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

November 7, 1995

James Topmiller, P.E.
Bohannan Huston, Inc.
7500 Jefferson NE
Albuquerque, N.M. 87109

RE: ENGINEER'S CERTIFICATION FOR EAST LANG AVE - TRACT 2A (D-17/D3)
RECEIVED NOVEMBER 7, 1995 FOR DRAINAGE REQUIREMENTS
ENGINEER'S STAMP DATED 11/6/95

Dear Mr. Topmiller:

Based on the information included in the submittal referenced above, City Hydrology accepts the Engineer's Certification of the public drainage retention pond and drainage inlets on Headline Blvd. Contact Theresa Lucero for the Financial Guaranty Release for CPN 5081.90.

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

Sincerely,

John P. Curtin

John P. Curtin, P.E.
Civil Engineer/Hydrology

c: Andrew Garcia
Theresa Lucero, CPN 5081.90

STA. 1+00.00

STA. 1+20.00 – CUT 2' DEEP PAVEMENT SECTION, SEE SECTION A–A THIS SHEET. REMOVE 25'± EXISTING PCC C & G. REMOVE 75 SY ± EXISTING ASPHALTIC CONCRETE PAVEMENT.

REMOVE 10' x 66' EXIST. ASPHALT PAVEMENT AND 20' EXIST.

NOTE:
CONTRACTOR SHALL NOTIFY ENGINEER IF DEPTH AND LOCATION OF GAS LINE CAUSES CONFLICT WITH CHANNEL.

TC 51.70 ±
FL 49.00

INSTALL TEMPORARY ASPHALT DRAINAGE CHANNEL / SWALE

PASEO DEL NORTE

FL 47.77 FL 47.47

10" G

END ASPHALT SWALE BURY 2' DEEP. FL 47.11

10" GAS LINE AND EASEMENT

TC 51.50 ±

INSTALL 2–TYPE III BARRICADES

S = 1.00%

S = 2.13%

RETENTION POND
VOLUME = 2.53 AC. FT.
MAX. WATER SURFACE ELEV. = 51.00
MAX. DEPTH = 5.0 FT.
Q = 70 cfs
3:1 SIDE SLOPES

BOTTOM POND ELEV. = 46.00

S = 2.52%

TRACT 1A–2

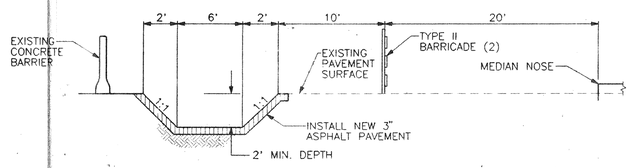
HEADLINE BLVD.

TRACT 2A–2A–1
JOURNAL CENTER

APPROXIMATE LIMITS OF STOCKPILE AREA

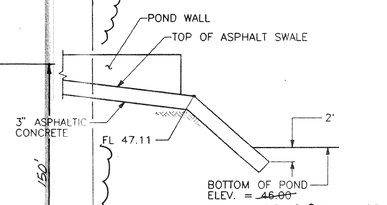
SCALE: 1" = 50' (HORIZ.)

N

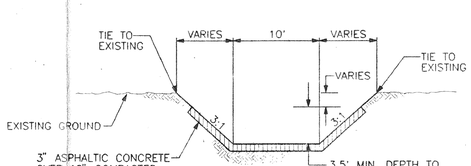


PAVEMENT WEIR SECTION – HEADLINE BLVD.

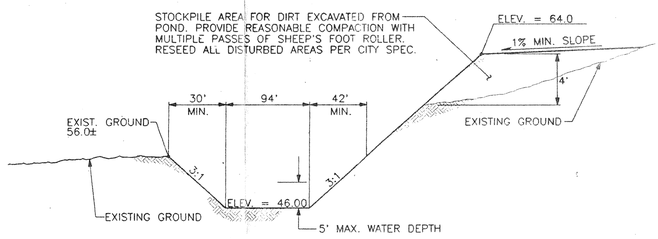
SECTION A–A
NOT TO SCALE



SECTION C–C
NOT TO SCALE



SECTION B–B
NOT TO SCALE



SECTION D–D
NOT TO SCALE

NOTE:
1. EXCESS FILL FROM EXCAVATED CHANNNEL WILL REMAIN ON SITE (SEE PLAN).
2. CONTRACTOR SHALL RESEED THE DISTURBED/STOCKPILE AREA PER COA STD. SPEC.

Pond Volume: As-Built

Avg. Bottom Elev. = 5145.84
Minimum Top Elev. = 5155.98
Minimum Depth = 55.98-45.84 = 10.14 ft.

Bottom Area = 94 x 205 = 19,270 sf
Top Area = 170 x 295 = 50,150 sf
Average Area = (19,270 + 50,150)/2 = 34,710 sf

Pond Volume = 10.14 x 34,710 = 351,959 cf
Pond Volume Req'd by Drainage Report = 110,200 cf-o.k.

DRAINAGE CERTIFICATION

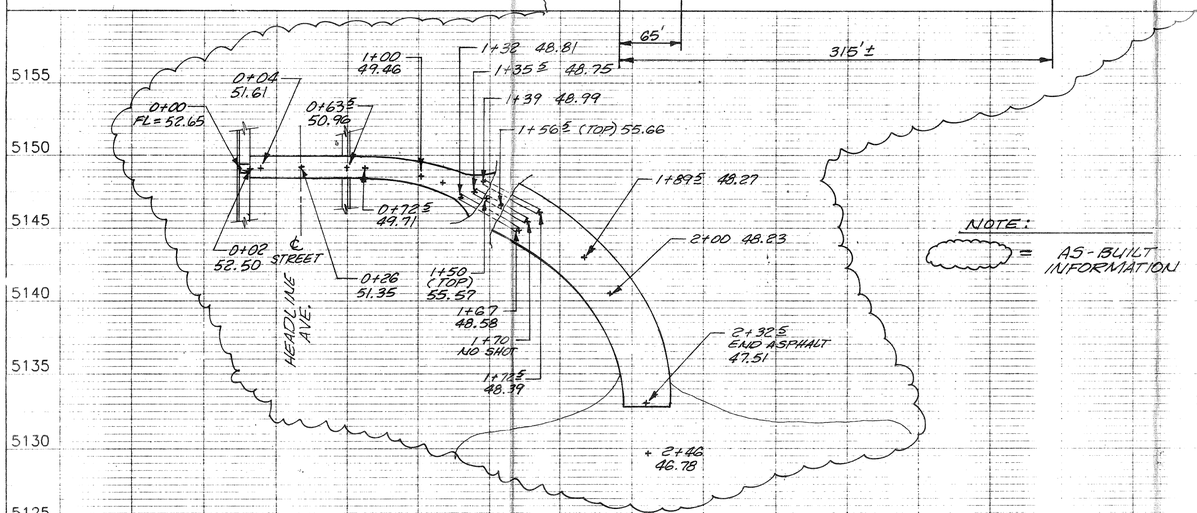
AS-BUILT ELEVATIONS ARE SHOWN ON THE PLAN IN LOCATIONS WHERE THE ORIGINAL DESIGN ELEVATION HAS BEEN CROSSED OUT AND THE NEW ELEVATION IS LISTED. ELEVATIONS WERE PROVIDED BY BOHANNAN-HUSTON INC.

NOTES:

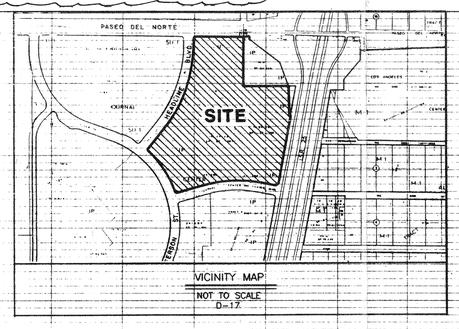
I, JAMES R. TOPMILLER, OF BOHANNAN-HUSTON, INC., A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF NEW MEXICO, DO HEREBY CERTIFY THAT THE EXISTING AND PROPOSED DRAINAGE CONDITIONS OF THIS SITE ARE IN SUBSTANTIAL COMPLIANCE WITH PREVIOUSLY APPROVED PLANS, TO THE BEST OF MY KNOWLEDGE AND BELIEF.

JAMES R. TOPMILLER, P.E.
N.M.P.E. No. 9354
DATE: 11/6/95

JAMES R. TOPMILLER NEW MEXICO 9354 REGISTERED PROFESSIONAL ENGINEER



NOTE:
= AS-BUILT INFORMATION



LANDSCAPING NOTE

WHERE EXISTING LANDSCAPING MUST BE DISTURBED, CONTRACTOR SHALL NOTIFY JOURNAL CENTER PRIOR TO ANY CONSTRUCTION IN LANDSCAPED AREAS. REMOVAL AND/OR REPLACEMENT OF LANDSCAPING SHALL NOT BE PERFORMED UNDER THIS CONTRACT. CONTRACTOR SHALL COORDINATE WITH THE JOURNAL CENTER LANDSCAPING CONTRACTOR

LEGAL DESCRIPTION

Journal Center Business Park
Lang Avenue NE (East)
Tracts 2A-2A-1,2A-2A-2, and 2A-2A-3

AS BUILT INFORMATION
CONTRACTOR
WORK STAKED BY
WORK INSPECTED FOR ACCEPTANCE BY — DATE
FIELD VERIFICATION BY — DATE
DRAWINGS CORRECTED BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE
NO.

BENCH MARKS
CENTERLINE MONUMENT AT INTERSECTION OF JEFFERSON STREET AND HEADLINE BLVD. OFFSET 10'
ELEVATION = 5152.16

SURVEY INFORMATION
FIELD NOTES
NO. | BY | DATE

ENGINEER'S SEAL

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
			DATE: 2/22/95
DESIGNED BY:		J.R.T., D.M.H.	
DRAWN BY:		M.E.S.	DATE: 2/22/95
CHECKED BY:		J.R.T.	DATE: 2/22/95

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: JOURNAL CENTER BUSINESS PARK – TRACT2A
RETENTION POND &
STORM CHANNEL

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
DRC CHAIRMAN	[signature]	3-23-95	WATER	N/A RWE	3-16-95
TRANSPORTATION	N/A KHO	3-21-95	WASTE WATER	N/A RWE	3-16-95
HYDROLOGY	[signature]	3-15-95			

BHI JOB NO. 94230.43

SCALE: 1"=50' (HORIZ.) 1"=5' (VERT.)

