construction area must be barricaded off from vehicular and pedestrian traffic at all hours up to project completion. Safe, adequate access must be provided for all vehicles using adjacent parking areas.

When these remaining issues have been fully completed, are in compliance, and a final Certification package has been resubmitted to the City's Hydrology office for approval, a Final C.O. will be issued.

The Certification package for Final C.O. must include an ***exact*** copy of the approved TCL, or signed off D.R.B. Site Plan, which is in each of the two City Permit Plan Sets--the contractor's City field set and the City's planset in the basement of the Plaza Del Sol Building. Package also must include a Letter of Certification on designer's letterhead, stamped, signed and dated. Address of site, development name and Hydrology file number need to be included.

Sincerely,

Mike Zamora,
Commercial Plan Checker

cc:

Terri Martin-Hydrology
Office File

M-18/D6

DRAINAGE INFORMATION

PROJECT TITLE: Lovelace Respiratory Research Institute **ZONE ATLAS/DRNG. FILE #:** M-18

DRB #: **EPC #:** **WORK ORDER #:**

LEGAL DESCRIPTION: San Pedro Blvd. South of Gibson Blvd.

CITY ADDRESS:

ENGINEERING FIRM:	CHAVEZ-GRIEVES CONSULTING ENGINEERS, INC.	**CONTACT:**	James Kelley
ADDRESS:	5639 JEFFERSON NE, SUITE 1, ALBUQUERQUE, NM, 87109	**PHONE:**	(505) 344-4080
OWNER:		**CONTACT:**	
ADDRESS:		**PHONE:**	
ARCHITECT:	DCSW	**CONTACT:**	Cameron Erdmann
ADDRESS:		**PHONE:**	843.9639
SURVEYOR:		**CONTACT:**	
ADDRESS:		**PHONE:**	
CONTRACTOR:	Gerald Martin	**CONTACT:**	Tim Coughenour
ADDRESS:		**PHONE:**	262.7927

TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN
- ☐ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☐ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☒ ENGINEER'S CERTIFICATION
- ☐ OTHER

PRE-DESIGN MEETING:

- ☐ YES
- ☐ NO
- ☐ COPY PROVIDED

DATE SUBMITTED: October 10, 2001

SUBMITTED BY: James Kelley

CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SKETCH PLAN APPROVAL
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ S. DEV. PLAN FOR SUB'D. APPROVAL
- ☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ☐ SECTOR PLAN APPROVAL
- ☐ FINAL PLAT APPROVAL
- ☐ FOUNDATION PERMIT APPROVAL
- ☐ BUILDING PERMIT APPROVAL
- ☒ CERTIFICATE OF OCCUPANCY APPROVAL
- ☐ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ S.A.D. DRAINAGE REPORT
- ☐ DRAINAGE REQUIREMENTS
- ☒ OTHER T.C.L.

G:\D06\156\DOCUMENT\Drainage Information.doc

DCSW ARCHITECTS

DESIGN COLLABORATIVE SOUTHWEST, INC.

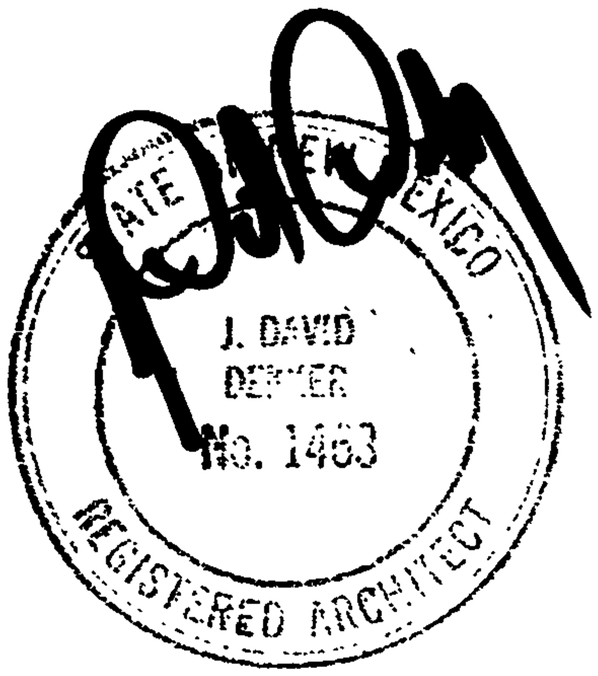
Marc E Schiff AIA
Principal
Architect / Interior Designer

J David Dekker AIA
Principal / Architect

Robert Gerard Heiser AIA
Principal
Architect / Interior Designer

Del L Dixon
Principal / Architect

Richard Braun AIA
Principal / Architect



M-18/D6

October 8, 2001

TO:
Richard Dourte P.E.
Head Transportation Department
Development Services Center
Plaza Del Sol / 600 2nd Street N.W.
Albuquerque, NM 87102
Tel. 924-3620 / Fax 924-3864

RE:
LOVELACE RESPIRATORY RESEARCH INSTITUTE
2425 RIDGECREST DRIVE S.E.
ALBUQUERQUE, NM 87108

SUBJECT:
TEMPORARY CERTIFICATE OF OCCUPANCY
ARCHITECTS CERTIFICATION
OF TRANSPORTATION CIRCULATION LAYOUT

FROM:
CAMERON ERDMANN AIA, PROJECT ARCHITECT
J. DAVID DEKKER AIA, PRINCIPAL ARCHITECT
Tel: 843-9639/Fax: 843-9683

Mr. Dourte,
This letter constitutes our Certification of the Transportation Circulation Layout / TCL and request for a C.O./T.C.O. at this time.

Attached is a BLUELINE COPY of our revised SITE PLAN SHEET A-101 for the referenced project with handwritten comments from my site inspection. We have surveyed the site and taken random measurements to confirm installed layout complies with the Site Plan / TCL.

Note that this Owner is leasing the Abandoned Ridgecrest R.O.W. from the City of Albuquerque for Parking.

10/16 – Called in T.C.O.-Temp. C.O. "Stalls @ E. end of S. Pkg. Need Completion, etc. See Letter Confirming temp. I.P. Complete prior to Final C.O. Submit Copy of Stamped, Signed T.C.L. for Final." "Barricades Plan Needed" (See Markups on this T.C.L.

Other than South side of Ridgecrest R.O.W., All curbs, gutters, parking areas, striping, handicapped spaces, and drives are provided as indicated on the site plan which delineates the Traffic Circulation Layout.

All site paving is in place except at existing unpaved parking area indicating 23 small car spaces located on the South side of the Ridgecrest R.O.W. Existing concrete wheel stops remain in place at these spaces. These same spaces have provided uninterrupted parking for existing Building Tenants and General Contractor throughout the construction phase and have provided parking prior to commencement of construction of this project for many years.

Also, striping & wheel bumpers are not yet installed for the indicated 52 standard parking spaces located on existing asphalt paving along the South side of the Ridgecrest R.O.W. These Parking spaces are currently in use & have been in continual use along South side of Ridgecrest R.O.W. for many years. These same spaces have provided uninterrupted parking for existing Building Tenants and General Contractor throughout the construction phase.

10/23/01 – Sent fax letter for 30-T approval

These parking spaces as delineated on the Site Plan are considered temporary by the Owner. The VA Hospital has encroached onto the 100 ft. Ridgecrest R.O.W. and constructed a fence matching the existing paving. The VA Hospital has agreed to moving the fence back to their Property Line / South R.O.W. site boundary. The Owner is planning on constructing additional parking to the southern limit of the R.O.W. and adding more parking spaces on site & reducing amount of off-site parking spaces required.

Albuquerque
320 Central Ave SW
Albuquerque, NM 87102
505.843.9639
Fax.505.843 9683

Santa Fe
128 Grant Ave, Suite 217
Santa Fe, NM 87501
505.982 7191
Fax.505 982 2548

Dallas
2917 Elm St, Suite A
Dallas, TX 75226
214 748 3081
Fax 214 748 3383

Web Site
www.dcswarchitects.com
E Mail
dcsw@dcswarchitects.com

LOVELACE RESPIRATORY RESEARCH INSTITUTE
NEW RESEARCH LABORATORY BUILDING
2425 RIDGECREST DRIVE S.E.
DCSW PROJECT 9911
OCTOBER 8, 2001

Upon receipt of a CO/TCO, completion of these heavily-used existing parking spaces in abandoned R.O.W. can commence. On site parking demand will be significantly reduced, with minimal parking required by the General Contractor during completion of Architect's Punchlist and Closeout process, and a gradual increasing demand for on-site parking by Owner due to a gradual 3-month moving-in period ending in January 2002. Research Laboratories & equipment will be disconnected, moved-in and set-up in groups of 3 to 5 at a time to minimize disruption of research process.

Gerald Martin General Contractor is scheduled to request a Certificate of Occupancy on October 8, 2001.

Please contact me anytime with any questions and comments.

Sincerely,

Cameron Erdmann AIA
Project Architect
cc:
Architects File
John Lopez, Facilities Director / L.R.R.I.
Johnny Barton, Project Manager / Gerald Martin G.C.
Tim Coughenour, Jobsite Superintendent / Gerald Martin G.C.

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

Public Works Department
Transportation Development Services Section

October 12, 2000

Cameron Erdmann,Registered Architect,
DCSW Architects
320 Central S.W.
Albuquerque, New Mexico 87102

Re: Lovelace Respiratory Research [M18/D006],
2425 Ridgecrest Drive S.E.,
Engineer's Stamp dated 10/8/2001.

Dear Mr. Erdmann,

Based on the information provided on your submittal, the above referenced project is approved for a 60-day Temporary Certificate of Occupancy(C.O.).

A Temporary C.O. has been issued for 60 days allowing the completion of the south parking which was described on the TCL submitted to this office for the Temp. C.O. This wil include the concrete wheel stops that were also mentioned.

When these remaining issues have been fully completed, are in substantial compliance, and a final Certification package has been resubmitted to the City's Hydrology office for approval, a Permanent C.O. will be issued.

The Certification package for Final C.O. must include an ***exact*** copy of the approved TCL, or signed off D.R.B. Site Plan, which is in each of the two City Permit Plan Sets--the contractor's City field set and the City's planset in the basement of the Plaza Del Sol Building. Package also must include a Letter of Certification on designer's letterhead, stamped, signed and dated. Address of site, development name and Hydrology file number need to be included.

