HYDROLOGY L19/ D14 THREE PLANS

L 19/D 14

3 PLANS

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 20, 1982

Mr. Ted Wittek
Academy Engineering, Inc.
5353 Wyoming Blvd. N.E. Suite 3
Albuquerque, New Mexico 87109

Re: Vista Virginia Drainage Report

Dear Ted:

The report is hereby approved based on your submittal of April 19, 1982. Please be advised that approved copies of Special Order No. 19 must be attached to the City construction sets before Hydrology can sign off.

Sincerely,

Jim Fink
Civil Engineer

JF/fs

INFORMATION SHEET

PROJECT TITLE VISTA VIRGINIA TYPE OF SUBMITTAL DRAINAGE - GRADING

ZONE ATLAS PAGE NO. L-19 CITY ADDRESS

LEGAL DESCRIPTION

ENGINEERING FIRM ACADEMY ENGINEERING CONTACT JIM BLACKWELL

ADDRESS 5353 WYOMING BLVD NE PHONE 821-8008

OWNER ANDRADE HOMES INC CONTACT SAM ANDRADE

ADDRESS 515 FRESAN PHONE 831-5722

ARCHITECT DEL JACK CONTACT DEL JACK

ADDRESS 400 SAN FELIPE PHONE 242-4591

SURVEYOR GARDNER, MASON CONTACT GIL GARDNER

ADDRESS 2127 MENUL PHONE 881-3846

CONTRACTOR CONTACT

ADDRESS PHONE

DATE SUBMITTED 3-17-83

BY

Use this Information Sheet when submitting the following:

Drainage report or plan, conceptual grading and drainage plan, engineer's certification plan, erosion plan and grading plan. Provide the information applicable to your submittal.

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

L19 - D14

March 17, 1983

Mr. James Blackwell
Academy Engineering
5353 Wyoming Blvd. N.E.
Albuquerque, N.M. 87109

RE: VISTA VIRGINIA DRAINAGE PLAN (REVISED)

Dear Jim:

The referenced drainage plan dated 3/11/83 is hereby approved. Since the Hydrology Section is not involved with the inspection of single family units, we request that your firm be responsible for certifying that the project is in substantial compliance with the approved plan. The DPM contains a checklist outlining the type of information required for certification. Also, it is my understanding that all runoff from the units will be directed to the street. Please confirm this.

If you have any questions, please call.

Very truly yours,

Brian G. Burnett
Civil Engineer/Hydrology

BGB/tsl

DRAINAGE REPORT

FOR

VISTA VIRGINIA SUBDIVISION

PREPARED BY

ACADEMY ENGINEERING, INC.
5353 WYOMING BLVD., NE
ALBUQUERQUE, NEW MEXICO

(505) 821-8008

JAMES E. BLACKWELL
NEW MEXICO
7145
REGISTERED PROFESSIONAL ENGINEER

1-29-82

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EXHIBITS

EXHIBIT A . . . . . Site Location

EXHIBIT B . . . . . Topographic Map

EXHIBIT C . . . . . Drainage Plan

EXHIBIT D . . . . . Intensity Duration Frequency Curves

EXHIBIT E . . . . . Nomograph for Time of Concentration

EXHIBIT F . . . . . Plat

EXHIBIT G . . . . . Street Plan and Profile

EXHIBIT G . . . . . Storm Sewer and Grading Details

VISTA VIRGINIA

SCOPE

The scope of this report is to present the data, analysis, calculations, and a proposed plan for drainage management.

SITE LOCATION

The project site is located at the intersection of Virginia St., SE and Virginia Place, SE, Albuquerque, New Mexico. The site is bound by developed property on all sides (see location map, Exhibit A).

The site, in its natural state, slopes at less than 1.0% to the west (see topo, Exhibit B). There are no offsite flows intercepted by the site.

ESTIMATED RUNOFF UNDEVELOPED STATE

Drainage within the boundary of the site is basically overland flow. The drainage naturally exits the area from the west of the property. The historic 100-year discharge from the site is 2.19 cfs. This is the maximum discharge allowed by the City of Albuquerque after development occurs.

ESTIMATED RUNOFF DEVELOPED STATE

As development occurs, the impervious area increases and thereby the amount of runoff also increases. To offset this increase, onsite restrictions of flow must be incorporated into the development. While this can take different forms, the most practical solution for this type of development is to utilize on-lot ponding.

