



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

MAYOR
KEN SCHULTZ

CHIEF
ADMINISTRATIVE OFFICER
GENE ROMO

DEPUTY CAO
DEVELOPMENT & ENTERPRISE SERVICES
LARRY LARRANAGA

DEPUTY CAO
PUBLIC SERVICES
DAN WEAKS

July 19, 1988

Roland Trevino, E.I.T.
Cardenas-Salcedo & Associates, Inc.
701 N. St. Vrain
El Paso, Texas 79902

RE: REVISED DRAINAGE PLAN FOR THE COURTYARD BY MARRIOTT
(L-16/D23A) REVISION DATED JUNE 17, 1988

Dear Mr. Trevino:

Based on the information provided on your resubmittal of June 24, 1988,
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.

Please be advised that a separate permit for construction within the City
right-of-way is required. Also, the contractor must have a copy of this
approval letter when applying for his excavation permit.

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

Cordially,

Bernie J. Montoya, C.E.
Engineering Assistant

BJM/bsj

xc: Becky Sandoval



City of Albuquerque

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DEVELOPMENT & ENTERPRISE SERVICES
LARRY LARRANAGA

DEPUTY CAO
PUBLIC SERVICES
DAN WEAKS

June 15, 1988

Roland Trevino, E.I.T.
Cardenas-Salcedo & Associates, Inc.
701 N. St. Vrain
El Paso, Texas 79902

RE: GRADING/DRAINAGE PLAN FOR THE COURTYARD BY MARRIOTT
(L-16/D23A) ENGINEER'S STAMP DATED MAY 16, 1988

Dear Mr. Trevino:

Based on the information provided on your submittal of June 3, 1988,
listed are certain concerns that will need to be addressed prior to final
approval:

- ✓ 1. Finish Floor Elevations to full mean sea level designation.
- ✓ 2. Special Order #19 Format Note portion and sign-off block must be included on Sheet C-3/
3. Elevation at property line must 1' above existing flow line.
4. Copy of C-5 showing the Courtyard grading.
5. Additional contours and spot elevations showing what exists to the east of the proposed site (our concern is that no off-site flows will enter proposed site from the east).

If I can be of further assistance, please feel free to call me at (505) 768-2650.

Cordially,

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

BJM/bsj

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FICP

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103



KEN SCHULTZ
MAYOR

March 23, 1989

1920 York St

CERTIFICATE OF COMPLETION AND ACCEPTANCE

Mr. Scott McGee
Marriott Corporation
Courtyards West Office
1 Marriott Drive
Washington, D.C. 20058

RE: PROJECT NO. 3684, CAVAN SUNPORT CENTRE, (MAP NO. L-16)

Dear Mr. McGee:

This is to certify that the City of Albuquerque accepts Project No. 3684 as being completed according to approved plans and construction specifications. If all required right-of-ways and/or easements have been dedicated, the City of Albuquerque will accept for continuous maintenance all public infrastructure improvements constructed as part of Project No. 3684. If the required right-of-ways and/or easements have not been dedicated, the City of Albuquerque cannot accept the project for continuous maintenance and said maintenance will be the responsibility of the developer.

The project is described as follows:

- The project is located at the northeast corner of Centre Ave. and Yale N.E.
- Core drilled into existing inlet at north side of Centre Ave. and placed an eighteen inch (18") R.C.P., north into private property to back of sidewalk.
- Placed sanitary manhole, four foot (4') diameter, eight feet (8') south of center line on Centre Ave. Placed an eight inch (8") sanitary sewer service line in Centre Ave., north to back of sidewalk.
- Replaced sidewalk, curb and gutter and paving that were removed for construction of sanitary service and storm sewer.

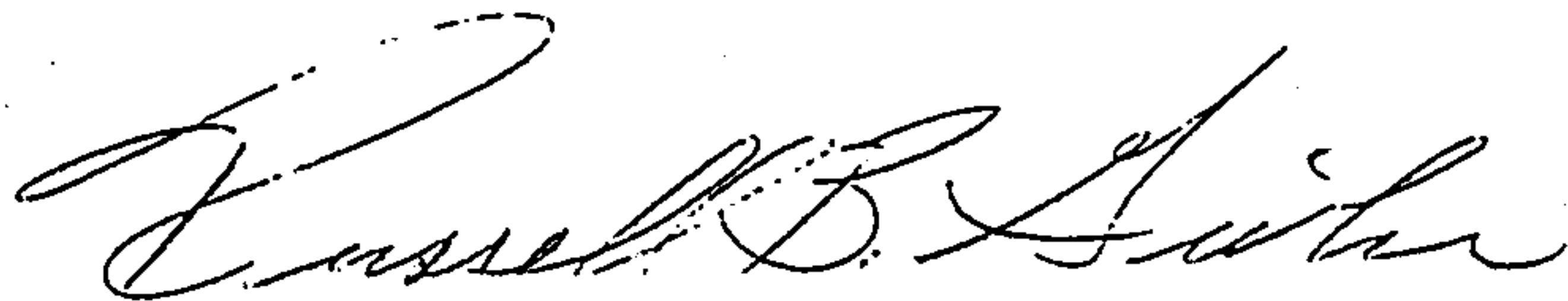
LETTER OF ACCEPTANCE FOR PROJECT NO. 3684

March 23, 1989

Page Two (2)

- The contractor's warranty begins the date of this letter and will be effective for a period of one (1) year.

Sincerely,



Russell B. Givler, P.E.
Chief Construction Engineer
Construction Mgmt. Division
Engineering Group
Public Works Department

RBG:kt

xc: Isaacson & Arfman
C.C.M., Inc.
Fred Aguirre, Engineering Group, PWD
Phil Fischer, Engineering Group, PWD
Ray Pang, Engineering Group, PWD
Terri Martin, Engineering Group, PWD
Jeanette Barrett, Special Assessments
Jim Olsen, Operations Group, PWD
Sam Cummins, Operations Group, PWD
Jim Fink, Operations Group, PWD
Ray Chavez, Operations Group, PWD
Jon Ertsgaard, Engineering Group, PWD
Dave Parks, Engineering Group, PWD
Tom Kennerly, Operations Group, PWD
Josie Gutierrez, New Meter Sales, Finance Group, PWD
Claudia Gallegos, Standby Clerk, Finance Group, PWD
Della Gallegos, Engineering Group, PWD
Fred Gomez, Engineering Group, PWD
Judy Aguilar, Engineering Group, PWD
f/Project 3684
f/Warranty
f/Readers

(INP 137278)



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

Ken Schultz
Mayor

UTILITY DEVELOPMENT DIVISION
HYDROLOGY SECTION
(505) 768-2650

December 21, 1987

Roland Trevino, Eit
Cardenas - Salcedo & Associates, Inc.
701 N St. Vrain
El Paso, Texas 79902

RE: CONCEPTUAL GRADING & DRAINAGE PLAN FOR THE COURTYARD BY
MARRIOTT, SUBMITTED NOVEMBER 23, 1987 FOR SITE DEVELOPMENT PLAN
APPROVAL (L-16/D23A)

Dear Mr. Trevino:

I have reviewed your submittal, referred to above. Our city standards, as outlined in the Development Process Manual, Volume 2, require each submittal to have a professional certification, i.e., an engineer's stamp with signature and date. Please resubmit a stamped, signed, and dated plan for site development plan approval.

If you would address the following items before you resubmit, I think it will be possible to approve your plan for building permit sign-off also.

1. Please better define the drainage subbasins - their boundaries are vague.
2. Please provide the calculations for the peak run-off rates and run-off volumes from each subbasin, to include the coefficient of run-off, the Soil Conservation Service's Curve Number (CN Value), the rainfall intensity, and each subbasin area; and capacity calculations for the drainage infrastructure.
3. It appears that you plan to run water out of the west entrance from Centre Avenue, which will require some attention when you detail this intersection. At the east entrance, however, you will need to provide a water block of some sort to prevent street flows from entering the property.

PUBLIC WORKS DEPARTMENT

Walter Nickerson, P.E., City Engineer

ENGINEERING GROUP

Telephone (505) 768-2500

Roland Trevino, EIT
December 21, 1987
Page 2

4. You will need a final grading plan and an erosion control plan for our sign-off on the building permit.

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

Cordially,



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

xc: Robert Navarro

GSR/bsj

CARDENAS-SALCEDO
& ASSOCIATES, INC.

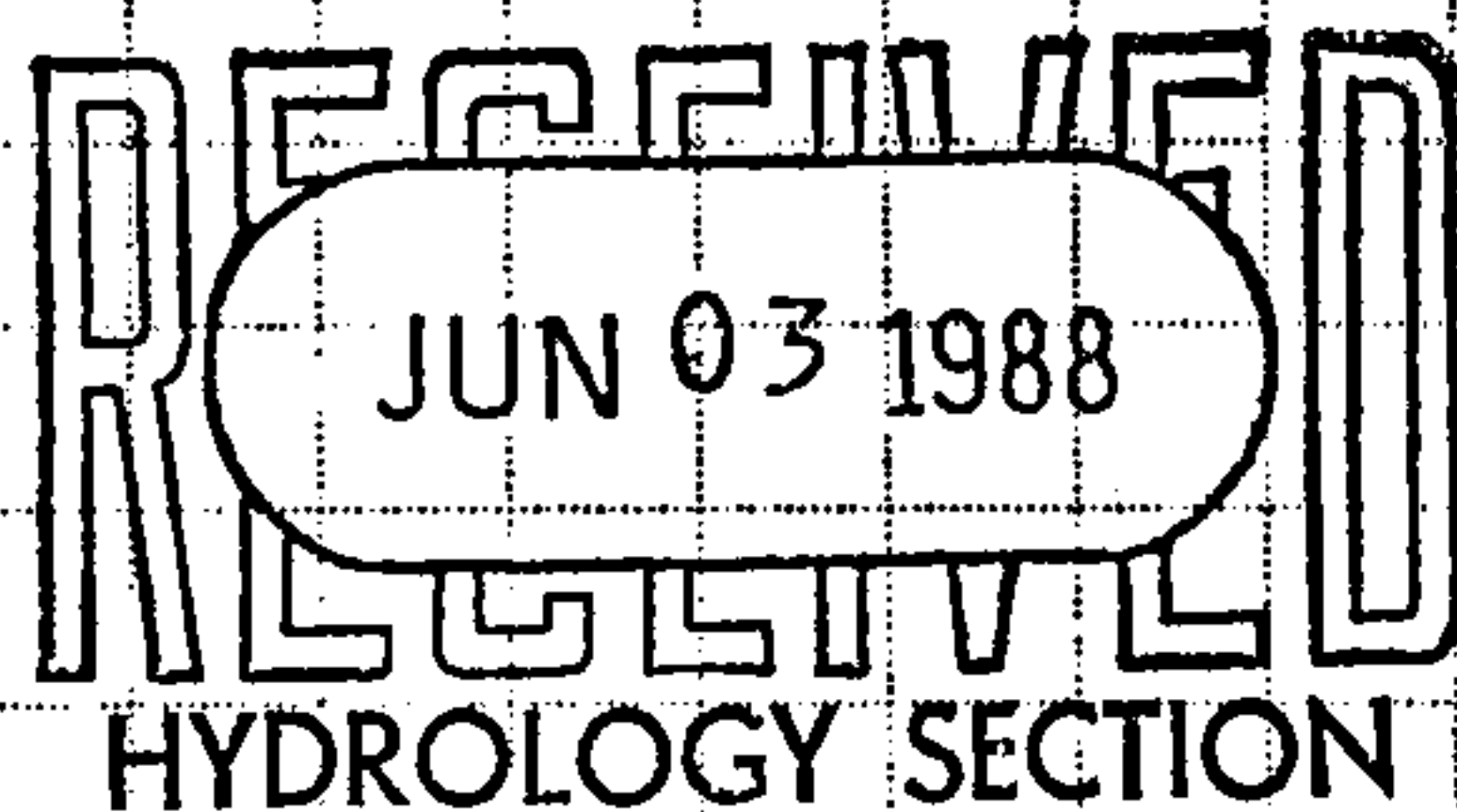
EL PASO
(915) 532-1076

DALLAS
(214) 943-6535

JOB Albuquerque Courtyard
SHEET NO. 1 OF 48
CALCULATED BY RT DATE _____
CHECKED BY _____ DATE _____
SCALE _____

DRAINAGE CALCULATIONS - DESIGN CRITERIA

1. CITY OF Albuquerque DEVELOPMENT PROCESS
MANUAL VOLUME 2: DESIGN CRITERIA
MARCH 1982
2. DRAINAGE REPORT FOR YALE BUSINESS
PARK (CAVAN COMMERCE CENTER) AUGUST 1985
L16-D23 BY ISAACSON & AREMAN
3. UNIFORM PLUMBING CODE - 1985
4. FREE DISCHARGE HAS BEEN APPROVED
FOR THIS SITE (REFERENCE 2 page 4)

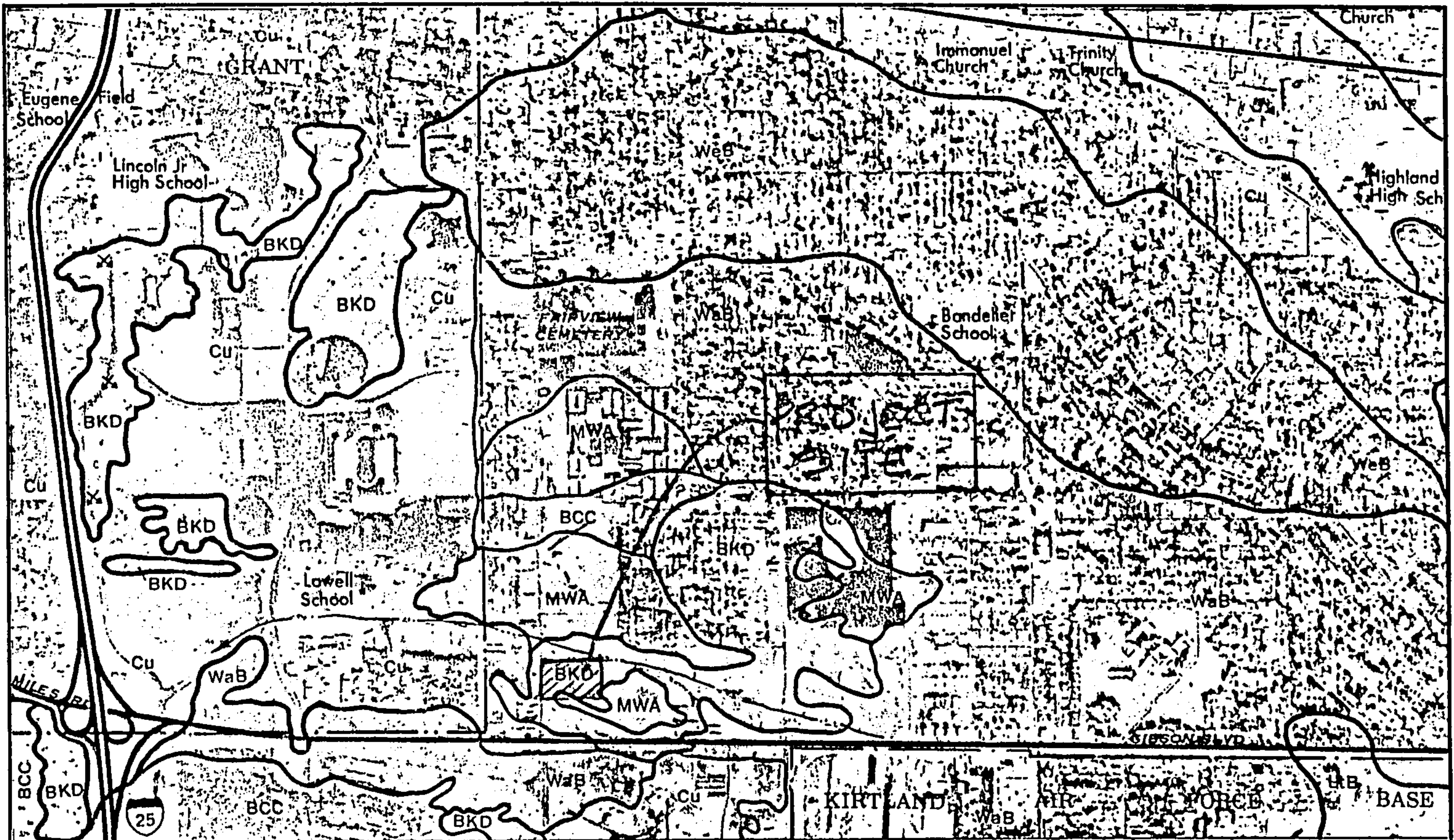


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SCS SOILS MAP

SCALE 1" = 2000'

SOIL

HYDRO GROUP

BKD

A

MWA

B

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SHEET NO. 31 OF 48
CALCULATED BY RT DATE 3-2-88
CHECKED BY _____ DATE _____
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DRAINAGE AREA ONE — NORTHERN HALF OF SITE OUTSIDE
OF BUILDING & EAST OF WESTERN
SLOPE CURB LINE

AREA → 58,806 SF OR 1.35 AC
PAVED → 0.82 AC
GRASSED → 0.53 AC

TIME OF CONCENTRATION

OVERLAND L = 49.0' FALL = 11.8' SLOPE = 0.241 FT/FT

PAVED L = 540' FALL = 8.23' SLOPE = 0.015 FT/FT

OVERLAND FLOW

$$T_c = 0.0078 \frac{L^{.77}}{S^{.385}} = 0.0078 \frac{(49)^{.77}}{(0.241)^{.385}} = 0.27 \text{ min.}$$

$$V = \frac{L}{T_c \times 60} = \frac{49}{(0.27)(60)} = 3.02' / \text{sec}$$

SHEET FLOW

$$T_c = 0.0078 \frac{(540)^{.77}}{(0.015)^{.385}} = 4.99 \text{ min.}$$

$$V = \frac{540}{(4.99)(60)} = 1.80' / \text{sec} < 3.0' / \text{sec} \therefore \text{USE PLATE 22.2 B-1}$$

$$V = 1.67' / \text{sec} \quad T_c = \frac{L}{V \times 60} = 5.39 \text{ min}$$

$$\Sigma T_c = 5.66 \text{ min}$$

USE 10 min

RUNOFF COEFFICIENT

$$\% \text{ IMPERVIOUS} = \frac{0.82}{1.35} \times 100 = 60.7\%$$

PAVED	—	0.82 AC	@	0.95	=	0.78
GRASSED	—	0.53 AC	@	0.25	=	0.13
		Σ 1.35			Σ	0.91

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JOB Albuquerque COURTYARD
SHEET NO. 4 OF 48
CALCULATED BY RT DATE 3-2-88
CHECKED BY _____ DATE _____
SCALE _____

$$C = \frac{0.91}{1.35} = 0.67$$

RAINFALL INTENSITY

$$\begin{aligned} 100 \text{ YR DEPTH} &= 2.28" & (\text{PLATE 22.2 D-1}) \\ \text{INTENSITY FACTOR} &= 2.11 \\ \text{INTENSITY} &= 4.81"/\text{hr} \end{aligned}$$

PEAK RUNOFF RATE

$$Q_{100} = CIA = (0.67)(4.81)(1.35) = 4.35 \text{ cfs}$$

$$Q_{10} = .657 Q_{100} = 2.86 \text{ cfs}$$

VOLUME OF RUNOFF (USING PLATE 22.2 C-2 & 22.2 C-4)

$$\begin{aligned} \text{SOIL GROUP A:} & \quad 0.82 \text{ Ac} @ \text{CN} = 98 = 80.4 \\ & \quad 0.53 \text{ Ac} @ \text{CN} = 39 = 20.7 \end{aligned}$$

$$\Sigma 1.35$$

$$\Sigma 101.1$$

$$\frac{101.1}{1.35} = 75$$

Plate 22.2 C-4 $q = 0.57$

$$V = qA = \frac{.57}{12} \times 1.35 \times 43560 = 2793 \text{ cuft}$$

$$T = 2V \div Q_{100} \div 60 = 21.4 \text{ min}$$

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SHEET NO. 5 OF 48
CALCULATED BY RT DATE 3-2-88
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DRAINAGE AREA TWO

SOUTHEAST PORTION OF SITE
OUTSIDE THE BUILDING &
EAST OF WESTERN DRIVEWAY.
INCLUDES 1/2 OF CENTRE AVE
ADJACENT TO PROPERTY

AREA → 63,598 SF OR 1.46 AC
PAVED → 0.56
GRASSED → 0.63
STREET → 0.27

TIME OF CONCENTRATION

OVERLAND — L = 49.0' FALL = 11.8' SLOPE = 0.241 FT/FT

PAVED — L = 425' FALL = 6.64' SLOPE = 0.016 FT/FT

STREET — L = 110' FALL = 3.55' SLOPE = 0.032 FT/FT

OVERLAND FLOW

$$T_c = 0.0078 \frac{(49)^{.77}}{(.241)^{.385}} = 0.27 \text{ min}$$

$$V = \frac{49}{(0.27)(60)} = 3.02 \text{ /sec}$$

SHEET FLOW

$$T_c = 0.0078 \frac{(425)^{.77}}{(.016)^{.385}} = 4.05 \text{ min}$$

$$V = \frac{425}{(4.05)(60)} = 1.75 \text{ /sec} < 3.0 \text{ /sec} \therefore \text{USE PL. 222 B-1}$$

$$V = 1.73 \text{ /sec} \quad T_c = \frac{425}{(1.73)(60)} = 4.09 \text{ min}$$

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SHEET NO. 6 OF 48
CALCULATED BY RT DATE 3-2-88
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STREET FLOW

$$T_c = .0078 \frac{(110)^{.77}}{(.032)^{.385}} = 1.10 \text{ min}$$

$$V = \frac{110}{(1.10)(60)} = 1.67 \text{ 'sec} < 3.0 \text{ 'sec}$$

(Plate 22.2 B-2) $V = 4.75 \text{ 'sec}$

$$T_c = \frac{110}{(4.75)(60)} = 0.39 \text{ min}$$

$$ET_c = 4.75 \text{ min}$$

RUNOFF COEFFICIENT

$$\% \text{ IMPERVIOUS} = \frac{0.83}{1.46} \times 100 = 56.8\%$$

PAVED - 0.56 A_c @ 0.95 = 0.53

GRASSED - 0.63 A_c @ 0.25 = 0.16

STREET - 0.27 A_c @ 0.95 = 0.26

$$\Sigma 1.46$$

$$\Sigma 0.95$$

$$C = \frac{0.95}{1.46} = 0.65$$

RAINFALL INTENSITY

100 YR DEPTH = 22.8"

INTENSITY FACTOR = 2.11

INTENSITY = 4.81"/HR

Plate 22.2 D-1

PEAK RUNOFF RATE

$$Q_{100} = CIA = (0.65)(4.81)(1.46) = 4.56 \text{ cfs}$$

$$Q_{10} = 0.657 Q_{100} = 3.0 \text{ cfs}$$

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CALCULATED BY RT DATE 3-2-92
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SCALE _____

VOLUME OF RUNOFF

SOIL GROUP A: 0.80 Ac @ CN=98 = 78.4
0.53 Ac @ CN=39 = 20.7
SOIL GROUP B: 0.03 Ac @ CN=98 = 2.9
0.10 Ac @ CN=39 = 3.9
Σ 1.46 Σ 105.9

$$\frac{105.9}{1.46} = 73$$

Plate 22.2 C-4 $q = 0.5$

$$V = q A = \frac{.5}{12} \times 1.46 \times 43560 = 2650 \text{ cu ft}$$

$$T = \frac{2V}{Q_{10} 60} = \frac{(2)(2650)}{(4.56)(60)} = 19.37 \text{ min}$$

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SHEET NO. 81 OF 48
CALCULATED BY RT DATE 3-2-88
CHECKED BY _____ DATE _____
SCALE _____

DRAINAGE AREA THREE -

SOUTHWEST CORNER OF PROPERTY
OUTSIDE OF BUILDING, EXCLUDING WESTERN
SLOPE & LANDSCAPED AREA ALONG
SOUTHERN PROPERTY LINE

AREA → 16,933 SF OR 0.39 AC

TIME OF CONCENTRATION

PAVED — L = 135' FALL = 6.2' SLOPE = 0.046 FT/FT

SHEET FLOW

$$T_c = .0078 \frac{(135)^{.77}}{(0.046)^{.385}} = 1.12 \text{ min}$$

$$V = \frac{135}{(1.12)(60)} = 2.01 \text{ '/sec} < 3.0 \text{ 'sec}$$

Plate 22.2 B-1 V = 2.7 'sec

$$T_c = \frac{135}{(2.7)(60)} = 0.83 \text{ min}$$

$$T_c = 0.83 \text{ min}$$

RUNOFF COEFFICIENT

PAVED — 0.39 AC @ 0.95

RAIN INTENSITY

100 YR DEPTH = 2.28"

INTENSITY FACTOR = 2.11

INTENSITY = 4.81"/HR

PEAK RUNOFF RATE

$$Q_{100} = CIA = (.95)(4.81)(0.39) = 1.78 \text{ cfs} \quad Q_{10} = (.657)(1.78)$$

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JOB Albuquerque COURTYARD
SHEET NO. 91 OF 43
CALCULATED BY RT DATE _____
CHECKED BY _____ DATE _____
SCALE _____

DRAINAGE AREA FOUR - COURTYARD & PORTION OF
ROOF DRAINING TOWARD
COURTYARD

AREA → 24,316 SF OR 0.56 AC.

TIME OF CONCENTRATION

OVERLAND — L = 120' FALL = 2.4' SLOPE = 0.020 FT/FT

ROOF — L = 42.5' FALL = 10.6' SLOPE = 0.250 FT/FT

OVERLAND FLOW

$$T_c = 0.0078 \frac{(120)^{.77}}{(0.02)^{.385}} = 1.40 \text{ min.}$$

$$V = \frac{120}{(1.4)(60)} = 1.43' / \text{sec} < 3.0' / \text{sec}$$

PLATE 22.2 B-1

$$V = 0.85' / \text{sec}$$

$$T_c = \frac{120}{(0.85)(60)} = 2.35 \text{ min}$$

ROOF FLOW

$$T_c = 0.0078 \frac{(42.5)^{.77}}{(0.25)^{.385}} = 0.24 \text{ min}$$

$$V = \frac{42.5}{(0.24)(60)} = 2.95' / \text{sec}$$

$$\Sigma T_c = 2.59 \text{ min}$$

RUNOFF COEFFICIENT

$$\text{OVERLAND} — 0.29 \text{ AC @ } 0.25 = 0.07$$

CARDENAS-SALCEDO
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SHEET NO. 10 OF 48
CALCULATED BY RT DATE _____
CHECKED BY _____ DATE _____
SCALE _____

$$\text{ROOF} = \frac{0.27 \text{ Ac}}{0.56} @ 0.90 = \frac{0.24}{0.31}$$

$$C = \frac{0.31}{0.56} = 0.55$$

RAINFALL INTENSITY

$$\begin{aligned} 100 \text{ YR DEPTH} &= 2.28'' \\ \text{INTENSITY FACTOR} &= 2.11'' \\ \text{INTENSITY} &= 4.81''/HR \end{aligned}$$

PEAK RUNOFF RATE

$$Q_{100} = C/A = (0.55)(4.81)(0.56) = 1.48 \text{ cfs}$$

$$Q_{10} = (0.657)(1.48) = 0.97 \text{ cfs}$$

VOLUME OF RUNOFF

$$\begin{aligned} \text{SOIL GROUP A: } 0.27 @ \text{CN} = 9B &= 26.5 \\ 0.29 @ \text{CN} = 39 &= 11.3 \\ \Sigma 0.56 &= 37.8 \end{aligned}$$

$$\frac{37.8}{0.56} = 67.5$$

$$\text{PLATE 22.2 C-4 } g = 0.35$$

$$V = g A = \frac{0.35}{12} \times 0.56 \times 43560 = 711 \text{ cu ft}$$

$$T = \frac{2V}{Q_{100}} = \frac{(2)(711)}{(1.48)(60)} = 16.01 \text{ min}$$

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JOB Albuquerque Courtyard
SHEET NO. 11 OF 48
CALCULATED BY RT DATE _____
CHECKED BY _____ DATE _____
SCALE _____

DRAINAGE AREA FIVE - SOUTHEAST CORNER OF OF
BUILDING ROOF AREA

AREA - 8110 SF OR 0.19 AC

TIME OF CONCENTRATION

ROOF L = 42.5' FALL = 10.6' SLOPE = 0.25 FT/FT

ROOF FLOW

$$T_c = 0.0078 \frac{(42.5)^{.77}}{(0.25)^{.35}} = 0.24 \text{ min}$$

$$V = \frac{42.5}{(0.24)(60)} = 2.95' / \text{sec}$$

RUNOFF COEFFICIENT

$$C = 0.90$$

RAINFALL INTENSITY

$$\begin{aligned} 100 \text{ YR DEPTH} &= 2.20'' \\ \text{INTENSITY FACTOR} &= 2.11 \\ \text{INTENSITY} &= 4.81'' / \text{HR} \end{aligned}$$

PEAK RUNOFF RATE

$$Q_{100} = CIA = (0.90)(4.81)(0.19) = 0.82 \text{ cfs}$$

$$Q_{10} = (0.657) Q_{100} = (0.657)(0.82) = 0.54 \text{ cfs}$$

VOLUME OF RUNOFF

SOIL GROUP A: 0.19 @ CN 98

PLATE 22.2 C-4 $f = 2.1$

$$V = fA = \frac{2.1}{12} \times (19) \times 43560 = 1448 \text{ cu ft}$$
$$T = 2V / Q_{100} = (2)(1448) / (0.82)(60) = 59.86 \text{ min}$$

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JOB Albuquerque Courtland
SHEET NO. 12 OF 48
CALCULATED BY RT DATE _____
CHECKED BY _____ DATE _____
SCALE _____

DRAINAGE AREA SIX - SOUTHWEST CORNER OF
BUILDING ROOF AREA

AREA — 4501 SF → 0.10 Ac

TIME OF CONCENTRATION

ROOF L = 42.5' FALL = 10.6' SLOPE = 0.25 FT/FT
ROOF FLOW

$$T_c = 0.0078 \frac{(42.5)^{.77}}{(0.25)^{.385}} = 0.24 \text{ min}$$

$$V = \frac{42.5}{(0.24)(60)} = 2.95' / \text{sec}$$

RUNOFF COEFFICIENT

$$C = 0.90$$

RAINFALL INTENSITY

100 YR DEPTH = 2.28"
INTENSITY FACTOR = 2.11
INTENSITY = 4.81" / HR

PEAK RUNOFF RATE

$$Q_{100} = CIA = (0.90)(4.81)(0.10) = 0.43 \text{ cfs}$$

$$Q_{10} = (0.657) Q_{100} = (0.657)(0.43) = 0.28 \text{ cfs}$$

VOLUME OF RUNOFF

SOIL GROUP A 0.10 Ac @ CN 98
PLATE 22.2 C-4 $g = 2.1$
 $V = gA = \left(\frac{2.1}{12}\right)(0.1)(43560) = 762 \text{ cft}$

$$T = \frac{V}{Q_{10}} = \frac{(2)(762)}{(0.43)(60)} = 59.1 \text{ min}$$

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JOB

Albuquerque Courtland

SHEET NO.

