

March 30, 1998

Jim Torres
Torres Surveying
P.O. Box 478
Tijeras, New Mexico 87059

RE: GRADING/PAVING PLAN FOR LADERA SHOPPING CENTER (G11-D3)
SURVEYORS STAMP DATED 3/26/98

Dear Mr. Torres:


Based on the information provided on your March 27, 1998 submittal, the above referenced site is approved for Grading/Paving Permit.

Please be advised that after construction is completed, Surveyor's Certification will be required.

If I can be of further assistance, please feel free to contact me at 924-3986.

C: Andrew Garcia
File

Sincerely


Bernie J. Montoya CE
Associate engineer



PROJECT TITLE: LADERA SHOPPING CENTER ZONE ATLAS/DRNG. FILE #: G-11/D3
DRB #: _____ EPC #: _____ WORK ORDER #: _____
LEGAL DESCRIPTION: PARCELS "NA", "O", & "P", LADERA SHOPPING CENTER
CITY ADDRESS: COORS N.W. @ SEQUOIA N.W.
ENGINEERING FIRM: N/A CONTACT: _____
ADDRESS: _____ PHONE: _____
OWNER: ? CONTACT: _____
ADDRESS: _____ PHONE: _____
ARCHITECT: N/A CONTACT: _____
ADDRESS: _____ PHONE: _____
SURVEYOR: TORRES SURVEYING CO. CONTACT: MR. JIM TORRES
ADDRESS: P.O. BOX 478, TIERRAS, N.M. 87059 PHONE: 220-9213
CONTRACTOR: ARMOUR PAVEMENT, INC. CONTACT: MR. HARRY KOLENC
ADDRESS: 10306 2ND ST. N.W., CITY PHONE: 897-8190

TYPE OF SUBMITTAL:

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

PRE-DESIGN MEETING:

- ☒ YES
☐ NO
☐ 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. 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
☐ SUBDIVISION CERTIFICATION
☒ OTHER PAVING CERTIFICATION (SPECIFY)

DATE SUBMITTED: 03-27-98
BY: JIM TORRES

RECEIVED
MAR 27 1998
HYDROLOGY SECTION


LADERA SHOPPING CENTER
COORS & SEQUOIA
ALBUQUERQUE, NEW MEXICO

MARCH, 1998

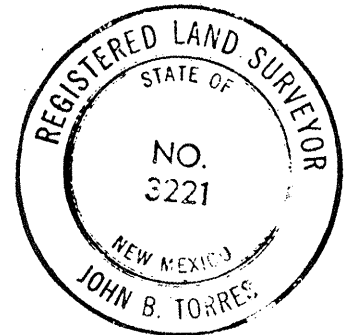
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MAR 27 1998
HYDROLOGY SECTION

SURVEYOR'S CERTIFICATION:

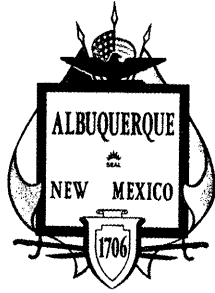
I, JOHN B. TORRES, NEW MEXICO REGISTERED PROFESSIONAL LAND SURVEYOR NO. 3221, LICENSED AND REGISTERED UNDER THE LAWS OF THE STATE OF NEW MEXICO, DO HEREBY CERTIFY THAT I HAVE PERSONALLY MADE AN ON-SITE FIELD INSPECTION OF THE SUBJECT SITE PRIOR TO THE ATTACHED LISTED ASPHALT PAVED SECTION REPAIR AREA(S), AND I ALSO HEREBY STATE THAT I WILL PROVIDE A FINAL FIELD INSPECTION AND CERTIFICATION OF SAID LISTED REPAIR AREA'S UPON COMPLETION, AND THAT THE SAME IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.



JOHN B. TORRES, N.M.R.P.L.S. NO. 3221
DATE: 26 March, 19 98



R ECEIVE **D**
MAR 27 1998
HYDROLOGY SECTION



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

January 10, 1996

Jeff Mortensen
Jeff Mortensen & Associates
6010-B Midway Park Blvd. NE
Albuquerque, NM 87109

RE: DRAINAGE PLAN FOR AN ADDITION TO FURR'S @ LADERA SHOPPING
CENTER (G11-D3) ENGINEER'S STAMP DATED 12/27/95.

Dear Mr. Mortensen:

Based on the information provided on your December 29, 1995
submittal, the above referenced site is approved for Site
Development for Building Permit and 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 D.P.M. checklist will be required.

