

***DRAINAGE REPORT***

*for*

***MEDICAL OFFICES OF DR. BROUSSARD, PHASE I  
GATEWAY NORTH DEVELOPMENT  
RIO RANCHO, NEW MEXICO***

April 17, 2001



Prepared by  
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## TABLE OF CONTENTS

| <u>Item</u> | <u>Description</u>         | <u>Page<br/>Number</u> |
|-------------|----------------------------|------------------------|
| •           | Location and Description   | 1                      |
| •           | Floodplain Status          | 1                      |
| •           | Methodology                | 1                      |
| •           | Precipitation              | 1                      |
| •           | Existing Drainage          | 4                      |
| •           | Fully Developed Conditions | 4                      |

### TABLES

|   |                                  |   |
|---|----------------------------------|---|
| 1 | 100-Year Hydrologic Calculations | 5 |
|---|----------------------------------|---|

### EXHIBITS

|   |                |        |
|---|----------------|--------|
| 1 | Vicinity Map   | 2      |
| 2 | FIRM Map Panel | 3      |
| 3 | Grading Plan   | Pocket |

### APPENDICES

|   |  |   |
|---|--|---|
| • | Excerpts from Gateway North Master Drainage Plan | A |
|---|--|---|

# ***DRAINAGE REPORT***

*for*

## ***MEDICAL OFFICES OF DR. BROUSSARD, PHASE I GATEWAY NORTH DEVELOPMENT RIO RANCHO, NEW MEXICO***

April 17, 2001

### **LOCATION & DESCRIPTION**

The proposed site is located within the Gateway North Development on the west side of NM 528 and south of Sara Road (see **Exhibit 1**). Gateway North is a master planned office and commercial area developed by AMREP Southwest, Inc. Community Sciences Corporation prepared the master plan and established developed conditions Land Treatments of 'A' = 0%, 'B' = 20%, 'C' = 0%, and 'D' = 80% (see **Basin I. D. 130, Future Developed Conditions, Table 1, Appendix A**). These allowable Land Treatment percentages were established to allow the entire subdivision to drain to a single detention pond located at the south end of the Gateway North Development. This single pond restricts the flow entering the earth channel along NM 528 to meet the City of Rio Rancho Drainage Criteria. Therefore, as long as each individual development within Gateway North meets these land treatment percentages, onsite ponding will not be required for the individual lots.

### **FLOODPLAIN STATUS**

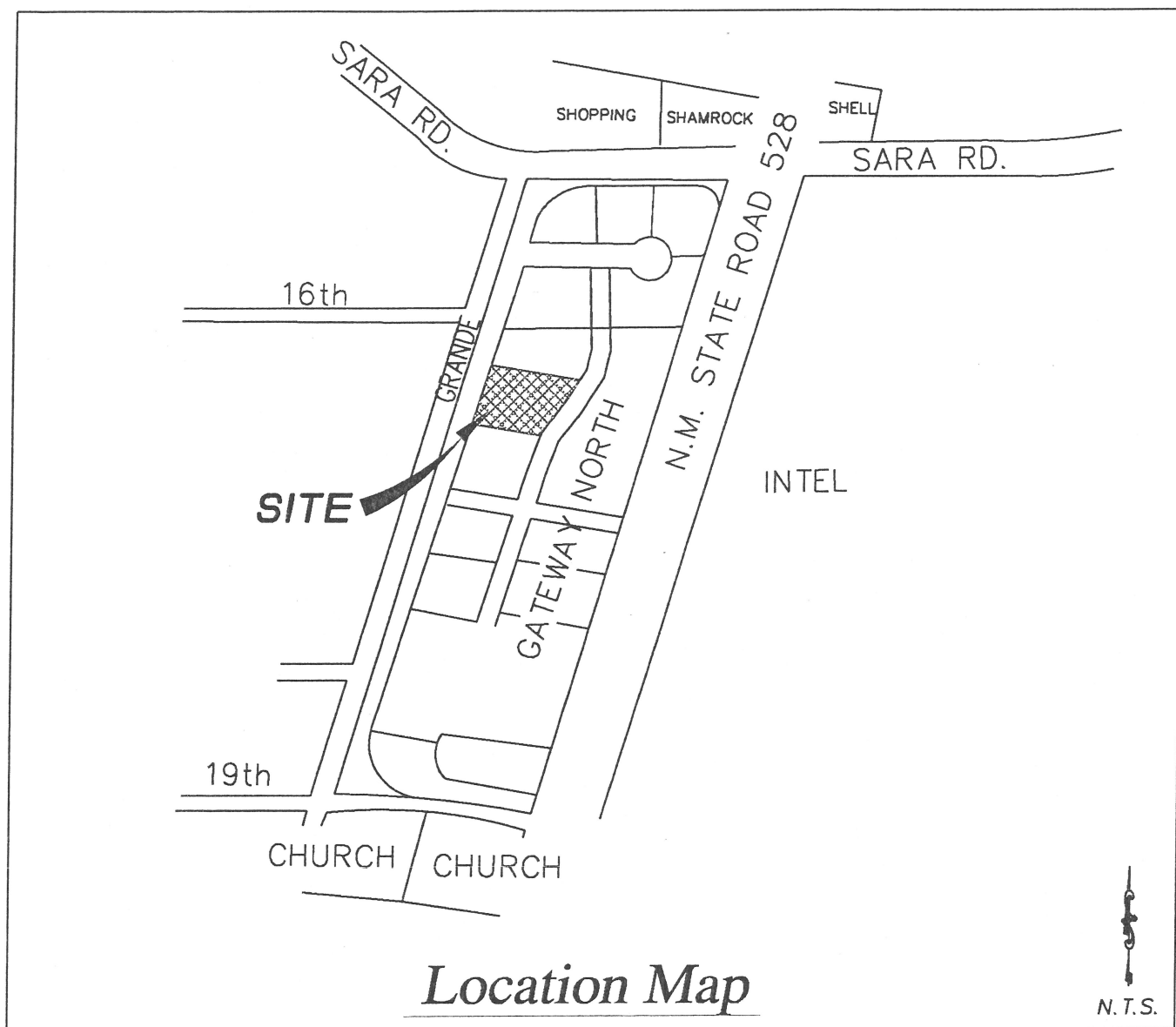
This property, as shown on FIRM Map Panel 35043C0913-C, effective July 16, 1996, is not within any designated floodplain. **Exhibit 2** shows this FIRM Map with the site location designated on it.