13

OF

48

CALCULATED BY

RT

DATE

CHECKED BY

DATE

SCALE

DRAINAGE AREA SEVEN

WEST HALF OF
PUBLIC SPACE ROOF AREA

AREA $\rightarrow$ 6839 SF $\rightarrow$ 0.16 AC.

TIME OF CONCENTRATION

ROOF L = 42.5' FALL = 10.6' SLOPE = 0.25 FT/FT
ROOF FLOW

$$T_c = 0.0078 \frac{(42.5)^{0.77}}{(0.25)^{0.385}} = 1.24 \text{ min}$$

$$V = \frac{42.5}{(0.24)(60)} = 2.95' / \text{sec}$$

RUNOFF COEFFICIENT

$$C = 0.90$$

RAINFALL INTENSITY

$$\begin{aligned} 100 \text{ YR DRYTH} &= 2.28'' \\ \text{INTENSITY FACTOR} &= 2.11'' \\ \text{INTENSITY} &= 4.81'' / \text{HR} \end{aligned}$$

PEAK RUNOFF RATE

$$Q_{100} = CIA (0.90)(4.81)(0.16) = 0.69 \text{ cfs}$$

$$Q_{10} = (0.657)(0.69) = 0.45 \text{ cfs}$$

VOLUME OF RUNOFF

PLATE 22.2 C-4 $g = 2.1$

SOIL GROUP A 0.16 AC @ CN 98

$$V = \left(\frac{2.1}{12}\right)(0.16)(43560) = 1220 \text{ cu ft}$$

$$T = \frac{2V}{Q_{100}} = \frac{(2)(1220)}{(0.69)(60)} = 58.9 \text{ min}$$

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SHEET NO.

CALCULATED BY

CHECKED BY

SCALE

Albuquerque Courtland
48

OF

DATE

DATE

DRAINAGE AREA EIGHT

NORTHERN PORTION OF
ROOF AREA

AREA $\rightarrow$ 3813 SF OR 0.09 AC

TIME OF CONCENTRATION

ROOF $L = 22'$
ROOF FLOW

FALL = 5.5'

SLOPE = 0.25 FT/FT

$$T_c = 0.0078 \frac{(22)^{.77}}{(0.25)^{.385}} = 0.14 \text{ min}$$

RUNOFF COEFFICIENT

$C = 0.90$

RAINFALL INTENSITY

100 YR DEPTH = 2.28"
INTENSITY FACTOR = 2.11"
INTENSITY = 4.81"

PEAK RUNOFF RATE

$$Q_{100} = CIA = (0.90)(4.81)(0.09) = 0.39 \text{ cfs}$$

$$Q_{10} = (0.657)(0.39) = 0.26 \text{ cfs}$$

VOLUME OF RUNOFF

PLATE 22.2 C-4 $g = 2.1$

SOILS GROUP A 0.16 AC
@ CN 90

$$V = \left(\frac{2.1}{12}\right)(0.09)(43560) = 686.1 \text{ cuft}$$

$$T = \frac{2V}{Q_{100}} = \frac{2(686.1)}{(0.39)(60)} = 58.64 \text{ min}$$

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DRAINAGE AREA NINE — SOUTHWEST CORNER OF
PROPERTY BETWEEN PROPERTY LINE
& PARKING AREA

AREA → 4952 SF OR 0.11 AC

TIME OF CONCENTRATION

OVERLAND — L = 130.0' FALL = 5.5' SLOPE = 0.04 FT/FT

OVERLAND FLOW

$$T_c = 0.0078 \frac{(130)^{.77}}{(0.04)^{.385}} = 1.14 \text{ min}$$

$$V = \frac{130}{(1.14)(60)} = 1.90' / \text{sec} < 3.0' / \text{sec}$$

Plate 22.2 B-1

$$V = 1.15' / \text{sec}$$

$$T_c = \frac{130}{(1.15)(60)} = 1.89 \text{ min}$$

RUNOFF COEFFICIENT

$$C = 0.25$$

RAINFALL INTENSITY

$$\begin{aligned} 100 \text{ YR DEPTH} &= 2.28'' \\ \text{INTENSITY FACTOR} &= 2.11 \\ \text{INTENSITY} &= 4.81'' / \text{HR} \end{aligned}$$

PEAK RUNOFF RATE

$$Q_{100} = CIA = (0.25)(4.81)(0.11) = 0.13 \text{ cfs}$$

$$Q_{10} = (.657)Q_{100} = (.657)(0.13) = 0.09 \text{ cfs}$$

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VOLUME OF RUNOFF

SOILS GROUP A 0.10 A_c @ CN 39 = 3.9
SOILS GROUP B 0.01 A_c @ CN 61 = .61
4.51

$$\frac{4.51}{0.11} = 41$$

PLATE 22.2 C-4

$$q = 0''$$

∴ FULL INFILTRATION

NON CONTRIBUTING

$$V = qA = \frac{0}{12} \times 0.11 \times 43560 = 0$$

$$T = \frac{2V}{Q_{100}} = \frac{(2)(0)}{(0.13)(100)} = 0$$

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DRAINAGE AREA TEN → AREA ON WESTERN SLOPE
OF PROPERTY

AREA → 18,731 SF OR 0.43 AC

TIME OF CONCENTRATION

OVERLAND L=30 Fall=3' SLOPE=0.10 FT/FT

PAVED L=365 Fall=4' SLOPE=0.011 FT/FT

OVERLAND $T_c = 0.0078 \frac{(30)^{.77}}{(0.1)^{.335}} = 0.26 \text{ min}$

$V = \frac{30}{(1.46)(60)} = 1.92 \text{ '}/\text{sec}$

SHEET FLOW

$T_c = 0.0078 \frac{(365)^{.77}}{(0.011)^{.335}} = 4.16 \text{ min}$

$V = \frac{365}{(4.16)(60)} = 1.46 \text{ '}/\text{sec} < 3.0 \text{ '}/\text{sec}$ USE RATE 22.2 B.1

$V = 1.44 \text{ '}/\text{sec}$ $T_c = \frac{365}{(1.44)(60)} = 4.22$

$\Sigma T_c = 4.48$

USE 10 min

RUNOFF COEFFICIENT

GLASSED

0.43 AC @ C=0.25

RAINFALL INTENSITY

100 YR DPTH = 2.23"

INTENSITY FACTOR = 2.11

INTENSITY = 4.81"/hr

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PEAK RUNOFF RATE

$$Q_p = CIA = (0.25)(4.31)(0.43) = 0.52 \text{ cfs}$$

$$Q_{10} = (0.657) Q_p = (0.657)(0.52) = 0.34 \text{ cfs}$$

VOLUME OF RUNOFF

SOIL GROUP A 0.42 A₂ @ CN 39

PLATE 22.2 C-4 $g = 0$

$$V = gA = 0$$

$$T = 0$$

FULL INFILTRATION
NON CONTRIBUTING

NOTE: LITTLE GRADING WILL TAKE PLACE IN THIS AREA. THIS AREA DOES NOT CONTRIBUTE TO THE GIBSON - KIRTLAND SYSTEM (REFERENCE) AND IS THEREFORE TAKEN AS NON-CONTRIBUTING

REFERENCE: DRAINAGE REPORT FOR YALE BUSINESS
PARK (CIVAN COMMERCIAL CENTER) AUGUST 1985 L16-D23
BY IGMESON & ARFMAN, P.A.

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SIZE HORIZONTAL RAINWATER PIPING

ASSUME Minimum Slope $\frac{1}{8}$ " per Foot

Rainfall Intensity $4.81 \frac{1}{hr} \rightarrow$ use $5 \frac{1}{hr}$

Use UPC 1985 TABLE D-2

Maximum Roof Area for Lateral Sizes,

$(20.8)(33.6) = 698.88 \text{ SF} < 1504 \text{ SF}$ per
TABLE D-2 FOR
4" PIPE.

* HOWEVER USE 6" PIPE MIN. FOR DOWNSPOUT LATERALS

MAXIMUM ROOF AREA FOR MAIN LINE SIZES

(D.A.S) $11,761 \text{ SF} < 16,580 \text{ SF}$ per TABLE D-2
FOR 10" PIPE

$\therefore$ USE MINIMUM 10" pipe for RAINWATER MAIN LINE

COMPUTE THE CAPACITY OF TYPE "C" SINGLE GRATE INLET

- REF. 1. CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION SECTION 2200 DWGS 2205 & 2220
2. STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION, BRIDGE DIVISION, HYDRAULIC MANUAL DEC. 1985 (STATE OF TEXAS)

TO COMPUTE CAPACITY, CALCULATE CAPACITY OF CURB INLET AND GRATE INLET SEPARATELY, ADD TOGETHER, AND THE WORKING CAPACITY OF THE COMBINATION IS TAKEN AS 50% OF THE SUM TO ACCOUNT FOR CLOGGED GRATES.

CURB INLET

FIG. 11

$$D = 10\frac{3}{4}'' - 4\frac{1}{4}'' = 6.5''$$

$$q_L = 1.22 \text{ cfs/lf}$$

$$L = (3' - 11\frac{3}{4}'') - 1' = 2' - 11\frac{3}{4}'' = 2.98'$$

$$Q_{\text{CURB}} = \left(\frac{1.22 \text{ cfs}}{\text{lf}} \right) (2.98 \text{ lf}) = 3.64 \text{ cfs}$$

GRATE INLET

$$Q_{\text{grate}} = CA\sqrt{2gh} \quad \text{ORIFICE FORMULA}$$

A = NET AREA OF GRATE OPENINGS

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$$\left[40'' - (2 \times \frac{1}{2}'') - (7 \times \frac{1}{2}'') \right] \left[25'' - (13 \times \frac{1}{2}'') \right] =$$
$$(35.5'')(18.5'') = 656.75 \text{ in}^2$$

$$\frac{656.75}{144} = 4.56 \text{ ft}^2$$

$$Q_{\text{grate}} = (0.7)(4.56) \sqrt{(2/32.2)(.54)} = 18.32 \text{ cfs}$$

$$Q_{\text{req}} = (3.64 + 18.32)(.5) = 11.23 \text{ cfs}$$

$$D.A. 1 \quad Q_{100} = 4.35 \text{ cfs} < 11.23 \text{ cfs}$$

USE ONE TYPE "C" SINGLE GRATE INLET

$$D.A. 3 \quad Q_{100} = 1.78 \text{ cfs} < 11.23 \text{ cfs}$$

USE ONE TYPE "C" SINGLE GRATE INLET

ALBUQUERQUE COURTYARD BY MARRIOTT
 PIPE SIZE COMPUTATIONS
 CARDENAS - SALCEDO AND ASSOC.
 JOB NUMBER: 67-118

FROM	TO	DRAINAGE AREA NO.	TOT. D.A. Ac.	TOT. C.A.	L ft.	TIME OF CONCENTRATION - MINUTES				Q cfs	D In.	DESIGN			REMARKS
						ALONG SEWER LINE	INLET	DESIGN				SLOPE	CAP.	Vel.	
							TIME	TIME	In/Hr			%	cfs	fps	
JMH1	11	7, 8	0.25	0.23	93	0.24 **	10	10.0	4.81	1.1	12	2.60	6.2	5.6	LINE "A"
11	12	1, 7 & 8	1.60	1.13	215	5.66 **	10	10.0	4.81	5.4	18	0.67	10.6	6.5	LINE "A"
CTYD	JMH1	4	0.56	0.31	99	2.35 **	10	10.0	4.81	1.5	14	1.30	6.6	4.8	
JMH2	12	4, 5 & 6	0.65	0.57	267	$2.35 + (215) / (4.8 * 60) = 2.6$	10	10.0	4.81	2.7	18	1.00	11.3	5.2	LINE "B"
12	16	1, 3 - 6	2.64	2.07	103	$5.66 + (215) / (6.2 * 60) + 6.2$	10	10.0	4.81	10.0	18	1.00	11.3	7.0	LINE "B"

** REPRESENTS OVERLAND FLOW TIME

VERIFY CAPACITY OF DRAINAGE INFRASTRUCTURE

1. MODIFY ANALYSIS POINT 7 OF ISAACSON & AREMAN DRAINAGE REPORT TO INCORPORATE ENTIRE Courtyard SITE (ADDITIONAL 3.3 Acres)
2. COMBINE ANALYSIS POINTS 5, 6 & 7 BY THE HYDROGRAPH METHOD TO DETERMINE MODIFIED Q_{100} PEAK AT ANALYSIS POINT 7
3. COMBINE ANALYSIS POINT 4 & 7 BY HYDROGRAPH METHOD TO DETERMINE Q_{100} PEAK CONTRIBUTING TO "GIBSON-KIRTLAND SYSTEM".
4. CHECK HYDRAULIC GRADE LINE ELEVATIONS TO DETERMINE ADEQUACY OF DRAINAGE INFRASTRUCTURE.

Modified Analysis Point 7

AREA → 209,088 SF OK 4.8 A.C.

Time of Concentration

Overland L = 49' FAL = 11.8' SLOPE = 0.241 FT/FT

SHEET FLOW L = 540' FAL = 8.23' SLOPE = 0.015 FT/FT

PIPE FLOW L = 318' FAL = 2.88' SLOPE = 0.009 FT/FT

OVERLAND FLOW

$$T_c = 0.0078 \frac{(49)^{.77}}{(0.241)^{.385}} = 0.27 \text{ min}$$

$$V = \frac{49}{(0.27)(60)} = 3.02 \text{ sec}$$

SHEET FLOW

$$T_c = 0.0078 \frac{(540)^{.77}}{(0.015)^{.385}} = 4.99$$

$$V = \frac{540}{(4.99)(60)} = 1.80 \text{ sec}$$

PIPE FLOW

$$T_c = \frac{318}{(6.7)(60)} = 0.79 \text{ min}$$

$$ET_c = 6.05 \text{ min}$$

USE 10 min

RUNOFF COEFFICIENT

SOIL GROUP A 4.5 ac @ 0.60 = 2.7

SOIL GROUP B 0.3 ac @ 0.73 = 0.22

$$\Sigma = 4.8$$

$$\Sigma = 2.92$$

$$C = \frac{2.92}{4.80} = 0.61$$

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RAINFALL INTENSITY

$$\begin{aligned} 100 \text{ YR DEPTH} &= 2.28" \\ \text{INTENSITY FACTOR} &= 2.11 \\ \text{INTENSITY} &= 4.81"/h \end{aligned}$$

PEAK RUNOFF RATE

$$Q_{100} = CIA = (.61)(4.81)(4.8) = 14.1 \text{ cfs}$$

VOLUME OF RUNOFF

$$\begin{aligned} \text{SOIL GROUP A:} & 4.5 \text{ ac @ CN } 83 = 373.5 \\ \text{SOIL GROUP B:} & 0.3 \text{ ac @ CN } 89 = 26.7 \\ & 4.8 \text{ } & 400.2 \end{aligned}$$

$$CN = \frac{400.2}{4.8} = 83$$

$$q = 0.91 \quad (\text{Plate 22.2 C-4})$$

$$V = qA = \left(\frac{0.91}{12}\right)(4.8)(43,560) = 15,855.84 \text{ ft}^3$$

$$T = \frac{2V}{Q_{100}} = \frac{(15,855.84)(2)}{(14.1)(60)} = 37.5 \text{ min}$$

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DETERMINATION OF Q_{100} @ ANALYSIS POINT 7

TOTAL FLOW RATE WILL BE DETERMINED BY
ADDITION OF INCREMENTAL HYDROGRAPHS FROM
ISAACSON & ARFMAN ANALYSIS POINTS 5, 6 WITH
CARDENAS - SALCEDO MODIFIED ANALYSIS POINT 7

PLOTTING TABLE INFORMATION

Incr Hydro No.	ANALYSIS POINT ID.	Q_{100} PEAK (cfs)	Hydro BASE TIME (min.)	TRAVEL Time (min)	Accumulated TRAVEL TIME (min)
7	7	14.1	37.5	6.1	-
6	6	1.6	38	0.4	6.1
5	5	4.6	45	2.7	6.5

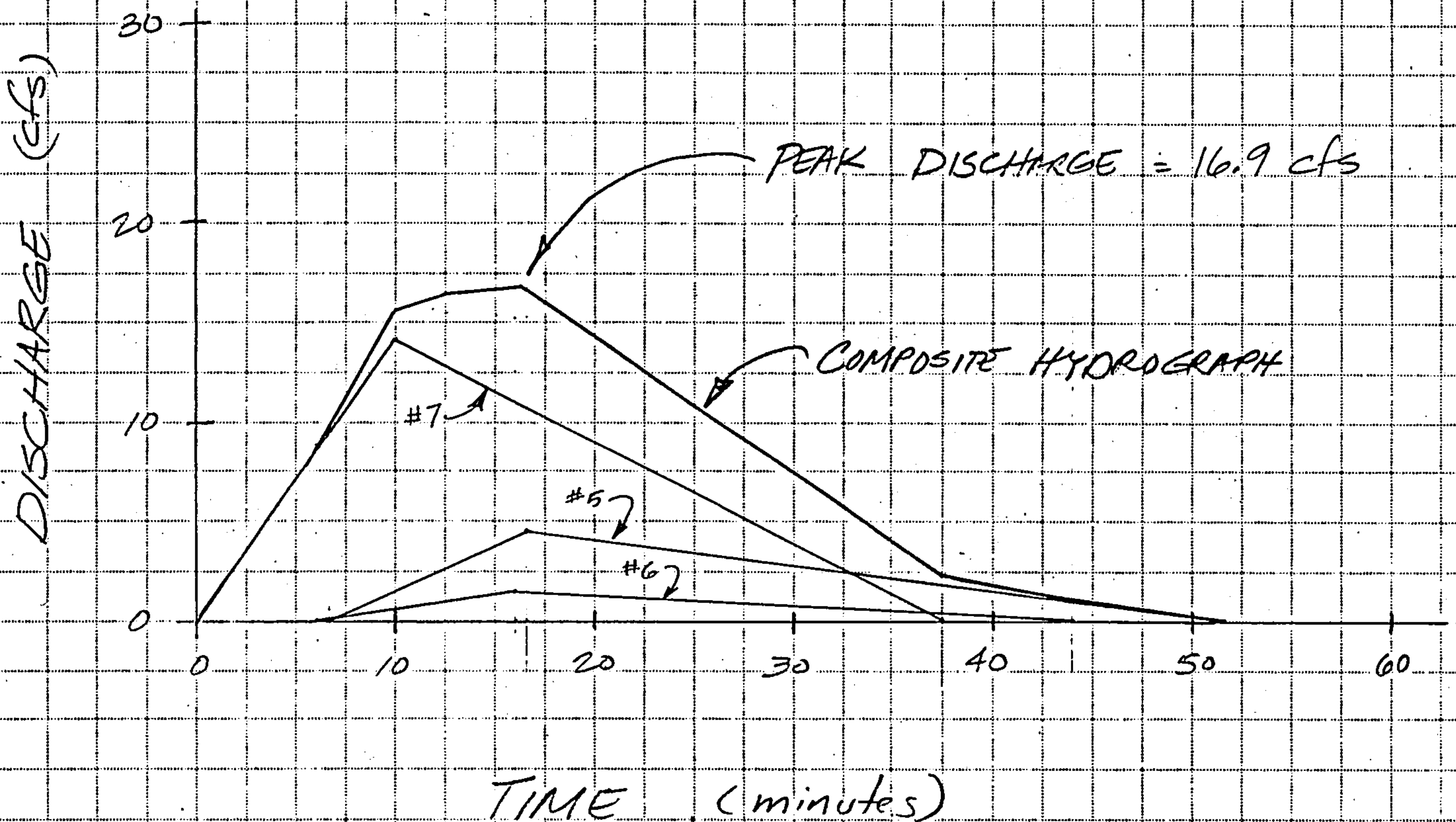
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ANALYSIS POINT 7 COMPOSITE HYDROGRAPH



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DETERMINATION OF Q_{100} PEAK TO GIBSON - KIRTLAND

TOTAL FLOW RATE WILL BE DETERMINED BY
ADDITION OF COMPOSITE HYDROGRAPHS FROM
MODIFIED ANALYSIS POINT 7 AND ANALYSIS POINT 4.

PLOTTING TABLE INFORMATION

INCL. HYDRO. NO.	ANALYSIS POINT NO.	Q ₁₀₀ PEAK (cfs)	HYDRO BASE TIME (min)	TRAVEL TIME (min)
------------------------	--------------------------	-----------------------------------	-----------------------------	-------------------------

7

7

16.9

51.5

6.5

*

4

4

56

59.4

7.4

* REFERENCE ISAACSON &
AREMAN DRAINAGE REPORT
P. A-6 & A-7

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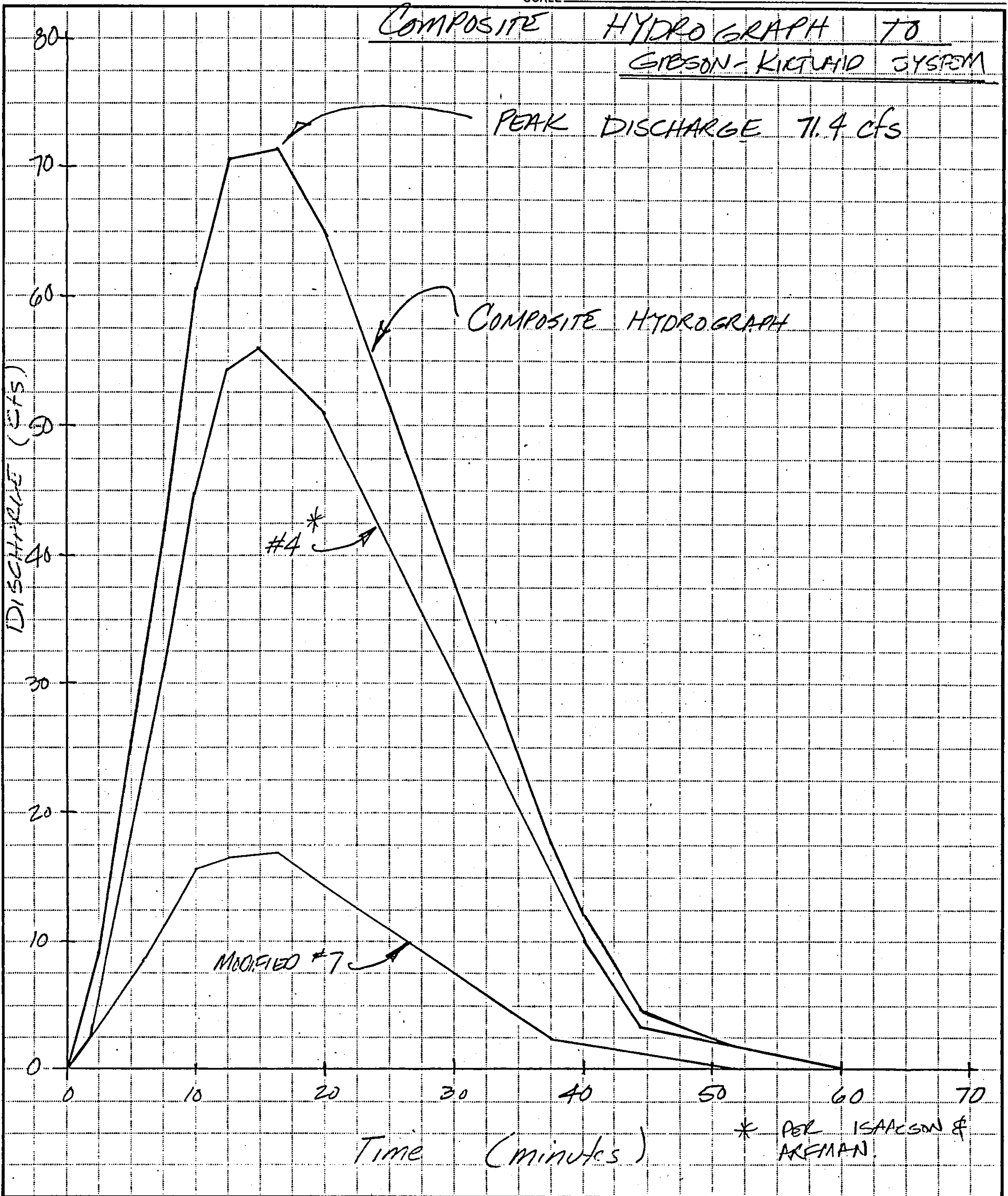
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COMPOSITE HYDROGRAPH TO
GIBSON-KIRTLAND SYSTEM



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Due to the increase of watershed area from analysis point 7, the peak discharge to the Centre Ave system is increased from 65.9 cfs, as computed by Isaacson & Artman, to 71.4 cfs, an increase of 5.5 cfs.

Since the Centre Ave system is designed for a pressure flow situation, hydraulic grade line will be checked to ensure water surface remains below the street surface.

Analysis will begin at the point where the Centre ave system connects to the Gibson - Kirtland system since west of that point the Gibson - Kirtland system has adequate capacity (reference Drainage Report by Isaacson & Artman, page 7).

