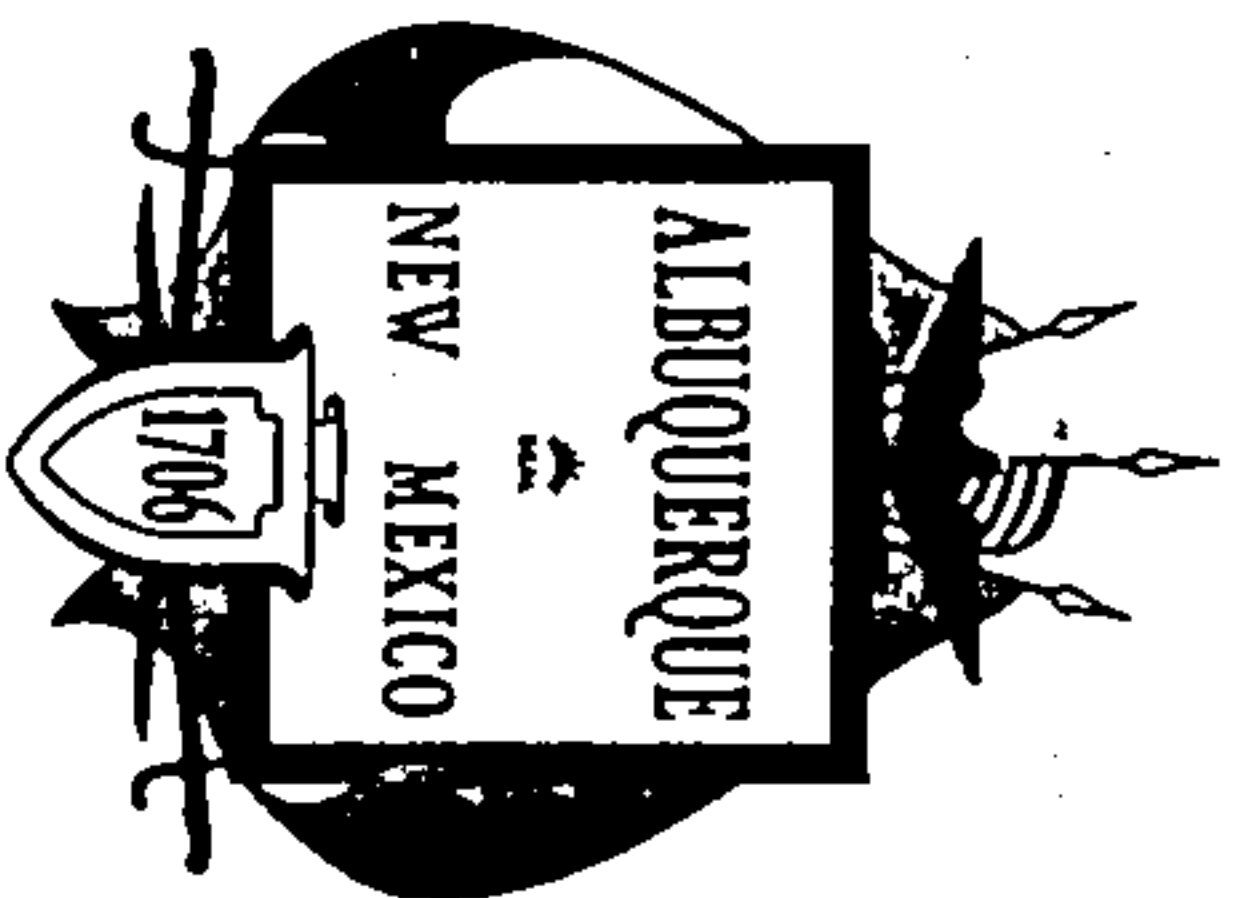




City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

March 11, 1994

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

RE: ENGINEER CERTIFICATION FOR WAFFLE HOUSE @ YALE & RENARD (M16-D19A)
CERTIFICATION STATEMENT DATED 3/10/94.

Dear Mr. Mortensen:

Based on the information provided on your March 11, 1994 submittal, Engineer Certification for the above referenced site is acceptable.

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

Sincerely,

Bernie J. Montoya, CE
Engineering Associate

BJM/dl/WPHYD/8371

c: Andrew Garcia
File

DRAINAGE INFORMATION SHEET

601774

WAFLE HOUSE

PROJECT TITLE: YALE / RENARD

ZONE ATLAS/DRNG. FILE #: M16/D19A

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: LOT B-1-A, AIRPORT INDUSTRIAL PARK

CITY ADDRESS: 2250 YALE BLVD SE

ENGINEERING FIRM: JEFF NORTENSEN & ASSOC. CONTACT: JEFF NORTENSEN

ADDRESS: 6010-B MIDWAY PARK BLVD NE PHONE: 345-4250

OWNER: WAFLE HOUSE INC CONTACT: _____

ADDRESS: NORCROSS, GA PHONE: 404-729-5805

ARCHITECT: WAFLE HOUSE CONTACT: _____

ADDRESS: NORCROSS, GA PHONE: 404-729-5805

SURVEYOR: JEFF NORTENSEN & ASSOC CONTACT: JEFF NORTENSEN

ADDRESS: 6010-B MIDWAY PARK BLVD NE PHONE: 345-4250

CONTRACTOR: WAFLE HOUSE CONTACT: TONY HUNTER

ADDRESS: SITE PHONE: 843-9194

TYPE OF SUBMITTAL:

☐ DRAINAGE REPORT

☐ DRAINAGE PLAN

☐ CONCEPTUAL GRADING & DRAINAGE PLAN

☐ GRADING PLAN

☐ EROSION CONTROL PLAN

☒ ENGINEER'S CERTIFICATION

☐ OTHER

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

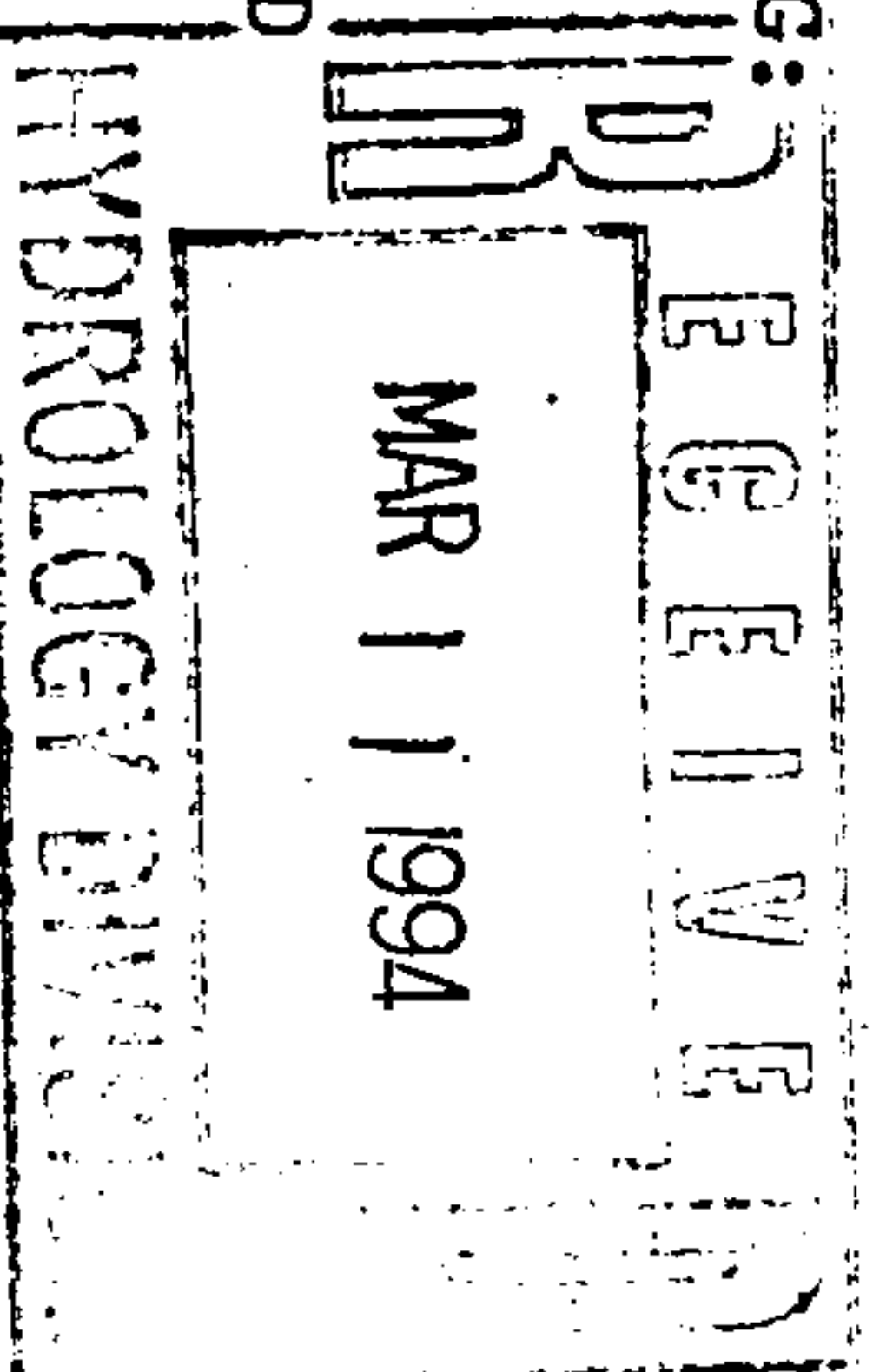
☐ OTHER _____ (SPECIFY)

PRE-DESIGN MEETING:

☐ YES

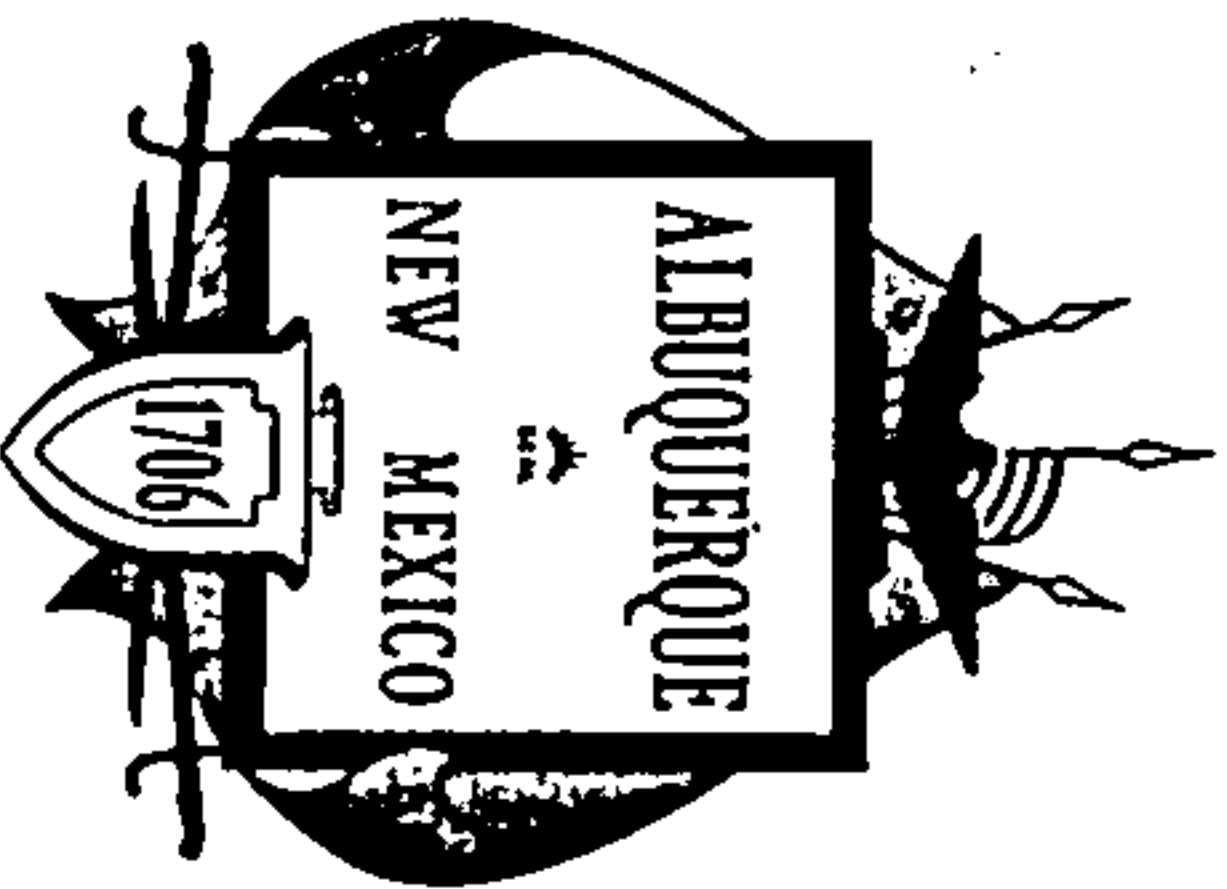
☐ NO

☐ COPY PROVIDED



DATE SUBMITTED: 03-10-94

BY: JEFFREY G. NORTENSEN



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 7, 1993

Jeff Mortensen, P.E.
Jeff Mortensen & Assoc.
6010-B Midway Park Blvd. NE
Albuquerque, N.M. 87109

RE: GRADING & DRAINAGE PLAN FOR WAFFLE HOUSE & YALE & RENARD (M-16/D19A)
RECEIVED MARCH 30, 1993 FOR BUILDING PERMIT APPROVAL
ENGINEER'S STAMP DATED 03-29-93

Dear Mr. Mortensen:

Based on the information included in the submittal referenced above and the Conceptual Plan dated Dec 16, 1986 & approved Dec 24, 1986; City Hydrology APPROVES this project for Building Permit.