### **METHODOLOGY**

The hydrology for this project was analyzed using the Quick Calculation Method as documented in the June 1997 release of the City of Albuquerque Development Process Manual, Section 22.2.

### **PRECIPITATION**

The 100-yr, 6-hr duration storm was used as the design storm for this analysis. This site is within Zone 1 as identified in the City of Albuquerque Development Process Manual, Section 22.2. Tables within this section were used to establish the 6-hour precipitation, 10-day precipitation, excess precipitation, and peak discharge.



**EXHIBIT 1**





es in the zones where elevations or depths have been estab  
 rmine if flood insurance is available, contact an insurance  
 or call the National Flood Insurance Program at (800)  
 20.



APPROXIMATE SCALE IN FEET

500 0 500

## NATIONAL FLOOD INSURANCE PROGRAM

# FIRM FLOOD INSURANCE RATE MAP

SANDOVAL COUNTY,  
NEW MEXICO AND  
INCORPORATED AREAS

SAN  
UNINCO

(SEE MAP INDEX FOR PANELS NOT PRINTED)

### CONTAINS:

| COMMUNITY            | NUMBER | PANEL | SUFFIX |
|----------------------|--------|-------|--------|
| CORRALES, VILLAGE OF | 350094 | 0913  | C      |
| RIO RANCHO, CITY OF  | 350146 | 0913  | C      |
| UNINCORPORATED AREAS | 350055 | 0913  | C      |

**MAP NUMBER**  
35043C0913 C

**EFFECTIVE DATE:**  
JULY 16, 1996

**EXHIBIT 2**



Federal Emergency Management Agency

## EXISTING DRAINAGE

The existing site has been mass graded as described above in "Location and Description". The site lies within Basin 130 of the master drainage plan prepared by Community Sciences Corporation (**Appendix A**). Offsite basins to the north and west are intercepted by Grande Boulevard and conveyed around this site, according to this master plan. Therefore, no additional offsite analysis was performed with this report. The master plan does not define how much of the lot should drain to Grande Boulevard and how much of it drains to the internal street (Drive B on the **Grading Plan**). However, current topography of the site shows it was graded with approximately two-thirds (2/3) the site draining to Grande Boulevard and the remaining third (1/3) draining to Drive 'B'. This same grading concept will be maintained with the proposed development.

## FULLY DEVELOPED CONDITION

This site will be developed in two phases. The east half of the site will be developed at this time with an office building, sidewalks, and paved parking areas totaling 16,970 square feet of impervious surface. The rest of the site will be divided between irrigated landscape or undeveloped but disturbed ground (Type 'B' Land Factor) and southwestern (gravel) landscape (Type 'C' Land Factor). The **Grading Plan** also shows an additional 11,270 square feet of impervious area to be constructed with Phase II. The table titled 100-YEAR HYDROLOGIC CALCULATIONS (on **page 5**) demonstrates how this site, divided between the "West Basin" and "East Basin" (shown on the **Grading Plan**), meets the allowable conditions for both the proposed and future drainage conditions. Therefore, free discharge from the site is acceptable since the proposed development meets the criteria established by the master drainage plan for Gateway North. The grading used for this development do not alter the current drainage patterns.

## 100-YEAR HYDROLOGIC CALCULATIONS

| BASIN #   | AREA (acre) | LAND TREATMENT |       |       |       | 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) |
|---|-------------|----------------|-------|-------|-------|-----------------|--------------------|------------------|---------------------|-------------------|---------|
|   |             | A (%)          | B (%) | C (%) | D (%) |                 |                    |                  |                     |                   |         |
| ALLOWABLE CONDITIONS PER GATEWAY NORTH MASTER DRAINAGE PLAN |             |                |       |       |       |                 |                    |                  |                     |                   |         |
| EAST  | 0.4188      | 0.00           | 20.00 | 0.00  | 80.00 | 1.71            | 0.06               | 2,600            | 0.10                | 4,387             | 1.63    |
| WEST  | 0.5815      | 0.00           | 20.00 | 0.00  | 80.00 | 1.71            | 0.08               | 3,609            | 0.14                | 6,092             | 2.27    |
| TOTAL   | 1.0003      |                |       |       |       |                 | 0.14               | 6,209            | 0.24                | 10,479            | 3.90    |
| PROPOSED CONDITIONS   |             |                |       |       |       |                 |                    |                  |                     |                   |         |
| EAST  | 0.4188      | 0.00           | 16.40 | 16.40 | 67.20 | 1.60            | 0.06               | 2,426            | 0.09                | 3,928             | 1.57    |
| WEST  | 0.5815      | 0.00           | 40.70 | 40.70 | 18.60 | 1.04            | 0.05               | 2,199            | 0.06                | 2,777             | 1.63    |
| TOTAL   | 1.0003      |                |       |       |       |                 | 0.11               | 4,626            | 0.15                | 6,705             | 3.20    |
| FUTURE CONDITIONS   |             |                |       |       |       |                 |                    |                  |                     |                   |         |
| EAST  | 0.4188      | 0.00           | 16.40 | 16.40 | 67.20 | 1.60            | 0.06               | 2,426            | 0.09                | 3,928             | 1.57    |
| WEST  | 0.5815      | 0.00           | 18.40 | 18.50 | 63.10 | 1.55            | 0.08               | 3,271            | 0.12                | 5,228             | 2.13    |
| TOTAL   | 1.0003      |                |       |       |       |                 | 0.13               | 5,697            | 0.21                | 9,157             | 3.70    |
| EXCESS PRECIP. 0.44 0.67 0.99 1.97 E <sub>i</sub> (in)      |             |                |       |       |       |                 |                    |                  |                     |                   |         |
| PEAK DISCHARGE 1.29 2.03 2.87 4.37 Q <sub>PI</sub> (cfs)    |             |                |       |       |       |                 |                    |                  |                     |                   |         |

WEIGHTED E (in) = (E<sub>A</sub>)(%A) + (E<sub>B</sub>)(%B) + (E<sub>C</sub>)(%C) + (E<sub>D</sub>)(%D)