If I can be of further assistance, please feel free to contact me
at 768-2667.

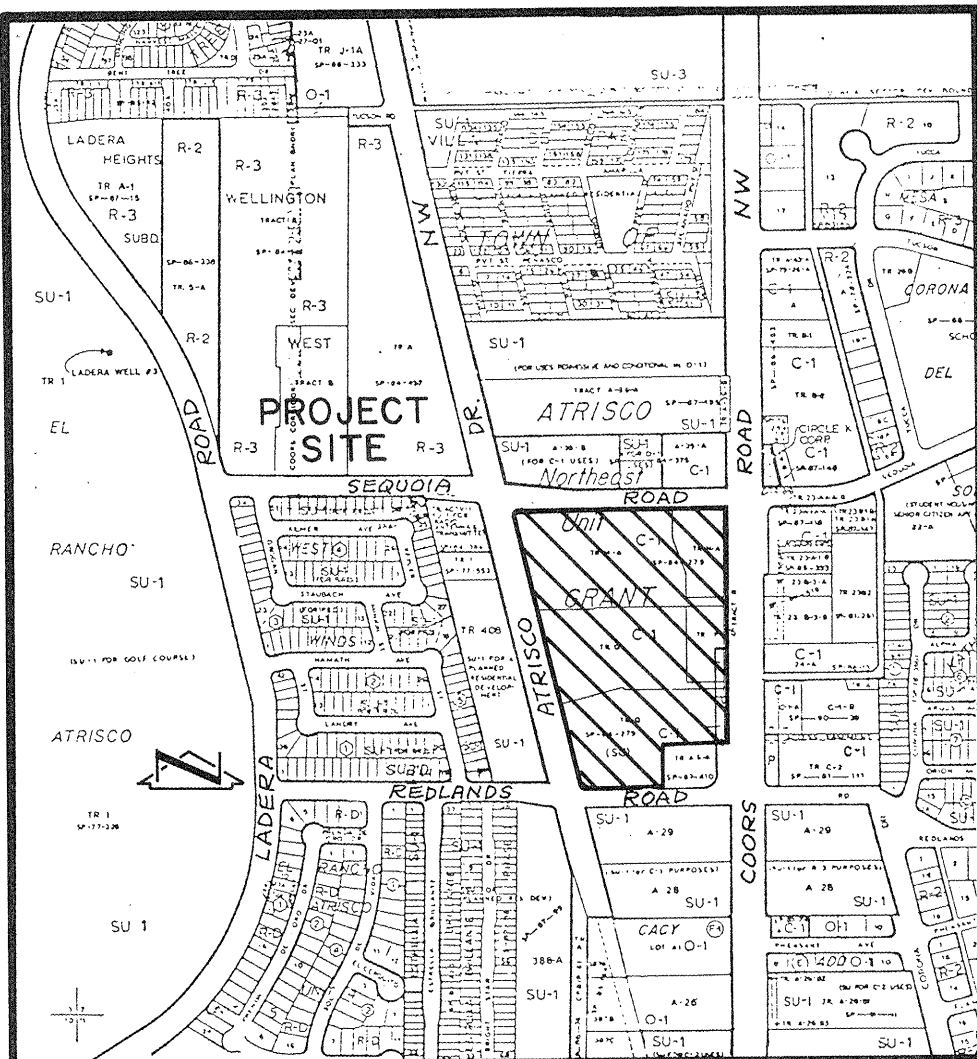
Sincerely,

Bernie J. Montoya

Bernie J. Montoya, CE
Engineering Associate

BJM/dl

c: Andrew Garcia
File



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

Construction Notes

- Two (2) working days prior to any excavation, contractor must contact New Mexico One Call System 260-1990, for location of existing utilities.
- 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.
- 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.
- All construction within public right-of-way shall be performed in accordance with applicable City of Albuquerque Standards and Procedures.
- 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.
- 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.
- Backfill compaction shall be according to ARTERIAL street use.
- Maintenance of these facilities shall be the responsibility of the owner of the property served.
- 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

- 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.
- 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.
- The contractor shall secure "Topsoil Disturbance Permit" prior to beginning construction.

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

DRAINAGE PLAN

The following items concerning the Ladera Shopping Center Master Drainage Plan are contained herewith:

- Vicinity Map
- Composite Mapping
- Calculations
- Drainage Details

As shown by the Vicinity Map, the site is located on the west side of Coors Boulevard N.W. between Sequoia Road N.W. and Redlands Road N.W. The site is also bounded on the west by Atrisco Drive N.W. At present, the site is developed as a shopping center site. The site has been developed in phases without the benefit of a Phasing Plan and without the benefit of a Master Drainage Plan. This submittal compiles previously approved drainage plans for this project.