Include the Grading & Drainage Plan in the set of construction documents that are submitted for Building Permit.

Engineer's Certification of grade per the DPM checklist must be approved before any Certificate of Occupancy will be released.

If I can be of any further assistance, You may contact me at 768-2727.

Sincerely,


John P. Curtin, P.E.
PWD/Hydrology

xc: Alan Martinez, Permits

WPHYD+7666;jpc

PUBLIC WORKS DEPARTMENT

Walter H. Nickerson, Jr., P.E.
Assistant Director Public Works

ENGINEERING GROUP

Telephone (505) 768-2500

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
UTILITY DEVELOPMENT DIVISION/HYDROLOGY SECTION

61774

PRE-DESIGN CONFERENCE

DRAINAGE FILE/ZONE ATLAS PAGE NO.: ML DATE: 3/12/93

EPC NO.: _____ DRB NO.: _____ ZONE: _____

SUBJECT: Waffle House @ Renard & Yale

STREET ADDRESS: _____

LEGAL DESCRIPTION: Lot B-1-A Airport Industrial Park

APPROVAL REQUESTED: _____ PRELIMINARY PLAT _____ FINAL PLAT _____
_____ SITE DEVELOPMENT PLAN ☒ BUILDING PERMIT _____
_____ GRADING/PAVING PERMIT _____ OTHER _____

WHO

REPRESENTING

ATTENDANCE: Bernie J. Montoya

Jeff Mortensen

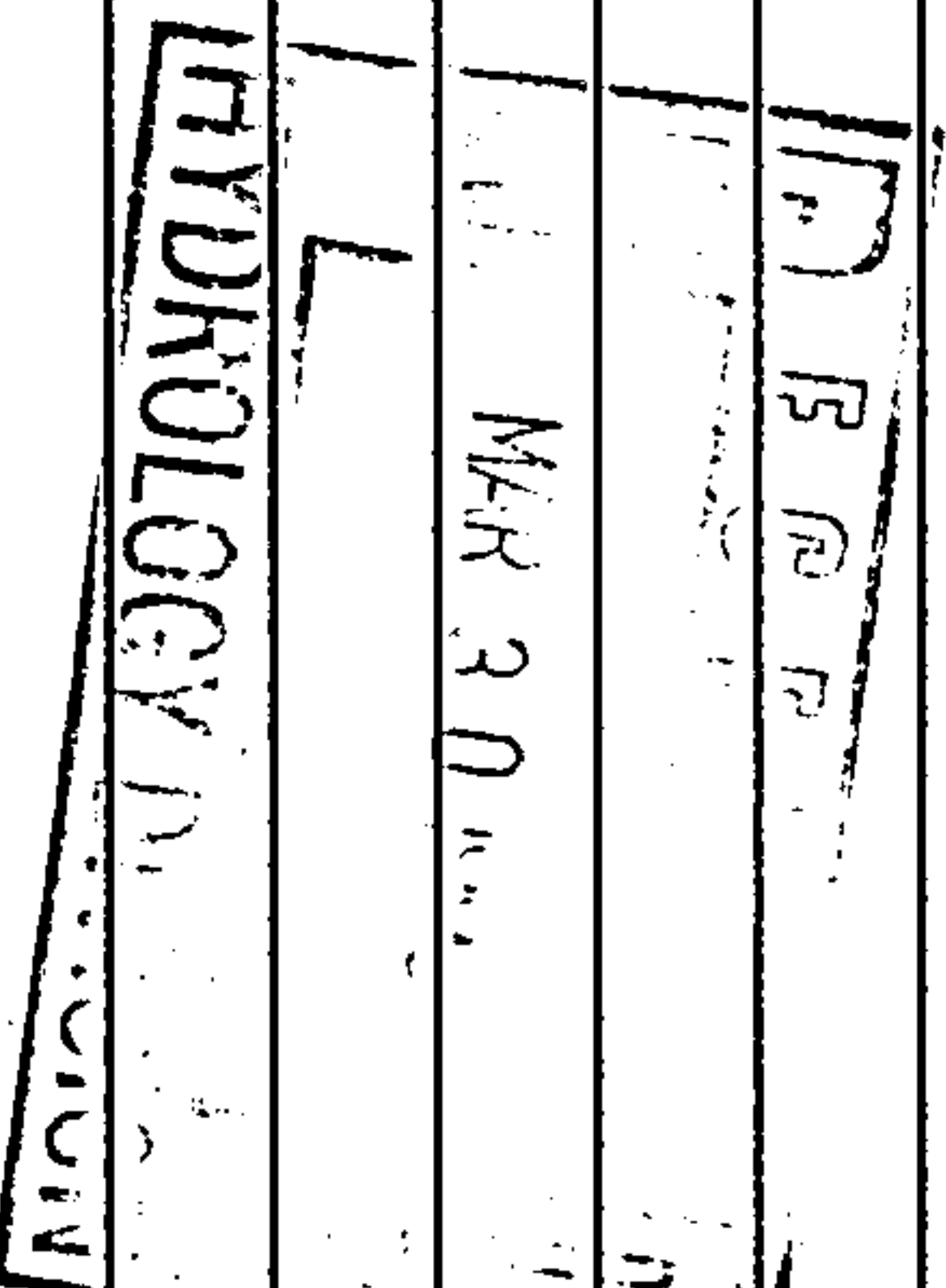
C.R. A.
Jeff Mortensen & Associates

FINDINGS:

1. Drainage Plan per D.P.M. guidelines required for review prior to
Building Permit release.

2. 1986 A.M.D.S. revision indicates A.P. Yale & Gibson D100 : .54'
Grade : 55 cfs.

3. Must demonstrate that the increase in runoff will not violate the
one tree driving lane requirement.



The undersigned agrees that the above findings are summarized accurately and are only subject to change if further investigation reveals that they are not reasonable or that they are based on inaccurate information.

SIGNED: Daniel Montoya

TITLE: Engineering Assistant

DATE: 3/12/93

SIGNED: [Signature]

TITLE: _____

DATE: 03/12/93

NOTE PLEASE PROVIDE A COPY OF THIS PRE-DESIGN FORM WITH THE DRAINAGE SUBMITTAL.

601774

WAFLE HOUSES -

PROJECT TITLE: YALE / REYARDZONE ATLAS/DRNG. FILE #: M16/D19ADRB #: 87-278 EPC #: 24-87-40

WORK ORDER #:

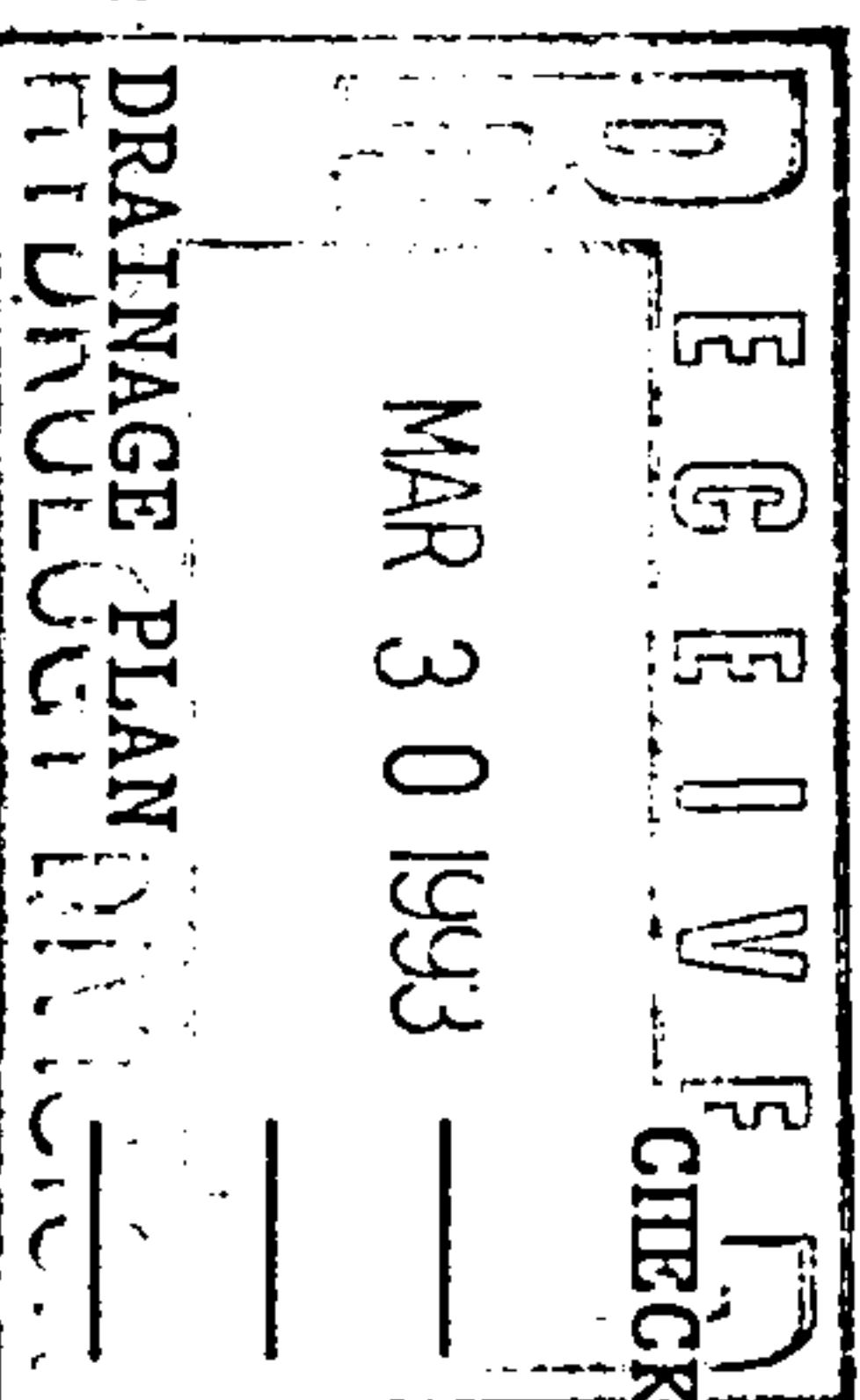
LEGAL DESCRIPTION: LOT 8-1-A AIRPORT INDUSTRIAL PARKCITY ADDRESS: 2250 YALE BLVD SEENGINEERING FIRM: JEFF NORTENSEN & ASSOC. CONTACT: JEFF NORTENSENADDRESS: 6010-B MIDWAY PARK BLVD N.E. PHONE: 345-4250OWNER: WAFLE HOUSE INC CONTACT: Randy HulsleyADDRESS: NORCROSS, GA PHONE: 404-729-5805ARCHITECT: NOT KNOWN CONTACT: OWNER

ADDRESS: _____ PHONE: _____

SURVEYOR: JEFF NORTENSEN & ASSOC CONTACT: JEFF NORTENSENADDRESS: 4010-B MIDWAY PARK BLVD N.E. PHONE: 345-4250CONTRACTOR: NOT SELECTED CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

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

CHECK TYPE OF APPROVAL SOUGHT:

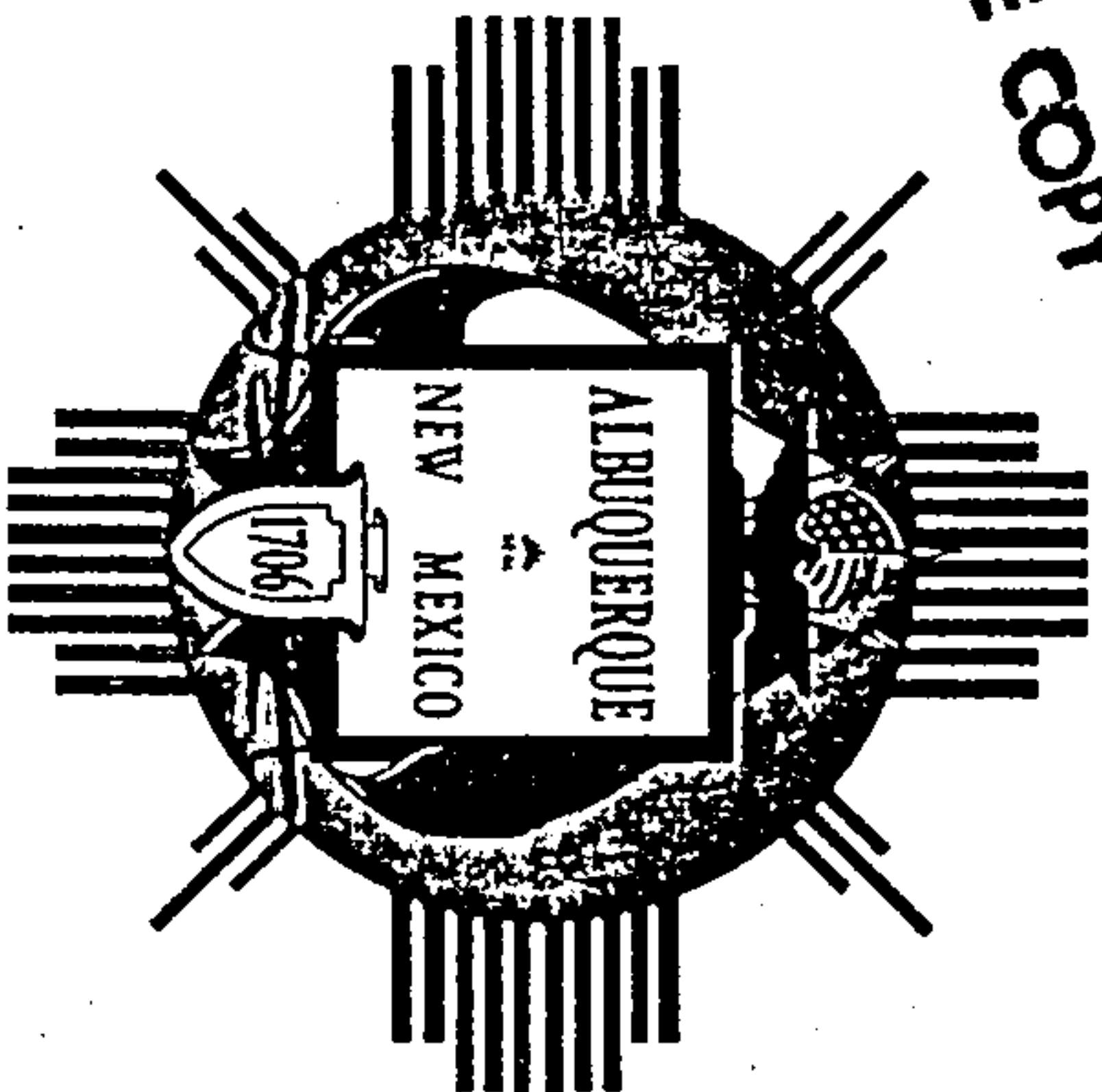
☐ SKETCH PLAT APPROVAL☐ PRELIMINARY PLAT APPROVAL☐ S. DEV. PLAN FOR SUB'D. APPROVAL☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL☐ SECTOR PLAN APPROVAL☐ FINAL PLAT APPROVAL☐ FOUNDATION PERMIT APPROVAL☒ BUILDING PERMIT APPROVAL☐ CERTIFICATE OF OCCUPANCY APPROVAL☐ GRADING PERMIT APPROVAL☐ PAVING PERMIT APPROVAL☐ S.A.D. DRAINAGE REPORT☐ DRAINAGE REQUIREMENTS☐ OTHER _____ (SPECIFY)