Sincerely,

Mike Zamora,
Commercial Plan Checker

cc:
Engineer
Terri Martin-Hydrology
Office File

City of Albuquerque

May 17, 2000

Kevin E. Donnelly, P.E.
James D. Kelly, E.I.
Chavez Grieves, Consulting Engineers
5639 Jefferson Street, NE, Suite 1 NE
Albuquerque, NM 87109

RE: GRADING & DRAINAGE PLAN FOR LOVELACE RESPIRATORY RESEARCH (M-18/D006) ENGINEERS STAMP DATED 4/21/00 SUBMITTED FOR BUILDING PERMIT APPROVAL & GRADING PERMIT APPROVAL

Dear Mr. Donnelly,

Based upon the information provided in your May 9, 2000, submittal, the project referred to above is approved for Building Permit and for Grading Permit. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

Prior to release of the Certificate of Occupancy, an Engineer Certification, per the DPM checklist, will be required.

If you have any questions, please call me at 924-3988.

Sincerely,

Stuart Reeder, P.E

Stuart Reeder, P.E.
Hydrology Division

xc: Cameron Erdmann, A.I.A., DCSW Architects
Whitney Reierson
✓File

843-9683

DCSW ARCHITECTS

Cameron Erdmann, A.I.A.
Project Architect

DESIGN COLLABORATIVE SOUTHWEST, INC
320 Central Ave SW, Albuquerque, NM 87102
505 843 9639 Fax 505 843 9683
Web Site www.dcswarchitects.com
E Mail cam@dcswarchitects.com

M-18/D006

CHAVEZ • GRIEVES
CONSULTING ENGINEERS, INC.

5639 Jefferson NE, Albuquerque, NM 87109
Phone (505) 344-4080 Fax (505) 343-8759

LETTER OF TRANSMITTAL

DATE: 04/24/00	**PROJECT:** LOVELACE
TO: FRED AGUIRRE	**PROJECT NO.:** D06-158-99
COMPANY / ADDRESS / PHONE: **CITY OF ALBUQUERQUE HYDROLOGY DEPARTMENT** **PLAZA DEL SOL**	**SENT BY:** James D. Kelley

We are sending you the following items ☒ **attached:** ☐ **under separate cover:**

☐ Shop Drawings	☒ Plans	☐ Specifications	☐ Other:
☐ Change Order	☐ Prints	☐ Diskette	1.
☐ Copy of Letter	☒ Report	☐ Calculations	2.
☐ Samples			3.

COPIES:	DATE:	SUBMITTAL NO.	DESCRIPTION:
2	4/24/00		TRAFFIC CIRCULATION PLAN (SITE PLAN)
1	4/24/00		GRADING AND DRAINAGE REPORT

These items are transmitted for the purposes indicated below:

☒ For Your Use	☒ For Review & Comment	☐ As Requested
☐ Returned After Loan to Us	☐ Please Correct & Resubmit	☐ Submit ( ) Copies
☐ Resubmittal not Required Corrections Noted	☐ Return ( ) Corrected Prints for Distribution	Other: 1. 2.

Comments:

Sent via: ☐ Fax ☐ Mail ☒ Runner ☐ Call for Pick-up ☐ Other:
Copy To: ☐ Client ☐ Owner ☐ Contractor ☒ File

RECEIVED
APR 25 2000
HYDROLOGY SECTION

If enclosures are not as noted, please notify us at once. Thank you.

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
DEVELOPMENT SERVICE / HYDROLOGY SECTION

CONFERENCE RECAP

DRAINAGE FILE/ZONE ATLAS PAGE NO. M-18 / D006 **DATE:** 7/20/99
PLANNING DIVISION NO'S: EPC: **ZONING:**O-1 **DRB:**
SUBJECT: Lovelace
STREET ADDRESS (IF KNOWN):
SUBDIVISION NAME: Lots C & E Cagua Addn

APPROVAL REQUESTED: Building Permit

ATTENDANCE: Fred J. Aguirre-City Hydrologist
Vic Chavez - Chavez-Grieves, Consulting Engineers, Inc.

FINDINGS:
An approved drainage plan is required for building permit approval. The drainage concept for this infill site could be a qualitative approach in which you would address the information below. If you can demonstrate that this infill development will have a negligible impact on the downstream drainage system, free discharge would be acceptable.

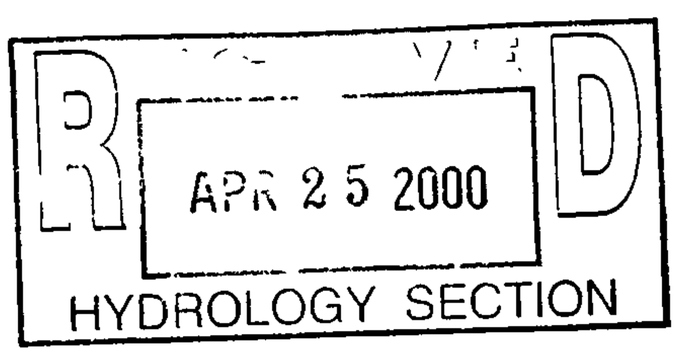
- a comparison of the proposed development to its overall drainage basin with respect to area and/or the relationship of the increased runoff to the existing basin's runoff
- impacts on downstream flood plains
- potentials offsite problems created by this development -in other words, will this development have an adverse affect on adjacent properties with respect to drainage
- the downstream affect resulting from the development of the remaining infill sites using the same concept.

THE UNDERSIGNED AGREES THAT THE ABOVE FINDINGS ARE SUMMARIZED ACCURATELY AND ARE SUBJECT TO CHANGE IF FURTHER INVESTIGATION REVEALS THAT THEY ARE NOT REASONABLE OR THAT THEY ARE BASED ON INACCURATE INFORMATION.

SIGNED: Fred J. Aguirre
TITLE : City Hydrologist

SIGNED: Vic Chavez
TITLE :

****NOTE** PLEASE PROVIDE A COPY OF THIS RECAP WITH YOUR DRAINAGE SUBMITTAL.**



DRAINAGE INFORMATION

PROJECT TITLE: LOVELACE RESPIRATORY RESEARCH ZONE ATLAS/DRNG. FILE #: M-18-Z / D006

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

LEGAL DESCRIPTION: TRACTS C AND E, CAGUA ADDITION

CITY ADDRESS: _____

ENGINEERING FIRM: Chavez-Grieves CONTACT: James Kelley

ADDRESS: 5639 Jefferson NE PHONE: 344-4080

OWNER: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- X DRAINAGE REPORT
- X DRAINAGE PLAN
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- X GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEER'S CERTIFICATION
- X OTHER (TRAFFIC CIRCULATION PLAN)

PRE-DESIGN MEETING:

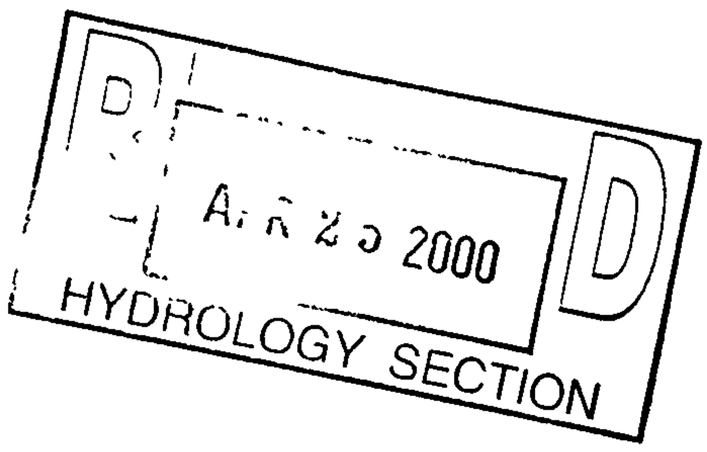
- X YES
- ___ NO
- X COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

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

DATE SUBMITTED: APRIL 24, 2000

BY: James Kelley



City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 26, 2000

Kevin Donnelly, P.E.
Chavez Grieves
5639 Jefferson Street, NE
Albuquerque, NM 87109

RE: GRADING & DRAINAGE PLAN FOR LOVELACE RESPIRATORY RESEARCH (M-18/D006) ENGINEERS STAMP DATED 4/21/00 SUBMITTED FOR BUILDING PERMIT APPROVAL

Gentlemen,

Please review the pre-design conference recap for the requirements of the grading and drainage plan for this site and provide us with the following:

1. *"A comparison of the proposed development to its overall drainage basin with respect to area and/or the relationship of the increased runoff to the existing basin's runoff."* Your report does not quantify the discharge rate of the detention pond, which, by its nature, is not free discharge. You cannot compare existing free discharge to proposed free discharge and say that you are increasing the site's discharge only marginally when the site does not now free discharge.

2. *"Impacts on downstream flood plains"* There is a flood plain (see FIRM Map 362) on Gibson Blvd. from two blocks west of this site to almost a half mile east of it. You propose to increase the discharge from this site to the flood plain. How do you justify removing the detention basin and increasing the downstream flooding? Further, the use of APU34SS in your calculations as a line that contributes to collection system capacity is questionable, as that point on the line is located a half mile north of the site.

3. *"potential offsite problems created by this development - in other words, will this development have an adverse affect on adjacent properties with respect to drainage"* Your plan proposes to discharge across adjacent properties. If you are to discharge to the parking lots to the north and west of this site, you must have drainage easements across these properties. Otherwise, you must discharge to a public right-of-way such as San Pedro.

4. *"the downstream effect resulting from the development of the remaining infill sites using the same concept."* This item was not covered in your analysis.

If you have any questions, please call me at 924-3988.

Sincerely,

Stuart Reeder, P.E.

Stuart Reeder, P.E.
Hydrology Division

xc: Whitney Reierson
File

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

Public Works Department
Transportation Development Services Section

May 3, 2000

James Kelley, Registered Professional Engineer,
Chavez-Grieves Consulting Engineers
5639 Jefferson N.E.
Albuquerque, New Mexico 87109

Re: T.C.L. submittal for building permit approval for Lovelace Respiratory Research,
2425 Ridgecrest Drive S.E., Cagua Addition Tracts C & E [M18/D006],
Engineer's Stamp dated 4/20/2000.

Dear Mr. Kelley,

The location referenced above, is not acceptable and requires modification to the Traffic Circulation Layout (T.C.L.) prior to Building Permit release as stated on the attached written comments and redlined T.C.L. markup.

Please resubmit revised T.C.L. after addressing typed and marked up comments.
Submit Plan along with typed comments and all red-lined, rnark-up copies.