HYDRAULIC GRADE LINE COMPUTATIONS

Table 1

Head Loss Coefficients

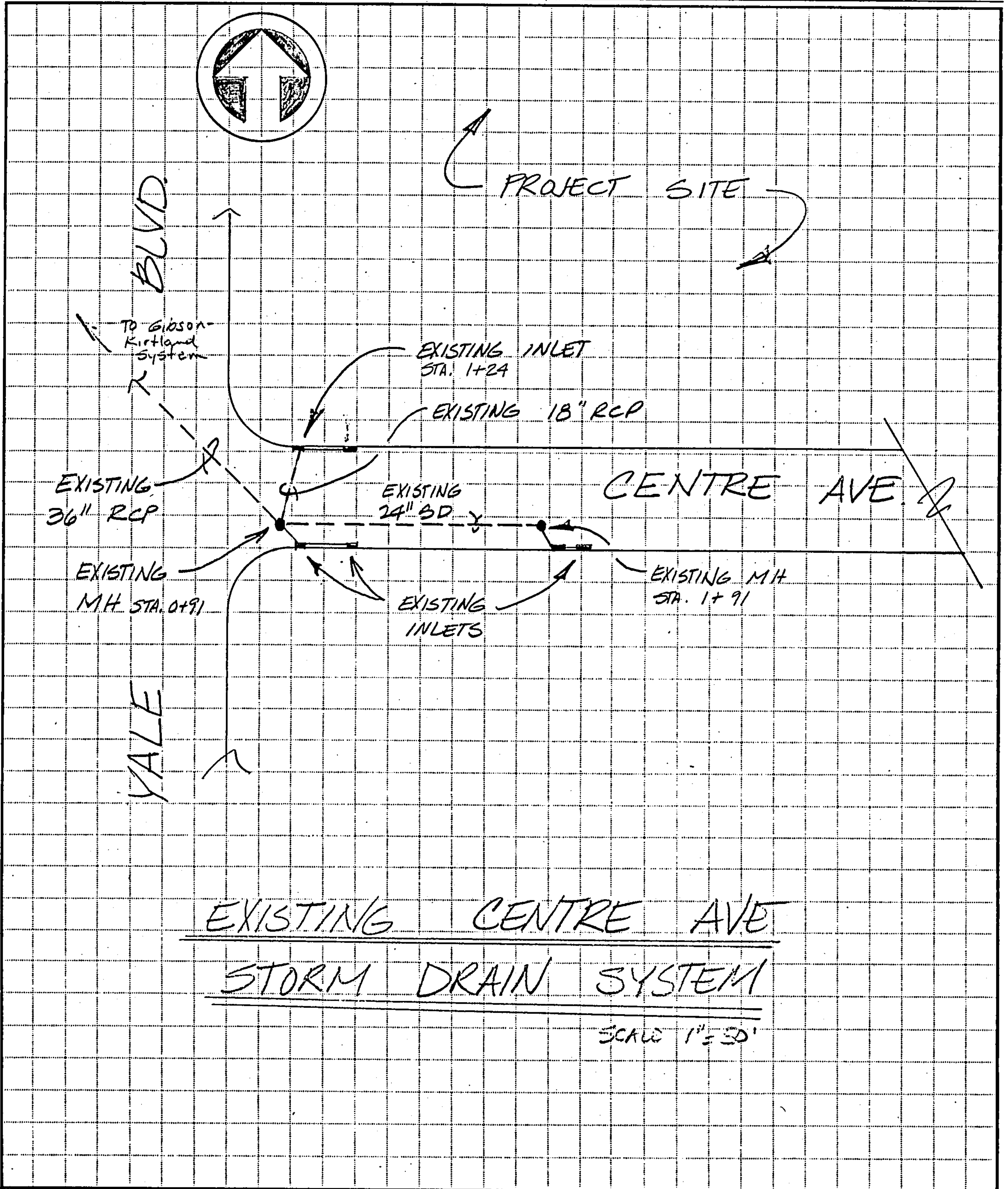
Situation	Ku	Kd
Change in pipe diameter, or pipe Q only	1.0	1.0
Manhole on main line with		
90-deg lateral	0.20	1.0
60-deg lateral	0.35	1.0
45-deg lateral	0.50	1.0
Bends in main line		
90-deg bend	0.0	0.50
60-deg bend	0.0	0.43
45-deg bend	0.0	0.35
22.5-deg bend	0.0	0.20

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HYDRAULIC GRADE LINE COMPUTATION CENTRE AVE TO GIBSON-KIRTLAND LINE

Computer Input File FOR 36" LINE TO 18" LINE

TITLE	ALBUQUERQUE COURTYARD, GIBSON-KIRTLAND CHECK 1					
START	79.		KEEP			
PIPE	0.	76.1	62.1	71.4	.013	36.
HLOSS	91.	1.	.35			
HLOSS	91.	1.	1.			
PIPE	91.	76.6	63.34	16.9	.013	18.
END	124.	77.26	62.96			
ZZ						

ALBUQUERQUE COURTYARD, GIBSON-KIRTLAND CHECK 1
DESIGN DISCHARGES

FROM STATION= 0. TYPE CONDUIT = PIPE START F.L.= 76.10 END F.L.= 76.60
TO STATION= 91. DIA. = 36. START H.G.= 79.10 END H.G.= 80.14
LENGTH= 91. Q = 71.4 START GRND= 82.10 END GRND= 83.34
N = .013
V = 10.1
S(H.G.) = .0115
S(PIPE) = .0055

AT STATION= 91. Q = 71.4 START H.G.= 80.14
HEAD LOSS KD= 1.00 VD = 10.1 END H.G.= 81.17
KU= .35 VU = 10.1
HL = 1.03

FROM STATION= 91. TYPE CONDUIT = PIPE START F.L.= 76.60 END F.L.= 76.60
TO STATION= 91. DIA. = 36. START H.G.= 81.17 END H.G.= 81.17
LENGTH= 0. Q = 71.4 START GRND= 83.34 END GRND= 83.34
N = .013
V = 10.1
S(H.G.) = .0115
S(PIPE) = .0000

AT STATION= 91. Q = 71.4 START H.G.= 81.17
HEAD LOSS KD= 1.00 VD = 10.1 END H.G.= 81.34
KU= 1.00 VU = 9.6
HL = .16

DESIGN DISCHARGES

FROM STATION=	91. TYPE CONDUIT =	PIPE START F.L.=	76.60 END F.L.=	77.26
TO STATION=	124. DIA.	16. START H.G.=	81.34 END H.G.=	82.19
LENGTH=	33. 0	16.9 START GRND=	83.34 END GRND=	82.96
	N			
	V			
	S(H.G.)			
	S(PIPE)			

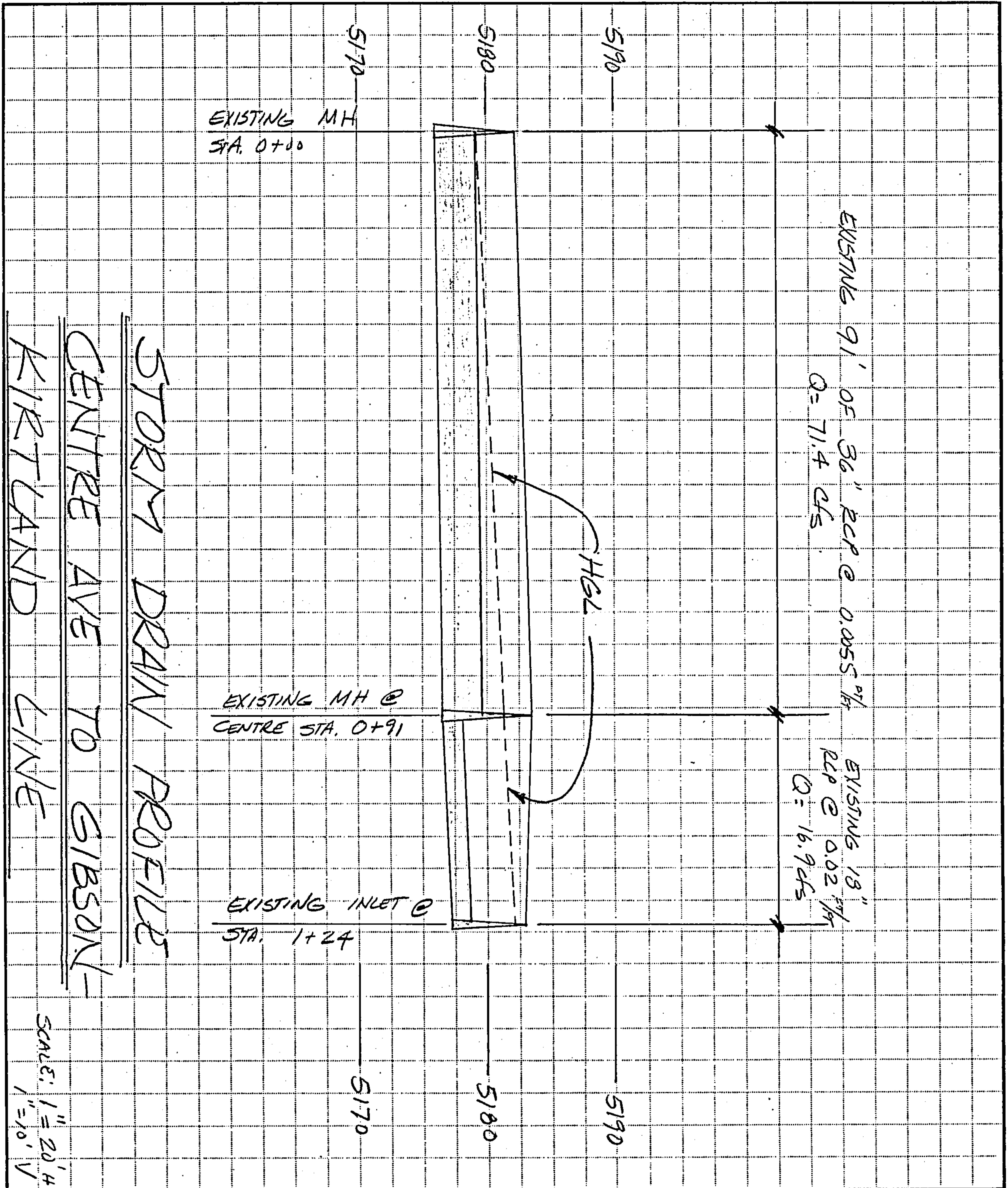
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HYDRAULIC GRADE LINE COMPUTATION
CENTRE AVE TO GIBSON - KIRTLAND LINE

Computer Input File For 24" LINE

TITLE	ALBUQUERQUE COURTYARD, GIBSON-KIRTLAND CHECK 2					
START	61.34		KEEP			
PIPE	91.	76.6	63.34	34.3	.013	24.
END	191.	77.6	65.12			
ZZ						

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ALBUQUERQUE COURTYARD, GIBSON-KIRTLAND CHECK 2
DESIGN DISCHARGES

FROM STATION=	91. TYPE CONDUIT =	PIPE START F.L.=	76.60	END F.L.=	77.60
TO STATION=	191. DIA.	24. START H.G.=	81.34	END H.G.=	83.64
LENGTH=	100. 0	34.3 START GRND=	83.34	END GRND=	85.12
	N		.013		
	V		10.9		
	S(H.G.)		.0230		
	S(PIPE)		.0100		

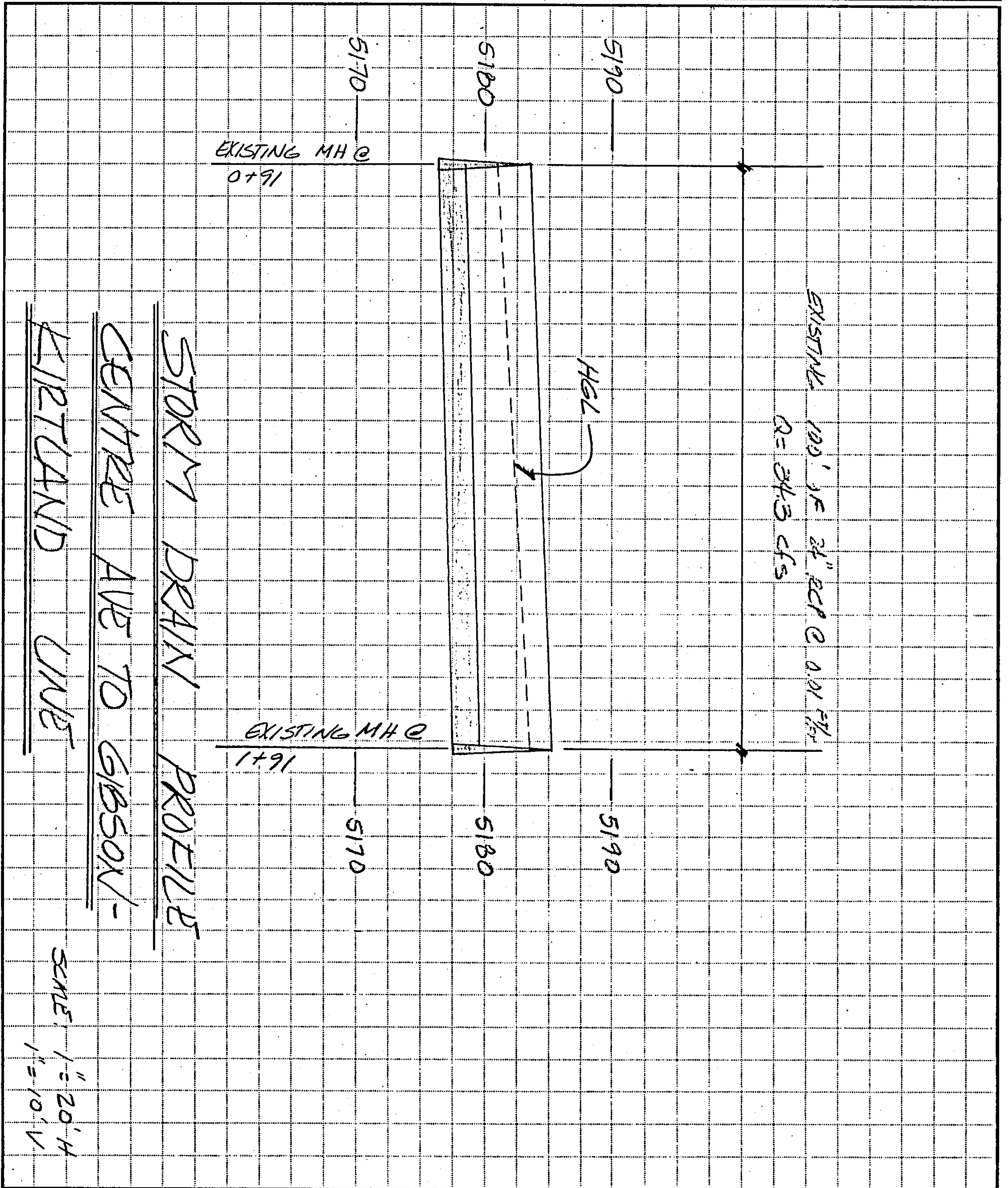
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HYDRAULIC GRADE LINE COMPUTATION

ON SITE LINE "A" TO CENTRE AVE SYSTEM.

Computer Input for Line A

TITLE	ALBUQUERQUE COURTYARD, LINE A (LINE-A.HG1)					
START	62.17		KEEP			
PIPE	0.	77.44	82.96	9.96	.013	16.
HLOSS	103.	1.	1.			
PIPE	103.	78.47	86.3	5.44	.013	16.
HLOSS	319.	1.	1.			
PIPE	319.	60.32	86.	1.1	.013	16.
HLOSS	324.	1.	.2			
PIPE	324.	61.5	86	1.1	.015	12.
END	417.	63.95	92.4			
ZZ						

NOTE: On site Q's are computed by the rational method.

HG1 CARDENAS-SALCEDO & ASSOC., INC. 05/27/68

ALBUQUERQUE COURTYARD, LINE A (LINE-A.HG1)
DESIGN DISCHARGES

FROM STATION= 0. TYPE CONDUIT = PIPE START F.L.= 77.44 END F.L.= 78.47
 TO STATION= 103. DIA. = 18. START H.G.= 82.19 END H.G.= 83.12
 LENGTH= 103. Q = 10.0 START GRND= 82.96 END GRND= 86.30
 N = .013
 V = 5.6
 S(H.G.) = .0090
 S(PPIPE) = .0100

AT STATION= 103. Q = 10.0 START H.G.= 83.12
 HEAD LOSS KD= 1.00 VD = 5.6 END H.G.= 83.46
 KU= 1.00 VU = 3.1
 HL = .35

FROM STATION= 103. TYPE CONDUIT = PIPE START F.L.= 78.47 END F.L.= 80.32
 TO STATION= 319. DIA. = 18. START H.G.= 83.46 END H.G.= 84.04
 LENGTH= 216. Q = 5.4 START GRND= 86.30 END GRND= 86.00
 N = .013
 V = 3.1
 S(H.G.) = .0027
 S(PPIPE) = .0066

AT STATION= 319. Q = 5.4 START H.G.= 84.04
 HEAD LOSS KD= 1.00 VD = 3.1 END H.G.= 84.16
 KU= 1.00 VU = .6
 HL = .14

HG1 CARDENAS-SALCEDO & ASSOC., INC. 05/27/86

ALBUQUERQUE COURTYARD, LINE A (LINE-A.HG1)
DESIGN DISCHARGES

FROM STATION= 319. TYPE CONDUIT = PIPE START F.L.= 60.32 END F.L.= 61.50
 TO STATION= 324. DIA. = 16. START H.G.= 84.16 END H.G.= 84.16
 LENGTH= 5. Q = 1.1 START GRND= 66.00 END GRND= 66.00
 N = .013
 V = .6
 S(H.G.) = .0001
 S(PIPE) = .2360

HL REDUCED TO .5HL BECAUSE HL = .00 WITH KD = 1.00 AND KU = .20
 AT STATION= 324. Q = 1.1 START H.G.= 84.16
 HEAD LOSS KD= 1.00 VD = .6 END H.G.= 84.16
 KU= .20 VU = 1.4
 HL = .00

FROM STATION= 324. TYPE CONDUIT = PIPE START F.L.= 61.50 END F.L.= 63.95
 TO STATION= 417. DIA. = 12. START H.G.= 84.16 END H.G.= 84.95
 LENGTH= 93. Q = 1.1 START GRND= 66.00 END GRND= 92.40
 N = .015
 V = 1.4
 S(H.G.) = .0062
 *** PARTIAL FLOW ***
 S(PIPE) = .0263

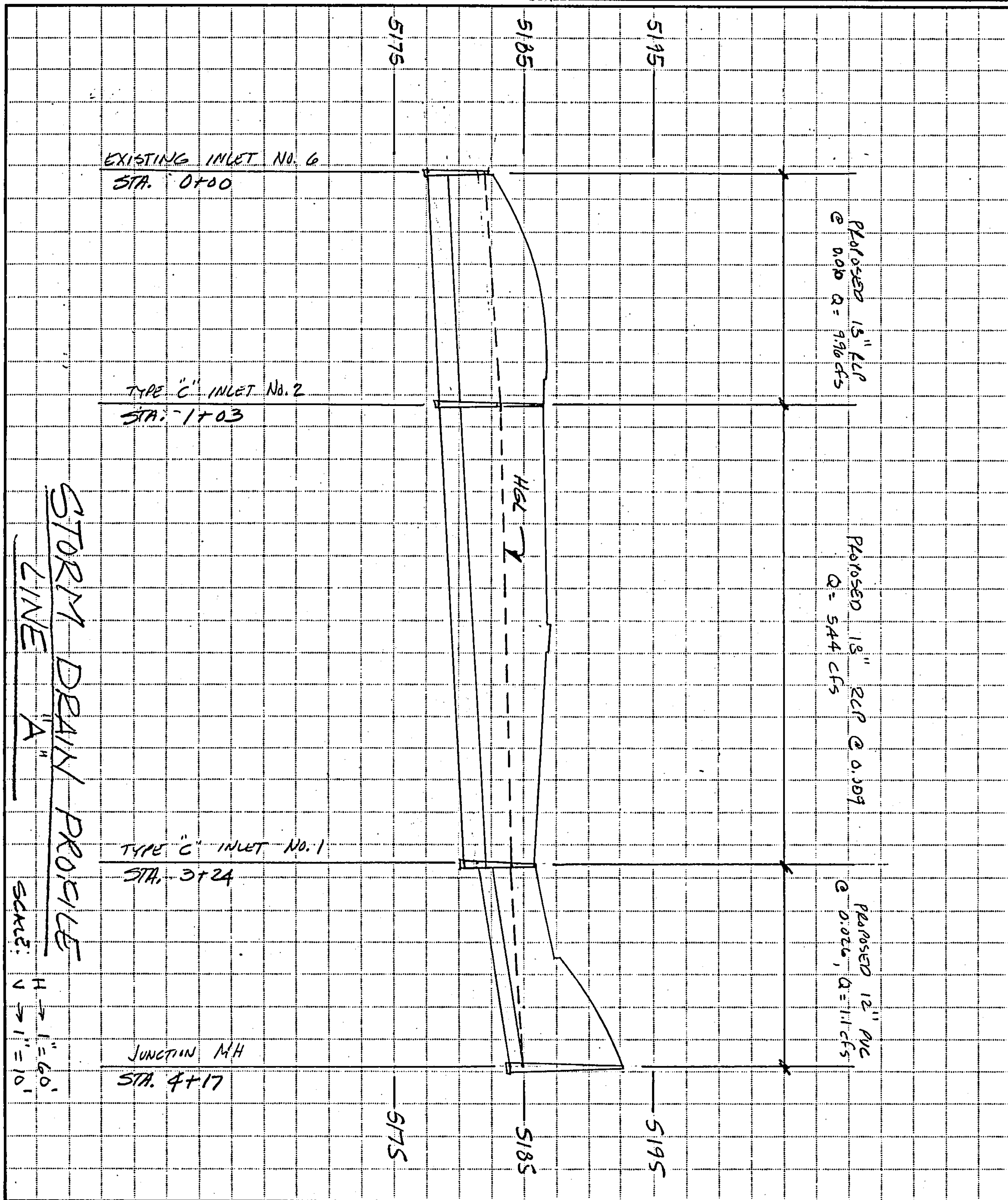
**CARDENAS-SALCEDO
& ASSOCIATES, INC.**

EL PASO
(915) 532-1076

DALLAS
(214) 943-6535

JOB Albuquerque Courtland
SHEET NO. 43 OF 48
CALCULATED BY RT DATE _____
CHECKED BY _____ DATE _____

SCALE _____



HYDRAULIC GRADE LINE COMPUTATION

ON SITE LINE "B" TO LINE "A"

Computer Input for Line "B"

TITLE	ALBUQUERQUE COURTYARD, LINE "B" (LINE-B.HG1)					
START	63.46		KEEP			
PIPE	103.	79.15	66.3	2.74	.013	16.
HLOSS	346.	.2	0.			
HLOSS	361.	.2	0.			
HLOSS	373.	1.	1.			
PIPE	373.	62.07	92.35	1.49	.015	14.
END	472.	63.33	92.			
ZZ						

NOTE: On site Q's are computed by the Rational method

ALBUQUERQUE COURTYARD, LINE "B" (LINE-B.HG1)
DESIGN DISCHARGES

FROM STATION= 103. TYPE CONDUIT = PIPE START F.L.= 79.15 END F.L.= 61.78
TO STATION= 346. DIA. = 18. START H.G.= 83.46 END H.G.= 83.63
LENGTH= 243. Q = 2.7 START GRND= 86.30 END GRND= 91.74
N = .013
V = 1.6
S(H.G.) = .0007
S(PIPE) = .0106

AT STATION= 346. Q = 2.7 START H.G.= 83.63
HEAD LOSS KD= .20 VD = 1.6 END H.G.= 83.63
KU= .00 VU = 1.6
HL = .01

FROM STATION= 346. TYPE CONDUIT = PIPE START F.L.= 81.78 END F.L.= 61.94
TO STATION= 361. DIA. = 18. START H.G.= 83.63 END H.G.= 63.64
LENGTH= 15. Q = 2.7 START GRND= 91.74 END GRND= 92.06
N = .013
V = 1.6
S(H.G.) = .0007
S(PIPE) = .0106

AT STATION= 361. Q = 2.7 START H.G.= 83.64
HEAD LOSS KD= .20 VD = 1.6 END H.G.= 83.65
KU= .00 VU = 1.6
HL = .01

HG1 CARDENAS-SALCEDO & ASSOC., INC. 05/27/88

ALBUQUERQUE COURTYARD, LINE "B" (LINE-B.HG1)
DESIGN DISCHARGES

FROM STATION= 361. TYPE CONDUIT = PIPE START F.L.= 81.94 END F.L.= 82.07
TO STATION= 373. DIA. = 18. START H.G.= 83.65 END H.G.= 83.66
LENGTH= 12. Q = 2.7 START GRND= 92.08 END GRND= 92.35
N = .013
V = 1.6
S(H.G.) = .0007
S(PIPE) = .0108

AT STATION= 373. Q = 2.7 START H.G.= 83.66
HEAD LOSS KD= 1.00 VD = 1.6 END H.G.= 83.67
KU= 1.00 VU = 1.4
HL = .01

FROM STATION= 373. TYPE CONDUIT = PIPE START F.L.= 82.07 END F.L.= 83.33
TO STATION= 472. DIA. = 14. START H.G.= 83.67 END H.G.= 84.50
LENGTH= 99. Q = 1.5 START GRND= 92.35 END GRND= 92.00
N = .015
V = 1.4
S(H.G.) = .0084
*** PARTIAL FLOW ***
S(PIPE) = .0127

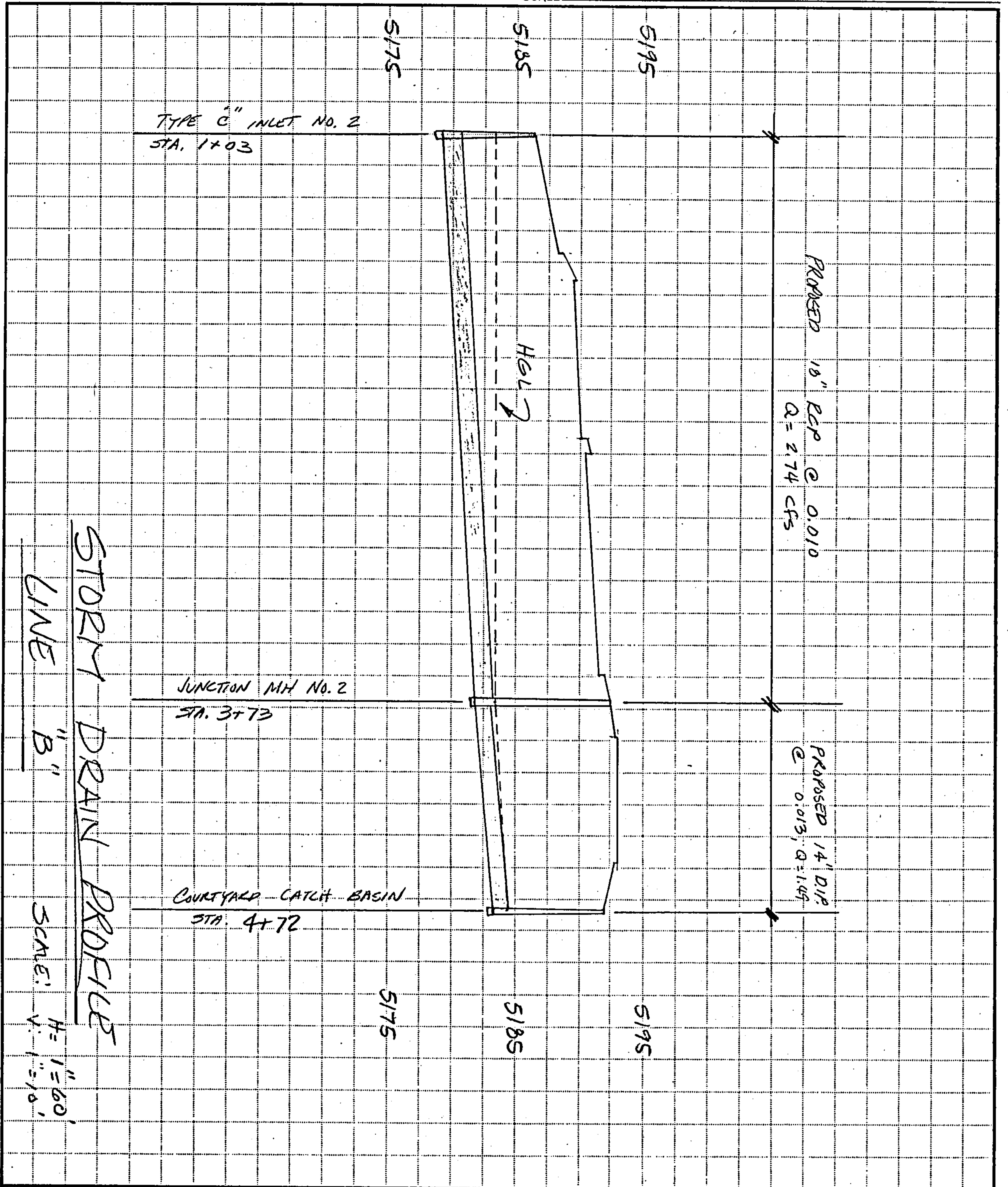
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CARDENAS-SALCEDO
& ASSOCIATES, INC.