V<sub>6-HR</sub> (acre-ft) = (WEIGHTED E)(AREA)/12

V<sub>10DAY</sub> (acre-ft) = V<sub>6-HR</sub> + (A<sub>D</sub>)(P<sub>10DAY</sub> - P<sub>6-HR</sub>)/12

Q (cfs) = (Q<sub>PA</sub>)(A<sub>A</sub>) + (Q<sub>PB</sub>)(A<sub>B</sub>) + (Q<sub>PC</sub>)(A<sub>C</sub>) + (Q<sub>PD</sub>)(A<sub>D</sub>)

ZONE = 1

P<sub>6-HR</sub> (in.) = 2.20

P<sub>24-HR</sub> (in.) = 2.66

P<sub>10DAY</sub> (in.) = 3.67

***APPENDIX A***  
***EXCERPTS FROM GATEWAY NORTH MASTER DRAINAGE PLAN***

# DRAINAGE REPORT

FOR  
GATEWAY NORTH and GATEWAY SOUTH

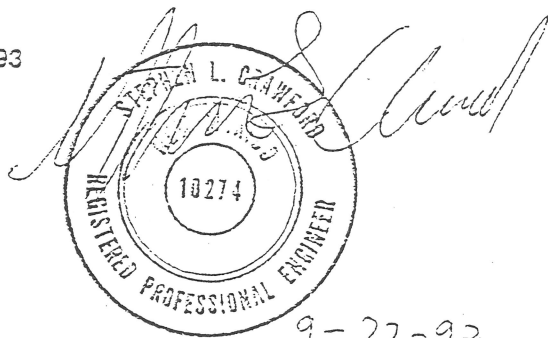
PREPARED FOR

AMREP

PREPARED BY

COMMUNITY SCIENCES CORPORATION  
P. O. BOX 1328  
CORRALES, NEW MEXICO 87043

September 1993



Stephen L. Crawford P. E.

SURVEYING  
LAND PLANNING  
CIVIL ENGINEERING  
DEVELOPMENT CONSULTANTS

## I. PURPOSE AND SCOPE

AMREP Southwest Inc. is currently planning for the development of Gateway North and Gateway South Subdivisions. The proposed development consists of approximately 28 and 17 acres respectively. The subdivisions will be for office and commercial use.

This report presents an overall Drainage Management and Conceptual Grading Plan for approval by the City of Rio Rancho in order that subsequent subdivision and development may commence.

## II. SITE DESCRIPTION AND HISTORY

The Gateway North and South Subdivisions, as shown by Figure 1, Vicinity Map, are located in Rio Rancho adjacent to and west of Highway 528, east of Grande Boulevard and between Sara Road and the Sandoval County line. The two subdivisions are separated by Haynes Park and two churches on the south side of 19th Avenue.

The legal description of the subdivisions is Revised Tract A and Revised Tract C, Unit 16, Rio Rancho Estates.

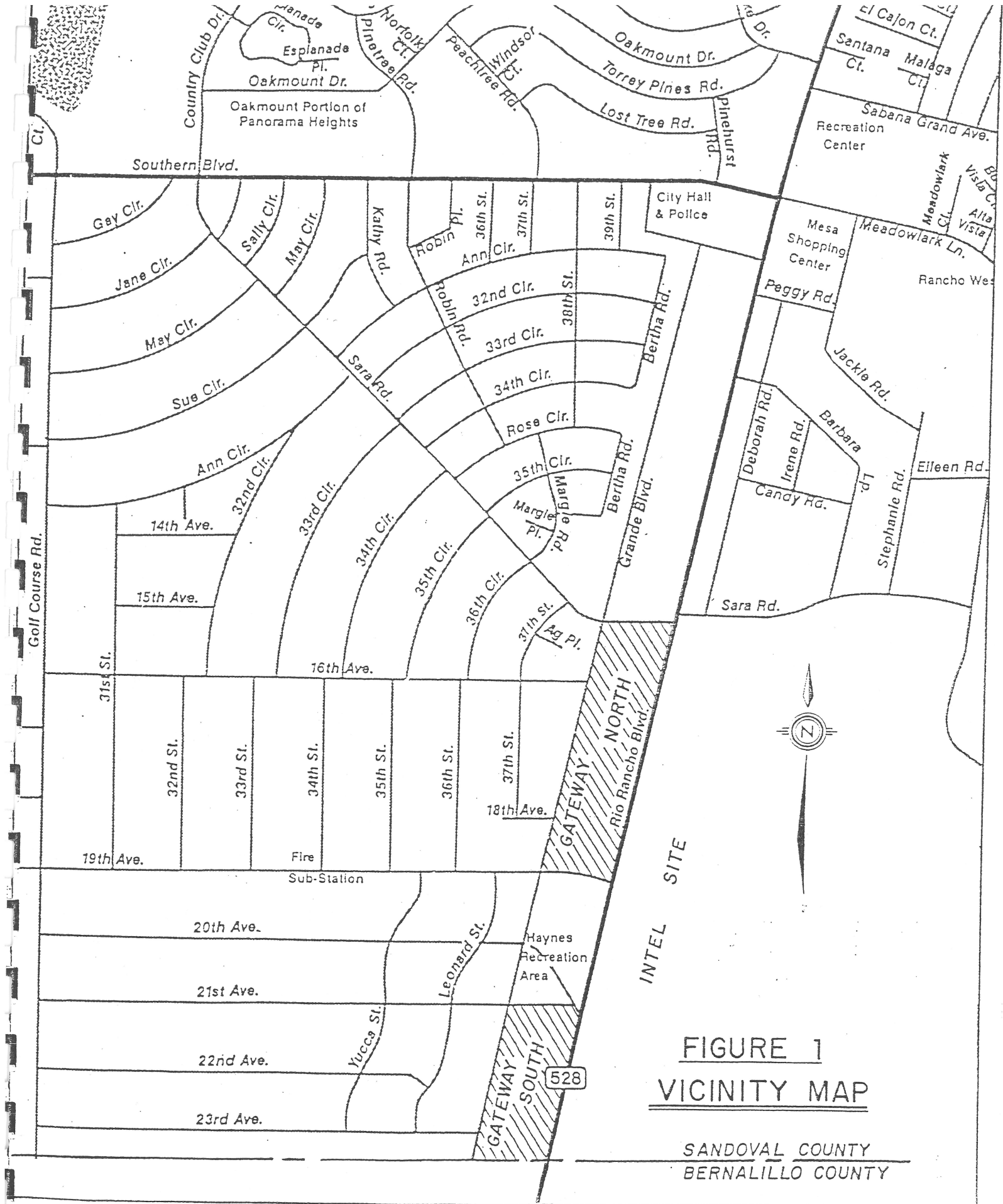
Both tracts are undeveloped. However, the tracts were previously graded and the native vegetation has been removed. The native vegetation has been replaced by weeds and some grass. The sites are used for recreational purposes. Both tracts drain from northwest to southeast. A substantial existing earth channel is located along the east boundary of both tracts. The channel conveys flow south to the Black's Arroyo.