DRAWING NO. 5081.90 | MAP NO. D–17 | SHEET 7 OF 7

USERNAME: C94230.43

DRAINAGE MASTER PLAN
FOR
TRACTS 2A-2A-1, 2A-2A-2, & 2A-2A-3
JOURNAL CENTER BUSINESS PARK

AUGUST 1994

DRAINAGE MASTER PLAN
TRACTS 2A-2A-1, 2A-2A-2, & 2A-2A-3
JOURNAL CENTER BUSINESS PARK

Prepared for:

JOURNAL CENTER CORPORATION
7777 JEFFERSON NE
ALBUQUERQUE, NM 87109

JAMES R. TOPMILLER
NEW MEXICO
9354
REGISTERED PROFESSIONAL ENGINEER
10/31/94

NOV - 2

Prepared by:

Job. No. 94169.43

BOHANNAN-HUSTON INC.
ENGINEERS ARCHITECTS PHOTOGRAMMETRISTS SURVEYORS
COURTYARD I, 7500 JEFFERSON NE ALBUQUERQUE, NM 87109 TEL (505) 823-1000 FAX (505) 821-0892

TABLE OF CONTENTS

I. INTRODUCTION

This drainage report is prepared to present a master drainage plan for existing Tracts 2A-2A and 2A-2BC, Journal Center Business Park. This tract of land is proposed for subdivision into several new tracts, Tracts 2A-2A-1, 2A-2A-2 and 2A-2A-3. Additionally, and simultaneously, a new public road called Lang Avenue is to be created.

This report supports, and requests, the following approvals:

1. Site Plan for Subdivision (DRB-94- 324) for these tracts.
2. Final Plat approval
3. Work Order Approval for Phase 1 construction of this Plan (ie, construction of Lang Avenue, new inlets on Headline Blvd, the temporary retention pond and the hotel site on Tract 2A-2A-3).
4. A variance to street flow requirements in Lang Avenue.
5. Revised overall "Journal Center Drainage Management Plan"

A conceptual report for a new hotel site on Tract 2A-2A-3 is submitted separately but conforms to this master plan.

II. METHODOLOGY

All calculations provided in this report conform to Development Process Manual, Chapter 22 design criteria. Typically, 100-yr storm events only are calculated since there are drainage facilities proposed in this plan that must conform to a 10-year storm event criteria.

Most calculations are shown on the drainage basin/infrastructure sheets enclosed, however, some calculations may also be found in the Appendix.

III. EXISTING CONDITIONS

Please reference the Existing Conditions Map enclosed.

Tract 2A-2A, and a small Tract 2A-2BC, are currently vacant, undeveloped parcels located in Journal Center Business Park. The tracts are surrounded by constructed streets (Jefferson, Paseo del Norte, Headline and I-25 Frontage Road) and existing drainage infrastructure in Jefferson Street at Headline.

The site slopes downward in a westerly direction at a slope of approximately 2-4%. There is little vegetation other than native grasses. Soils are moderately draining soils falling in Land Treatment B of the DPM design guidelines.

The undeveloped condition flowrate for the tracts is 49.1 cfs. Two offsite flows contribute another 40.1 cfs. All flows discharge to Jefferson and Headline Streets. There, flows are collected by existing drainage inlets in the street. The north reach of Headline Blvd (or Road)

discharges its collected flows to the tract (Tract 1A-2) immediately to the east since the Paseo del Norte project cut off and closed permanently Headline's access to the Paseo R.O.W.

No FEMA floodplains exist on the site. An offsite floodplain occurs in the Domingo Baca Arroyo to the northeast of the site (See the Appendix).

IV. PHASE 1 CONSTRUCTION

Please reference the enclosed sheet entitled "Phase 1 Construction", for graphic presentation and most calculations. This "phase" represents the initial construction within the project area, to include:

1. Lang Avenue, a 40' F/F street.
2. The Marriott Courtyard hotel site (Tract 2A-2A-3), to be presented by separate plan.
3. Drainage inlets at the north end of Headline Blvd (or Road).
4. Temporary retention pond, 110,200 cubic feet in volume.
5. 42" storm drain pipe stubout across Lang Avenue

In summary, the following hydrological design conditions apply:

A. **Undeveloped Basin A,** generating 20 cfs, drains in a historical street flow manner towards Headline Blvd, where it is collected by a diversion channel and directed north (outside Headline R/W) to the proposed temporary retention pond.

The temporary retention pond collects flow from several basins, Basin A, Basin D (Headline Blvd) and half of Basin C. The pond is temporary until future outfalls for its flows are constructed (see Future Phase(s) Sheet). The DPM, see calculations shown on the sheet, require that the pond be sized for two 100-yr storm events, or 110,200 cubic feet. Since the pond collects flow from public R/W, the pond must be enclosed by a public drainage easement. Accordingly, the final design of the pond, and its associated upstream diversion channels, will be part of the public "work order" drawings for Lang Avenue. Design will comply with this report's criteria for the pond. The pond will likely approach 10 feet in depth and will utilize 2:1 side slopes. Due to the industrial/business nature of the area (ie, little or no children or pedestrian traffic), it is felt that no perimeter fencing of the pond is required. Additionally, since the pond is temporary with only moderate flow over the side slopes, the 2:1 side slopes are felt to be adequate in this area.

B. **Undeveloped Basin B** discharges approximately 20.3 cfs, in a historical sheet-flow manner, to Jefferson and Headline streets. No grading will be performed on this basin. Since this concept complies with the original Journal Center Drainage Master Plan (JCDMP), no downstream capacity analysis is performed. How much to Jefferson & How much to Headline?

C. **Developed Basin C**, the hotel site and Lang Avenue, will discharge approximately 73.9 cfs to Headline Blvd. This flow includes an approximate 37 cfs from the Frontage Road R/W, as identified in the JCDMP. Calculations in the Appendix show that Lang Avenue has capacity of 73.9 cfs with a flow depth on the curb of only 0.51', but energy calculations show an theoretical energy depth of 1.03'. This 1.03' depth exceeds the R/W ground elevation of 0.87'. We respectfully request the 1.03' energy depth be accepted, ie, a variance granted, for the following reasons:

1. The normal depth of flow (ie, the depth at which water is actually flowing) is only 0.51'.

2. Field inspection of Journal Center shows practically non-existent parking on the streets. Since parking along the curb is probably the leading cause of hydraulic jumps from normal depth to the energy grade line, Journal Center's lack of curbed vehicles will substantially reduce the frequency of these jumps.

3. The 0.16' variance is not an excessive request.

4. Denying the variance would mean extension of additional storm drain pipe southerly in Lang Avenue at the time of its construction. With no outfall to connect to at this time, the pipe will immediately require extraordinary measures to implement a working system.

5. The industrial/business park nature of this street means that there are fewer structures and greater setbacks to these structures than in a residential setting. Accordingly, the occurrence of hydraulic jumps in the street will pose significantly less property impact potential.

For the above justifications, we request a variance to permit the 0.51' normal flow depth and a theoretical 1.03' energy grade.

D. **Headline Blvd (Basin D)** has a capacity of 74.6 cfs (energy grade at 0.88'), while actual 100-yr storm flows equal only 41.3 cfs.

With the construction of Paseo del Norte in 1984ish, Headline Blvd's connection to Paseo right-of-way was terminated abruptly. Storm runoff flows that previously discharged to Paseo were left without an outfall and simply backed up in the Headline R/W until overflowing easterly onto Tract 1A-2. With the construction of the Phase I temporary retention pond in Basin A, an outfall for these street flows becomes available. Per the calculations and sketch provided in the Appendix, three new inlets are to be constructed in Headline Blvd. which discharge to the public retention pond.

To provide for a potential future storm drain extension (see Future Phase(s) Sheet) from the new Headline inlets, a 42" storm drain stubout is placed under Lang Avenue. The size and slope of this stub have been coordinated with the new drainage inlets' outlet pipe at the retention pond.

The 73.9 cfs in Lang Avenue must split when it impacts Headline Boulevard. Since the high point in Headline occurs on the north side of Lang Avenue's intersection with Lang Avenue, it is a conservative assumption to say that 50%, or 37 cfs, runs north on Headline Boulevard.

V. FUTURE PHASE(S)

Please reference the enclosed Future Phase(s) Sheet and calculations shown on the sheet itself. Although drainage basin lines have been realigned in some cases, inspection will show that the JCDMP is complied with by maintaining basin sizes and flow volumes.

A. Basin A (see Phase 1 Construction Sheet) has been divided into **Basins A-1 and A-2.** Developed Basin A-1 discharges approximately 30.8 cfs to the adjacent Domingo Baca Arroyo in

