PUBLIC WORKS/HYDROLOGY

0000 0000 2184

F22/D19

25×10 32×10

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FILE COPY

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

August 7, 1990

Joann Azar
Leedshill-Herkenhoff, Inc.
Post Office Box 1217
Albuquerque, New Mexico

RE: DRAINAGE PLAN FOR THE KIVA PUMP STATION RECONSTRUCTION
(F-22/D19) RECEIVED JULY 27, 1990

Dear Ms. Azar:

Based on the information provided on your submittal of July 27, 1990, listed are some concerns that will need to be addressed prior to final approval.

1. The "For Review Only" stamp must be removed. We are reviewing a document that is stamped and dated and will eventually be approved for construction.

2. Location and direction of the roof drains for each building.

3. Cross section of your proposed road, please indicate slopes with spot elevations.

4. Once the developed runoff enters the road, where is it routed to from that point? Keep in mind that no developed runoff is allowed to cross onto private property.

5. Please include a legend. Format may be found in the D.P.M.

6. Also include a vicinity map within the plan drawing showing the location of the site.

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

Cordially,

for Bernie J. Montoya
Fred J. Aguirre, P.E.
Hydrologist

BJM:FJA/bsj
(WP+674)

PUBLIC WORKS DEPARTMENT

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

ENGINEERING GROUP

Telephone (505) 768-2500

AN EQUAL OPPORTUNITY EMPLOYER

25×10 32×10

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DRAINAGE INFORMATION SHEET

PROJECT TITLE: Kiva and Gutierrez Pump Stations ZONE ATLAS/DRAINAGE FILE # F-22 / D19

LEGAL DESCRIPTION: Kiva and Gutierrez Reservoirs

CITY ADDRESS:

ENGINEERING FIRM: Leedshill-Herkenhoff, Inc. CONTACT: Karen Burt

ADDRESS: P.O. Box 1217 Albuquerque, New Mexico 87103 PHONE: 247-0294

OWNER: City of Albuquerque/Public Works Department CONTACT: Doug Dailey

ADDRESS: P.O. Box 1293, Albuquerque, N.M. 87103 PHONE: 823-4297

ARCHITECT: Leedshill- Herkenhoff, Inc. CONTACT: Wayne Welty

ADDRESS: P.O. Box 1217 Albuquerque, New Mexico 87103 PHONE: 247-0294

SURVEYOR: Albuquerque Surveying Co. CONTACT: Fred Sanchez

ADDRESS: 2119 Menaul Blvd. N.E. Albuquerque, N.M. 87110 PHONE: 884-2036

CONTRACTOR: CONTACT:

ADDRESS: PHONE:

PRE-DESIGN MEETING:

X YES

__ NO

X COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO.

EPC NO.

PROJECT NO. 3337

TYPE OF SUBMITTAL:

____ DRAINAGE REPORT

____ DRAINAGE PLAN

____ CONCEPTUAL GRADING & DRAIN PLAN

X GRADING PLAN

____ EROSION CONTROL PLAN

____ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

____ SECTOR PLAN APPROVAL

____ 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

X OTHER DRB submittal (SPECIFY). As requested for review prior to

RECEIVED JUL 27 1990 HYDROLOGY DIVISION

DATE SUBMITTED: 28 June 90

BY: Karen Burt

25×10 32×10

0000 0000 2187

LEEDSHILL-HERKENHOFF, INC.
500 Copper Avenue N.W.
P. O. Box 1217
Albuquerque, New Mexico 87103
(505) 247-0294

RECEIVED
JUL 27 1990
HYDROLOGY DIVISION

991-8026.21-90

June 28, 1990

City of Albuquerque
Hydrology Section
P.O. Box 1293
Albuquerque, New Mexico 87103

RE: KIVA AND GUTIERREZ PUMP STATIONS
ZONE ATLAS NO. F-22

The referenced project involves the construction of two new water pump stations for the City of Albuquerque. Each site currently has an existing pump station which will be demolished during the construction period.

A pre-design meeting was held on February 23, 1990 between Stuart Reeder and me resulting in the opinion that the overall effect on the surface treatment would be negligible due to demolition of the existing buildings. Subsequent to the meeting, the Hydrology Section inspected the sites and found no obvious existing drainage problems at either site. Enclosed is correspondence reflecting this information.

Transmitted herewith are copies of the demolition and site and grading plans for each site for your review. The overall drainage patterns of each site will be maintained.

The site modifications result in larger impervious areas than currently exist. The increased peak runoff rate due to this is less than 0.5 cfs at Kiva and 0.2 cfs at Gutierrez, both of which are negligible. Calculations substantiating these changes are enclosed. This information is being submitted for a pre-DRB review.

If you have any questions, please contact me.

Karen Burt

KAREN BURT

er

Encs.

25×10 32×10

0000 0000 2188

LEEDSHILL – HERKENHOFF, INC.
Copper Square
P.O. Box 1217
Albuquerque, New Mexico 87103

LETTER OF TRANSMITTAL

PROJECT: Kiva & Gutierrez Pump Stations
(name, address) Zone Map No. F-22

LEEDSHILL – HERKENHOFF, INC.
PROJECT NO: 8026.21

TO: City of Albuquerque
Hydrology Section
P.O. Box 1293
Albuquerque, NM 87103

ATTN: BARBARA JUAREZ

RECEIVED
JUL 27 1990
HYDROLOGY DIVISION

DATE:

If enclosures are not as noted, please inform us immediately.

If checked below, please:
( ) Acknowledge receipt of enclosures.
( ) Return enclosures to us.

