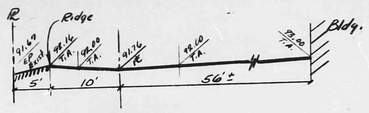
HYDROLOGY

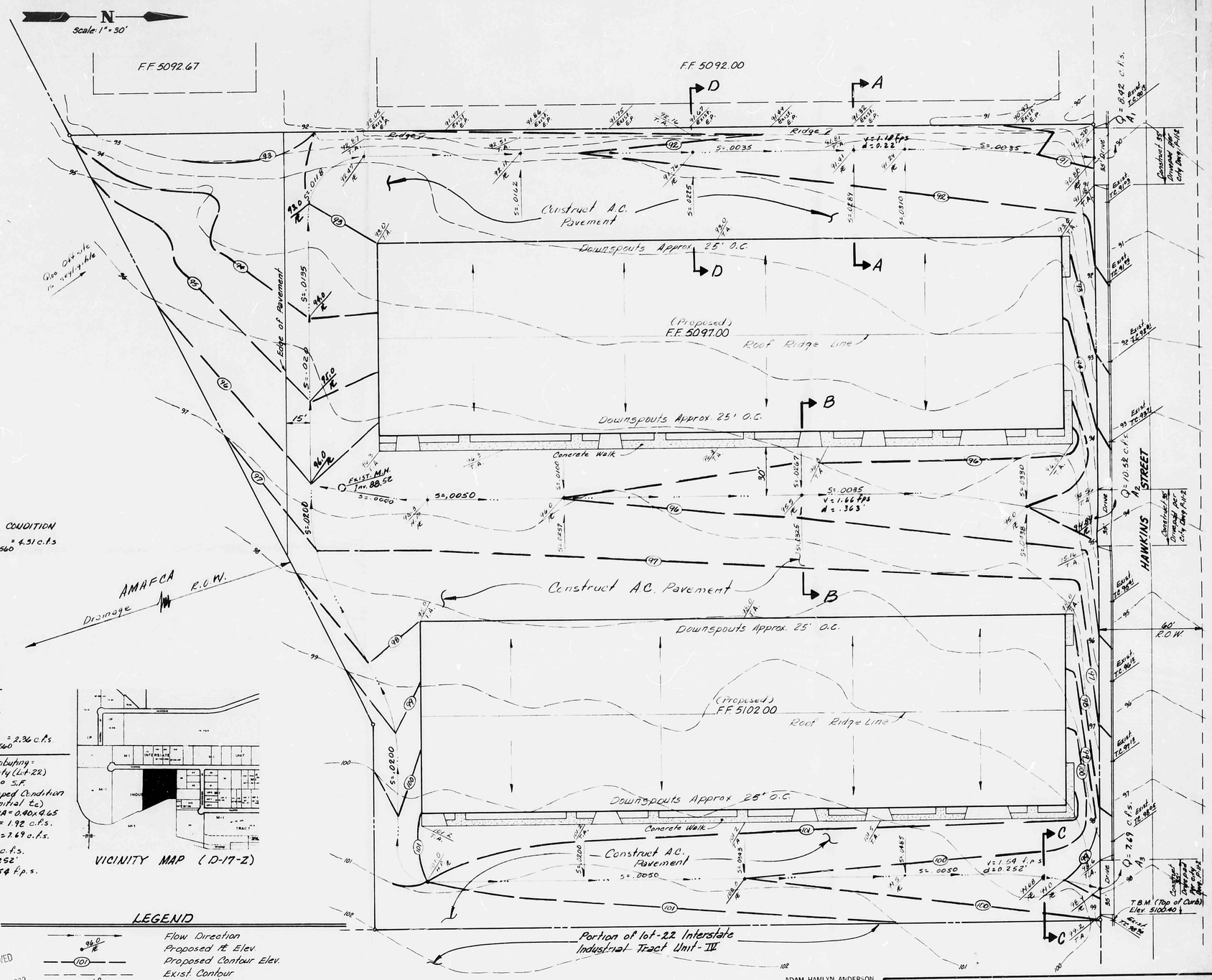
D17/D33
2 PLANS

D17/D33

2 Plans



SECTION D-D
No Scale



DRAINAGE COMPUTATION

Drainage Area-1

ITEM	AREA	FACTOR	A x Factor
Roof (60x425)	25,500	0.95	24,225
Backlot (130x265/2)	17,225	0.20	3,445
Asphalt Pavement	56,443	1.00	56,443
	A= 99,168		A= 84,113

$C = \frac{84,113}{99,168} = 0.848$

$t_c = t_{c_1} + t_{c_2} = 4.08 + 7.26 = 11.34$ minus -0.51

$I_{100} = .7 \times 6.64 \times 11.34 = 4.36$

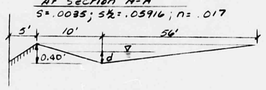
$Q_{100} = CIA = 0.848 \times 4.36 \times 99,168 / 43,560 = 8.42$ c.f.s.

