

DRAINAGE MASTER PLAN

FOR

**SCHWARTZMAN
INDUSTRIAL CENTER**

AN INDUSTRIAL SUBDIVISION

ALBUQUERQUE, NEW MEXICO
JUNE 2002

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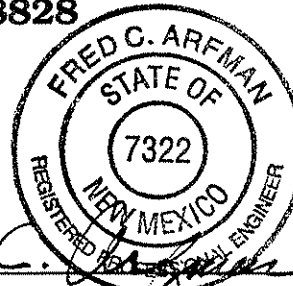
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07.01.02
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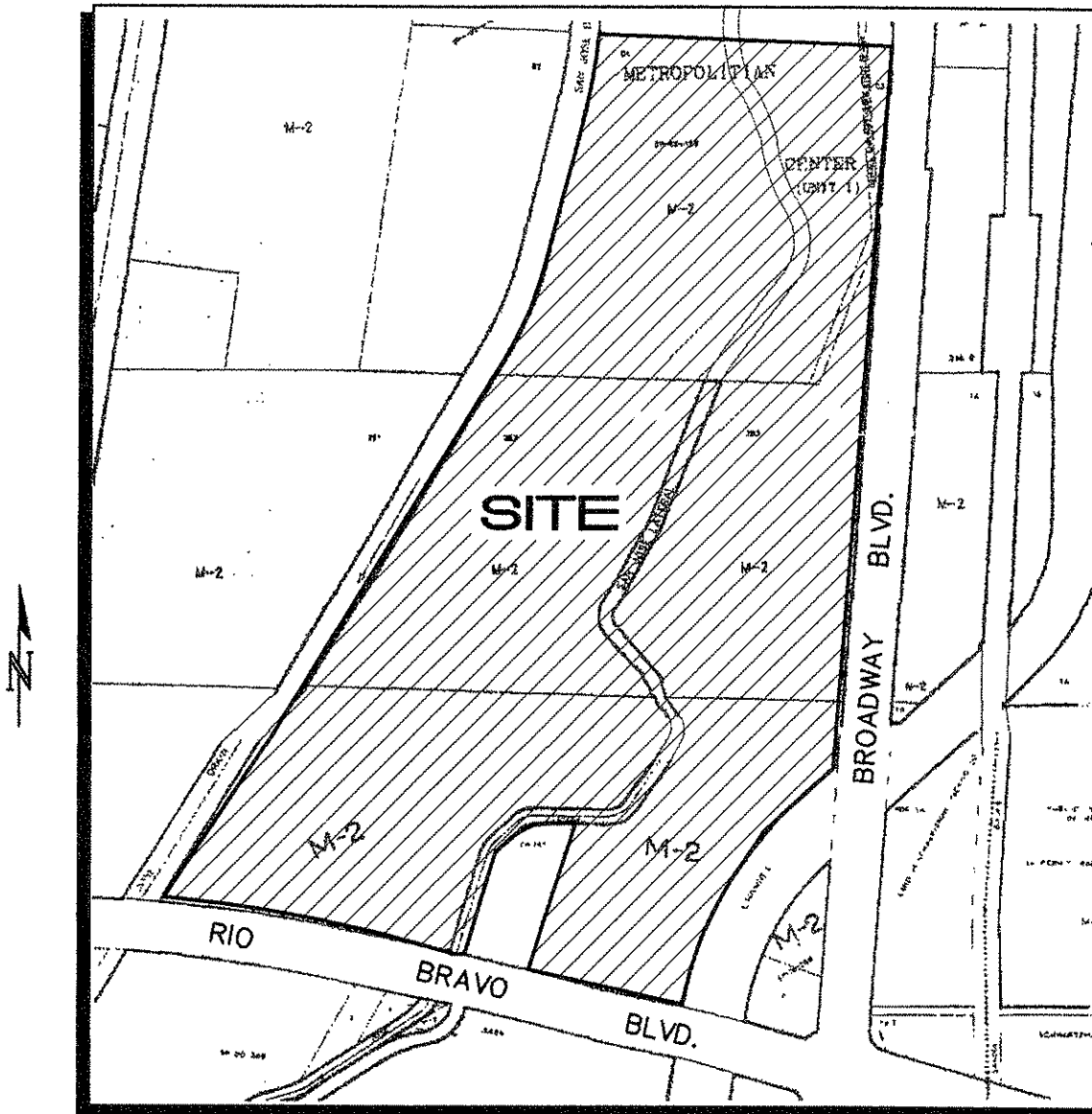
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INTRODUCTION

The Schwartzman Industrial Center is a 147.8-acre parcel of land near the northwest corner of Rio Bravo Blvd and Broadway Blvd. The project includes Tracts A, B, C-1, C-2, and C-3 and Prince Street right-of-way of Schwartzman Industrial Center. In the future, these tracts may be subdivided into smaller parcels for commercial and industrial uses. Prince Street will be constructed with 24-27 feet of paving in each direction within a variable 68 feet to 92 feet right-of-way. (See next page for vicinity map.)