WE TRANSMIT:
( ) herewith ( ) under separate cover via _____
(✓) in accordance with your request _____

FOR YOUR:
( ) approval ( ) distribution to parties
( ) review & comment ( ) record
(✓) use ( ) _____

THE FOLLOWING:
(✓) Drawings ( ) Shop Drawings
( ) Specifications ( ) Estimates
( ) Contract Documents ( ) _____
( ) Change Orders

COPIES	DATE	REV.NO.	DESCRIPTION	ACTION CODE
1			Kiva Pump Station - Demo Plan	
1			Kiva Pump Station - Layout & Grading	
1			Gutierrez Pump Station - Demo Plan	
1			Gutierrez Pump Station - Layout & Grading	

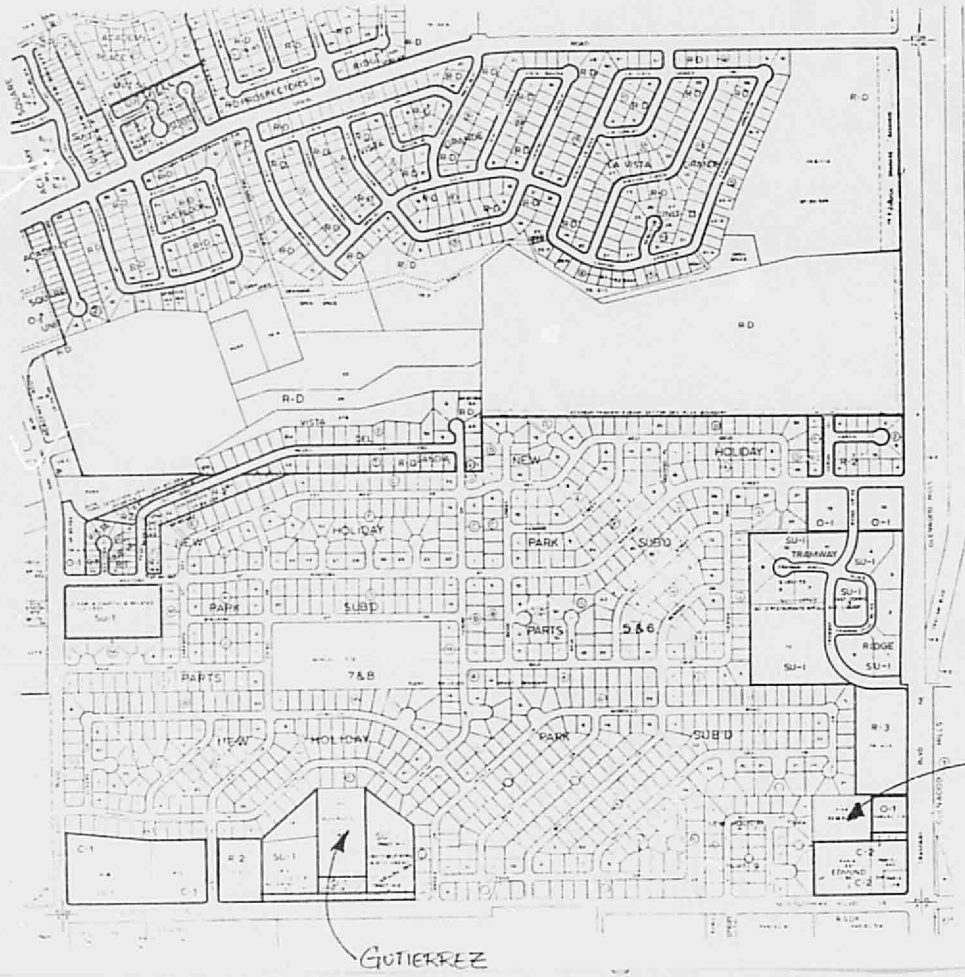
ACTION CODE
A. Action indicated on item transmitted
B. No action required
C. For signature and return to this office
D. For signature and forwarding as noted below under REMARKS
E. See REMARKS below

REMARKS Barbara-
These plans are stamped, signed, & dated per our conversation.
Please call if you have any questions or require additional information.

COPIES TO: (with enclosures)
☐
☐
☐
☐
☐
☐

BY: Karen Burt

25×10 32×10



RECEIVED
JUL 27 1990
HYDROLOGY DIVISION

F-22-Z

25×
32×
0000 0000 2 184

0000 0000 2140

FILE COPY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

MAYOR
KEN SCHULTZ

CHIEF ADMINISTRATIVE OFFICER
GENE ROMO

DEPUTY CAO PUBLIC SERVICES
FRANK MARTINEZ

DEPUTY CAO PLANNING/DEVELOPMENT
BILL MUELLER

March 23, 1988

Paul Brasher
Espey, Huston & Associates, Inc.
311 Commercial Street, NE
Albuquerque, New Mexico 87102

RE: DRAINAGE PLAN FOR KIVA RESERVOIR NO. 2
(F-22/D19) ENGINEER'S STAMP DATED MARCH 14, 1988

Dear Mr. Brasher:

Based on the information provided on your submittal of March 14, 1988, C.I.P. plan update is acceptable.

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

Cordially,

Carlos R. Montoya
for Bernie J. Montoya, C.E.
Engineering Assistant

BJM/bsj

AN EQUAL OPPORTUNITY EMPLOYER

25×10 32×10

0000 0000 2 14

DRAINAGE INFORMATION SHEET

PROJECT TITLE: KIVA RESERVOIR NO. 2 ZONE ATLAS/DRNG. FILE #: F-22-019

LEGAL DESCRIPTION: SEC. 34 T.11 N. R.4 E. N.M.P.M.; N.W. CORNER MONTGOMERY/TRAMWAY

CITY ADDRESS: MAP F-22 SITE DESIGNATED ON ZONE ATLAS AS KIVA RESERVOIR

ENGINEERING FIRM: ESPEY, HUSTON & ASSOC. CONTACT: PAUL BRASHEAR

ADDRESS: 817 COMMERCIAL N.E., ALBUQ PHONE: 242-1909

OWNER: CITY OF ALBUQUERQUE CONTACT: WM. BALCH

ADDRESS: P.O. BOX 1293 ALBUQ. 87103 PHONE: 763-2757

ARCHITECT: CONTACT:

ADDRESS: PHONE:

SURVEYOR: ESPEY, HUSTON CONTACT:

ADDRESS: PHONE:

CONTRACTOR: D&R TANK CONTACT: RICHARD GONEEN

ADDRESS: PHONE: 873-1101

RECEIVED MAR 14 1988 HYDROLOGY SECTION

PRE-DESIGN MEETING:

✓ YES

___ NO

___ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. N/A

EPC NO. N/A

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 CIP DRAINAGE PLAN UPDATE (SPECIFY)

UPDATE TO REFLECT AS-BUILT CONDITIONS

DATE SUBMITTED: 3-14-88

BY: [signature]

ESPEY, HUSTON & ASSOC.