As shown by Panel 21 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. These maps further indicate that the site drains to an existing public storm drain system which provides an outfall for this property. That system was designed and constructed as Special Assessment District (SAD) 198. That system is in place and operational at this time.

The Composite Mapping is a compilation of the previously approved Grading and Drainage Plans for this site. As-built information has also been provided wherever possible. As shown by this mapping, the site consists of eight distinct drainage basins. Basins A, B, C and H discharge to retention ponds which were designed and approved under the original drainage submittals for this site. Drainage Basins C, D, and E discharge to landscaped detention ponds which discharge to the SAD 198 improvements. These ponds were originally designed to be retention ponds, however, were modified as part of the SAD 198 project to allow the controlled discharge of runoff into the new public storm drain improvements. Basin F freely discharges its runoff to Redlands Road N.W. in accordance with the approved grading and drainage plan for that portion of the site. This plan compiles all previous submittals into a single manuscript for the purpose of developing a post-construction Master Drainage Plan.

This plan also provides appropriate design and construction information to provide a positive discharge for the ponds within Basins A, B and G. Positive discharge will be provided by extending the 18" RCP stubs constructed under SAD 198 and constructing single "D" storm inlets at the ends of the respective extensions. These improvements will convert the existing retention ponds into detention. The discharge from these ponds will be controlled by the 18" RCP stubs designed and constructed under SAD 198.

The calculations which appear hereon analyze the existing drainage conditions of the site for the respective basins. These calculations have been prepared in accordance with the City of Albuquerque Development Process Manual, Volume II, combined with the Mayor's Emergency Rule dated January 14, 1986. Analysis is based upon the 100-year, 6-hour rainfall event. The Rational Method has been used to quantify the peak rate of discharge from each basin, while the SCS Method has been used to compute the volume of runoff generated by each basin. As stated above, these existing calculations have been prepared for the respective basins.

SUPPLEMENTAL TEXT

The SAD 198 Drainage Report addresses the entire Ladera Shopping Center site as a single subbasin to the SAD 198 study area. The analysis prepared in conjunction with that project generated a peak discharge of 40.7 cfs for subbasin designation A-4. Subbasin A-4 comprises the Ladera Shopping Center site. The composite time of concentration, as calculated in the referenced report is 21.3 minutes. In order to provide a meaningful comparison between the calculations presented hereon and the SAD 198 Drainage Report, we will evaluate the site as a single subbasin in addition to individual drainage basins. As stated in the text above, the SAD 198 storm drainage improvements have been constructed. The construction occurred under Project No. 2532. The report, referenced above, identifies that the "system as proposed is designed to convey the 100-year, developed storm flows out of the study area to the Rio Grande." It is based upon this statement that it is understood that the SAD 198 improvements are intended to provide free discharge to the study area. The study area includes the Ladera Shopping Center site.

The composite computation, at right, calculates the composite peak discharge from the site based upon the 21.3 minute time of concentration established by the SAD 198 report. The composite rational coefficient has been determined on the basis of aerial ratio. As can be seen from this computation, the peak composite discharge from the site is approximately 38.3 cfs. This lies just below the design computation set forth in the SAD 198 report. The value established by the report is 40.7 cfs, slightly greater than the composite value calculated above.

CALCULATIONS

Ground Cover Information

From SCS Bernalillo County Soil Survey,
Plate 20: MWA, Madurez
Hydrologic Soil Group: B
Existing 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

$P_6 = 2.2$ in. (DPM Plate 22.2 D-1)

Rational Method

Discharge: $Q = C i A$

where C varies

$i = P_6 (6.84) T_c^{-0.51} = 4.65$ in/hr

$P_6 = 2.2$ 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

1. Basin A

Atotal = 73,428 sf = 1.69 Ac

Roof area = 34,265 sf (0.47)

Paved area = 26,458 sf (0.36)

Landscaped area = 12,705 sf (0.17)

$C = 0.81$ (Weighted average per Emergency Rule, 1/14/86)

$Q_{100} = C i A = 0.81(4.65)1.69 = 6.35$ cfs

$A_{imp} = 60,723$ sf; % impervious = 82.7%

Composite CN = 91 (DPM Plate 22.2 C-3)

DRO = 1.35 in (DPM Plate 22.2 C-4)