Sincerely,

Mike Zamora,
Commercial Plan Checker

cc:
Engineer
Hydrology File
Office File

Written Comments: File # M-18/D006
5/03/2000

- For this Plan,and all others following, submit full street address of site. Could be part of title block or application sheet in Hydrology file. Also call out name of subdivision and lot number or tract number.
- Place a note on the plan stating the following:
  "An as-built copy of the approved TCL must be submitted by the designer-of-record, as required by Transportation Development, including a letter of certification that the site has been constructed in accordance with the TCL. Verification of TCL acceptability will be made before a Final Certificate of Occupancy is issued." Please call this office to obtain temporary C.O.
- Contractor selected must be made aware, by note on Site Plan, that any agreement with the owner, stating that any portions of permit construction, chosen to be completed by the owner, or his selected representative, other than that contractor, will most likely result in delay. Therefore, if this applies, Certificate of Occupancy will not be issued ***until all work is finished.***
- The responsibility for errors on the site plan and subsequent unauthorized field changes must be specified on the Site Plan, in bold type, as follows:
  "The responsible Party must rectify all unapproved construction resulting from errors on the approved Site Plan." and
  "This Site Plan has been approved and accepted by all parties. Any field changes not accepted by Traffic Engineer, after approval for building permit, will result in:
  (1) Untimely delay of certification for final Certificate of Occupancy in order to correct unapproved work, and
  (2) increase in construction cost to responsible parties."
- Existing street sidewalk and C&G affecting safe vehicular or pedestrian travel will be removed and replaced. Note on plan if not field verified.
- Close review of TCL and comments in previous Building Permit plan set submittals and use of DPM can aid in production of TCL requiring fewer corrections to original and more expediant review time.
- New and existing elements noted on the TCL must be shown, labelled, and dimensioned correctly and accurately, this includes site sidewalks, all drive aisles, drivepads[call out conc. or asph.], concrete wheel stops, walls & fences(including heights at drivepads), all curbing, the neighboring drivepad, close to property line,shared with the adjacent lot to the north.
- - Show, label, and dimension existing and/or new street sidewalk. City sidewalk ordinance requires minim. 6' adjacent to major street (San Pedro).
- - Property description on T.C.L. does not match current City Zone Map. Copy of replat or acceptable current plat, stamped and signed by County Clerk's Office, will be needed prior to approval for building permit. Plat should show cross access easement and vacation in the area of Ridgecrest Drive is needed. Show, label and dimension access easement and show easement limits on T.C.L.. Copy for office files is needed prior to approval for building permit. _Also, will need to see the property line at the south, called out as "proposed future prop. line" on the plat or new concrete curbing will be need to be located 2'-0" north of current property line.
- The Service area shown on the plan cannot be approved as a service area, service vehicle cannot access this area without violating the DPM, Section 23.6B.4[20' to prop.line] & 23.6B.8a1[36'-40'width at collector street] & 23.6B.8a3[for larger vehicles] & 23.6B.8b2[backing into street] & 23.7B.8[service, backing out of street]. _Also drivepad will need to be closed by removal and construction of standard C&G and sidewalk.
- - The existing area of Refuse service cannot be allowed per DPM, Section 23.6B.8b2 & 23.7B.8. _Also sight visibility is impaired. _Approval from Solid Waste is required for a different location.
- 6" high concrete curb, per city standard, must be constructed per DPM, Section23.7 B6. Existing asphalt curbs must be replaced with concrete. Must prevent overhanging a property line into adjacent property, pedestrian path and to separate landscape areas from parking.__Label concrete curb, and type (or show detail labelled "typical"), at each individual location or call out double-line style linework used to designate curbing, as "typical".
- Minim. 5' wide concrete sidewalk, raised 6" above parking surface, needed when located at the front of parking vehicles wherever pedestrian access is desired or required or adjacent to any building.
- - Distance back from flowline of curb on San Pedro entrance needed, as shown, for vehicle visibility and to allow parked vehicle to exit last adjacent stall while vehicle is waiting to leave site.

Written Comments: File # M-18/D006
5/03/2000

- Because of the preliminary nature of the new review process, if Zoning has not seen this layout prior to this review, any requirements by Zoning at time of their review, altering the parking layout, will void approval of T.C.L. and new review will be needed.
- Label - Construct new drivepad "per City of Albuq. Std. Detail Dwg. No. 2426." on Ridgecrest drivepad. _Call out all existing drivepad construction (concrete, asphalt, dirt, etc.).
- 15' radius curve needed on all end islands along the traffic circulation path. _Minimum width of end islands-10'.
- Label asphalt and thickness of parking surface per city std. or refer to a detail which illustrates the proposed method of paving and states it's equivalency to standard asphalt surfacing.
- Need to see that all existing obstacles in City right-of-way on San Pedro, in existing sidewalks, have been picked up.
- Call out to restripe existing lot per City Standard.
- What is use associated with "Add Alternate"?
- Only one T.C.L. is needed per Permit submittal. Multiple copies of T.C.L. will need to match exactly.
- All Civil Sheets (Drainage Plan and T.C.L. & details) must be together at front of plan set.
- Linework onDrainagePlan andLandscapePlan must match T.C.L. exactly.
- Callout to label on asphalt "COMPACT" or equal at small car stalls at end of stall.

CHAVEZ • GRIEVES
CONSULTING ENGINEERS, INC.
5639 Jefferson NE, Albuquerque, NM 87109
Phone (505) 344-4080 Fax (505) 343-8759

GRADING
BLDG.

LETTER OF TRANSMITTAL

DATE: 05/08/00	PROJECT: LOVELACE
TO: STUART REEDER	PROJECT NO.: D06-158-99
COMPANY / ADDRESS / PHONE: CITY OF ALBUQUERQUE HYDROLOGY DEPARTMENT PLAZA DEL SOL	SENT BY: James D. Kelley

We are sending you the following items ☒ attached: ☐ under separate cover:

☐ Shop Drawings	☒ Plans	☐ Specifications	☐ Other:
☐ Change Order	☐ Prints	☐ Diskette	1.
☒ Copy of Letter	☒ Report	☐ Calculations	2.
☐ Samples			3.

COPIES:	DATE:	SUBMITTAL NO.	DESCRIPTION:
1	05/08/00		RESPONSE TO COMMENTS DATED APRIL 26, 2000
1	05/03/00		GRADING AND DRAINAGE REPORT (REVISED)

These items are transmitted for the purposes indicated below:

☒ For Your Use	☒ For Review & Comment	☐ As Requested
☐ Returned After Loan to Us	☐ Please Correct & Resubmit	☐ Submit ( ) Copies
☐ Resubmittal not Required Corrections Noted	☐ Return ( ) Corrected Prints for Distribution	Other: 1. 2.

Comments:

Sent via: ☐ Fax ☐ Mail ☒ Runner ☐ Call for Pick-up ☐ Other:
Copy To: ☐ Client ☐ Owner ☐ Contractor ☒ File

RECEIVED
MAY 03 2000
HYDROLOGY SECTION

If enclosures are not as noted, please notify us at once. Thank you.

5/15

Response 5/9

Okayed Fuel ONLY

this date.

CHAVEZ · GRIEVES
CONSULTING ENGINEERS, INC.
5639 JEFFERSON STREET NE • SUITE 1 • ALBUQUERQUE, NEW MEXICO 87109 • PHONE (505) 344-4080 • FAX (505) 343-8759

May 8, 2000

Mr. Stuart Reeder, P.E.
Hydrology Division
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RE: LOVELACE RESPIRATORY RESEARCH GRADING & DRAINAGE PLAN (M-18/D006)

Dear Mr. Reeder:

Thank you for your prompt response to our request for approval of the grading and drainage plan for the expansion of the Lovelace Respiratory Research Building. The purpose of this letter is to address the comments in your April 26, 2000 letter. We believe that our analysis still justifies approval of the plan to have free discharge from the site without adverse impacts to downstream properties.

Comment 1: "A comparison of the proposed development to its overall drainage basin with respect to area and/or the relationship of the increased runoff to the existing basin's runoff." Your report does not quantity the discharge rate of the detention pond, which, by its nature, is not free discharge. You cannot compare existing free discharge to proposed free discharge and say that you are increasing the site's discharge only marginally when the site does not now free discharge.

Response: You are correct in theory however the existing detention pond is so small that we considered its effect negligible. We have expanded the discussion of the detention pond in the revised Grading and Drainage Report. The existing detention pond has a volume of 0.09 acre-feet or 3,920 cubic feet. In the design storm event, the pond fills in approximately 7.2 minutes and then all flows pass through the pond without effect.

Comment 2: "Impacts on downstream flood plains" There is a flood plain (see FIRM Map 362) on Gibson Blvd from two blocks west of this site to almost a half mile east of it. You propose to increase discharge from this site to the flood plain. How do you justify removing the detention basin and increasing downstream flooding? Further, the use of APU34SS in your calculations as a line that contributes to collection system capacity is questionable, as that point on the line is located a half mile north of the site.

Response: The inclusion of APU34SS as part of the collection system capacity is an error. Per the "Albuquerque Master Drainage Study," APU40SS was added under an NMSHD project to carry Lovelace flows into APU34SS. APU40SS is a 54" storm sewer with a capacity of 76 cubic feet per second (cfs). The revised Grading and Drainage Report clarifies this point.

Historic flows to the west and to the north are reduced under the proposed conditions. Flows to San Pedro are increased. The flow travels north on San Pedro and then west along Gibson. Under existing conditions, Basin U-40 has a peak discharge of 67 cfs. Proposed conditions will increase the flows in

Basin U-40 by 1.68 cfs. The increased flow is still well within the capacity of the APU40SS collection system capacity and would not add to flooding in the Gibson Flood Plain.

Comment 3: "potential offsite problems created by this development – in other words, will this development have an adverse affect on adjacent properties with respect to drainage." Your plan proposes to discharge across adjacent properties. If you are to discharge to the parking lots to the north and west of this site, you must have drainage easements across these properties. Otherwise, you must discharge to a public right-of-way such as San Pedro.

Response: The flows to the properties to the north and to the west are an existing condition of the property. Under the Phase II proposed development, the flow to the north is reduced by 0.17 cfs to 0.77 cfs. The flow to the west is reduced by 1.83 cfs to 13.39 cfs.

Comment 4: "the downstream effect resulting from the development of the remaining infill sites using the same concept." This item was not covered in your analysis.

Response: As stated above, flow to the adjacent properties is reduced under the proposed conditions. The increased flow on San Pedro will not overtop the crown and the increase flow of 1.68 cfs is well within the excess capacity of APU40SS collection system.

I hope the above adequately addresses your concerns. The Grading and Drainage Report (enclosed) was revised to reflect these changes. Thank you for your immediate attention to this matter. Your timely approval of this plan is requested to avoid construction schedule impacts.

If you have any questions, please call James Kelley, at 344-4080.