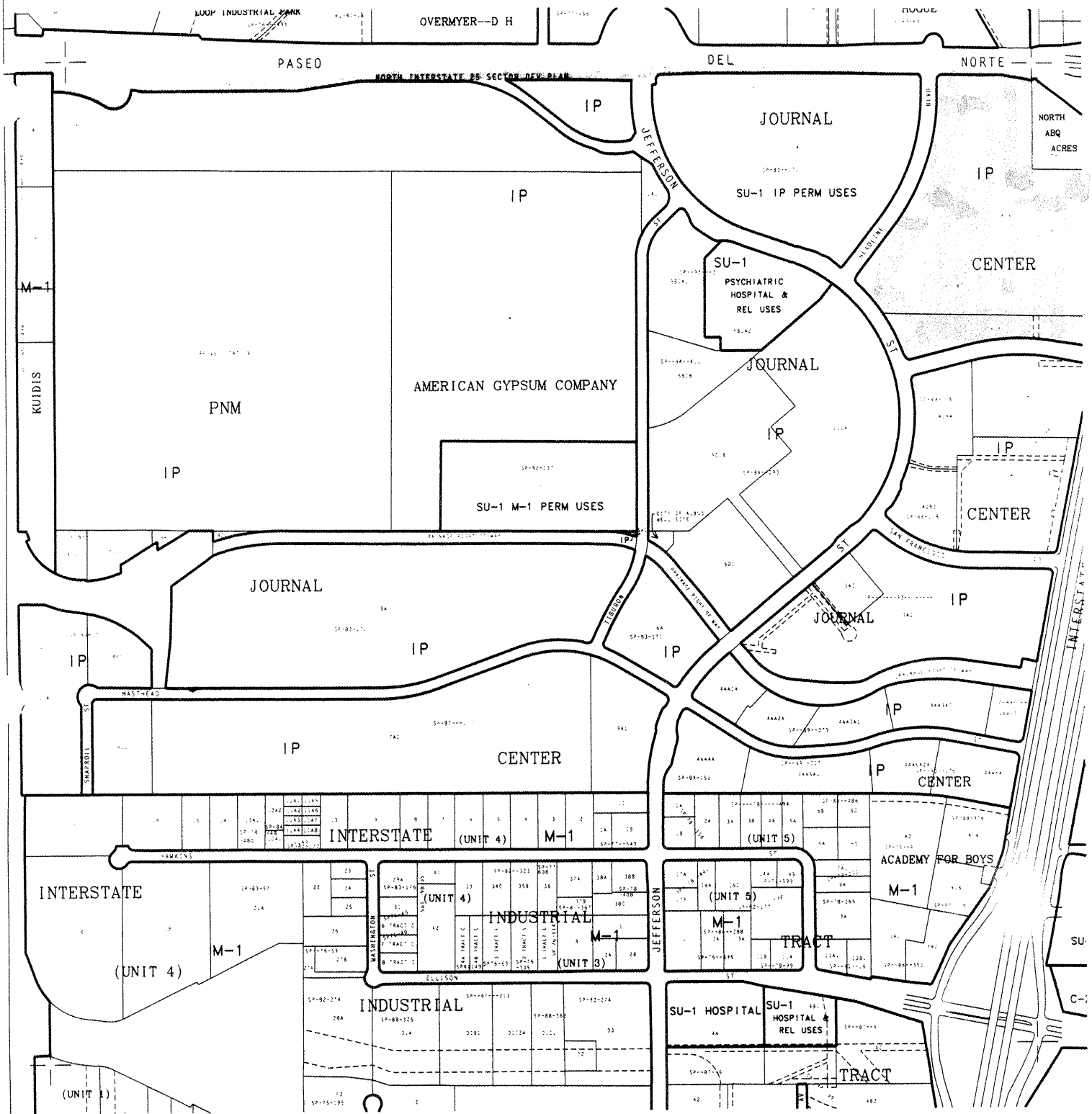
this future condition. Developed Basin A-2 will discharge approximately 24.7 cfs to a new future public storm drain system extending south along Headline Blvd. Further design and analysis of this storm drain system can occur in the future with a proposal to develop this tract. The temporary retention pond will be eliminated.

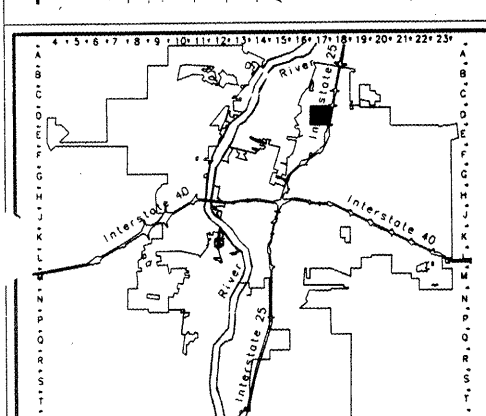
On Tract 2A-2A-2, the storm drain's construction from Lang Avenue to Jefferson can be deferred until actual development of the tract by utilizing a temporary earthen channel. However, modification to the existing system at Jefferson/Headline intersection will be necessary. This modification will require the extension of the storm drain pipes from the street to the tract (the earthen channel).

B. On Tract 2A-2A-2, **Basin B-1** will discharge to the existing storm drain system in the Jefferson/Headline intersection. The flow is estimated at 56.4 cfs. (to headline)

VI. CONCLUSION

This drainage master plan for Tracts 2A-2A-1, 2A-2A-2 and 2A-2A-3 (the hotel site) of Journal Center complies with the overall intent of the JCDMP, but modifies it slightly to fit proposed conditions. With this submittal, we request your approval of this plan and the various other approvals identified in the Introduction.





North

750 375 0 750

Scale: 1" = 750'

Albuquerque Geographic Information System

LEGAL DESCRIPTION

T11N

R3E

SEC 23

UNIFORM PROPERTY CODE

1-017-063

D-17-Z

LANG AVE. STREET CAPACITY

MANNING'S N = .0170 SLOPE = .0220

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.87	4	30.00	0.40	7	60.00	0.87
2	10.00	0.67	5	50.00	0.00			
3	10.10	0.00	6	50.10	0.67			

WSEL (FT)	DEPTH INC	FLOW AREA (SQ FT)	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOP WID
0.10	0.10	0.5	0.9	10.2	1.7	10.00
0.20	0.20	2.0	5.5	20.4	2.8	20.01
0.30	0.30	4.5	16.3	30.5	3.6	30.01
0.40	0.40	8.0	35.1	40.7	4.4	40.02
0.50	0.50	12.0	68.7	40.9	5.7	40.05
0.60	0.60	16.0	110.7	41.1	6.9	40.08
0.70	0.70	20.1	153.6	44.2	7.7	43.09
0.80	0.80	24.9	191.9	54.2	7.7	53.04
0.87	0.87	28.8	226.4	61.2	7.9	60.00

Depth: 0.51 * | Flow: 73.9 | Vel.: 5.8 *

* interpolating

@ S = 0.022

street flow required = 73.9 cfs

flow depth (normal depth) = 0.51'

energy grade = $0.51' + \frac{5.8^2}{29} = 1.03' > 0.87'$ ($\Delta = 0.16'$)

$F_R = 5.8/\sqrt{32.2(.51)} = 1.43$,

REQUEST VARIANCE TO ACCEPT 1.03' ENERGY GRADE, for the following reasons:

1) the normal depth, 0.51', is well below 0.87' (the grade @ R/W).
2) field inspection shows no parking along streets (parking on street is a leading cause of flow "jumps" to the energy grade line) in Journal Center.
3) Due to design criteria at the time of Journal Center's infrastructure construction, no downstream storm drains exist in Headline Blvd. to connect a new Lang Ave. storm drain system to.
4) the 0.16' variance request is not excessive.

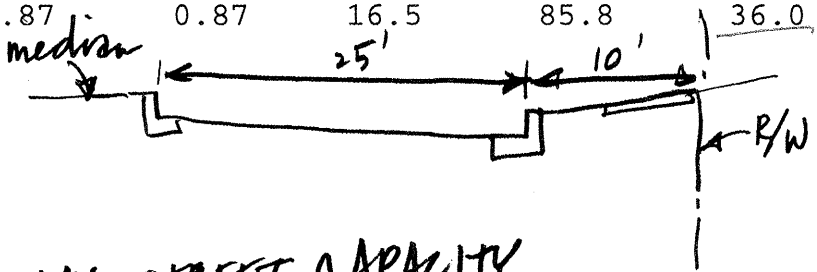
headline street capacity | North

MANNING'S N = .0170 SLOPE = .0100

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1	0.00	0.87	3	10.05	0.00	5	35.10	1.00
2	10.00	0.67	4	35.00	0.50			

HALF-STREET

WSEL (FT)	DEPTH INC	FLOW AREA (SQ FT)	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOP WID	
0.10	0.10	0.2	0.3	5.1	1.2	5.00	
0.20	0.20	1.0	1.9	10.2	1.9	9.99	
0.30	0.30	2.2	5.5	15.3	2.4	14.99	
0.40	0.40	4.0	11.8	20.4	3.0	19.99	
0.50	0.50	6.2	21.4	25.5	3.4	24.99	
0.60	0.60	8.7	37.3	25.7	4.3	25.01	half-street
0.70	0.70	11.3	54.6	27.3	4.8	26.54	
0.80	0.80	14.2	71.4	32.4	5.0	31.56	
0.87	0.87	16.5	85.8	36.0	5.2	35.07	



MAX. STREET CAPACITY

criteria: @ S = 1%, Max. Energy Grade = 0.87 (@ R/W Line)

then max. Flow = 37.3 cfs (half-street)

= 74.6 cfs (full-street)

