

## DRAINAGE CALCULATIONS

### EXISTING CONDITIONS:

The site is located on the east side of Heritage Court, N.E. The site is presently undeveloped. The property to the north, Tract B, is undeveloped, adjacent to the site, but the east half which fronts on Wyoming Blvd. is developed with a small office building. It is the intent of this project to move this small office building from its present location to a new foundation with basement on the site. The property to the east is a Phillips 66 convenience store which is separated from the site by a retaining wall of approximately 4' in height. The property to the south is occupied by a medical office building and a paved parking lot. To the west is Heritage Court which is paved with standard curb and gutter. The drawing on this sheet shows two tracts: Tract A-2-A and Tract A-2-B. The work that this plan covers is all confined to Tract A-2-A. There is a 64' common access, utility parking and drainage easement which will serve both tracts. (See note on plan).

### PROPOSED CONDITIONS:

It is proposed, as mentioned above, to construct a new foundation for the office building on Tract B and move the existing office building to the new basement foundation on the site. Tract B will be developed by others as a Burger King restaurant. A conceptual grading and drainage plan has been submitted for the Burger King restaurant. It is proposed to construct the relocated office building without any retaining walls along the north boundary so that off-site flow can be accepted from Tr. B. Once the Burger King restaurant has been constructed, there will no longer be any off-site flow onto Tract A-2-A.

### DRAINAGE CRITERIA:

The calculations shown on this plan were prepared in accordance with Section 22.2, Hydrology, of the Development Process Manual, Volume 2, Design Criteria, for the City of Albuquerque, in cooperation with Bernalillo County, New Mexico and the Albuquerque Metropolitan Arroyo Flood Control Authority, January, 1993.

### PRECIPITATION ZONE:

The site is east of San Mateo Boulevard and is, therefore, in Precipitation Zone 3.

### LAND TREATMENT AREAS, EXCESS PRECIPITATION AND UNIT PEAK DISCHARGE:

The peak discharge per acre and excess precipitation are shown for the four land treatments in Zone 3 in the table below, and the values shown are from the City of Albuquerque D.P.M. Also shown are the existing and proposed land treatment areas.

LAND TREAT.	q (cfs/acre)	E (in)	100-yr. 10-yr.	%	So. Ft.	Acres	%	So. Ft.	Acres
A	1.87	0.58	0.66	0.19	100.0	3.814	0.0876	0.0	0.0000
B	2.60	1.19	0.92	0.36	0.0	0.0000	27.6	1.052	0.0242
C	3.45	2.00	1.29	0.62	0.0	0.0000	0.0	0.0000	0.0000
D	5.02	3.39	2.36	1.50	0.0	0.0000	72.4	2.762	0.0634
Totals					100.0	3.814	0.0876	100.0	3.814

### PEAK DISCHARGE:

EXISTING CONDITIONS:  
 $Q_{100} = 0.0876 \times 1.87 = 0.16$  cfs  $Q_{10} = 0.0876 \times 0.58 = 0.05$  cfs

### DEVELOPED CONDITIONS:

$Q_{100} = 2.60 \times 0.0242 + 5.02 \times 0.0634 = 0.38$  cfs  
 $Q_{10} = 1.19 \times 0.0242 + 3.39 \times 0.0634 = 0.24$  cfs

### VOLUME, 100-YEAR, 6-HOUR:

EXISTING CONDITIONS:  
 $V_{100} = (0.66 \times 3.814) / 12 = 210$  cf  $V_{10} = (0.19 \times 3.814) / 12 = 60$  cf

### DEVELOPED CONDITIONS:

$V_{100} = (0.92 \times 1.052 + 2.36 \times 2.762) / 12 = 623$  cf  
 $V_{10} = (0.36 \times 1.052 + 1.50 \times 2.762) / 12 = 377$  cf

### SUMMARY OF ON-SITE VOLUMES AND PEAK DISCHARGE RATES:

	V100(CF)	V10(CF)	Q100(CFS)	Q10(CFS)
DEVELOPED	623	377	0.38	0.24
EXISTING	210	60	0.16	0.05
DECREASE	413	317	0.22	0.19

### OFF-SITE FLOW VOLUMES AND PEAK DISCHARGE RATES:

Tract B north of the site is roughly 141' x 215'. Approximately half flows into Heritage Place and the other half flows into the site by sheet flow across the north property line of the site. When the Burger King Restaurant is finished, all flow will be directed to Heritage Court.

Area = 141' x 215' = 30,315 sf. half = 15,158 sf. (0.3480 ac)  
 $E_w = 0.5 \times 0.66 + 0.5 \times 2.36 = 1.51$  cfs  $q_w = 0.5 \times 1.87 + 0.5 \times 5.02 = 3.45$  cfs  
 (Assuming half is Treatment A and half is Treatment D.)  
 $V_{100} = (15,158 \times 1.51) / 12 = 1,907$  cf  $Q_{100} = 0.3480 \times 3.45 = 1.20$  cfs

### ANALYSIS OF DOWNSTREAM CONDITIONS:

The site is an infill site, meaning that practically every other property around it is developed and the development of this site will not significantly impact downstream streets and drainage facilities. The increase in discharge from development is 0.19 cfs. Runoff leaving the site enters Heritage Court, and flows approximately 150 feet (or so) to Spain Road; it then flows west in Spain Road approximately 650 feet to catch basins at a major drainage channel, the Bear Arroyo Tributary.

### DRAINAGE OF DECK DRAIN IN BASEMENT LANDING:

Area to drain is 10.5' x 23.5' or 247 sf., all Treatment D. It is proposed to connect the deck drain to a manhole located in the landscaping area to the west.  
 $V_{100} = (247 \times 2.36) / 12 = 48.6$  cf  $Q_{100} = (247 / 43560) \times 5.02 = 0.0285$  cfs (12.79 gpm)  
 Use 4' Dia. Manhole for sump. Invert 2' below drain elevation.  
 Storage volume =  $2[(4 \times 4 \times \pi) / 4] = 25.13$  cf.