25×10 32×10

0000 0000 2 192

FILE COPY

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

March 5, 1990

Ms. Karen Burt
Leedshill - Herkenhoff, Inc.
500 Copper Avenue NW
P.O. Box 1217
Albuquerque, NM 87103

RE: GRADING AND DRAINAGE REQUIREMENTS FOR THE KIVA II AND GUTIERREZ RESERVOIRS (F-22/D19)

Dear Ms. Burt,

Before we sign the Site Plan at DRB, we would like to have the opportunity to review it.

As I understand your project, you intend to install a new pump station on each site and raze the existing pump station. The overall effect on the surface treatment of each site should be negligible. Your project will swap one pervious area for another of approximately the same size.

Our inspector found no obvious existing drainage problems at either site.

Prior to submitting to the Planning Department for Site Plan approval, please send us a copy of the proposed site plan showing the existing and proposed topography, drainage patterns, and building footprints.

If you have any questions, please call me at 768-2650.

Cordially,

Stuart Reeder

G. Stuart Reeder, P.E.
C.E./Hydrology Section

GSR
WP+1688

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DRAINAGE INFORMATION SHEET Kiva — F22/D19

PROJECT TITLE: Gutierrez & Kiva Resv. ZONE ATLAS/DRNG. FILE #: F22 D

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

LEGAL DESCRIPTION: _____

CITY ADDRESS: Montgomery West of Tramway

ENGINEERING FIRM: Lessohill-Herkenhoff CONTACT: Karen Burt

ADDRESS: _____ PHONE: 247.0294

OWNER: COA CONTACT: _____

ADDRESS: _____ PHONE: _____

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

RECEIVED FEB 23 1990 HYDROLOGY SECTION

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT
___ DRAINAGE PLAN
___ CONCEPTUAL GRADING & DRAINAGE PLAN
___ GRADING PLAN
___ EROSION CONTROL PLAN
___ ENGINEER'S CERTIFICATION
✓ OTHER PRE-DESIGN INVESTIGATION

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
___ OTHER _____ (SPECIFY)

DATE SUBMITTED: 23 Feb 90

BY: GSC

25×10 32×10

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Pre-Design Investigation
(Additions)

DATE 23 FEB 90

ADDRESS MONTGOMERY @ OF TRAMWAY ZONE ATLAS # F-22

LEGAL DESCRIPTION GUTTERREZ & KIVA RESERVOIRS

OWNER COA

ARCHITECT/ENGINEER KAREN BURT w/ LEEDSHILL

LOT SIZE

ZONING

PROPOSED DEVELOPMENT NEW PUMP STATIONS

RECEIVED FEB 23 1990 HYDROLOGY SECTION

	YES	NO	NA	COMMENTS
FLOOD HAZARD AREA		✓		
PART OF AN APPROVED REPORT	✓	✓		
CONSTRUCTION PLANS ON MICRO-FILM				
FIELD INSPECTION	✓			

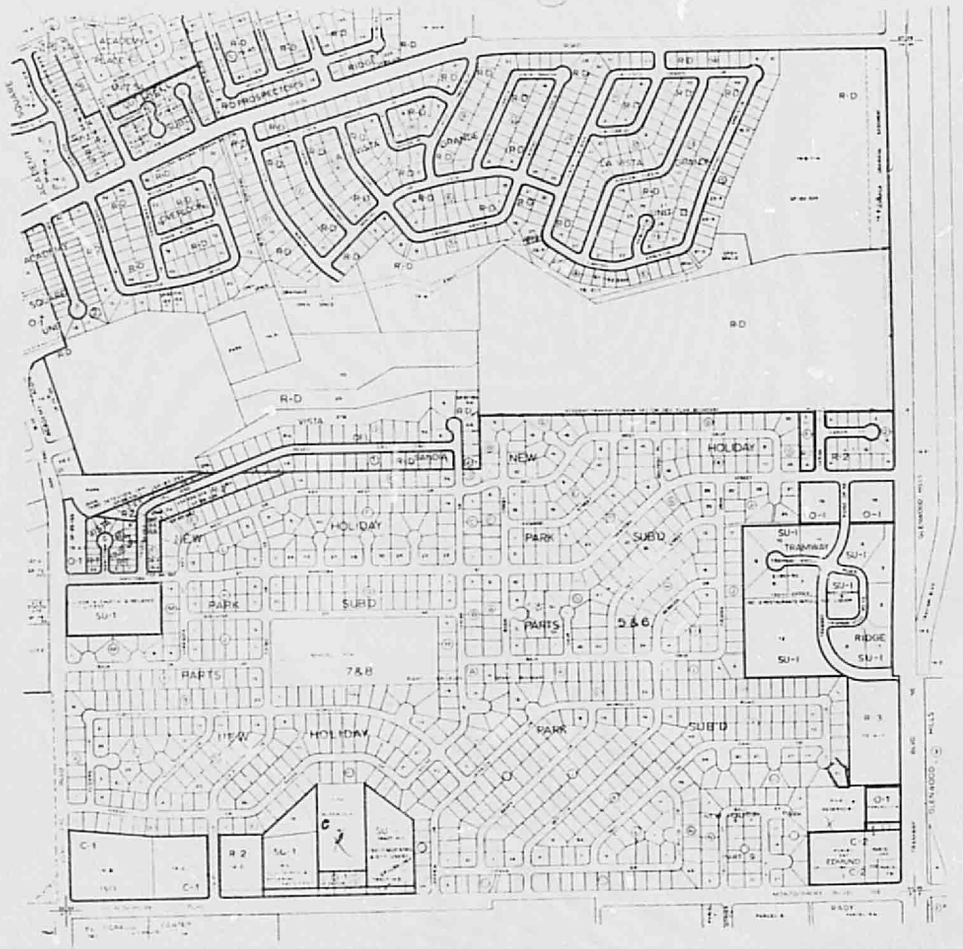
COMMENTS:

PLEASE CHECK FOR ANY EXISTING DRAINAGE PROBLEMS THAT REQUIRE ATTENTION

2-27-90 NO APPARENT PROBLEMS, BUT FURTHER DEVELOPMENT MIGHT AFFECT DOWNSTREAM RESIDENTIAL AREAS. am

DRAINAGE REQUIREMENTS:

25× 32×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HOLIDAY
PARK
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PARTS
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7 & 8
SU-1
TRAMWAY
RIDGE
O-1
R-2
C-1
C-2
EDMUND

F-22-Z

25×□

32×□

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Pre-Design Investigation
(Additions)

DATE 23 FEB 90

ADDRESS MONTGOMERY @ OF TRAMWAY ZONE ATLAS # F-22

LEGAL DESCRIPTION GUTTERREZ & KIVA RESERVOIRS

OWNER COA

ARCHITECT/ENGINEER KAREN BURT w/ LEEDSHILL

LOT SIZE

ZONING

PROPOSED DEVELOPMENT NEW PUMP STATIONS

	YES	NO	NA	COMMENTS
FLOOD HAZARD AREA		✓		
PART OF AN APPROVED REPORT	✓	✓		
CONSTRUCTION PLANS ON MICRO-FILM				
FIELD INSPECTION	✓			

COMMENTS:

PLEASE CHECK FOR ANY EXISTING DRAINAGE PROBLEMS THAT REQUIRE ATTENTION

2-27-90 NO APPARENT PROBLEMS, BUT FURTHER DEVELOPMENT MIGHT EFFECT DOWN-STREAM PROPERTY

DRAINAGE REQUIREMENTS:

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

CONFERENCE RECAP

DRAINAGE FILE/ZONE ATLAS PAGE NO.: _____ DATE: _____

PLANNING DIVISION NOS: EPC: _____ DRB: _____

SUBJECT: _____

STREET ADDRESS (IF KNOWN): _____

SUBDIVISION NAME: _____

APPROVAL REQUESTED:

____	PRELIMINARY PLAT	____	FINAL PLAT
____	SITE DEVELOPMENT PLAN	____	BUILDING PERMIT
✓	OTHER	____	ROUGH GRADING

	WHO	REPRESENTING
ATTENDANCE:		

FINDINGS:

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:		SIGNED:	
TITLE:		TITLE:	
DATE:	2/16/88	DATE:	2-16-88

NOTE PLEASE PROVIDE A COPY OF THIS RECAP WITH THE DRAINAGE SUBMITTAL

25×10 32×10

0000 0000 2 198

LEEDSHILL-HERKENHOFF, INC. ALBUQUERQUE SANTA FE PHOENIX SAN DIEGO SAN FRANCISCO ENGINEERING COMPUTATIONS	NAME OF PROJECT Kiva Pump Station			SHEET NUMBER OF
	COMPUTED BY: KB	CHECKED BY:	JOB NUMBER 8026.21	DATE: 27 June 90

RECEIVED JUL 2 1990 HYDROLOGY DIVISION

IMPERVIOUS AREAS

Existing - To be Removed -

Pump Station - 31'×54'	=	1674 SF
Steps - (12.5'×4') + (11'×2')	=	72
Transformer Pad 22.5'×6.5'	=	146
TOTAL :		1892 SF

Proposed -

Pump Station 75'×37'	=	2775 SF
Asphalt Pvmt. - 250SY	=	2250
Concrete Pvmt. -		
Sidewalk, Driveway - } 190SF	=	190
Curb & Gutter - 270'×2.5'	=	675
Electrical Pad - 44'×8'	=	352
Mechanical Pad - 12'×4'	=	48
TOTAL :		6290 SF

Change in Hydrology -

Increase in impervious area = 6290 - 1892 = 4398 SF = 0.10 Ac.
DPM Plate 22.2 D-1, 100 yr. - 6hr. rainfall vol. = 2.55"
(Montgomery & Tramway)
DPM Plate 22.2 D-2 - Rainfall Intensity
Use t_c = 10 minutes (worst case)
∴ I = 2.114 × 2.55" = 5.39"/hr.

Rational Formula -
Q = CiA
Q = peak runoff, cfs
C = runoff coeff. (USE 1.0 - CONSERVATIVE)
i = rainfall intensity, "/hr.
A = area, Ac.

Increase in Q = 1.0 × 5.39 × 0.10 = 0.54 CFS

CONCLUSION: Improvements will generate less than 0.5 CFS additional to the peak runoff - NEGLIGIBLE.

25×10 32×10

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PLANS/PLATS ON FILE

FILE DESC: F22/D19

PLANS/PLATS 2

25×10 32×10

0000 0000 2200

HYDROLOGY F22/D19 1 PLAN

F22/D19

1 PLAN

REFERENCE MARK	ELEVATION (FT. NGVD)	DESCRIPTION OF LOCATION
RM 30	5644.10	City of Albuquerque (ACS) standard brass tablet, stamp "I-E21", set in top of concrete post projecting 0.3', locat 53' northwest of the centerline of Eubank Boulevard and 38 northeast of Malaquena Lane.

RECEIVED
SEP 1986
HYDROLOGY SECTION

F221019

Oct. 7, 1986

Talked to Paul Brashes this date.

Told him that the drainage report by itself is incomplete and that he will need to provide the following -

1. Final grading plan for the site
2. The plan & profile for the overflow/storm drain, & outlet
3. The ~~as~~ P&P for the retaining wall.
4. The hydraulic calculations for the sizing and design of the storm sewer.

