

VICINITY MAP  
SCALE: 1" = 800' (APPROX.)

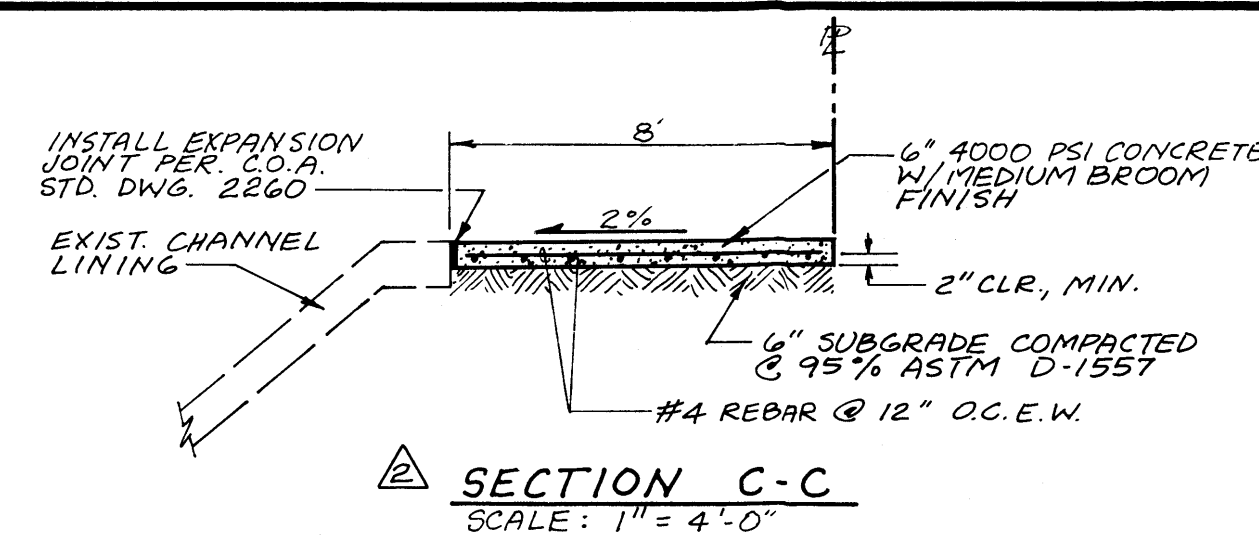
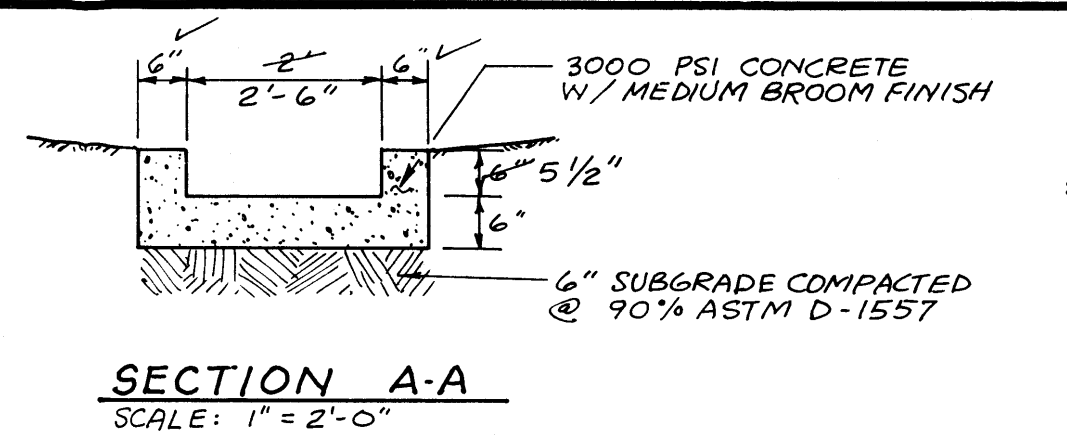
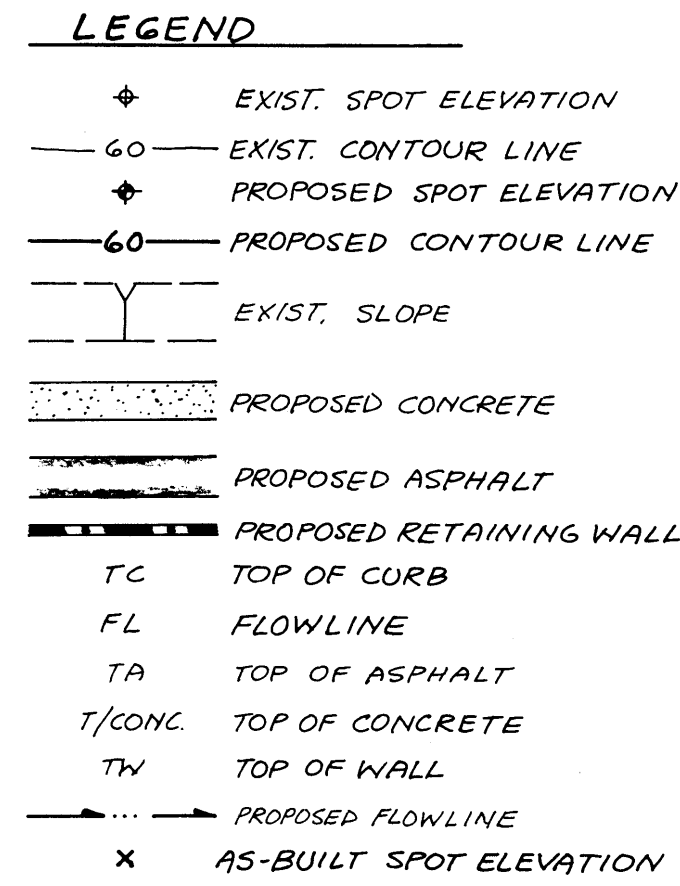
LEGAL DESCRIPTION  
TRACT C-1, C-2 ACADEMY ACRES, UNIT 17,  
BERNALILLO COUNTY, NEW MEXICO.