100 YEAR UNDEVELOPED CONDITION.

$Q_{100} = 0.40 \times 4.36 \times 99,168 / 43560 = 3.97$ c.f.s.

At Section A-A

S=.0085; S½=.05916; n=.017



For d= 0.40'
Area = 66' x .4 x ½ = 13.2 S.F.
W.P. = 66'
$R^{2/3}$ = .342

For Q = 8.42 c.f.s.
Actual d = 0.22'
V = 1.18 f.p.s.

$Q_{cap} = AV = 13.2 \times \frac{1.486}{.017} \times .342 \times .05916 = 28.3$ c.f.s. > 8.42 c.f.s.

Drainage Area-2

Roof 60x465 / 60x420 = 49,320 — 49,500 x .95 = 47,025

Asphalt Pavement = 51,570 — 51,570 x 1.00 = 51,570

Area 101,070 — Area = 98,595

C = 0.9755

t_c = 5.685 - use 10 mins. initial t_c

I_{100} = 4.65

$Q_{100} = CIA = .9755 \times 4.65 \times 101,070 / 43560 = 10.52$ c.f.s

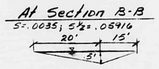
100 YEAR UNDEVELOPED CONDITION

$Q_{100} = 0.40 \times 4.65 \times 101,070 / 43560 = 4.31$ c.f.s

For Q = 10.52 c.f.s
Actual d = .363'
V = 1.66 f.p.s.

At Section B-B

S=.0085; S½=.05916



For d= 0.50'
Area = 8.75 S.F.
W.P. = 35.0'
$R^{2/3}$ = .346832

$Q_{cap} = \frac{8.75 \times 1.486}{.017} \times .346832 \times .05916 = 17.96$ c.f.s > 10.52 c.f.s. max.

Drainage Area-3

Roof (60x420) = 24000 — 24,000 x .95 = 22,800

Asphalt Pavement = 31,250 — 31,250 x 1.00 = 31,250

A: 55,250 — A: 54,050

C = .97828

t_c = 6.45 mins - use 10 mins. initial t_c

I = 4.65

$Q_{100} = CIA = .97828 \times 4.65 \times 55,250 / 43560 = 5.7698$ c.f.s.

100 YEAR UNDEVELOPED CONDITION

$Q_{100} = 0.40 \times 4.65 \times 55,250 / 43560 = 2.36$ c.f.s.

Offsite Drainage Contributing =
Area East of Property (Lt-22)
Area = 210 x 410 = 45,000 S.F.
C = 0.40 - for undeveloped condition
I = 4.65 (t_c = 10 min initial t_c)
Q_{100} undeveloped = CIA = 0.40 x 4.65 x 45,000 / 43560 = 1.92 c.f.s.
Total Q_{100} = 5.77 + 1.92 = 7.69 c.f.s.

At Section C-C

S=.005; S½=.0707; n=.017

For d= 0.92'
Area = 40 x .92 x ½ = 18.40 S.F.
W.P. = 15.028 + 25.017 = 40.045
$R^{2/3} = \left(\frac{18.40}{40.045}\right)^{2/3} = 0.5954$

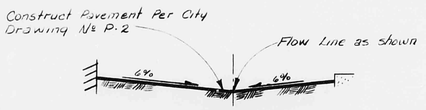
For Q_{100} = 7.69 c.f.s.
Actual d = 0.252'
V = 1.54 f.p.s.

$Q_{cap} = AV = 18.40 \times \frac{1.486}{.017} \times 0.5954 \times .0707 = 67.11$ c.f.s > 7.69 c.f.s.

VICINITY MAP (D-17-Z)

LEGEND

- Flow Direction
- 96.0 / ft — Proposed ft Elev.
- 101 — Proposed Contour Elev.
- Exist. Contour
- 101.0 H.P. ft — High Point @ ft
- 91.67 EX.ST E.P. — Exist Edge Pavement Elev.
- 92.0 T.A. — Proposed Elev. @ Top of Asphalt
- TC 92.17 — Exist. Top of Curb Elev.