Offsite flows do not enter Gateway North. Offsite flows are intercepted by the adjacent streets and conveyed around the site to the earth channel at the southeast corner of the subdivision.

Offsite flows enter Gateway South from the north and at the midpoint of the western boundary from Grande Boulevard and a storm sewer that services a portion of Leonard Street. The offsite flows combine with onsite runoff and migrate to the southeast corner of the subdivision where the water enters the earth channel. The watersheds affecting the subdivisions are shown by Figure 2, Watershed Map.

Planning for the subdivisions is ongoing. Meetings have been conducted with the homeowners, adjacent land owners and other interested parties. The conceptual site plan for each subdivision is shown by Figures 3 and 4. Grande Boulevard will be redesigned to provide a minor residential street for the residential property along the west side and a larger collector type street for the proposed subdivisions. The two streets will be separated by a landscaped buffer. 19th and 21st Avenues will be improved to a collector type street. Access to the subdivisions will be from Highway 528 and the collector streets bordering the subdivisions. Internal circulation will be established as the subdivisions develop.

At the present time there are several areas that are problem areas during storms. The intersections at 19th Avenue and Grande Boulevard and 19th Avenue and Highway 528 frequently flood. 19th Avenue west of Highway 528 is below the top of the earth channel and water trying to enter the channel floods the street and the intersection at Grande Boulevard. The grades in this area must be modified to better accommodate the flows. Water from Grande Boulevard just south of 19th Avenue is supposed to flow east



#### IV. COMPUTATIONAL PROCEDURES

The analysis approach follows standard engineering practice. Key points of confluence were selected and the associated individual and aggregate contributing basins were subsequently defined.

Hydrological computations were accomplished by means of the March 1992 version of AHYMO Computer Program as developed by AMAFCA. The input parameters and resulting flows for the basins are summarized on Table 1. Summary and detailed AHYMO printouts are contained in Appendix A.

Times of concentration were estimated using the Upland Method and then converted to times to peak ( $L_g$ ), in accordance with the above referenced Section 22.2 which also establishes the minimum time of concentration as 12 minutes.

Flow characteristics for conveyance swales, channels, and streets were analyzed based on the Manning equation for uniform flow. Streets are assumed to have a 2% cross slope from lip of gutter to crown and a curb and gutter per City of Albuquerque Standard details. Finished grade at the right-of-way is 0.33' above top of curb.

#### V. OFF-SITE DRAINAGE

The watersheds affecting the subdivisions are shown by Figure 2. Gateway North is affected by Basins 101, 102, 103 and 104. The basins combine and enter Grande Boulevard at 18th Avenue. The offsite basins are essentially fully developed and flows will not increase significantly in the future. The 10 year and 100 year peak runoff rates are 103 cfs and 261 cfs respectively. The runoff flows south in Grande Boulevard to 19th Avenue and combines with runoff from Basin 105. The runoff is conveyed to the east in 19th Avenue to the earth channel where it combines with the runoff from Basin 130. Basin 130 is the Gateway North Subdivision. The rate of runoff at the channel is 166.61 cfs and 394.00 cfs for the 10 year and 100 year events. Frequently 19th Avenue and the intersection at Grande Boulevard flood as a result of high water levels in the earth channel. When the water depth exceeds approximately one foot in the intersection of 19th and Grande, the runoff will flow south in Grande Boulevard and through Haynes Park to the earth channel. Haynes Park contributes 19 cfs and 40 cfs during the 10 and 100-year events.

Gateway South is affected by Basins 120 and 121. Basin 121 is a closed basin along Leonard Street. Runoff collects at a low point and is conveyed by a drainage pipe to a manhole located just east of Grande Boulevard at approximately the midpoint of the subdivision. It appears that the storm drain was to continue east, but the east reach was not constructed. Therefore, the manhole surcharges and overflows. After the runoff has ended, water remains in the manhole and storm drain creating a nuisance. Basin 120 collects in Grande Boulevard and discharges into the subdivision, Basin 132, in the vicinity of the manhole. The flows combine and exit the subdivision into the earth channel at the southeast corner of the site. The 10-year and 100-year flows are 54.56 cfs and 112.40 cfs respectively.