Sincerely,

CHAVEZ-GRIEVES CONSULTING ENGINEERS, INC.

James Kelley

James D. Kelley, E.I.
Project Engineer

Enclosure

Cc: Project File
Cameron Erdman, DCSW Architects
Brad Ponder

CHAVEZ · GRIEVES
CONSULTING ENGINEERS, INC.
5639 JEFFERSON STREET NE • ALBUQUERQUE, NEW MEXICO 87109 • PHONE (505) 344-4080 • FAX (505) 343-8759

GRADING AND DRAINAGE PLAN

FOR

LOVELACE RESPIRATORY RESEARCH INSTITUTE ADDITION

ALBUQUERQUE, NEW MEXICO

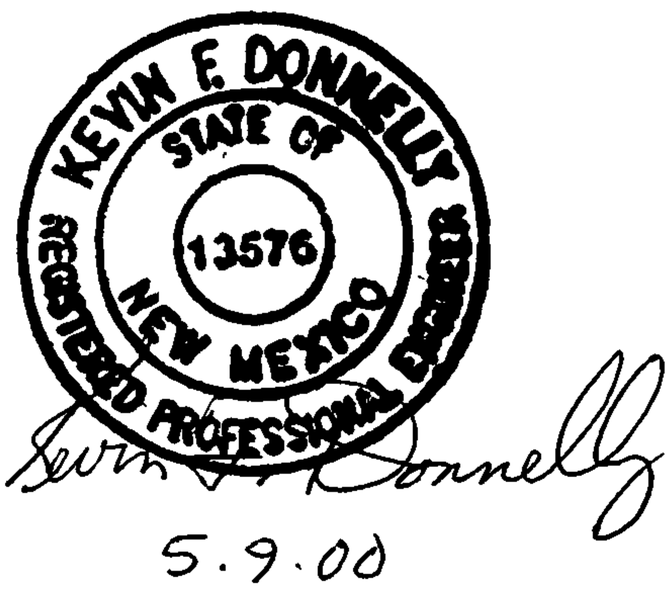
MAY 3, 2000

GRADING AND DRAINAGE PLAN

FOR

LOVELACE RESPIRATORY RESEARCH INSTITUTE ADDITION

ALBUQUERQUE, NEW MEXICO



MAY 3, 2000

Executive Summary

A request for free discharge is proposed for the Lovelace Respiratory Research Institute. Analysis of hydrology indicates that the proposed site modifications and improvements have no adverse impacts to downstream facilities or adjacent properties as a result of proposed site modifications. The proposed modifications will result in an increase of 0.62 acres in impervious area. This equates to less than a 1 percent increase in the impervious area within Basin U-40. The total site runoff is increased by 1.68 cfs to a total of 24.76 cfs. The increased flow falls within the capacity of the existing infrastructure.

The project is located near the south end of San Pedro Boulevard at the corner of Ridgecrest Avenue. The project lies in Basin "U-40" as identified in the "Albuquerque Master Drainage Study, Volume II."

Proposed site modifications will occur in two phases. Phase I involves the addition of an 32,950 square foot addition in the center of the site and a 1,407 square foot addition to the west. Phase II will extend the western addition for a total of 4,040 square feet and will require the elimination of the existing detention basin.

The proposed grading and drainage plan will split storm water to the northeast on San Pedro and to the northwest through a parking lot that drains to Gibson Boulevard. Under the fully developed condition, runoff through the parking lot to the northwest is reduced by 2.0 cfs. Runoff to San Pedro is increased by 3.68 cfs. Neither increase in storm water runoff exceeds the capacity of the road or storm drain systems.

LOCATION

As shown on the vicinity map on the following page, the site is located on San Pedro Boulevard, south of Gibson Boulevard.

EXISTING SITE CONDITIONS AND DRAINAGE PATTERN

Three sub-basins (see Existing Basin Map) define the current site drainage. Under existing conditions the Lovelace site currently discharges in to San Pedro Boulevard (Basin E2), parking lots to the west (Basin E1) and a parking lot to the north (Basin E3). A majority of the site (Basin E1) drains to a 0.09 acre-ft detention pond with a 6" PVC discharge pipe. The pond discharges to the parking lot to the west. The 100-year, 6-hour volume draining to the pond is 0.57 acre-ft and currently exceeds the ponds volume in approximately 7.2 minutes. Basin E3 drains to a parking lot to the north. These flows drain to the west along an asphalt swale and combine with the runoff from the parking lot to the west. The combined runoff for Basin E1 and E3 during the 100-year, 6-hour storm was calculated to be 16.16 cubic feet per second (cfs). This runoff will flow to the north across Gibson Boulevard and into a storm system at AP40. According to the "Albuquerque Master Drainage Study, Volume II", prepared by Bohanan-Huston, Inc. in 1987 APU40SS was upgraded to a 54" pipe by the New Mexico State Highway and Transportation Department and has a capacity of 76 cfs at this point.

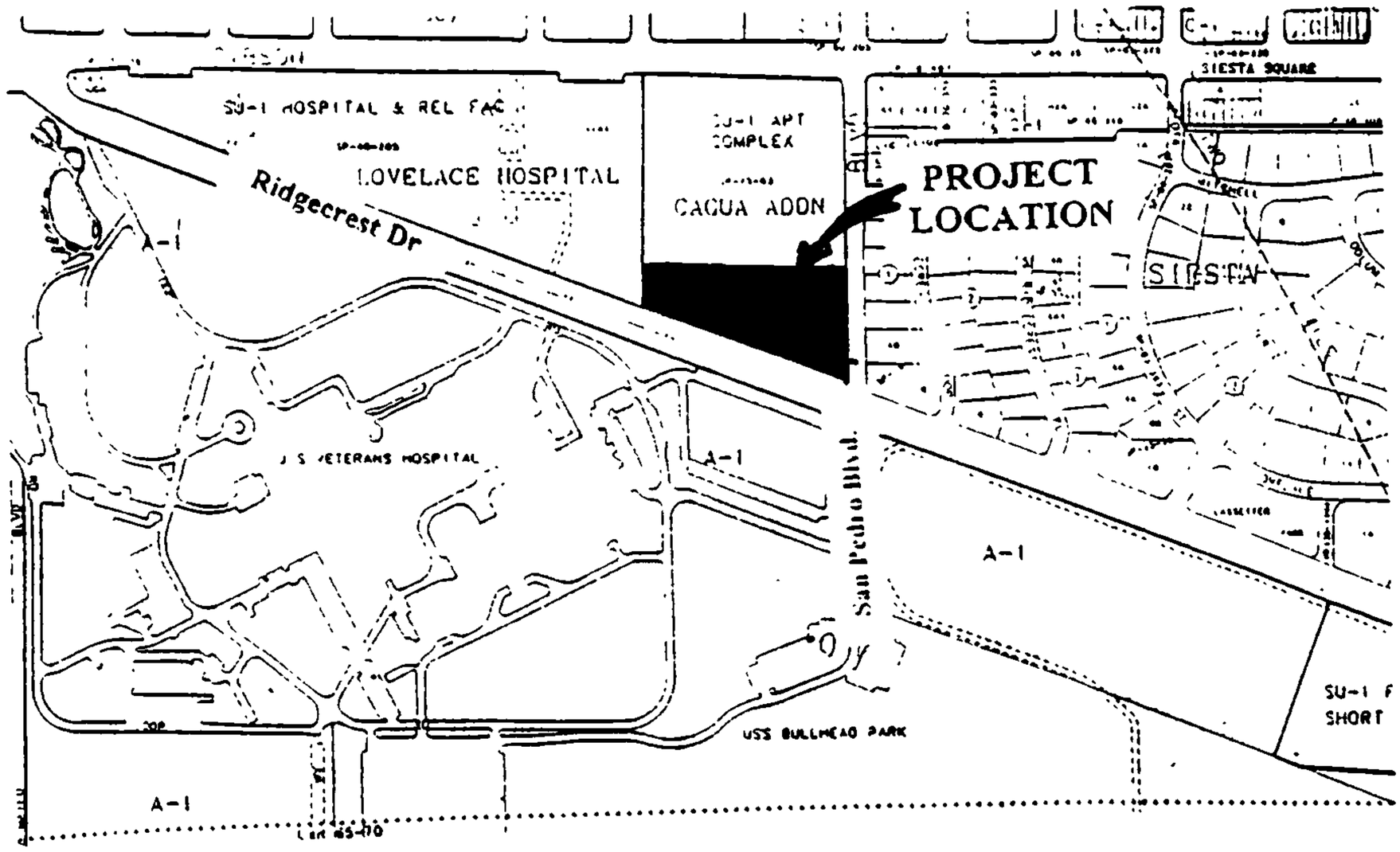
Existing runoff from the site to San Pedro Boulevard (Basin E2) was calculated to be 6.92 cfs. This runoff will combine with an estimated 7.93 cfs from the south and carry water north to Gibson Boulevard. At Gibson the flows turn to the west and enter the storm drain system (APU40SS). A cross section of San Pedro was analyzed with Flowmaster by Haestad Methods to show current water surface elevation. San Pedro is a boundary for the drainage basin U-40 in the "Albuquerque Master Drainage Study" and therefor only half of the street can be used to carry runoff.

The "Albuquerque Master Drainage Study" determined that basin U-40 has a peak discharge of 67 cfs. Basin U-40 discharges to a 54" pipe (APU40SS) with a capacity of 76 cfs.