### LEGAL DESCRIPTION

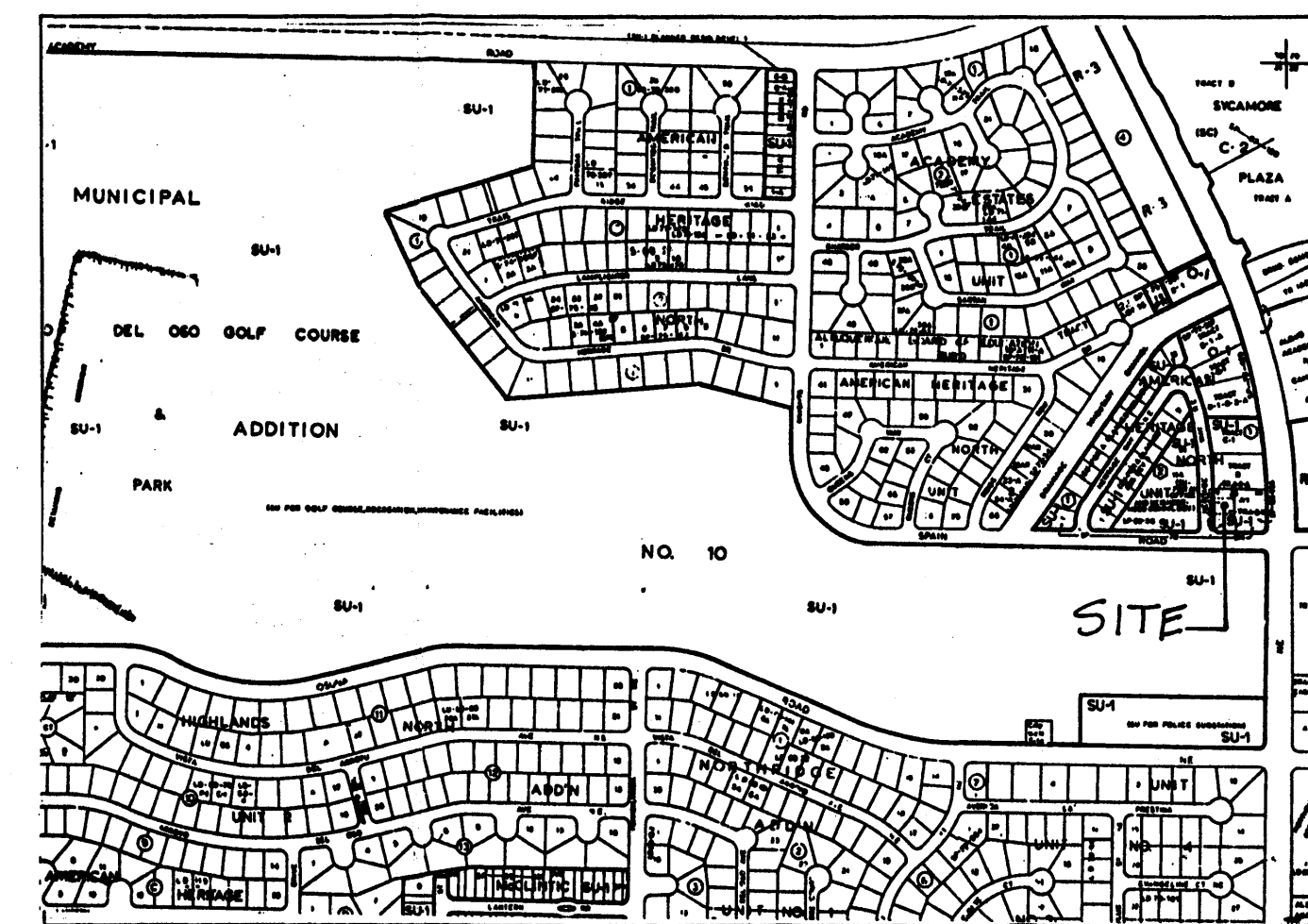
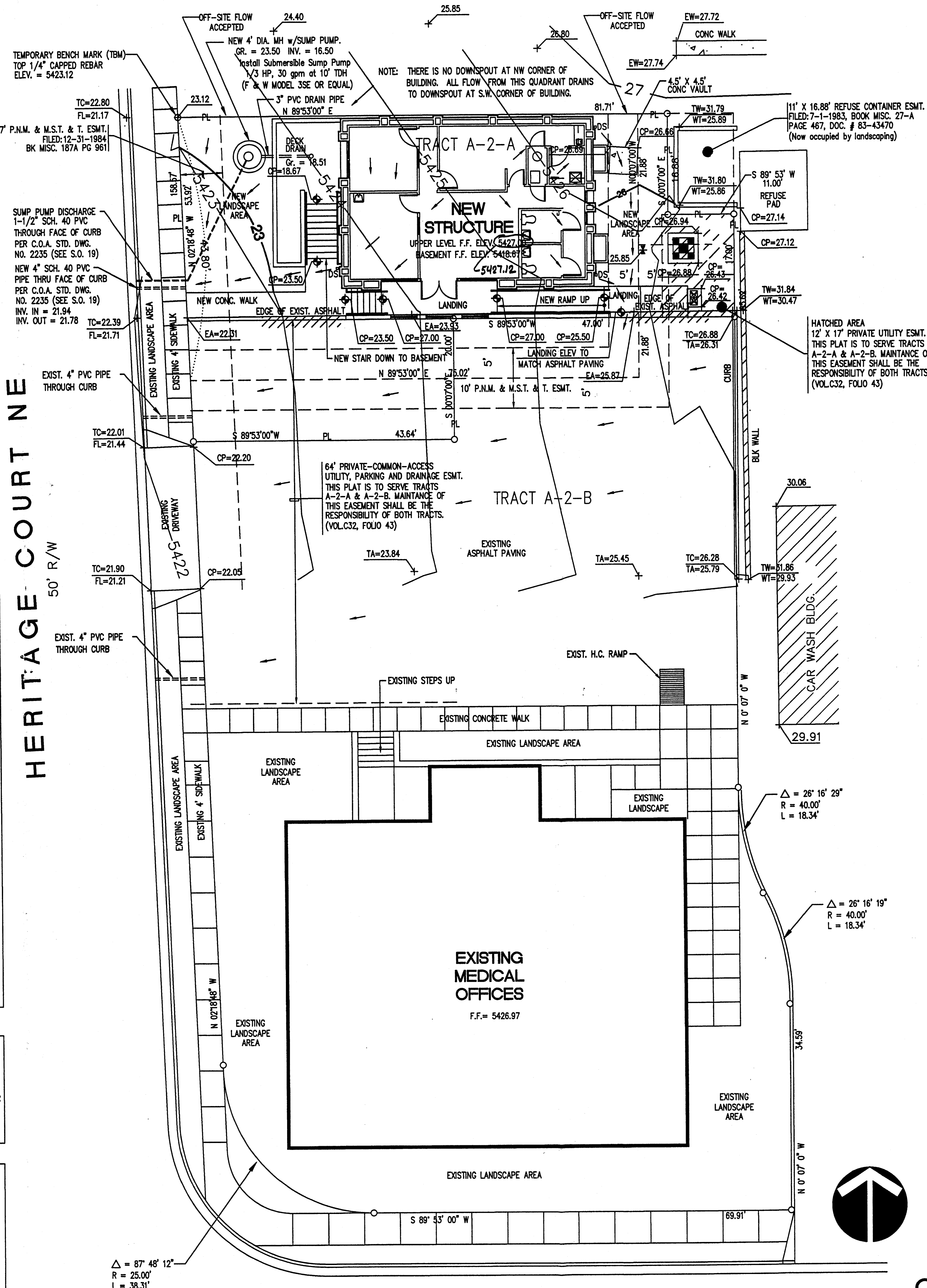
TRACT A-2-A,  
 BLOCK 1,  
 AMERICAN HERITAGE NORTH,  
 UNIT 3,  
 BERNALILLO COUNTY,  
 ALBUQUERQUE, NEW MEXICO

### LEGEND

TC = TOP OF CURB  
 FL = FLOW LINE  
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 CP = TOP OF CONCRETE  
 □ = TRANSFORMER  
 □ = SWITCHBOX  
 ⊕ = GAS METER  
 — 24.40 — = NEW SPOT EL.  
 — 24.40 — = EXIST. SPOT EL.  
 — — — = SHEET FLOW  
 — — — = SWALE  
 — 5422 — = EXIST. CONTOUR  
 — 22 — = NEW CONTOUR  
 PL = PROP. LINE

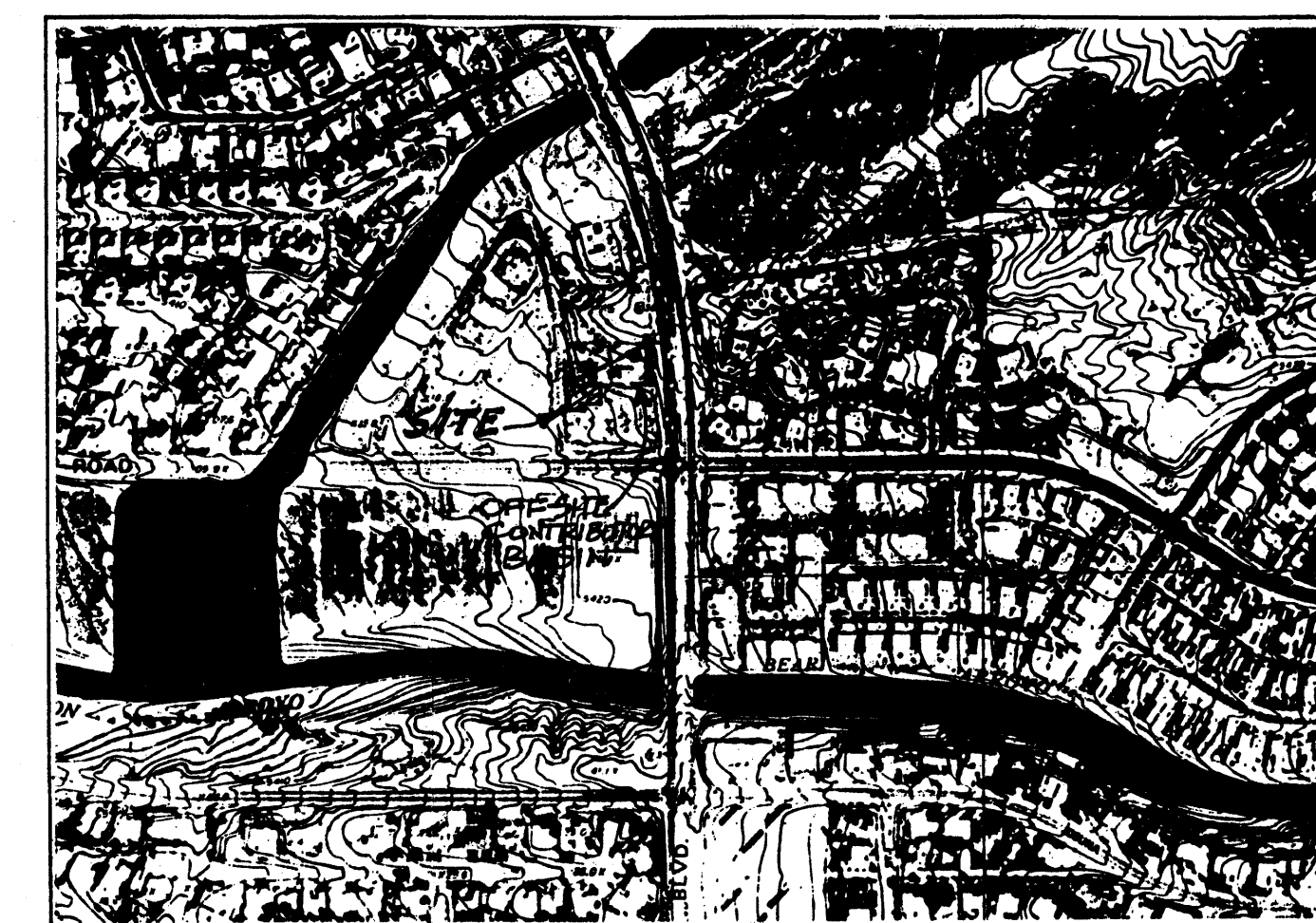
### GENERAL NOTES:

- ADD 5400 TO SPOT ELEVATIONS TO SHOW TRUE ELEVATION.
- CONTOUR INTERVAL IS ONE (1) FOOT.
- ELEVATIONS ARE BASED ON CITY OF ALBUQUERQUE CONTROL STATION "3-F19AB" HAVING AN ELEVATION OF 5440.56 FEET ABOVE SEA LEVEL.
- UTILITIES SHOWN HEREON ARE IN THEIR APPROXIMATE LOCATION BASED ONLY ON ABOVE GROUND EVIDENCE FOUND IN THE FIELD AND AS-BUILT INFORMATION PROVIDED BY THE CLIENT. UTILITIES SHOWN HEREON, WHETHER INDICATED AS ABANDONED OR NOT, SHALL BE VERIFIED BY OTHERS FOR EXACT LOCATION AND/OR DEPTH PRIOR TO EXCAVATION OR DESIGN CONSIDERATIONS.
- THIS IS NOT A BOUNDARY SURVEY. BEARINGS, DISTANCES AND FOUND PROPERTY CORNERS ARE FOR INFORMATIONAL PURPOSES ONLY.