PRE-DESIGN MEETING:

☒ YES☐ NO☐ COPY PROVIDEDDATE SUBMITTED: 03-30-93BY: JEFFREY G. NORTENSEN

7666

FILE COPY



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

MAYOR	CHIEF ADMINISTRATIVE OFFICER	DEPUTY CAO PUBLIC SERVICES	DEPUTY CAO PLANNING/DEVELOPMENT
KEN SCHULTZ	GENE ROMO	FRANK MARTINEZ	BILL MUELLER

December 29, 1987

Jeff Mortensen
Tom Mann & Associates, Inc.
811 Dallas N.E.
Albuquerque, N.M. 87110

RE: REVISED DRAINAGE PLAN FOR WAFFLE HOUSE/TEXIAN INN
(M16-D19) REVISION DATED 12/21/87

Dear Mr. Mortensen:

Based on the information provided on your December 21, 1987 resubmittal, the above referenced drainage plan is approved for Building Permit.

Please attach a copy of this approved plan to the construction site prior to sign-off by Hydrology.

If I can be of further assistance, please feel free to contact me at 768-2650.

Sincerely,

Bernie J. Montoya, C.E.
Engineering Assistant/Hydrology
Public Works Department

BJM:ld

Arch. WP+ (ID 326)

DRAINAGE INFORMATION SHEET

PROJECT TITLE: MAFFEE House ZONE ATLAS/DRNG. FILE #: M-16/D19

LEGAL DESCRIPTION: LOT B-1, AIRPORT INDUSTRIAL PARK

CITY ADDRESS: _____

ENGINEERING FIRM: Bru Mawnt Assoc. CONTACT: LEONARD WITTEK

ADDRESS: 811 DALLAS N.E. PHONE: 265-5611

OWNER: MAFFEE House CONTACT: LEO COUNSELLOR

ADDRESS: 2626-D MAWANA DR. PHONE: (214) 357-6510

ARCHITECT: CONTACT OWNER CONTACT: _____

ADDRESS: _____ PHONE: _____

REVIEWER: Tom Mann & Assoc. CONTACT: LEONARD P. WITTEK

ADDRESS: 811 DALLAS N.E. PHONE: 265-5611

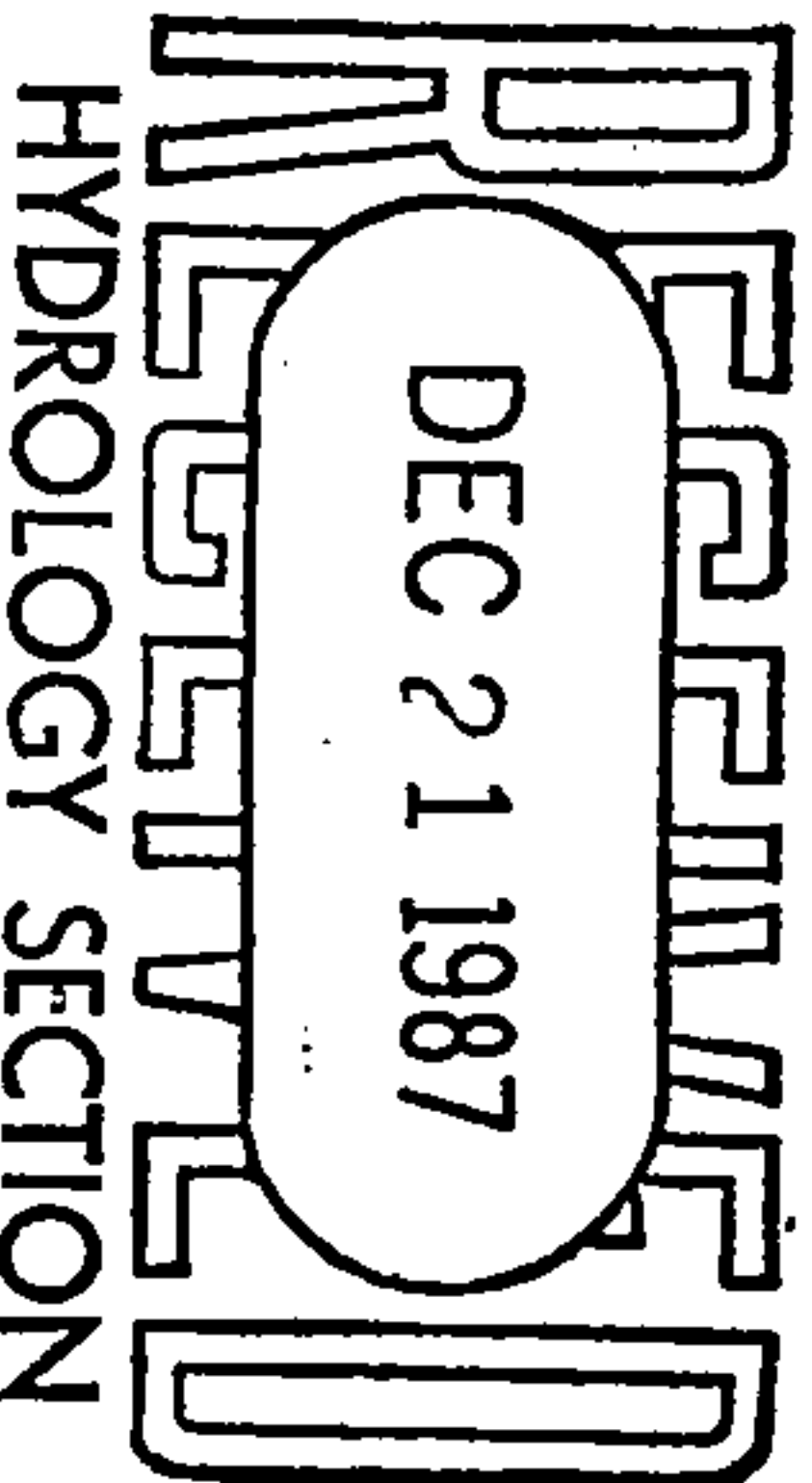
CONTRACTOR: NOT SELECTED CONTACT: _____

ADDRESS: _____ PHONE: _____

FIRE-DESIGN MEETING:

☒ YES

☐ NO



☐ COPY OF CONFERENCE RECAP
☐ SHEET PROVIDED

DRB NO. _____

EPC NO. _____

PROJ. NO. _____

TYPE OF SUBMITTAL:

☐ DRAINAGE REPORT

☒ DRAINAGE PLAN

☒ CONCEPTUAL GRADING & DRAINAGE PLAN

☐ GRADING PLAN

☐ EROSION CONTROL PLAN

☐ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

☐ SKETCH PLAT APPROVAL

☐ PRELIMINARY PLAT APPROVAL

☐ SITE DEVELOPMENT PLAN APPROVAL

☐ FINAL PLAT APPROVAL

☒ BUILDING PERMIT APPROVAL

☐ FOUNDATION PERMIT APPROVAL

☐ CERTIFICATE OF OCCUPANCY APPROVAL

☐ ROUGH GRADING PERMIT APPROVAL

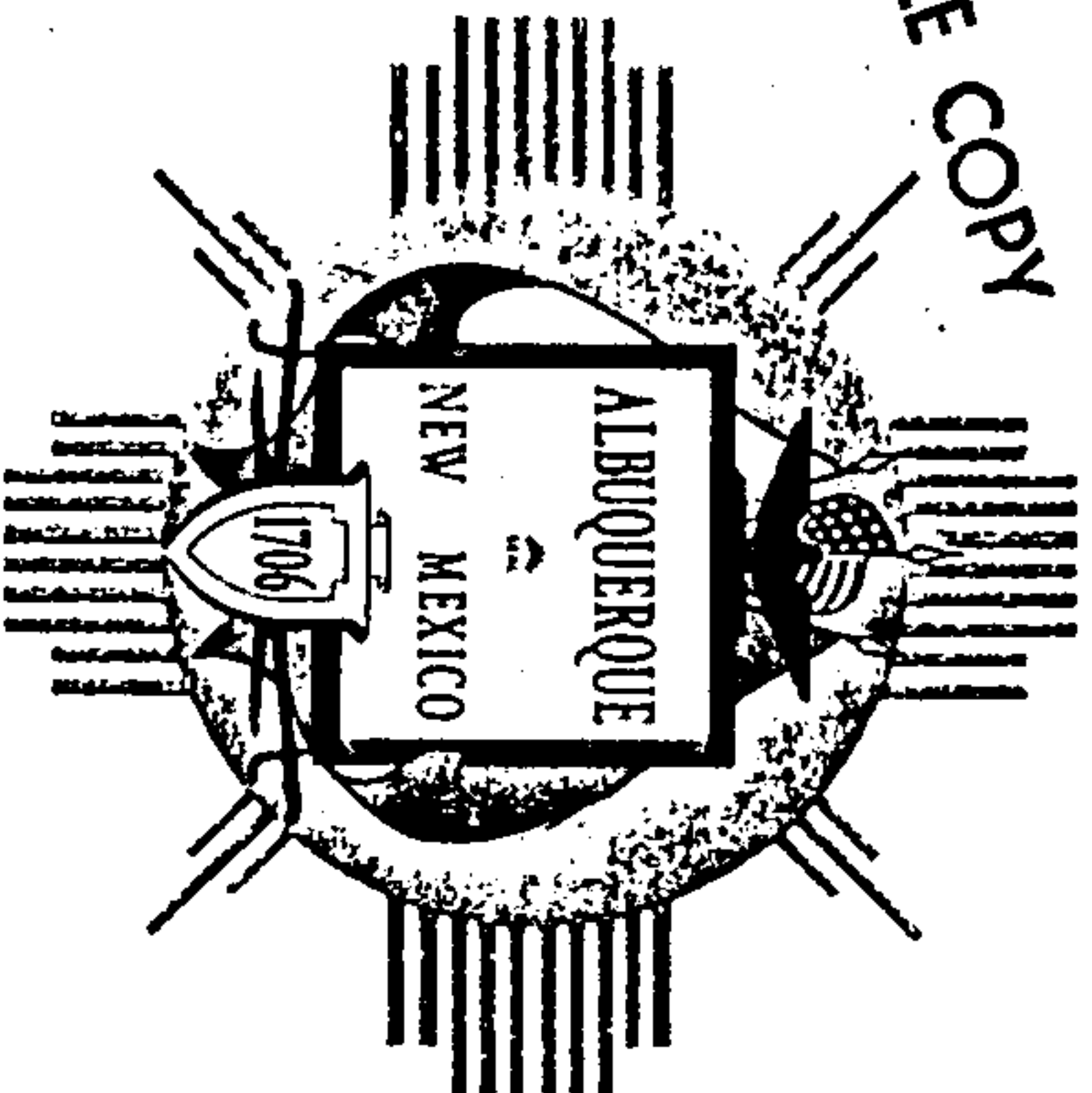
☐ GRADING/PAVING PERMIT APPROVAL

☒ OTHER REVISIONS (SPECIFY)

DATE SUBMITTED: 12-29-87

BY: [Signature]

FILE COPY



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

Ken Schultz
Mayor

UTILITY DEVELOPMENT DIVISION
HYDROLOGY SECTION
(505) 768-2650

May 15, 1987

Jeff Mortensen
Tom Mann & Associates, Inc.
811 Dallas, Ne
Albuquerque, New Mexico 87110

RE: DRAINAGE PLAN FOR WAFFLE HOUSE/TEXIAN INN
(M-16/D19) ENGINEER'S STAMP DATED APRIL 22, 1987

Dear Jeff:

Based on the information provided on your submittal of May 12, 1987, the above referenced plan is approved for Building Permit.