$V_{100} = 3630$ (DRO)A = 8,260 cf

2. Basin B

Atotal = 119,058 sf = 2.73 Ac

Roof area = -0- sf (0.00)

Paved area = 106,428 sf (0.89)

Landscaped area = 12,630 sf (0.11)

$C = 0.88$ (Weighted average per Emergency Rule, 1/14/86)

$Q_{100} = C i A = 0.88(4.65)2.73 = 11.17$ cfs

$A_{imp} = 106,428$ sf; % impervious = 89.4%

Composite CN = 95 (DPM Plate 22.2 C-3)

DRO = 1.70 in (DPM Plate 22.2 C-4)

$V_{100} = 3630$ (DRO)A = 16,850 cf

3. Basin C

Atotal = 61,763 sf = 1.42 Ac

Roof area = 11,537 sf (0.19)

Paved area = 41,716 sf (0.68)

Landscaped area = 12,630 sf (0.14)

$C = 0.88$ (Weighted average per Emergency Rule, 1/14/86)

$Q_{100} = C i A = 0.88(4.65)2.73 = 11.17$ cfs

$A_{imp} = 106,428$ sf; % impervious = 89.4%

Composite CN = 95 (DPM Plate 22.2 C-3)

DRO = 1.70 in (DPM Plate 22.2 C-4)

$V_{100} = 3630$ (DRO)A = 16,850 cf



SUPPLEMENTAL TEXT (Furr's Addition)

The proposed Furr's addition will not add or subtract any impervious area to Basins "A" or "B". Because the proposed roof area will drain to the west, approximately 6100 square feet of impervious area will be transferred from Basin "B" to Basin "A".

Under the former conditions of this Plan, there is 40.7 - 38.3 = 2.4 cfs of additional capacity within the storm drain constructed under SAD 198 (see composite computation). Using the Hydrology Calculation Methods outlined in the January, 1993 Revision of Section 22.2 of the D.P.M., Basins "A" and "B" discharge 10.6 + 7.3 = 17.9 cfs during the design storm. The original Calculations demonstrated that the same two Basins discharge 11.2 + 6.4 = 17.6 cfs. The difference between the "old" and "new" calculation methods is 0.3 cfs which is less than the 2.4 cfs excess capacity which the site has been allotted by SAD 198. Due to the negligible increase in runoff (as compared to the old plan) and the available capacity within the storm drain, no mitigative efforts are proposed in conjunction with the proposed construction.

4. Basin D
Atotal = 42,935 sf = 0.99 Ac
Roof area = 2,636 sf (0.06)
Paved area = 25,366 sf (0.59)
Landscaped area = 14,933 sf (0.35)
 $C = 0.70$ (Weighted average per Emergency Rule, 1/14/86)
 $Q_{100} = C i A = 0.70(4.65)0.99 = 3.21$ cfs
 $A_{imp} = 28,002$ sf; % impervious = 65.2%
Composite CN = 84 (DPM Plate 22.2 C-3)
DRO = 0.95 in (DPM Plate 22.2 C-4)
 $V_{100} = 3630$ (DRO)A = 3,400 cf

5. Basin E
Atotal = 166,832 sf = 3.83 Ac
Roof area = -0- sf (0.0)
Paved area = 146,426 sf (0.88)
Landscaped area = 20,400 sf (0.12)
 $C = 0.86$ (Weighted average per Emergency Rule, 1/14/86)
 $Q_{100} = C i A = 0.86(4.65)3.83 = 15.32$ cfs
 $A_{imp} = 146,426$ sf; % impervious = 87.8%
Composite CN = 93 (DPM Plate 22.2 C-3)
DRO = 1.55 in (DPM Plate 22.2 C-4)
 $V_{100} = 3630$ (DRO)A = 21,550 cf

6. Basin F
Atotal = 18,973 sf = 0.44 Ac
Roof area = -0- sf (0.0)
Paved area = 15,340 sf (0.81)
Landscaped area = 3,633 sf (0.19)
 $C = 0.82$ (Weighted average per Emergency Rule, 1/14/86)
 $Q_{100} = C i A = 0.82(4.65)0.44 = 1.66$ cfs
 $A_{imp} = 15,340$ sf; % impervious = 80.85%
Composite CN = 91 (DPM Plate 22.2 C-3)
DRO = 1.35 in (DPM Plate 22.2 C-4)
 $V_{100} = 3630$ (DRO)A = 2,130 cf