VICINITY MAP

ZONE ATLAS NO. F-19



FLOODWAY MAP

PANEL NO. 17 OF 50

### ENGINEER'S CERTIFICATION:

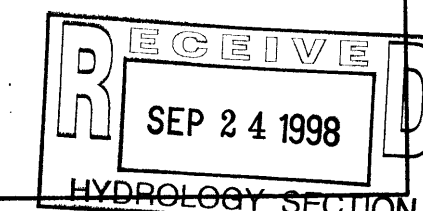
HAVING INSPECTED THE SITE AND OBTAINED AS-CONSTRUCTED FINISH FLOOR ELEVATION, I HEREBY CERTIFY THAT THE AS-CONSTRUCTED FACILITY IS IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED GRADING AND DRAINAGE PLAN WITH ENGINEER'S STAMP DATED APRIL 17, 1998, WITH THE FOLLOWING EXCEPTIONS:

- THE FLOOR DRAIN FOR THE LOWER LEVEL COURT YARD WAS CONNECTED TO THE SANITARY SEWER AND THE MANHOLE AND SUMP PUMP WERE NOT CONSTRUCTED. SEE LETTER OF SEPTEMBER 24, 1998, AND INSPECTION REPORT WITH THE SAME DATE EXPLAINING THIS CHANGE.
- THE 4" PVC PIPE THROUGH THE CURB THAT WAS PROPOSED TO DRAIN THE LANDSCAPED AREA IN FRONT OF THE BUILDING WAS NOT INSTALLED. THE REASON IS ALSO EXPLAINED IN THE LETTER.

Frank D. Lovelady NMPE 6512

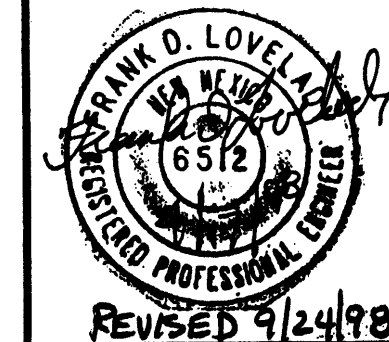
9-24-98

DATE



## GRADING + DRAINAGE PLAN

SCALE: 1" = 10'



Limited Diagnostic & Treatment Facility  
 LOCATED AT 5305 HERITAGE CT. NE, ALBUQUERQUE, NEW MEXICO

KEN HOVEY, ARCHITECT  
 5001 254-0003 • FAX 5051 254-8001 • 3008 SAMP AVE. SE • ALBUQUERQUE, NM • 87105

JOB NO: 9733

DATE: 27 MARCH 1998

REVISIONS

SHEET NO.

C-2







## DRAINAGE CALCULATIONS

### EXISTING CONDITIONS:

The site is located on the east side of Heritage Court, N.E. The site is presently undeveloped. The property to the north, Tract B, is undeveloped, adjacent to the site, but the east half which fronts on Wagona Blvd. is developed with a small office building. It is the intent of this project to move this small office building from its present location to a new foundation with basement on the site. The property to the east is a Phillips 66 convenience store which is separated from the site by a retaining wall of approximately 4' in height. The property to the south is occupied by a medical office building and a paved parking lot. To the west is Heritage Court which is paved with standard curb and gutter. The drawing on this sheet shows two tracts; Tract A-2-A and Tract A-2-B. The work that this plan covers is all confined to Tract A-2-A. There is a 64' common access, utility parking and drainage easement which will serve both tracts. (See note on plan).

### PROPOSED CONDITIONS:

It is proposed, as mentioned above, to construct a new foundation for the office building on Tract B and move the existing office building to the new basement foundation on the site. Tract B will be developed by others as a Burger King restaurant. A conceptual grading and drainage plan has been submitted for the Burger King restaurant. It is proposed to construct the relocated office building without any retaining walls along the north boundary so that off-site flow can be accepted from Tr. B. Once the Burger King restaurant has been constructed, there will no longer be any off-site flow onto Tract A-2-A.

### DRAINAGE CRITERIA:

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### PRECIPITATION ZONE:

The site is east of San Mateo Boulevard and is, therefore, in Precipitation Zone 3.

### LAND TREATMENT AREAS, EXCESS PRECIPITATION AND UNIT PEAK DISCHARGE:

The peak discharge per acre and excess precipitation are shown for the four land treatments in Zone 3 in the table below, and the values shown are from the City of Albuquerque D.P.M. Also shown are the existing and proposed land treatment areas.

LAND TREAT.	q (cfs/acre)	E (in)	Existing Site Areas	Developed Site Areas
100-yr. 10-yr.	100-yr. 10-yr.	%	Sq. Ft.	Acres
A	1.87	0.58	0.66	0.19
B	2.60	1.19	0.92	0.36
C	3.45	2.00	1.29	0.62
D	5.02	3.39	2.36	1.50
Totals			100.0	3.814

### PEAK DISCHARGE:

#### EXISTING CONDITIONS:

$$Q_{100} = 0.0876 \times 1.87 = 0.16 \text{ cfs} \quad Q_{10} = 0.0876 \times 0.58 = 0.05 \text{ cfs}$$

#### DEVELOPED CONDITIONS:

$$Q_{100} = 2.60 \times 0.0242 + 5.02 \times 0.0634 = 0.38 \text{ cfs}$$

$$Q_{10} = 1.19 \times 0.0242 + 3.39 \times 0.0634 = 0.24 \text{ cfs}$$

#### VOLUME, 100-YEAR, 6-HOUR:

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$$V_{100} = (0.66 \times 3.814) / 12 = 210 \text{ cf} \quad V_{10} = (0.19 \times 3.814) / 12 = 60 \text{ cf}$$

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$$V_{100} = (0.92 \times 1.052 + 2.36 \times 2.762) / 12 = 623 \text{ cf}$$

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#### SUMMARY OF ON-SITE VOLUMES AND PEAK DISCHARGE RATES:

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#### OFF-SITE FLOW VOLUMES AND PEAK DISCHARGE RATES:

Tract B north of the site is roughly 141' x 215'. Approximately half flows into Heritage Place and the other half flows into the site by sheet flow across the north property line of the site. When the Burger King Restaurant is finished, all flow will be directed to Heritage Court.

$$\text{Area} = 141 \times 215 = 30,315 \text{ sf} \quad \text{half} = 15,158 \text{ sf} \quad (0.3480 \text{ ac})$$

$$E_w = 0.5 \times 0.66 + 0.5 \times 2.36 = 1.51 \text{ cfs} \quad q_w = 0.5 \times 1.87 + 0.5 \times 5.02 = 3.45 \text{ cfs}$$

(Assuming half is Treatment A and half is Treatment D.)

$$V_{100} = (15,158 \times 1.51) / 12 = 1,907 \text{ cf} \quad Q_{100} = 0.3480 \times 3.45 = 1.20 \text{ cfs}$$

#### ANALYSIS OF DOWNSTREAM CONDITIONS:

The site is an infill site, meaning that practically every other property around it is developed and the development of this site will not significantly impact downstream streets and drainage facilities. The increase in discharge from development is 0.19 cfs. Runoff leaving the site enters Heritage Court, and flows approximately 150 feet (or so) to Spain Road; it then flows west in Spain Road approximately 650 feet to catch basins at a major drainage channel, the Bear Arroyo Tributary.

#### DRAINAGE OF DECK DRAIN IN BASEMENT LANDING:

Area to drain is 10.5' x 23.5' or 247 sf., all Treatment D. It is proposed to connect the deck drain to a manhole located in the landscaping area to the west.

$$V_{100} = (247 \times 2.36) / 12 = 48.6 \text{ cf} \quad Q_{100} = (247 / 43560) \times 5.02 = 0.0285 \text{ cfs} \quad (12.79 \text{ gpm})$$

Use 4" Dia. Manhole for sump. Invert 2' below drain elevation.