This Drainage Master Plan provides an overview of the drainage requirements of the site. A drainage plan will be required for each individual parcel as they are defined and developed. The individual drainage plans will follow the guidelines laid out in this Drainage Master Plan.

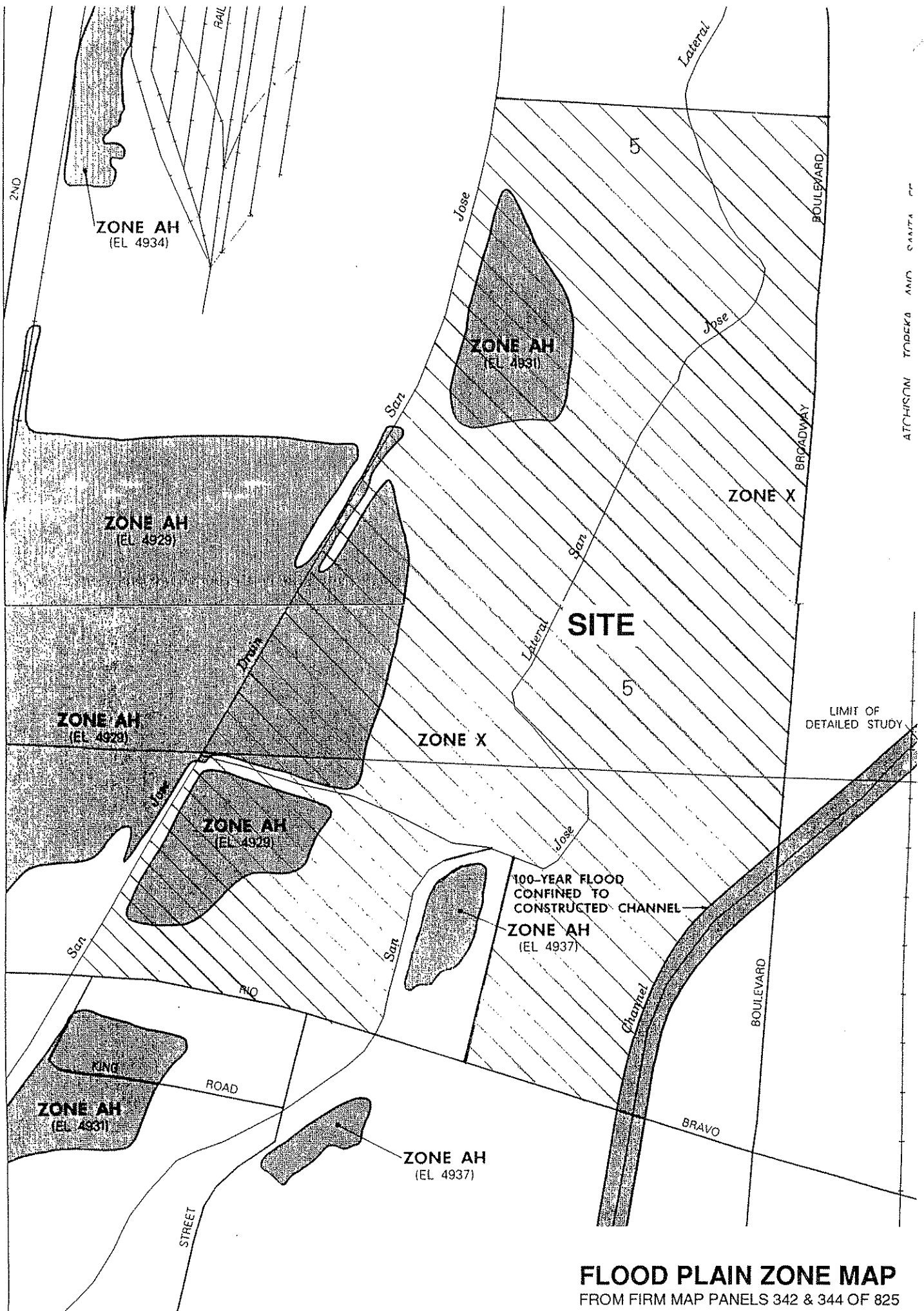


N-14 / P-14

1"=750'±

VICINITY MAP

35°01'52"