On-lot ponding will be incorporated on Lots No. 1 thru 6 inclusive and Lots 9 thru 14 inclusive. No ponding will be incorporated on Lots No. 7 and 8 due to insufficient available area in the back yards. The entire roof area of ponded lots shall drain to the back yards. Required minimum volume of ponding is as shown in Table I.

The developed 100-year flow from the site (all of Lots 7 and 8, all front yards and street) is 2.20 cfs. This drainage shall flow to the west and be picked up in a storm sewer at the top of Virginia Place, SE.

DESIGN CRITERIA

In analyzing the storm runoff, the rational formula, Q-CIA is used. Where:

Q = Runoff Quantity in cubic feet/second.
A = Contributing Area in Acres.
I = Intensity in inches/hour for a duration equal to the time of accumulation (duration) measured in minutes and obtained from Exhibit D, intensity duration frequency curves, Albuquerque area 1961. (Note: Where a time of concentration (Tc) is less than ten minutes from Exhibit E, the intensity value derived from the Tc equal to ten minutes is employed.)

C = Runoff coefficient (No Unit). This coefficient represents the integrated effects of infiltration detention storage, evaporation retention, flow routing and interception which all affect the time distribution and peak rate of runoff. (=0.4 pervious and 0.9 impervious)

EXPLANATION OF RESULTS

100-year undeveloped runoff:
Total Flow = 2.19 cfs

100-year developed runoff:
Total Flow = 2.20 cfs

As shown above, the development of this project, including onsite ponding, remains within the required runoff criteria.

DRAINAGE PLAN

The following recommendations are needed as part of the Drainage Management Plan to insure that the drainage requirements for the City of Albuquerque are satisfied.

1. On-lot ponding is necessary on Lots 1 thru 6 and 9 thru 14.

2. Roof construction for ponded lots should be such that all of the roof area drains to the rear yards.

3. A single type "C" catch basin should be installed in Virginia Place, a 18" diameter pipe should be used to convey storm water to the existing storm drain.

BY JEB DATE 1-18-82 SUBJECT VISTA VIRGINIA SHEET NO. 1 OF 2
CHKD. BY DATE JOB NO.

TOTAL SUBDIVISION AREA = 44,235 FT^2

IMPERVIOUS AREA

HOUSES	6160	
DRIVE PADS	3780	
STREET	11,224	
TOTAL	21,164	21,164 FT^2

PERVIOUS AREA = 44,235 - 21,164 = 23,071 FT^2

COMPOSITE C

$$C = \frac{(0.40)(23,071) + (0.90)(21,164)}{44,235} = 0.64$$

UNDEVELOPED $Q = (0.40)(5.4)\left(\frac{44,235}{43,560}\right) = 2.19$ cfs

Developed Q (No ponding) $= (0.64)(5.4)\left(\frac{44,235}{43,560}\right) = 3.51$

RUN OFF AREA

TOTAL AREA = 44,235 - 13,692 - 4840 = 25,703

IMPERVIOUS AREA = 15,004 PERVIOUS AREA = 10,699

$$C = \frac{(0.4)(10,699) + (.9)(15,004)}{25,703} = 0.69$$

Developed Q (WITH PONDING) $= (.69)\left(\frac{25,703}{43,560}\right)(5.4) = 2.20$ cfs

BY JEB DATE 1-18-82 SUBJECT VISTA VIRGINIA SHEET NO 2 OF 2
CHKD. BY DATE JOB NO.

TABLE I

REAR YARD PONDING

LOT #	IMPERVIOUS AREA	PERVIOUS AREA	COMPOSITE C	Q_{100} cfs	V_{100} ft^3
1	440	1402	0.52	0.12	191
2	440	770	0.58	0.09	141
3	440	770	0.58	0.09	141
4	440	770	0.58	0.09	141
5	440	770	0.58	0.09	141
6	440	1045	0.55	0.10	163
7					
8					
9	440	1634	0.51	0.13	210
10	440	701	0.59	0.08	135
11	440	701	0.59	0.08	135
12	440	971	0.56	0.10	157
13	440	1606	0.51	0.13	208
14	440	2552	0.47	0.18	283
	4840	13,692			