$$\text{Storage volume} = 2[(4 \times 4 \times \pi) / 4] = 25.13 \text{ cf.}$$

### LEGAL DESCRIPTION

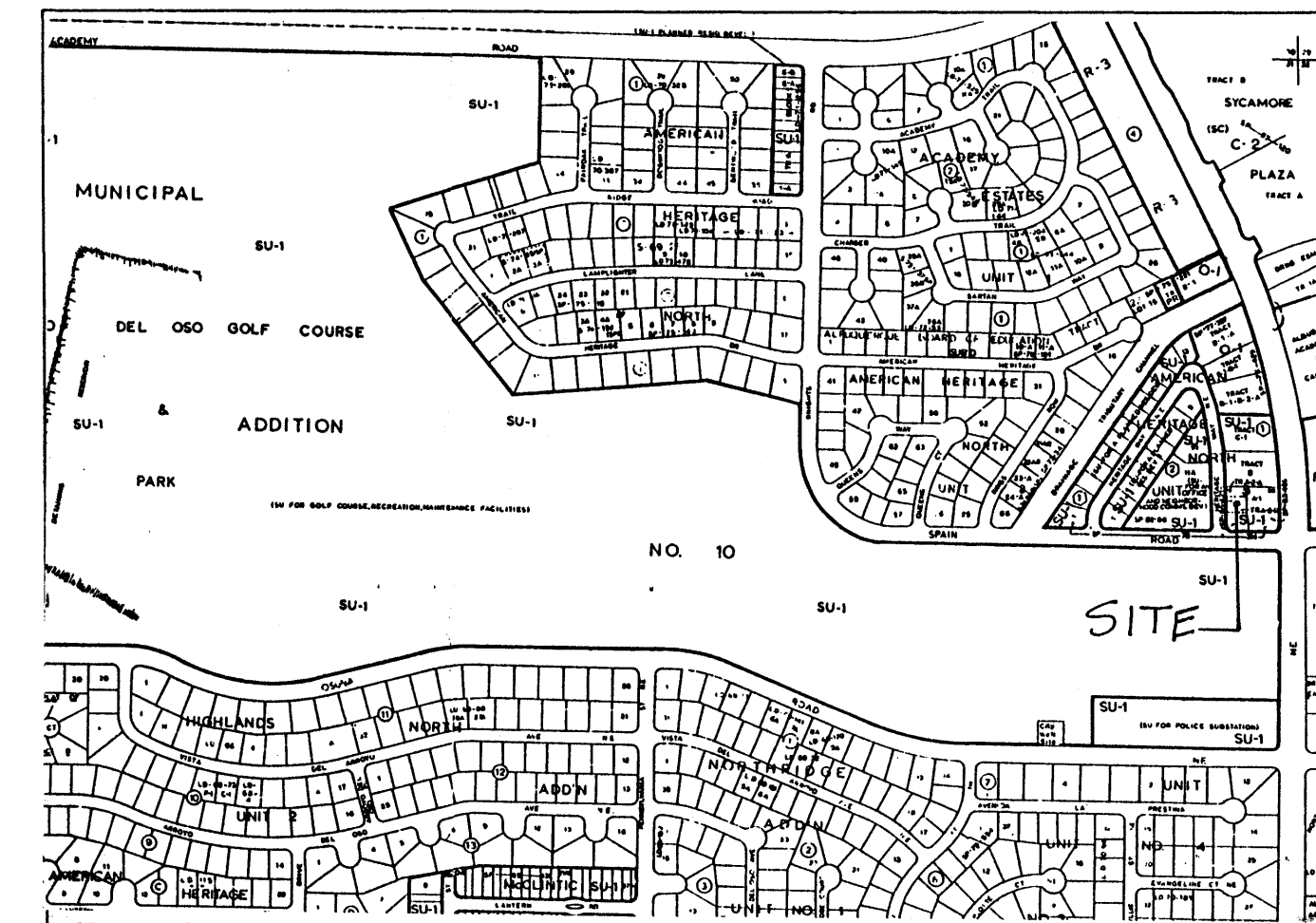
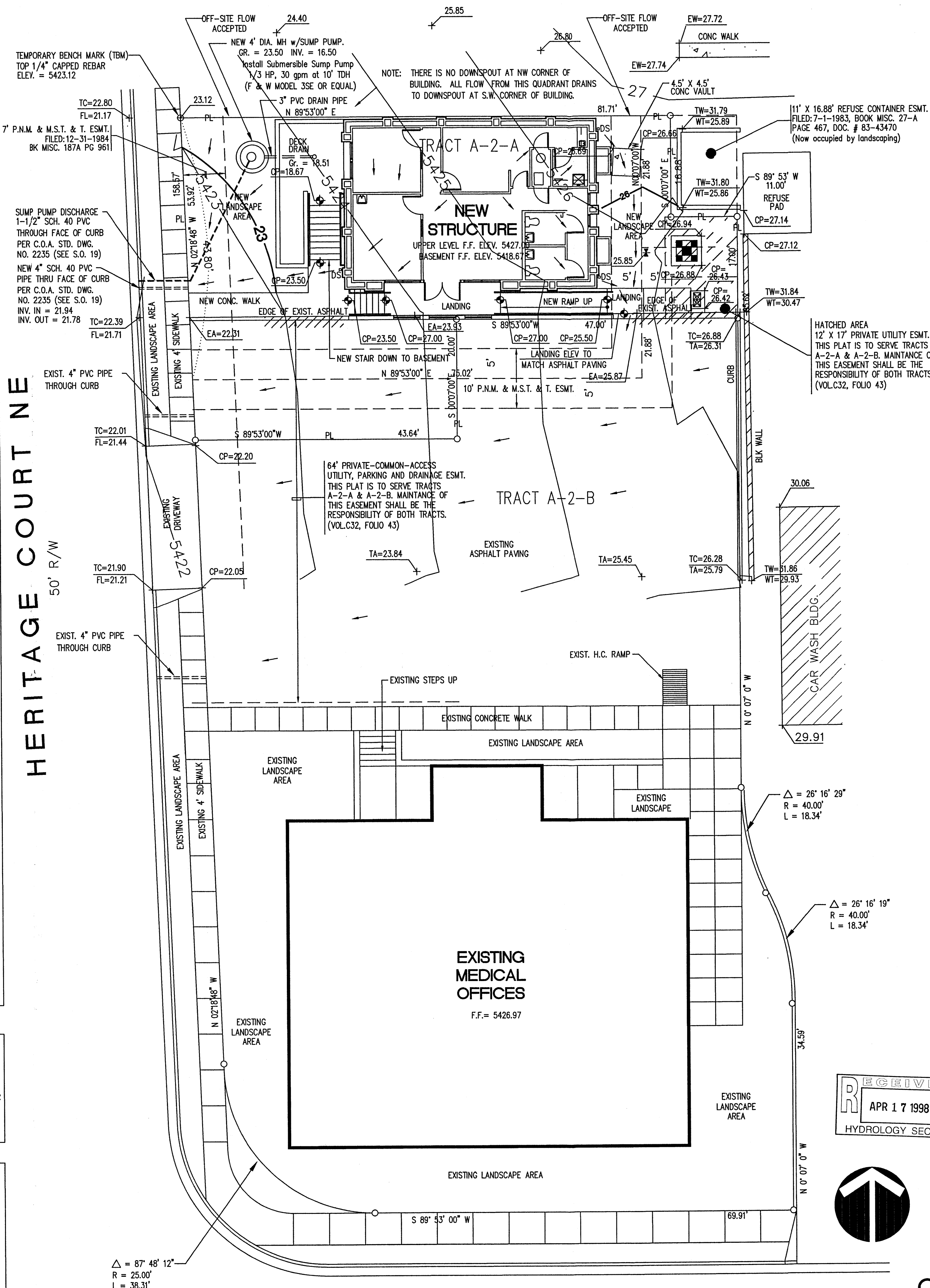
TRACT A-2-A,  
BLOCK 1,  
AMERICAN HERITAGE NORTH,  
UNIT 3,  
BERNALILLO COUNTY  
ALBUQUERQUE, NEW MEXICO

### LEGEND

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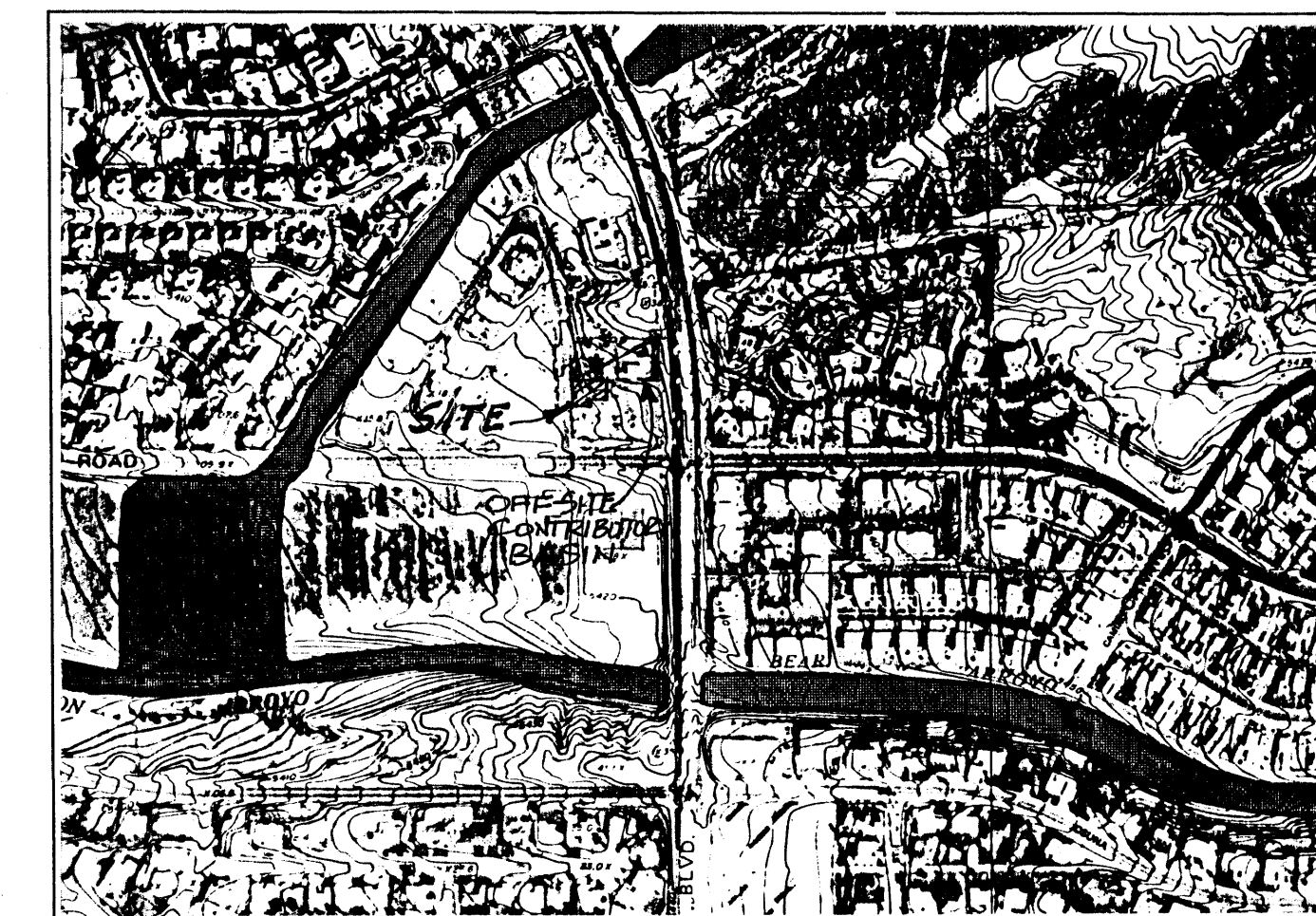
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VICINITY MAP

ZONE ATLAS NO. F-19



FLOODWAY MAP

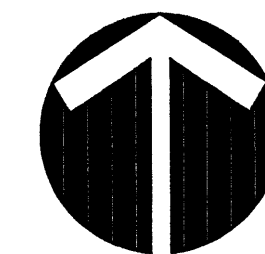
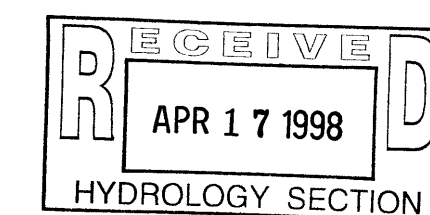
PANEL NO. 17 OF 50

## CITY OF ALBUQUERQUE DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY (S.O. 19) NOTICE TO CONTRACTORS

- AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.
- ALL WORK DETAILED ON THIS PLAN TO BE PERFORMED UNDER CONTRACT, EXCEPT AS OTHERWISE STATED OR PROVIDED FOR HEREIN, SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1986, AS UPDATED THROUGH REVISION NO. 6.
- TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM, INC., 260-1990, FOR LOCATION FOR EXISTING UTILITIES.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
- BACKFILL COMPACTION SHALL BE ACCORDING TO RESIDENTIAL STREET USE.
- MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
- THE ADDRESS OF THE PROPERTY SERVED IS 5305 HERITAGE CT., N.E.