FLOOD PLAIN ZONE MAP
FROM FIRM MAP PANELS 342 & 344 OF 825

I. PROJECT INFORMATION

LEGAL DESCRIPTION: Tracts A, B, C-1, C-2, & C-3, and Prince Street
Right-of-Way, Schwartzman Industrial Center

ENGINEER: Isaacson & Arfman, P.A.
128 Monroe Street NE
Albuquerque, NM 87108
(505) 268-8828
Attn: Fred C. Arfman

SURVEYOR: Wayjohn Surveying Inc.
330 Louisiana NE
Albuquerque, NM 87108-2602
(505) 255-2052
Attn: Thomas Johnson, NMPLS No. 14269

BENCHMARK: ACS monument "SDC 8-1"
Elevation = 4978.12

TOTAL AREA: 147.8189 Acres

FLOOD PLAIN: Portions of this site are within the 100-year flood plain
Zone AH as designated on panels 342 and 344 of 825 of the FEMA
Flood Insurance Rate Maps dated September 20, 1996

II. SITE CHARACTERISTICS

EXISTING CONDITIONS: This site has several existing uses. The western, flatter portions of the property are either fallow or farmed cropland. These portions have little to no slope, except where abandoned irrigation ditches cross the fields. The steeper eastern areas are undeveloped, with native shrubs and grasses, and slopes varying from about 2% to 40%. The northwest portion of the site has been graded for "Mudd Volleyball" pits and parking in recent years.

The property is bounded to the south by Rio Bravo Blvd, to the east by Broadway Blvd, and to the west by the San Jose Drain. AMAFCA's South Diversion Channel creates the southeast boundary of the site. (See Plates 1, 2 & 3 enclosed.)

There is an out-parcel along the south side of the property, Tract 2A3A1, M.R.G.C.D. Map 50, with a small existing shopping center. Flows of 20.7 cfs cross into that site from Basin 320.

Offsite Flows

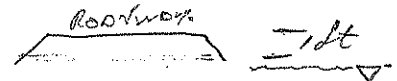
There are several off-site basins to consider with this property.

Basins 100, 110, & 120, east of Broadway, generate 11.2 cfs, 32.1 cfs, and 29.9 cfs of flow respectively. The water crosses beneath Broadway Blvd through several RCP culverts, and is released to sheet across the property. Basins 100 & 110 discharge to Basin 200, and Basin 120 discharges to Basin 300.

Basin 201—the Albuquerque Auto Auction--is located north of Basin 200. At the southwest corner of the Auto Auction is a large

retention pond. This pond has historically been given access for up to 215,379 cu. ft., approximately 81.1 cfs, of overflow stormwater to pond on the proposed Master Plan area. (From the "Grading & Drainage Plan For Albuquerque Auto Auction" by Santiago Romero, Jr. & Assoc. dated 1/4/89, BC PWD file No. 89-17.)

PROPOSED CONDITIONS: The property will be subdivided into industrial or commercial tracts of varying size, with individual grading & drainage plans required for each tract. Prince Street shall be extended by Bernalillo County north from Rio Bravo Blvd, ending in a cul-de-sac south of the USPS site. The initial paving section has 24-27 feet of paving in each direction with no curb, and in the final paving section, curb and medians will be added. The materials excavated from the three proposed ponds will be utilized in the construction of Prince Street, which will be built up to maintain one foot of freeboard to the pond water surface elevations.



Drainage Basins

This plan divides the property into four drainage basins, which accept existing flows from three offsite basins (see enclosed Drainage Master Plan plates).

- 1) Basin 200 is Tract A in the northern section of the site. Offsite flows of 11.2 cfs and 32.1 cfs from Basins 100 & 110 respectively enter Basin 200 from across Broadway Blvd.
- 2) Basin 300 consists of the northern portions of Tracts B and C-1. Offsite flows of 29.9 cfs from Basin 120 and 81.1 cfs from Basin 201 (the Albuquerque Auto Auction pond) are routed into Basin 300.
- 3) Basin 310 is the southern portion of the site, and accounts for the majority of the water onsite.