B. Goolsby

F221019

Oct. 7, 1986

Talked to Paul Brasher this date.

Told him that the drainage report by itself is incomplete and that he will need to provide the following -

1. Final grading plan for the site
2. The plan & profile for the overflow/storm drain, & outlet
3. The ~~...~~ P&P for the retaining wall.
4. The hydraulic calculations for the sizing and design of the storm sewer.

B. Goolsby

ESPEY,
HUSTON &
ASSOCIATES, INC.
Engineering & Environmental Consultants

September 17, 1986

RECEIVED
SEP 24 1986
HYDROLOGY SECTION

Mr. Billy J. Goolsby, P.E.
Hydrology Section
City of Albuquerque
P. O. Box 1293
Albuquerque, New Mexico 87110

SUBJECT: Kiva Reservoir No. 2
EH&A Job No. 7589

Dear Mr. Goolsby:

As recently discussed with you, the Kiva Reservoir No. 2 project is about ready for construction. The Drainage Report, which is enclosed, was completed, submitted and then did not receive a final approval letter though all comments were satisfied and DRawings modified to reflect the modifications.

It is respectfully requested that you arrange to have the Report reviewed to your satisfaction so that the Reservoir can be constructed without delay.

Thank you for your attention in helping complete the final items of this project.

Sincerely,

Paul Brasher

Paul Brasher, P.E.
Senior Staff Engineer

/kh

Enclosure

4801 Indian School Rd., N.E., Suite 204 · Albuquerque, New Mexico 87110 · (505) 255-1625

DRAINAGE INFORMATION SHEET

PROJECT TITLE: KUA RESERVOIR ZONE ATLAS/DRNG. FILE #: F-22/D19

LEGAL DESCRIPTION: KUA RESERVOIR

CITY ADDRESS:

ENGINEERING FIRM: BOHN, HUTTON & ASSOCIATES CONTACT: PAUL BRASHER

ADDRESS: 4801 INDIAN SCHOOL RD NE - SUITE 204 PHONE: 255-1625

OWNER: CITY OF ALBUQUERQUE CONTACT:

ADDRESS: PHONE:

ARCHITECT: N/A CONTACT:

ADDRESS: PHONE:

SURVEYOR: N/A CONTACT:

ADDRESS: PHONE:

CONTRACTOR: N/A CONTACT:

ADDRESS: PHONE:

RECEIVED SEP 24 1986 HYDROLOGY SECTION

PRE-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 REVIEW FOR C.I.P. (SPECIFY)

DATE SUBMITTED: SEPT. 24, 1986

BY: PAUL BRASHER

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

March 1, 1982

Mr. Bill Goolsby
Espey, Huston & Assoc., Inc.
4801 Indian School Rd. NE, Suite 204
Albuquerque, NM 87110

RE: KIVA RESERVOIR NO. 2 DRAINAGE REPORT

Dear Billy:

The referenced report is approved in concept. As we have discussed on several occasions, a decision must be reached concerning the construction of the retaining wall. If this alternative is chosen, we will work with you on detailing a downspout for conveying off-site flows through the wall and onto the paved swale.

If I can answer any questions concerning this project, please call.

Very truly yours,

Brian G. Burnett
Civil Engineer/Hydrology

BGB/tsl

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DRAINAGE REPORT INFORMATION SHEET

PROJECT TITLE Kiva Reservoir No. 2

ZONE ATLAS PAGE NO. F-22-Z -019 CITY ADDRESS Montgomery & Tramway Blvds.

LEGAL ADDRESS

ENGINEERING FIRM Espey, Huston & Assoc. Inc. CONTACT Billy Goolsby

ADDRESS 4801 Indian School Rd NE PHONE 255-1625

OWNER City CONTACT

ADDRESS PHONE

ARCHITECT/SURVEYOR Ray Harrison & Assoc. CONTACT Ray Harrison

ADDRESS 1517 A Girard NE 87106 PHONE 265-4276

DATE SUBMITTED

BY

RECEIVED

JAN 14 1982

ENGINEERING

MUNICIPAL DEVELOPMENT DEPARTMENT

Richard S. Heller, P.E., City Engineer ENGINEERING DIVISION Telephone (505) 766-7467

Drainage Report
for
Kiva Reservoir No. 2
Albuquerque, New Mexico

RECEIVED
JAN 1 1 1982
ENGINEERING

ESPEY, HUSTON & ASSOCIATES, INC.
Engineering & Environmental Consultants
AUSTIN • HOUSTON • DALLAS • CORPUS CHRISTI • SAN ANTONIO
ALBUQUERQUE • DENVER • OKLAHOMA CITY • ROCKFORD • NEW ORLEANS

ESPEY, HUSTON & ASSOCIATES, INC.

RECEIVED
JAN 14 1982
ENGINEERING

Drainage Report
for
Kiva Reservoir No. 2
Albuquerque, New Mexico

Prepared By
Espey, Huston & Associates, Inc.
4801 Indian School Road, N.E., Suite 204
Albuquerque, N.M. 87110

January 1982

RECEIVED
SEP 24 1986
HYDROLOGY SECTION

ESPEY, HUSTON & ASSOCIATES, INC.

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Estimated Runoff	2
Summarization	2

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Figure 3	Grading Plan and Site Layout	In Pocket
Figure 4	Intensity Duration Frequency Curves	6
Figure 5	Time of Concentration of Small Drainage Basins	7

ESPEY, HUSTON & ASSOCIATES, INC.

Drainage Report

Kiva Reservoir No. 2

General

This report will present the data, analysis and calculations resulting from the drainage study of the proposed water supply reservoir site titled: "Kiva Reservoir No. 2". The site is situated in Section 34, Township 11 North, Range 4 East, N.M.P.M. and adjacent to the existing Kiva Reservoir No. 1 site.

The property encompasses 2.4 ac. and has offsite drainage crossing from the east to the southwest. The sites are shown more precisely in Figures 1 and 2.