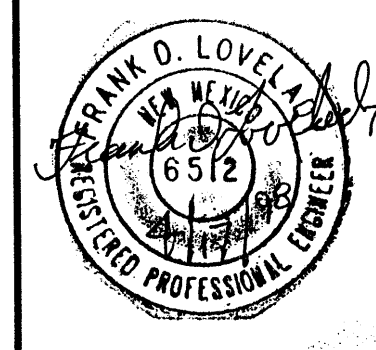
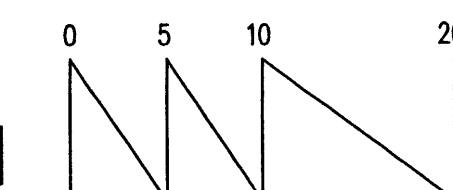
### APPROVALS:

HYDROLOGY \_\_\_\_\_ NAME \_\_\_\_\_ DATE \_\_\_\_\_  
INSPECTOR \_\_\_\_\_ NAME \_\_\_\_\_ DATE \_\_\_\_\_  
CONSTRUCTION \_\_\_\_\_ NAME \_\_\_\_\_ DATE \_\_\_\_\_



## GRADING + DRAINAGE PLAN

SCALE: 1" = 10'



Limited Diagnostic & Treatment Facility  
LOCATED AT 5305 HERITAGE CT. NE, ALBUQUERQUE, NEW MEXICO

KEN HOVEY, ARCHITECT  
505 254-0083 • FAX 505 254-8071 • 3808 SIMS AVE. SE • ALBUQUERQUE, NM • 87108

JOB NO:	9733
DATE:	27 MARCH 1998
REVISIONS	

SHEET NO.  
C-2



## DRAINAGE CALCULATIONS

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The peak discharge per acre and excess precipitation are shown for the four land treatments in Zone 3 in the table below, and the values shown are from the City of Albuquerque D.P.M. Also shown are the existing and proposed land treatment areas.

Table showing the land existing and proposed land use									
LAND TREAT.	ac(fcs/ac)		E (in)			Existing Site Areas		Developed Site Areas	
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#### EXISTING CONDITIONS:

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#### DEVELOPED CONDITIONS:

$$Q_{100} = 2.60 \times 0.0242 + 5.02 \times 0.0634 = 0.38 \text{ cfs}$$

$$Q_{10} = 1.19 \times 0.0242 + 3.39 \times 0.0634 = 0.24 \text{ cfs}$$

#### VOLUME, 100-YEAR, 6-HOUR:

#### EXISTING CONDITIONS:

$$V_{100} = (0.66 \times 3,814) / 12 = 210 \text{ cf} \quad V_{10} = (0.19 \times 3,814) / 12 = 60 \text{ cf}$$

#### DEVELOPED CONDITIONS:

$$V_{100} = (0.92 \times 1,052 + 2.36 \times 2,762) / 12 = 623 \text{ cf}$$

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Area = 141 x 215 = 30,315 sf. half = 15,158 sf (0.3480 ac)

$$E_w = 0.5 \times 0.66 + 0.5 \times 2.36 = 1.51 \text{ cfs} \quad q_w = 0.5 \times 1.87 + 0.5 \times 5.02 = 3.45 \text{ cfs}$$

(Assuming half is Treatment A and half is Treatment D.)

$$V_{100} = (15,158 \times 1.51) / 12 = 1,907 \text{ cf} \quad Q_{100} = 0.3480 \times 3.45 = 1.20 \text{ cfs}$$

#### ANALYSIS OF DOWNSTREAM CONDITIONS:

The site is an infill site, meaning that practically every other property around it is developed and the development of this site will not significantly impact downstream streets and drainage facilities. The increase in discharge from development is only 0.19 cfs. Runoff leaving the site enters Heritage Court and flows approximately 250 feet to Spain Road; it then flows west in Spain Road approximately 650 feet to certain basins at

more like 150' (1"=10')

#### DRAINAGE OF DECK DRAIN IN BASEMENT LANDINGS:

Area to drain is 10.5' x 23.5' or 247 sq. ft. Treatment D. It is proposed to connect the deck drain to a manhole located in the landscaping area to the west.

$$V_{100} = (247 \times 2.36) / 12 = 48.6 \text{ cf} \quad Q_{100} = (247 / 43560) \times 5.02 = 0.0285 \text{ cfs} (12.79 \text{ gpm})$$

Use 4" Dia. Manhole for sump. Invert 2' below drain elevation.

$$\text{Storage volume} = 2[(4 \times 4 \times \pi) / 4] = 25.13 \text{ cf.}$$

### LEGAL DESCRIPTION

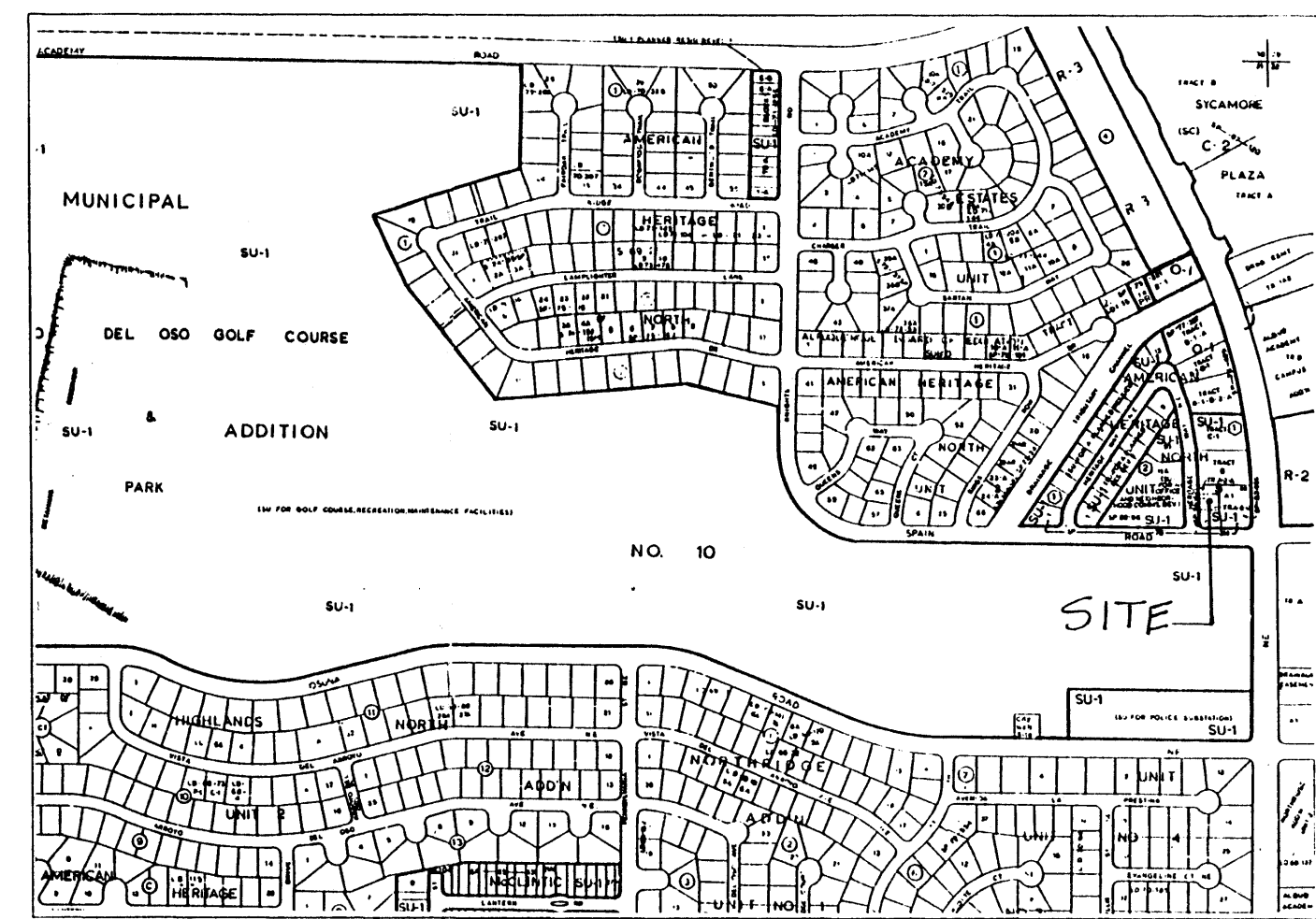
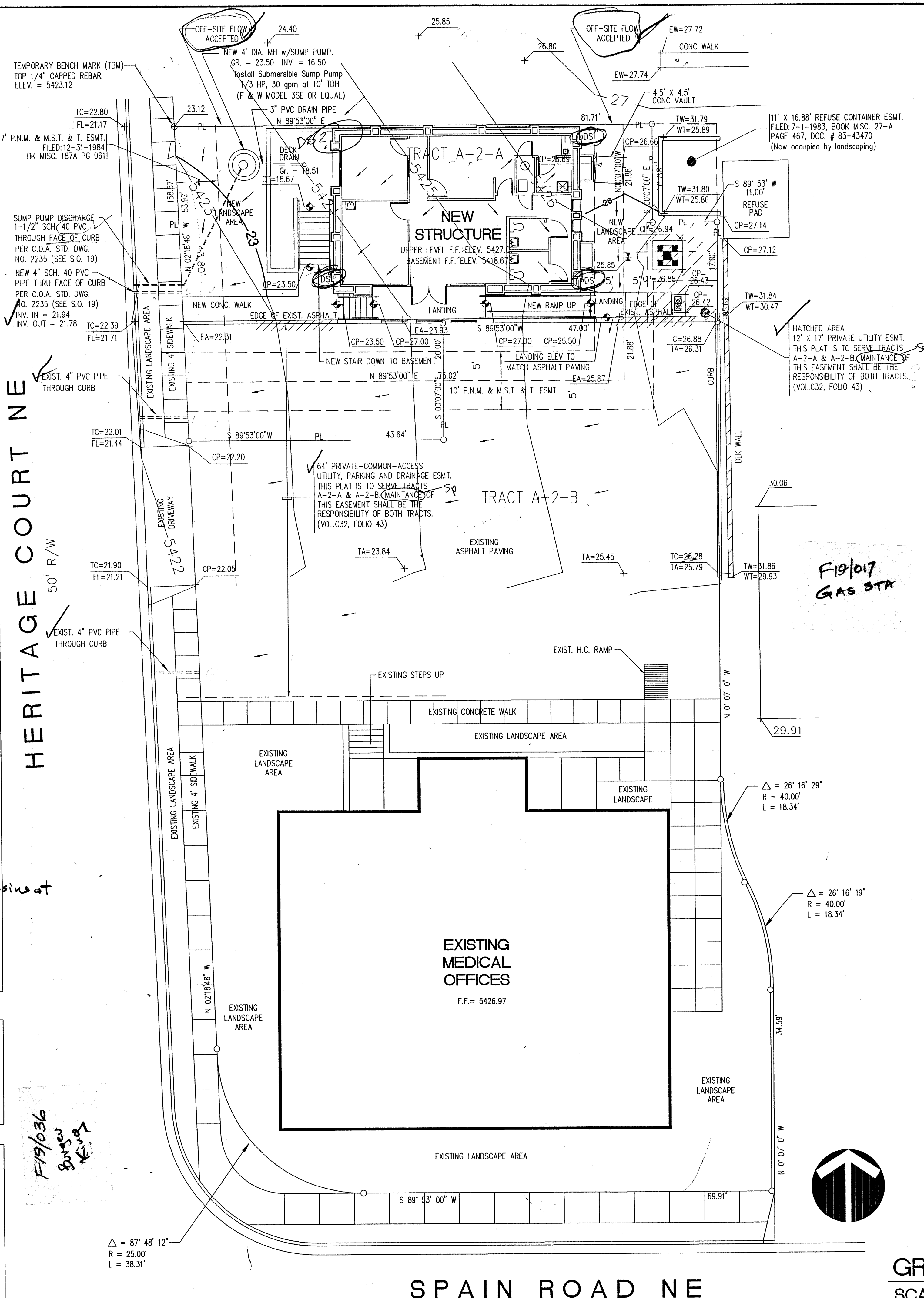
TRACT A-2-A,  
BLOCK 1,  
AMERICAN HERITAGE NORTH,  
UNIT 3,  
BERNALILLO COUNTY  
ALBUQUERQUE, NEW MEXICO