4) Basin 320 is the area east of the out-parcel—Tract 2A3A1.

Land treatments of 20% Type B, 15% Type C, and 65% Type D are assumed for Basin 200, and land treatments of 5% B, 10% C, and 85% D are assumed for Basins 300, 310, and 320. Pond sizes and flows were calculated using the AHYMO program. The culvert capacity chart in Appendix C was used to determine outflows for the 12-inch outlet pipes at various headwater depths.

BASIN 200: A USPS site is proposed for this basin. An individual drainage plan will be required for the USPS site. Assuming 65% Type D land treatment, this basin will accept and generate a total of 235.7 cfs of flows (0.85 ac-ft).

Because excess stormwater from the offsite Albuquerque Auto Auction pond (Basin 201) has historically been discharged to this property, a temporary drainage swale paralleling the west boundary has been constructed to transport 81.1 cfs (215,379 cu. ft.) through a 42" culvert underneath the Prince Street cul-de sac to the regional public pond in Basin 300—Pond A. (See calculation in Appendix C.)

The drainage solution in this report for handling the overflow storm water from the Albuquerque Auto Auction shall supercede existing arrangements between private owners for the handling of said storm waters.

BASIN 300: A storm water detention pond (Pond A) is programmed to be a public facility, and is to be maintained by Bernalillo County. The pond shall have a capacity of 11.28 Ac-ft (491,143 cu. ft.) plus 1' of freeboard (including 4.94 Ac-ft from the Auto Auction), and be located west of Prince Street near the cul-de-sac. Pond A will accept the combined stormwater from Basins 300, 201, & 120. A 12-inch culvert will outlet to the San Jose Drain. The 12-inch culvert will have a flap gate at the outlet.

Parcels built within this basin shall limit developed flows to 4.41 cfs/acre (based on developed conditions with 85% Type D land treatment). Flows from Basin 120 shall be routed west across the site to the pond. All offsite flows entering the individual parcels should be directed across the site towards the detention pond.

BASIN 310: A storm water detention pond (Pond B) will be located at the northwest corner of the basin. The pond shall have a capacity of 8.57 Ac-ft (373,283 cf) plus 1' of freeboard and be located west of Prince Street near the 100' PNM easement. Existing power lines in the area will not be disturbed, but ponding may occur under them.

Another storm water detention pond (Pond C) at the southwest corner of the basin will accept flows from Basin 320. The detention

pond will need to have a capacity of 1.57 Ac-ft (68,280 cf) plus 1' for freeboard.

Ponds B and C are programmed to be public facilities on private land, and are to be maintained by Bernalillo County.

Twelve-inch culverts at the outlets from Ponds B and C will outlet to the San Jose Drain. The culvert outlet from Pond B will have a flap gate.

Parcels built within this basin shall limit developed flows to 4.41 cfs/acre (based on developed conditions with 85% Type D land treatment). Offsite flows entering the individual parcels should be directed across the site towards the detention pond.

BASIN 320: This basin is located uphill of an existing shopping center and has no direct access to a drainage facility. The developed flows from Basin 320 discharging onto the shopping center site shall be limited to 20.7 cfs (historical rate). All excess flows from this basin shall be routed to Pond C in Basin 310 either through a storm drain system or through a channel along the south right-of-way and culverts underneath Prince Street and into Pond C. Parcels built within this basin shall limit developed flows to 4.41 cfs/acre (based on developed conditions with 85% Type D land treatment).

OFFSITE BASINS 100, 110, AND 120: These basins will require individual grading plans, and will need to provide on-site storage to detain storm water. Discharge from these sites should equal the historical rates.

San Jose Drain

The San Jose Drain is a M.R.G.C.D./Bureau of Reclamation facility. Storm water discharge to this drain is allowed per the memo dated April 8, 1996, shown in Appendix D.

To determine the water surface elevation in the San Jose Drain, flow rates from the "Southeast Valley Drainage Management Plan" (DMP) by Wilson & Company (1988) were used. See Appendix E for a Drainage Subarea Exhibit and portions of Wilson & Company's AHYMO printout. Since the DMP analysis was based on free discharge into the San Jose Drain (which is no longer allowed) and an old version of AHYMO, these rates were modified, as follows, to more accurately represent the flows being discharged into the channel.

- A starting flow of 301.3 cfs was assumed at Subarea B, per Wilson & Company's plan.
- This rate was increased by 12% to account for the increase in rainfall factors between the old AHYMO version and the current version, resulting in 338 cfs.