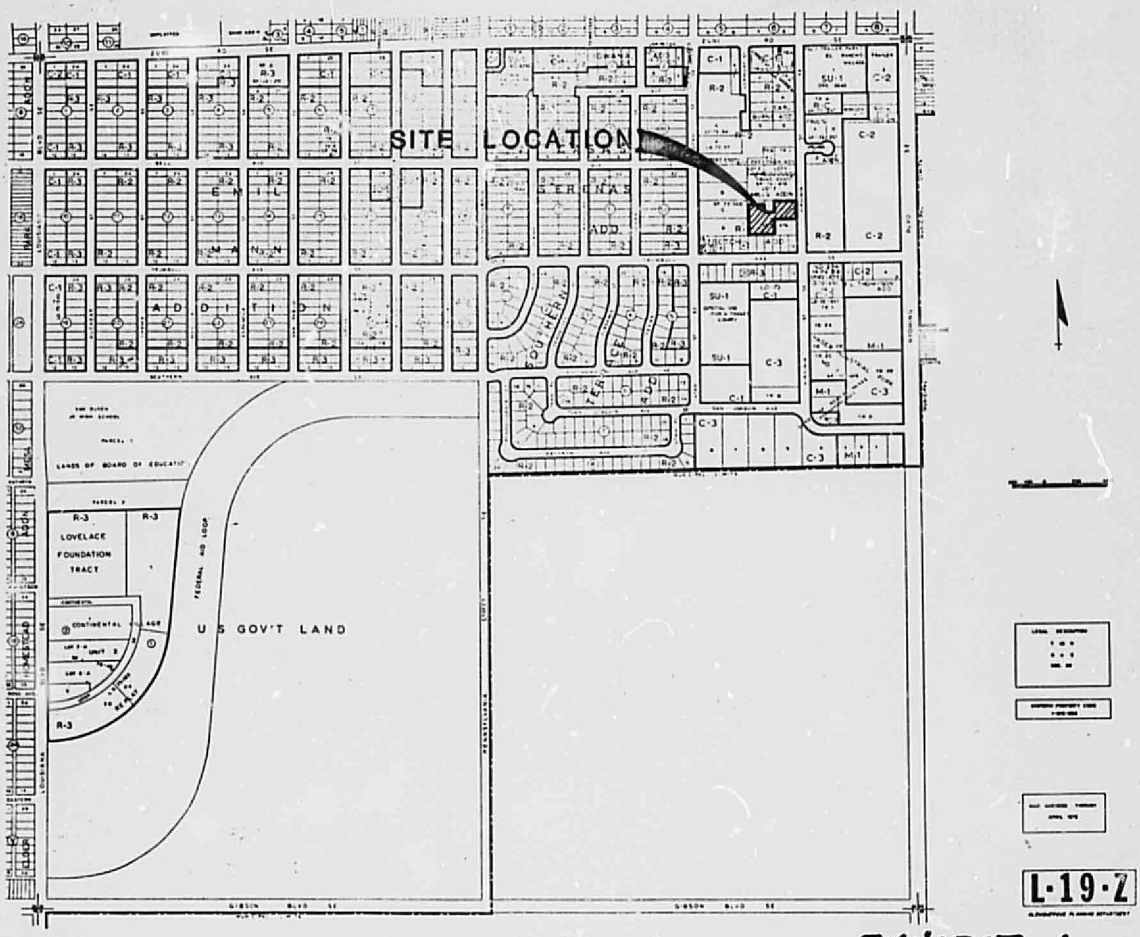