### LEGEND

TC = TOP OF CURB  
FL = FLOW LINE  
TW = TOP OF WALL  
WT = TOE OF WALL  
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NEW SPOT, EL.  
EXIST. SPOT EL.  
SHEET FLOW  
SWALE  
EXIST. CONTOUR  
NEW CONTOUR  
PROP. LINE

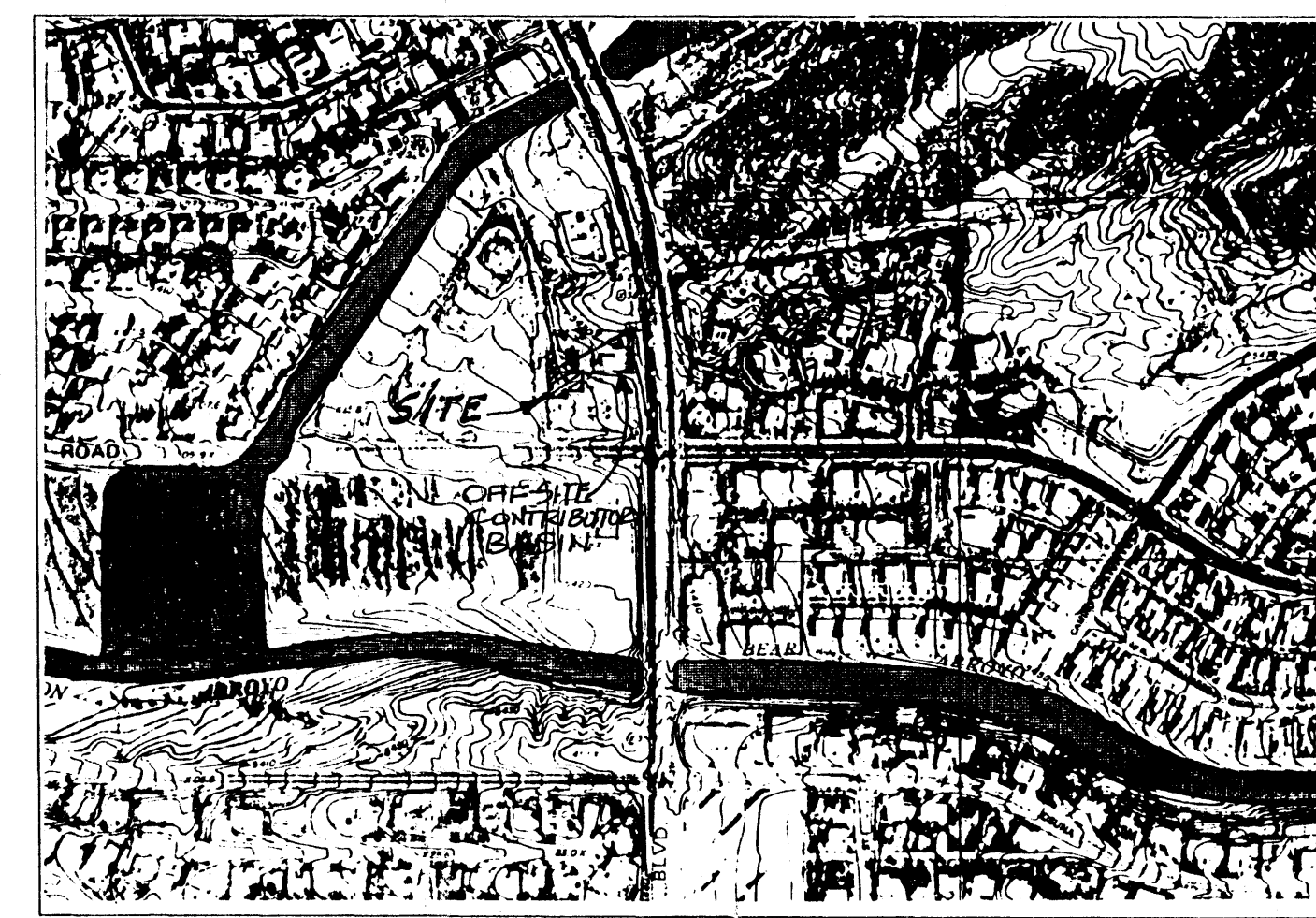
### GENERAL NOTES:

1. ADD 5400 TO SPOT ELEVATIONS TO SHOW TRUE ELEVATION.
2. CONTOUR INTERVAL IS ONE (1) FOOT.
3. ELEVATIONS ARE BASED ON CITY OF ALBUQUERQUE CONTROL STATION "3-F19AB" HAVING AN ELEVATION OF 5404.56 FEET ABOVE SEA LEVEL.
4. UTILITIES SHOWN HEREON ARE IN THEIR APPROXIMATE LOCATION BASED ONLY ON ABOVE GROUND EVIDENCE FOUND IN THE FIELD AND AS-BUILT INFORMATION PROVIDED BY THE CLIENT. UTILITIES SHOWN HEREON, WHETHER INDICATED AS ABANDONED OR NOT, SHALL BE VERIFIED BY OTHERS FOR EXACT LOCATION AND/OR DEPTH PRIOR TO EXCAVATION OR DESIGN CONSIDERATIONS.
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VICINITY MAP

ZONE ATLAS NO. F-19



FLOODWAY MAP

PANEL NO. 17 OF 50

## CITY OF ALBUQUERQUE DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY (S.O. 19) NOTICE TO CONTRACTORS

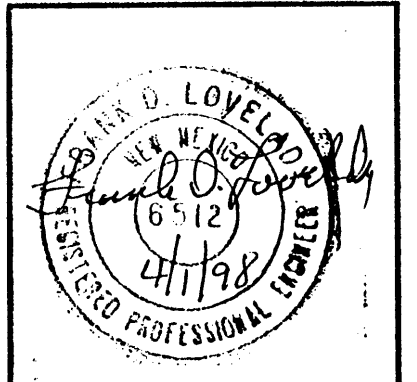
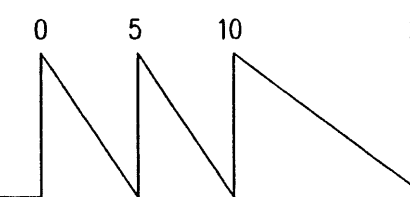
1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.
2. ALL WORK DETAILED ON THIS PLAN TO BE PERFORMED UNDER CONTRACT, EXCEPT AS OTHERWISE STATED OR PROVIDED FOR HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1986, AS UPDATED THROUGH REVISION NO. 6.
3. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM, INC., 260-1990, FOR LOCATION FOR EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
5. BACKFILL COMPACTION SHALL BE ACCORDING TO RESIDENTIAL STREET USE.
6. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
7. THE ADDRESS OF THE PROPERTY SERVED IS 8301 SPAIN ROAD, N.E.