EL PASO
(915) 532-1076

DALLAS
(214) 943-6535

JOB Albuquerque COURTYARD
SHEET NO. 47 OF 48
CALCULATED BY RT DATE _____
CHECKED BY _____ DATE _____
SCALE _____



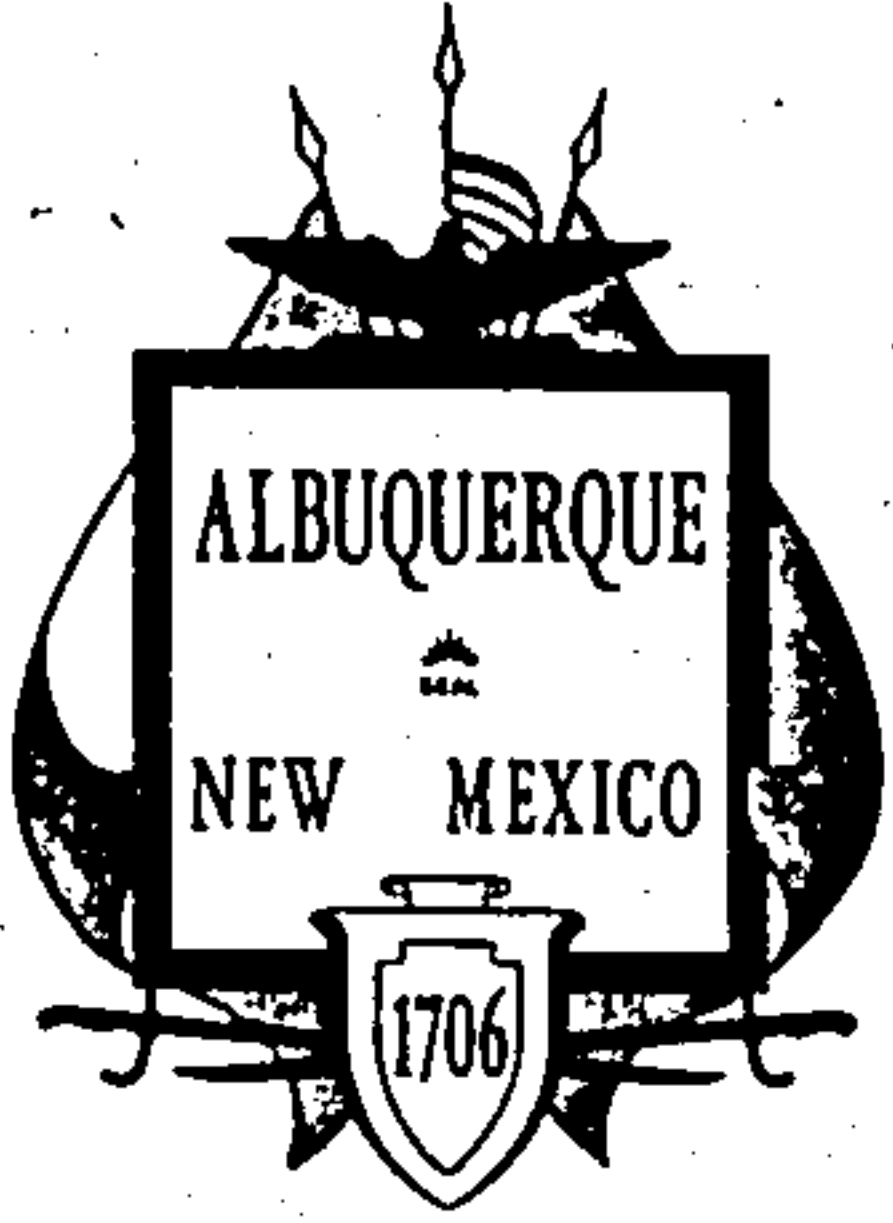
CARDENAS-SALCEDO
& ASSOCIATES, INC.

EL PASO
(915) 532-1076

DALLAS
(214) 943-6535

JOB Albuquerque Courtland
SHEET NO. 48 OF 48
CALCULATED BY RT DATE _____
CHECKED BY _____ DATE _____
SCALE _____

HYDRAULIC GRADE LINE IS NOT HIGHER
THAN GROUND ON SITE OR STREET SURFACE
THEREFORE SYSTEM IS ADEQUATE (REFERENCE
DEVELOPMENT PROCESS MANUAL VOLUME 2
DESIGN CRITERIA SECTION 22.3 B
CRITERIA FOR HYDRAULIC DESIGN CLOSED CONDUITS
Page 25).



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

January 7, 1994

Fred Arfman
Isaacson & Arfman Engineering
128 Monroe St. NE
Albuquerque, NM 87108

RE: CONCEPTUAL DRAINAGE PLAN FOR SUNPORT HOTEL (L-16/D23A) ENGINEER'S
STAMP DATED 12/15/93

Dear Mr. Arfman:

Based on the information provided on your December 30, 1993 submittal, site development plan approval is granted at this time. Please be advised that prior to building permit release, the following items must be addressed:

1. Hydraulics for the proposed inlets and pipes.
2. Recommend that you interconnect all the roof drains onto the proposed 18" RCP storm line.
3. Top of curb and flowline spot elevations on Yale Blvd. and Centre Avenue.
4. Relocation of the inlets on Centre Avenue, must be handled through D.R.C. process.
5. Connection of the proposed 18" RCP will be handled through the S.O. 19 process. Please include the 6 notes and sign off block within the plan drawing.
6. Note on the plan drawing that prior to Certificate of Occupancy release, Engineer Certification 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/ses/WPHYD8216

xc: File

PUBLIC WORKS DEPARTMENT



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

KEN SCHULTZ
MAYOR

CLARENCE V. LITHGOW
CHIEF
ADMINISTRATIVE OFFICER

DAN WEAKS
DEPUTY CAO
PUBLIC SERVICES

FRED E. MONDRAGON
DEPUTY CAO
DEVELOPMENT & ENTERPRISE SERVICES

RAY R. BACA
DEPUTY CAO
PUBLIC SAFETY

July 12, 1989

David A. Kondziolka
Western Technologies, Inc.
8305 Washington Place, NE
Albuquerque, New Mexico 87113

RE: CERTIFICATION OF UNDERGROUND STRUCTURES
THE COURTYARD BY MARRIOTT - 1920 YALE BOULEVARD, SE
(L-16/D23A) RECEIVED JULY 7, 1989

Dear Mr. Kondziolka

Based on the information provided on your submittal of July 7, 1989,
Certification for the referenced site is acceptable.

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

Cordially,

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

BJM/bsj
(WP+409)

IMPORTANT MESSAGE

FOR Alan

DATE 10/23 TIME 145 A.M.
P.M.

WHILE YOU WERE AWAY

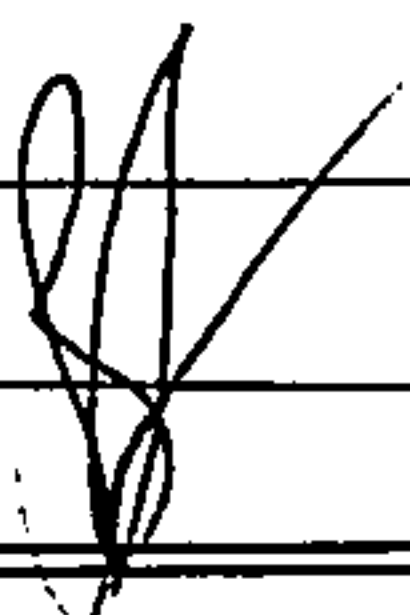
M Roland Trevino

OF Cardenas-Salcedo ? Assoc.

PHONE NO. 915-532-1076

TELEPHONED	☒	RET'D YOUR CALL	
PLEASE CALL	☒	URGENT	
WILL CALL AGAIN	☐	WANTS TO SEE YOU	

MESSAGE Alb Court yard

SIGNED 

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Courtyard by Marriott ZONE ATLAS/DRNG. FILE #: L16/D23A

LEGAL DESCRIPTION: _____

CITY ADDRESS: 1920 Yale SE

ENGINEERING FIRM: Robert Navarro & Assoc CONTACT: _____

ADDRESS: 124 Castellano Drive El Paso Tx PHONE: _____

OWNER: Marriott Corp CONTACT: _____

ADDRESS: One Marriott Drive ^{Washington} DC 20058 PHONE: _____

ARCHITECT: Jeary Thers & Assoc CONTACT: _____

ADDRESS: San Antonio Tx PHONE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: Joe E Woods I CONTACT: Les Monell

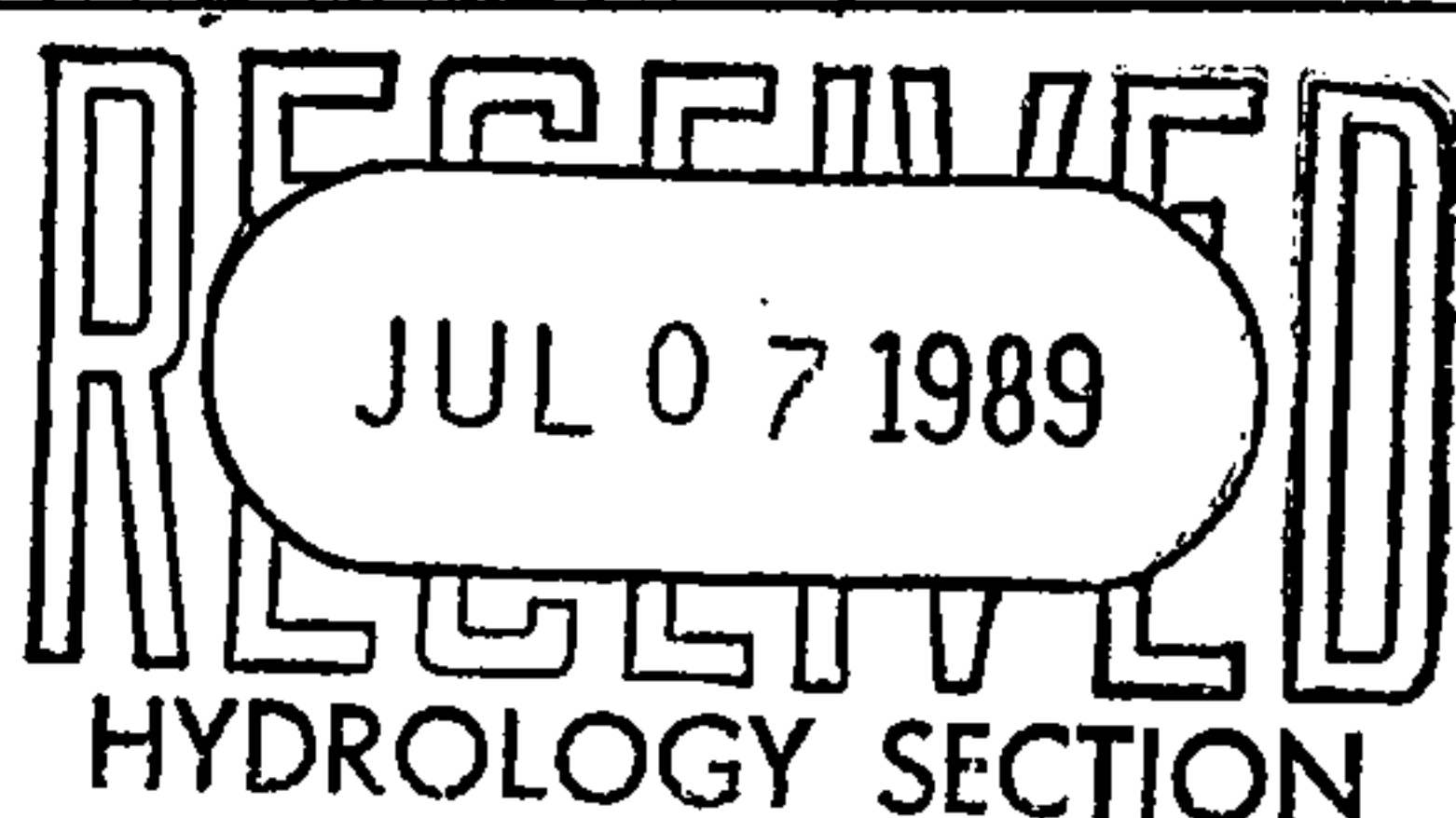
ADDRESS: 145 N Centennial Way
Meza Arizona PHONE: _____

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 _____ (SPECIFY)

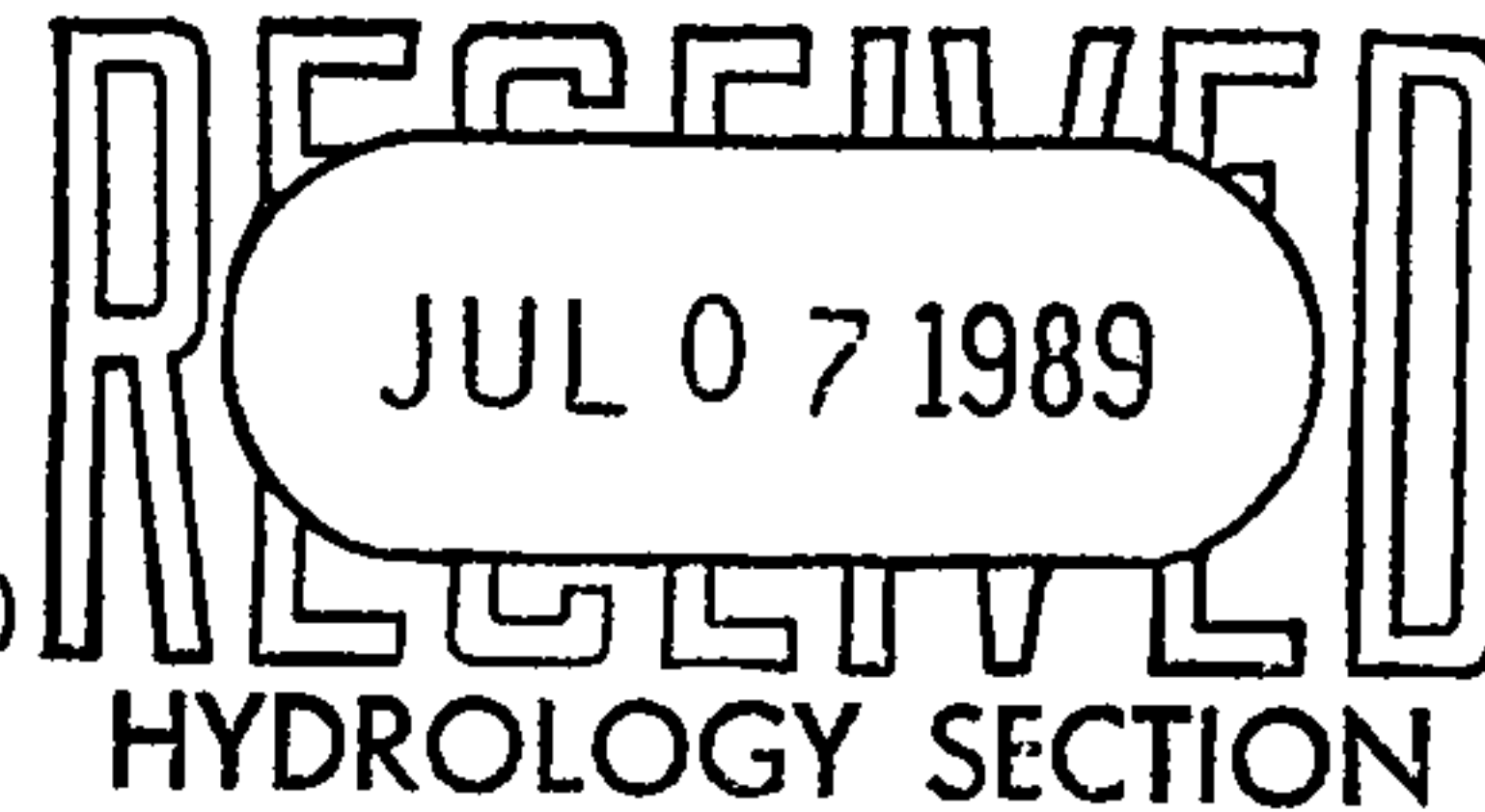
DATE SUBMITTED: 7-6-89

BY: Mike Sultz



**WESTERN
TECHNOLOGIES
INC.**

8305 Washington Place, N.E.
Albuquerque, New Mexico 87113
(505) 823-4488



Marriott Corporation
3130 South Harpeer Blvd., Suite 430
Santa Ana, CA 92704

June 30, 1989

Attention: Dennis Deady

RE: Courtyard by Marriott
Albuquerque, NM
VS-101

Job. No. 3248J072
Inv. No. 32490481

The letter is issued to verify the elevation of the following structures at the referenced project:

<u>Structure</u>	<u>Elevation</u>
Junction M.H. No. 1	5183.96
Junction Box M.H. No. 2	5181.77
Type "C" Single Inlet No. 1	5181.34
Type "C" Single Inlet No. 2	5179.09
Inlet No. 6	5177.42

Attached is a marked-up drawing C-3 indicating these elevations.

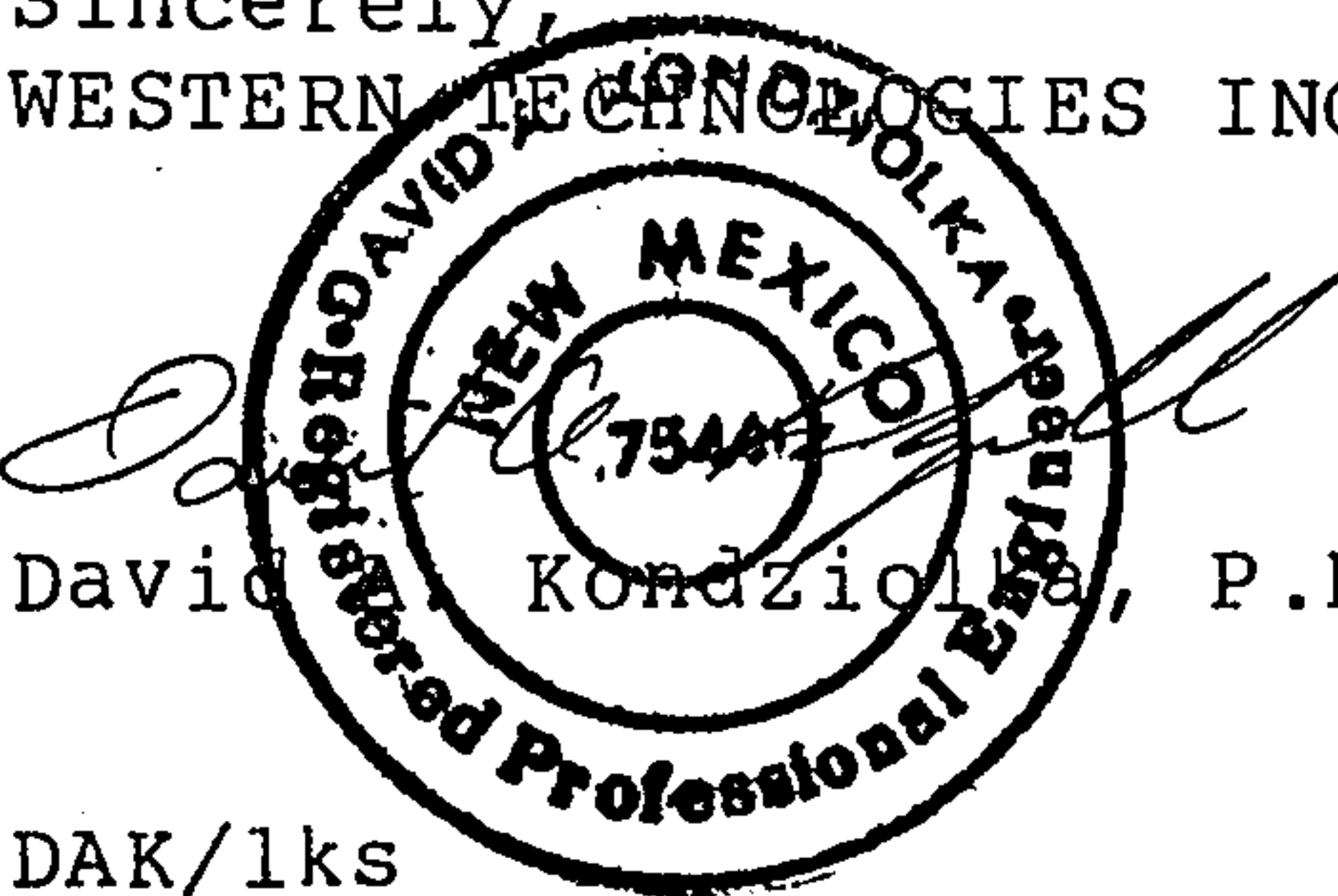
If you have any questions, please contact me at (505)823-4488.

Sincerely,
WESTERN TECHNOLOGIES INC.

David Kondziolka, P.E.

DAK/lks

cc: 1-Client
1-Jerry Theis Associates, Inc.
1-Douglas S. Porter, Jr., P.E. Inc.
1-Robert Navarro & Associates Eng., Inc.
1-Joe E. Woods Construction-Jay Janiga
1-Marriott Jobsite-Lee Thompson





**WESTERN
TECHNOLOGIES
INC.**

8305 Washington Place, N.E.
Albuquerque, New Mexico 87113
(505) 823-4488

Marriott Corporation
3130 S. Harper Blvd., Ste. 403
Santa Ana, CA 92704

June 27, 1989

Attn: Mr. D. Deady

Re: Courtyard by Marriott
Albuquerque, New Mexico

Job No. 3248J072
Inv. No. 32490397

This letter is issued as a verification that the site drainage, drainage outlets and drainage pipes per drawing C-3 Revision 1 dated 6-16-88 are as shown. On-site surface drainage was verified by Western Technologies' personnel, David Kondziolka and Tracy Morrison, on June 27, 1989. Pipe size were verified by Western Technologies as the pipes were installed. Actual finish elevations of the pavement surfaces, curb heights, and other critical elevation measurements were verified by Joe E. Woods, Inc.

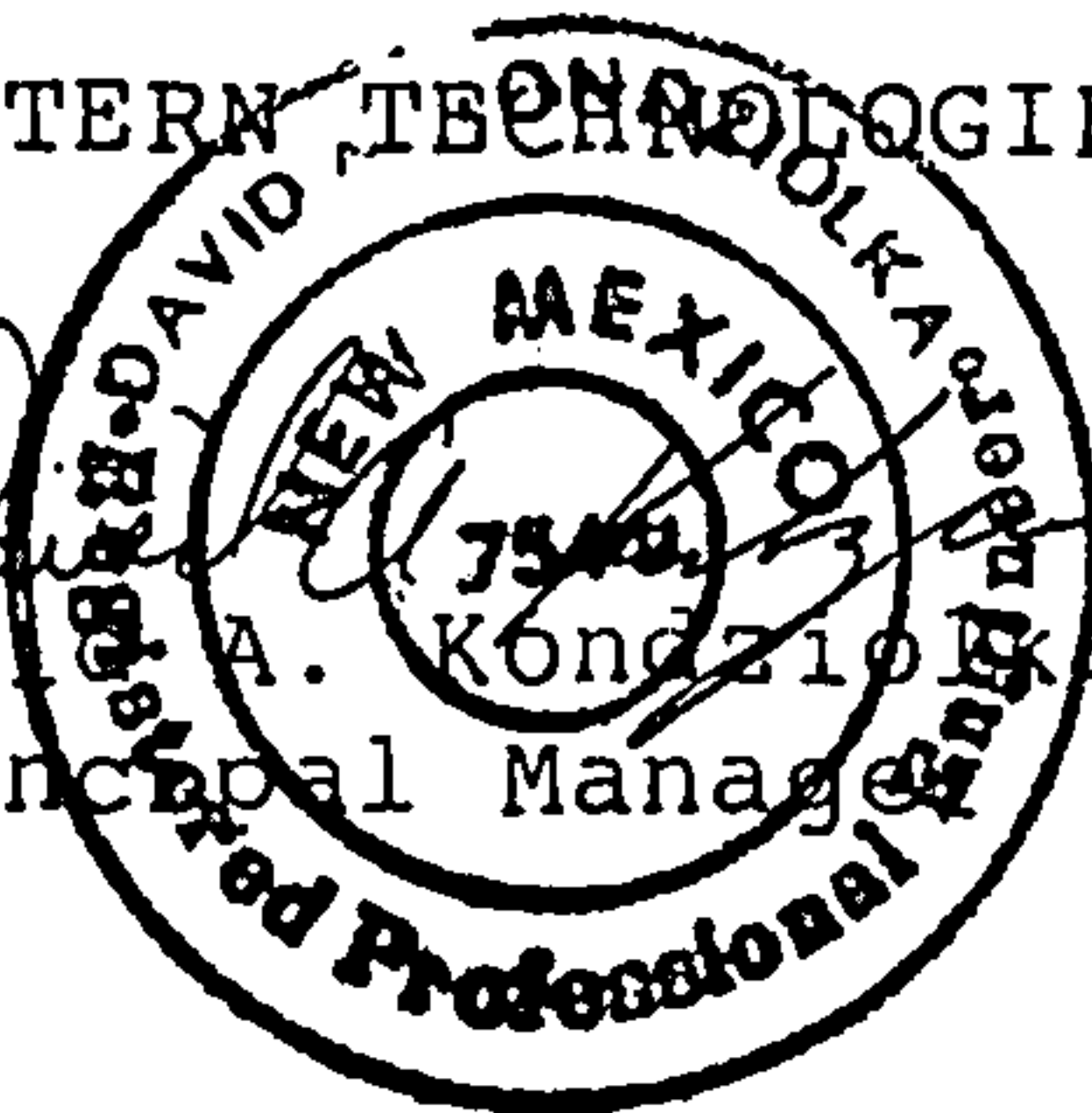
If you have any questions regarding this letter, please contact me at (505)823-4488.

Sincerely,

WESTERN TECHNOLOGIES INC.

David A. Kondziolka, P.E.
Principal Manager

/jn

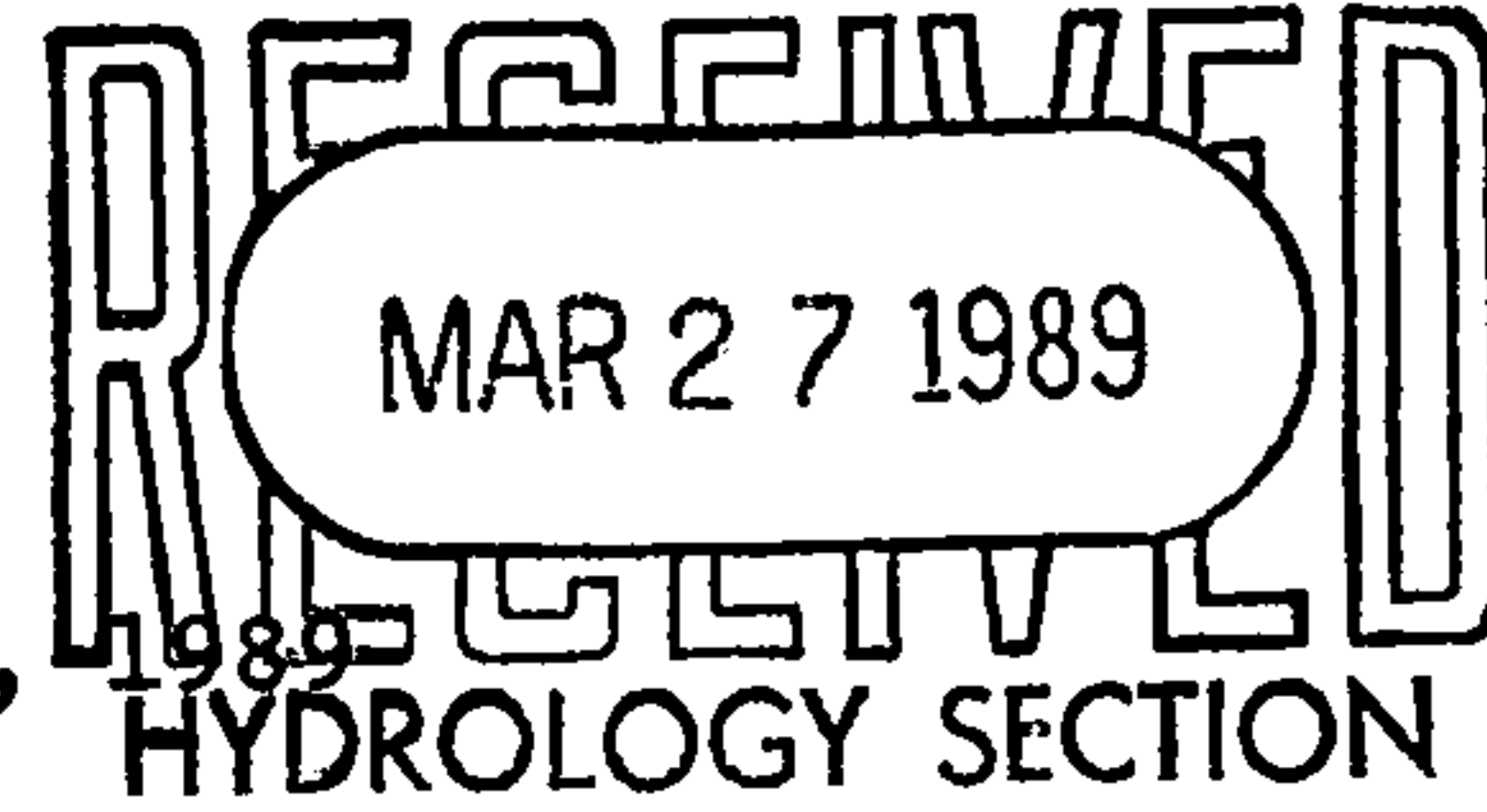




KEN SCHULTZ
MAYOR

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103



March 23, 1989

CERTIFICATE OF COMPLETION AND ACCEPTANCE

Mr. Scott McGee
Marriott Corporation
Courtyards West Office
1 Marriott Drive
Washington, D.C. 20058

RE: PROJECT NO. 3684, ~~CAVAN-SUNPORT-CENTRE~~, ~~(MAP-NO-L-16)~~ 023A

Dear Mr. McGee:

This is to certify that the City of Albuquerque accepts Project No. 3684 as being completed according to approved plans and construction specifications. If all required right-of-ways and/or easements have been dedicated, the City of Albuquerque will accept for continuous maintenance all public infrastructure improvements constructed as part of Project No. 3684. If the required right-of-ways and/or easements have not been dedicated, the City of Albuquerque cannot accept the project for continuous maintenance and said maintenance will be the responsibility of the developer.