TYPICAL PAVEMENT SECTION
No Scale

RECEIVED
MAR 25 1983
ENGINEERING

ADAM, HAMLYN, ANDERSON
PRINTED
MAR 24 1983

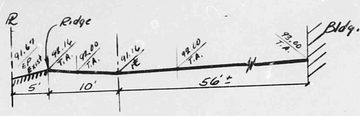
Owner:
Sunbelt Business Centers
4924 Jefferson N.E.
Albuquerque, New Mexico
Ph. 881-2857

Interstate Industrial Tract
Unit-IV Lot - 21-A
DRAINAGE PLAN

ADAM, HAMLYN, ANDERSON
consulting engineers inc.
4555 MONTGOMERY BOULEVARD, N.E.
ALBUQUERQUE, NEW MEXICO 87109
505-881-1555

Sht. 1 OF 1

N-D-17-Z



SECTION D-D
No Scale

DRAINAGE COMPUTATION

Drainage Area-1

ITEM	AREA	FACTOR	A x Factor
Roof (20x425)	25,500	0.95	24,225
Sidewalk (150x20 ft)	17,225	0.20	3,445
Asphalt Pavement	56,443	1.00	56,443
	A= 99,168		A= 84,113

100 YEAR UNDEVELOPED CONDITION

$Q_{100} = 0.40 \times 4.36 \times 99168 / 43560 = 3.97$ c.f.s.

$C = \frac{84,113}{99,168} = 0.848$

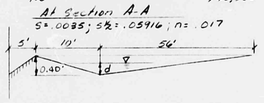
$t_c = t_{c_1} + t_{c_2} = 6.08 + 7.26 = 11.34$ minus -5.51

$I_{100} = 2.2 \times 1.84 \times 11.34 = 4.36$

$Q_{100} = CIA = 0.848 \times 4.36 \times 99168 / 43,560 = 8.42$ c.f.s.

For Q = 8.42 c.f.s.
Actual d = 0.22'
V = 1.18 f.p.s.

At Section A-A
S=.0035; S_2=.05416; n=.017



For d = 0.40'
Area = 66 x .4 x ½ = 13.2 S.F.
W.P. = 66'
R 2/3 = .342

$Q_{cap} = AV = 13.2 \times \frac{1.486}{.017} \times .342 \times .05416 = 28.3$ c.f.s. > 8.42 c.f.s.

Drainage Area-2

Roof 60x425 / 60x420 } = 49,520 — 49,500 x .95 = 47,025

Asphalt Pavement = 51,570 — 51,570 x 1.00 = 51,570

Area 101,070 — Area = 98,595

C = 0.9755

100 YEAR UNDEVELOPED CONDITION

$Q_{100} = 0.40 \times 4.65 \times 101,070 / 43560 = 4.31$ c.f.s

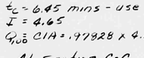
$t_c = 5.695$ - use 10 mins. initial t_c

$I_{100} = 4.65$

$Q_{100} = CIA = .9755 \times 4.65 \times 101,070 / 43560 = 10.52$ c.f.s

For Q = 10.52 c.f.s
Actual d = .363'
V = 1.66 f.p.s.

At Section B-B
S=.0035; S_2=.05416



For d = 0.50'
Area = 8.75 S.F.
W.P. = 35.0'
R 2/3 = .396852

$Q_{cap} = \frac{8.75 \times 1.486}{.017} \times .396852 \times .05416 = 17.96$ c.f.s > 10.52 c.f.s max.

Drainage Area-3

Roof (6 x 400) = 24000 — 24,000 x .95 = 22,800

Asphalt Pavement = 31,250 — 31,250 x 1.00 = 31,250

A = 55,250 — A = 54,050

C = 0.9828

100 YEAR UNDEVELOPED CONDITION

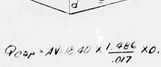
$Q_{100} = 0.40 \times 4.65 \times 55,250 / 43560 = 2.36$ c.f.s

$t_c = 6.65$ mins - use 10 mins. initial t_c

$I = 4.65$

$Q_{100} = CIA = .9828 \times 4.65 \times 55,250 / 43560 = 5.7648$ c.f.s.

At Section C-C
S=.005; S_2=.0707; n=.017



For d = 0.92'
Area = 40 x .92 x ½ = 18.40 S.F.
W.P. = .5028 + 25.0177 = 40.045
R 2/3 = (.45)^2/3 = 0.5954

$Q_{cap} = AV = 18.40 \times \frac{1.486}{.017} \times 0.5954 \times .0707 = 67.11$ c.f.s > 7.69 c.f.s.