check: $E = HGL + \frac{V^2}{29}$

$= 0.60 + \frac{4.3^2}{29}$

$= 0.88' \approx 0.87'$ OK

$F_R = 4.3 / \sqrt{32.2 \times 0.60} = 0.98$

Headline Road

No surface Overflow design for 2×Q100

A. Street Capacity

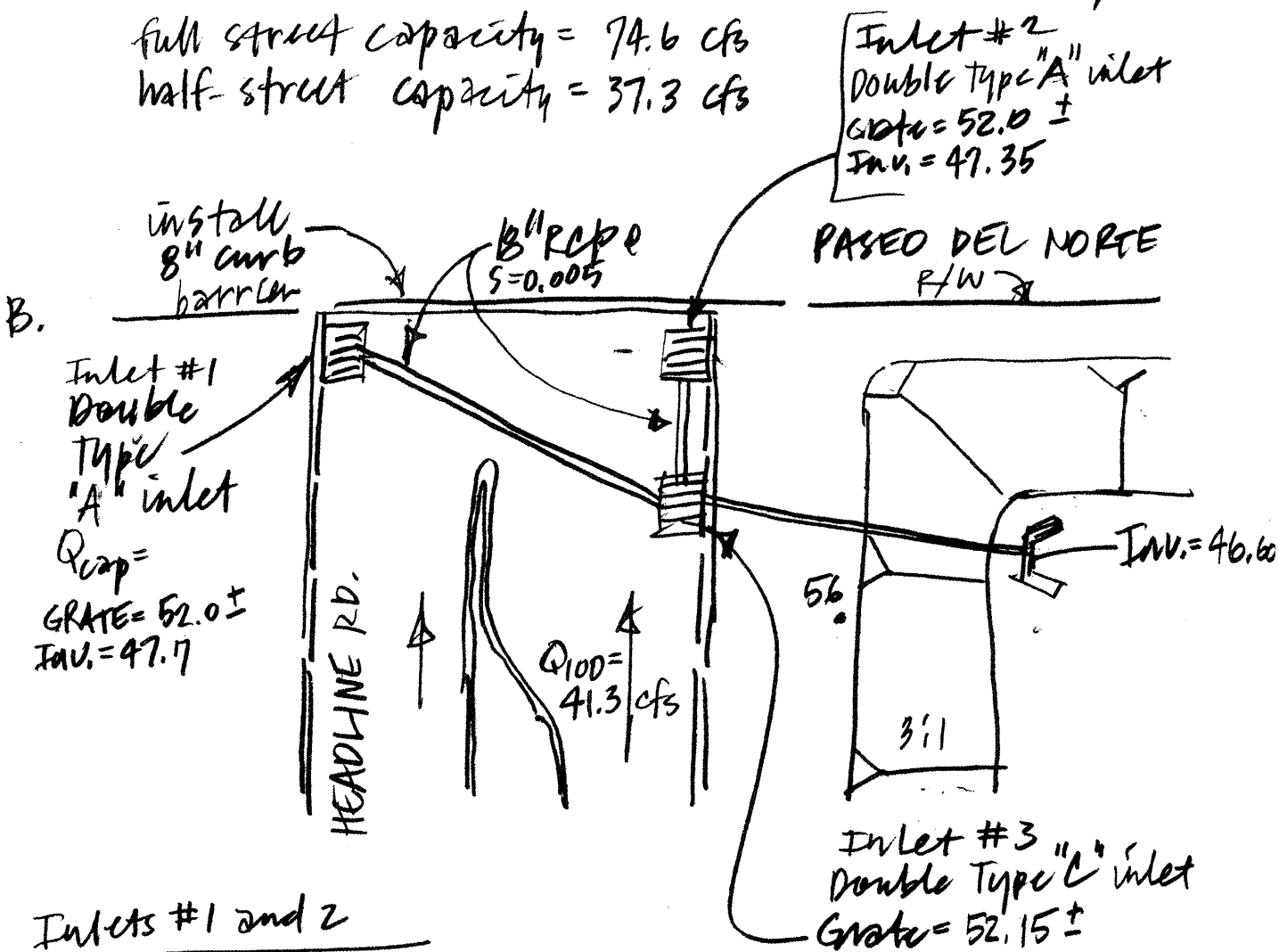
Minimum slope = 1%

From calculation sheet attached (Sht 3),

full street capacity = 74.6 cfs

half-street capacity = 37.3 cfs

B.



Inlets #1 and 2

Clogging cap. is allowed for by using Type "A" inlet by weir equation . . . (8" curb)

$Q = CLH^{3/2} = (3)\,L\,(0.67)^{3/2}$, where L = 9.3' per inlet

$= 3(9.3)\,0.67^{3/2} \times 2$

$= 30.5$ cfs

Inlets 1, 2, 3 = 30.5 + 12.5 = 43 cfs > 41.3 cfs OK

BOHANNAN-HUSTON INC.

PROJECT NAME _____ SHEET 2 OF _____

PROJECT NO. _____ BY _____ DATE _____

SUBJECT _____ CH'D _____ DATE _____

If all of Basin C drains to Jefferson Headline Street Capacity may be exceeded.

HEADLINE SOUTH

$S = 0.0050$ $n = .017$

~~$d = .70$ $\frac{1}{2}A = 8.7$ $\frac{1}{2}P = 27.3$ 54.6~~

~~$\frac{1}{2}Q = \frac{1.486}{0.017}\frac{(8.7)^{5/3}(.005)^{1/2}}{(27.3)^{2/3}} = 25.3$ cfs~~

~~$v = 2.9$ fps $F_R = .61$~~

$d = .80$ $\frac{1}{2}A = 14.2$ $\frac{1}{2}P = 32.4$

$\frac{1}{2}Q = \frac{1.486(14.2)^{5/3}(.005)^{1/2}}{0.017(32.4)^{2/3}} = 50.6$ cfs $F_R = .70$

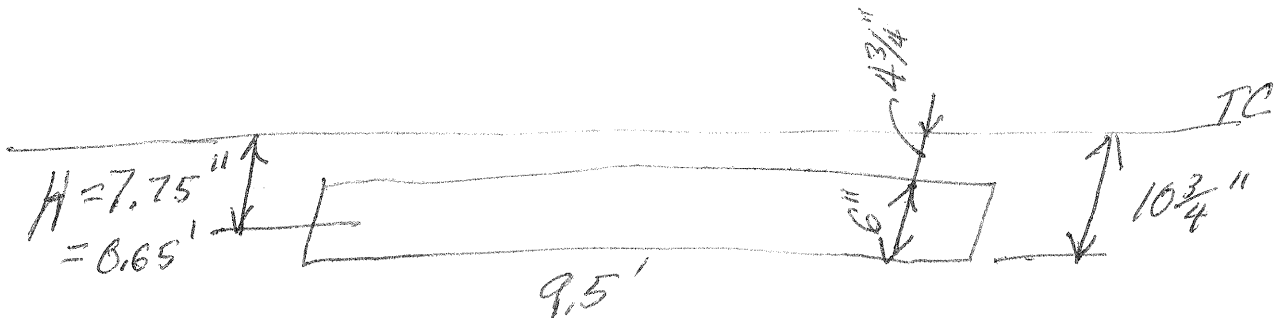
$V = 3.6$ fps

$d = .87$ $\frac{1}{2}A = 16.5$ $\frac{1}{2}P = 36.0$

$\frac{1}{2}Q = \frac{1.488(16.5)^{5/3}(.005)^{1/2}}{0.017(36.0)^{2/3}} = 60.6$ cfs $F_R = .69$

$V = 3.7$ fps

Throat Capacity



$$Q = 0.60(0.5 \times 9.5)\sqrt{64.4(0.65)} =$$

$$= 18.4 \text{ cfs / Dbl "A"}$$

D17103

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

May 6, 1991

PROJECT ACCEPTANCE LETTER

Sundance Mechanical
5920 Midway Park Blvd. N.E.
Albuquerque, NM 87109

RE: JEFFERSON STORM DRAIN IMPROVEMENTS, PROJECT NO. 4065

Dear Sir:

The above referenced project has been completed according to the plans and specifications. The project consisted of improvements at Hawkins St., Ellison St., and Masthead Street. Installation of 18", 24", and 30" RCP storm drain in Jefferson from Hawkins Street to the South Pino Arroyo with a connection to the existing concrete lined arroyo, and in Masthead Street from Jefferson St. to Tiburon St.

The City of Albuquerque accepts the referenced project as a whole and the contractual correction period began Feb. 26, 1991. The correction period on this project is for one (1) year.

Sincerely,

for Brian L. Speicher, P.E.
Chief Construction Engineer
Design/Construction Division
Engineering Group
Public Works Department

BLS:tp

GRADING NOTES

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2. CONTRACTOR SHALL OBTAIN AND ABIDE BY A TOPSOIL DISTURBANCE PERMIT FROM THE CITY OF ALBUQUERQUE. THE COST FOR REQUIRED CONSTRUCTION DUST AND EROSION CONTROL MEASURES SHALL BE INCIDENTAL TO THE PROJECT COST.
3. ALL WORK RELATIVE TO FOUNDATION CONSTRUCTION, SITE PREPARATION, AND PAVEMENT INSTALLATION, AS SHOWN ON THIS PLAN, SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE "GEOTECHNICAL INVESTIGATION," AS PROVIDED BY THE ARCHITECT OR OWNER. AS AS OTHER WORK SHALL, UNLESS OTHERWISE STATED OR PROVIDED FOR HEREON, BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION.
4. TWO WORKING DAYS PRIOR TO EXCAVATION, CONTRACTOR MUST CONTRACT LINE LOCATING SERVICE (765-1284) FOR LOCATION OF EXISTING UTILITIES.
5. PRIOR TO GRADING, ALL VEGETATION, DEBRIS, AND NEAR SURFACE ORGANICALLY CONTAMINATED SOIL SHALL BE STRIPPED FROM ALL AREAS TO BE GRADED. VEGETATION AND DEBRIS SHALL BE DISPOSED OF OFF-SITE. TOPSOIL STRIPPINGS SHALL BE DISPOSED OF OFF-SITE OR STOCKPILED FOR USE IN PLANTERS AND NON-STRUCTURAL FILLS.
6. EARTH SLOPES SHALL NOT EXCEED 3 HORIZONTAL TO 1 VERTICAL UNLESS SHOWN OTHERWISE.
7. IT IS THE INTENT OF THESE PLANS THAT THIS CONTRACTOR SHALL NOT PERFORM ANY WORK OUTSIDE OF THE PROPERTY BOUNDARIES.
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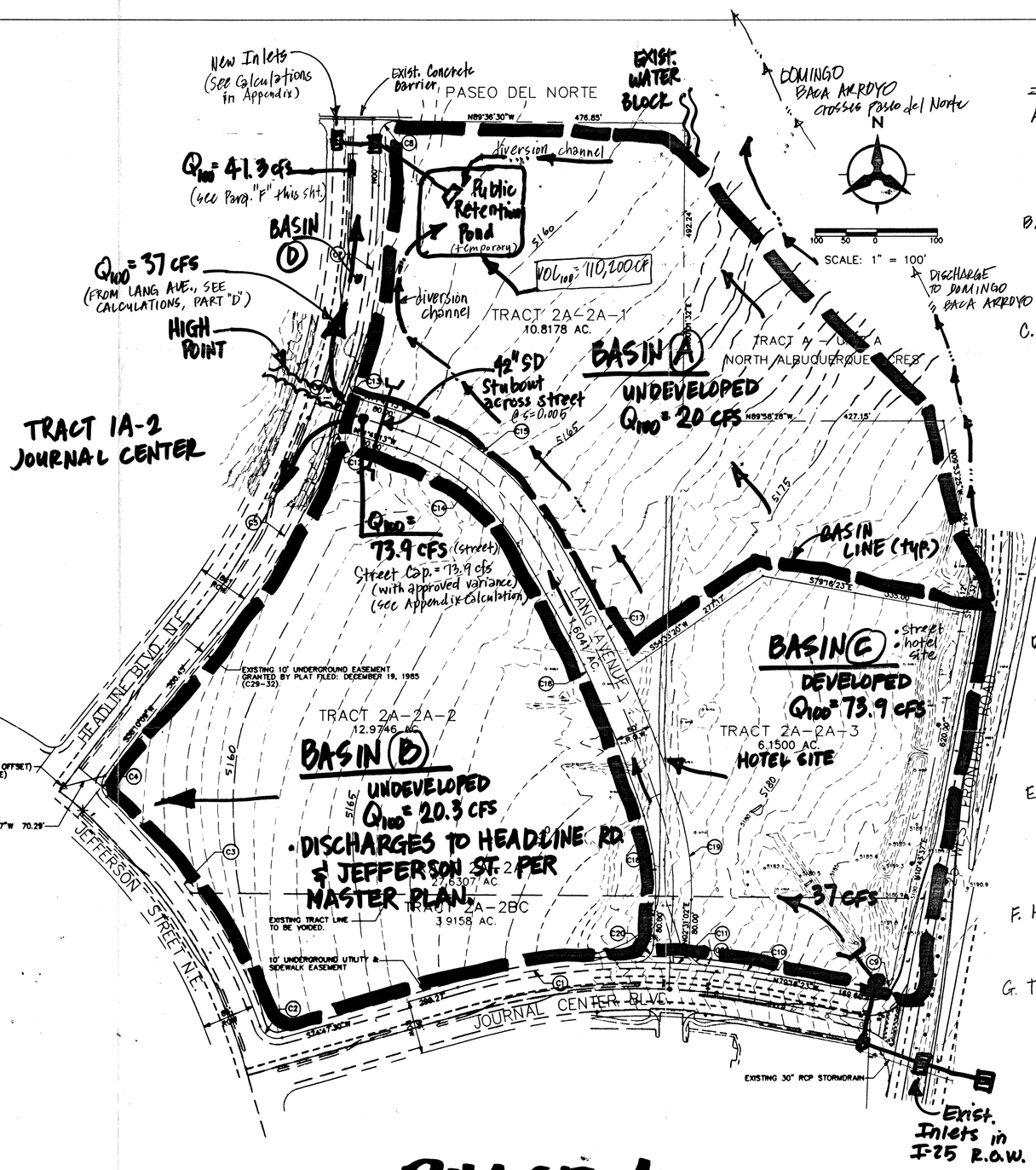