7. Basin G
Atotal = 130,247 sf = 2.99 Ac
Roof area = 63,662 sf (0.49)
Paved area = 37,650 sf (0.29)
Landscaped area = 28,935 sf (0.22)
 $C = 0.77$ (Weighted average per Emergency Rule, 1/14/86)
 $Q_{100} = C i A = 0.77(4.65)2.99 = 10.71$ cfs
 $A_{imp} = 101,312$ sf; % impervious = 77.8%
Composite CN = 88 (DPM Plate 22.2 C-3)
DRO = 1.20 in (DPM Plate 22.2 C-4)
 $V_{100} = 3630$ (DRO)A = 13,020 cf

8. Basin H
Atotal = 30,618 sf = 0.70 Ac
Roof area = 12,957 sf (0.42)
Paved area = 9,101 sf (0.30)
Landscaped area = 8,560 sf (0.28)
 $C = 0.73$ (Weighted average per Emergency Rule, 1/14/86)
 $Q_{100} = C i A = 0.73(4.65)0.70 = 2.39$ cfs
 $A_{imp} = 22,058$ sf; % impervious = 72.0%
Composite CN = 88 (DPM Plate 22.2 C-3)
DRO = 1.2 in (DPM Plate 22.2 C-4)
 $V_{100} = 3630$ (DRO)A = 3,060 cf

COMPOSITE COMPUTATION

$T_c = 21.3$ min (SAD 198)
 $i = 2.2 (6.84) (21.3)^{-0.51} = 3.16$ in/hr.
 $Q_{comp} = C_{comp} i A_T$

$A_T = 1.69 + 2.73 + 1.42 + 0.99 + 3.83 + 0.44 + 2.99 + 0.70 = 14.8$ Ac
 $Q_{comp} = [0.81(1.69) + 0.88(2.73) + 0.82(0.99) + 0.70(0.99) + 0.86(3.83) + 0.82(0.44) + 0.77(2.99) + 0.73(0.70)]/14.8$
 $Q_{comp} = 0.82$
 $Q_{comp} = 0.82(3.16)(14.8) = 38.3$ cfs
 $Q_{comp} < Q_{Design}$, SAD 198
 Q_{Design} , SAD 198 = 40.7 cfs

PARKING LOT EXPANSION

18 paved parking spaces will be created upon an area which is currently used for ponding. This introduction of impervious area will cause a slight increase in volume and peak rate of runoff discharged from this site. The amount is calculated as follows to be the difference between 2900 sf of Land Treatment D and Land Treatment B:

Area = 2900 sf/0.07 ac
Zone = 1

A. Existing Condition (Treatment B)
 $E_w = 0.67$ in.
 $V_{100} = (0.67/12)(2900 \text{ sf}) = 162$ cf
 $Q_{100} = (2.03)(0.07) = 0.14$ cfs

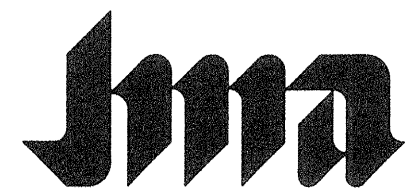
B. Developed Condition (Treatment D)
 $E_w = 1.97$ in.
 $V_{100} = (1.97/12)(2900 \text{ sf}) = 476$ cf
 $Q_{100} = (4.37)(0.07) = 0.31$ cfs

C. Comparison
 $\Delta V_{100} = 476 - 162 = 314$ cf (increase)
 $\Delta Q_{100} = 0.31 - 0.14 = 0.17$ cfs (increase)

As stated in the Supplemental Text for the Furr's Addition, there is approximately 2.1 cfs of additional capacity allotted this site by SAD 198. The proposed parking lot expansion will cause an increase of 0.3 cfs which is less than the 2.1 cfs available.



MASTER DRAINAGE PLAN DRAINAGE PLAN, CALCULATIONS & VICINITY MAP LADERA SHOPPING CENTER



JEFF MORTENSEN & ASSOCIATES, INC.
6010-B MIDWAY PARK BLVD. N.E.
ALBUQUERQUE, NEW MEXICO 87109
ENGINEERS & SURVEYORS (505)345-4250

NO.	DATE	BY	REVISIONS	JOB NO.
1	07/92	J.G.M.	DRAIN BASIN G; SUPPLEMENTAL TEXT,	920324
2	09/95	G.M.	COMPOSITE COMPUTATION	
3	12/95	G.M.	SUPPLEMENTAL TEXT (FURR'S EXPANSION)	
4	12/95	G.M.	PARKING LOT EXPANSION	
				DATE
				06/92
				SHEET
				4 OF 6