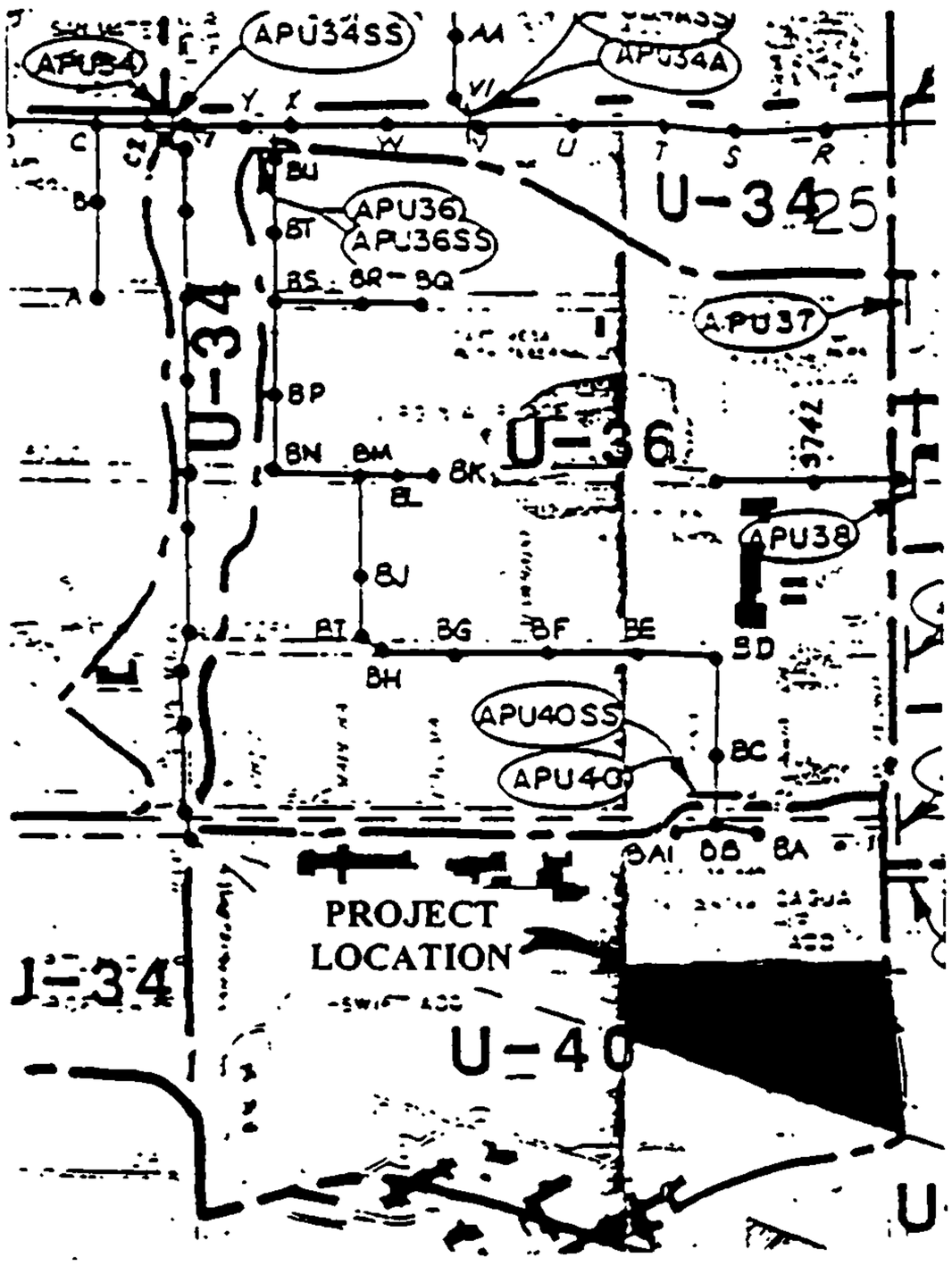
DEVELOPED SITE CONDTIONS AND DRAINAGE PATTERN

Proposed site modifications will occur in two phases. Phase I involves the addition of a 32,950 square foot addition in the center of the site and a 1,407 square foot addition to the west. Phase II will extend the western addition for a total of 4,040 square feet and will require the elimination of the existing detention basin.

The developed site will discharge to the same three areas as the existing site, however the amount of runoff will change. Runoff to San Pedro Boulevard will increase 3.68 cfs, but the water surface elevation will only increase three eighths of an inch and will not overtop the crown of the street. Runoff to the parking lot to the north will decrease 0.17 cfs and continue to follow the same drainage pattern. Runoff to the detention pond and parking lot to the west will decrease 1.97 cfs in Phase I. During Phase II the detention pond will be eliminated and runoff to the parking lot to the west will decrease from existing by 1.83 cfs. When combined with the flows from the north parking lot, the total flow decreases by 2.0 cfs. The overall site will increase discharge by 1.68 cfs, which can be handled by the storm system and will not adversely affect any downstream conditions.



VICINITY MAP M-18-Z



ALBUQUERQUE MASTER PLAN BASIN MAP

100-YEAR HYDROLOGIC CALCULATIONS

BASIN #	AREA (acre)	LAND TREATMENT A (%)	B (%)	C (%)	D (%)	WEIGHTED E (in)	V (6-hr) (acre-ft)	V (6-hr) (cu-ft)	V(10 day) (acre-ft)	V(10 day) (cu-ft)	Q (cfs)
EXISTING CONDITIONS											
OFFSITE	2.85	33	30	30	7	1.05	0.25	10.821	0.29	12,487	**7.93**
E1	3.51	0.00	27.00	2.00	71.00	1.95	0.57	24.843	1.05	45,650	15.22
E2	1.76	0.00	45.00	0.00	55.00	1.71	0.25	10.938	0.44	19.019	6.92
E3	0.27	0.00	0.00	97.00	3.00	1.32	0.03	1,296	0.03	1,363	0.94
TOTAL	**5.54**						**0.85**	**37,076**	**1.52**	**66,032**	**23.08**
PROPOSED CONDITIONS (PHASE I)											
P1	0.09	0.00	46.00	0.00	54.00	1.70	0.01	561	0.02	971	0.36
P2	2.24	0.00	19.00	8.00	73.00	2.00	0.37	16.269	0.69	29,921	9.93
P3	0.59	0.00	0.00	0.00	100.00	2.36	0.12	5,054	0.23	9,980	2.96
P4	0.61	0.00	25.00	0.00	75.00	2.00	0.10	4,429	0.19	8,248	2.69
P5	0.25	0.00	78.00	0.00	22.00	1.24	0.03	1.122	0.04	1,582	0.78
P6	0.86	0.00	16.00	0.00	84.00	2.13	0.15	6,648	0.29	12,680	3.98
P7	0.22	0.00	0.00	97.00	3.00	1.32	0.02	1,056	0.03	1,111	0.77
P8	0.05	0.00	0.00	0.00	100.00	2.36	0.01	428	0.02	846	0.25
P9	0.03	0.00	0.00	0.00	100.00	2.36	0.01	257	0.01	507	0.15
P10	0.10	0.00	98.00	0.00	2.00	0.95	0.01	344	0.01	361	0.26
P11	0.50	0.00	3.00	0.00	97.00	2.32	0.10	4,205	0.19	8,254	2.47
TOTAL	**5.54**						**0.93**	**40,374**	**1.71**	**74,461**	**24.62**
PROPOSED CONDITIONS (PHASE II)											
PHASE I	**5.54**						**0.93**	**40,374**	**1.71**	**74,461**	**24.62**
(P2)	*2.24*	*0.00*	*19.00*	*8.00*	*73.00*	*2.00*	*0.37*	*16.269*	*0.69*	*29,921*	*9.93*
P2ALT	2.24	0.00	19.00	4 00	77.00	2.04	0 38	16.617	0.71	31,017	10.07
TOTAL											**24.76**

EXCESS PRECIP.	0.66	0.92	1.29	2.36	E_I (in)
PEAK DISCHARGE	1.87	2.6	3.45	5 02	Q_{PI} (cfs)

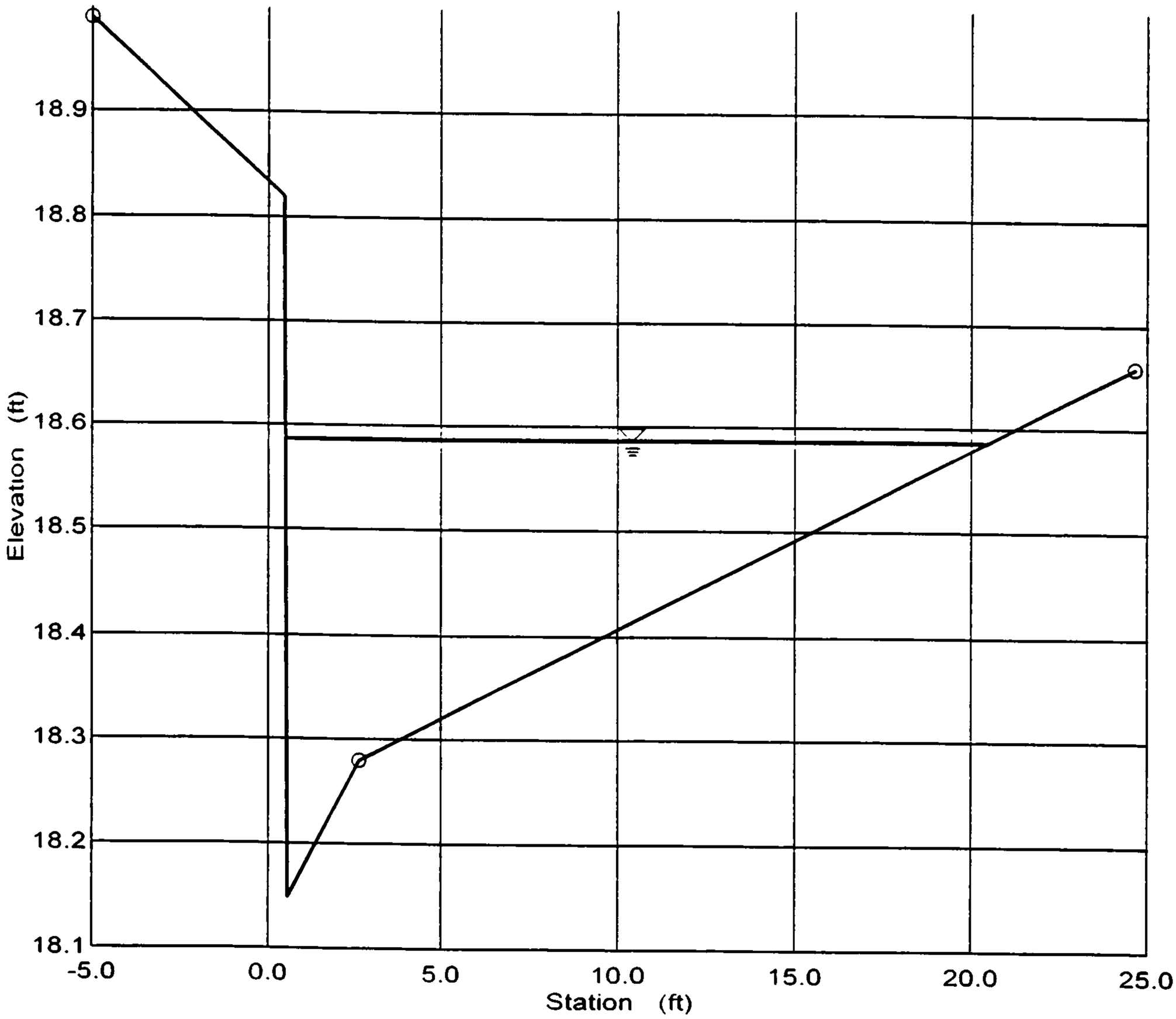
WEIGHTED E (in) = $(E_A)(\%A) + (E_B)(\%B) + (E_C)(\%C) + (E_D)(\%D)$
$V_{6\text{-HR}}$ (acre-ft) = (WEIGHTED E)(AREA)/12
V_{10DAY} (acre-ft) = $V_{6\text{-HR}} + (A_D)(P_{10DAY} - P_{6\text{-HR}})/12$
Q (cfs) = $(Q_{PA})(A_A) + (Q_{PB})(A_B) + (Q_{PC})(A_C) + (Q_{PD})(A_D)$

ZONE = 3
$P_{6\text{-HR}}$ (in.) = 2.60
$P_{24\text{-HR}}$ (in.) = 3.10
P_{10DAY} (in.) = 4 90

SAN PEDRO HALF
Cross Section for Irregular Channel

Project Description	
Project File	g:\d06\158\calcs\lovelace.fm2
Worksheet	SAN PEDRO HALF
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

Section Data		
Wtd. Mannings Coefficient	0.015	
Channel Slope	0.029080	ft/ft
Water Surface Elevation	18.59	ft
Discharge	18.53	cfs



SAN PEDRO HALF
Worksheet for Irregular Channel

Project Description	
Project File	g:\d06\158\calcs\lovelace.fm2
Worksheet	SAN PEDRO HALF
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

Input Data		
Channel Slope	0.029080 ft/ft	
Elevation range: 18.15 ft to 18.99 ft.		