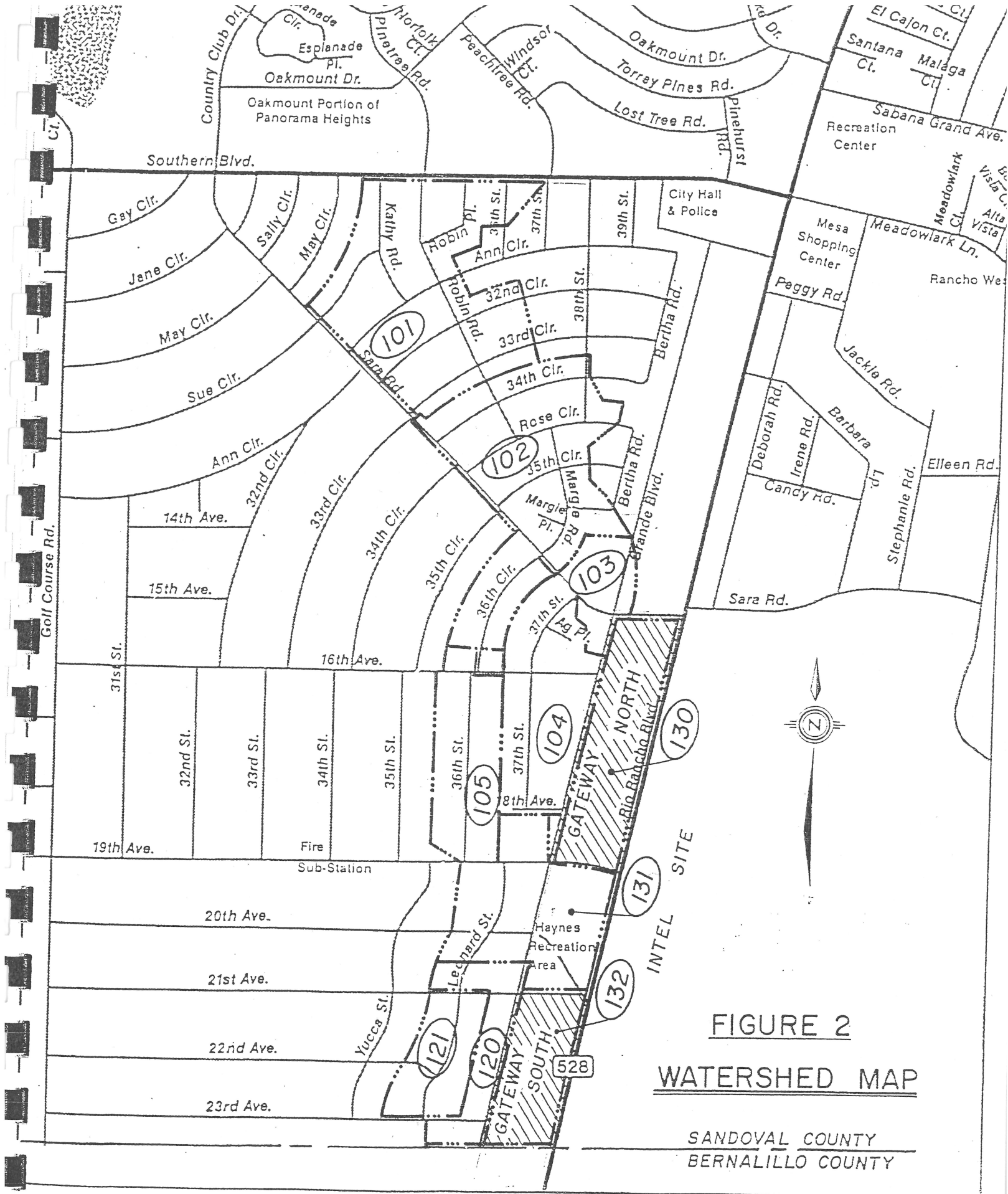
TABLE I

## EXISTING DEVELOPMENT CONDITIONS

| Basin I.D. | Area (Sq.Mi.) | Contr. Basin | Sum Area (Sq.Mi.) | T <sub>c</sub> (Min.) | LAND TREATMENT |    |     |    | INCREMENTAL            |                       | EXISTING TOTAL         |                       |
|------------|---------------|--------------|-------------------|-----------------------|----------------|----|-----|----|------------------------|-----------------------|------------------------|-----------------------|
|            |               |              |                   |                       | A              | B  | C   | D  | Q <sub>100</sub> (cfs) | Q <sub>10</sub> (cfs) | Q <sub>100</sub> (cfs) | Q <sub>10</sub> (cfs) |
| 101        | 0.0915        | -----        | 0.0915            | 15.35                 | 50             | 10 | 18  | 22 | 113.79                 | 50.92                 | 113.79                 | 50.92                 |
| 102        | 0.0700        | 101          | 0.1615            | 15.35                 | 50             | 10 | 18  | 22 | 86.69                  | 39.13                 | 172.18                 | 69.86                 |
| 103        | 0.0421        | 102          | 0.2036            | 12.00                 | 40             | 10 | 18  | 32 | 69.50                  | 34.83                 | 229.35                 | 98.18                 |
| 104        | 0.0547        | 103          | 0.2583            | 16.83                 | 50             | 10 | 16  | 24 | 65.22                  | 30.17                 | 260.52                 | 103.36                |
| 105        | 0.0646        | 104          | 0.3229            | 15.17                 | 50             | 10 | 16  | 24 | 81.88                  | 37.82                 | 333.22                 | 134.90                |
| 130        | 0.0438        | 105          | 0.3667            | 12.00                 | 0              | 0  | 100 | 0  | 80.50                  | 41.99                 | 394.00                 | 166.61                |
| 131        | 0.0251        | -----        | 0.0251            | 12.00                 | 0              | 70 | 15  | 15 | 40.01                  | 18.67                 | 40.01                  | 18.67                 |
| 121        | 0.0224        | -----        | 0.0224            | 12.00                 | 50             | 10 | 16  | 24 | 33.01                  | 15.12                 | 33.01                  | 15.12                 |
| 120        | 0.0192        | 121          | 0.0416            | 12.00                 | 50             | 10 | 16  | 24 | 28.30                  | 12.96                 | 61.30                  | 28.07                 |
| 132        | 0.0278        | 120          | 0.0694            | 12.00                 | 0              | 0  | 100 | 0  | 51.10                  | 26.65                 | 112.40                 | 54.56                 |