### APPROVALS:

HYDROLOGY \_\_\_\_\_ NAME \_\_\_\_\_ DATE \_\_\_\_\_  
INSPECTOR \_\_\_\_\_ NAME \_\_\_\_\_ DATE \_\_\_\_\_  
CONSTRUCTION \_\_\_\_\_ NAME \_\_\_\_\_ DATE \_\_\_\_\_

## GRADING + DRAINAGE PLAN

SCALE: 1" = 10'



Limited Diagnostic & Treatment Facility  
LOCATED AT 8301 SPAIN ROAD NE, ALBUQUERQUE, NEW MEXICO

KEN HOVEY, ARCHITECT  
1505 254-0083 • FAX 1505 254-1801 • 3808 SUMMIT AVE. SE • ALBUQUERQUE, NM 87105

JOB NO.	9733
DATE	27 MARCH 1998
REVISIONS	

SHEET NO.  
C-2



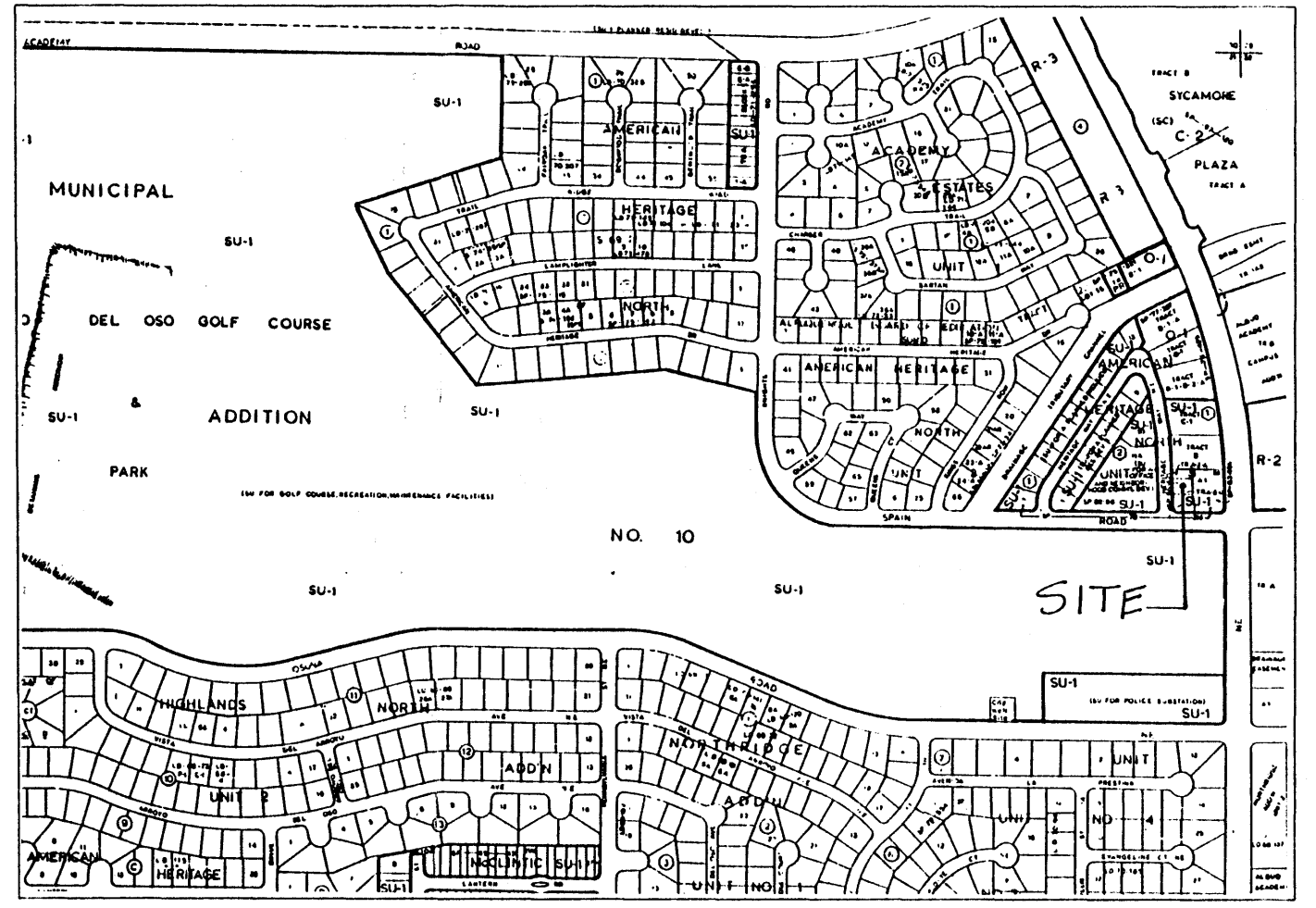


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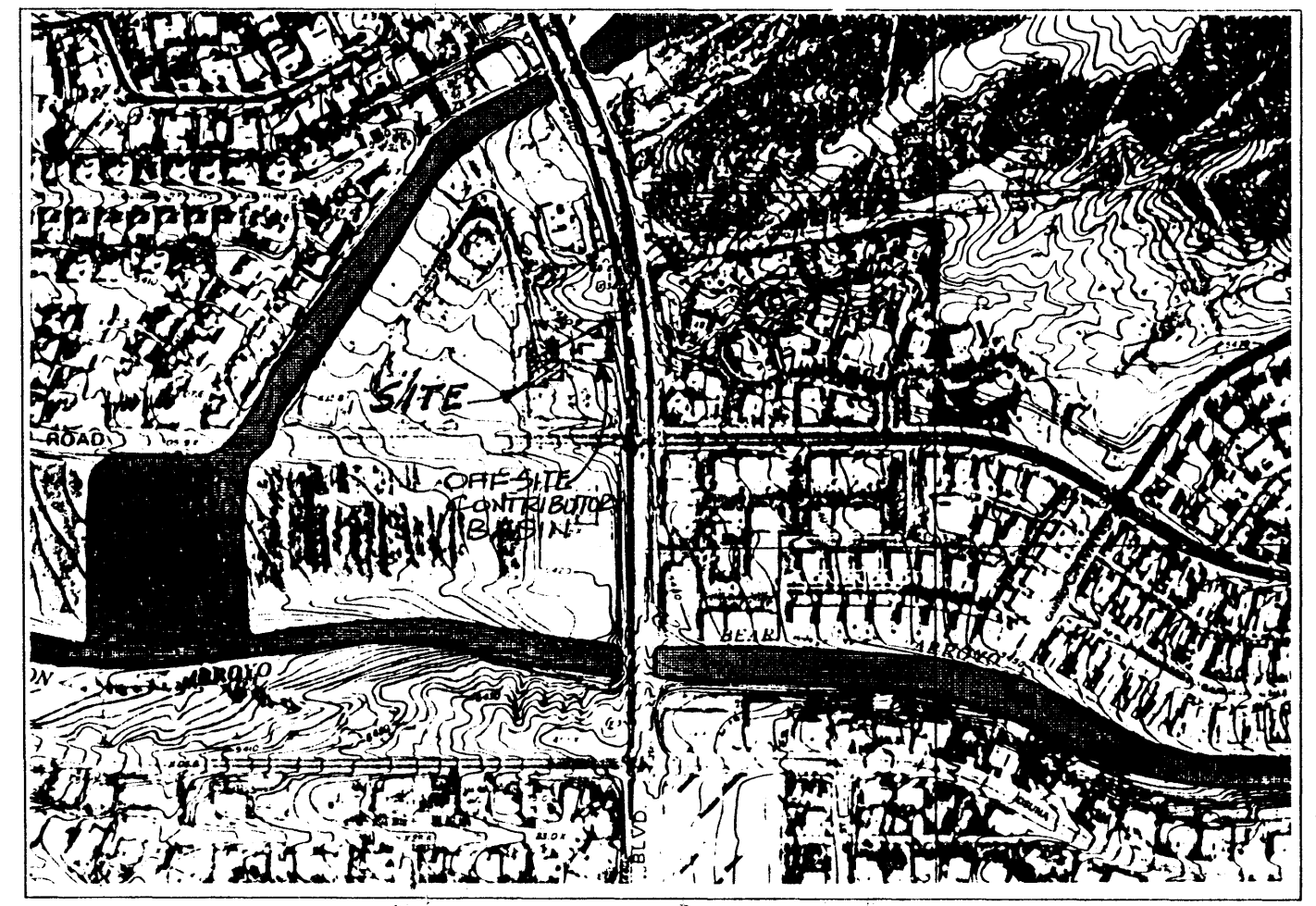
KEN HOVEY, ARCHITECT  
1501 254-0083 • FAX 1505 254-1804 • 3808 51M5 AVE. SE • ALBUQUERQUE, NM • 87108