Station (ft)	Elevation (ft)	Start Station	End Station	Roughness
-5.00	18.99	-5.00	2.62	0.013
0.46	18.82	2.62	24.65	0.017
0.60	18.15			
2.62	18.28			
24.65	18.66			

Discharge	18.53	cfs

Results		
Wtd. Mannings Coefficient	0.015	
Water Surface Elevation	18.59	ft
Flow Area	3.49	ft²
Wetted Perimeter	20.24	ft
Top Width	19.88	ft
Height	0.44	ft
Critical Depth	18.71	ft
Critical Slope	0.005733	ft/ft
Velocity	5.30	ft/s
Velocity Head	0.44	ft
Specific Energy	19.02	ft
Froude Number	2.23	
Flow is supercritical.		

SAN PEDRO HALF EXISTING
Worksheet for Irregular Channel

Project Description	
Project File	g:\d06\158\calcs\lovelace.fm2
Worksheet	SAN PEDRO HALF EXISTING
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

Input Data		
Channel Slope	0.029080 ft/ft	
Elevation range: 18.15 ft to 18.99 ft.		
Station (ft)	Elevation (ft)	
-5.00	18.99	
0.46	18.82	
0.60	18.15	
2.62	18.28	
24.65	18.66	
Discharge	14 85	cfs

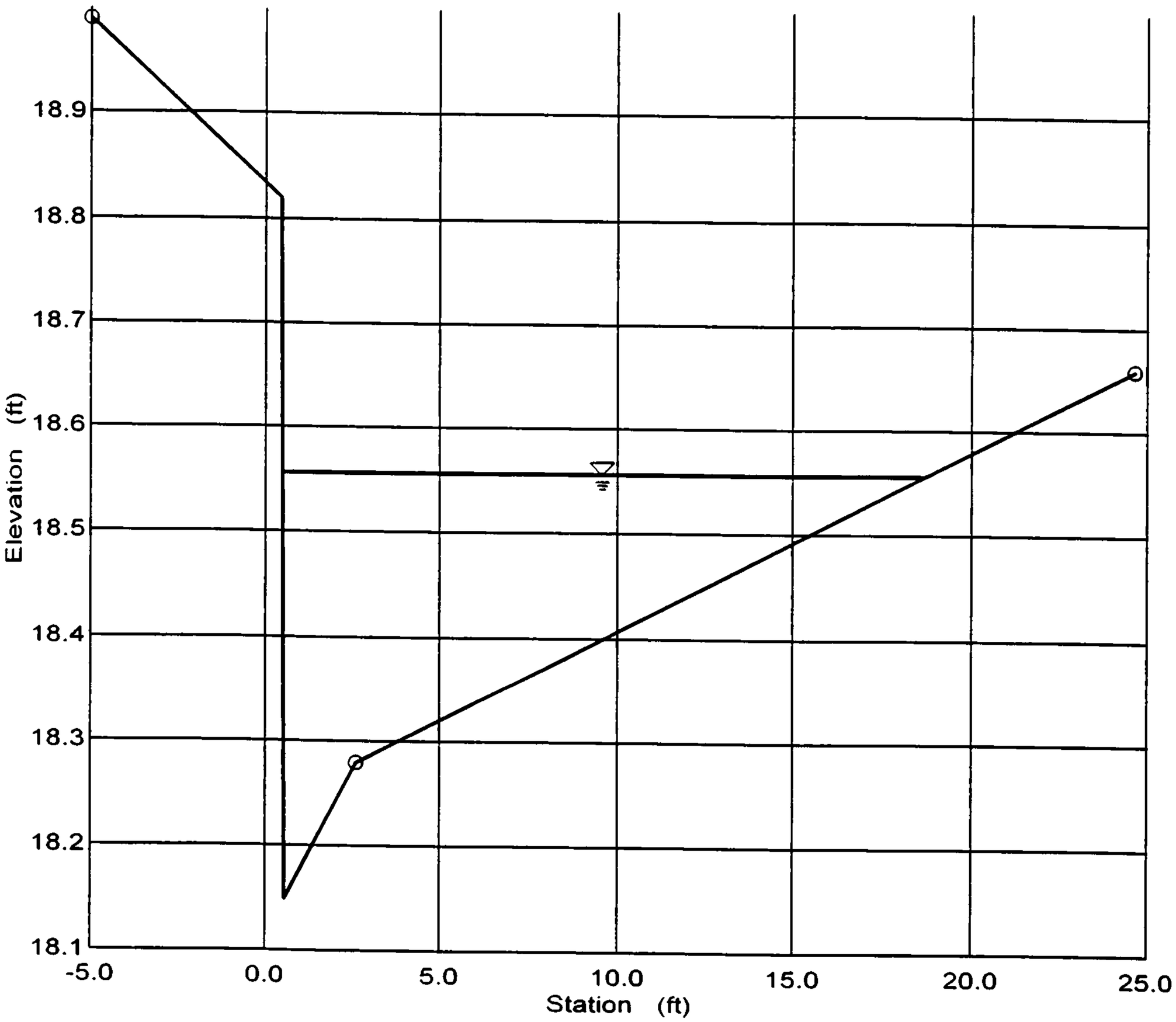
Start Station	End Station	Roughness
-5.00	2.62	0.013
2.62	24.65	0.017

Results		
Wtd. Mannings Coefficient	0.015	
Water Surface Elevation	18.56	ft
Flow Area	2.92	ft²
Wetted Perimeter	18.46	ft
Top Width	18.13	ft
Height	0.41	ft
Critical Depth	18.68	ft
Critical Slope	0.005802	ft/ft
Velocity	5 08	ft/s
Velocity Head	0.40	ft
Specific Energy	18.96	ft
Froude Number	2.23	
Flow is supercritical.		

SAN PEDRO HALF EXISTING
Cross Section for Irregular Channel

Project Description	
Project File	g:\d06\158\calcs\lovelace.fm2
Worksheet	SAN PEDRO HALF EXISTING
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

Section Data		
Wtd. Mannings Coefficient	0.015	
Channel Slope	0.029080	ft/ft
Water Surface Elevation	18.56	ft
Discharge	14.85	cfs



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GRADING AND DRAINAGE PLAN

FOR

LOVELACE RESPIRATORY RESEARCH INSTITUTE ADDITION

ALBUQUERQUE, NEW MEXICO

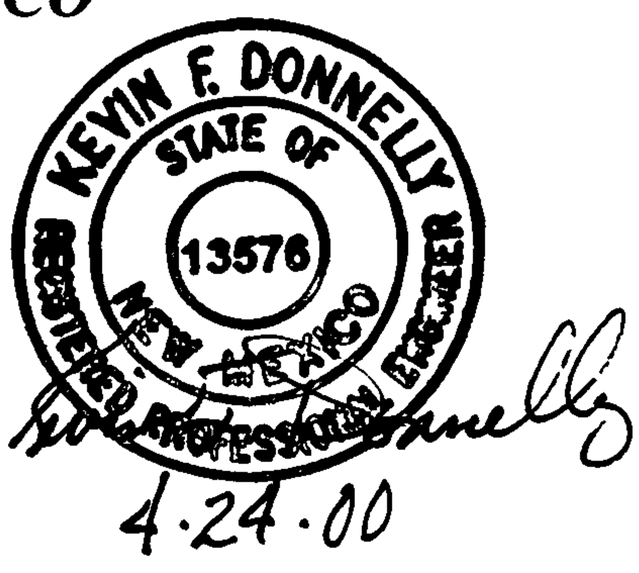
April 24, 2000

GRADING AND DRAINAGE PLAN

FOR

LOVELACE RESPIRATORY RESEARCH INSTITUTE ADDITION

ALBUQUERQUE, NEW MEXICO



April 24, 2000

Executive Summary

A request for free discharge is proposed for the Lovelace Respiratory Research Institute. Analysis of hydrology indicates that the proposed site modifications and improvements have no adverse impacts to downstream facilities or adjacent properties as a result of proposed site modifications. The proposed modifications will result in an increase of 0.62 acres in impervious area. This equates to less than a 1 percent increase in the impervious area within Basin U-40. The total site runoff is increased by 1.68 cfs to a total of 24.76 cfs. The increased flow falls within the capacity of the existing infrastructure.

The project is located near the south end of San Pedro Boulevard at the corner of Ridgecrest Avenue. The project lies in Basin "U-40" as identified in the "Albuquerque Master Drainage Study, Volume II."

Proposed site modifications will occur in two phases. Phase I involves the addition of an 32,950 square foot addition in the center of the site and a 1,407 square foot addition to the west. Phase II will extend the western addition for a total of 4,040 square feet and will require the elimination of the existing detention basin.

The proposed grading and drainage plan will split storm water to the northeast on San Pedro and to the northwest through a parking lot that drains to Gibson Boulevard. Under the fully developed condition, runoff through the parking lot to the northwest is reduced by 2.0 cfs. Runoff to San Pedro is increased by 3.68 cfs. Neither increase in storm water runoff exceeds the capacity of the road or storm drain systems.

LOCATION

As shown on the vicinity map on the following page, the site is located on San Pedro Boulevard, south of Gibson Boulevard.