The project is described as follows:

- The project is located at the northeast corner of Centre Ave. and Yale N.E.
- Core drilled into existing inlet at north side of Centre Ave. and placed an eighteen inch (18") R.C.P., north into private property to back of sidewalk.
- Placed sanitary manhole, four foot (4') diameter, eight feet (8') south of center line on Centre Ave. Placed an eight inch (8") sanitary sewer service line in Centre Ave., north to back of sidewalk.
- Replaced sidewalk, curb and gutter and paving that were removed for construction of sanitary service and storm sewer.

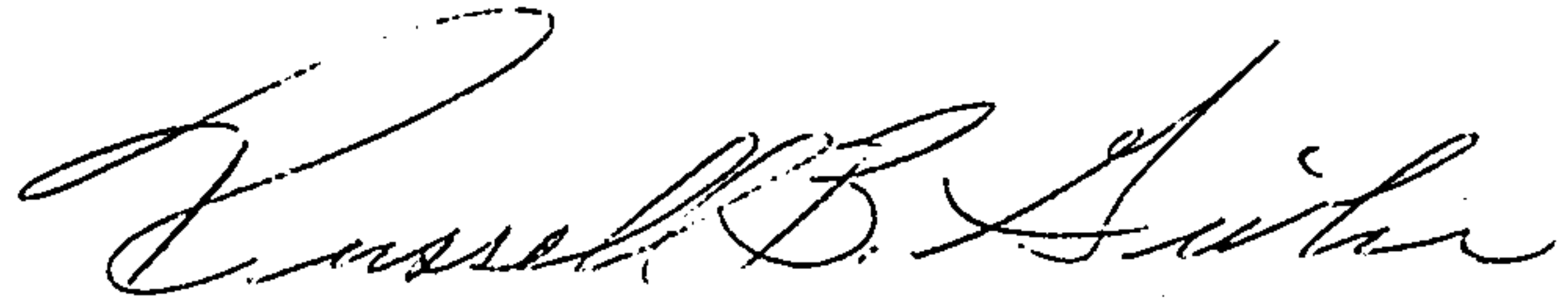
LETTER OF ACCEPTANCE FOR PROJECT NO. 3684

March 23, 1989

Page Two (2)

- The contractor's warranty begins the date of this letter and will be effective for a period of one (1) year.

Sincerely,



Russell B. Givler, P.E.
Chief Construction Engineer
Construction Mgmt. Division
Engineering Group
Public Works Department

RBG:kt

xc: Isaacson & Arfman
C.C.M., Inc.
Fred Aguirre, Engineering Group, PWD
Phil Fischer, Engineering Group, PWD
Ray Pang, Engineering Group, PWD
Terri Martin, Engineering Group, PWD
Jeanette Barrett, Special Assessments
Jim Olsen, Operations Group, PWD
Sam Cummins, Operations Group, PWD
Jim Fink, Operations Group, PWD
Ray Chavez, Operations Group, PWD
Jon Ertsgaard, Engineering Group, PWD
Dave Parks, Engineering Group, PWD
Tom Kennerly, Operations Group, PWD
Josie Gutierrez, New Meter Sales, Finance Group, PWD
Claudia Gallegos, Standby Clerk, Finance Group, PWD
Della Gallegos, Engineering Group, PWD
Fred Gomez, Engineering Group, PWD
Judy Aguilar, Engineering Group, PWD
f/Project 3684
f/Warranty
f/Readers

(INP 137278)

DRAINAGE INFORMATION SHEET

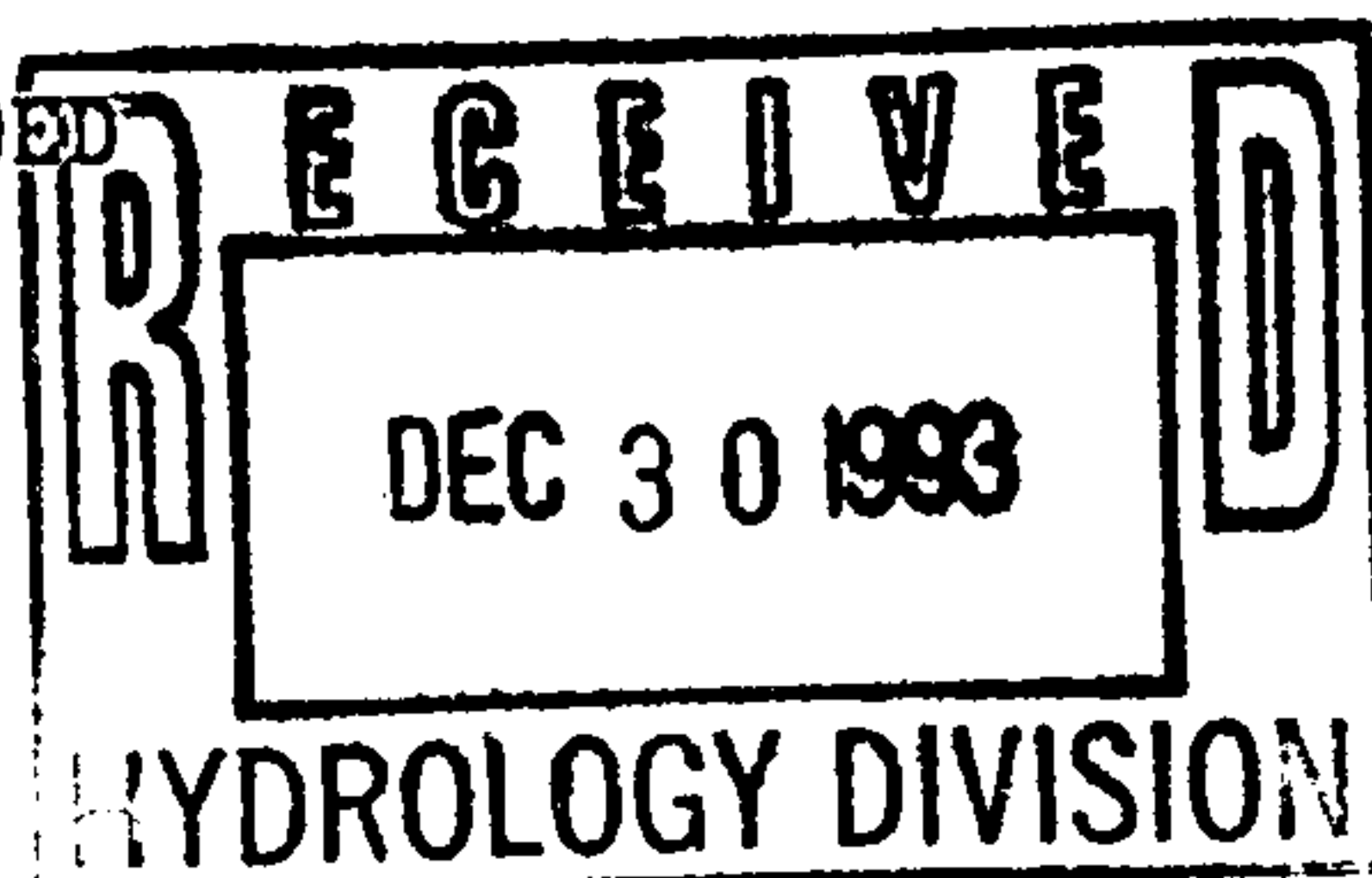
PROJECT TITLE: SUNPORT HOTEL ZONE ATLAS/DRNG. FILE #: L-16/D23A
DRB #: _____ EPC #: 2-94-13 WORK ORDER #: _____
LEGAL DESCRIPTION: LOT 8, YALE BUSINESS PARK
CITY ADDRESS: _____
ENGINEERING FIRM: ISAACSON & ARFMAN, P.A. CONTACT: FRED C. ARFMAN
ADDRESS: 128 MONROE ST. PHONE: 268-8828
OWNER: SUNPORT HOTEL CORP. CONTACT: MIKE GALLEGOS
ADDRESS: 8421 OSUNA RD., STE D PHONE: 271-2100
ARCHITECT: DEKKER/PERICH & ASSOC CONTACT: JOE HARDESTY
ADDRESS: 6701 AMERICAS PKWY. PHONE: 888-3111
SURVEYOR: N/A CONTACT: _____
ADDRESS: _____ PHONE: _____
CONTRACTOR: N/A CONTACT: _____
ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

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

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: 12.30.93
BY: FRED C. ARFMAN

FOR: ISAACSON & ARFMAN, P.A.



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

Ken Schultz
Mayor

UTILITY DEVELOPMENT DIVISION
HYDROLOGY SECTION
(505) 768-2650

January 20, 1988

Roland Trevino, EIT
Cardenas - Salcedo and Associates, Inc.
701 N. St. Vrain
El Paso, Tx 79902

RE: CONCEPTUAL GRADING & DRAINAGE PLAN FOR THE COURTYARD BY
MARRIOTT, RESUBMITTED JANUARY 7, 1988, FOR SITE DEVELOPMENT
PLAN APPROVAL (L-16/D23A)

Dear Mr. Trevino,

Your submittal, referred to above, is approved for site development plan sign-off by the hydrology section.

For building permit approval, you will need to address the four areas mentioned in my letter to you of December 21, 1988. Please be aware that the engineer's stamp, date and signature must be affixed to the mylar or other reproducible, and that stamped, signed, and dated blue line drawings will not be accepted in the future.

If you have any questions, please call me at (505) 768-2650.

Cordially,

Stuart Reeder

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

PUBLIC WORKS DEPARTMENT

Walter Nickerson, P.E., City Engineer

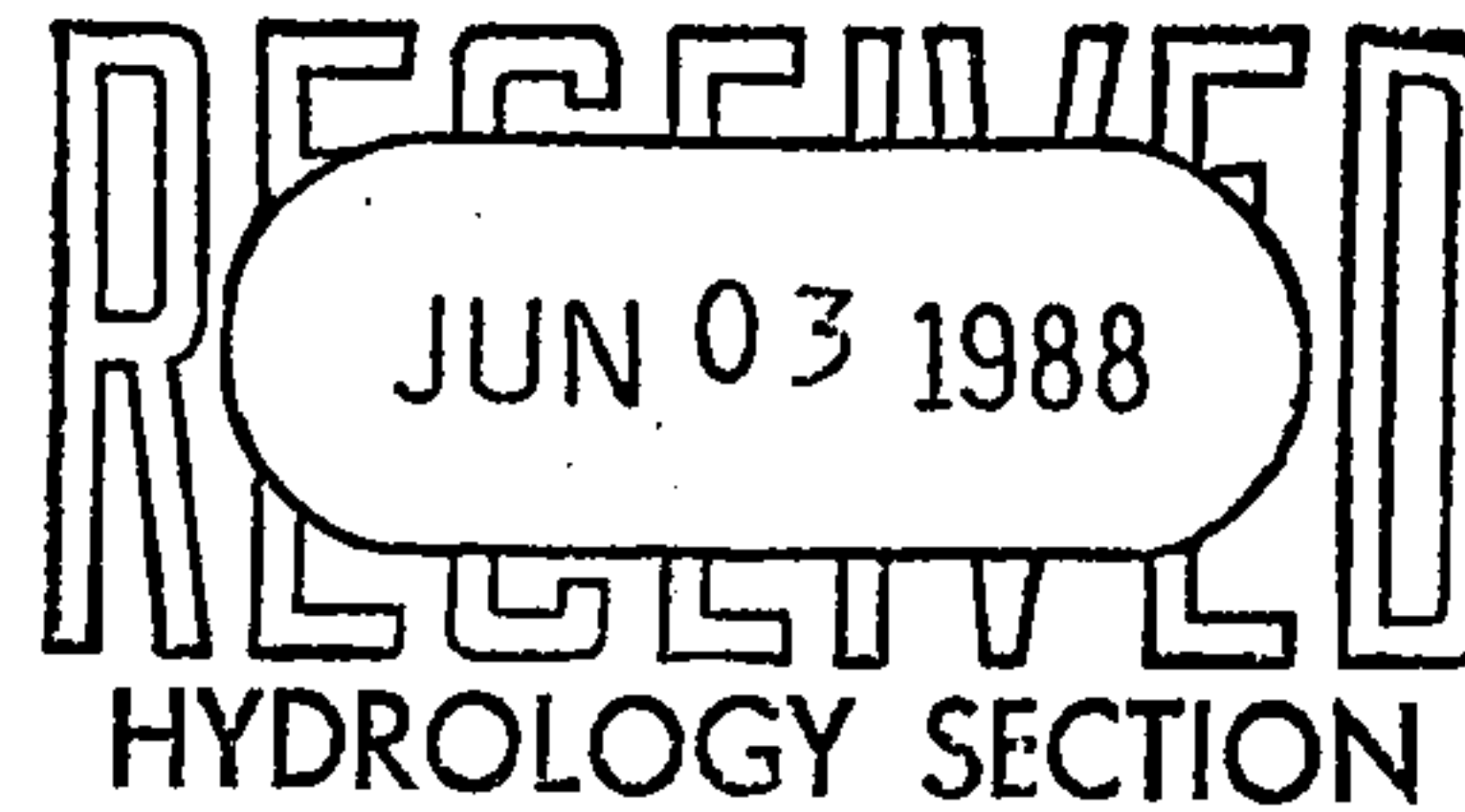
ENGINEERING GROUP

Telephone (505) 768-2500

AN EQUAL OPPORTUNITY EMPLOYER

SECTION 02200

EARTHWORK



PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. General Conditions and Supplementary Conditions apply to this Section.

1.02 WORK INCLUDED

- A. Topsoil stripping and stockpiling; site grading; trenching or excavation and backfilling for utility systems, pool drainage system and related appurtenances.
- B. Excavation, structural subexcavation under structures and backfilling for structures including dewatering, erosion control, and other items of earthwork as shown on drawings and specified herein.

1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. Site Preparation and Demolition: Section 02100.
- B. Water Distribution: 02660.
- C. Sewerage and Drainage: Section 02700.
- D. Irrigation Systems: Section 02810.
- E. Landscaping: Section 02900.
- F. Concrete Pools: Section 13150.

1.04 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with applicable requirements of federal, state, and local laws, regulations and codes having jurisdiction at project site.
- B. Reference Standards: Applicable requirements of standards and specifications referenced herein apply to the work of this Section.
- C. Field Quality Control:
 - 1. Testing and Inspection: Marriott will obtain and pay for services of an independent commercial testing

laboratory for performing field quality control testing of soils during construction; costs of tests indicating noncompliance with requirements specified and all costs of retesting, as well as cost of recompaction of deficient areas, are at Contractor's expense.

2. Refer to PART 3, article entitled Field Quality Control.

1.05 SUBMITTALS

A. Test Reports:

1. Field density (compaction) tests reports of each test made.
2. Optimum moisture-maximum density curves for each test.

B. Fill Samples and Tests:

1. Provide for each type fill material to be used on project, with testing results indicating compliance with requirements specified, for written approval prior to start of work.
2. The Marriott Representative shall review and authorize each type of fill proposed to be used on the project as structural fill.

1.06 JOB CONDITIONS

A. Inspection:

1. Examine drawings and site for discrepancies between actual site grades and contours and those shown on drawings, before starting work. Report all discrepancies in writing to Marriott Representative.
2. Starting work implies acceptance of all conditions as presented within the Contract Documents and Contract Specifications. Extra compensation for discrepancies or changed conditions shall be agreed to by all parties prior to change order initiation. Marriott's designated construction representative shall be the sole interpreter of the contract document requirements and the judge of the performance thereunder by all parties.

- B. Cooperation: Coordinate this work with the work of other Sections to avoid any delay in progress of building or any interference with progress of other work. Where required for proper construction operations, perform portions of work included in this Section separate from general building excavation as directed.

- C. Excavation Classification: Unclassified, and including removal of earth fills, rock, rubble, trash and other materials encountered in excavation and grading operations. The Contractor's basic bid includes all costs for providing a site acceptable for the proposed construction. No additional payment shall be made for removal and replacement of unacceptable materials encountered during site preparation. In the event rock is encountered, rock removal shall be performed by the Contractor at no expense to Marriott and subject to the approval of Marriott's designated representative. The Owner's Representative shall be the final authority and shall make the final decision during Construction to the depth and extent to which unsatisfactory materials must be removed and replaced.
- D. Existing utilities:
1. Locations indicated are approximate.
 2. Contact local "Utility Locator Service" prior to excavation and verify exact locations of all existing utilities.
 3. Perform necessary exploratory tests for verification if necessary. Marriott, the Architect and Engineer will assume no responsibility for hazardous conditions, losses and accidents arising out of failure to perform by this Contractor or other Parties or both.
- E. Disposition of utilities:
1. Observe rules and regulations governing respective utilities during execution of work of this Section.
 2. Adequately protect all active utilities from damage.
 3. Remove or relocate active utilities only as shown or as specified.
 4. Remove, plug or cap inactive and abandoned utilities encountered in excavating and grading operations. In absence of specific requirements, remove, plug or cap such utility lines at least 3 feet outside building walls or as required by local regulations.
- F. Benchmarks, Monuments and Other Reference Points: Protect from damage and displacement; if disturbed or destroyed, replace at Contractor's expense.
- G. Keep dirt, dust, noise and other objectionable nuisances to a minimum.

H. Barricades:

1. Furnish and maintain barricades, signs and markings for excavated areas in accordance with requirements of the reference codes and specifications herein specified.
2. Paint and maintain barricades in good condition. Mount flashing yellow lights and maintain same.
3. Install approved wood fence adjacent to open excavations.

PART 2 - PRODUCTS

2.01 FILL AND BACKFILL MATERIALS - GENERAL

- A. Provide Marriott Representative approved soil material free from roots, debris, trash, organic materials, frozen materials, material softer than adjoining soil, rock or stone larger than 3" maximum dimension for use in upper 6" of fill or in Structural "Controlled Fill" or larger than 6" maximum dimension for use in remainder of fill, and other deleterious materials.
- B. A cut and fill balance has not been made. Contractor is responsible for establishing quantity of additional fill required or excess that must be hauled away. No additional compensation will be made for importation of additional material or for disposal of surplus material off site.

2.02 STRUCTURAL "CONTROLLED FILL"

- A. Acceptable Materials: One or combination of following, as required, as approved by Marriott Representative and recommended by Soils Engineer:
 1. On-Site Excavated Material subject to meeting the specifications for Structural "Controlled Fill".
 2. On-Site Excavated Material Blended With Imported Material: Acceptable if approved, providing material can be blended into uniform mixture meeting or exceeding the following imported material requirements.
 3. Imported Materials: Unified Soil Classification (USC) System Groups GW, GP, GM, GC, SW, SP, SC or CL; Liquid Limit (LL) less than 25; Plastic Index (PI) less than 6; if granular, minimum of 20% must pass No. 200 sieve.

2.03 NONSTRUCTURAL "CONTROLLED FILL"

- A. Acceptable Material: As specified in Article 2.02 above, except change Imported Fill LL to not greater than 25 and PI to not greater than 6.

2.04 EQUIPMENT

- A. Type approved by Marriott Representative prior to use, suitable for use intended with proven capability to perform work in acceptable manner.
 - 1. Use steel sheepfoot roller or similar type equipment for compaction operations, except compact small and inaccessible areas with vibra plates, vibrator impact rammers, vibratory rollers, or similar type equipment.
 - 2. Use rubber-tired pneumatic compaction equipment for sealing off compacted areas.
 - 3. Use vibratory rubber-tired compactor or similar type vibratory approved equipment with minimum 20 tons static weight for proofrolling.

PART 3 - EXECUTION

3.01 FIELD QUALITY CONTROL

- A. Testing and Inspection Services: Marriott will retain the services of a Geotechnical Engineer Service (GES) to perform observations, inspections and testing during execution of site work as recommended by the Geotechnical Engineer and any other tests that Marriott may deem necessary to determine compliance with specifications.
- B. Contractor shall cooperate with GES Inspectors and Technicians to facilitate the execution of their duties.
- C. Upon completion of excavation, GES shall inspect and test the work and determine the suitability of the soil and preparation of subsequent site work.
- D. GES shall without delay submit to Marriott Representative reports of all observations, inspections and tests.

3.02 PREPARATION

- A. Grading and paving drawings show original and proposed topography.

- B. In case of conflict between final grade elevations (finish grade) shown by spot elevations and by contours, spot elevations govern.
- C. Conform to dimensions and elevations indicated. Do not exceed plus or minus one-tenth of one-foot variation from design grading elevations shown.
- D. Dewatering:
1. Prevent ground and subsurface water from flowing into excavations, from flooding project site and surround properties, and from collecting and ponding; provide and maintain all temporary drainage and dewatering system required.
 2. Install pumps, sumps and suction and discharge lines, as required.
 3. Install temporary deviations from grades indicated to channel water away from excavations.
 4. Leave no sumps or pockets at completion of each day's grading operations.
 5. If water is encountered during subexcavation for footings, foundation excavation, install pumps of capacity to remove water while excavations are being made and continue pumping for 24 hours following placing of concrete footings and erection of foundation walls to grade. Maintain dewatering operations until construction of permanent drainage is completed.
- E. Shoring and Bracing:
1. Install as required to protect slopes and earth banks from cave-ins, and to protect adjacent surfaces and structures from settlement. Remove before backfilling is completed, but not until after permanent supports are in place.
 2. When work is interrupted by rains, do not resume operations until moisture content and field density tests of upper 6" of in-place material have been made by the Soils Engineer and approved by Marriott Representative.
- F. Provide sheet piling, if required. Comply with requirements of applicable codes and regulations having jurisdiction at project site.

- G. Do not place fill or backfill material in water, on material containing frost, or during unfavorable weather conditions. When inclement weather is expected, grade and seal surface of fill as required to limit percolation of surface water.
- H. Establish and identify required lines, levels, contours and datum.
- I. Topsoil Stripping and Conservation: Following requirements may be waived by Marriott Representative in areas that do not contain satisfactory topsoil:
1. Remove topsoil of horticultural value from areas to be covered by new building construction and from areas to be paved, excavated, or regraded. Remove without contamination with subsoil. Strip to 6" minimum depth. Keep free of roots, stones and other undesirable materials. Do not strip topsoil when wet.
 2. Stockpile in locations convenient to areas shown to receive topsoil later or where directed by Marriott Representative. Do not stockpile to depth exceeding 8 feet. Do not drive heavy equipment over stockpiled material or spread topsoil.
- J. Proofrolling:
1. Proofroll surface of subexcavation for "Controlled Fill" under building and/or other structures after the subexcavation is completed. Make 10 complete passes over the subexcavated surface with minimum 20 ton static weight vibratory rubber-tired compactor.
 2. Proofroll over entire areas receiving fill material, after topsoil is removed, in presence of GES.
 3. Make at least four passes over each area, with last two passes made perpendicular to first two passes. Use minimum 20 tons static weight rubber-tired compactor or similar type approved equipment for proofrolling.
 - a. Undercut and remove soft or unstable soils that fail to compact and replace with acceptable fill material compacted to 95% of Standard Proctor Density. Place soil in lifts of 8" loose depths and compact each lift to density specified.
 - b. If construction operations soften or otherwise disturb previously proofrolled areas to extent that they become soft and unstable or are rendered unsuitable by Marriott Representative and GES, perform additional proofrolling before starting

filling operations or remove unsuitable materials to depth and extent required by GES and replace with approved compacted fill as specified above.

4. Proofroll over the proposed bearing surface using a minimum twenty (20) ton vibratory compactor, compacting to 95% of maximum density as required under paragraph 3.04 CONTROLLED FILL, B. Structural "Controlled Fill", Item 4.

- K. Following topsoil stripping and proofrolling operations, but before making cuts or placing of fill and backfill, clean ground surfaces free of all trash; debris; loose, frozen, wet or soft soil; and other undesirable surface materials before proceeding with work.

3.03 GRADING

- A. Earthwork contractor shall bring finish grades to within plus or minus 0.02 ft of the finished grades shown on the drawings in all areas. The landscape contractor shall complete the grading. Earthwork contractor shall remove all excess topsoil from site and stockpile only the amount necessary to complete finish work.
- B. Grade to required profiles, contours, elevations and subgrade levels shown on drawings, with allowances made for depths required for placement of topsoil and construction of paving, walks, equipment slabs or pads and floor slabs.
- C. Control grading around buildings and on site; slope ground to prevent water from running into excavated areas or building or damaging other structures, and so entire project is well drained and free from water pockets.
- D. Provide uniform levels and slopes between elevations shown on drawings, and between elevations shown and existing finished grades shown to be maintained. Round abrupt changes in slopes.

3.04 CONTROLLED FILL

A. General:

1. Marriott Representative based upon test results, is sole judge as to when specified compaction densities have been obtained. Marriott will retain and pay for the services of a geotechnical engineer to monitor the earthwork and site preparation. The cost for initial soils testing to determine if the Contractor's site preparation is satisfactory shall be paid by Marriott.

When retesting is needed to verify that unacceptable site preparation has been remedied, the cost for retesting shall be paid by the Contractor.

2. Contractor is responsible for correcting, at his expense and including costs of testing, all areas with insufficient compaction; remove and replace, or scarify, aerate or sprinkle (as needed), and recompact and retest deficient areas.
3. Place acceptable material in horizontal lifts not exceeding 8" in loose depth, with each lift extending for entire length and width of each area being filled. Level material which is frozen or contains frost.
4. Reduce or increase moisture content of fill by drying or uniform sprinkling with water, as required to achieve moisture content within 2% of optimum as required for specified degree of compaction.
5. Disk each layer of fill to break down oversize clods, to thoroughly mix nonuniform materials, and to secure uniform moisture content, as required to insure uniform density and proper compaction.
6. Maintain positive surface slope to allow runoff and to prevent ponding of surface water. If surface water ponds, dewater as required. Remove all saturated or disturbed soil before placing additional fill material.
7. Number of compaction equipment passes required is dependent upon degree of compaction specified. Overlap rolling passes as required to completely cover areas of fill.
8. After subexcavation and/or cuts are made, scarify entire area to 9" depth and compact to following density for areas listed:
 - a. Areas Receiving Structural "Controlled Fill": 95% Standard Density as determined by ASTM D 1557 within 2% of optimum moisture content.
 - b. Under Paving and Walk Areas: 95% Standard Density as determined by ASTM D 1557 within 2% of optimum moisture content.
 - c. Under Lawn and Unpaved Areas: 90% Standard Density as determined by ASTM D 1557 within 2% of optimum moisture content.

B. Structural "Controlled Fill":

1. **Material:** Acceptable materials complying with requirements of Articles 2.01 and 2.02.
2. **Location:** Place as subgrade under building, pools and pool decks, to a depth as indicated on the drawings and to a point 5 feet outside building walls and pool decks.
3. **Construct to grades and for minimum depths indicated.** Undercut existing grade as required.
4. **Compact to 95% of Standard Density as determined by ASTM D 1557, at moisture content within 2% of optimum;** maintain specified moisture content until placement of floor and deck slabs, and obtain Marriott Representative approval of method used for maintaining moisture control.