Please attach a copy of this plan to the construction sets prior to sign-off by Hydrology.

If I can be of further assistance, please feel free to call me at 768-2650.

Cordially,

Bernie J. Montoya
Bernie J. Montoya, C.E.
Engineering Assistant

BJM/bsj

PUBLIC WORKS DEPARTMENT

Walter Nickerson, P.E., City Engineer

ENGINEERING GROUP

Telephone (505) 768-2500

AN EQUAL OPPORTUNITY EMPLOYER

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Waffle House/Texian Inn ZONE ATLAS/DRNG. FILE #: M16/D19
LEGAL DESCRIPTION: Lot B-1, Airport Industrial Park
CITY ADDRESS: _____

ENGINEERING FIRM: Tom Mann & Associates CONTACT: J. G. Mortensen

ADDRESS: 811 Dallas N.E. PHONE: 265-5611

OWNER: Waffle House CONTACT: Lee Counsellour

ADDRESS: 2626-D Manana Drive PHONE: (214) 357-6510

ARCHITECT: contact owner CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: Tom Mann & Associates CONTACT: J. G. Mortensen

ADDRESS: 811 Dallas N.E. PHONE: 265-5611

CONTRACTOR: not selected CONTACT: _____

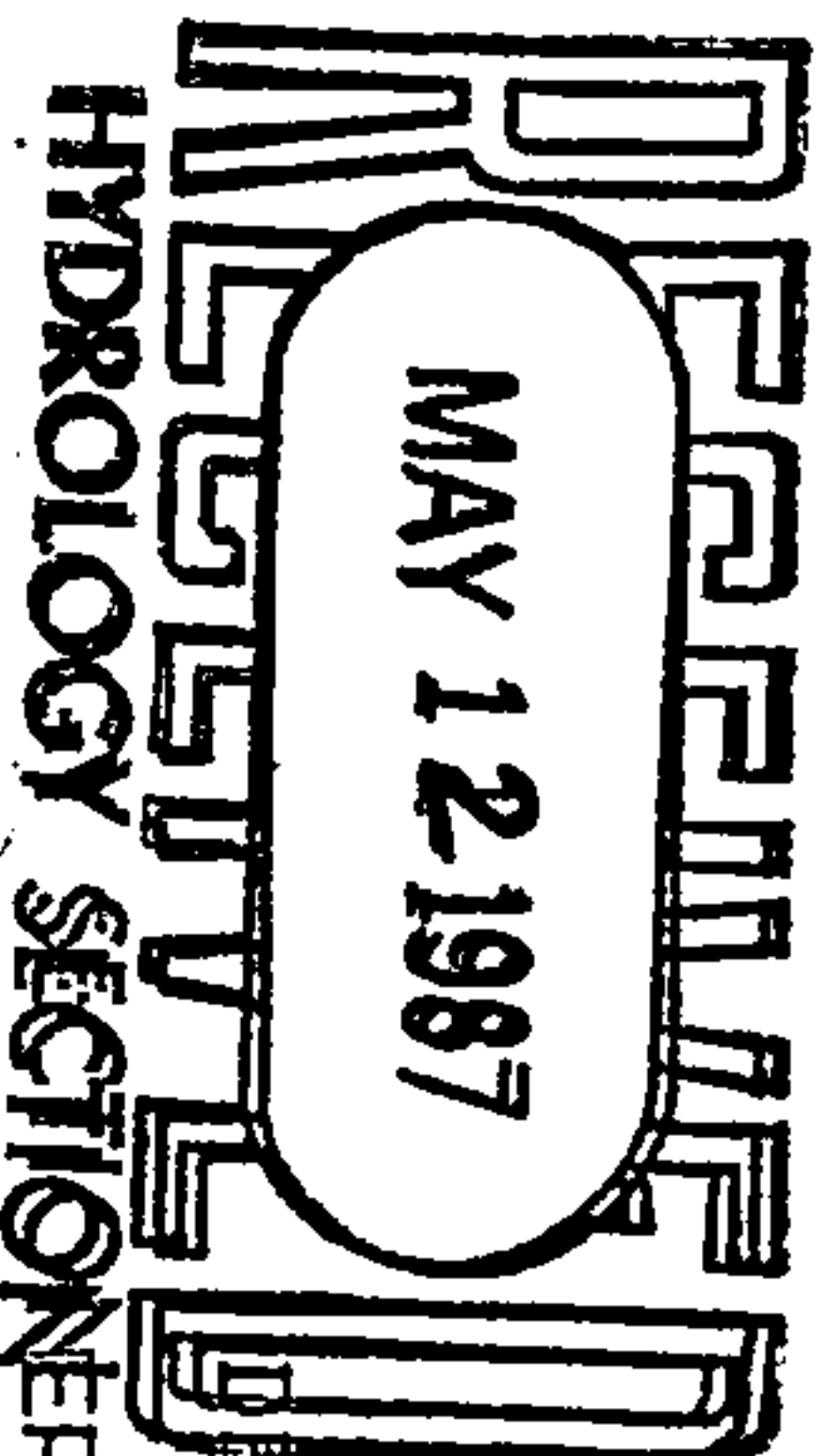
ADDRESS: _____ PHONE: _____

PRE-DESIGN MEETING:

☒ YES

☐ NO

☒ COPY OF CONFERENCE RECAP
SHEET PROVIDED



DRB NO. DRB-87-83

HYDROLOGY SECTION

PRDJ. NO. M16/D19

TYPE OF SUBMITTAL:

☐ DRAINAGE REPORT

☒ DRAINAGE PLAN

☐ CONCEPTUAL GRADING & DRAINAGE PLAN

☒ GRADING PLAN

☐ EROSION CONTROL PLAN

☐ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

☐ SKETCH PLAT APPROVAL

☐ PRELIMINARY PLAT APPROVAL

☐ SITE DEVELOPMENT PLAN APPROVAL

☐ FINAL PLAT APPROVAL

☒ BUILDING PERMIT APPROVAL

☐ FOUNDATION PERMIT APPROVAL

☐ CERTIFICATE OF OCCUPANCY APPROVAL

☐ ROUGH GRADING PERMIT APPROVAL

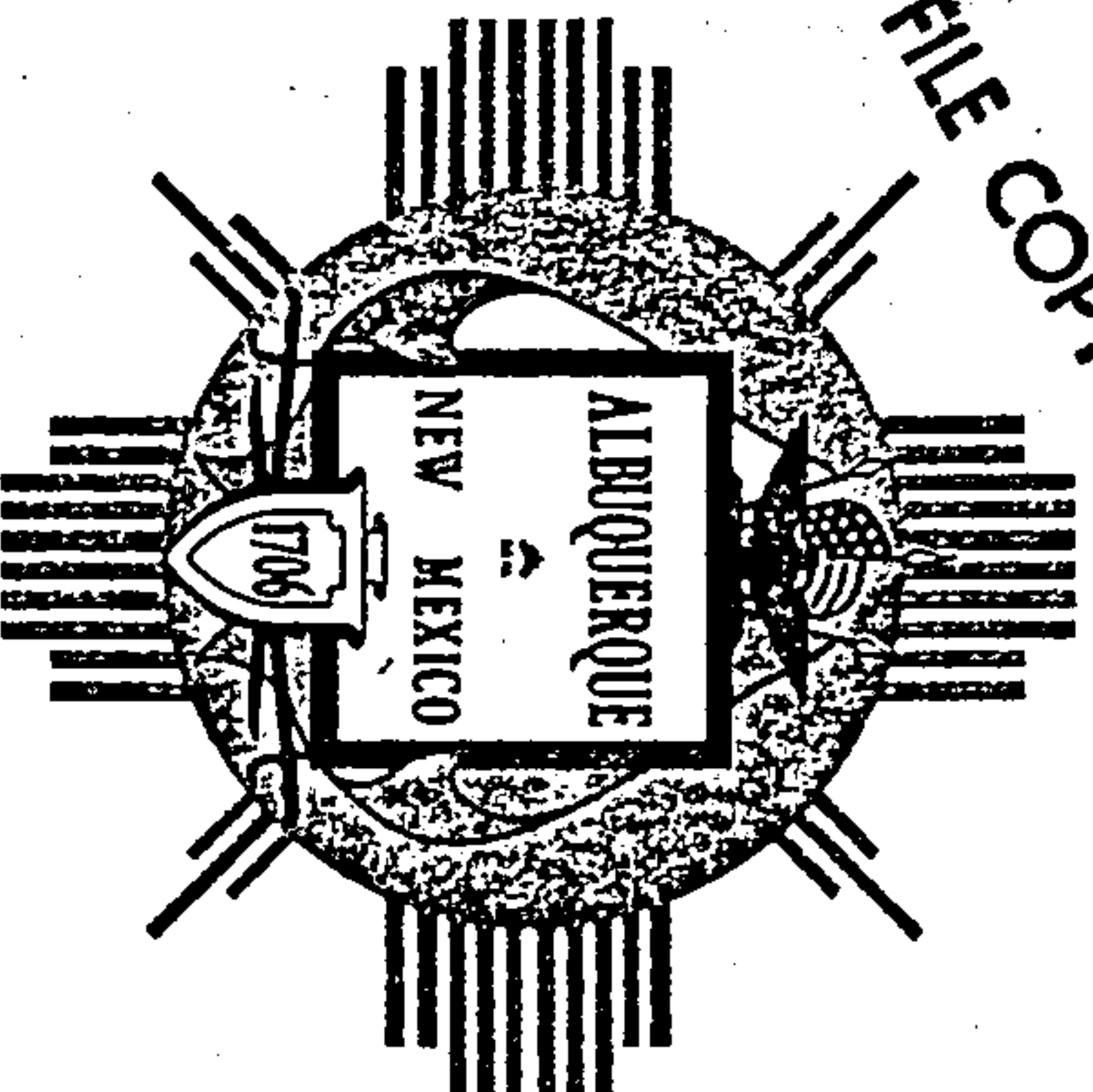
☐ GRADING/PAVING PERMIT APPROVAL

☐ OTHER _____ (SPECIFY)

DATE SUBMITTED: 5-12-87

BY: J. G. Mortensen

FILE COPY



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

HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

December 24, 1986

Jeff Mortensen, P.E.
Tom Mann & Associates, Inc.
811 Dallas, NE
Albuquerque, New Mexico 87110

RE: CONCEPTUAL DRAINAGE PLAN SUBMITTAL OF DECEMBER 16, 1986 FOR
WAFFLE HOUSE/TEXIAN INN (M-16/D19)

Dear Jeff:

The subject submittal for approval of free discharge is approved.

It is understood that an updated drainage study for the overall site will be required as a condition of building permit release by this office.

If you should have any questions regarding the above, please feel free to call me at 768-2630.

Cordially,

Billy G. Aguirre
for Fred G. Aguirre, P.E.
Hydrologist

FJA/bsj

PUBLIC WORKS DEPARTMENT

Walter Nickerson, P.E., City Engineer

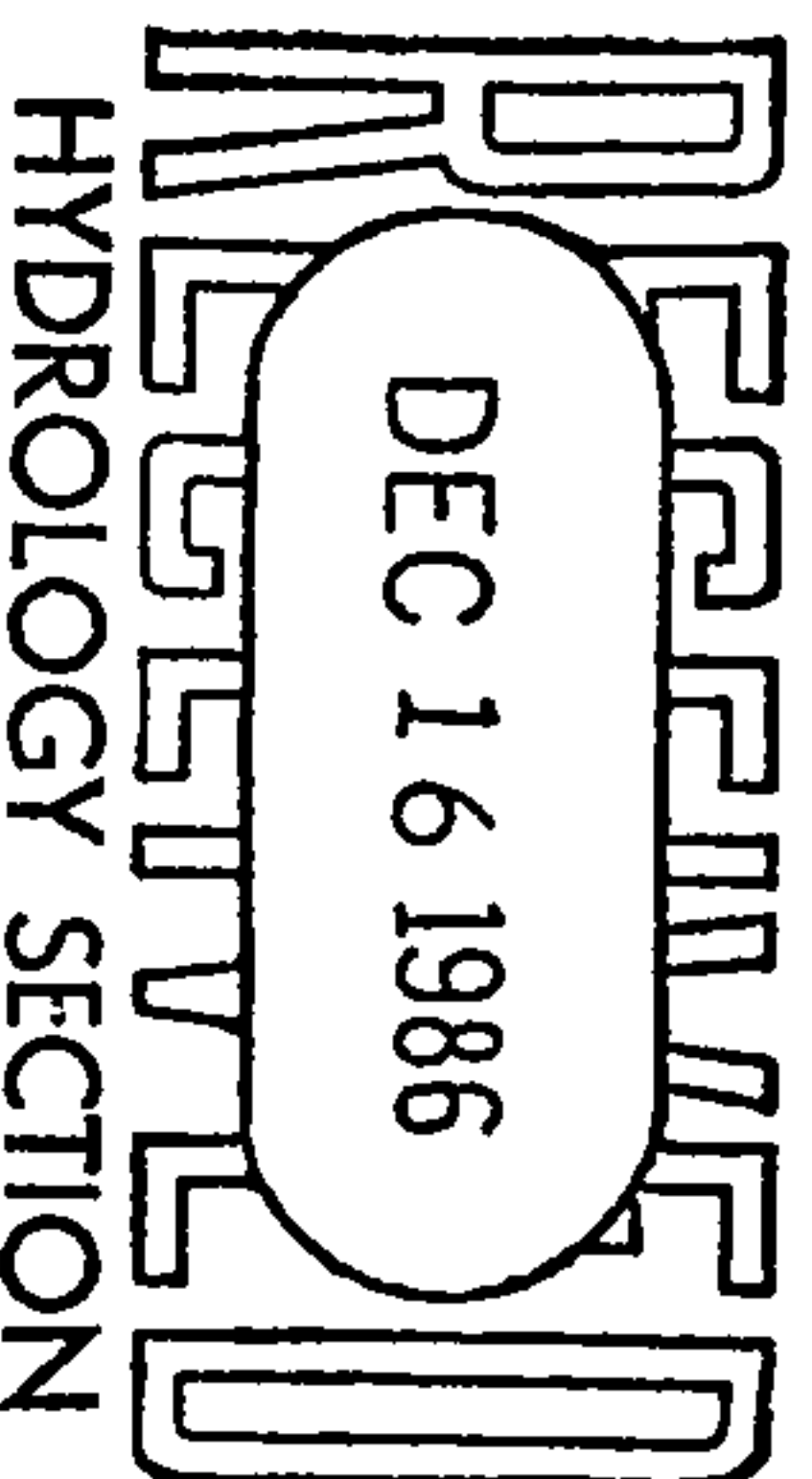
ENGINEERING GROUP

Telephone (505) 768-2500

AN EQUAL OPPORTUNITY EMPLOYER



Tom Mann & Associates, Inc.