## FUTURE DEVELOPMENT CONDITIONS

| Basin I.D. | Area (Sq.Mi.) | Contr. Basin | Sum Area (Sq.Mi.) | T <sub>c</sub> (Min.) | LAND TREATMENT |    |    |    | INCREMENTAL            |                       | FUTURE TOTAL           |                       |
|------------|---------------|--------------|-------------------|-----------------------|----------------|----|----|----|------------------------|-----------------------|------------------------|-----------------------|
|            |               |              |                   |                       | A              | B  | C  | D  | Q <sub>100</sub> (cfs) | Q <sub>10</sub> (cfs) | Q <sub>100</sub> (cfs) | Q <sub>10</sub> (cfs) |
| 101        | 0.0915        | -----        | 0.0915            | 15.35                 | 50             | 10 | 18 | 22 | 113.79                 | 50.92                 | 113.79                 | 50.92                 |
| 102        | 0.0700        | 101          | 0.1615            | 15.35                 | 50             | 10 | 18 | 22 | 86.69                  | 39.13                 | 172.18                 | 69.86                 |
| 103        | 0.0421        | 102          | 0.2036            | 12.00                 | 40             | 10 | 18 | 32 | 69.50                  | 34.83                 | 229.35                 | 98.18                 |
| 104        | 0.0547        | 103          | 0.2583            | 16.83                 | 50             | 10 | 16 | 24 | 65.22                  | 30.17                 | 260.52                 | 103.36                |