EXISTING SITE CONDITIONS AND DRAINAGE PATTERN

Three sub-basins (see Existing Basin Map) define the site drainage. Under existing conditions the Lovelace site currently discharges in to San Pedro Boulevard, parking lots to the west and a parking lot to the north. A majority of the site (Basin E1) drains to a 0.09 acre-ft detention pond with a 4" PVC discharge pipe. The 100-year, 6-hour volume draining to the pond is 0.57 acre-ft and currently exceeds the ponds volume. Overflows from the pond drain to the parking lot to the west. Basin E3 drains to a parking lot to the north. These flows drain to the west along an asphalt swale and combine with the runoff from the parking lot to the west. The combined runoff for Basin E1 and E3 during the 100-year, 6-hour storm was calculated to be 16.16 cfs. This runoff will flow to the north across Gibson Boulevard and into a storm system at AP40. According to the "Albuquerque Master Drainage Study, Volume II", prepared by Bohanan-Huston, Inc. in 1987 there is a 48" discharge pipe (APU40SS) that has a capacity of 60 cfs at this point.

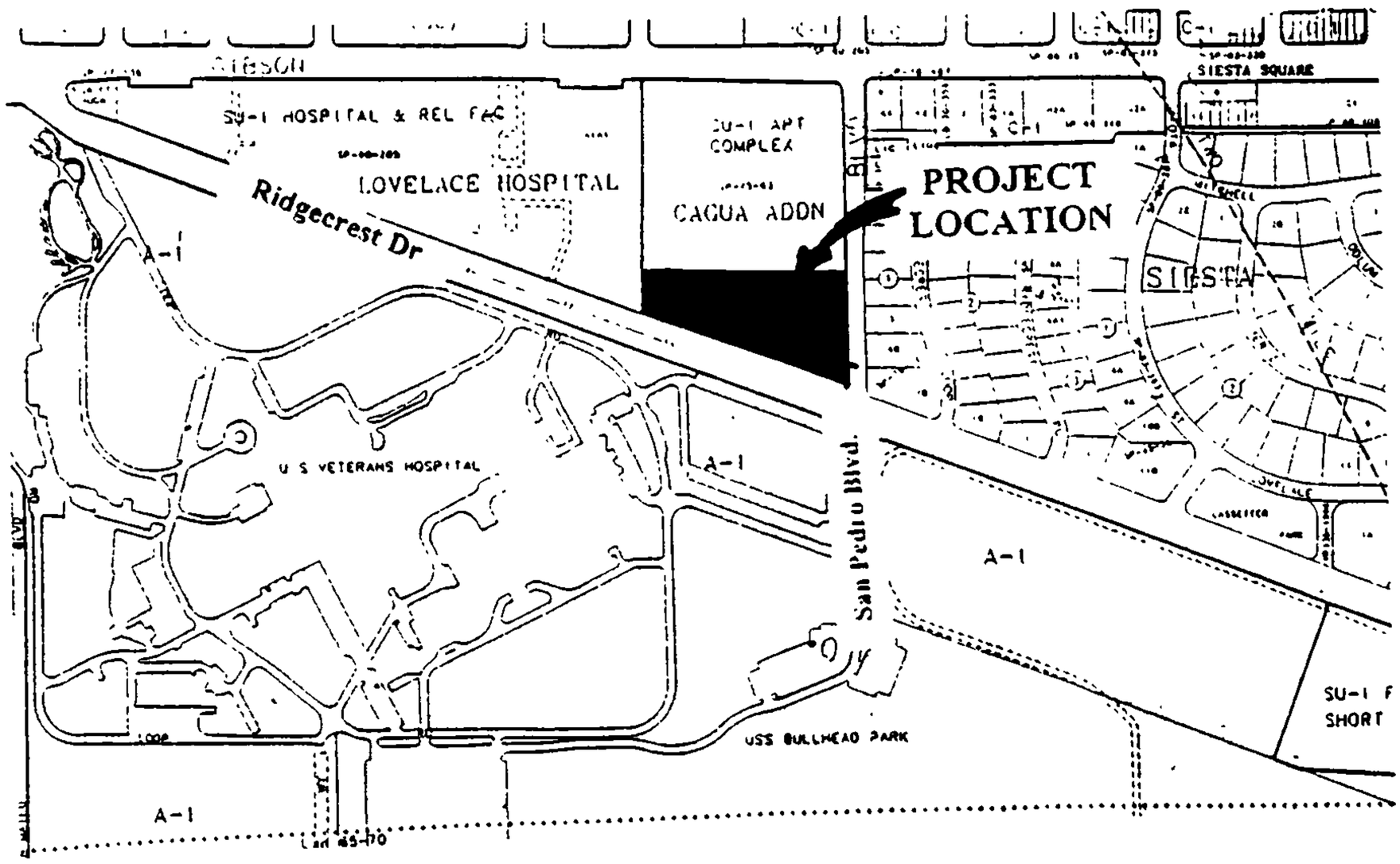
Runoff from the site to San Pedro Boulevard (Basin E2) was calculated to be 6.92 cfs. This runoff will combine with an estimated 7.93 cfs from the south and carry water north to Gibson Boulevard. At Gibson the flows turn to the west and enter the storm drain system (APU40SS). A cross section of San Pedro was analyzed with Flowmaster by Haestad Methods to show current water surface elevation. San Pedro is a boundary for the drainage basin U-40 in the "Albuquerque Master Drainage Study" and therefor only half of the street can be used to carry runoff.

The "Albuquerque Master Drainage Study" determined that basin U-40 has a peak discharge of 67 cfs. Basin U-40 discharges to a 48" pipe (APU40SS) with a capacity of 60 cfs and a new 54" pipe (APU34SS) with a capacity of 76 cfs. The combined capacity of both pipes is 143 cfs.

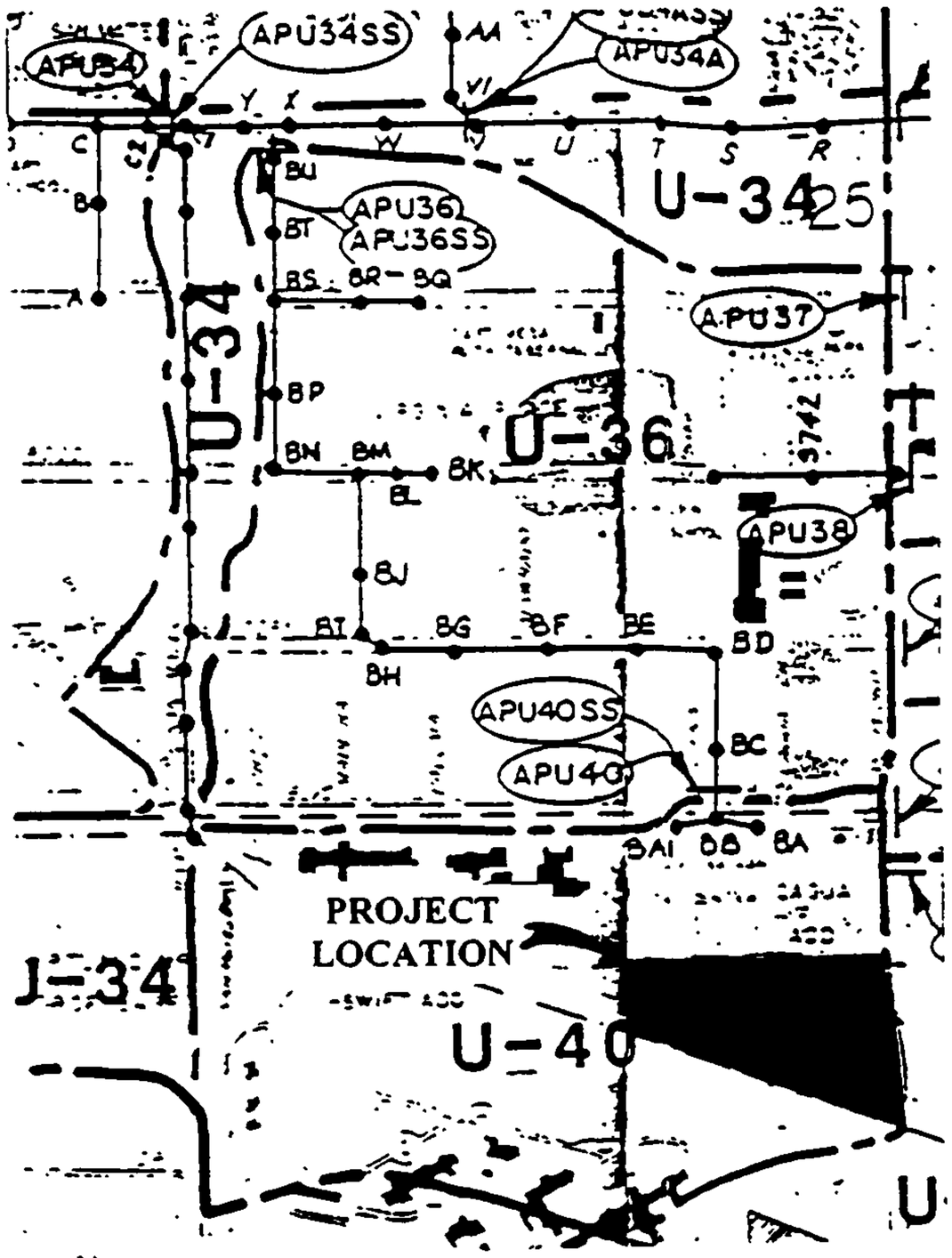
DEVELOPED SITE CONDTIONS AND DRAINAGE PATTERN

Proposed site modifications will occur in two phases. Phase I involves the addition of a 32,950 square foot addition in the center of the site and a 1,407 square foot addition to the west. Phase II will extend the western addition for a total of 4,040 square feet and will require the elimination of the existing detention basin.

The developed site will discharge to the same three areas as the existing site, however the amount of runoff will change. Runoff to San Pedro Boulevard will increase 3.68 cfs, but the water surface elevation will only increase three eighths of an inch and will not overtop the crown of the street. Runoff to the parking lot to the north will decrease 0.17 cfs and continue to follow the same drainage pattern. Runoff to the detention pond and parking lot to the west will decrease 1.97 cfs in Phase I. During Phase II the detention pond will be eliminated and runoff to the parking lot to the west will decrease from existing by 1.83 cfs. When combined with the flows from the north parking lot, the total flow decreases by 2.0 cfs. The overall site will increase discharge by 1.68 cfs, which can be handled by the storm system and will not adversely affect any downstream conditions.