C. Nonstructural "Controlled Fill":

1. **Materials:** Acceptable Materials complying with requirements of Articles 2.01 and 2.03.
2. **Location:** Use for all other fills, unless otherwise specified or directed by Marriott Representative.
3. **Construct to grades and for minimum depths indicated.** Undercut existing grade as required.
4. **Compact to following densities for areas listed:**
 - a. **Subgrade Below Paving, Walks, and Slabs on Grade:** 90% of Standard Density as determined by ASTM D 1557 at moisture content between optimum and 2% above optimum except for upper 12" of pavement subgrade, compact to 95% of standard density as determined by ASTM D 1557.
 - b. **Below Grassed and Planted Areas:** 90% of Standard Density as determined by ASTM D 1557 at optimum moisture content.

3.05 FOUNDATION AND FOOTING EXCAVATION

- A. **Excavate bottom of foundations to exact grade called for on drawings.** Fill overexcavated areas with concrete.
- B. **Excavate beyond outside of walls to allow for inspection, placing and removal of forms and for installing drain tile, except where concrete is authorized to be deposited directly against excavated surfaces.** Leave excavation open until work has been inspected and approved.

3.06 FOUNDATION BACKFILL

- A. Material: Acceptable Structural "Controlled Fill" material complying with requirements of Articles 2.01 and 2.02.
- B. Remove surface debris and debris in excavation before placing backfill.
- C. Do not use material which is frozen or contains frost.
- D. Allow footing and foundation walls to attain full design strength before placing backfill.
- E. Exercise care during placing and compacting operations. Place to prevent wedging action, eccentric loading, and displacement of walls or structure.
 - 1. Use hand operated compaction equipment within 4' of walls.
 - 2. Where fill is placed along both sides of foundation walls, place and compact simultaneously on both sides of walls.
 - 3. Repair, or remove and replace, all damage to foundation walls and structure occurring during placement and compaction operations at no additional cost to Marriott.
- F. Coordinate placing and compaction with other trades. Do not backfill until material has been installed, inspected and approved.
- G. Place material in horizontal lifts not exceeding 8" loose depth before compacting. Level each lift before compacting.
- H. Compact all backfill to 95% of Standard Density as determined by ASTM D 1557.

3.07 TRENCHING AND BACKFILLING FOR UTILITY SYSTEMS

- A. Trench Excavation:
 - 1. Provide open cut excavation, except short sections may be tunneled if approved by Marriott Representative and demonstrated by Contractor that pipe, cable or duct can be properly installed, backfilled and compacted.
 - 2. Excavate to necessary width, depth and alignment for proper material installation. Cut trench banks as nearly vertical as practicable, but to safety standards

of governing authorities. Stockpile material suitable for backfilling a sufficient distance from banks to avoid overloading and cave-ins.

3. Accurately grade trench bottoms to provide uniform bearing and support for each pipe section on undisturbed soil along full pipe length, except for areas where necessary to excavate for bell holes and for sealing pipe joints. Dig holes and depressions for joints after trench bottom has been graded, so pipe rests on prepared bottom for full length. Remove all stones to avoid point bearing. When excavating in rock, provide at least 4 inches of soil cushion on all sides of pipe and accessories. The use of 3/4" (max) gravel for pipe haunching and embedment shall be acceptable when it meets the approval of the pipe manufacturer and Marriott Construction Representative.
 4. Remove wet or otherwise unstable or unacceptable material encountered beyond depths indicated and replace with sand, gravel or concrete.
- B. Excavation For Appurtenances: Excavate for manholes and similar structures, to leave 12" minimum clearance between outer surfaces and embankment or timber used to hold and protect banks. Fill overexcavation with sand, gravel or concrete.
- C. Backfilling:
1. Do not backfill until utilities systems have been installed, inspected, tested, and accepted.
 2. Backfill Materials: Acceptable Structural "Controlled Fill" materials at all other locations, complying with requirements of Articles 2.01, 2.02 and 2.03.
 3. Deposit material in lifts of 8" loose depth before compacting each lift to 95% of Standard Proctor Density under paving, walks, building slabs, and other slabs on grade, and compacting to 90% of Standard Proctor Density under lawns and planting areas.
 4. Backfill trenches to top of ground level.
 5. Backfill first 5' outside building wall with approved acceptable clay material to form an impermeable barrier.
 6. Restore ground surface, pavements, base courses, and compacted subgrade disturbed by utilities systems trenching and backfilling work to their original condition, construction and finishes.

3.08 EROSION CONTROL

- A. The Contractor shall submit an Erosion Control Plan to the City of Albuquerque Hydrology Department for approval.
- B. Provide during construction until permanent pavement, plantings and restoration of natural areas is effective in controlling erosion at site. Adhere, to local ordinances or codes regarding temporary erosion control and safety requirements under the ordinances and regulations.
- C. Plan and execute construction by methods to control surface drainage from cut, fill, borrow and grading areas.
 - 1. Minimize amount of bare soil exposed at one time.
 - 2. Schedule operations so ground surface will be disturbed for shortest possible time before permanent construction is installed.
 - 3. Maintain large areas as flat as practicable to minimize soil transport through surface flow.
 - 4. Where steep slopes or abrupt grade changes occur, install temporary diversion berm or dike at top of slope to direct water flow to a control point to be transported downslope in a slope drain. In all cases, do not allow water to flow uncontrolled down slopes.
- D. Slope Drains: Construct pipe, fiber mats, rubble, portland cement concrete, asphaltic concrete, plastic sheets, or similar materials approved by Marriott Representative. Install to convey water down slopes, complete with apron at top to direct water into the drain and to anchor it in place and stone or rubble placed at outlets to prevent scouring of soil.
- E. Storm Drainage System: Install as much of permanent system as practicable and divert surface water into system, with remainder of system installed as soon as conditions allow. Coordinate with Section 02700.
- F. Ground Cover: Protect all exposed soils sloping 7% or greater until construction of permanent surfaces begins.
 - 1. Use straw or other mulches, stone base, plastic sheets, fiber mats, or other effective erosion treatments approved by Marriott Representative.

2. Install permanent grass and other landscape plantings and materials, including mulching or hydroseeding for use as stabilization; maintain until ground cover planting is effective for erosion control. Coordinate with Section 02900.

G. Sediment Barriers:

1. Install at all locations where water flows from construction areas, including entire perimeter of construction areas where ground slopes outward and at drainage structure inlets. Maintain around drainage structures until starting of final subgrade preparation.
2. Arrange to create ponding behind barriers; remove accumulated sediments and maintain ponding capacity during construction.
3. Sediments shall be removed from flowing water by filtration. Primary filter media may consist of silt trenches utilizing anchored sediment drainage fabric, straw bales or crushed stone staked or otherwise held securely in place, or other filtration media approved by Marriott Representative.

- H. Repair washed and eroded areas; reestablish grades to required density, elevations, profiles and contours.

3.09 CLEAN UP

- A. Transport trash and debris, and surplus and unacceptable soil materials from project site and legally dispose of them.
- B. Remove temporary shorings, bracings, erosion controls, and other protection devices when no longer required, but do not remove protection devices without approval of or until directed by Marriott Representative or governing authorities having jurisdiction at project site.

END OF SECTION



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

KEN SCHULTZ
MAYOR

CLARENCE V. LITHGOW
CHIEF
ADMINISTRATIVE OFFICER

DAN WEAKS
DEPUTY CAO
PUBLIC SERVICES

FRED E. MONDRAGON
DEPUTY CAO
DEVELOPMENT & ENTERPRISE SERVICES

RAY R. BACA
DEPUTY CAO
PUBLIC SAFETY

July 12, 1989

David A. Kondziolka
Western Technologies, Inc.
8305 Washington Place, NE
Albuquerque, New Mexico 87113

RE: CERTIFICATION OF UNDERGROUND STRUCTURES
THE COURTYARD BY MARRIOTT - 1920 YALE BOULEVARD, SE
(L-16/D23A) RECEIVED JULY 7, 1989

Dear Mr. Kondziolka

Based on the information provided on your submittal of July 7, 1989,
Certification for the referenced site is acceptable.

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

Cordially,

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

BJM/bsj
(WP+409)

FILE COPY



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

MAYOR
KEN SCHULTZ

CHIEF
ADMINISTRATIVE OFFICER

GENE ROMO

DEPUTY CAO
DEVELOPMENT & ENTERPRISE SERVICES

LARRY LARRANAGA

DEPUTY CAO
PUBLIC SERVICES

DAN WEAKS

July 19, 1988

Roland Trevino, E.I.T.
Cardenas-Salcedo & Associates, Inc.
701 N. St. Vrain
El Paso, Texas 79902

RE: REVISED DRAINAGE PLAN FOR THE COURTYARD BY MARRIOTT
(L-16/D23A) REVISION DATED JUNE 17, 1988

Dear Mr. Trevino:

Based on the information provided on your resubmittal of June 24, 1988,
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.

Please be advised that a separate permit for construction within the City
right-of-way is required. Also, the contractor must have a copy of this
approval letter when applying for his excavation permit.

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

Cordially,

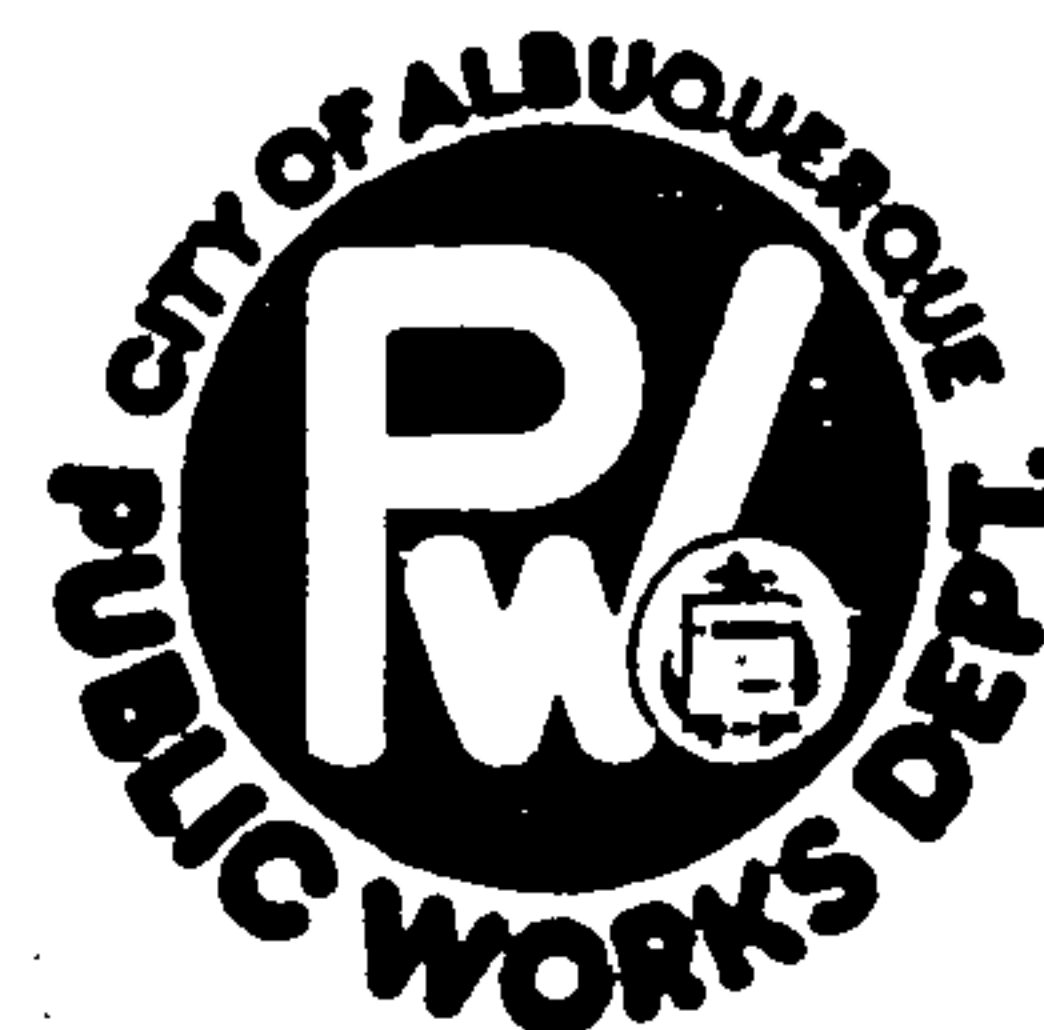
Bernie J. Montoya, C.E.
Engineering Assistant

BJM/bsj

xc: Becky Sandoval

MEMORANDUM:

July 19, 1988



ENGINEERING GROUP

TO: Tom Aragon, Transportation System Division

FROM: Fred J. Aguirre, Hydrologist; Engineering Group/PWD

SUBJECT: PRIVATE DRAINAGE FACILITIES WITHIN PUBLIC RIGHTS-OF-WAY/EASEMENT
THE COURTYARD BY MARRIOTT (L-16/D23A)

Roger Green
for FJA

Transmitted herewith, is a copy of the approved drainage plan for the referenced project incorporating the S.O. #19 design.

In accordance with the new process, this plan is being submitted to you for permitting and inspection. Please provide this section with a signed-off copy per the signature block upon construction and acceptance by your office.

As you are aware, the signed-off S.O. #19 is required by this office for Certificate of Occupancy release; hence your expeditious processing of this plan would be greatly appreciated and would avoid any unnecessary delay in the release of the Certificate of Occupancy.

Thank you for your cooperation, and if you should have any questions and/or comments regarding the process, please feel free to call me at 768-2650.

FJA/bsj

Attachment

**CARDENAS-SALCEDO & ASSOCIATES, INC.**

ENGINEERS • PLANNERS • CONSULTANTS

701 N. St. Vrain

EL PASO, TEXAS 79902

(915) 532-1076

LETTER OF TRANSMITTALTO City of Albuquerque - Public Works Dept.Hydrology SectionP.O. Box 1293Albuquerque, NM 87103

DATE July 13, 1988	JOB NO. 87-118
ATTENTION Mr. Bernie Montoya	
RE: Albuquerque Courtyard Hotel	
By Marriott	

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

- | | | | | |
|---|--|--------------------------------|----------------------------------|---|
| ☐ Shop drawings | ☒ Prints | ☐ Plans | ☐ Samples | ☐ Specifications |
| ☐ Copy of letter | ☐ Change order | ☐ _____ | | |

COPIES	DATE	NO.	DESCRIPTION
2			Blueline Copies of Grading and Drainage
			Plan C-3

RECEIVED
JUL 18 1988
HYDROLOGY SECTION

THESE ARE TRANSMITTED as checked below:

- | | | |
|--|---|---|
| ☐ For approval | ☐ Approved as submitted | ☐ Resubmit _____ copies for approval |
| ☐ For your use | ☐ Approved as noted | ☐ Submit _____ copies for distribution |
| ☒ As requested | ☐ Returned for corrections | ☐ Return _____ corrected prints |
| ☐ For review and comment | ☐ _____ | |

☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

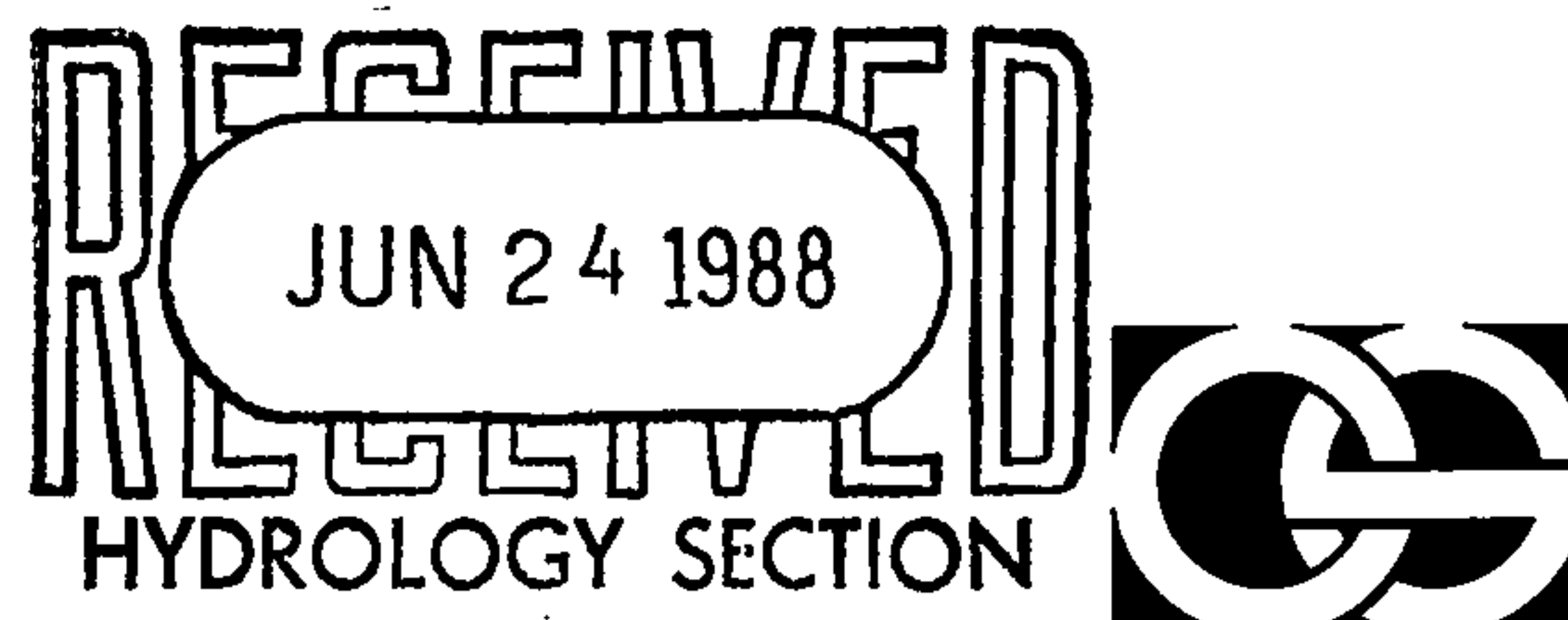
REMARKS

Mr. Montoya,

Here are the additional Copies of sheet C-3 that you requested.I understand that you are ready to sign off for building Permit approval at this time.It has been a pleasure working with you on this phase of the project. If you have any other questions or there is anything else I can do for you please do not hesitate to contact me.COPY TO K. Barker, Jerry Theis & Assoc.87-118-B

SIGNED: _____

Roland Trevino, E.I.T.



CARDENAS - SALCEDO AND ASSOCIATES, INC.

701 N. ST. VRAIN • EL PASO, TEXAS 79902 • (915) 532-1076

June 22, 1988

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

Attn: Mr. Bernie Montoya

Re.: Grading & Drainage plan for the Courtyard by Marriott
(L-16/D23A) Engineers Stamp dated May 16, 1988

Dear Mr. Montoya:

Per your letter dated June 15, 1988, I am resubmitting the following information for your review:

1. Drainage Information Sheet
2. Sheet C-3, "Grading and Drainage Plan"
3. Sheet C-5, "Courtyard Drainage Plan"
4. Sheet C-7, "Civil Details"

I believe all of your comments have been addressed.

Regarding comment number 5 from your above referenced letter, I refer you to the construction documents for "Cavan Sunport Centre Yale Blvd. at Gibson Blvd." Sheet 4, "GRADING PLAN WEST HALF" as prepared by Isaacson and Arfman, Engineer's stamp dated July 3, 1986 and approved for rough grading on July 30, 1986 by the City of Albuquerque. As this represents an as built condition, it is clear to see that the siltation ponds and berms constructed on Tracts 5 and 6 to the west of our project, will adequately prevent off site flows from entering the property.

If you have any questions please do not hesitate to contact me.

Sincerely,

CARDENAS-SALCEDO AND ASSOCIATES, INC.

A handwritten signature in cursive script, appearing to read "Roland Trevino".

Roland Trevino, E.I.T.

RT/lia

87-118-B

DRAINAGE INFORMATION SHEET

L-16/D23A

PROJECT TITLE: Courtyard by Marriott ZONE ATLAS/DRNG. FILE #: L-16-Z

LEGAL DESCRIPTION: Tract 4A Cavan Sunport Centre Filed 2/16/88 Vol. C-35 Folio 173

CITY ADDRESS: 1 block north of Yale and Gibson intersection

ENGINEERING FIRM: Robert Navarro & Associates CONTACT: Robert Navarro

ADDRESS: 124 Castellano, El Paso, Tx. 79912 PHONE: 915-532-1406

OWNER: Marriott Corporation CONTACT: Tuck Masker

One Marriott Drive Dept. 934.46

ADDRESS: Washington, D.C. 20058 PHONE: 301-320-4024

ARCHITECT: Jerry Theis & Associates CONTACT: Kevin Barker

4040 Broadway Suite 410

ADDRESS: San Antonio, Texas 78209 PHONE: 512-828-8412

SURVEYOR: E. Valdez Surveying Co. CONTACT: Enrique Valdez

ADDRESS: 218 Howell St., Belen, N.M. 87002 PHONE: 505-864-2082

CONTRACTOR: _____ CONTACT: _____

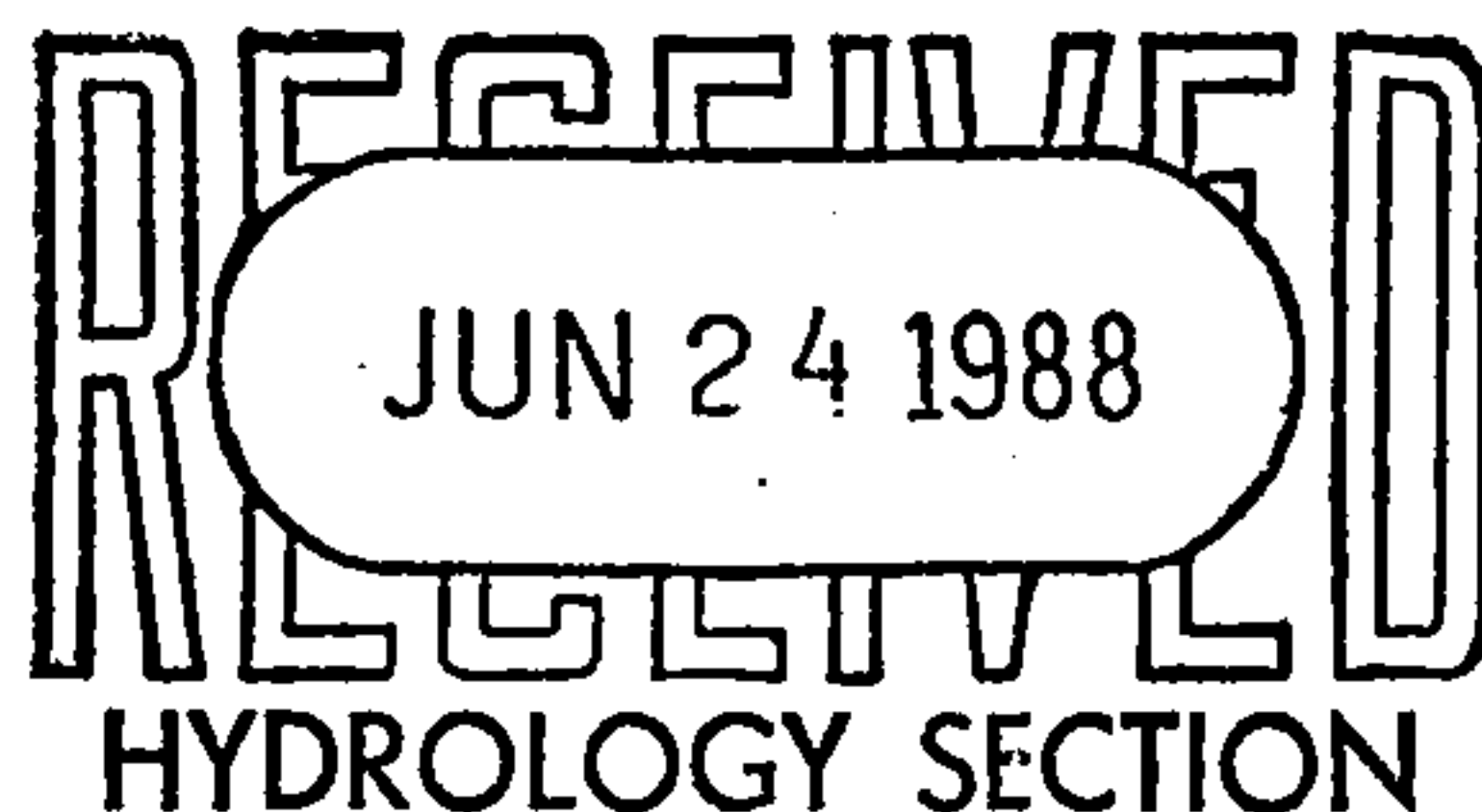
ADDRESS: _____ PHONE: _____

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 _____ (SPECIFY)

DATE SUBMITTED: May 31, 1988

BY: Robert Navarro

Resubmitted June 22, 1988

FILE COPY



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

MAYOR
KEN SCHULTZ

CHIEF
ADMINISTRATIVE OFFICER
GENE ROMO

DEPUTY CAO
DEVELOPMENT & ENTERPRISE SERVICES
LARRY LARRANAGA

DEPUTY CAO
PUBLIC SERVICES
DAN WEAKS

June 15, 1988

Roland Trevino, E.I.T.
Cardenas-Salcedo & Associates, Inc.
701 N. St. Vrain
El Paso, Texas 79902

RE: GRADING/DRAINAGE PLAN FOR THE COURTYARD BY MARRIOTT
(L-16/D23A) ENGINEER'S STAMP DATED MAY 16, 1988

Dear Mr. Trevino:

Based on the information provided on your submittal of June 3, 1988,
listed are certain concerns that will need to be addressed prior to final
approval:

1. Finish Floor Elevations to full mean sea level designation.
2. Special Order #19 Format Note portion and sign-off block must be included on Sheet C-3/
3. Elevation at property line must 1' above existing flow line.
4. Copy of C-5 showing the Courtyard grading.
5. Additional contours and spot elevations showing what exists to the east of the proposed site (our concern is that no off-site flows will enter proposed site from the east).

If I can be of further assistance, please feel free to call me at (505)
768-2650.

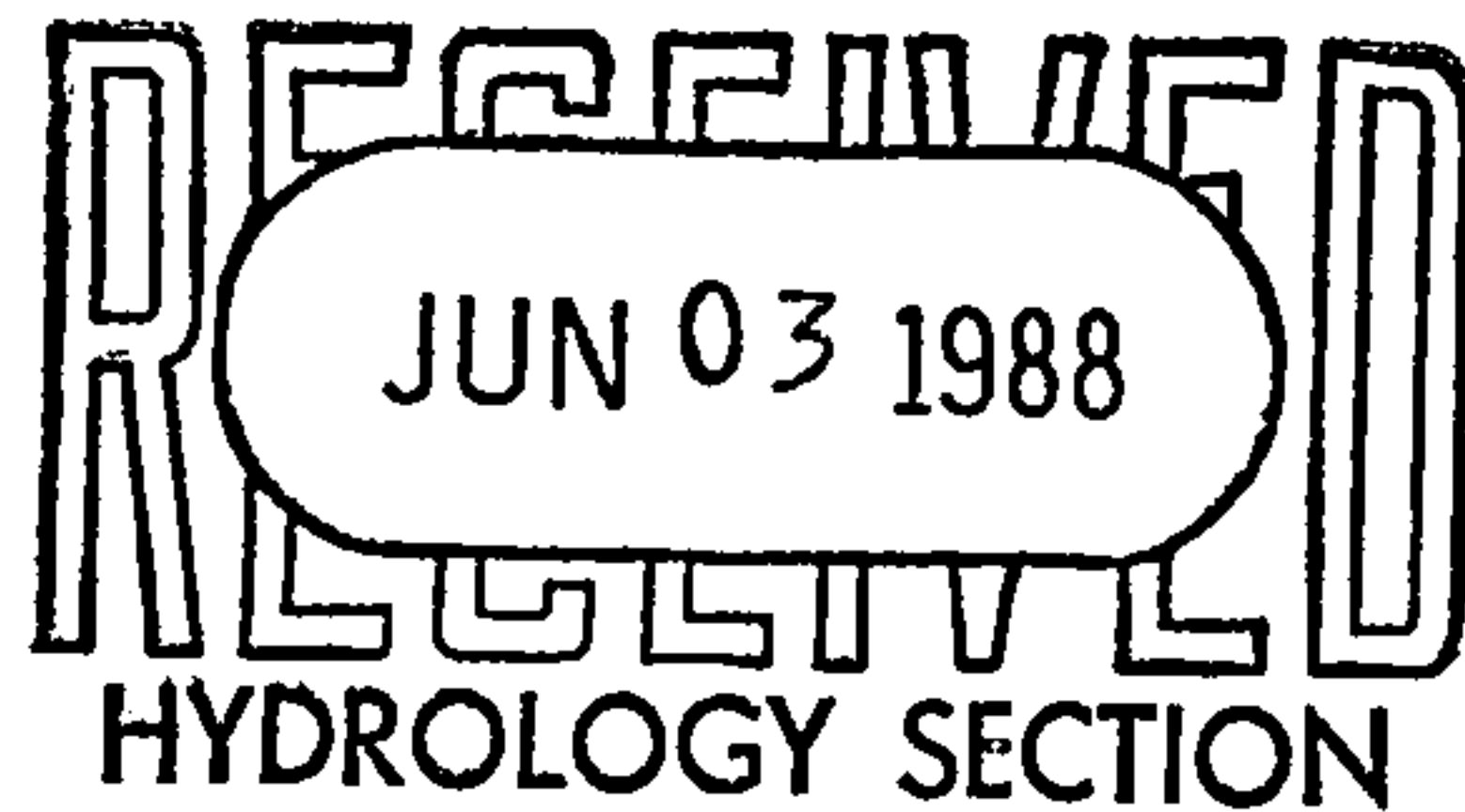
Cordially,

Bernie J. Montoya

Bernie J. Montoya, C.E.
Engineering Assistant

BJM/bsj

May 31, 1988



CARDENAS - SALCEDO AND ASSOCIATES, INC.