| 130        | 0.0438        | 105          | 0.3667            | 12.00                 | 0              | 20 | 0  | 80 | 109.32                 | 69.03                 | 270.79                 | 64.73                 |
| 105        | 0.0646        | 104          | 0.3229            | 15.17                 | 50             | 10 | 16 | 24 | 81.88                  | 37.82                 | 81.88                  | 37.82                 |
| 131        | 0.0251        | -----        | 0.0251            | 12.00                 | 0              | 70 | 15 | 15 | 40.01                  | 18.67                 | 40.01                  | 18.67                 |
| 121        | 0.0224        | -----        | 0.0224            | 12.00                 | 50             | 10 | 16 | 24 | 33.01                  | 15.12                 | 33.01                  | 15.12                 |
| 120        | 0.0192        | 121          | 0.0416            | 12.00                 | 50             | 10 | 16 | 24 | 28.30                  | 12.96                 | 61.30                  | 28.07                 |
| 132        | 0.0278        | 120          | 0.0694            | 12.00                 | 0              | 20 | 0  | 80 | 69.39                  | 43.82                 | 66.22                  | 47.46                 |



## 100 YEAR POST-DEVELOPMENT SUMMARY

\2HYMO\GRN100PO.SUM

Monday September 20, 1993 11:15:14 am

Page: 1

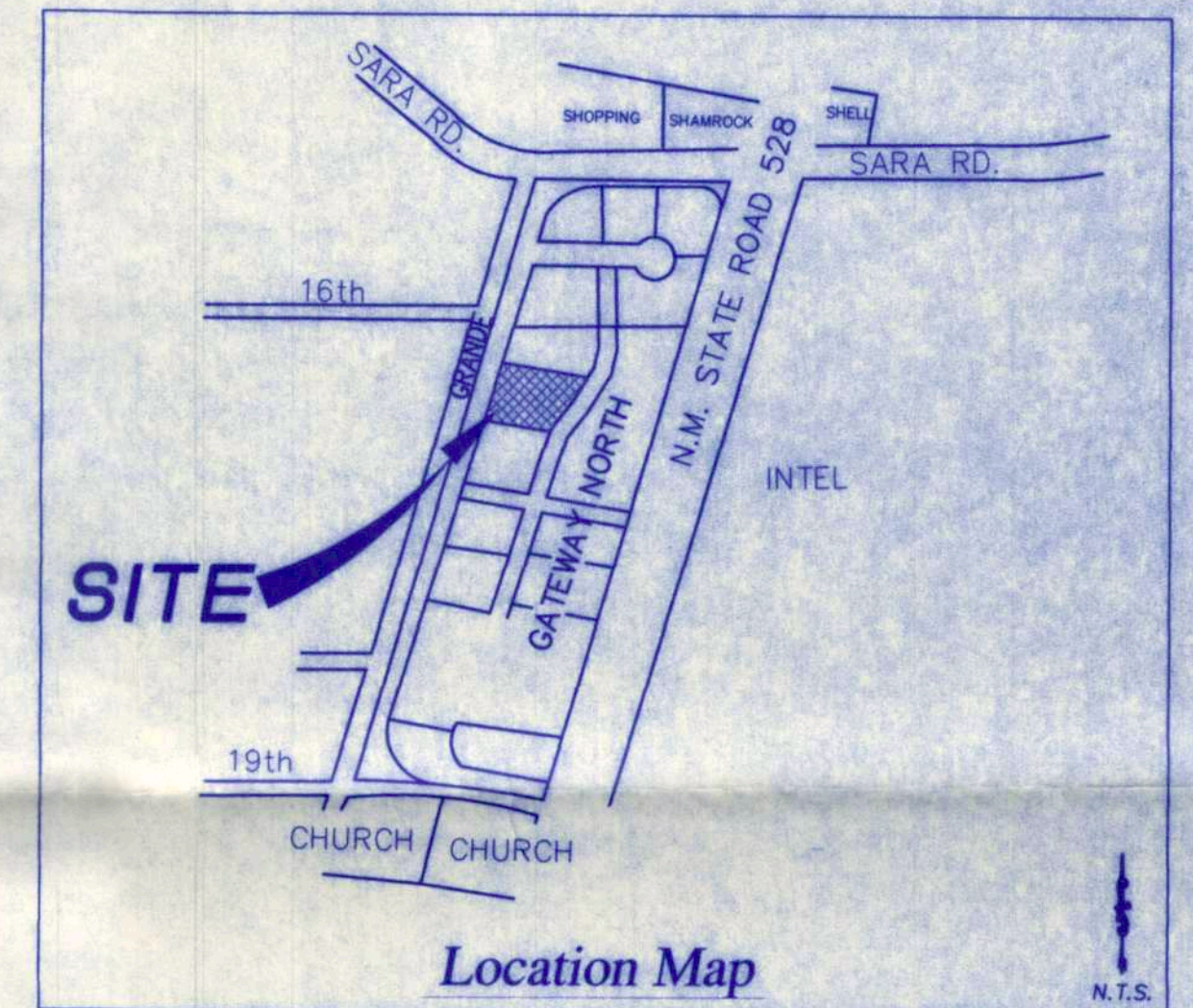
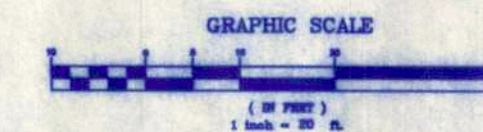
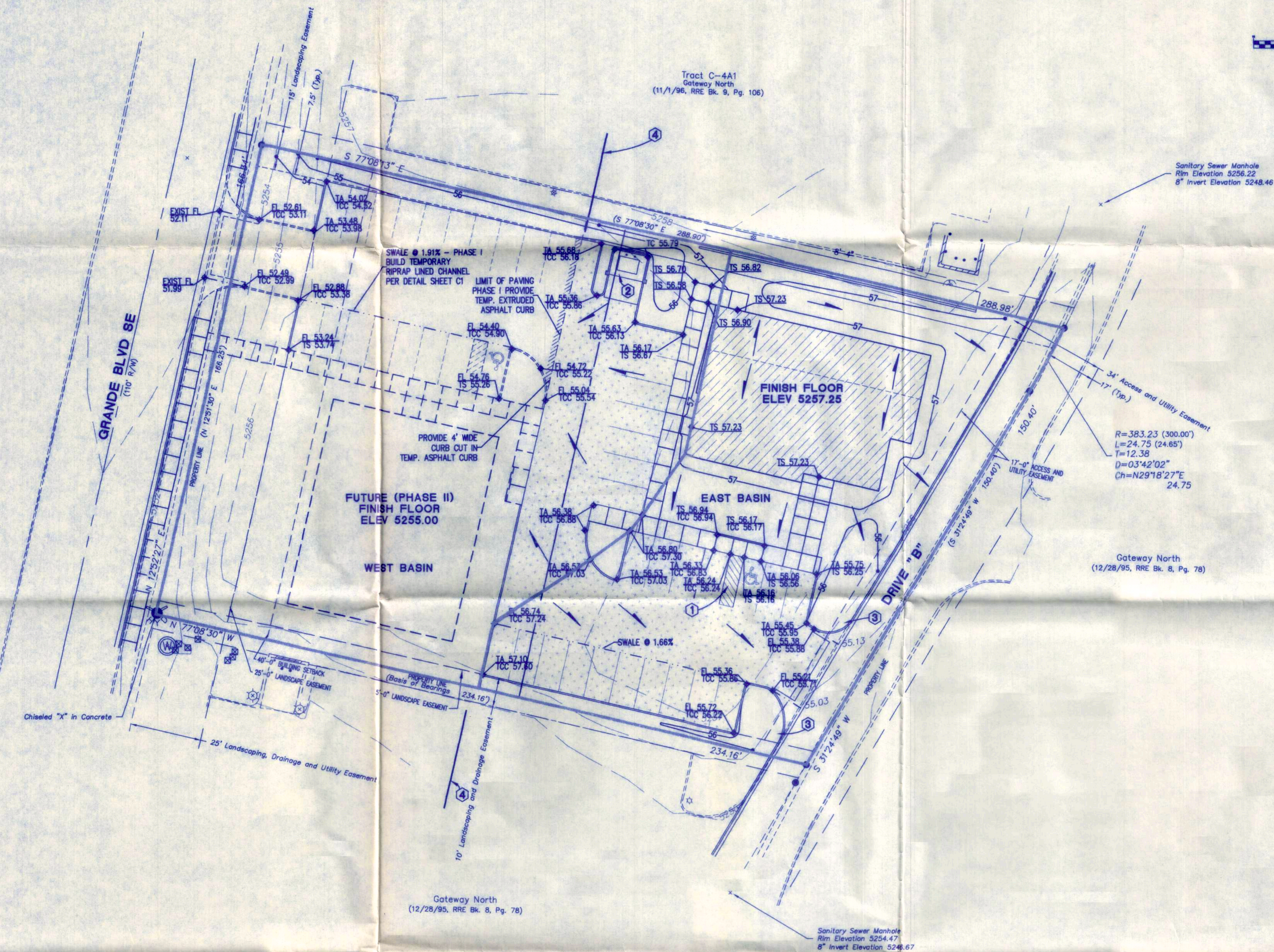
HYMO SUMMARY TABLE (HYMO0192) - AMFCA VERSION OF HYMO - MARCH, 1992  
INPUT FILE = GWN100PO.DAT

