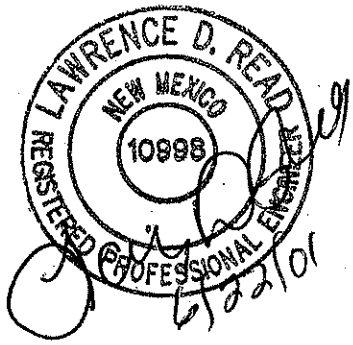
DRAINAGE REPORT

for

BERNALILLO COUNTY FIRE AND RESCUE DEPARTMENT STATION # 8

BERNALILLO COUNTY, NEW MEXICO

June 21, 2001



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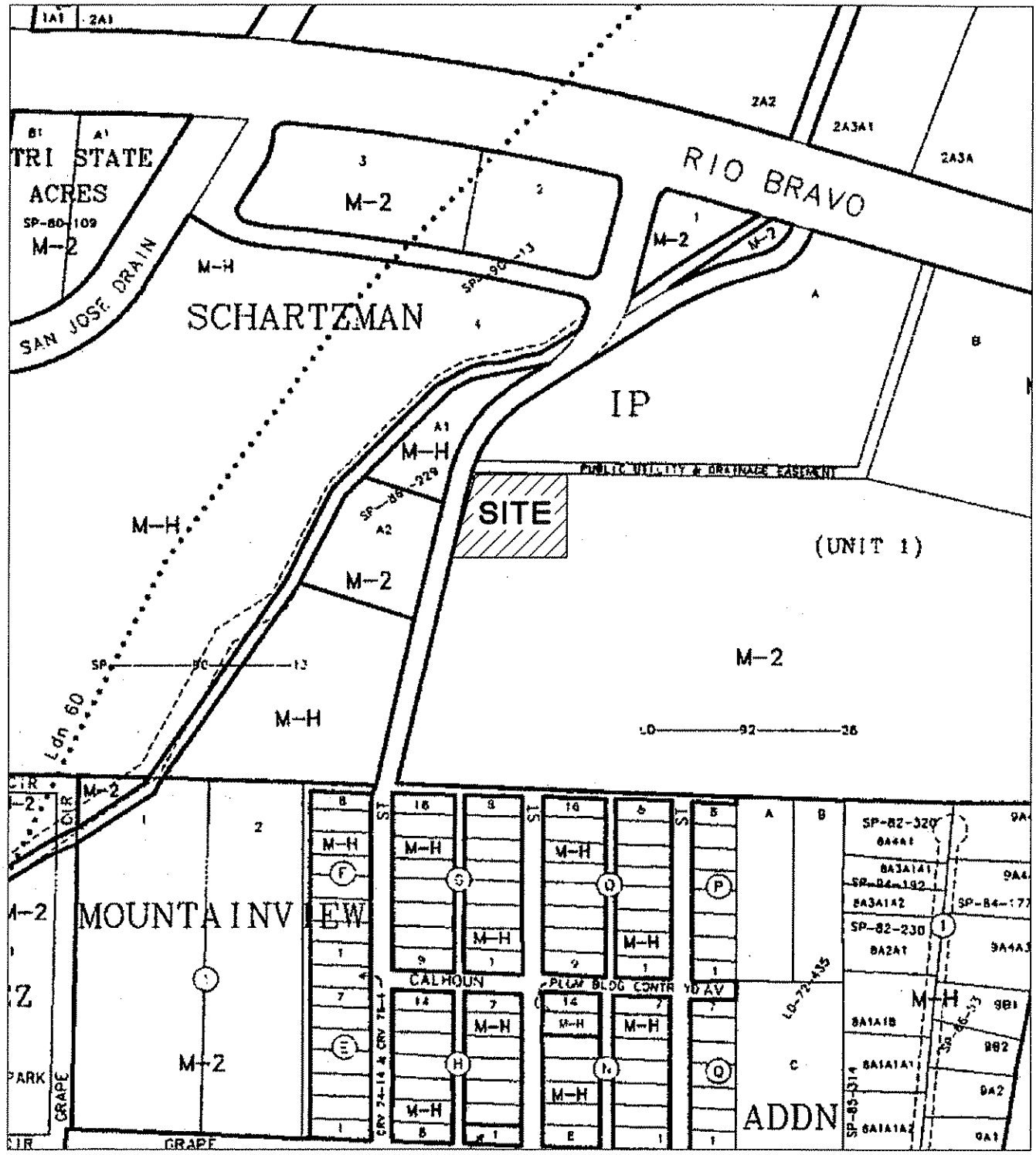
LOCATION & DESCRIPTION

Bernalillo county Fire and Rescue Department is proposing to construct a new fire station on the west side of Prince Street SW approximately 1000-feet south of Rio Bravo SW as shown on the Vicinity Map (**Exhibit 1**). The site is currently an undeveloped field that slopes toward the north and west from a minor ridgeline running from the southeast corner of the overall parcel to the northwest corner. This parcel is the northwest most proposed subparcel of an ongoing replat and rezoning effort to subdivide the turn the parcel into a small industrial park. The replat, rezoning, and accompanying drainage study for the overall parcel is not available but, following Bernalillo County Ordinances and procedures, it is reasonable to assume that each new subparcel will be required to retain the runoff generated on that subparcel. The alternative is that a common retention pond could be provided to hold the runoff from all of the new subparcels. There is no existing development on any of the parcels surrounding this site.