701 N. ST. VRAIN • EL PASO, TEXAS 79902 • (915) 532-1076

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

Attn: G. Stuart Reeder, P.E.

Re.: Proposed Courtyard Hotel by Marriott
Tract 4A Cavan Sunport Centre (L-16/D23A)
Building Permit Submittal

Dear Mr. Reeder:

We are pleased to submit the following information for your review to satisfy the requirements for Building Permit Approval for the above referenced project:

1. Drainage Information Sheet
2. Sheet C-3 "Grading and Drainage Plan", outlining the drainage subbasins and limits of soil types.
3. Calculations for the peak run-off rates and run-off volumes from each subbasin (including the coefficient of run-off, the Soil Conservation Services Curve Number (CN Value), the rainfall intensity and each subbasin area). Also included are calculations for the adequacy of the drainage infrastructure.
4. Earthwork Specifications for the project which include grading as well as soil density criteria.
5. Construction drawings C-1, "Existing Conditions", C-3, "Grading and Drainage Plan" C-6 and C-7 "Civil Details", each with the Engineer's stamp and signature.

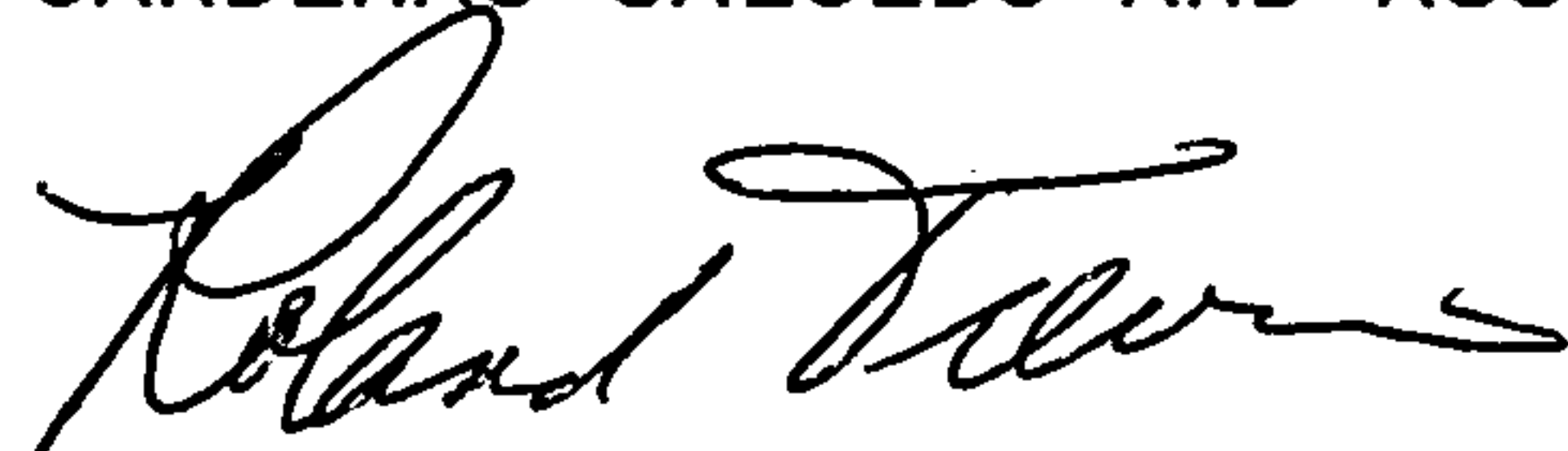
If you have any questions regarding this matter please feel free to contact me at 915-532-1076.

Mr. G. Stuart Reeder
May 31, 1988
Page 2

Allow me to thank you in advance for your assistance.

Sincerely,

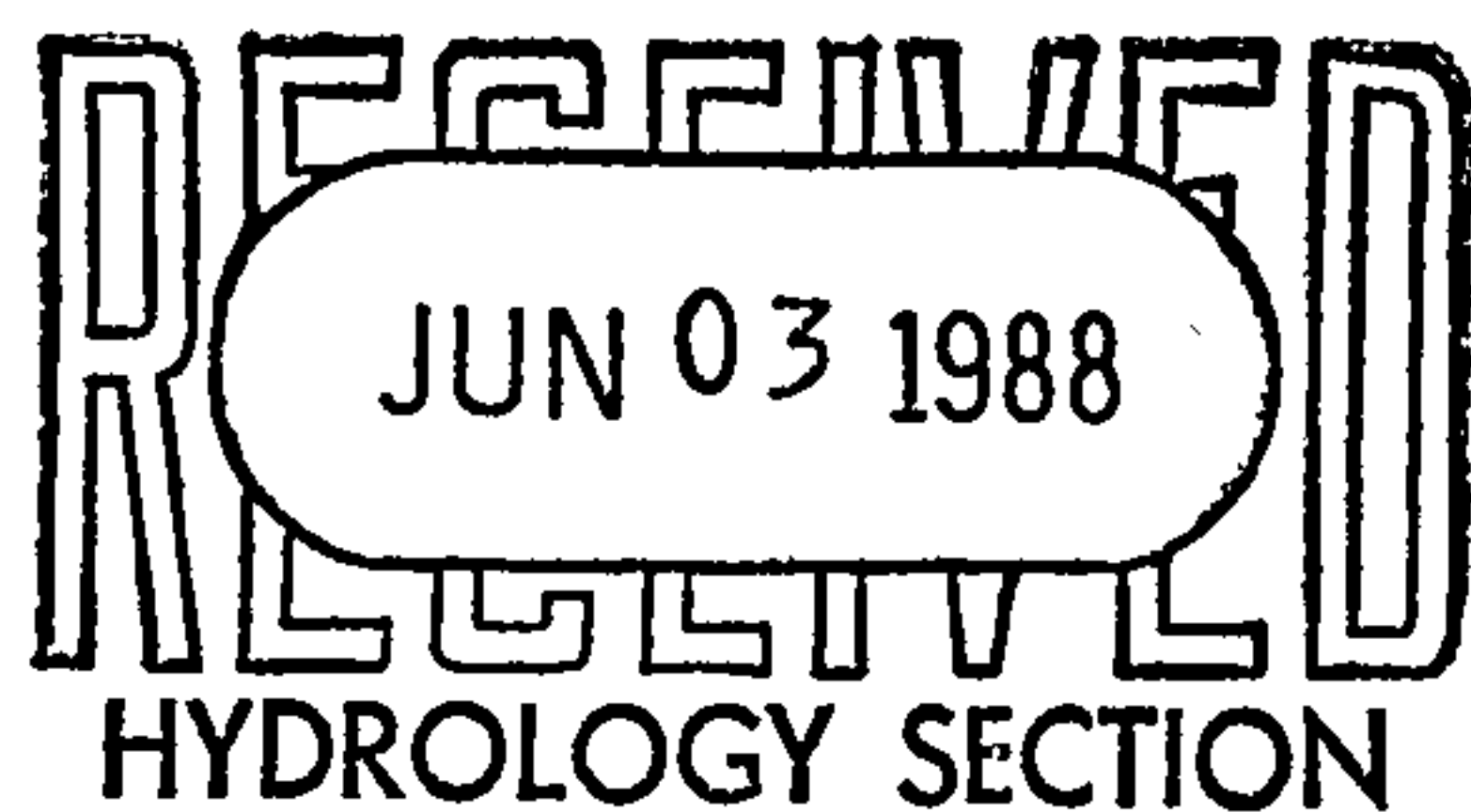
CARDENAS-SALCEDO AND ASSOCIATES, INC.



Roland Trevino, E.I.T.

Enclosures: As noted above.

87-118-B

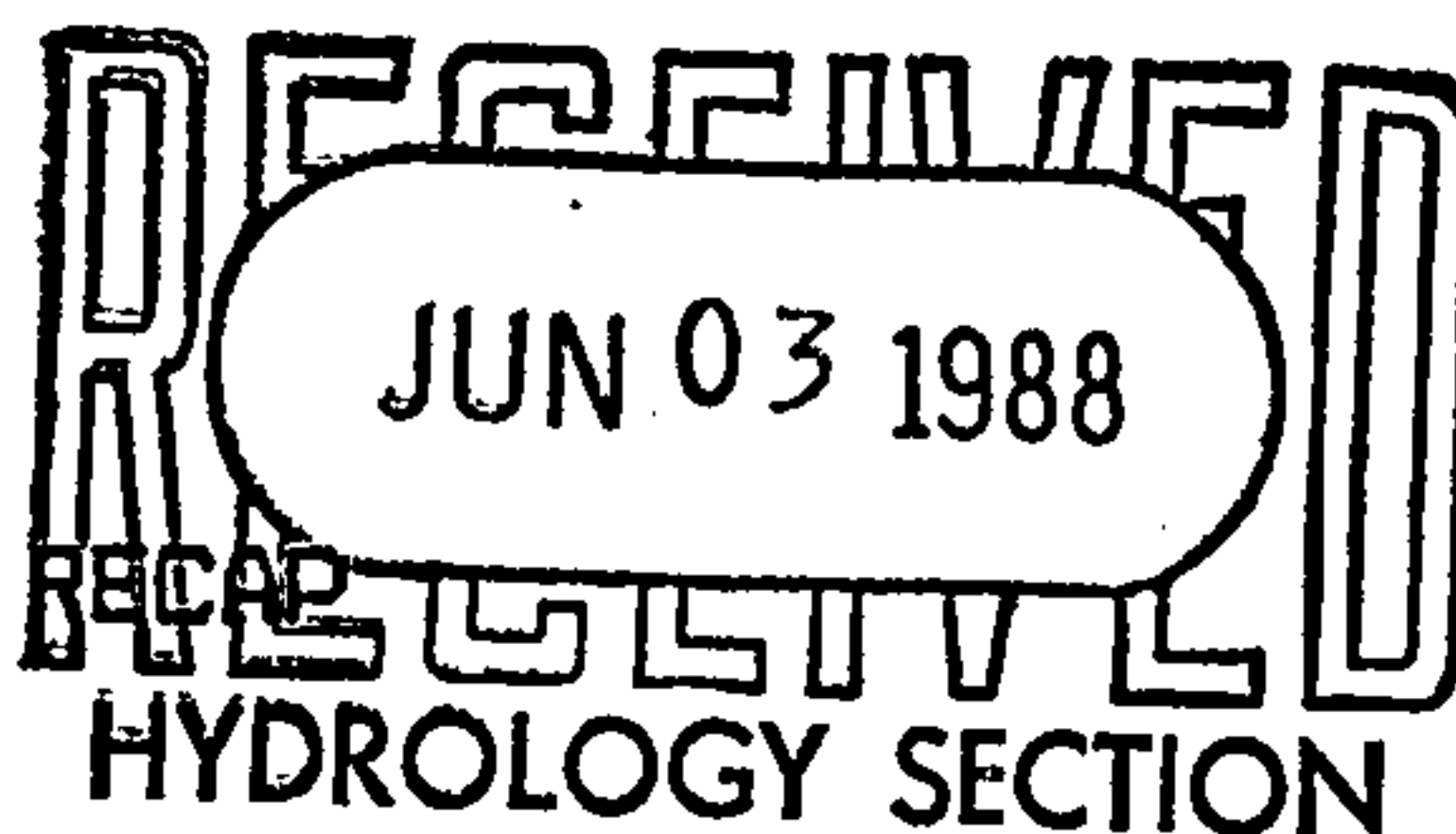


DRAINAGE INFORMATION SHEET

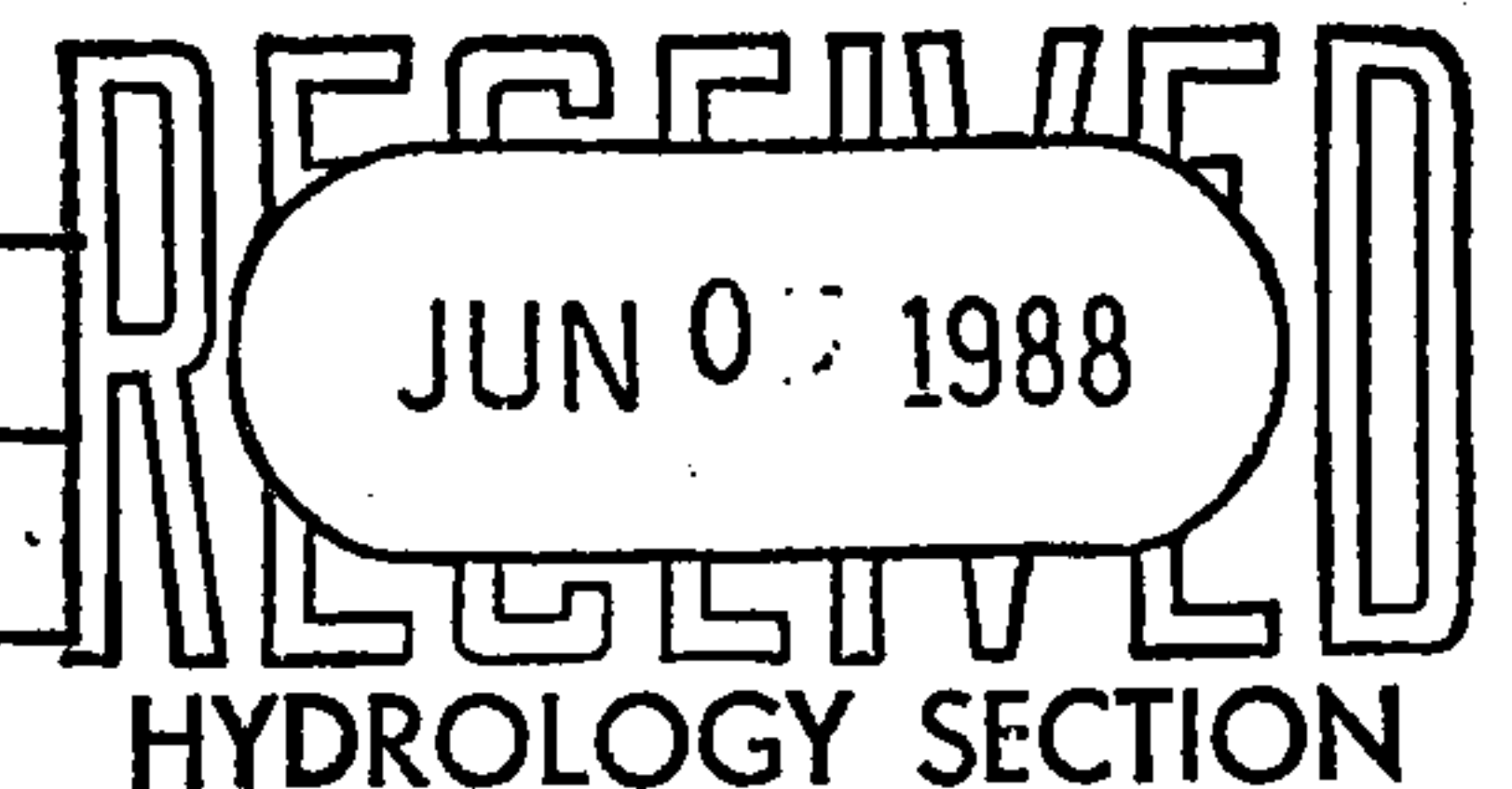
PROJECT TITLE: Courtyard by Marriott ZONE ATLAS/DRNG. FILE #: L-16-Z /D23A
LEGAL DESCRIPTION: Tract 4A Cavan Sunport Centre Filed 2/16/88 Vol. C-35 Folio 173
CITY ADDRESS: 1 block north of Yale and Gibson intersection
ENGINEERING FIRM: Robert Navarro & Associates CONTACT: Robert Navarro
1076
ADDRESS: 124 Castellano, El Paso, Tx. 79912 PHONE: 915-532-1406
OWNER: Marriott Corporation CONTACT: Tuck Masker
One Marriott Drive Dept. 934.46
ADDRESS: Washington, D.C. 20058 PHONE: 301-320-4024
ARCHITECT: Jerry Theis & Associates CONTACT: Kevin Barker
4040 Broadway Suite 410
ADDRESS: San Antonio, Texas 78209 PHONE: 512-828-8412
SURVEYOR: E. Valdez Surveying Co. CONTACT: Enrique Valdez
ADDRESS: 218 Howell St., Belen, N.M. 87002 PHONE: 505-864-2082
CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____

PRE-DESIGN MEETING:

☐ YES
☐ NO
☐ COPY OF CONFERENCE
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 _____ (SPECIFY)

DATE SUBMITTED: May 31, 1988

BY: Robert Navarro

FILE COP



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

Ken Schultz
Mayor

UTILITY DEVELOPMENT DIVISION
HYDROLOGY SECTION
(505) 768-2650

January 20, 1988

Roland Trevino, EIT
Cardenas - Salcedo and Associates, Inc.
701 N. St. Vrain
El Paso, Tx 79902

RE: CONCEPTUAL GRADING & DRAINAGE PLAN FOR THE COURTYARD BY
MARRIOTT, RESUBMITTED JANUARY 7, 1988, FOR SITE DEVELOPMENT
PLAN APPROVAL (L-16/D23A)

Dear Mr. Trevino,

Your submittal, referred to above, is approved for site development plan sign-off by the hydrology section.

For building permit approval, you will need to address the four areas mentioned in my letter to you of December 21, 1988. Please be aware that the engineer's stamp, date and signature must be affixed to the mylar or other reproducible, and that stamped, signed, and dated blue line drawings will not be accepted in the future.

If you have any questions, please call me at (505) 768-2650.

Cordially,

Stuart Reeder

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

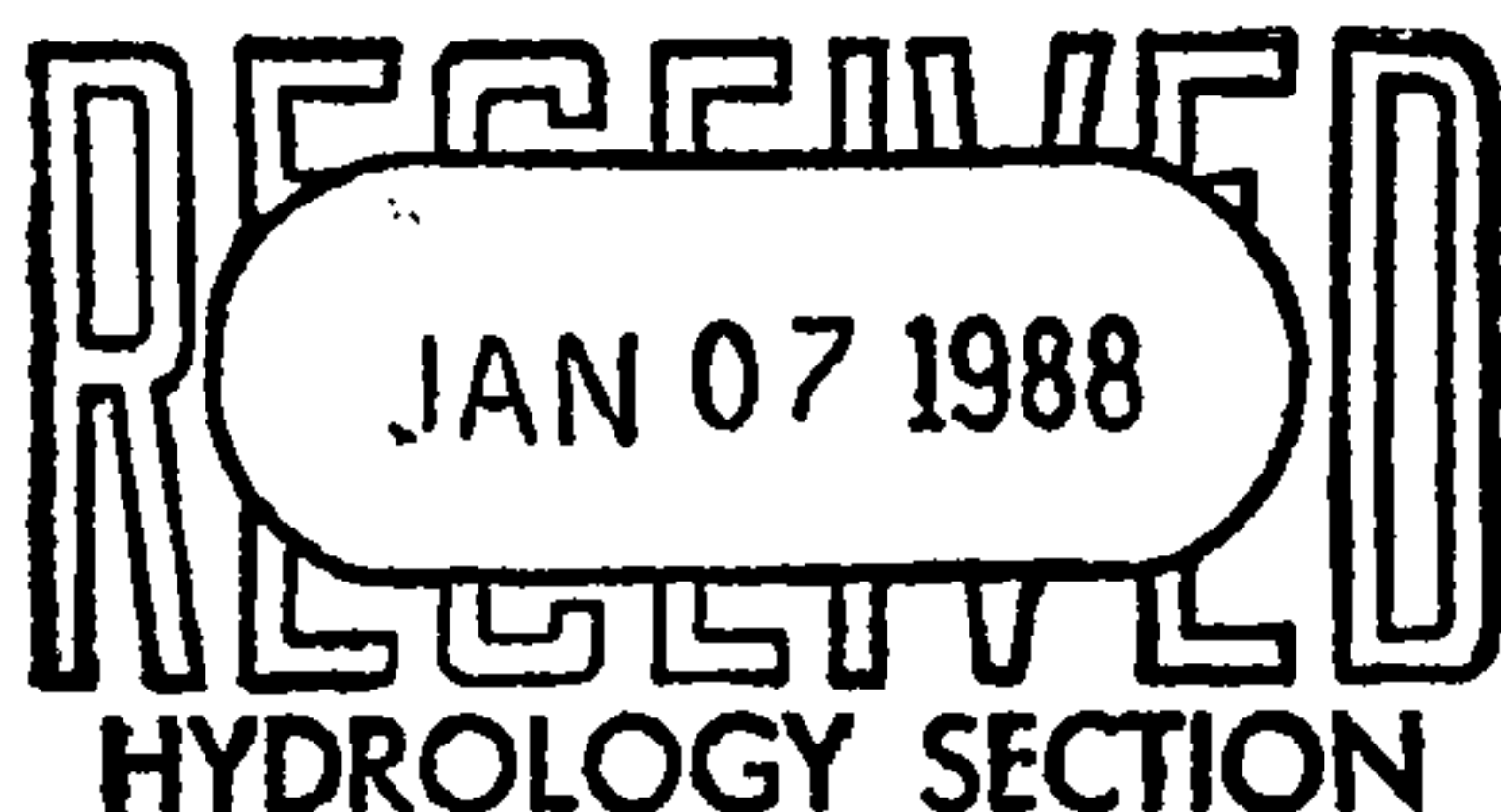
PUBLIC WORKS DEPARTMENT

Walter Nickerson, P.E., City Engineer

ENGINEERING GROUP

Telephone (505) 768-2500

AN EQUAL OPPORTUNITY EMPLOYER



CARDENAS - SALCEDO AND ASSOCIATES, INC.
701 N. ST. VRAIN • EL PASO, TEXAS • 79902 (915) 532-1076

January 4, 1988

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

Attn: G. Stuart Reeder, P.E.

Re.: Conceptual Grading and Drainage Plan for the Courtyard by
Marriott, Submitted November 23, 1987 for Site Development
Plan Approval (L-16/D23A)

Dear Mr. Reeder:

In response to your letter of December 21, 1987 we are submitting a stamped, signed and dated conceptual Grading and Drainage Plan to complete the requirements for site development plan approval. I was aware of this requirement and I apologize for any inconvenience this oversight may have caused.

With regard to your suggestion to resubmit for building permit at this time, I regret that we are unable to proceed with this step until we receive direction from the owner to do so. However, we look forward to working with you on this phase of the project.

Allow me to thank you for your assistance in this matter.

Sincerely,

CARDENAS-SALCEDO AND ASSOCIATES, INC.

A handwritten signature in cursive script, appearing to read "Roland Trevino".

Roland Trevino, E.I.T.

Encl.: As noted above.

copy: T. Masker, Marriott Corp.
Robert Navarro, RNA
File 87-118-B

FILE COPY



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

Ken Schultz
Mayor

UTILITY DEVELOPMENT DIVISION
HYDROLOGY SECTION
(505) 768-2650

December 21, 1987

Roland Trevino, Eit
Cardenas - Salcedo & Associates, Inc.
701 N St. Vrain
El Paso, Texas 79902

RE: CONCEPTUAL GRADING & DRAINAGE PLAN FOR THE COURTYARD BY
MARRIOTT, SUBMITTED NOVEMBER 23, 1987 FOR SITE DEVELOPMENT PLAN
APPROVAL (L-16/D23A)

Dear Mr. Trevino:

I have reviewed your submittal, referred to above. Our city standards, as outlined in the Development Process Manual, Volume 2, require each submittal to have a professional certification, i.e., an engineer's stamp with signature and date. Please resubmit a stamped, signed, and dated plan for site development plan approval.

If you would address the following items before you resubmit, I think it will be possible to approve your plan for building permit sign-off also.

1. Please better define the drainage subbasins - their boundaries are vague.
2. Please provide the calculations for the peak run-off rates and run-off volumes from each subbasin, to include the coefficient of run-off, the Soil Conservation Service's Curve Number (CN Value), the rainfall intensity, and each subbasin area; and capacity calculations for the drainage infrastructure.
3. It appears that you plan to run water out of the west entrance from Centre Avenue, which will require some attention when you detail this intersection. At the east entrance, however, you will need to provide a water block of some sort to prevent street flows from entering the property.

PUBLIC WORKS DEPARTMENT

Walter Nickerson, P.E., City Engineer

ENGINEERING GROUP

Telephone (505) 768-2500

AN EQUAL OPPORTUNITY EMPLOYER

Roland Trevino, EIT
December 21, 1987
Page 2

4. You will need a final grading plan and an erosion control plan for our sign-off on the building permit.

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

Cordially,



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

xc: Robert Navarro

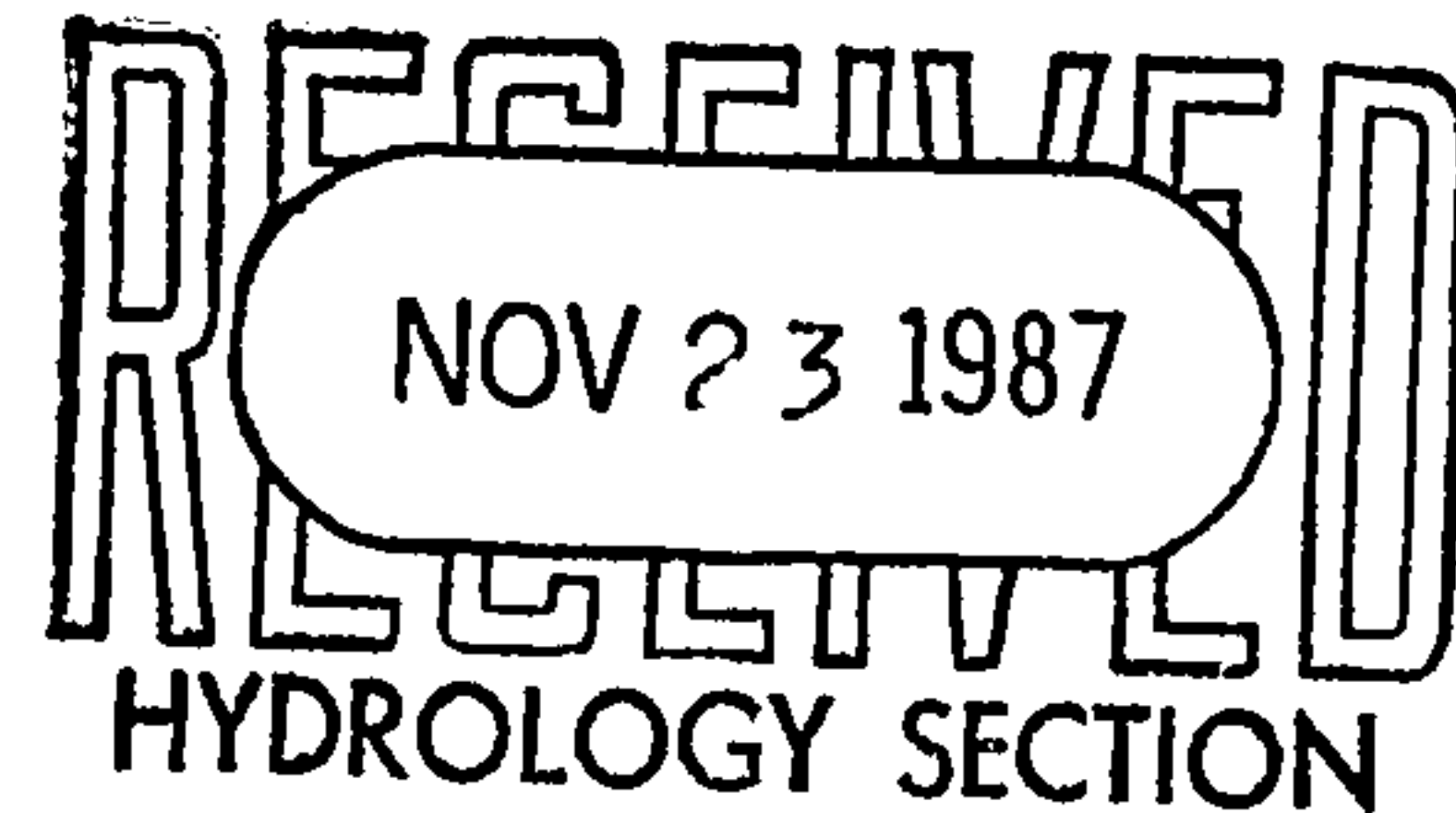
GSR/bsj



CARDENAS - SALCEDO AND ASSOCIATES, INC.
701 N. ST. VRAIN • EL PASO, TEXAS • 79902 (915) 532-1076

November 23, 1987

City of Albuquerque
Utility Development Division
400 Marquette N.W.
Albuquerque, NM 87103



Attn: Mr. G. Stuart Reeder, P.E.