61771
December 16, 1986

Mr. Fred Aguirre
Hydrology Section
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

Re: Waffle House/Texian Inn (M16-D19)

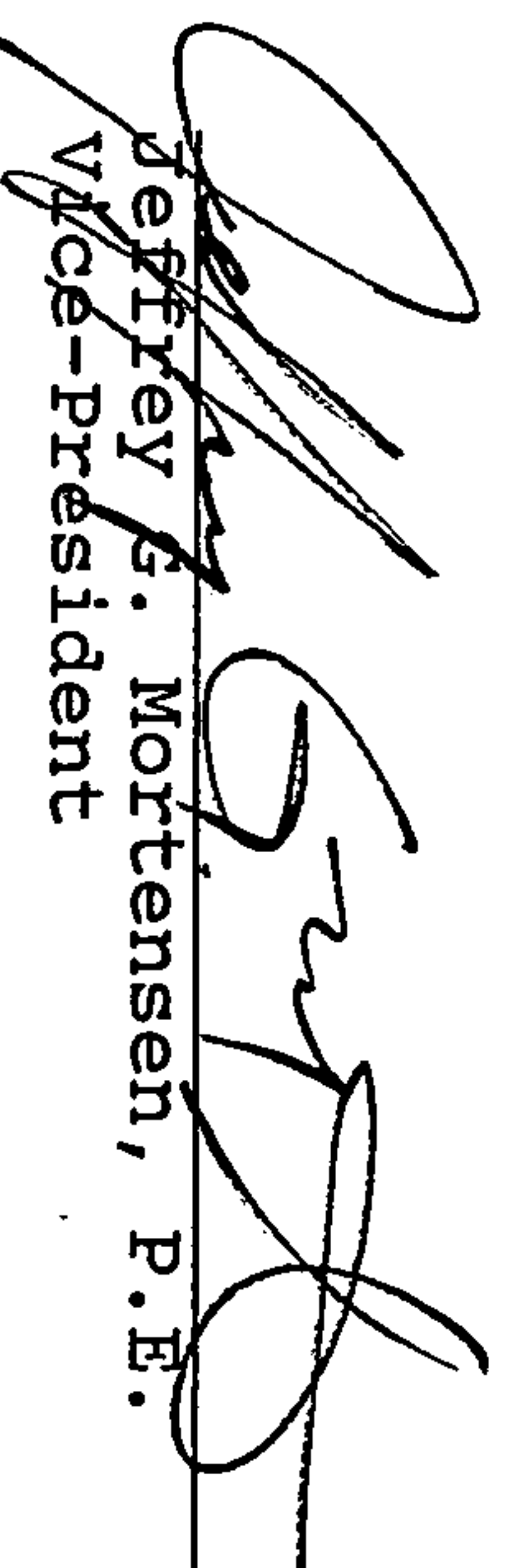
Dear Fred:

Transmitted herewith is a Conceptual Drainage Plan for the subject project. As we discussed in our telephone conversation of December 15, 1986, we will request Conceptual approval first for the establishment of a drainage criteria for the site. In this case, the drainage criteria will be the free discharge of runoff to the public streets. We wish to proceed with the conceptual approval first prior to the preparation of a site plan and a grading and drainage plan for building permit which is based upon that site plan. We fully realize that a site specific plan will be required for building permit approval and this submittal is not intended to take the place of that later submittal.

Please review and comment at your earliest convenience. Our client, Waffle House, is anxious to proceed with this project. If you should have any questions or comments concerning this information, please do not hesitate to call. Your cooperation thus far has been greatly appreciated.

Sincerely,

TOM MANN & ASSOCIATES, INC.


Jeffrey S. Mortensen, P.E.
Vice-President

JGM:dj
Enclosure
xc: Lee Counsellour w/enclosure



Waffle House

PROJECT TITLE: TERMINAL INVAZONE ATLAS/DRNG. FILE #: m16/D19LEGAL DESCRIPTION: LOT B-1, MEPSER INDUSTRIAL PARK

CITY ADDRESS: _____

ENGINEERING FIRM: Tom Murray & Associates CONTACT: J. G. MORTENSENADDRESS: 811 Dallas Ave PHONE: 265-5611

OWNER: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

~~DEVELOPER~~ Waffle House CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: N/A CONTACT: _____

ADDRESS: _____ PHONE: _____

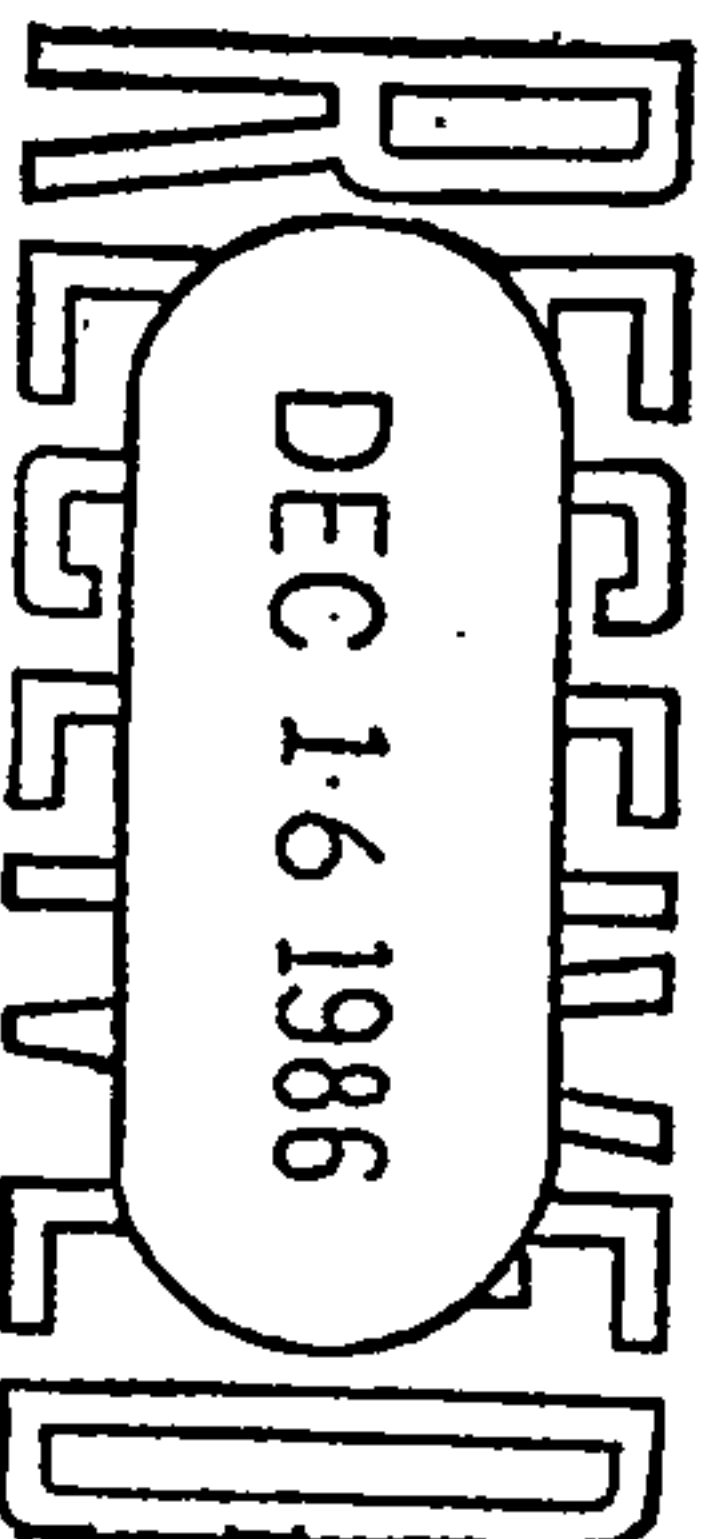
CONTRACTOR: NOT SELECTED CONTACT: _____

ADDRESS: _____ PHONE: _____

PRE-DESIGN MEETING:

☒ YES☐ NOCOPY OF CONFERENCE RECORD & HYDROLOGY SECTION PROJ. NO. m16/D19

SHEET PROVIDED



DRB NO. _____

EPC NO. _____

TYPE OF SUBMITTAL:

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

CHECK TYPE OF APPROVAL SOUGHT:

☐ SKETCH PLAT APPROVAL☐ PRELIMINARY PLAT APPROVAL☐ SITE DEVELOPMENT PLAN APPROVAL☐ FINAL PLAT APPROVAL☐ BUILDING PERMIT APPROVAL☐ FOUNDATION PERMIT APPROVAL☐ CERTIFICATE OF OCCUPANCY APPROVAL☐ ROUGH GRADING PERMIT APPROVAL☐ GRADING/PAVING PERMIT APPROVAL☒ OTHER CONCEPTUAL (SPECIFY)APPROVAL OFDRAINAGE CONCEPT
(elimination of the pond)

DATE SUBMITTED:

J. G. MORTENSEN

BY:

12-16-86

HYDROLOGY SECTION

The purpose of this Conceptual Drainage Plan is to demonstrate that the free discharge of runoff from the project site is appropriate. The site is Lot B-1, Airport Industrial Park. At present, the site is developed as a Texian Inn (M16-D19). Approximately 0.75 acres of the site are undeveloped and it is planned to develop a Waffle House on this unused portion of the site. This plan therefore represents an update to the previously approved drainage plan for the site (M16-D19).

At the time that the Texian Inn drainage plan was prepared, the Albuquerque Master Drainage Study (AMDS) showed a minor downstream flooding problem. Because of this, the Texian Inn plan was developed for the controlled discharge of runoff. Further review of the Yale Boulevard S.E. street grades indicated that flooding may not have been the case. This thought is reinforced by the "Existing Conditions Report, Albuquerque Master Drainage Study - Volume II, November, 1986" prepared by Bohannan-Huston, Inc. for the City of Albuquerque. The results of this revision and update to the AMDS reveal that there is approximately 112 cfs flowing past the site at a depth of 0.7 feet and that no flooding exists. This flow combines with the flow in Gibson Boulevard S.E. for a total 284 cfs at a depth of 0.77 feet. In both cases, the street flow is just slightly higher than top of curb. In no case does the reported street flow equal or exceed one foot and therefore should remain within the right-of-way.

At present, Basin EE-4 is at least 80% developed with some residential and mostly commercial development. Most of the existing developments do not pond the runoff generated onsite. Plate M-16 of the updated and revised AMDS show the site as undeveloped. The text of the report indicates that the available photography was supplemented by field reconnaissance. It appears that this site may have been overlooked because Basin EE-4 is estimated as only 58% impervious which appears low. Because of this, the impact of the free discharge of the developed runoff from the project site will be measured by comparing the fully developed and existing conditions for the site. In any case, the

Review of the updated and revised AMDS data demonstrates that one
free driving lane is not available and cannot be maintained
regardless of the manner in which this site is to be developed.

This leaves only one condition to analyze for the containment of the increased runoff within the street rights-of-way.

The increased runoff from this site is approximately 6.8 cfs. The street capacity has been analyzed based upon the Manning's Formula and indicates that the depth of street flow is increased by only 0.03 feet if the 6.8 cfs is added to the northbound lanes only. This is demonstrated by the calculations. A 0.03 feet increase in water surface level can be contained within the street and hence the free discharge of runoff from this site to Yale Boulevard S.E. is permissible. Gibson Boulevard S.E. is wider and has a greater slope, (approximately 0.025). Intuitively, the free discharge of runoff from this site to Gibson Boulevard S.E. via Yale Boulevard S.E. will have an even less significant impact upon flow depth.

It has been observed that there are existing storm drain inlets located in Gibson Boulevard S.E. between University Boulevard S.E. and Yale Boulevard S.E. These inlets remove a portion of the runoff from the street and discharge it onto private property located on the north side of Gibson Boulevard S.E. It is realized that this is an existing problem and will not be affected by increased flow in Gibson Boulevard S.E. This is so because there is already 0.77 feet depth of flow within the street. Minor increases or decreases in flow within the street will not affect the inlet capacity. However, increasing the duration of runoff in the street will increase the overall amount of runoff collected by the inlets and discharged onto the private property. In view of this, the free discharge of runoff from the Waffle House/Texian Inn site will improve this situation by eliminating the present controlled discharge of runoff which prolongs the duration of runoff from the site. As previously mentioned, the longer that runoff flows in the street, the more runoff will enter private property from the public right-of-way.