PROJECT BENCHMARK  
THE STATION IS A STANDARD ACS BRASS CAP STAMPED  
"6 D19-1978" SET ON TOP OF A CONCRETE POST  
FLUSH WITH THE GROUND LOCATED AT THE NORTHWEST  
CORNER OF SAN ANTONIO DR. AND WYOMING BLVD. N.E.  
ELEVATION = 5403.54 FEET (MSLD)

T.B.M. = PROJECT BENCHMARK

KEYED NOTES (CORRECTIVE ACTION)

1. RAISE ELEVATION OF PAVING OR LOWER INVERT  
ELEVATION TO ELIMINATE PUDDLE ON PAVING AND  
PROVIDE POSITIVE DRAINAGE.  
CORRECTED AS OF 07-12-93.
2. RAISE PAVING ELEVATION TO 71.30 WITH TC  
71.80, REMOVE AND REPLACE ASPHALT PAVING AND  
CURB AS NEEDED. 4" PVC DRAIN LINE ADDED TO  
DRAIN "PUDDLE".
3. REMOVE "HUMP" IN PAVING TO PROVIDE FOR  
POSITIVE DRAINAGE FROM CORNER TO RUNDOWN.  
CORRECTED AS OF 07-12-93



DRAINAGE PLAN

The following items concerning the Zip Lube 7200 San Antonio Drive N.E. Drainage  
Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

As shown by the Vicinity Map, the site is located along the south side of San  
Antonio Drive N.E. just north of the Pino Arroyo. The site is located at the far  
west end of Academy Acres Unit 17 where San Antonio Drive N.E. and the Pino Arroyo  
become tangent and parallel.

As shown by Panel 17 of 50 of the National Flood Insurance Program Flood Insurance  
Rate Maps for the City of Albuquerque dated October 14, 1983, this site does not  
lie within a designated flood hazard zone. This map further identifies that the  
100-year flood is confined to the existing channel improvements. The site abuts  
the Pino Arroyo which is the improved channel shown on the map. At present, the  
site is undeveloped and slopes from northeast to southwest to the Pino Arroyo.  
Limited paving improvements exist along the easterly edge of the site.