The natural ground is covered with the grasses, shrubs, and cacti native to the central New Mexico region, and slopes gently to the west approximately 3% to 5%. There is a major swale that enters the property at about the middle of the east property line and flows to the southwest and exits the property at approximately 100 feet east of the southwest property corner.

The offsite flow from the east is cutoff by Tramway Boulevard; therefore the total drainage area west of Tramway Boulevard through the project site that has an effect on the site is 2.1 ac. as planimetered from Figure 2. It is intended that the grading onsite will intercept the flow patterns from both onsite and offsite and allow the runoff to be conveyed to Montgomery Boulevard through a grate inlet and the overflow pipe system. This is shown on Figure 3.

Design Criteria

In analyzing the storm runoff, the Rational Formula, $Q = CIA\ C_f$, is used. [1]

Where:

Q = Runoff quantity in cubic feet/second.
A = Contributing area in acres.
C_f = Frequency factor for Rational Formula
I = Intensity in inches/hour for a duration equal to the time of accumulation (duration) measured in minutes and obtained from Figure 4, Intensity Duration Frequency Curves, Albuquerque Area 1961. (Note: Where a Time Concentration (Tc) is less than ten minutes from Figure 5, the intensity

value 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.

Estimated Runoff

Drainage within and across the site is basically overland flow collecting into the major swale as previously described. The following table gives the estimated runoff for both the undeveloped and developed state.

Table 1
Runoff for Proposed Site
Undeveloped and Developed

Drainage Basin	Elev. Diff.	Length of Flow	T_c* Min.	I_{100} In./Hr.**	C	Area Ac.	Q C.F.S.
Kiva No.2 Undeveloped	30	570	3.2	5.4	0.40	2.1	4.5
Developed	30	600	3.3	5.4	0.55†	2.1	6.2

* Taken from nomograph (Figure 5)
** Taken from Curve (Figure 4)
† Composit C value 25% (1.00) + 75% (0.40) = 0.55

C_f = 1.25 for 100 year recurrence interval; therefore Q = 6.2 C_f = 7.75 cfs or use 8 cfs.

Summarization

The net runoff result is an increase of 2.25 cfs., from the undeveloped state to the developed state due to the construction of the storage tank on the site.

As mentioned previously the runoff will be collected in a standard design catch basin and conveyed to Montgomery Boulevard via a 21 inch combined storm sewer and overflow drain system.

1. Herkenhoff, Gorden & Associates, "Master Plan of Drainage City of Albuquerque, New Mexico and Environs, 1963" Albuquerque, Gordon Herkenhoff & Associates, Consulting Engineers

ESPEY, HUSTON & ASSOCIATES, INC.

Assuming the worst case of having the 100 year storm occur at the same time the reservoir is overflowing, the outflow to Montgomery Boulevard will be 33 cfs. The storm drain system on Montgomery Boulevard has the capacity to carry the estimated maximum outflow from the overflow drain system.

Under normal conditions and assuming no overflow from the reservoirs the 100-year peak discharge to Montgomery Boulevard will be 8 cfs.

Respectfully submitted

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REGISTERED PROFESSIONAL ENGINEER