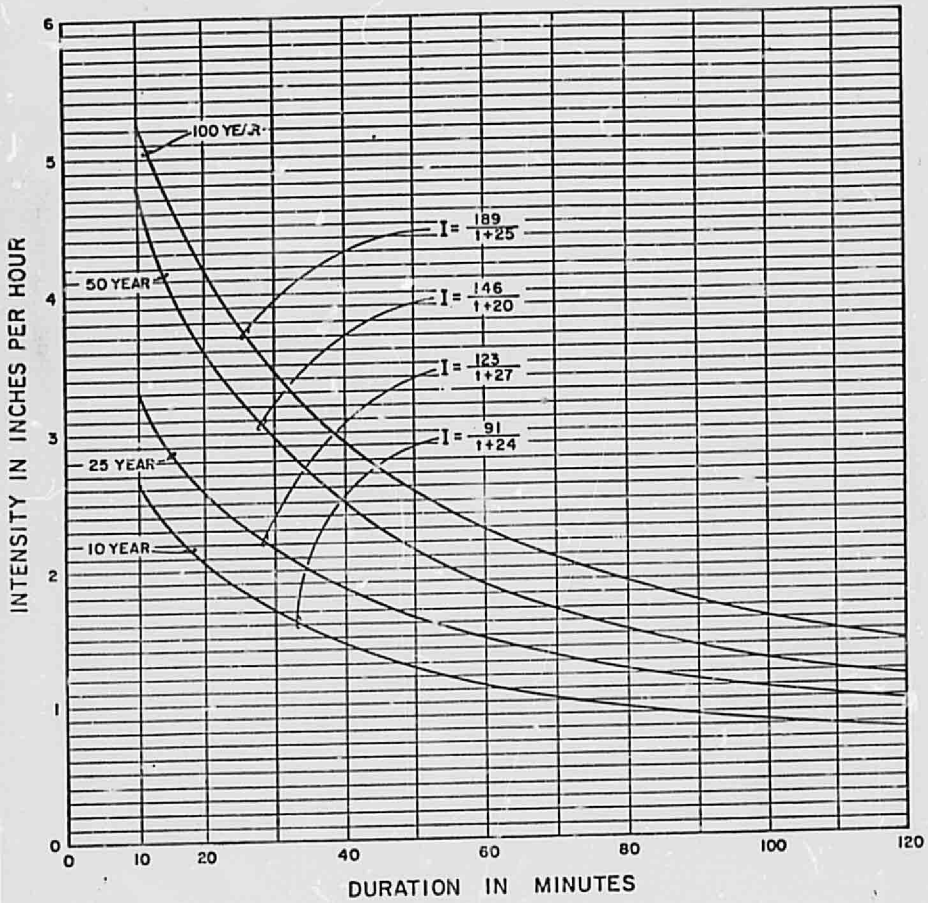