Re.: Conceptual Grading and Drainage Plan for the Courtyard by
Marriott submitted September 18, 1987 for Site Development
Plan Approval (L-16/D23A)

Dear Mr. Reeder:

As you know from our telephone conversation of November 20, 1987, Marriott Corporation has decided to construct a four story hotel in lieu of a three story hotel as previously submitted. Since this change results in a smaller building footprint, we have revised our conceptual grading and drainage plan.

Consequently, we are resubmitting our conceptual grading and drainage plan, together with the Grading and Drainage Information sheet for your review.

If you have any questions regarding the revised plan please do not hesitate to contact me at 915-532-1076.

Sincerely,

CARDENAS-SALCEDO AND ASSOCIATES, INC.

Roland Trevino, E.I.T.

RT/lia

Encl.: As noted above.

Copy: Robert Navarro, Robert Navarro & Associates
File 87-118-B

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Courtyard by Marriott ZONE ATLAS/DRNG. FILE #: L-16-Z/023A
 LEGAL DESCRIPTION: Portion of Tract 4 Cavan Sunport Centre Filed 5/10/86 Vol. C-32 Folio 70
 CITY ADDRESS: 1 block north of Yale and Gibson intersection

ENGINEERING FIRM: Robert Navarro & Associates CONTACT: Robert Navarro

ADDRESS: 124 Castellano, El Paso, Tx. 79912 PHONE: 915-532-1406

OWNER: Marriott Corporation CONTACT: Tuck Masker

ADDRESS: One Marriott Drive Dept. 934.46 PHONE: 301-230-4024
Washington, DC 20058

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: E Valdez Surveying Co. CONTACT: Enrique Valdez

ADDRESS: 218 Howell St., Belen, NM 87002 PHONE: 505-864-2082

CONTRACTOR: _____ CONTACT: _____

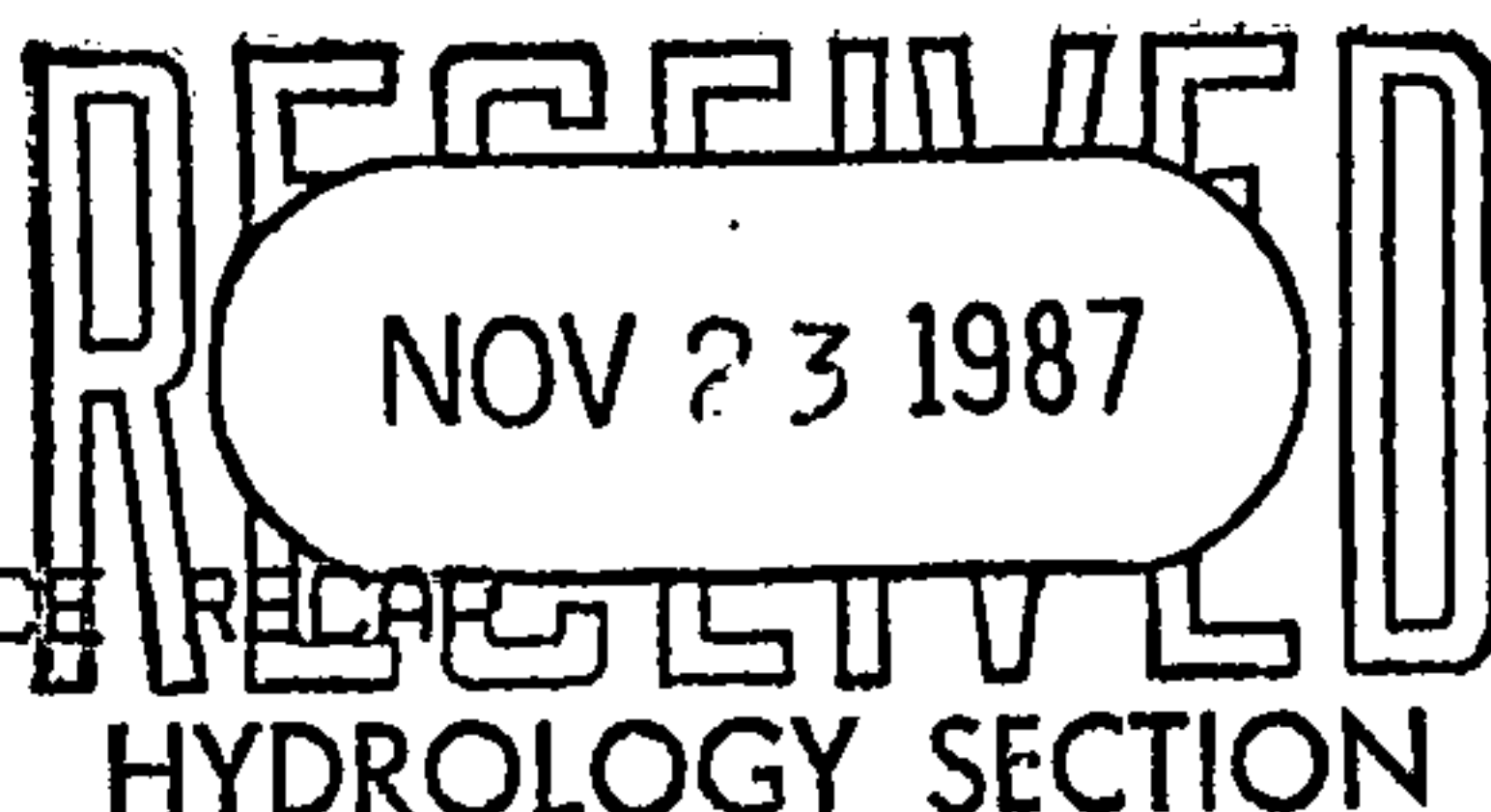
ADDRESS: _____ PHONE: _____

PRE-DESIGN MEETING:

☒ YES

☐ NO

☐ COPY OF CONFERENCE RECORD 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 _____ (SPECIFY)

DATE SUBMITTED: November 23, 1987

BY: Robert Navarro

FILE COPY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103



Ken Schultz
Mayor

UTILITY DEVELOPMENT DIVISION
HYDROLOGY SECTION
(505) 768-2650

October 1, 1987

Mr. Robert Navarro
Robert Navarro & Associates
124 Castellano
El Paso, Texas 79912

RE: CONCEPTUAL GRADING & DRAINAGE PLAN FOR THE COURTYARD BY MARRIOTT
SUBMITTED SEPTEMBER 18, 1987 FOR SITE DEVELOPMENT PLAN APPROVAL
(L-16/D23A)

Dear Mr. Navarro:

Your submittal, referred to above, and identified by you as Job No. C 917, is approved for site development.

To approve your project for building permit, we will need your final grading plan, the one which the contractor will use, and some narrative on the drainage plan which addresses the off-site flows, on-site flows, calculations by which you arrived at your figures, and a comment on the downstream capacities.

You may observe that some of this information is already available in the master drainage report for Yale Business Park, and you will be correct. The number of submittals we are reviewing, however, precludes our doing any more research than that necessary to verify that the figures you give us are accurate. Each submittal is a "stand alone" document.

If you do not have a copy of our Development Process Manual, I will be happy to send you a copy of the pages dealing with the grading plans and drainage reports.

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

Cordially,

Stuart Reeder

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

GSR/bsj

PUBLIC WORKS DEPARTMENT

Walter Nickerson, P.E., City Engineer

ENGINEERING GROUP

Telephone (505) 768-2500

AN EQUAL OPPORTUNITY EMPLOYER

DRAINAGE INFORMATION SHEET

New

PROJECT TITLE: Courtyard by Marriott ZONE ATLAS/DRNG. FILE #: L-16-~~Z~~D23A
 LEGAL DESCRIPTION: Portion of Tract 4 Cavan Sunport Centre Filed 5/10/86 Vol. C-32 Folio 70
 CITY ADDRESS: 1 block north of Yale and Gibson intersection

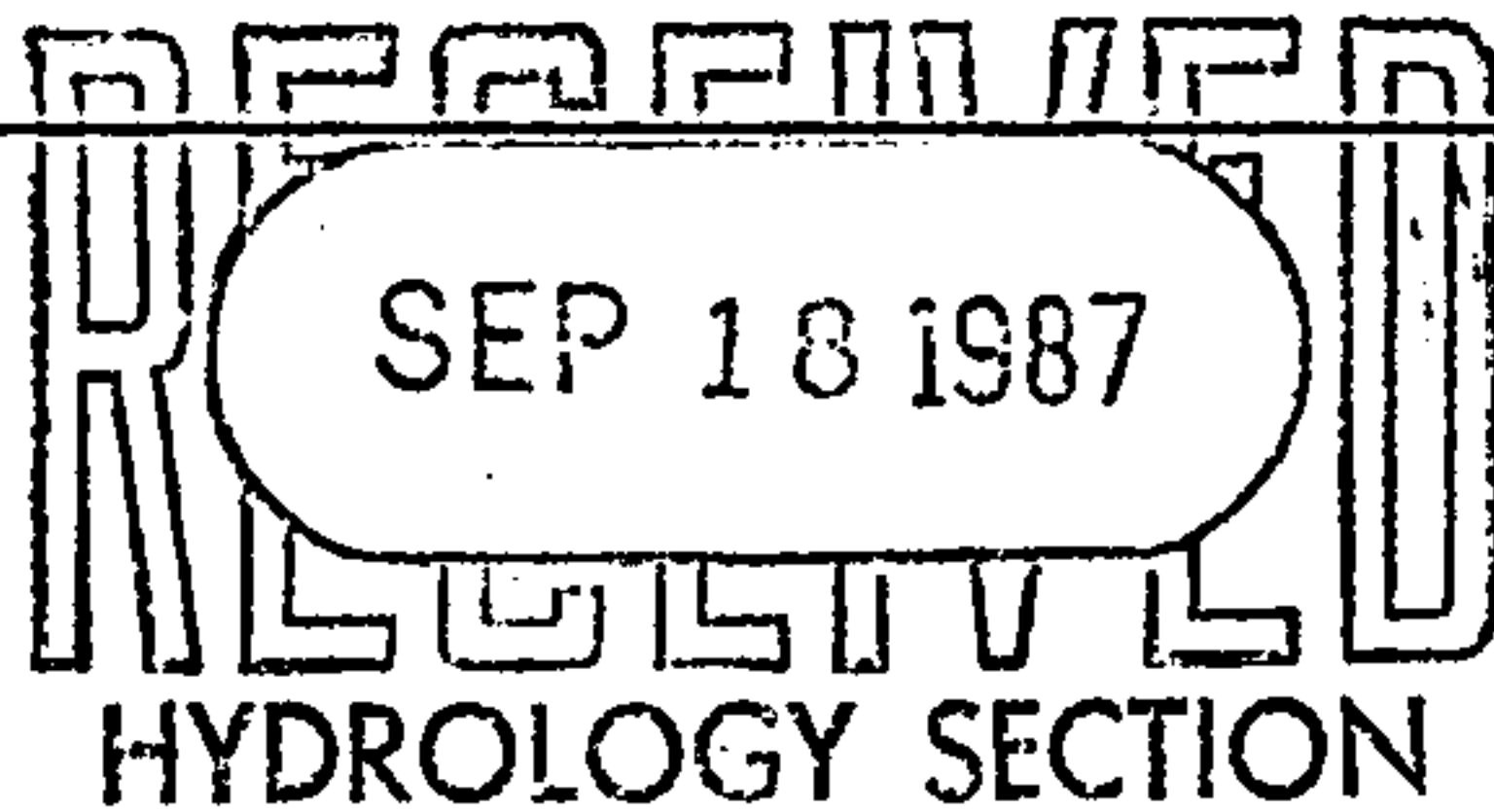
ENGINEERING FIRM: Robert Navarro & Associates CONTACT: Robert Navarro
 ADDRESS: 124 Castellano, El Paso, Tx. 79912 PHONE: 915-532-1406

OWNER: Marriott Corporation CONTACT: Tuck Masker
 ADDRESS: One Marriott Dr. Dept. 934.46 PHONE: 301-230-4024
Washington, DC 20058

ARCHITECT: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____

SURVEYOR: E. Valdez Surveying Co. CONTACT: Enrique Valdez
 ADDRESS: 218 Howell St., Belen, NM 87002 PHONE: 505-864-2082

CONTRACTOR: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____



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 _____ (SPECIFY)

DATE SUBMITTED: September 18, 1987

BY: Robert Navarro

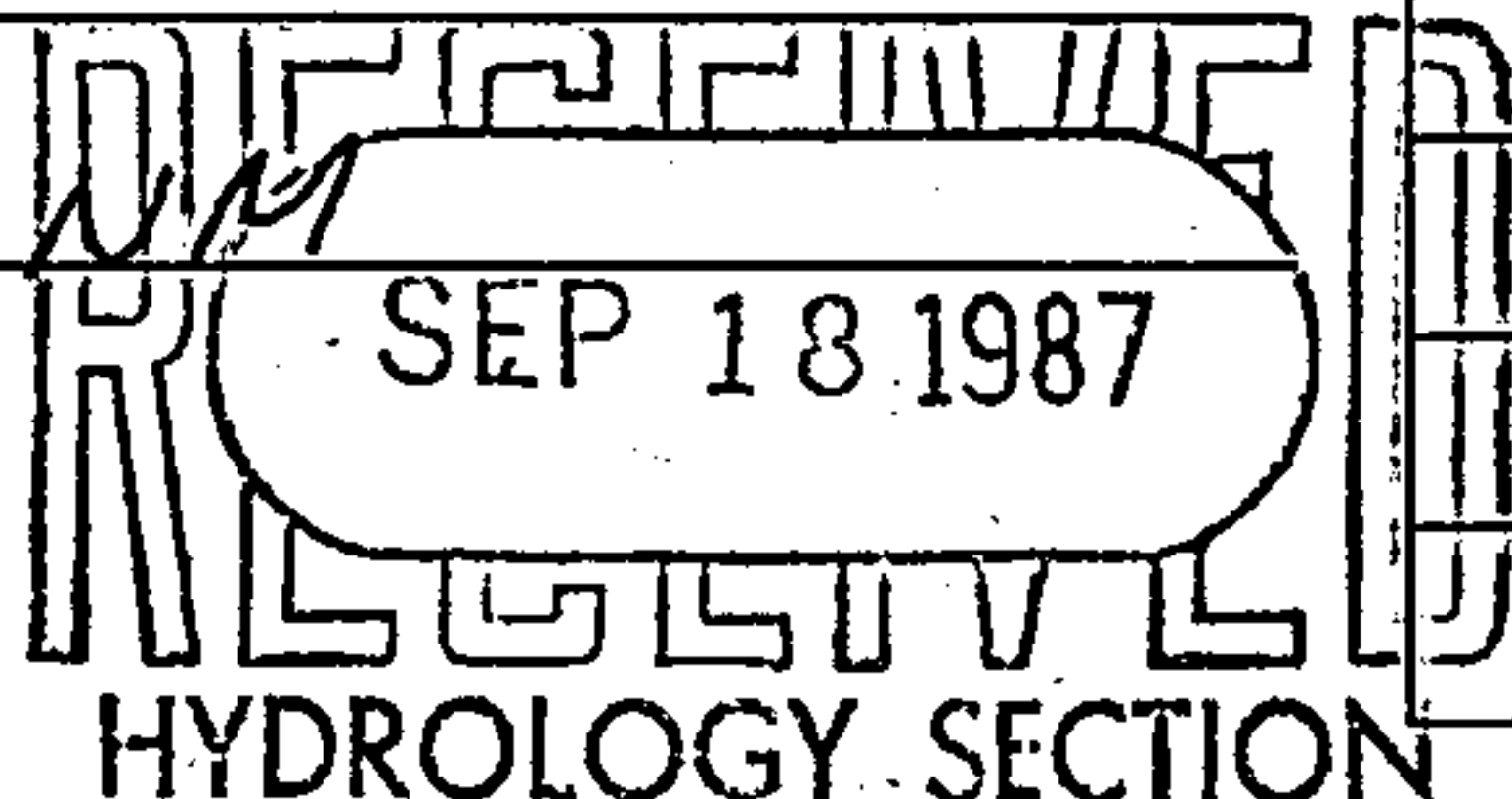
CARDENAS-SALCEDO & ASSOCIATES

701 N. St. Vrain
EL PASO, TEXAS 79902

(915) 532-1076

LETTER OF TRANSMITTAL

TO CITY OF ALBUQUERQUE, PUBLIC WORKS
400 MARQUETTE
ALBUQUERQUE, NM



DATE	9/18/87	JOB NO.	87-118
ATTENTION	CARLOS MONTOYA		
RE:	PROPOSED ALBUQUERQUE MARKET 1 BLOCK NORTH OF VALE & GIBSON - DRAINAGE INFORMATION SHEET		

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via _____ the following items:

- ☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION

THESE ARE TRANSMITTED as checked below:

- ☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS

ENCLOSED FOR YOUR REVIEW
 1. DRAINAGE INFORMATION SHEET
 2. BLUELINE SET OF SITE PLANS

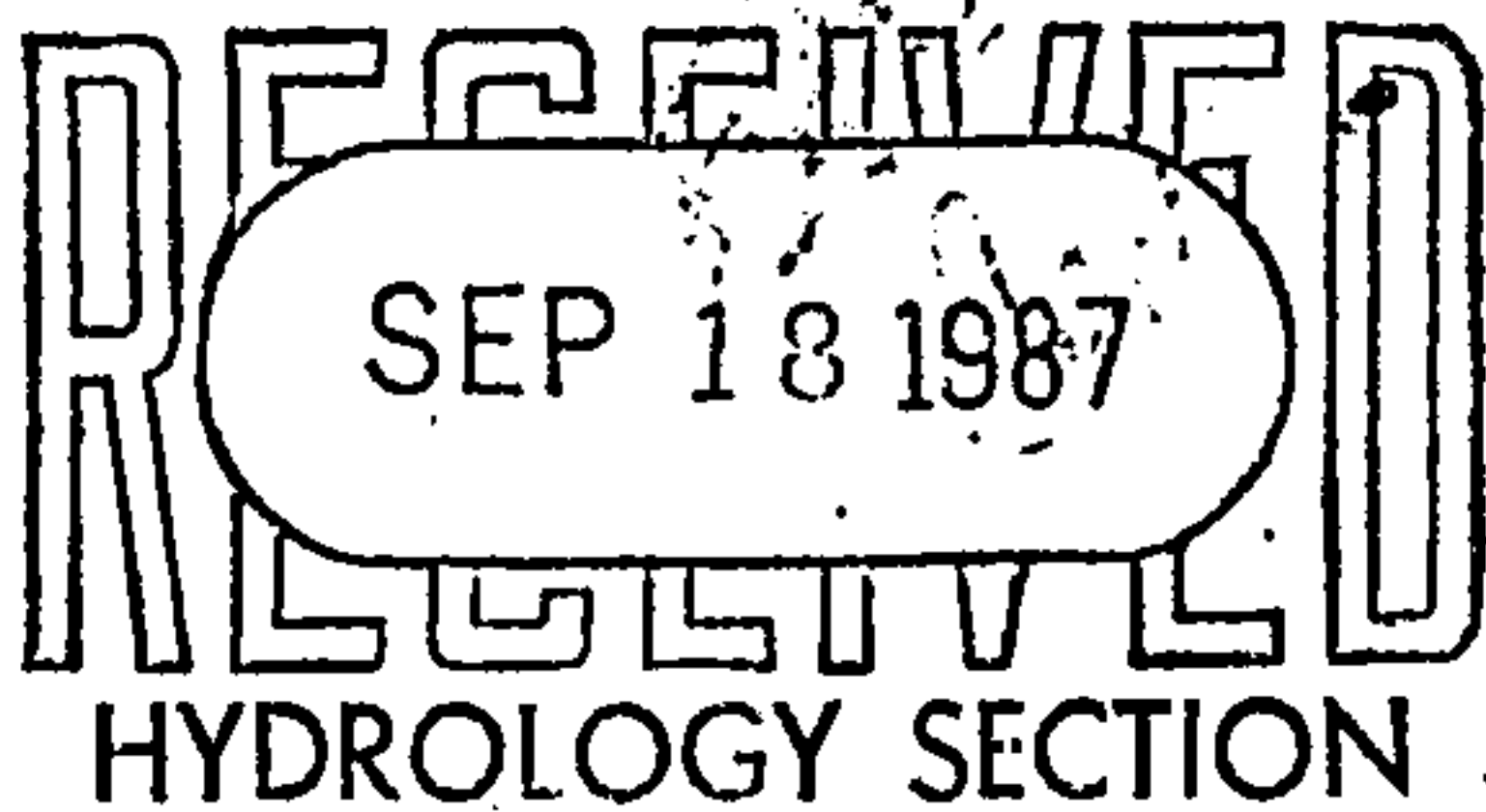
IF YOU HAVE ANY QUESTIONS PLEASE CONTACT OUR OFFICE

COPY TO FILE

SIGNED:

[Signature]

J. F. CARDENAS



LEGAL DESCRIPTION

A certain tract of land situated in the southwest corner of Section 27, Township 10 North, Range 3 East of the New Mexico Principal Meridian, County of Bernalillo, State of New Mexico and comprising a portion of Tract 4 of Cavan Sunport Centre, a subdivision filed for record in the Office of the County Clerk, Bernalillo County, New Mexico on December 10, 1986 in Volume C-32, Folio 70 and more particularly described as follows:

Beginning at the southeast corner of tract herein described, said point lying on the northerly right-of-way line of Centre Avenue and being also common to the southeast corner of said Tract 4 and the southwest corner of Tract 6 of said Cavan Sunport Centre, whence a city of Albuquerque Brass Cap Monument NO. 1-M16 located at intersection of Gibson Blvd and Yale Blvd. bears S. 46 deg. 29' 58" W., 757.92 feet;

Thence N. 90 deg. 00' 00" W., 477.04 feet along said northerly right-of-way line to a point of curvature;

Thence 39.13 feet along the arc of a curve to the right, said curve having a radius of 25.00 feet and a chord which bears N. 45 deg. 09' 44" W., 35.26 feet to a point of tangency, said point lying on the easterly right-of-way line of Yale Blvd.;

Thence N. 00 deg. 19' 27" W., 365.15 feet along said easterly right-of-way line to the northwest corner of this tract;

Thence S. 90 deg. 00' 00" E., 504.11 feet to the northeast corner of this tract;

Thence S. 00 deg. 00' 00" W., 390.00 feet to the southeast corner of this tract and point of beginning.

Tract contains 196.039 square feet or 4.500 acres more or less and is subject to easements as shown, easements of record and prescriptive easements not shown.

The westerly and southerly ten (10) feet of this tract are reserved for underground and overhead P.N.M. and Mountain Bell easements.

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

CONFERENCE RECAP

DRAINAGE FILE/ZONE ATLAS PAGE NO.: L 16 DATE: 8/2/85
PLANNING DIVISION NOS: EPC: Z-85-41 DRB: _____
SUBJECT: PARCEL LOCATED at the N.E. CORNER OF YALE & GIBSON
(43 ACRES)

APPROVAL REQUESTED:

☒ PRELIMINARY PLAT	_____ FINAL PLAT
_____ SITE DEVELOPMENT PLAN	_____ BUILDING PERMIT
_____ OTHER	_____ ROUGH GRADING

	WHO	REPRESENTING
ATTENDANCE:	<u>TOM ISAACSON</u>	_____
	<u>FRED AGUIRRE</u>	_____
	_____	_____

FINDINGS:

1. AN APPROVED DRAINAGE REPORT IS REQUIRED FOR SUBJECT REQUEST
2. AN APPROVED INFRASTRUCTURE LISTING (~~FOR~~ PRIVATE/PUBLIC) REQUIRED FOR PRELIMINARY PLAT APPROVAL
3. THE ALLOWABLE DISCHARGE WILL BE BASED ON DOWNSTREAM CAPACITY
4. CITY SURVEYOR'S APPROVAL REQUIRED FOR PRELIMINARY PLAT APPROVAL.

Note: THE DRAINAGE REPORT REQUIRED NEEDS TO BE OF SUFFICIENT DETAIL TO IDENTIFY THE REQUIRED INFRASTRUCTURE AND TO ESTABLISH THE DRAINAGE SCHEME FOR EACH LOT. EACH SUBSEQUENT LOT WILL REQUIRE A DRAINAGE ^{PLAN} IN COMPLIANCE WITH THE APPROVED DRAINAGE REPORT.

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>Fred Aguirre</u>	SIGNED: <u>Tom Isaacson</u>
TITLE: _____	TITLE: _____
DATE: <u>8/2/85</u>	DATE: <u>8/2/85</u>

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

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

HYDROLOGY SECTION PROJECT NO.: L-16- DATE: 2/1/85

PLANNING DIVISION NOS. EPC: _____ DRB: _____

CONFERENCE RECAP

SUBJECT: N.E. CORNER OF YALE + GIBSON ~ 40 ACRES (RA-2 ZONE)

APPROVAL REQUESTED:

PRELIMINARY PLAT

SITE DEVELOPMENT PLAC

FINAL PLAT

BUILDING PERMIT

WHO REPRESENTING
ATTENDANCE: FRED J. AGUIRRE City
TOM ISAACSON ISAACSON + ARMAN

FINDINGS: DEPENDING ON THE TYPE APPROVAL REQUIRED, I.E., SITE
DEVELOPMENT PLAN APPROVAL, PRELIMINARY/FINAL PLAT APPROVAL OR
BUILDING PERMIT APPROVAL WILL DICTATE TYPE OF DRAINAGE
SUBMITTAL. ^{REQUIRED} RECOMMEND ANOTHER PRE-DESIGN MEETING
TO DISCUSS SUBST TYPE OF APPROVAL NEEDED FOR DEVELOPMENT

THE ALLOWABLE DISCHARGE FROM THIS DEVELOPMENT
WILL BE DEPENDENT ON THE CAPACITY OF THE DOWNSTREAM
STORM DRAIN SYSTEM.

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: Tom Isaacson SIGNED: Tom Isaacson
TITLE: DESIGN HYDROLOGIST TITLE: I.P.A.
DATE: 2/1/85 DATE: 2/1/85

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



CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION



HYDROLOGY SECTION PROJ. NO. L-16 DATE: 8/22/84

PLANNING DIVISION NO. _____

CONFERENCE RECAP

SUBJECT: NE corner Yala & Gibson
Industrial park development.

WHO

REPRESENTING

ATTENDANCE: Dennis Loran
Billy Goolsby

FINDINGS: ① Approved Master Plan for site
with individual drainage plans for
tract development to follow.
② Discharge to be determined by
downstream capacity.
③ Subdivision Improvement Agreement
required for subdividing & replatting.

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: Billy G. Goolsby

SIGNED: Dr. C. J. [Signature]

TITLE: CE Hydrology

TITLE: PROJECT ENGR.

DATE: 8/22/84

DATE: 8/22/84