The Grading Plan shows 1) existing grades indicated by spot elevations and  
contours at 1'0" intervals, 2) proposed grades indicated by spot elevations and  
contours at 1'0" intervals, 3) the limit and character of the existing  
improvements, 4) the limit and character of the proposed improvements, 5) minor  
modifications to the existing bike path, and 6) continuity between existing and  
proposed grades. As shown by this plan, the proposed improvements consist of the  
construction of a commercial building along with associated paving and  
landscaping. The site presently drains from northeast to southwest to the Pino  
Arroyo. This existing drainage pattern will be maintained in the development of  
this site. A portion of the runoff generated by the site will discharge to an  
existing concrete rundown which discharges to the Pino Arroyo. The westerly  
portion of the site and its associated improvements will discharge to a private  
concrete rundown which will discharge to the existing asphalt bike path. The  
runoff which exits the private rundown will sheetflow across the bike path to and  
over the north edge of the improved channel. In order to maintain the integrity  
of the bike path, a section of the asphalt paving will be removed and replaced  
with concrete paving. Sealant is specified for the connection between the bike  
path and the channel so as to prohibit intrusion of surface flows.

The Calculations which appear hereon analyze both the existing and developed  
conditions for the 100-year, 6-hour rainfall event. The Rational Method has been  
used to calculate the peak rate of discharge while the SCS Method has been used  
to compute the volume of runoff generated. Both Methods have been used in  
accordance with the City of Albuquerque Development Process Manual, Volume II,  
coupled with the Mayor's Emergency Rule dated January 14, 1986. As shown by these  
calculations, a minor increase in runoff is anticipated as a direct result of the  
proposed improvements. Hydraulic computations have not been provided due to the  
steep gradient of the proposed private concrete rundown. The proposed rundown  
will inherently have sufficient capacity to accept and convey the total runoff  
generated by this site. The total runoff generated by this site is less than 2  
cfs which is a rather negligible flow rate.

This site is part of a overall Master Plan which has been previously prepared and  
submitted to the City for approval. The Master Plan was prepared in conjunction  
with Site Development Plan approval at the Environmental Planning Commission.  
Review of the Master Plan reveals that the proposed development of this site  
conforms to the drainage patterns and concepts identified by the Master Plan.

DRAINAGE CERTIFICATION

As indicated by the as-built elevations  
shown hereon, the project site has been  
constructed in substantial conformance  
with the intent of the approved grading  
and drainage plan. It is based upon this  
observation that issuance of a temporary  
Certificate of Occupancy is recommended.  
Puddling has been observed on the paving,  
however, which will constitute a nuisance  
and maintenance responsibility to the  
owner. Because of this, the three areas  
of deficiency have been noted along with  
corresponding corrective action. It is  
recommended that once the corrective  
action has been implemented to the  
satisfaction of the owner, that re-  
certification be provided as a condition  
for issuance of the permanent Certificate  
of Occupancy.

Jeffrey G. Mortensen, NMPE 8547  
Date 04-14-93

DRAINAGE CERTIFICATION

Deficiency noted in 06-14-93  
have been corrected as noted  
recertification submitted to  
requirements for issuance of  
certificate of occupancy

Jeffrey G. Mortensen, NMPE 8547  
Date 07-13-93

GRADING AND DRAINAGE PLAN PREPARED  
UNDER THE SUPERVISION OF

Jeffrey G. Mortensen, NMPE 8547  
Date 10-19-92

TOPOGRAPHIC SURVEY PREPARED BY  
OTHERS AND PROVIDED BY OWNER. ITS  
ACCURACY IS HEREBY DISCLAIMED AS IT  
RELATES TO THIS DRAWING.  
11-04-92

Construction Notes

1. Two (2) working days prior to any excavation, contractor must  
contact New Mexico One Call System 260-1990, for location of  
existing utilities.
2. Prior to construction, the contractor shall excavate and  
verify the horizontal and vertical location of all potential  
obstructions. Should a conflict exist, the contractor shall  
notify the engineer in writing so that the conflict can be  
resolved with a minimum amount of delay.
3. All work on this project shall be performed in accordance with  
applicable federal, state and local laws, rules and  
regulations concerning construction safety and health.
4. All construction within public right-of-way shall be performed  
in accordance with applicable City of Albuquerque Standards  
and Procedures.
5. If any utility lines, pipelines, or underground utility lines  
are shown on these drawings, they are shown in an approximate  
manner only, and such lines may exist where none are shown.  
If any such existing lines are shown, the location is based  
upon information provided by the owner of said utility, and  
the information may be incomplete, or may be obsolete by the  
time construction commences. The engineer has conducted only  
preliminary investigation of the location, depth, size, or  
type of existing utility lines, pipelines, or underground  
utility lines. This investigation is not conclusive, and may  
not be complete, therefore, makes no representation pertaining  
thereto, and assumes no responsibility or liability therefor.  
The contractor shall inform itself of the location of any  
utility line, pipeline, or underground utility line in or near  
the area of the work in advance of and during excavation work.  
The contractor is fully responsible for any and all damage  
caused by its failure to locate, identify and preserve any and  
all existing utilities, pipelines, and underground utility  
lines. In planning and conducting excavation, the contractor  
shall comply with state statutes, municipal and local  
ordinances, rules and regulations, if any, pertaining to the  
location of these lines and facilities.