SITE LOCATION
GERONAS ADD.
ADDITION
LOVELACE FOUNDATION TRACT
CONTINENTAL
U S GOV'T LAND
FEDERAL AID LOOP
GIBSON BLVD SE
L-19-Z

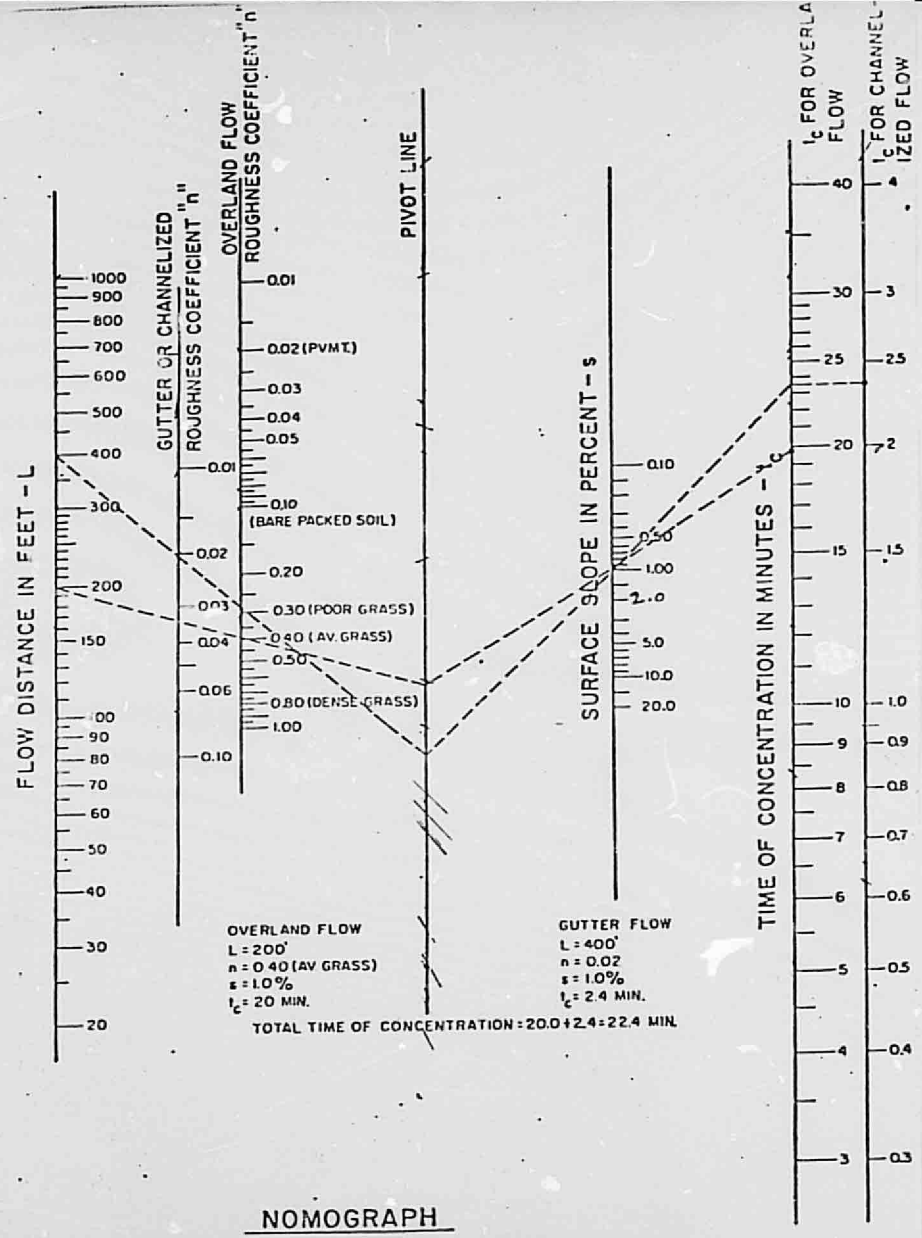
EXHIBIT A



MASTER PLAN OF DRAINAGE
PREPARED BY:
GORDON HERKENHOFF & ASSOCIATES
ALBUQUERQUE, NEW MEXICO

INTENSITY DURATION FREQUENCY CURVES
(ALBUQUERQUE AREA, 1961)