CALCULATIONS

A. BASIN (A)
- undeveloped, 12.8 acres
- Treatment "A" in Zone 2
- Q_{100} = 12.8 (1.56 cfs/acre) = 20 cfs

B. BASIN (B)
- undeveloped, 13 acres
- Treatment "A", zone 2
- Q_{100} = 13 (1.56 cfs/ac.) = 20.3 cfs

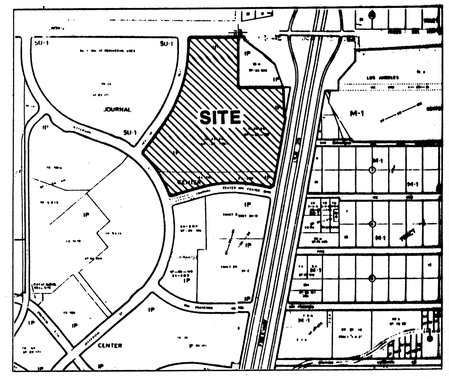
C. BASIN (C) - developed.
- hotel site (see calculations on Conceptual Grading/Drainage Plan enclosed)
  Q_{100} = 67 cfs
- new street (Lang Ave.)
  - 85% impervious, Treatment "b"
  - 15% Treatment "B"
  - total area = 1.6 ac.
  Q_{100} = 0.85(1.6 ac.) 4.7 + 0.15(1.6) 2.28 cfs/ac.
  Q_{100} = 6.9 cfs
- Total Basin (C) = 67 + 6.9 = 73.9 cfs

D. Lang Ave. discharges 73.9 cfs onto Headline Rd. Since the Headline high point occurs on the north side of this intersection, it can be assumed that most of the 73.9 cfs will flow south to Jefferson. However, conservatively, it will be assumed that 50% of the 73.9 cfs will flow north (or 37 cfs).

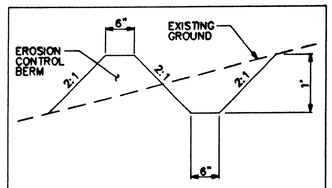
E. BASIN (D) - the full Headline R/W from Lang Ave. to Paseo del Norte (PDN).
- total area = 1 acre, 85% Treatment "D", 15% Treatment "B"
- Q_{100} = 0.85(1) 4.7 + 0.15(1) 2.28 = 4.3 cfs

F. Headline Rd. Capacity = 74.6 cfs (see calc's in Appendix)
Total Flow in Headline = 37 + 4.3 = 41.3 cfs << 74.6 cfs (cap.) OK
100% C = 73.9 cfs

G. Total Volume to Retention Pond....
Basins C, D = 6.15 + 1.6 + 1.0 = 8.75 ac. (developed)
Basin A = 12.8 ac. (undeveloped)
from Table A-8....
Volume (100-yr) = 0.5(0.85)(8.75 ac.) 2.12/12 + 0.5(.15)(8.75) 0.78/12 + 12.8(0.53/12) = 1.26 ac. ft
Design Volume = 2 (100-yr volume) = 2 (1.26) = 2.53 ac. ft = 110,200 cubic feet



VICINITY MAP
ZONE ATLAS D-17



EROSION CONTROL BERM
NTS
A BERM WITH THE DIMENSIONS SHOWN SHALL BE MAINTAINED DURING CONSTRUCTION AND PLACED AROUND THE FULL PROJECT PERIMETER.

EROSION CONTROL DETAIL

FLOOD INSURANCE MAP
REFERENCE: F.E.M.A. MAP NO.

PHASE 1 construction

1) Lang Avenue is contructed.
2) Tract 2A-2A-3 is developed (hotel site).
3) Install inlets @ north terminus of Headline
4) Construct retention pond & diversion channels.

LEGEND
- BASINLINE
- EROSION CONTROL BERM
- WATER BLOCK
- DRAINAGE FLOW DIRECTION

EXISTING LEGAL DESCRIPTION: TRACT 3A-1, JOURNAL CENTER

PROPOSED LEGAL DESCRIPTION: TRACTS 3A-1A, 3A-1B, 3A-1C, JOURNAL CENTER

NOV - 2

JOURNAL CENTER, TRACT 2A-2A-1, 2A-2A-2, 2A-2A-3

DRAINAGE MASTER PLAN

PHASE 1 CONSTRUCTION

JAMES R. TOPMILLER NEW MEXICO 9354 REGISTERED PROFESSIONAL ENGINEER

JOB NO.	94169.44
SHEET	OF
DRAWN BY:	M.E.S.
DATE:	8/24/94
CHECKED BY:	
SCALE:	

GRADING NOTES

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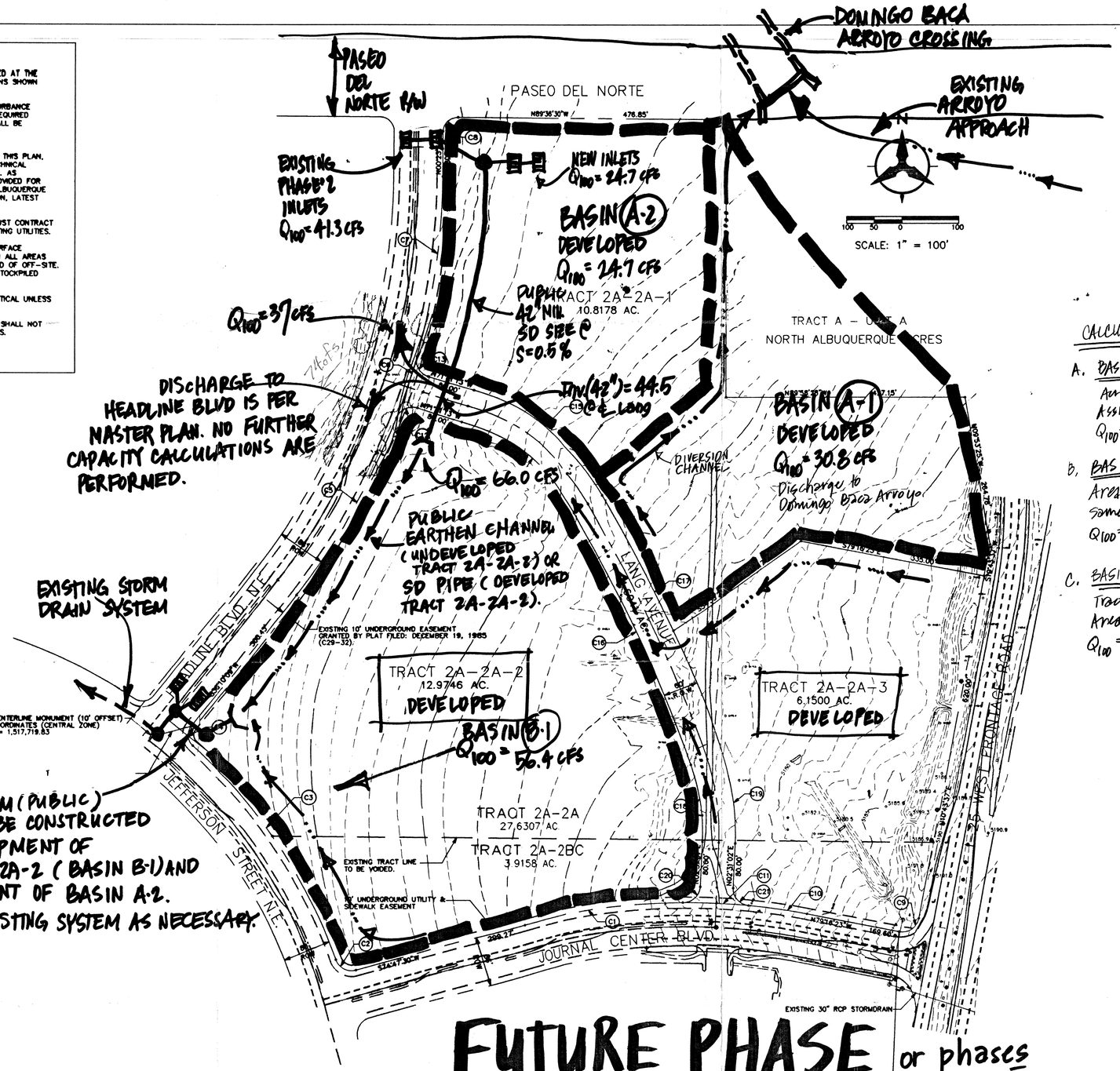
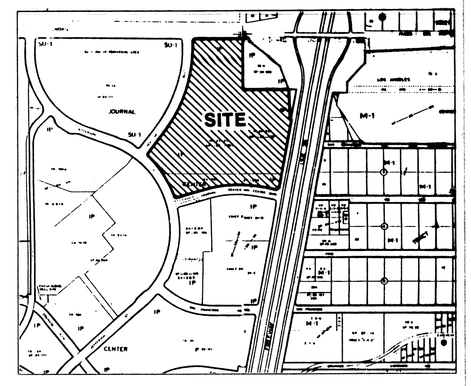




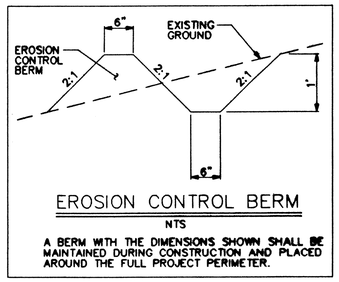
VICINITY MAP
ZONE ATLAS D-17

CALCULATIONS:

A. BASIN (A-1)
Acreage = 7.1 acres
Assume 85% impervious, 15% treatment B
$Q_{100} = 0.85(7.1)\,4.7 + 0.15(7.1)\,2.28 = 30.8$ cfs

B. BASIN (A-2)
Area = 5.7 acres
Same Assumption as for (A-1)
$Q_{100} = 0.85(5.7)\,4.7 + 0.15(5.7)\,2.28 = 24.7$ cfs

C. BASIN (B-1)
Tract 2A-2A-2
Area = 13 ac.
$Q_{100} = 13(0.85)\,4.7 + 13(0.15)\,2.28 = 56.4$ cfs



EROSION CONTROL BERM
NTS
A BERM WITH THE DIMENSIONS SHOWN SHALL BE MAINTAINED DURING CONSTRUCTION AND PLACED AROUND THE FULL PROJECT PERIMETER.