- Flows from Subareas C (representing portions of Basins 200 and 201 of this report) and H were estimated at 10 cfs (5 cfs controlled discharge from each subarea).
- Based on these modifications, total flows at Point A on the Exhibit in Appendix E in the San Jose Drain are 348 cfs. This point corresponds approximately to the northwest corner of Basin 300 of this report.

The water surface elevation in the San Jose Drain was calculated at the locations where the culverts will discharge into the channel from the three ponds—see Appendix F. In order to avoid excessive import of materials for the construction of Prince Street and development of properties to the east, the bottom grades in Ponds A and B are set one foot below the 100-year water surface elevation in the San Jose Drain. Therefore, flap gates will be required at those two 12-inch culvert outlets.

Erosion Control

To prevent erosion, riprap protection shall be provided as follows:

In the San Jose Drain at the three 12-inch culvert outlets, the channel bottom and the channel side slope on the outlet side shall be lined with a 10-foot wide area of 1.5-foot thick Type L riprap.

The outlet at the 42-inch culvert shall have an 11-foot square of 1.5-foot thick Type L riprap (See Appendix G for erosion control calculations).

CLOMR/LOMR

Portions of this site are within a floodplain—these limits are shown on the drainage master plans (Plates 1-3). The owners of the individual parcels shall be responsible for the CLOMR/LOMR required for developing this property.

III. SUMMARY & RECOMMENDATIONS

Future development of individual parcels will require separate drainage plans for each developed tract per the following recommendations:

BASIN 200:

- A drainage plan will be required for the proposed USPS major distribution facility.
- 4.94 Ac-ft (215,379 cu. ft.) of offsite storm waters from the Albuquerque Auto Auction to the north must be allowed to cross onto the site. It shall be conveyed to Pond A in Basin 300 through a channel along the west property line and a 42-inch culvert under the proposed Prince Street cul-de-sac.

BASIN 300:

- Detention Pond A will be built to accept a minimum of 11.28 Ac-ft (491,143 cu. ft.) of storm water, including 4.94 Ac-ft (215,379 cu. ft.) of offsite storm waters from the Auto Auction to the north.
- The detention pond will be a public facility and maintained by

Bernalillo County and situated within either public drainage easements or drainage rights-of-way.

- Developed flows exiting parcels within this basin should be limited to 4.41 cfs/acre.
- Offsite flows must be accepted onto each developed tract, but may cross the site and be freely released.

BASIN 310:

- Detention Pond B will be built to accept a minimum of 8.74 Ac-ft (373,283 cu. ft.) of storm water.
- Power lines within an existing 100' PNM easement shall not be disturbed.
- Detention Pond C in Basin 310 will be built to accept a minimum of 1.57 Ac-ft (68,280 cu. ft.) of storm water from Basin 320.
- The detention ponds will be public facilities and maintained by Bernalillo County and situated within either public drainage easements or drainage rights-of-way..
- Developed flows exiting parcels within this basin should be limited to 4.41 cfs/acre.
- Offsite flows must be accepted onto each developed tract, but may cross the site and be freely released.

BASIN 320:

- Flows crossing onto Tract 2A3A1 must be limited to the historical rate of 20.7 cfs.
- Remaining flows will be conveyed to Pond C in Basin 310 through either a storm drain or a channel along the south property line and

culverts under Rio Bravo Blvd and into Pond C.

- Developed flows exiting parcels within this basin should be limited to 4.41 cfs/acre.
- Offsite flows must be accepted onto each developed tract, but may cross the site and be freely released.

OFFSITE BASINS 100, 110 & 120:

- Flows exiting these basins should be limited to the historical rates of 11.17 cfs, 32.1 cfs, and 29.9 cfs, respectively.

SAN JOSE DRAIN:

- Storm water discharge to the M.R.G.C.D/Bureau of Reclamation drain is allowed per the memo dated April 8, 1996 shown in Appendix D.
- Ponds A, B, and C will discharge approximately 5.8 cfs each through 12-inch culverts into the drain.
- The bottom elevations of Ponds A and B are set approximately one foot below the 100-year water surface elevation; therefore, these culverts shall have flap gates at the outlets.

EROSION CONTROL:

- Riprap protection shall be provided at all culvert outlets.

CLOMR/LOMR:

- The owners of the individual parcels shall be responsible for CLOMR/LOMR required in developing the site.