Based upon the information presented above, the free discharge of runoff from this site is allowable. Supporting calculations, hydrographs and figures are attached. Justification for the free discharge of runoff from the project site will allow for the removal of the existing detention structure at the northwest corner of the site in conjunction with the construction of the proposed Waffle House restaurant, parking and landscaping. Lastly, it is fully realized that a grading and drainage plan will be required for this site in order to address site specifics and to obtain building permit approval.

CALCULATIONS

Ground Cover Information

From SCS Bernalillo County Soil Survey,
Plate 31: Cu - Cut and Fill Land
Hydrologic Soil Group: A
Existing Pervious CN = 54 (DPM Plate 22.2 C-2
Pasture or Range Land: fair condition)
Developed Pervious CN = 49 (DPM Plate 22.2 C-2
Open Space: fair 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

$P_6 = 2.29$ in. (DPM Plate 22.2 D-1)

Rational Method

Discharge: $Q = CIA$

where C varies

$I = P_6$ (6.84) $T_c - 0.51 = 4.84$ in/hr

$P_6 = 2.29$ 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

Predevelopment

$A_{total} = 127,818$ sf = 2.93 Ac

$C = \frac{0.40}{0.40}$ (Weighted average per Emergency Rule, 1/14/86)

$Q_{100} = CIA = 0.40(4.84)(2.93) = 5.7$ cfs

Composite CN = 54 (DPM Plate 22.2 C-3)

DRO = 0.08 in (DPM Plate 22.2 C-4)

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

Existing Condition

Atotal = 127,818 sf = 2.93 Ac
Roof area = 21,250 sf (0.17)
Paved area = 66,770 sf (0.52)
Landscaped area = 7100 sf (0.05)
Dirt area = 32,700 sf (0.26)
 $C = \frac{0.76}{0.100} = 0.76$ (Weighted average per Emergency Rule, 1/14/86)
 $\% \text{ impervious} = 69\%$
Composite CN = 83 (DPM Plate 22.2 C-3)
DRO = 0.92 in (DPM Plate 22.2 C-4)
V100 = 3630 (DRO) A = 9790 cf

Developed Condition

Atotal = 127,818 sf = 2.93 Ac
Roof area = 24,250 sf (0.19)
Paved area = 93,570 sf (0.73)
Landscaped area = 10,000 sf (0.08)
 $C = 0.88$ (Weighted average per Emergency Rule, 1/14/86)
 $Q_{100} = C_{1A} = 0.88(4.84)(2.93) = 12.5 \text{ cfs}$
 $\% \text{ impervious} = 92\%$
Composite CN = 93 (DPM Plate 22.2 C-3)
DRO = 1.6 in (DPM Plate 22.2 C-4)
V100 = 3630 (DRO) A = 17,000 cf

Comparison

1. Predevelopment

$\Delta Q_{100} = 12.5 - 5.7 = 6.8 \text{ cfs (increase)}$

2. Existing

$\Delta Q_{100} = 12.5 - 10.8 = 1.7 \text{ cfs (increase)}$

Lag Time Computation (Travel Time)

Distance to Gibson = 800'
Average slope = 0.012
Flow depth = d = 0.7' (per AMDS)
Flow velocity = v = 4.2 fs (DPM Plate 22.3D-4)
 $T_t = d/v = 190 \text{ sec} = 3.2 \text{ min} = 0.05 \text{ hr}$

Street Capacity

1. Half width

$Q = (1.49/n) AR^2/3S^{1/2}$

Where n = 0.017

A = 12 SF	@ d = 0.7'
= 16 SF	@ d = 1'
P = 35'	@ d = 0.7'
= 41'	@ d = 1'
R = 0.34;	$R^2/3 = 0.49$ @ d = 0.7'
= 0.39;	$R^2/3 = 0.53$ @ d = 1'
S = 0.012	

$$1/2Q_{0.7} = 56 \text{ cfs}$$
$$1/2Q_{1.0} = 81 \text{ cfs}$$

2. Full width

$$Q_{0.7} = 2(56) = 112 \text{ cfs}$$
$$Q_{1.0} = 2(81) = 162 \text{ cfs}$$

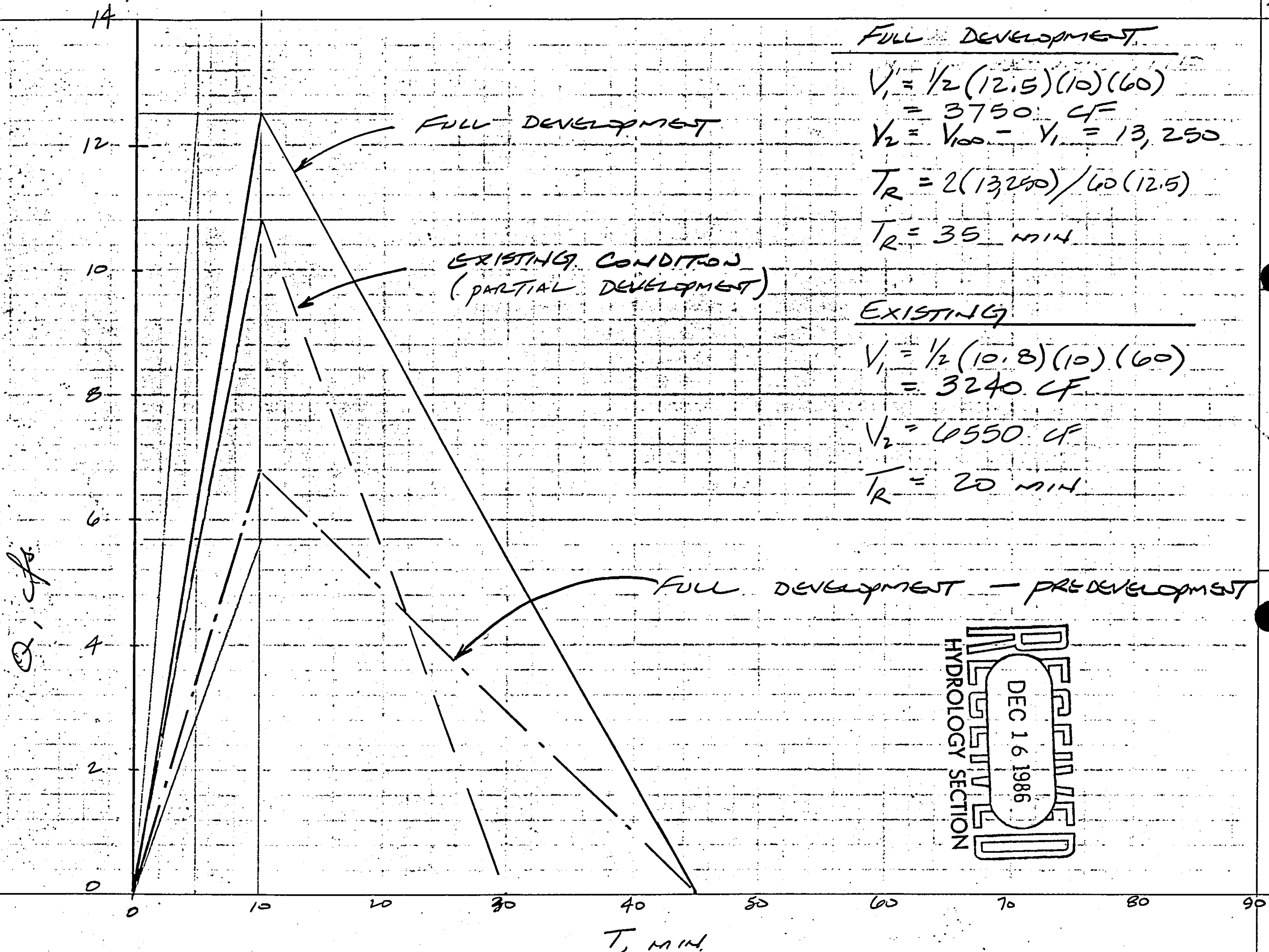
Street has additional 50 cfs capacity

3. Increase due to free discharge

Add 6.8 cfs to northbound lanes only = 63 cfs
This will raise water surface level to a depth of 0.73 feet
(a 0.03 feet increase) which will not leave the right-of-way.

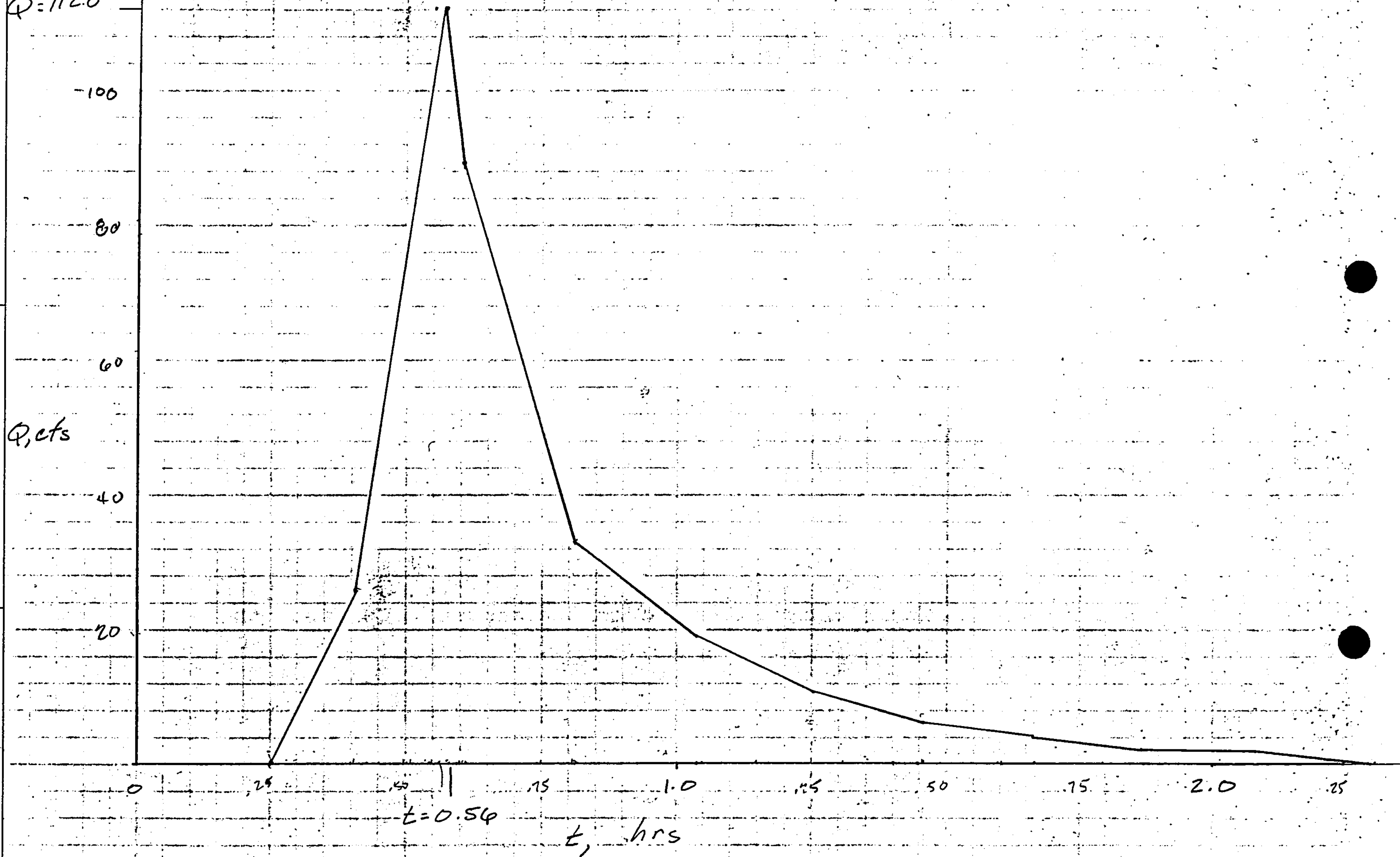


42-381 50 SHEETS 5 SQUARE
42-382 100 SHEETS 5 SQUARE
42-389 200 SHEETS 5 SQUARE
Made in U.S.A.