VICINITY MAP M-18-Z



ALBUQUERQUE MASTER PLAN BASIN MAP

100-YEAR HYDROLOGIC CALCULATIONS

BASIN #	AREA (acre)	LAND TREATMENT A (%)	B (%)	C (%)	D (%)	WEIGHTED E (in)	V (6-hr) (acre-ft)	V (6-hr) (cu-ft)	V(10 day) (acre-ft)	V(10 day) (cu-ft)	Q (cfs)
EXISTING CONDITIONS											
OFFSITE	2.85	33	30	30	7	1.05	0.25	10,821	0.29	12,487	**7.93**
E1	3.51	0.00	27.00	2.00	71.00	1.95	0.57	24,843	1.05	45,650	15.22
E2	1.76	0.00	45.00	0.00	55.00	1 71	0.25	10,938	0.44	19,019	6.92
E3	0.27	0.00	0.00	97.00	3.00	1.32	0.03	1,296	0.03	1,363	0.94
TOTAL	**5.54**						**0.85**	**37,076**	**1.52**	**66,032**	**23.08**
PROPOSED CONDITIONS (PHASE I)											
P1	0.09	0.00	46.00	0.00	54.00	1.70	0.01	561	0.02	971	0.36
P2	2.24	0.00	19.00	8.00	73.00	2.00	0.37	16,269	0.69	29,921	9.93
P3	0.59	0.00	0.00	0.00	100.00	2.36	0.12	5,054	0.23	9,980	2.96
P4	0.61	0.00	25.00	0.00	75.00	2.00	0.10	4,429	0.19	8,248	2.69
P5	0.25	0.00	78.00	0.00	22.00	1 24	0.03	1,122	0.04	1,582	0.78
P6	0.86	0.00	16.00	0.00	84.00	2.13	0.15	6,648	0.29	12,680	3.98
P7	0.22	0.00	0.00	97.00	3.00	1.32	0.02	1,056	0.03	1,111	0.77
P8	0 05	0.00	0.00	0.00	100.00	2.36	0.01	428	0.02	846	0.25
P9	0.03	0.00	0.00	0.00	100.00	2.36	0.01	257	0.01	507	0.15
P10	0.10	0.00	98.00	0.00	2.00	0.95	0.01	344	0.01	361	0.26
P11	0.50	0.00	3.00	0.00	97.00	2.32	0.10	4,205	0.19	8,254	2.47
TOTAL	**5.54**						**0.93**	**40,374**	**1.71**	**74,461**	**24.62**
PROPOSED CONDITIONS (PHASE II)											
PHASE I	**5.54**						**0.93**	**40,374**	**1.71**	**74,461**	**24.62**
(P2)	*2.24*	*0.00*	*19.00*	*8.00*	*73.00*	*2.00*	*0.37*	*16,269*	*0.69*	*29,921*	*9.93*
P2ALT	2.24	0.00	19.00	4.00	77 00	2.04	0.38	16,617	0.71	31,017	10.07
TOTAL											**24.76**

EXCESS PRECIP.	0.66	0.92	1.29	2.36	E_I (in)
PEAK DISCHARGE	1 87	2.6	3.45	5.02	Q_{PI} (cfs)

WEIGHTED E (in) = $(E_A)(\%A) + (E_B)(\%B) + (E_C)(\%C) + (E_D)(\%D)$

$V_{6\text{-HR}}$ (acre-ft) = (WEIGHTED E)(AREA)/12

V_{10DAY} (acre-ft) = $V_{6\text{-HR}} + (A_D)(P_{10DAY} - P_{6\text{-HR}})/12$

Q (cfs) = $(Q_{PA})(A_A) + (Q_{PB})(A_B) + (Q_{PC})(A_C) + (Q_{PD})(A_D)$

ZONE = 3

$P_{6\text{-HR}}$ (in.) = 2.60

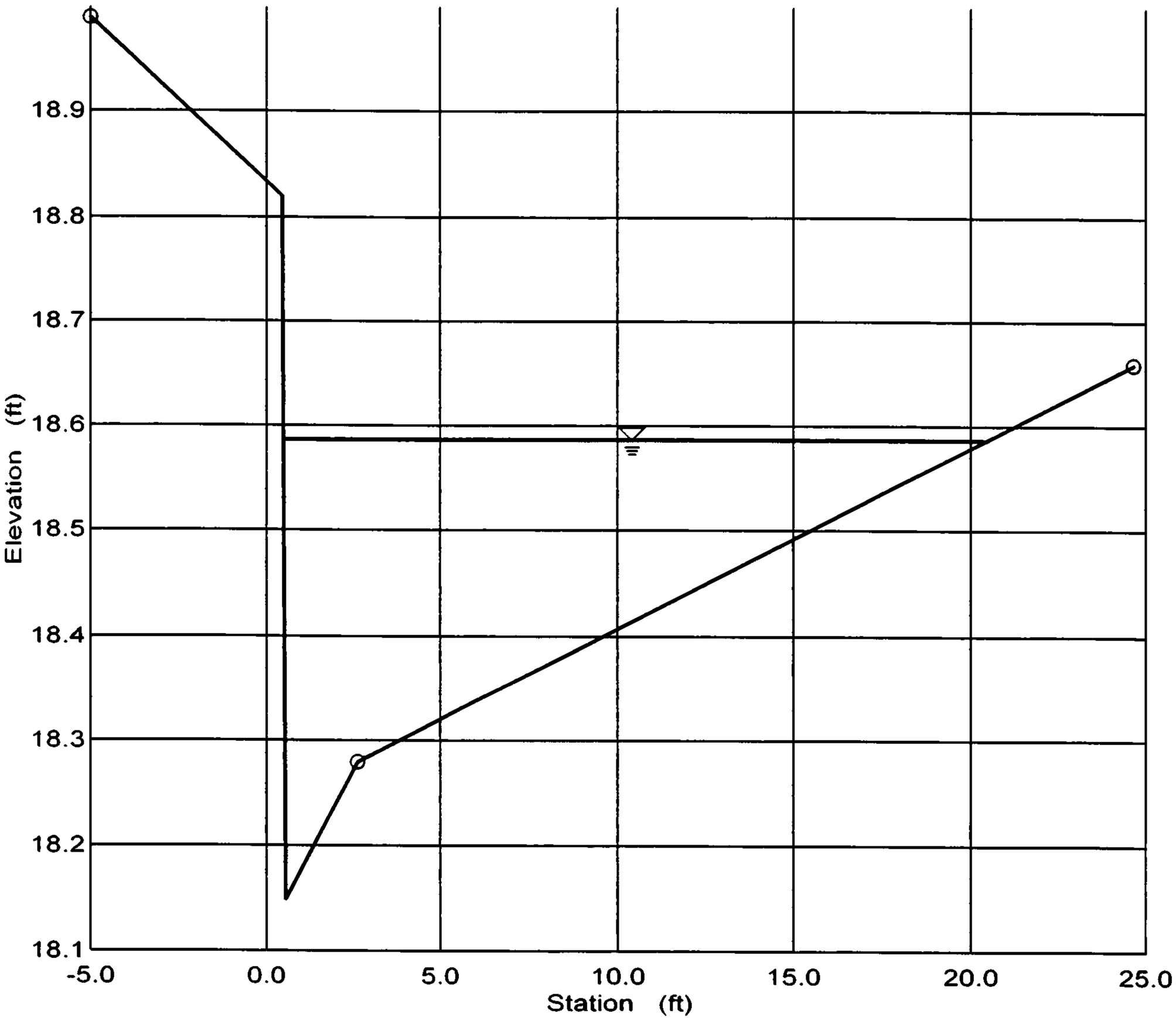
$P_{24\text{-HR}}$ (in.) = 3.10

P_{10DAY} (in.) = 4.90

SAN PEDRO HALF
Cross Section for Irregular Channel

Project Description	
Project File	g:\d06\158\calcs\lovelace.fm2
Worksheet	SAN PEDRO HALF
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

Section Data		
Wtd. Mannings Coefficient	0.015	
Channel Slope	0.029080	ft/ft
Water Surface Elevation	18.59	ft
Discharge	18.53	cfs



SAN PEDRO HALF
Worksheet for Irregular Channel

Project Description	
Project File	g:\d06\158\calcs\lovelace.fm2
Worksheet	SAN PEDRO HALF
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

Input Data		
Channel Slope	0.029080	ft/ft

Elevation range: 18.15 ft to 18 99 ft.

Station (ft)	Elevation (ft)	Start Station	End Station	Roughness
-5.00	18.99	-5.00	2.62	0.013
0.46	18.82	2.62	24.65	0.017
0.60	18.15			
2.62	18.28			
24.65	18.66			

Discharge	18.53	cfs

Results		
Wtd. Mannings Coefficient	0.015	
Water Surface Elevation	18.59	ft
Flow Area	3.49	ft²
Wetted Perimeter	20.24	ft
Top Width	19.88	ft
Height	0.44	ft
Critical Depth	18.71	ft
Critical Slope	0.005733	ft/ft
Velocity	5.30	ft/s
Velocity Head	0.44	ft
Specific Energy	19.02	ft
Froude Number	2.23	

Flow is supercritical.

SAN PEDRO HALF EXISTING
Worksheet for Irregular Channel

Project Description	
Project File	g:\d06\158\calcs\lovelace.fm2
Worksheet	SAN PEDRO HALF EXISTING
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

Input Data		
Channel Slope	0.029080	ft/ft

Elevation range: 18.15 ft to 18.99 ft.

Station (ft)	Elevation (ft)	Start Station	End Station	Roughness
-5.00	18.99	-5.00	2.62	0.013
0.46	18.82	2.62	24.65	0.017
0.60	18.15			
2.62	18.28			
24.65	18.66			

Discharge	14.85	cfs

Results		
Wtd. Mannings Coefficient	0.015	
Water Surface Elevation	18.56	ft
Flow Area	2.92	ft²
Wetted Perimeter	18.46	ft
Top Width	18.13	ft
Height	0.41	ft
Critical Depth	18.68	ft
Critical Slope	0.005802	ft/ft
Velocity	5.08	ft/s
Velocity Head	0.40	ft
Specific Energy	18.96	ft
Froude Number	2.23	

Flow is supercritical.

SAN PEDRO HALF EXISTING
Cross Section for Irregular Channel

Project Description	
Project File	g:\d06\158\calcs\lovelace.fm2
Worksheet	SAN PEDRO HALF EXISTING
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

Section Data		
Wtd. Mannings Coefficient	0.015	
Channel Slope	0.029080	ft/ft
Water Surface Elevation	18.56	ft
Discharge	14.85	cfs