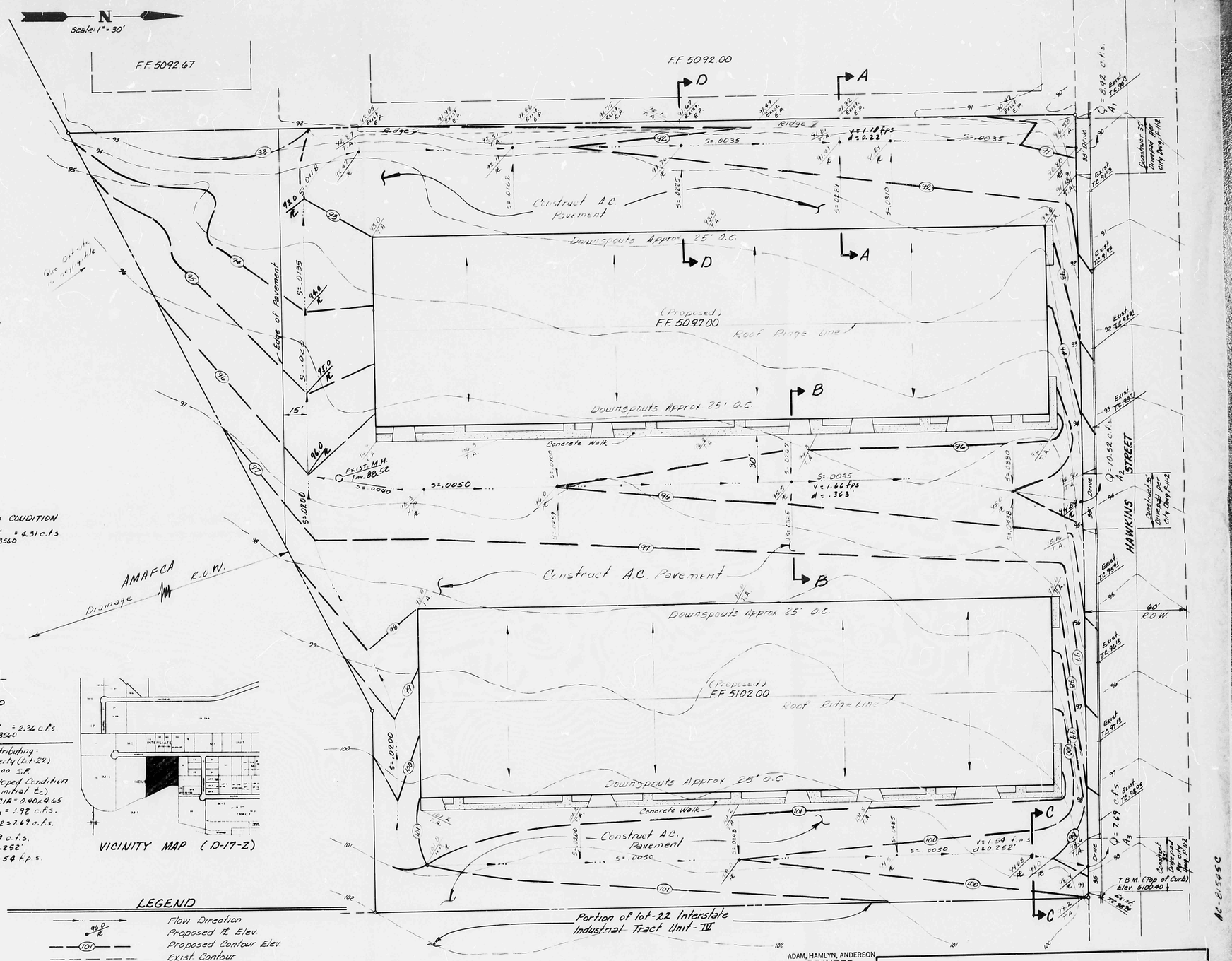
Offsite Drainage Contributing = Area East of Property (Lot-22)
Area = 210 x 410 = 45,000 S.F.
C = 0.40 - for undeveloped condition
I = 4.65 (t_c = 10 min initial t_c)
Q_{100} Undeveloped = CIA = 0.40 x 4.65 x 45,000 / 43560 = 1.92 c.f.s.
Total Q_{100} = 5.77 + 1.92 = 7.69 c.f.s.

For Q_{100} = 7.69 c.f.s.
Actual d = 0.252'
V = 1.54 f.p.s.

VICINITY MAP (D-17-Z)

Construct Pavement Per City Drawing No P-2

TYPICAL PAVEMENT SECTION
No Scale



LEGEND

	Flow Direction
96.0 ft	Proposed ft Elev.
101	Proposed Contour Elev.
	Exist Contour
101.0 ft	High Point @ ft
91.57 Exist E.P.	Exist Edge Pavement Elev.
98.0 T.A.	Proposed Elev. @ Top of Asphalt
T.C. 98.5	Exist. Top of Curb Elev.

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MAR 25 1983
ENGINEERING

ADAM, HAMLYN, ANDERSON
PRINTED
MAR 24 1983

Owner:
Sunbelt Business Centers
4924 Jefferson N.E.
Albuquerque, New Mexico
Ph. 881-2857

Interstate Industrial Tract
Unit-III lot - 21-A
DRAINAGE PLAN

Sht. 1 OF 1

ADAM, HAMLYN, ANDERSON
consulting engineers inc.
4025 MONTGOMERY BOULEVARD, N.E.
ALBUQUERQUE, NEW MEXICO 87109
505-881-1808

N-E-5450