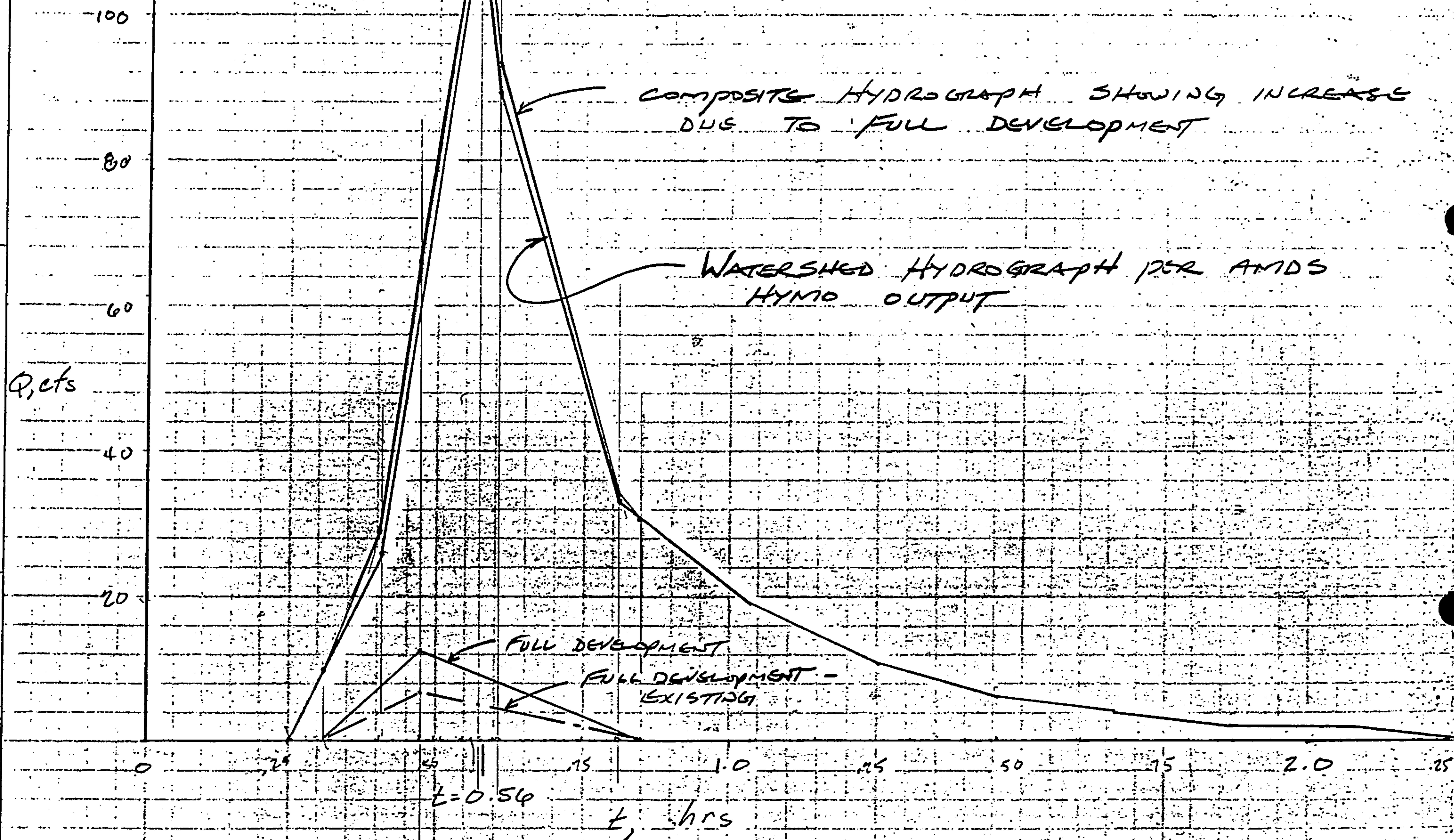
HYD = EE4
Q = 112.8

HYD = EE4
FLOW IN YALE @ GIBSON



HYD = EE4
Q = 112.8

HYD = EE4
FLOW IN YALE @ GIBSON



284.2

280

240

200

160

Q, Gts

120

80

40

0

.25

.50

.65

.75

1.0

2.0

APEEZ
EEZ + EE4
GIBSON + YACE @ GIBSON + YACE

42-381 50 SHEETS 5 SQUARE
42-382 100 SHEETS 5 SQUARE
42-389 200 SHEETS 5 SQUARE
MADE IN U.S.A.



284.2

280

240

200

160

120

80

40

Q, cfs

0

51'

05

51'

0.1

0.2

AP EE 2
EE 2 + EE 4

GIBSON + YACE @ GIBSON + YACE

COMPOSITE HYDROGRAPH SHOWING INCREASE
DUE TO FULL DEVELOPMENT

WATERSHED HYDROGRAPH PER ANNO'S
HYND OUTPUT

FULL DEVELOPMENT
FULL DEVELOPMENT - EXISTING

BASIN HYDROLOGY

(Continued)

Subbasin ID No.	Area (Sq. Mi.)	Curve No.	Z IMP	TP	K	Q10	Q100
BB5	0.1796	66	58	0.2966	0.1483	101	186
BB6	0.1112	66	58	0.2342	0.1171	74	140
BB7	0.1654	66	58	0.3385	0.1693	89	171
BB8	0.1009	60	19	0.2293	0.1146	21	39
BB9	0.1103	63	58	0.1938	0.0969	82	152
BB10	0.0696	66	58	0.1690	0.0845	54	103
BB11	0.0784	66	24	0.1344	0.0672	29	61
BB12	0.0740	66	58	0.3684	0.1842	38	73
CC1	0.0255	60	85	0.1694	0.0847	30	51
CC2	0.1313	61	65	0.2233	0.1116	97	172
CC3	0.0835	56	17	0.1628	0.0814	18	33
CC4	0.1421	66	0	0.1354	0.0677	85	201
CC5	0.1932	48	52	0.1935	0.0967	122	218
CC6	0.0609	48	58	0.1470	0.0735	51	96
CC7	0.0287	68	0	0.0882	0.0441	1	9
CC8	0.0602	55	30	0.1708	0.0854	27	77
CC9	0.1357	67	32	0.2660	0.1330	46	98
CC10	0.0947	62	5	0.1910	0.0955	6	18
CC11	0.1320	49	48	0.1960	0.0980	76	136
CC12	0.2028	58	4	0.1767	0.0884	11	20
DD1	0.0323	75	0	0.0426	0.0213	6	25
EE1	0.1066	70	19	0.2310	0.1155	24	58
EE2	0.2384	70	50	0.2065	0.1033	148	298
EE4	0.0658	(50)	(58)	0.1175	0.0588	61	113
EE5	0.2688	50	52	0.2245	0.1123	165	309
FF1	0.0152	59	0	0.1469	0.0735	3	5
GG1	0.3202	60	6	0.2006	0.1003	14	62
HH1	0.0631	59	0	0.1289	0.0644	1	21
HH2	0.3087	27	27	0.1246	0.0623	140	242
JJ1	0.1785	59	0	0.1583	0.0791	6	45
KK1	0.1660	59	0	0.2012	0.1006	1	12
KK2	0.3126	61	29	0.1183	0.0592	145	272
LL1	0.4575	59	2	0.1630	0.0815	12	82
MM1	0.0856	60	0	0.1120	0.0560	15	34
NN1	0.1148	59	0	0.0773	0.0386	4	34

Identification Number EE3 was not used.

ANALYSIS POINT ID NO.	LOCATION	ZONE						DRAINAGE SYSTEM CC, EE					
		ATLAS MAP NO.	SS DIAM.	Q10 (CFS)	D10 (FPS)	Q100	D100	V100					
APCC7	Yale Blvd. south of Kathryn Ave.	L-16	--	1	.11'	2.2	10	.23'	4.0				
APCC5SS	South of Kathryn Ave. on Buena Vista Dr.	L-15	36"	85	36"	13.0	85	36"	13.0				
APCC5SS	0L south of Kathryn Ave. on Buena Vista Dr.	L-15	--	19	.40'	2.9	73	.79'	4.2				
APCC2SS1-SS	Univesity Blvd. north of Sunshine Terrace	L-15	54"	173	54"	11.6	173	54"	11.6				
APCC2SS1-0L	University Blvd. north of Sunshine Terrace	L-15	--	60	.48'	4.9	90	.57'	5.4				
APCC5	University Blvd. south of Sunshine Terrace	L-15	--	256	1.7'	8.6	427	2.3'	10.0				
APCC3	Stadium Blvd. @ South Diversion Channel	L-15	--	365	6.3'	2.6	613	8.1'	2.9				
APCC2	Gibson Blvd. @ South Diversion Channel	L-15	--	675	6.1'	4.1	1257	8.2'	4.8				
APCC12A <i>Channel</i>	Buena Vista Dr. south of Renard Pl.	M-15	--	165	1.0'	7.0	302	1.4'	8.4				
APCC1	I-25 @ Diversion Channel	M-15	--	740	6.5'	4.2	1390	8.6'	4.9				
APEE5SS	Yale Blvd. @ Alamo Ave.	M-16	60"	165	26"	20.0	302	38"	19.4				
APEE5	Yale Blvd. @ Alamo Ave.	M-16	--	0	0	0	0	0	0				
* APEE4	Yale Blvd. @ Gibson Ave.	M-16	--	61	.55'	3.7	112	.7'	4.4				

ANALYSIS POINT ID NO.	LOCATION	ZONE ATLAS MAP NO.	SS DIAM.	DRAINAGE SYSTEM EE			
				Q10 (CFS)	D10 (FPS)	Q100	D100 V100
APEE2SS	Yale Blvd. @ Gibson Ave.	L-16	42"	87	42'	9.7	42" 9.7
✓ APEE2	Yale Blvd. @ Gibson Ave.	L-16	--	104	.53'	6.8	284 .77' 8.5
APEE1SS	Mulberry Ave. (extension of) @ Gibson Ave.	L-15	Wier flow 82	--	--	145	-- --
APEE1	Gibson Ave. @ I-25	L-15	--	1	.1'	2.0	116 .55' 7.0
					No Subbasin EE3		
APDD1	Gibson Ave. @ I-25	L-15	--	6/3	.1'	3.1	127/3 .53' 10.1

* ADD BASIN EE4 TO APPE5 FLOW AT APPE2
 ADD HYD ID=9 HYD=EE4
 PRINT HYD ID=6 ID=8
 ID=9 CODE=10

HYDROGRAPH NUMBER EE4			
TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0:000	0.	1:250	10.
0:208	0.	1:458	6.
0:417	26.	1:666	4.
0:625	89.	1:875	2.
0:833	33.	2:083	2.
1:041	19.	2:291	0.

RUNOFF VOLUME = 3.458 ACRE-FT
 PEAK DISCHARGE RATE = 112.8 CFS
 PEAK OCCURRED AT 0.56 HRS.

**

PEAK OCCURRED AT 0.7 HRS.

**
**ADD BASIN E2 TO APEE2
ADD HYD ID=12 HYD=APEE2
ID=9 ID=11
*TOTAL FLOW APEE2
PRINT HYD ID=12 CODE=10

HYDROGRAPH NUMBER		APEE2	
TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.0000	0.0	1.2500	73.0
0.2080	0.0	1.4580	43.0
0.4170	57.0	1.6660	34.0
0.6250	366.0	1.8750	19.0
0.8330	224.0	2.0830	14.0
1.0410	124.0	2.2910	4.0

RUNOFF VOLUME = 16.417 ACRE-FT
PEAK DISCHARGE RATE = 371.2 CFS
PEAK OCCURRED AT 0.65 HRS.

**
**DIVIDE SS AT APEE2
DIVIDE HYD ID=12 Q=87
ID=13 HYD=APEE2SS
ID=14 HYD=APEE2L
*SS FLOW AT APEE2-SS
PRINT HYD ID=13 CODE=10

HYDROGRAPH NUMBER		APEE2SS	
TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.0000	0.0	1.2500	73.0
0.2080	0.0	1.4580	43.0
0.4170	57.0	1.6660	34.0
0.6250	87.0	1.8750	19.0
0.8330	87.0	2.0830	14.0
1.0410	87.0	2.2910	4.0

RUNOFF VOLUME = 8.791 ACRE-FT
PEAK DISCHARGE RATE = 87.0 CFS
PEAK OCCURRED AT 0.46 HRS.

*OVERLAND FLOW T APEE2
PRINT HYD ID=14 CODE=10

HYDROGRAPH NUMBER		APEE2L	
TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.0000	0.0	1.2500	0.0
0.2080	0.0	1.4580	0.0
0.4170	0.0	1.6660	0.0
0.6250	279.0	1.8750	0.0
0.8330	137.0	2.0830	0.0
1.0410	37.0	2.2910	0.0

RUNOFF VOLUME = 7.627 ACRE-FT
PEAK DISCHARGE RATE = 284.2 CFS
PEAK OCCURRED AT 0.65 HRS.

*
*ROUTE FROM APEE2-SS TO APCC8-SS
COMPUTE RATING CURVE ID=1 VS NO=1
CODE=-1 SLP=.010

CE 2 + E64

[illegible]

NO

VS 11

WATER
DEPTH

**FLOW
RATE
CFS**

TRAVEL
TIME
HRS

FLOW
VEL
FPS

[illegible]

025993112345677889949494

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0000000000000000
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37919117777777777
234666888999999

TIME
HRS
0.000
0.208
0.417
0.625
0.833

FLOW
CEFS
350
387

TIME	THRS
1:04	1
1:25	0
1:45	8
1:66	6
1:87	5

FLDN
CFS
87
80
47
37
22

TIME
HRS 083
2.291
2.500
2.708
2.916

FLOW
CHS
16
2
1
1

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RUNOFF VOLUME = 8.780 ACRE-FT
PEAK DISCHARGE RATE = 87.0 CFS
PEAK OCCURRED AT 1.17 HRS.