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NMPE No. 6418

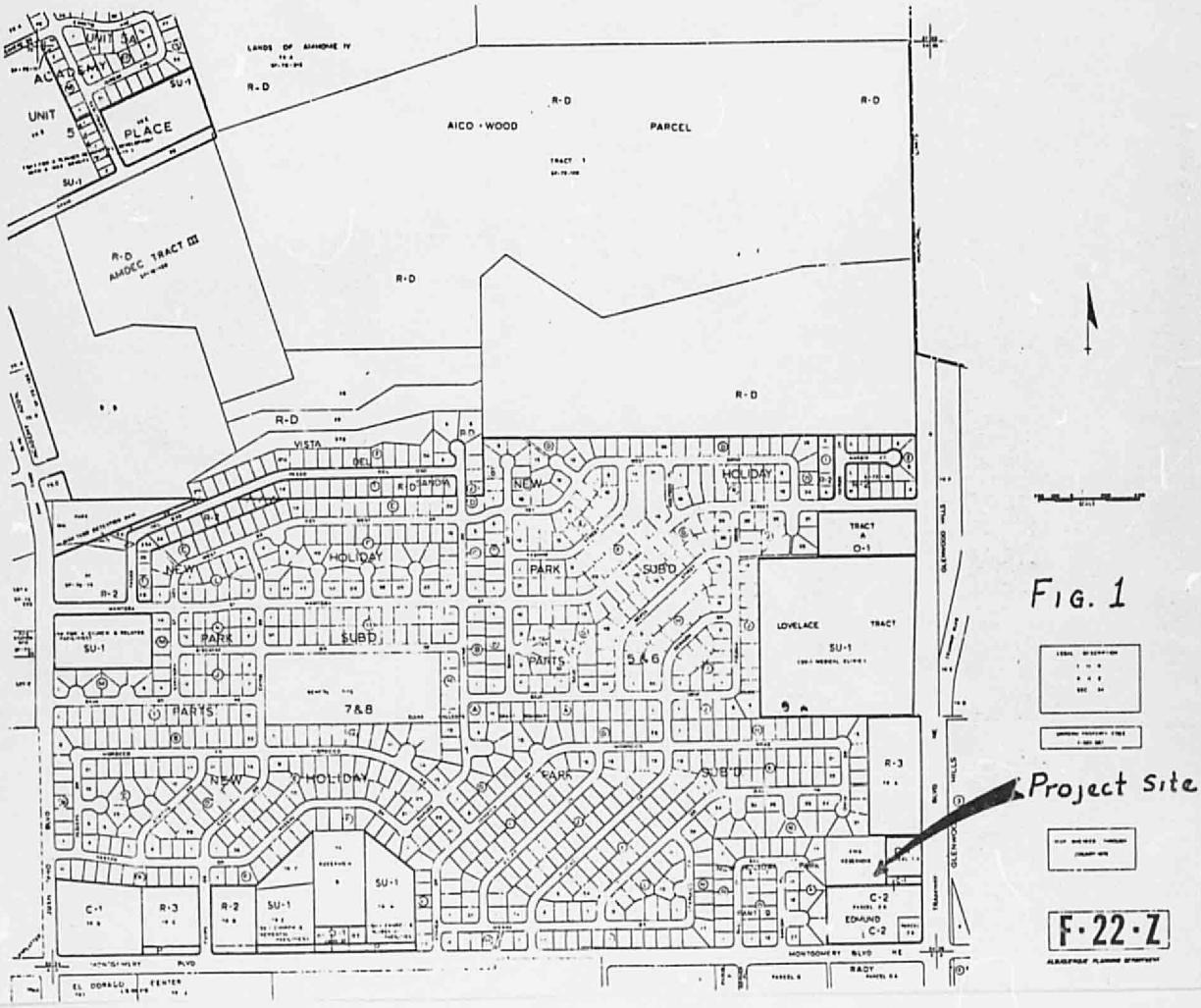
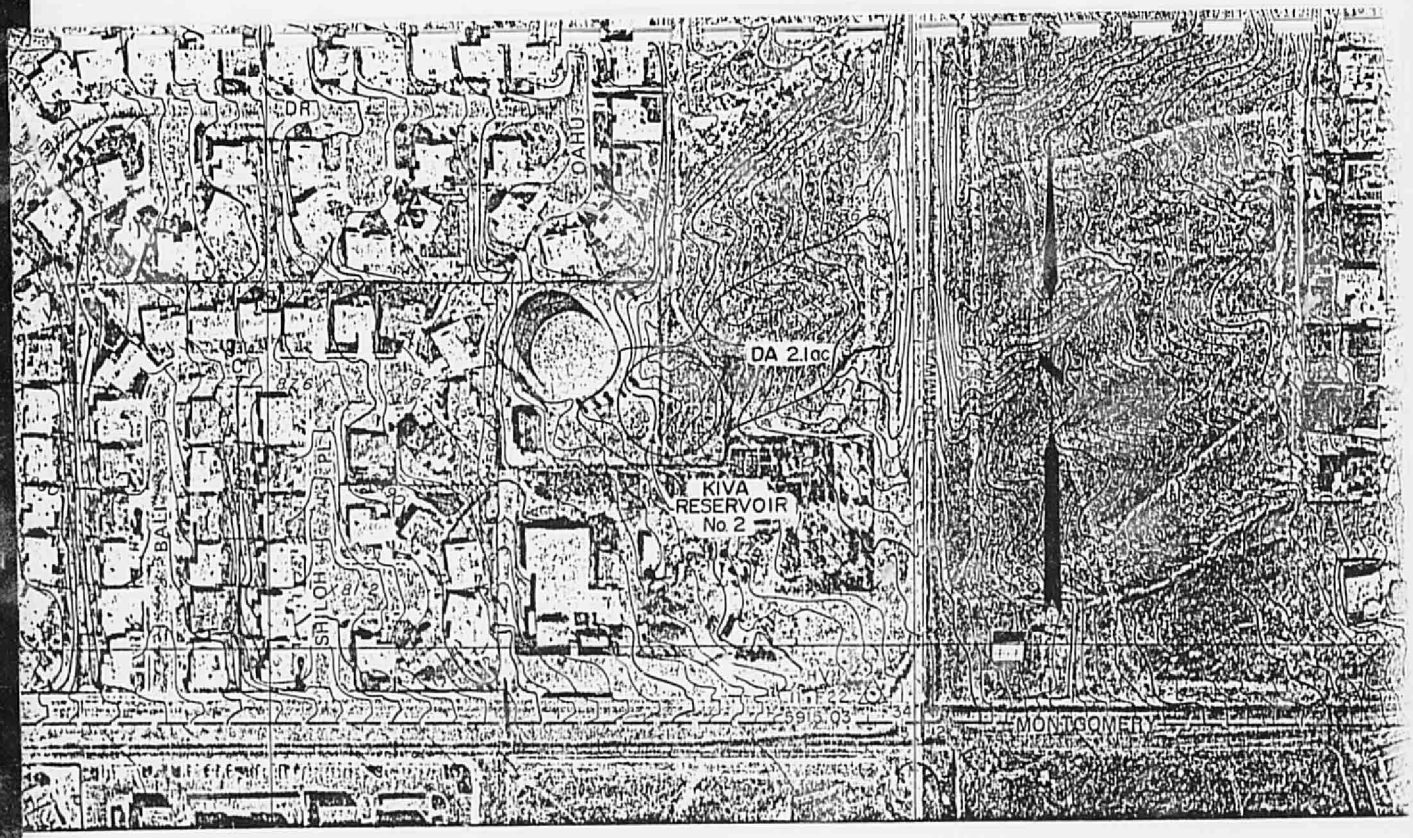

ACADEMY
UNIT 3A
UNIT 5
PLACE
SU-1
R-D
LANDS OF ALMONE IV
AICO - WOOD
PARCEL
TRACT I
AMDEC TRACT III
VISTA
NEW
HOLIDAY
PARK
SUBD
PARTS
7&8
5&6
TRACT A
O-1
LOVELACE
TRACT
R-2
R-3
C-1
C-2
EDMUND
GLENWOOD HILLS
MONTGOMERY BLVD NE
EL DORADO
RADY
Project Site
F-22-Z

FIG. 1



VICINITY & DRAINAGE MAP

scale: 1" = 200'