The proposed development includes the construction of an 8520 square foot building, with approximately 42,190 square feet of paved parking, access drives, and concrete sidewalks and patio. The building facility has been designed to be constructed from the existing natural grade, thus eliminating much of the site earthwork and site fill that would normally be required. Even the sidewalks are designed as an elevated "T" section designed such that they can ramp above the existing grade to the building finish floor. This design allows the building finish floor elevation to be set at the appropriate elevation while the parking lot is constructed close to natural grade.

FLOODPLAIN STATUS

This project, as shown on FEMA's Flood Insurance Rate Map 35043C0344 C, dated September 20, 1996, is not within a designated floodplain. **Exhibit 2** is a copy of this flood insurance map with the project area delineated.



VICINITY MAP P-14

N.T.S.

EXHIBIT 1

METHODOLOGY

The hydrology for this project was analyzed using the Quick Calculations of the June 1997 release of the City of Albuquerque Development Process Manual, Section 22.2. **Table 1** summarizes these calculations.

PRECIPITATION

The 100-yr 6-hour duration storm was used as the design storm for this analysis. For this design storm the calculations require the 6 and 24-hour along with the 10-day precipitation values. In addition Excess Precipitation and Peak Discharge values for Zone 2 have to be input from tables within of the City of Albuquerque Development Process Manual, Section 22.2.

EXISTING DRAINAGE

The existing site is divided into two areas based on the existing topography – it has the northwest to southeast diagonal ridge line discussed above for the overall site. The runoff from the eastern area drains toward the north in shallow sheet flow toward Rio Bravo. The western area drains west in shallow sheet flow toward Prince Street. Both areas have an existing slope of approximately 3% in their respective direction. The runoff from the western area ponds along the east side of Prince Street until it reaches sufficient depth to overtop the street. There is only a minor impact to the site due to offsite drainage along the southern boundary as shown on the Grading Plan. This very small area currently drains across the southwest portion of the site. The offsite runoff from the land east of the ridge line runos parallel to the site boundary so no impact is anticipated.

FULLY DEVELOPED CONDITION

The proposed development, as described above, has been designed to require minimal earthwork while raising the finished floor elevation high enough that the building cannot flood and the access drives function for the Fire Department equipment. Since there is no drainage infrastructure in this area of the County, the drainage design has proposed a retention pond along the south and west site boundaries. This pond is designed to fully contain the runoff from a 100-year, 10-day storm in accordance with County ordinances. Additionally, The existing runoff from the offsite basin along the south boundary has been included in the volume to be ponded. This area has been considered Land Treatment 'A' since it should be ponded elsewhere when the industrial subdivision is developed. Since the pond is excavated below existing ground elevation, a spillway is not proposed. If the pond overflows, the runoff will not reach erosive velocity and a catastrophic failure cannot occur. A small on-site storm drain system has been proposed west of the building to intercept excess runoff in the ungraded areas and convey it south into the pond. Additionally, the runoff from building roof drains will be piped to the storm drain and conveyed to the pond or directly to the pond as shown on the Grading Plan.

Since the proposed grading will retain all runoff generated on-site (and the small amount generated off-site from the basin south of the site) there is no negative impact to adjacent properties from this proposed development. The runoff from the existing site will be removed from the runoff contributing to both Prince Street and Rio Bravo.

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)
PROPOSED CONDITIONS											
BASIN A	2.1800	0.00	36.50	10.10	53.40	1.53	0.28	12,115	0.43	18,876	7.98
BASIN B	0.1050	100.00	0.00	0.00	0.00	0.53	0.00	202	0.00	202	0.16

EXCESS PRECIP.	0.53	0.78	1.13	2.12	E_i (in)
PEAK DISCHARGE	1.56	2.28	3.14	4.7	Q_{Pi} (cfs)

ZONE = 2

$P_{6\text{-HR}}$ (in.) = 2.35

$P_{24\text{-HR}}$ (in.) = 2.75

P_{10DAY} (in.) = 3.95

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

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

BERNALILLO COUNTY, NEW MEXICO AND INCORPORATED AREAS

PANEL 344 OF 825

(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ALBUQUERQUE, CITY OF	350002	0344	D
BERNALILLO COUNTY, UNINCORPORATED AREAS	350001	0344	D

MAP NUMBER
35001C0344 D

EFFECTIVE DATE:
SEPTEMBER 20, 1996

Federal Emergency Management Agency