EROSION CONTROL DETAIL

FLOOD INSURANCE MAP
REFERENCE: F.E.M.A. MAP NO.

FUTURE PHASE or phases

1) BASIN (A-1) WILL BE FULLY DIVERTED TO THE DOMINGO BACA ARROYO
2) EXISTING PHASE 2 RETENTION POND IN BASIN (A-2) WILL BE REMOVED & REPLACED WITH STORM DRAIN EXTENSION TO LANG AVENUE.
3) EXTEND NEW EARTHEN CHANNEL TO JEFFERSON (IF TRACT 2A-2A-2 IS UNDEVELOPED) OR NEW STORM DRAIN PIPE TO JEFFERSON (IF TRACT IS DEVELOPED).
4) MODIFY EXIST. STORM SYSTEM, AS NECESSARY, AT JEFFERSON & HEADLINE, AND EXTEND NEW STORM DRAIN TO TRACT 2A-2A-2.

LEGEND
- BASINLINE
- EROSION CONTROL BERM
- WATER BLOCK
- DRAINAGE FLOW DIRECTION

EXISTING LEGAL DESCRIPTION: TRACT 3A-1, JOURNAL CENTER

PROPOSED LEGAL DESCRIPTION: TRACTS 3A-1A, 3A-1B, 3A-1C, JOURNAL CENTER

NOV 2

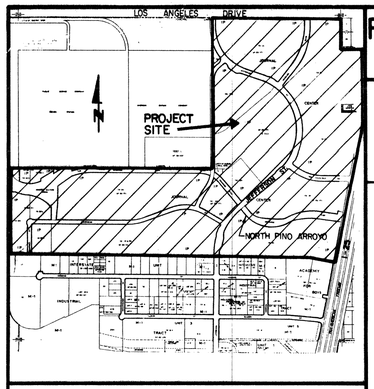
JOURNAL CENTER, TRACT 2A-2A-1, 2A-2A-2, 2A-2A-3

DRAINAGE MASTER PLAN

FUTURE PHASE(S)

PROJECT NO.: 94169.44
DRAWN BY: M.E.S.
CHECKED BY: J.R.T.
DATE: 8/24/94
SHEET OF
SCALE: 1" = 100'

SEAL: JAMES R. TOPMILLER NEW MEXICO 9354 REGISTERED PROFESSIONAL ENGINEER
10/31/94



LOCATION MAP
ZONE ATLAS D-17-Z

REVISED DRAINAGE MANAGEMENT PLAN FOR: JOURNAL CENTER

REVISED: NOVEMBER, 1990
PREPARED BY: BOHANNAN-HUSTON, INC.

The purpose of this revised drainage management plan is to update the plan to reflect the development of Journal Center since the plan was first approved in 1984. Since that time, Journal Center has been replatted, new streets constructed and new businesses have moved in. All new development has conformed to the 1984 plan and individual development plans have been approved by the City. The drainage concepts and basins remain substantially identical to the 1984 drainage management plan.

Additional functions of the updated plan will be to guide engineers in preparing future drainage plans and aiding City review of these future plans. Drainage basins which have been altered slightly have been re-analyzed and are shown in the table below to have no significant nor adverse impact on drainage facilities.

The criteria used for the minor re-analysis performed in this updated plan remained identical to that previously used and approved in the original 1984 plan.

The purpose of this plan is to outline drainage patterns, flow rates and facility capacities for the Journal Center Industrial/Commercial Park. The plan also serves to update recommendations made in an Octouer 1980 report entitled *Journal Center Interim Drainage Report* based on current thinking outlined in the Drainage Ordinance and Development Process Manual (DPM).

It is proposed that runoff from sites be allowed to discharge to street rights-of-way or facilities in a free discharge manner. This runoff will be directed to three primary outfalls: the North Pino Arroyo Channel, Jefferson Street storm drain and Los Angeles Blvd. The North Pino Arroyo is concrete lined with grass free board and discharges runoff into the North Diversion Channel. The Jefferson Street storm drain discharges into the Domingo Baca Arroyo, north of Los Angeles Blvd. Runoff collected in Los Angeles Blvd. discharges into the North Diversion Channel. The accompanying plan identifies flow directions and the location of the primary outfalls.

Runoff rates and facility capacities are contained in the tables below. Based on this information, three points should be highlighted:

1. Current runoff criteria yields flow rates less than those used in the 1980 report.
2. Approximately 112 cfs will be directed to Los Angeles Blvd. during the 100-year storm. 226 cfs is collected in the storm drain system and conveyed to the Domingo Baca Arroyo. The 112 cfs represents a figure less than the undeveloped flow rate from the site prior to its development.

1984 TEXT

3. Section 8C of the Drainage Ordinance stipulates that the curb flow line depth shall not exceed 0.5 feet during the 10-year storm in arterial street sections. As the values indicate, this criteria is exceeded at several locations along Jefferson Street.

As provided in Section 6H of the Ordinance, a variance to the requirement outlined in No. 3 is requested for the following reasons:

1. Considerable expense has already been applied to the construction of drainage facilities in the area. The Pino Arroyo Channel and Jefferson Street storm sewer represent an investment of approximately 2 million dollars. Design was guided and approved based upon criteria in effect at the time assuming free discharge from all parcels.
2. The total length of street over which the criteria is exceeded is approximately 3000 feet. This represents a relatively short distance compared to the total length of Jefferson Street running through and south from the project.

BASED ON THE INFORMATION PRESENTED IN THIS PLAN, IT IS PROPOSED THAT A FREE DISCHARGE MANAGEMENT APPROACH BE APPROVED FOR ALL PARCELS WITHIN THE PARK, AND THAT A VARIANCE TO SECTION 8C BE GRANTED FOR THE 10-YEAR FLOW CRITERIA IN JEFFERSON STREET.

BASIN HYDROLOGY (Developed Conditions)

BASIN ID	AREA	DISCHARGES TO	LONGEST REACH (FT.)	SLOPE (AVERAGE)	TC (MIN.)	INTENSITY (IN/HR.)	Q_{100}	Q_{100} 1980 REPORT
A **	5.4	Headline	1200	0.02	10.0	4.7	81	95
B-1**	18.0	Jefferson	1650		10.0	4.7	68	N.A
C	27.6	Diversion Berm	1200		10.0	4.7	102	116
D-1	14.3	Tiburon	1000		10.0	4.7	54	N.A
E-1	13.1	Jefferson	1100		10.0	4.7	49	NA
F	19.6	P.no Arroyo	1250		10.4	4.6	72	73
G	22.5	Pino Arroyo	1250		10.4	4.6	83	84
GST	3.0	Jefferson	500		10.0	4.7	12	12
H-1	29.1	Tiburon	1600		10.0	4.7	109	N A
I	5.2	Pino Arroyo	450		10.0	4.7	20	21
J	4.6	Pino Arroyo	450		10.0	4.7	17	19
JST	0.6	Masthead	1000		10.0	4.7	3	2
K	15.6	Pino Arroyo	1200		10.0	4.7	59	63
KST	1.3	Masthead	1300		10.0	4.7	5	5
L	15.4	Pino Arroyo	1200		10.0	4.7	58	64
LST	1.4	Masthead	1200		10.0	4.7	5	6
M	25.5	Masthead	1200		10.0	4.7	96	87
N	13.0	Masthead	1200		10.0	4.7	49	51
NCH	3.4	Masthead	650		10.0	4.7	13	14
O	5.3	Snaproll	650	0.02	10.0	4.7	20	22
A-1**	19.6	Headline	N.A.	N.A.	N.A.	N.A.	85	N.A.