6. An Excavation/Construction Permit will be required before  
beginning any work within City right-of-way. An approved copy  
of these plans must be submitted at the time of application  
for this permit.

7. Backfill compaction shall be according to RESIDENTIAL  
street use.

8. Maintenance of these facilities shall be the responsibility of  
the owner of the property served.

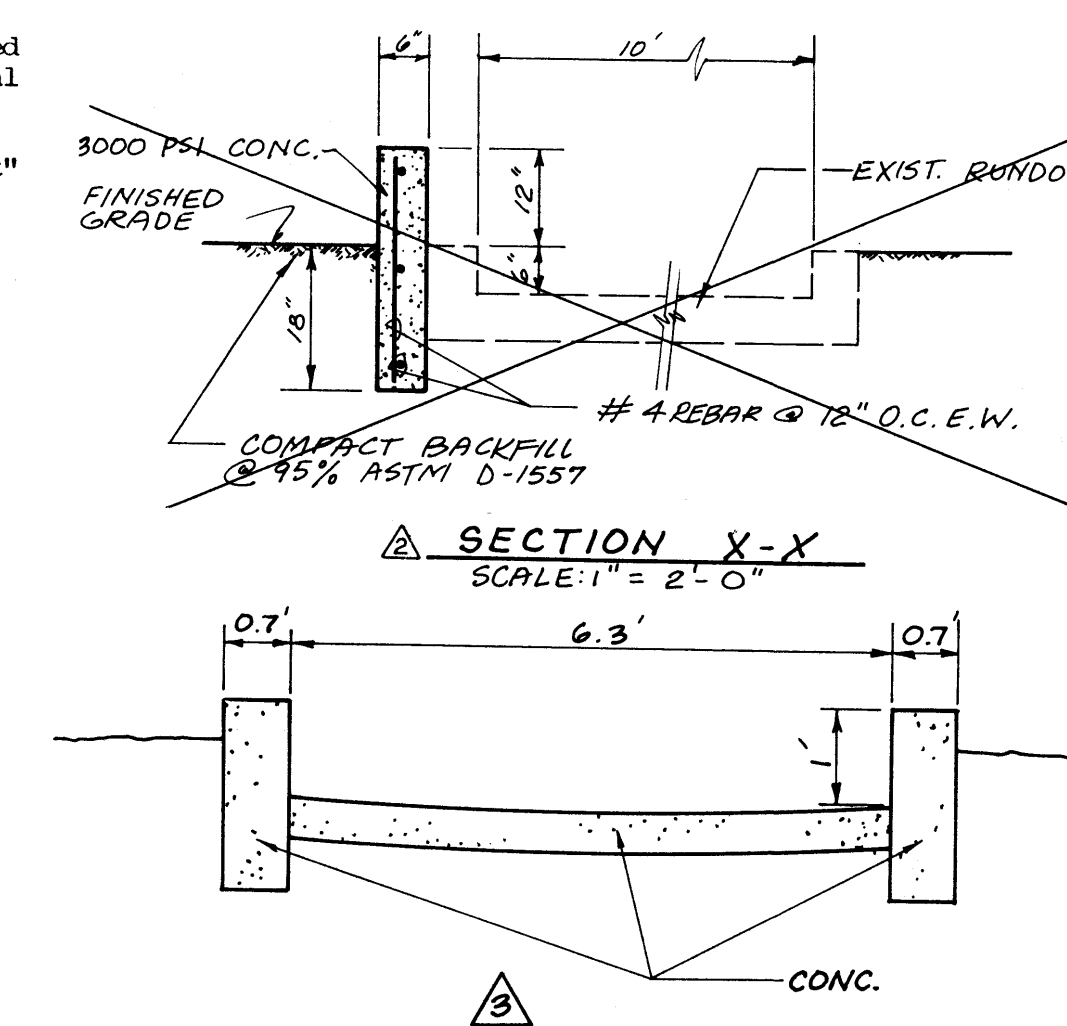
9. The design of planters and landscaped areas is not part of  
this plan. All planters and landscaped areas adjacent to the  
building(s) shall be provided with positive drainage to avoid  
any ponding adjacent to the structure. For construction  
details, refer to landscaping plan.