FIG. 2

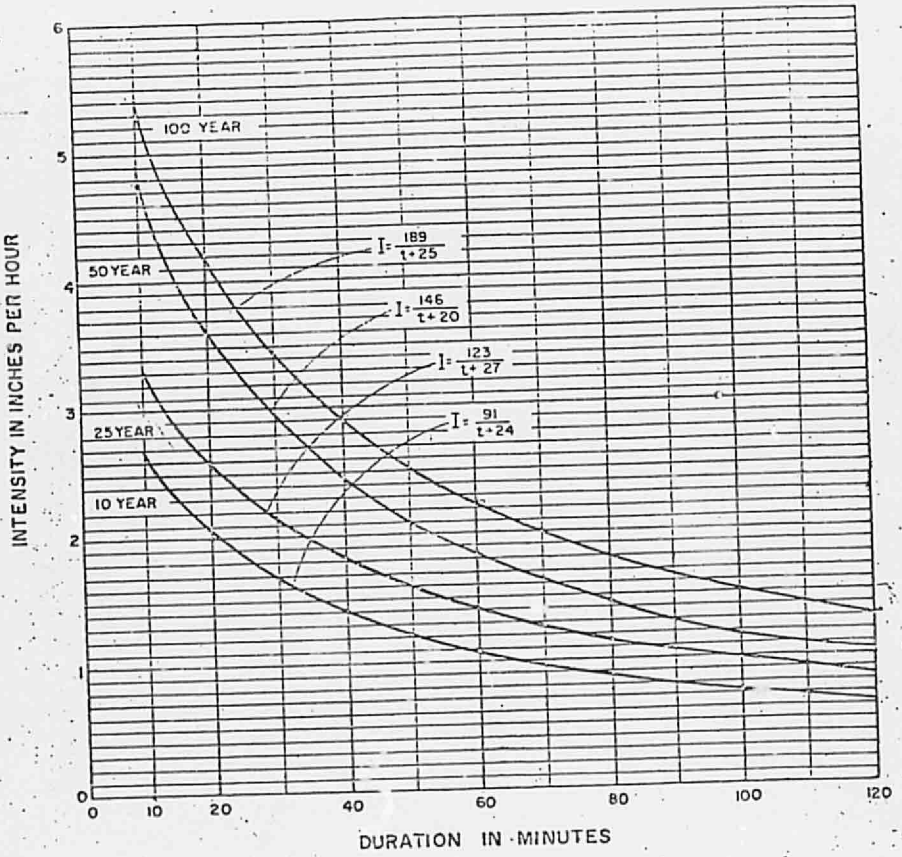
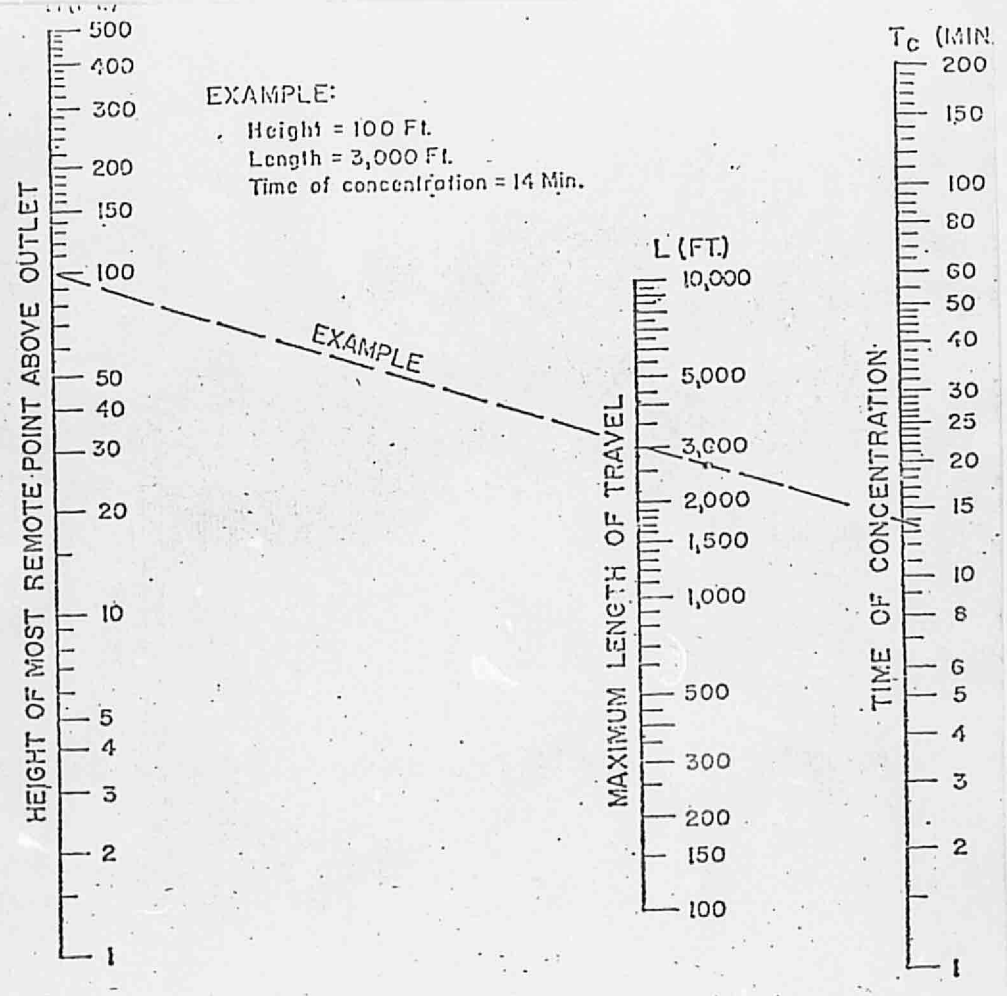


Fig. 4.

MASTER PLAN OF DRAINAGE CITY OF ALBUQUERQUE - NEW MEXICO AND ENVIRONS
INTENSITY DURATION FREQUENCY CURVES (ALBUQUERQUE AREA - 1961)
GORDON HERKENHOFF & ASSOC CONSULTING ENGINEERS ALBUQUERQUE, NEW MEXICO — CHART 1



Based on study by P.Z. Kirpich,
Civil Engineering, Vol.10, No. 6, June 1940, p. 332

TIME OF CONCENTRATION OF SMALL DRAINAGE BASINS

FIG. 5

Reprinted from "Design of Roadside Drainage Channels - Hydraulic Engineering Circular No. 6", April 1962, U. S. Dept.

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