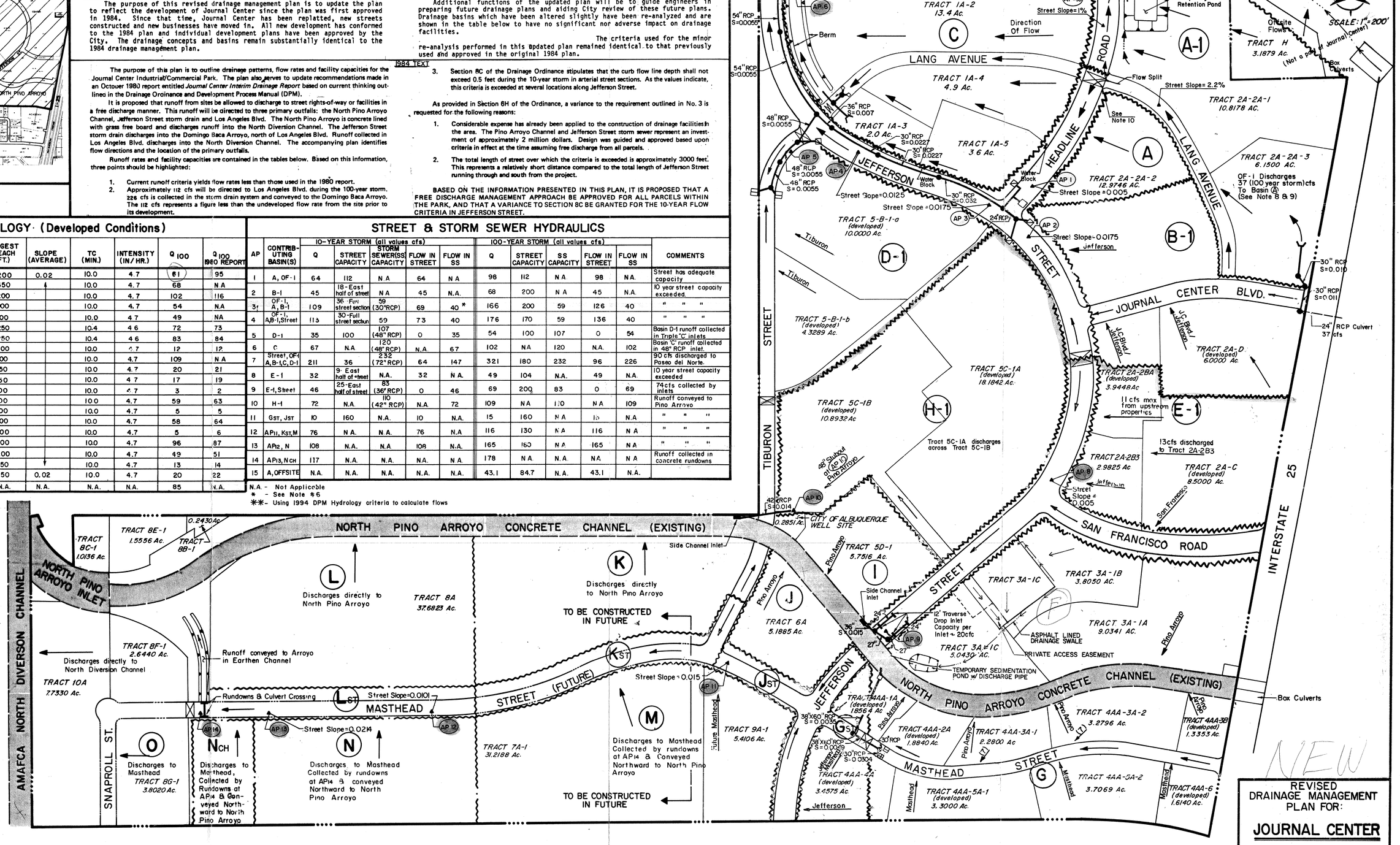
STREET & STORM SEWER HYDRAULICS

AP	CONTRIBUTING BASIN(S)	10-YEAR STORM (all values cfs) Q	STREET CAPACITY	STORM SEWER(SS) CAPACITY	FLOW IN STREET	FLOW IN SS	100-YEAR STORM (all values cfs) Q	STREET CAPACITY	SS CAPACITY	FLOW IN STREET	FLOW IN SS	COMMENTS
1	A, OF-1	64	112	N.A	64	N.A	98	112	N.A	98	N.A.	Street has adequate capacity
2	B-1	45	18-East half of street	N.A	45	N.A.	68	200	N A	45	N.A.	10 year street capacity exceeded.
3†	OF-1, A, B-1	109	36-Full street section	59 (30"RCP)	69	40 *	166	200	59	126	40	" " "
4	OF-1, A,B-1,Street	113	30-Full street section	59	73	40	176	170	59	136	40	" " "
5	D-1	35	100	107 (48"RCP)	0	35	54	100	107	0	54	Basin D-1 runoff collected in Triple 'C' inlets
6	C	67	N.A	120 (48"RCP)	N.A.	67	102	NA	120	N.A.	102	Basin 'C' runoff collected in 48" RCP inlet.
7	Street, OF-1 A,B-1,C, D-1	211	36	232 (72"RCP)	64	147	321	180	232	96	226	90 cfs discharged to Paseo del Norte.
8	E-1	32	9-East half of street	N.A.	32	N A.	49	104	N.A.	49	N.A.	10 year street capacity exceeded
9	E-1, Street	46	25-East half of street	83 (36"RCP)	0	46	69	200	83	0	69	74cfs collected by inlets
10	H-1	72	N.A.	110 (42" RCP)	N.A	72	109	NA	110	N A	109	Runoff conveyed to Pino Arroyo
11	GST, JST	10	160	N.A.	10	N.A.	15	160	N A	15	N.A	" " "
12	AP11, KST,M	76	N A.	N.A.	76	N.A	116	130	N A	116	N A	" " "
13	AP12, N	108	N.A.	N.A.	108	N.A.	165	150	N A	165	N A	" " "
14	AP13, NCH	117	N.A.	N.A.	N.A.	N A	178	N A.	N.A.	NA	N A	Runoff collected in concrete rundowns
15	A, OFFSITE	N.A.	N.A.	N.A.	N.A.	N.A.	43.1	84.7	N.A.	43.1	N.A.	

N.A. - Not Applicable
* - See Note #6
** - Using 1994 DPM Hydrology criteria to calculate flows

NOTES

1. Basin Hydrology based on DPM Criteria, Chapter 22 (DPM Edition, 1984).
   a. Tc- Plate 22.2 13-1 (10 minute minimum)
   b. Intensity - Plate 22.2 D-2
   c. 'C' for 85% Impervious = 0.80 - Plate 22.2 C-1
   d. 100 year rainfall= 2.2 in. - Plate 22.2 D-1
2. Street capacities determined using DPM Criteria, Chapter 22, Plates 22.3 D-1 thru 22.3 D-4 (DPM Edition, 1984).
3. Storm sewer sized to operate under pressure flow - Plate 22.3 B-5.
4. $Q_{10} = 0.657(Q_{100})$ - Plate 22.2 D-1 (DPM Edition, 1984).
5. Jefferson Street classified as min. arterial- 10 year street capacities based on 0.5' at curb flowline.
6. Double 'B' and 'C' inlets assumed to collect an average of 10cfs during 100-year flow.
7. The south half (max.) of these lots may drain to Masthead Street as necessary.
8. The drainage basin for this 37 cfs (100-year storm) discharge is located east of and within the right-of-way of I-25. Calculations for this discharge can be found under City Drainage file D-17/D3Q. Handling of this 37 cfs discharge will occur as follows:
   a. Interim (undeveloped Basin A and B-1) Plan - As shown, flow is discharged to the surface and will drain by overland flow to Headline Road.
   b. Ultimate Plan - With the development of Basins A and B-1, the flow will be carried by surface facilities or underground storm drains to the Domingo Baca Arroyo or to Headline Road. This extension of drainage facilities may be performed in phases, i.e., each development will construct only its required portion of the facility, in accordance with the Drainage Ordinance and approved site-specific drainage plans.
9. The 37 cfs (100-year) offsite flow is labeled OF-1. The 10-year storm value is 24 cfs.
10. The high point in Headline Blvd. is located at the Lang Ave. intersection. This condition will cause a flow split. Approximately 37 cfs is assumed to flow north on Headline Blvd.



LEGEND

- PROPERTY LINE
- BASIN DIVIDE
- WATER BLOCK
- DOUBLE 'B' INLET
- DOUBLE 'C' INLET
- DOUBLE 'D' INLET
- TRIPLE 'C' INLET
- STORM SEWER & MANHOLE
- Pino Arroyo MAJOR FLOW DIRECTION & DISCHARGE LOCATION
- (AP2) ANALYSIS POINT

DEVELOPED TRACTS ARE NOTED AS SUCH

NEW

REVISED DRAINAGE MANAGEMENT PLAN FOR:

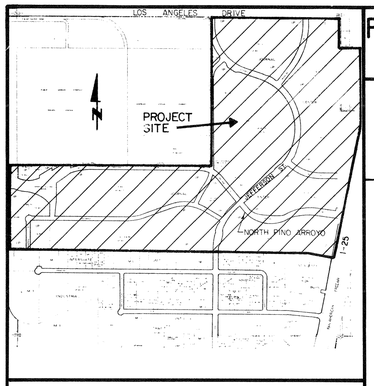
JOURNAL CENTER

DECEMBER 1992

JAMES B. THRAILKILL NEW MEXICO 9254 REGISTERED PROFESSIONAL ENGINEER
12-11-92 10-31-92
2-6-90 10-10-90 11-14-90

JOB No.9011001

ORIGINAL PLAN JULY 1984
REVISION NO.4 NOVEMBER 1990
REVISION NO. 5 DECEMBER 1992



LOCATION MAP
ZONE ATLAS D-17-Z

REVISED DRAINAGE MANAGEMENT PLAN FOR: JOURNAL CENTER

REVISED: NOVEMBER, 1990
PREPARED BY: BOHANNAN-HUSTON, INC.

The purpose of this revised drainage management plan is to update the plan to reflect the development of Journal Center since the plan was first approved in 1984. Since that time, Journal Center has been replatted, new streets constructed and new businesses have moved in. All new development has conformed to the 1984 plan and individual development plans have been approved by the City. The drainage concepts and basins remain substantially identical to the 1984 drainage management plan.

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The criteria used for the minor re-analysis performed in this updated plan remained identical to that previously used and approved in the original 1984 plan.

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1984 TEXT

3. Section RC of the Drainage Ordinance stipulates that the curb flow line depth shall not exceed 0.5 feet during the 10-year storm in arterial street sections. As the values indicate, this criteria is exceeded at several locations along Jefferson Street.

As provided in Section 6H of the Ordinance, a variance to the requirement outlined in No. 3 is requested for the following reasons:

1. Considerable expense has already been applied to the construction of drainage facilities in the area. The Pino Arroyo Channel and Jefferson Street storm sewer represent an investment of approximately 2 million dollars. Design was guided and approved based upon criteria in effect at the time assuming free discharge from all parcels.
2. The total length of street over which the criteria is exceeded is approximately 3000 feet. This represents a relatively short distance compared to the total length of Jefferson Street running through and south from the project.

BASED ON THE INFORMATION PRESENTED IN THIS PLAN, IT IS PROPOSED THAT A FREE DISCHARGE MANAGEMENT APPROACH BE APPROVED FOR ALL PARCELS WITHIN THE PARK, AND THAT A VARIANCE TO SECTION 8C BE GRANTED FOR THE 10-YEAR FLOW CRITERIA IN JEFFERSON STREET.