Erosion Control Measures

1. The contractor shall ensure that no soil erodes from the site  
into public right-of-way or onto private property. This can  
be achieved by constructing temporary berms at the property  
lines and wetting the soil to keep it from blowing.
2. The contractor shall promptly clean up any material excavated  
within the public right-of-way so that the excavated material is  
not susceptible to being washed down the street.
3. The contractor shall secure "Topsoil Disturbance Permit"  
prior to beginning construction.

| APPROVALS       | NAME | DATE |
|-----------------|------|------|
| A.C.E. / DESIGN |      |      |
| INSPECTOR       |      |      |
| A.C.E. / FIELD  |      |      |

|                            |      |
|----------------------------|------|
| APPROVED FOR CONSTRUCTION: |      |
| STORM DRAIN MAINTENANCE    | DATE |



Ground Cover Information

From SCS Bernalillo County Soil Survey,  
Plate 21: EMB - Embudo gravelly fine sandy loam  
Hydrologic Soil Group: B  
Existing Pervious CN = 70 (DPM Plate 22.2 C-2  
Pasture or Range Land: fair condition)  
Developed Pervious CN = 61 (DPM Plate 22.2 C-2  
Open Space: good condition)

Time of Concentration/Time to Peak

$T_c = 0.0078 L^{0.77} S^{0.385}$  (Kirpich Equation)

$T_p = T_c = 10$  min.

Point Rainfall

$P_6 = 2.4$  in. (DPM Plate 22.2 D-1)

Rational Method

Discharge:  $Q = CiA$

Where C varies  
 $i = P_6(6.84)T_c^{-0.51} = 5.07$  in/hr  
 $P_6 = 2.4$  in (DPM Plate 22.2D-1)  
 $T_c = 10$  min (minimum)  
A = area, acres

SCS Method

Volume:  $V = 3630(DRO)A$

Where DRO = Direct runoff in inches  
A = area, acres

Existing Condition

$A_{total} = 24,150$  sf = 0.55 Ac  
Undeveloped Area = 24,150 sf (1.0)  
C = 0.4 (Weighted average per Emergency Rule, 1/14/86)  
 $Q_{100} = CiA = 0.4(5.07)0.55 = 1.1$  cfs  
 $A_{imp} = -0$  sf; % impervious = -0%  
Composite CN = 70 (DPM Plate 22.2 C-3)  
DRO = 0.42 in (DPM Plate 22.2 C-4)  
 $V_{100} = 3630 (DRO)A = 850$  cf

Developed Condition

$A_{total} = 24,150$  sf = 0.55 Ac  
Roof area = 2,524 sf (0.10)  
Paved area = 10,327 sf (0.43)  
Landscaped area = 10,005 sf (0.41)  
C = 0.63 (Weighted average per Emergency Rule, 1/14/86)  
 $Q_{100} = CiA = 0.63(5.07)(0.55) = 1.8$  cfs  
 $A_{imp} = 12,851$  sf; % impervious = 53.3%  
Composite CN = 81 (DPM Plate 22.2 C-3)  
DRO = 0.81 in (DPM Plate 22.2 C-4)  
 $V_{100} = 3630 (DRO)A = 1600$  cf

Comparison

$\Delta Q_{100} = 1.8 - 1.1 = 0.7$  cfs (Increase)  
 $\Delta V_{100} = 1600 - 850 = 750$  cf (Increase)

Hydraulics

a.  $Q = 3.33 L h^{3/2}$  (Weir Equation)  
Where  $L = 2.0$  feet  
 $h = 0.5$  feet

$Q_{capacity} = 2.3$  cfs >  $Q_{100}$

b.  $Q = CA\sqrt{2gh}$  (Orifice Equation)  
Where  $C = 0.6$

$A = 1.0$  sf  
 $h = 0.25$  ft  
 $g = 32.2$  ft/sec<sup>2</sup>

$Q_{capacity} = 2.4$  cfs >  $Q_{100}$