RUN DATE (MON/DAY/YR) =09/20/1993

USER NO.= J HUGHES.S92

| COMMAND         | HYDROGRAPH IDENTIFICATION                             | FROM NO. | TO NO. | AREA (SQ MI) | PEAK DISCHARGE (CFS) | RUNOFF VOLUME (AC-FT) | TIME TO PEAK (HOURS) | CFS PER ACRE | PAGE = 1             |
|-----------------|---|----------|--------|--------------|----------------------|-----------------------|----------------------|--------------|----------------------|
|                 |   |          |        |              |                      |                       |                      |              | NOTATION             |
| START           |   |          |        |              |                      |                       |                      |              | TIME= .00            |
| *S              | EXISTING 100 YR.CONDITIONS FOR GATEWAY NORTH.         |          |        |              |                      |                       |                      |              |                      |
| *S              | SEPTEMBER 20, 1993                                    |          |        |              |                      |                       |                      |              |                      |
| RAINFALL        | TYPE= 1   |          |        |              |                      |                       |                      |              | RAIN6= 2.200         |
| *S              | BASIN DESIGNATION = BASIN 101                         |          |        |              |                      |                       |                      |              |                      |
| COMPUTE NM HYD  | 101.00  | -        | 1      | .09150       | 113.79               | 4.262                 | .87342               | 1.565        | 1.943 PER IMP= 22.00 |
| *S              | ROUTE BASIN 101 thru 102                              |          |        |              |                      |                       |                      |              |                      |
| ROUTE           | 101.00  | 1        | 6      | .09150       | 93.15                | 4.262                 | .87342               | 1.632        | 1.591                |
| *S              | BASIN DESIGNATION = BASIN 102                         |          |        |              |                      |                       |                      |              |                      |
| COMPUTE NM HYD  | 102.00  | -        | 2      | .07000       | 86.69                | 3.261                 | .87342               | 1.565        | 1.935 PER IMP= 22.00 |
| ADD HYD         | 102.00  | 6& 2     | 6      | .16150       | 172.18               | 7.523                 | .87341               | 1.598        | 1.666                |
| *S              | BASIN DESIGNATION = BASIN 103                         |          |        |              |                      |                       |                      |              |                      |
| COMPUTE NM HYD  | 103.00  | -        | 3      | .04210       | 69.50                | 2.306                 | 1.02694              | 1.499        | 2.580 PER IMP= 32.00 |
| ADD HYD         | 103.00  | 6& 3     | 5      | .20360       | 229.35               | 9.829                 | .90515               | 1.565        | 1.760                |
| *S              | ROUTE BASINS 101, 102 & 103 THROUGH 104               |          |        |              |                      |                       |                      |              |                      |
| ROUTE           | 103.00  | 5        | 6      | .20360       | 202.04               | 9.829                 | .90516               | 1.632        | 1.551                |
| *S              | BASIN DESIGNATION = 104                               |          |        |              |                      |                       |                      |              |                      |
| COMPUTE NM HYD  | 104.00  | -        | 4      | .05470       | 65.22                | 2.611                 | .89503               | 1.565        | 1.863 PER IMP= 24.00 |
| *S              | COMBINE HYDROGRAPHS 101, 102, 103 & 104               |          |        |              |                      |                       |                      |              |                      |
| ADD HYD         | 104.00  | 6& 4     | 4      | .25830       | 260.52               | 12.440                | .90300               | 1.632        | 1.576                |
| *S              | BASIN DESIGNATION = 130                               |          |        |              |                      |                       |                      |              |                      |
| COMPUTE NM HYD  | 130.00  | -        | 1      | .04380       | 109.32               | 3.985                 | 1.70584              | 1.499        | 3.900 PER IMP= 80.00 |
| ADD HYD         | 130.00  | 4& 1     | 3      | .30210       | 333.73               | 16.425                | 1.01940              | 1.598        | 1.726                |
| ROUTE RESERVOIR | 130.00  | 3        | 2      | .30210       | 270.79               | 16.425                | 1.01940              | 1.732        | 1.401 AC-FT= 1.700   |
| *S              | BASIN DESIGNATION = 105                               |          |        |              |                      |                       |                      |              |                      |
| COMPUTE NM HYD  | 105.00  | -        | 5      | .06460       | 81.88                | 3.084                 | .89502               | 1.532        | 1.981 PER IMP= 24.00 |
| *S              | COMBINE HYDROGRAPHS 105 & 130. TOTAL FLOW AT 19TH/528 |          |        |              |                      |                       |                      |              |                      |
| ADD HYD         | 130.00  | 5& 2     | 6      | .36670       | 325.08               | 19.508                | .99749               | 1.665        | 1.385                |
| *S              | BASIN DESIGNATION = 131                               |          |        |              |                      |                       |                      |              |                      |
| COMPUTE NM HYD  | 131.00  | -        | 1      | .02510       | 40.01                | 1.210                 | .90390               | 1.499        | 2.491 PER IMP= 15.00 |
| *S              | BASIN DESIGNATION = 121                               |          |        |              |                      |                       |                      |              |                      |
| COMPUTE NM HYD  | 121.00  | -        | 2      | .02240       | 33.01                | 1.069                 | .89503               | 1.499        | 2.303 PER IMP= 24.00 |
| *S              | BASIN DESIGNATION = 120                               |          |        |              |                      |                       |                      |              |                      |
| COMPUTE NM HYD  | 120.00  | -        | 3      | .01920       | 28.30                | .917                  | .89503               | 1.499        | 2.303 PER IMP= 24.00 |
| *S              | COMBINE HYDROGRAPHS 120 & 121                         |          |        |              |                      |                       |                      |              |                      |
| ADD HYD         | 120.00  | 2& 3     | 1      | .04160       | 61.30                | 1.986                 | .89501               | 1.499        | 2.303                |
| *S              | BASIN DESIGNATION = 132                               |          |        |              |                      |                       |                      |              |                      |
| COMPUTE NM HYD  | 132.00  | -        | 4      | .02780       | 69.39                | 2.529                 | 1.70584              | 1.499        | 3.900 PER IMP= 80.00 |
| *S              | COMBINE HYDROGRAPHS 120, 121 & 132.                   |          |        |              |                      |                       |                      |              |                      |
| ADD HYD         | 132.00  | 1& 4     | 2      | .06940       | 130.70               | 4.515                 | 1.21981              | 1.499        | 2.943                |
| ROUTE RESERVOIR | 132.00  | 2        | 5      | .06940       | 66.22                | 4.515                 | 1.21981              | 1.665        |                      |





#### Legal Description

TRACT C-15A2, OF GATEWAY NORTH, A SUBDIVISION IN RIO RANCHO, SANDOVAL COUNTY, NEW MEXICO, AS THE SAME IS SHOWN AND DESIGNATED ON THE PLAT ENTITLED "SUMMARY PLAT OF GATEWAY NORTH, TRACTS C-4A1 AND C-15A2, A REPLAT OF TRACTS C-4A AND C-15A1, WITHIN PROJECTED SECTION 31, T12N, R3E, N.M.P.M., CITY OF RIO RANCHO, TOWN OF ALAMEDA GRANT, SANDOVAL COUNTY, NEW MEXICO", FILED IN THE OFFICE OF THE COUNTY CLERK OF SANDOVAL COUNTY, NEW MEXICO, ON NOVEMBER 1, 1996 IN RIO RANCHO ESTATES PLAT BOOK 9, PAGE 108 (VOLUME 3, FOLIO 1545-B).

#### Benchmark

SUNRIVER MEDICAL CENTER FINISHED FLOOR=5255.25

#### Notes

1. FIELD SURVEY PERFORMED IN FEBRUARY 2001.
2. ALL DISTANCES ARE GROUND DISTANCES: U.S. SURVEY FOOT.
3. PROPERTY LOCATED IN PROJECTED SECTION 31, TOWNSHIP 12 NORTH, RANGE 3 EAST.
4. THE BASIS OF BEARING REFERENCES THE PLAT ENTITLED "SUMMARY PLAT, TRACTS C-4A1 AND C-15A2, GATEWAY NORTH", FILED IN THE OFFICE OF THE COUNTY CLERK OF SANDOVAL COUNTY, NEW MEXICO, ON NOVEMBER 1, 1996 IN RIO RANCHO PLAT BOOK 9, PAGE 108.

#### KEYED NOTES

1. BUILD WHEEL CHAIR RAMP PER DETAIL 1/C1.
2. DUMPSTER ENCLOSURE SEE ARCHITECTURAL DETAILS.
3. BUILD UNIDIRECTIONAL WHEELCHAIR RAMP PER CITY STANDARDS.
4. LIMIT OF PHASE I CONSTRUCTION.

## GRADING PLAN

MEDICAL OFFICES OF DR. BROUSSARD  
PHASE I  
GATEWAY NORTH DEVELOPMENT  
RIO RANCHO, NEW MEXICO



LARRY READ & ASSOCIATES  
Civil Engineers  
Box 194 8100-M4 Wyoming Blvd. NE  
Albuquerque, New Mexico 87113  
(505) 237-8421

FILE NAME: BROUS\_GD.DWG 03/26/01 SHEET C2