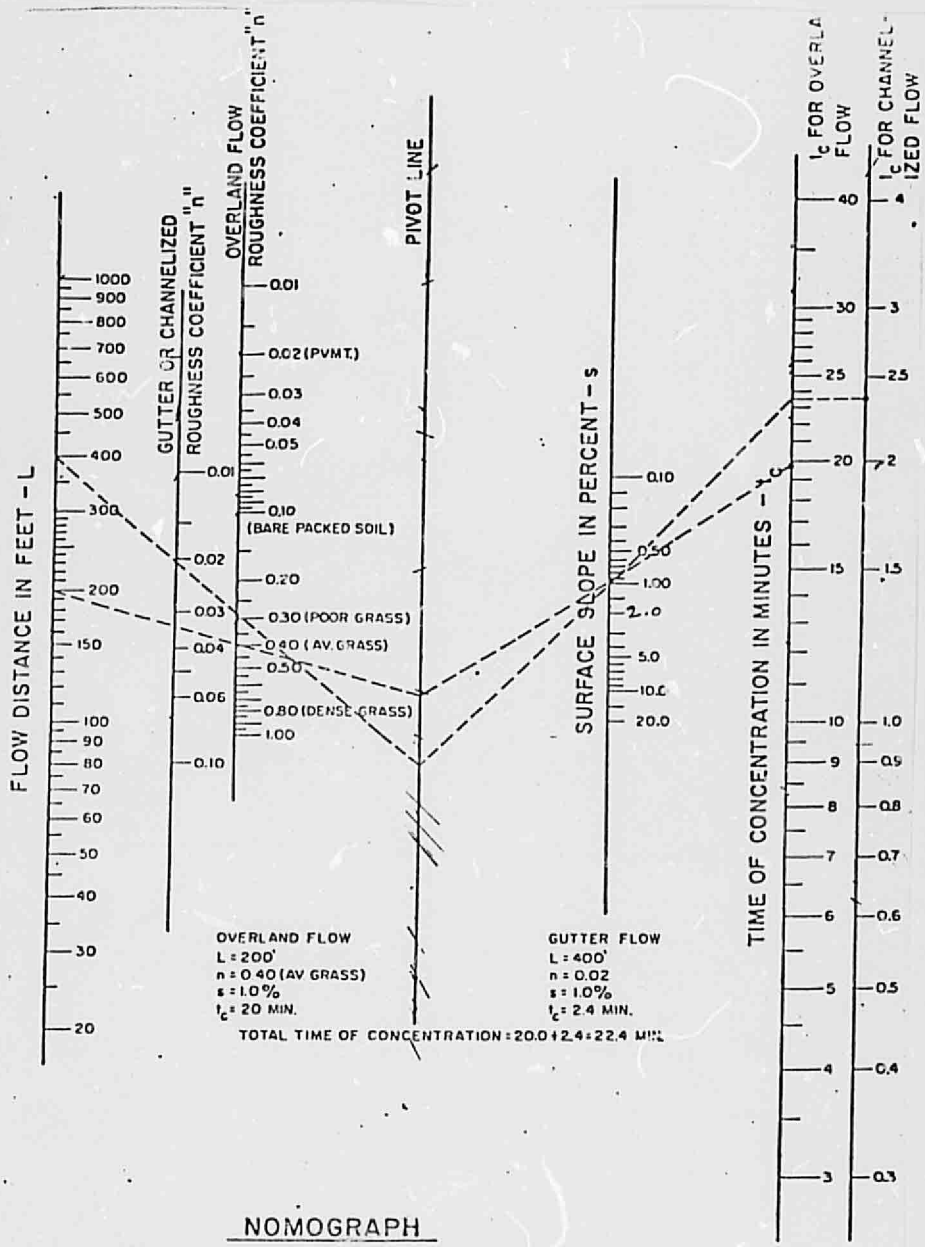
EXHIBIT D



NOMOGRAPH

FOR TIME OF CONCENTRATION

EXHIBIT E



NOMOGRAPH

FOR TIME OF CONCENTRATION

EXHIBIT E

E18-D28

DRAINAGE EASEMENT

Granted this _____ day of December 1981, to the City of Albuquerque, a temporary drainage, access and maintenance easement across and over a certain tract of land located within the City Limits of Albuquerque, New Mexico, comprising a portion of Tracts 2-A-2 of the North Academy Business Park as shown on the plat filed in the office of the County Clerk, Bernalillo County on
and being more particularly described as follows:

Beginning at the northeast corner of Tracts 2-A-2; thence S00°00'33" W a distance of 406.98 feet; thence along the north right-of-way of the 37.83 foot wide drainage easement along the arc of a curve to the left with Δ = 13°21'29", R = 415.67 feet and L = 96.91 feet; thence N 89°59'27" W a distance of 150.52 feet; thence along the arc of a curve to the right with Δ = 52°30'00" R = 264.33 feet and L = 242.21 feet; thence N 37°29'30"W a distance of -17.75 feet; thence along the arc of a curve to the left with Δ = 14°07'33", R = 415.67 feet and L = 102.48 feet; thence N00°04'00" E a distance of 310.23 feet; thence along the south right-of-way of Academy Rd., N.E. along the arc of a curve to the right with Δ = 03°48'36", R = 1,757,05 feet and L = 116.84 feet; thence S00°04'00" W a distance of 261.94 feet; thence S89°56'00" E a distance of 210.13 feet; thence N00°04'00" E a distance of 120.00 feet; thence along the south right-of-way of Academy Rd., N.E. along the arc of a curve to the right with Δ = 09°39'33", R = 1,757.05 feet and L = 296.21 feet to the point of beginning and containing 5.472 acres more or less and filed December _____, 1981. This easement to be released upon commencement of improvement of the proposed site development plan, of the above described land.

Jim Achen

Jim Achen, President
North Academy Business Park, Inc.

ACKNOWLEDGEMENT FOR CORPORATION

State of New Mexico)
County of Bernalillo) SS

The foregoing instrument was acknowledged before me this 19th day of November, 1981, by Jim Achen, President, North Academy Business Park, Inc., A New Mexico Corporation, on behalf of said corporation.

Commission Expires:
4-10-84

Ginger Vaughn
NOTARY PUBLIC

OFFICIAL SEAL
4-10-84