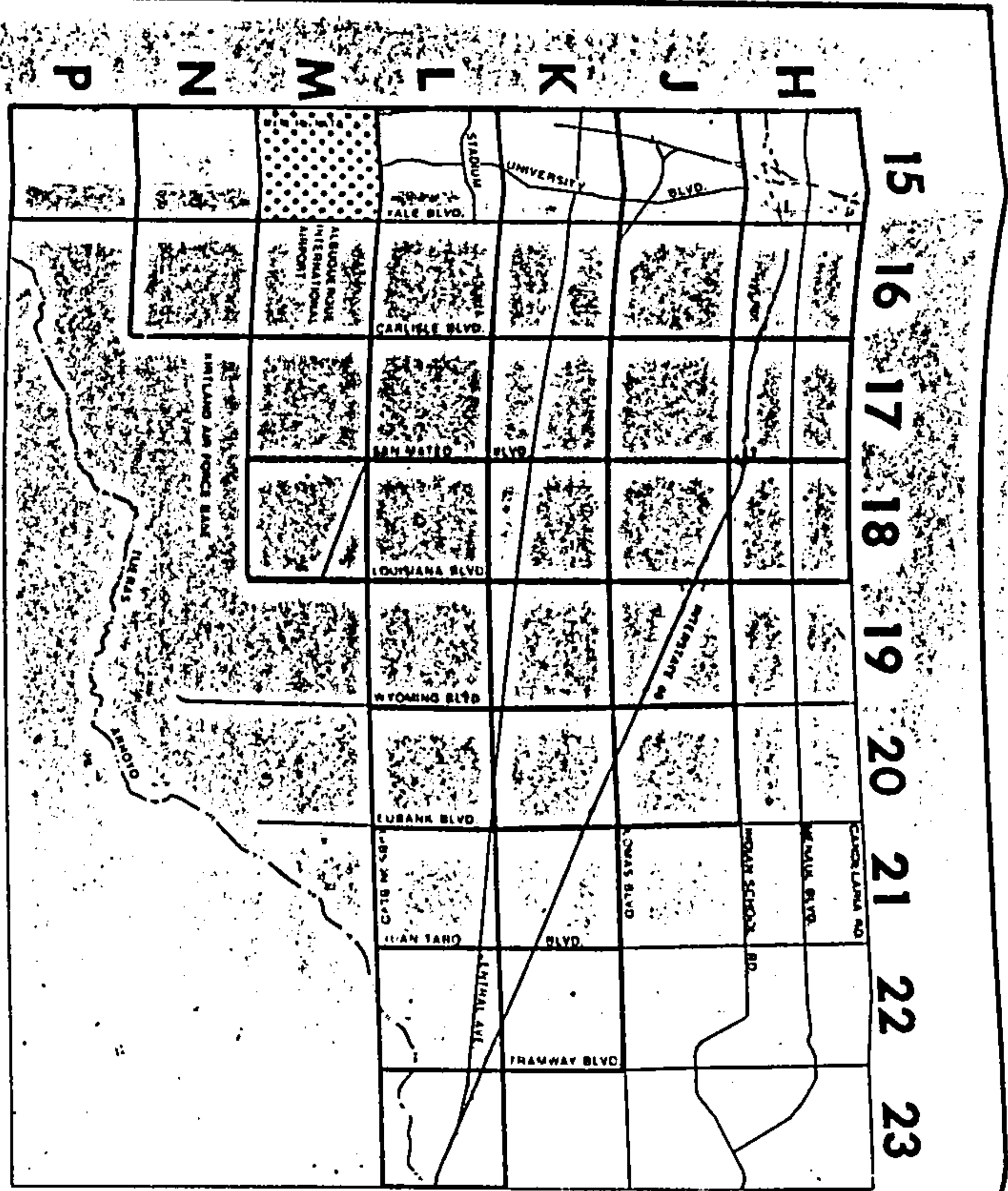
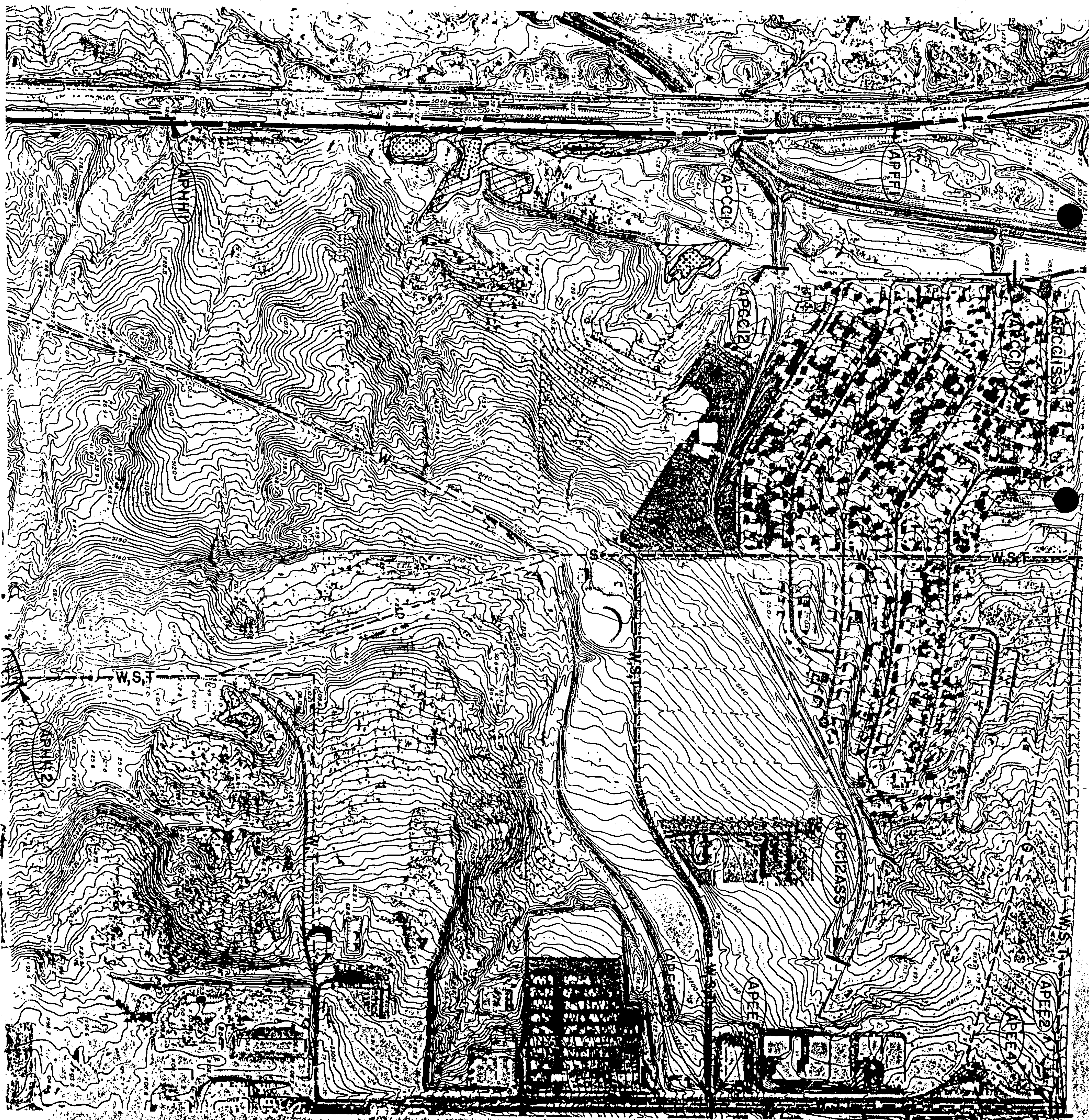
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*
*STORE APCC8-SS FOR BASIN CC RUN
PUNCH HYD ID=15

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*ROUTE APEE2 TO APEE1
COMPUTE RATING CURVE ID=1 VS NO=1
MIN ELEV=0.0
CH SLP=.0353
N=.017 DIST=124
NO SEGS=1
MAX ELEV=1.17
FP SLP=.0353
```

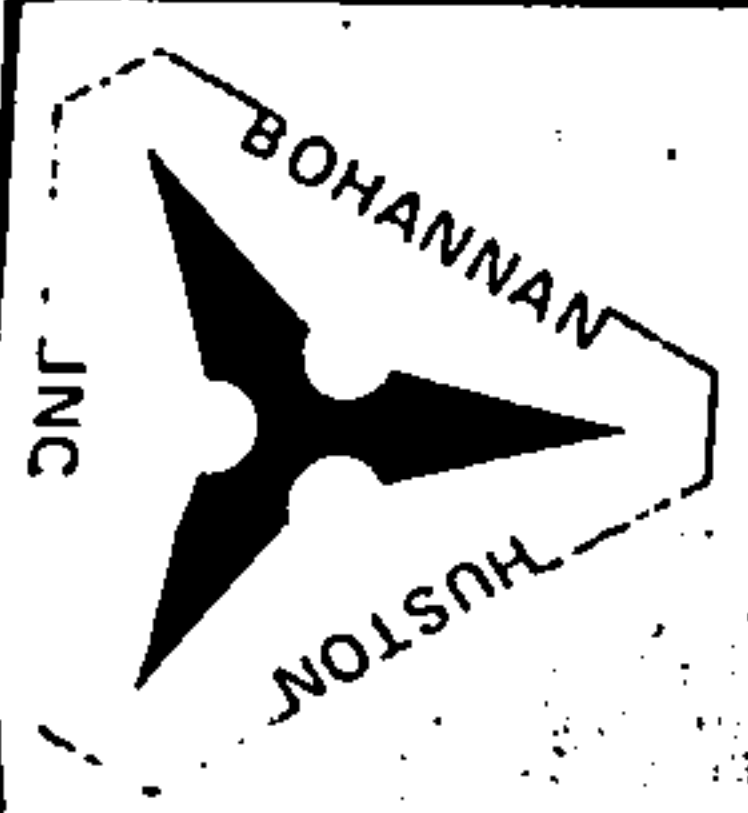
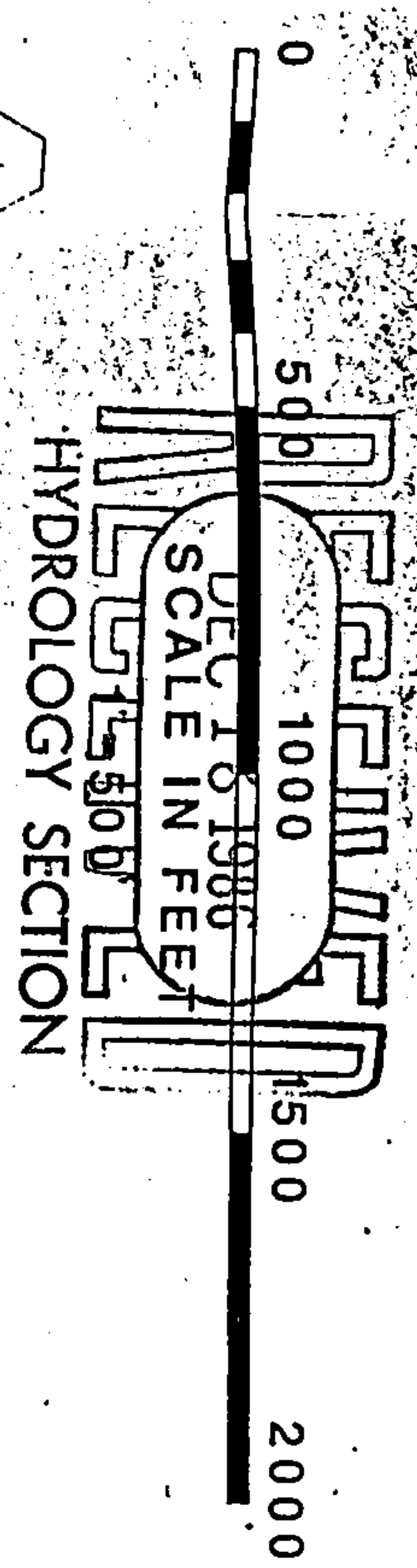



LEGEND

- STUDY AREA BOUNDARY
- APCB BASIN ANALYSIS POINT
- 10 YEAR FLOOD HAZARD AREA
- 100 YEAR FLOOD HAZARD AREA
- 36" PROPOSED STORM SEWER

- EXISTING UTILITIES
- SANITARY SEWER, SIZE 10" OR LARGER
- GAS LINE, SIZE 6" OR LARGER
- WATERLINE, SIZE 8" OR LARGER
- UNDERGROUND ELECTRIC LINE, PRIMARY
- UNDERGROUND TELEPHONE LINE

NOTE: Existing utilities are shown on arterial and collector streets and where drainage facilities are proposed



DECEMBER 1986

M-15

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION/DESIGN HYDROLOGY SECTION

CONFERENCE RECAP

DRAINAGE FILE/ZONE ATLAS PAGE NO.: M16 DATE: 12/11/87
PLANNING DIVISION NOS: EPC: _____ DRB: _____
SUBJECT: WRECC HOUSE / TEXAN TR
STREET ADDRESS (IF KNOWN): _____
SUBDIVISION NAME: S.E. Corner of York Rowan

APPROVAL REQUESTED:

_____ PRELIMINARY PLAT	_____ FINAL PLAT
_____ SITE DEVELOPMENT PLAN	<u>X</u> BUILDING PERMIT
_____ OTHER	ROUGH GRADING

DRAINAGE plan upon it

WHO

REPRESENTING

ATTENDANCE: Jeff Morsensen _____
Fred J. Aguilar _____

FINDINGS:

- An approved drainage plan (upvote M16-D19) is
REQUIRED FOR BUILDING PERMIT OF THE WOLFEL ABOUT

- No objection to the elimination of the detection
pave required by the approved drainage plan
dated 11/4/85, if either one of the two conditions
apply:

1. The ^{intersection} ~~intersection~~ between this does not
create a violation of the ONE FREE ~~FREE~~ DRIVING
LANE REQUIREMENT ^{the site}
OR 2. The increased runoff from the ~~site~~ ^{the site} does not
~~add~~ contribute to the R/W. This condition applies
if the existing runoff conditions is ~~adequate~~ ^{adequate} and ~~adequate~~ ^{adequate}
in violation of the ONE FREE DRIVING LANE
REQUIREMENT.

The undersigned agrees that the above findings are summarized accurately and
are only subject to change if further investigation reveals that they are not
reasonable or that they are based on inaccurate information.

SIGNED: <u>[Signature]</u>	SIGNED: <u>[Signature]</u>
TITLE: <u>11/11</u>	TITLE: <u>11/11</u>
DATE: <u>12/11/88</u>	DATE: <u>12/11/88</u>