BASIN HYDROLOGY (Developed Conditions)

BASIN ID	AREA	DISCHARGES TO	LONGEST REACH (FT.)	SLOPE (AVERAGE)	TC (MIN.)	INTENSITY (IN/HR.)	Q_{100}	Q_{100} 1980 REPORT
A	16.2	Headline	1200	0.02	10.0	4.7	61	95
B-1	18.0	Jefferson	1650	↓	10.0	4.7	68	N.A.
C	27.6	Diversion Berm	1200		10.0	4.7	102	116
D-1	14.3	Tiburon	1000		10.0	4.7	54	N.A.
E-1	13.1	Jefferson	1100		10.0	4.7	49	NA
F	19.6	Pino Arroyo	1250		10.4	4.6	72	73
G	22.5	Pino Arroyo	1250		10.4	4.6	83	84
JST	3.0	Jefferson	500		10.0	4.7	12	12
H-1	29.1	Tiburon	1600		10.0	4.7	109	N.A.
I	5.2	Pino Arroyo	450		10.0	4.7	20	21
J	4.5	Pino Arroyo	450		10.0	4.7	17	19
JST	0.6	Masthead	1000		10.0	4.7	3	2
K	13.6	Pino Arroyo	1200		10.0	4.7	59	63
KST	1.3	Masthead	1300		10.0	4.7	5	5
L	15.4	Pino Arroyo	1200		10.0	4.7	58	64
LST	1.4	Masthead	1200		10.0	4.7	5	6
M	25.5	Masthead	1200		10.0	4.7	96	87
N	13.0	Masthead	1200		10.0	4.7	49	51
NCH	3.4	Masthead	650	↓	10.0	4.7	13	14
O	5.3	Snaproll	650	0.02	10.0	4.7	20	22
A-1	9.4	Headline	1100	0.02	10.0	4.7	35	—

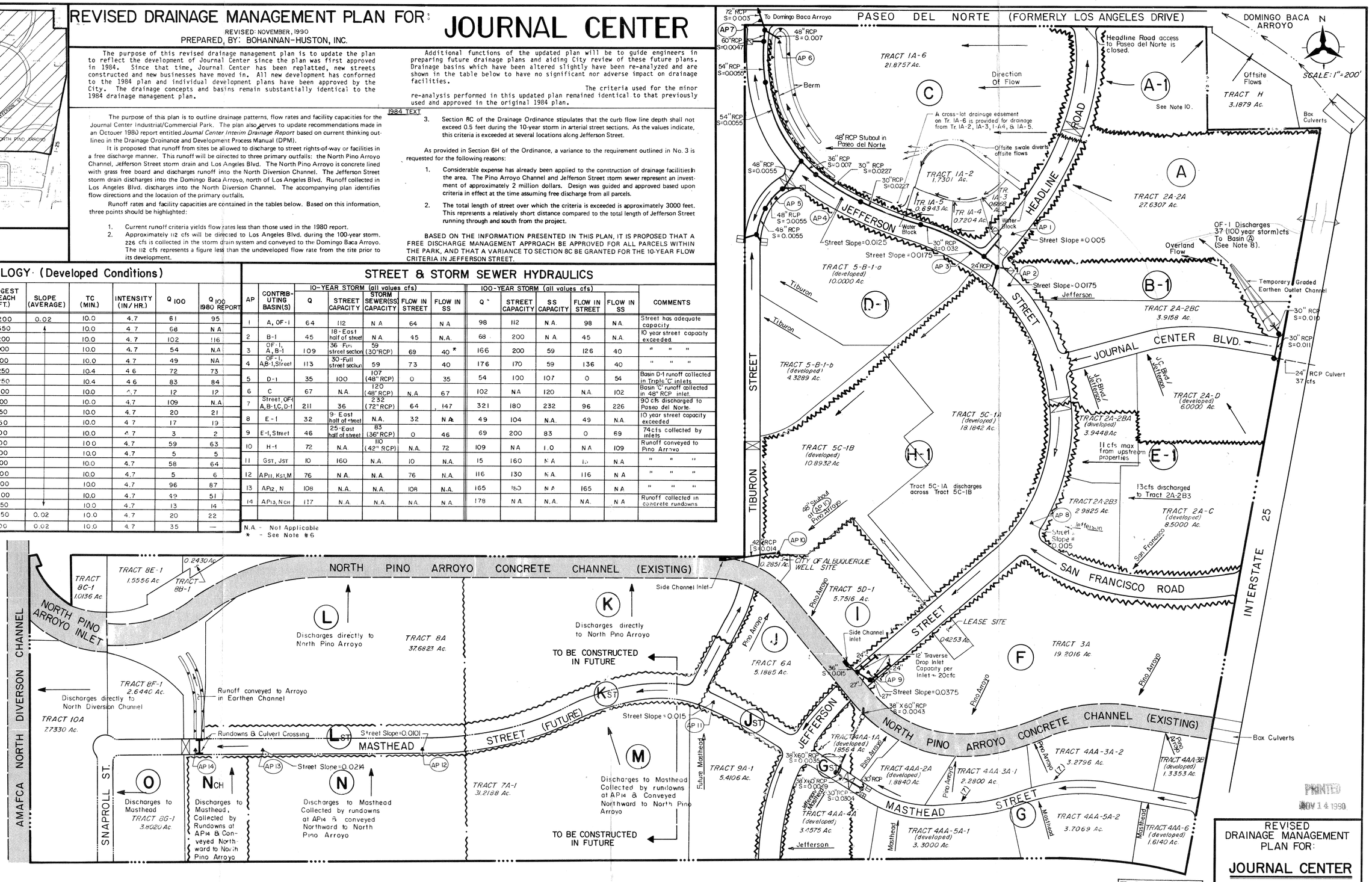
STREET & STORM SEWER HYDRAULICS

AP	CONTRIBUTING BASIN(S)	10-YEAR STORM (all values cfs) Q	STREET CAPACITY	STORM SEWER(SS) CAPACITY	FLOW IN STREET	FLOW IN SS	100-YEAR STORM (all values cfs) Q	STREET CAPACITY	SS CAPACITY	FLOW IN STREET	FLOW IN SS	COMMENTS
1	A, OF-1	64	112	N.A.	64	N.A.	98	112	N.A.	98	N.A.	Street has adequate capacity
2	B-1	45	18-East half of street	N.A.	45	N.A.	68	200	N.A.	45	N.A.	10 year street capacity exceeded.
3	OF-1, A, B-1	109	36-Full street section	59 (30"RCP)	69	40 *	166	200	59	126	40	" " "
4	OF-1, A,B-1,Street	113	30-Full street section	59	73	40	176	170	59	136	40	" " "
5	D-1	35	100	107 (48"RCP)	0	35	54	100	107	0	54	Basin D-1 runoff collected in Triple "C" inlets
6	C	67	N.A.	120 (48"RCP)	N.A.	67	102	N.A.	120	N.A.	102	Basin "C" runoff collected in 48" RCP inlet.
7	Street, OF-1 A,B-1,C,D-1	211	36	232 (72"RCP)	64	147	321	180	232	96	226	90 cfs discharged to Paseo del Norte.
8	E-1	32	9-East half of street	N.A.	32	N.A.	49	104	N.A.	49	N.A.	10 year street capacity exceeded
9	E-1, Street	46	25-East half of street	83 (36"RCP)	0	46	69	200	83	0	69	74 cfs collected by inlets
10	H-1	72	N.A.	110 (42" RCP)	N.A.	72	109	N.A.	110	N.A.	109	Runoff conveyed to Pino Arroyo
11	GST, JST	10	160	N.A.	10	N.A.	15	160	N.A.	15	N.A.	" " "
12	AP11, KST, M	76	N.A.	N.A.	76	N.A.	116	130	N.A.	116	N.A.	" " "
13	AP12, N	108	N.A.	N.A.	108	N.A.	165	150	N.A.	165	N.A.	" " "
14	AP13, NCH	117	N.A.	N.A.	N.A.	N.A.	178	N.A.	N.A.	N.A.	N.A.	Runoff collected in concrete rundowns

N.A. - Not Applicable
* - See Note #6

NOTES

1. Basin Hydrology based on DPM Criteria, Chapter 22 (DPM Edition, 1984).
   a. Tc- Plate 22.2 13-1 (10 minute minimum)
   b. Intensity - Plate 22.2 D-2
   c. 'C' for 85% Impervious = 0.80 - Plate 22.2 C-1
   d. 100 year rainfall= 2.2 in. - Plate 22.2 D-1
2. Street capacities determined using DPM Criteria, Chapter 22, Plates 22.3 D-1 thru 22.3 D-4 (DPM Edition, 1984).
3. Storm sewer sized to operate under pressure flow - Plate 22.3 B-5.
4. $Q_{10} = 0.657(Q_{100})$ - Plate 22.2 D-1 (DPM Edition, 1984).
5. Jefferson Street classified as min. arterial- 10 year street capacities based on 0.5' at curb flowline.
6. Double 'B' and 'C' inlets assumed to collect an average of 10cfs during 100-year flow.
7. The south half (max.) of these lots may drain to Masthead Street as necessary.
8. The drainage basin for this 37 cfs (100-year storm) discharge is located east of and within the right-of-way of I-25. Calculations for this discharge can be found under City Drainage file D-17/030. Handling of this 37 cfs discharge will occur as follows:
   a. Interim (undeveloped Basin A and B-1) Plan - As shown, flow is discharged to the surface and will drain by overland flow to Headline Road.
   b. Ultimate Plan - With the development of Basins A and B-1, the flow will be carried by surface facilities or underground storm drains to the Domingo Baca Arroyo or to Headline Road. This extension of drainage facilities may be performed in phases, i.e., each development will construct only its required portion of the facility, in accordance with the Drainage Ordinance and approved site-specific drainage plans.
9. The 37 cfs (100-year) offsite flow is labeled OF-1. The 10-year storm value is 24 cfs.
10. Drainage from Basin A-1 and Tract H (offsite) should be directed to the Domingo Baca Arroyo as much as possible.



LEGEND

- PROPERTY LINE
- BASIN DIVIDE
- WATER BLOCK
- DOUBLE 'B' INLET
- DOUBLE 'C' INLET
- DOUBLE 'D' INLET
- TRIPLE 'C' INLET
- STORM SEWER & MANHOLE
- Pino Arroyo MAJOR FLOW DIRECTION & DISCHARGE LOCATION
- (AP2) ANALYSIS POINT

DEVELOPED TRACTS ARE NOTED AS SUCH

RECEIVED
NOV 15 1990
HYDROLOGY DIVISION

PRINTED
NOV 14 1990

REVISED DRAINAGE MANAGEMENT PLAN FOR:
JOURNAL CENTER
OCTOBER 1990

ORIGINAL PLAN JULY 1984
REVISION NO. 4 NOVEMBER 1990

JOB No 9011001

1-30-90
3-6-90
10-10-90
11-14-90