JOB NO.	1733
DATE:	27 MARCH 1998
REVISIONS	

SHEET NO.  
C-2



VICINITY MAP ZONE ATLAS NO. F-19



FLOODWAY MAP PANEL NO. 17 OF 50

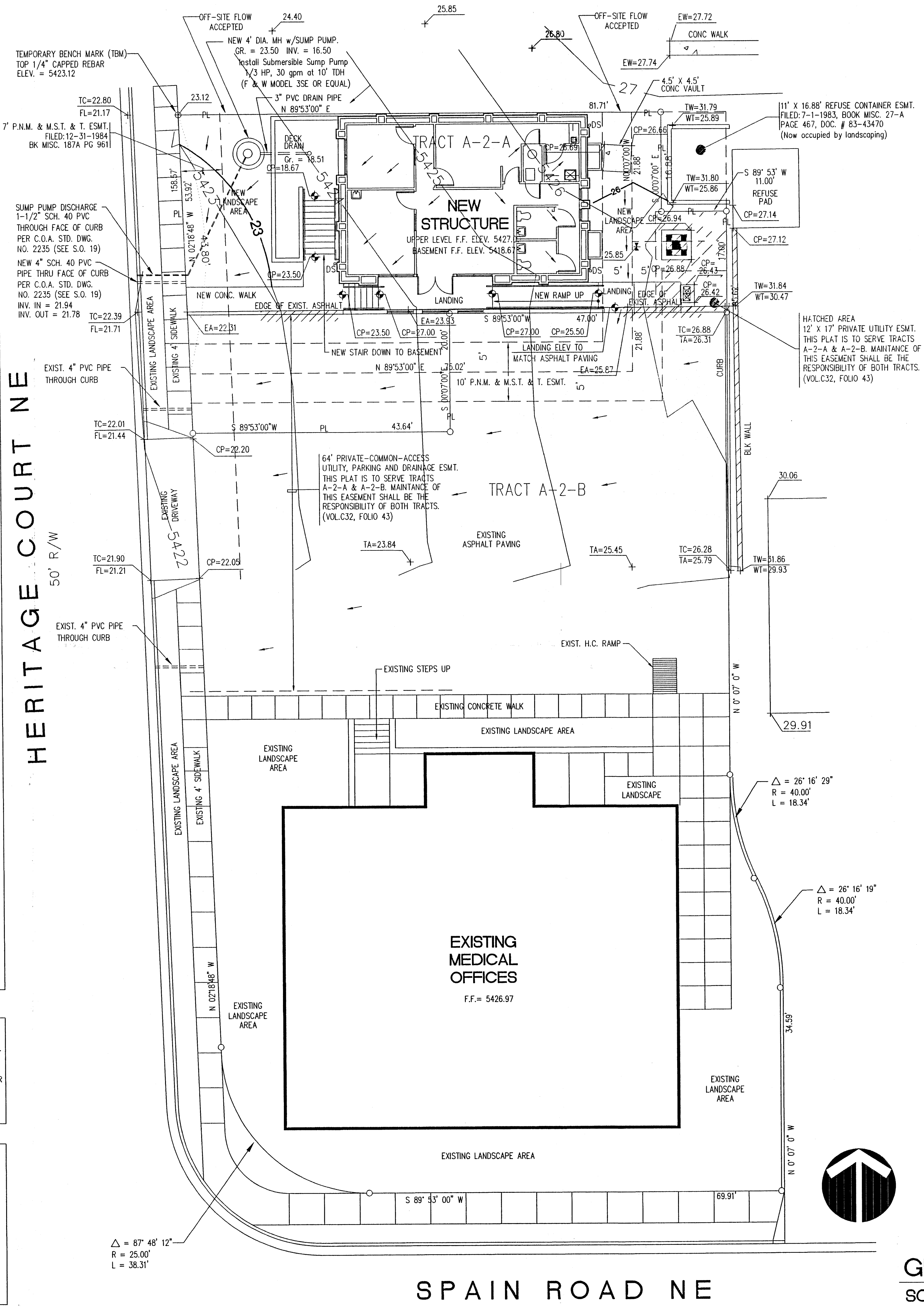
CITY OF ALBUQUERQUE  
DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY (S.O. 19)  
NOTICE TO CONTRACTORS

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- THE ADDRESS OF THE PROPERTY SERVED IS 8301 SPAIN ROAD, N.E.

APPROVALS:

HYDROLOGY	NAME	DATE
INSPECTOR	NAME	DATE
CONSTRUCTION	NAME	DATE

GRADING + DRAINAGE PLAN  
SCALE: 1" = 10'



**DRAINAGE CALCULATIONS**

**EXISTING CONDITIONS:**  
The site is located on the east side of Heritage Court, N.E. The site is presently undeveloped. The property to the north, Tract B, is undeveloped adjacent to the site, but the east half which fronts on Wyoming Blvd. is developed with a small office building. It is the intent of this project to move this small office building from its present location to a new foundation with basement on the site. The property to the east is a Phillips 66 convenience store which is separated from the site by a retaining wall of approximately 4' in height. The property to the south is occupied by a medical office building and a paved parking lot. To the west is Heritage Court which is paved with standard curb and gutter. The drawing on this sheet shows two tracts; Tract A-2-A and Tract A-2-B. The work that this plan covers is all confined to Tract A-2-A. There is a 64' common access, utility parking and drainage easement which will serve both tracts. (See note on plan).

**PROPOSED CONDITIONS:**  
It is proposed, as mentioned above, to construct a new foundation for the office building on Tract B and move the existing office building to the new basement foundation on the site. Tract B will be developed by others as a Burger King restaurant. A conceptual grading and drainage plan has been submitted for the Burger King restaurant. It is proposed to construct the relocated office building without any retaining walls along the north boundary so that off-site flow can be accepted from Tr. B. Once the Burger King restaurant has been constructed, there will no longer be any off-site flow.

**DRAINAGE CRITERIA:**  
The calculations shown on this plan were prepared in accordance with Section 22.2, Hydrology, of the Development Process Manual, Volume 2, Design Criteria, for the City of Albuquerque, in cooperation with Bernalillo County, New Mexico and the Albuquerque Metropolitan Arroyo Flood Control Authority, January, 1993.

**PRECIPITATION ZONE:**  
The site is east of San Mateo Boulevard and is, therefore, in Precipitation Zone 3.

**LAND TREATMENT AREAS, EXCESS PRECIPITATION AND UNIT PEAK DISCHARGE:**  
The peak discharge per acre and excess precipitation are shown for the four land treatments in Zone 3 in the table below, and the values shown are from the City of Albuquerque D.P.M. Also shown are the existing and proposed land treatment areas.

LAND TREATMENT	q (cfs/acre)	E (in)	Existing Site Areas Developed	Proposed Site Areas Developed
			100-yr. 10-yr.	100-yr. 10-yr.
A	1.87	0.58	0.66	0.19
B	2.60	1.19	0.92	0.36
C	3.45	2.00	1.29	0.62
D	5.02	3.39	2.36	1.50
Totals			100.0	3.814

**PEAK DISCHARGE:**  
EXISTING CONDITIONS:  
 $Q_{100} = 0.0876 \times 1.87 = 0.16 \text{ cfs}$   $Q_{10} = 0.0876 \times 0.58 = 0.05 \text{ cfs}$   
DEVELOPED CONDITIONS:  
 $Q_{100} = 2.60 \times 0.0242 + 5.02 \times 0.0634 = 0.38 \text{ cfs}$   
 $Q_{10} = 1.19 \times 0.0242 + 3.39 \times 0.0634 = 0.24 \text{ cfs}$   
VOLUME, 100-YEAR, 6-HOUR:  
EXISTING CONDITIONS:  
 $V_{100} = (0.66 \times 3.814) / 12 = 210 \text{ cf}$   $V_{10} = (0.19 \times 3.814) / 12 = 60 \text{ cf}$   
DEVELOPED CONDITIONS:  
 $V_{100} = (0.92 \times 1.052 + 2.36 \times 2.762) / 12 = 623 \text{ cf}$   
 $V_{10} = (0.36 \times 1.052 + 1.50 \times 2.762) / 12 = 377 \text{ cf}$

**SUMMARY OF ON-SITE VOLUMES AND PEAK DISCHARGE RATES:**

	V100(CF)	V10(CF)	Q100(CFS)	Q10(CFS)
DEVELOPED	623	377	0.38	0.24
EXISTING	210	60	0.16	0.05
DECREASE	413	317	0.22	0.19

**OFF-SITE FLOW VOLUMES AND PEAK DISCHARGE RATES:**  
Tract B north of the site is roughly 141' x 215'. Approximately half flows into Heritage Place and the other half flows into the site by sheet flow across the north property line of the site. When the Burger King Restaurant is finished, all flow will be directed to Wyoming Blvd.  
Area = 141 x 215 = 30,315 sf. half = 15,158 sf (0.3480 ac)  
 $E_w = 0.5 \times 0.66 + 0.5 \times 2.36 = 1.51 \text{ cfs}$   $q_w = 0.5 \times 1.87 + 0.5 \times 5.02 = 3.45 \text{ cfs}$   
(Assuming half is Treatment A and half is Treatment D.)  
 $V_{100} = (15,158 \times 1.51) / 12 = 1,907 \text{ cf}$   $Q_{100} = 0.3480 \times 3.45 = 1.20 \text{ cfs}$

**ANALYSIS OF DOWNSTREAM CONDITIONS:**  
The site is an infill site, meaning that practically every other property around it is developed and the development of this site will not significantly impact downstream streets and drainage facilities. The increase in discharge from development is only 0.19 cfs. Runoff leaving the site enters Heritage Court, and flows approximately 250 feet to Spain Road; it then flows west in Spain Road approximately 650 feet to a major drainage channel, the Bear Arroyo Tributary.

**DRAINAGE OF DECK DRAIN IN BASEMENT LANDING:**  
Area to drain is 10.5' x 23.5' or 247 cf, all Treatment D. It is proposed to connect the deck drain to a manhole located in the landscaping area to the west.  
 $V_{100} = (247 \times 2.36) / 12 = 48.6 \text{ cf}$   $Q_{100} = (247 / 43560) \times 5.02 = 0.0285 \text{ cfs}$  (12.79 gpm)  
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