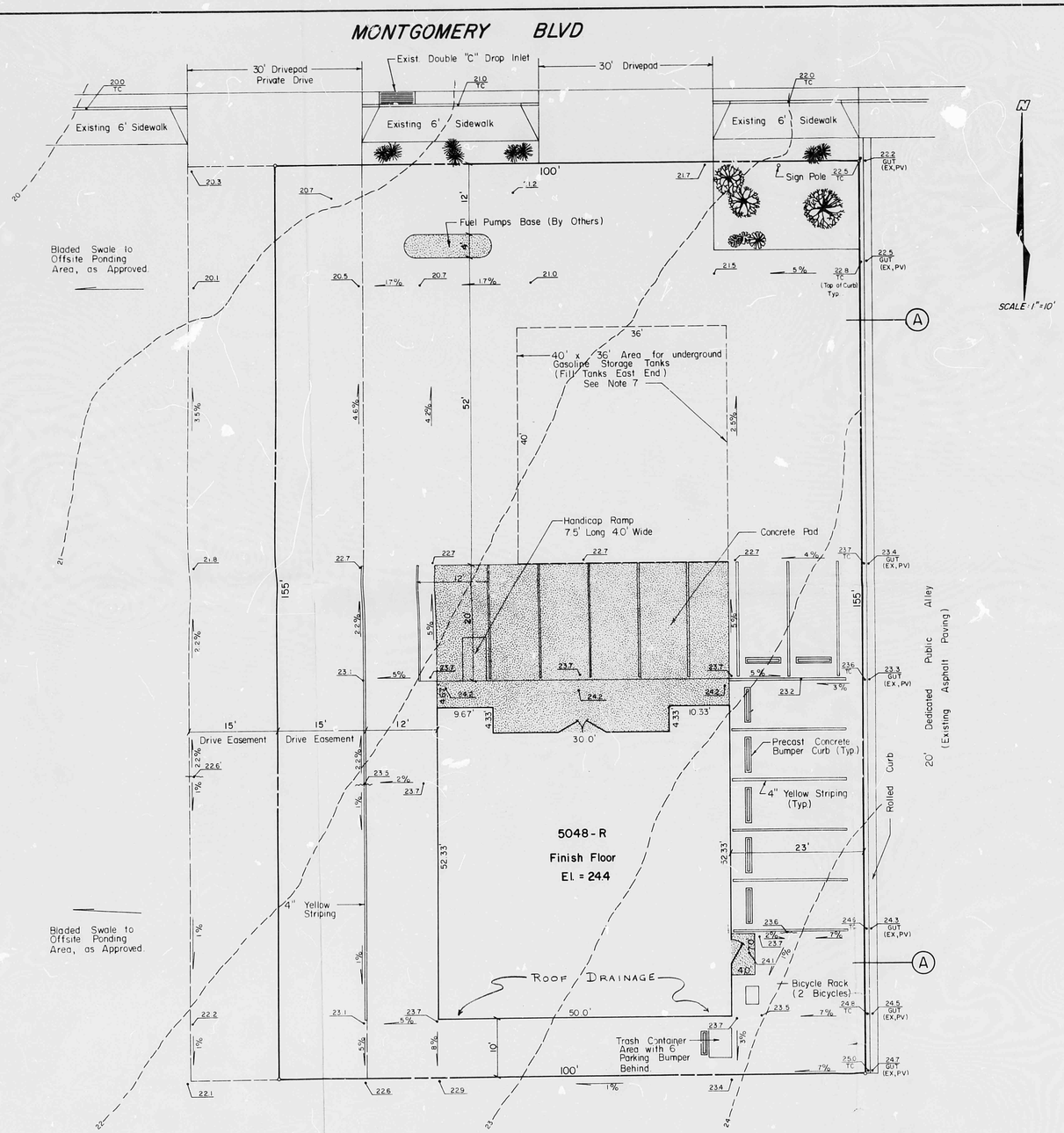
HYDROLOGY

G17/D23

ONE PLAN

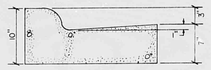


LAYOUT & GRADING PLAN

NOTES:

1. Total Site excepting Building, Concrete Paving and Landscape Areas will be paved with Asphaltic concrete. (See Note 7)
2. Parking Requirement, 13 Spaces 8.5' x 20'
3. Landscape:
   Drives:
   (56 x 24) + (13 x 8.5 x 24) = 3.996 S.F.
   Parking:
   (13 x 8.5 x 20) = 2.210 S.F.
   Total = 6.206 S.F.
   7 %
   434 S.F.

   Provided:
   City R.O.W. 12½% = 54 S.F.
   Planter = 388 S.F.
   Total 442 S.F.
4. Ponding:
   Required:
   Area Site = 15.500 S.F.
   Multiplier = 0.1
   Volume Req'd = 1.550 C.F.
   Available offsite = 1.755 C.F. (Previously Approved Drainage Plan)
5. Existing topography by others.
6. Drainage Plan by others.
7. Area for Underground Gasoline storage tanks shall be covered with a minimum of 18" of compacted earth plus 6" of reinforced Concrete or 8" of Asphaltic Concrete. By others.
8. 236 Drainage Break
9. EX, PV = Existing Pavement



SECTION A

Extra Copy for Drainage Dept

Approved: 617 A1
617/D28 (1)

BLDG ROOF DRAINAGE INDICATED 4/3/79 JEP

ALBUQUERQUE, NEW MEXICO

THE SOUTHLAND CORPORATION

MONTGOMERY NEAR CARLISLE N.E.

DRAWN BY KIM
DATE 2-20-79
SCALE AS SHOWN

GORDON HERKENHOFF & ASSOCIATES, INC.
ENGINEERS ARCHITECTS PLANNERS
ALBUQUERQUE FARMINGTON SANTA FE

SHEET OF

BRUNING 44-122 34326

HYDROLOGY

G17/D23
2 PLANS

G17/D23

2 Plans

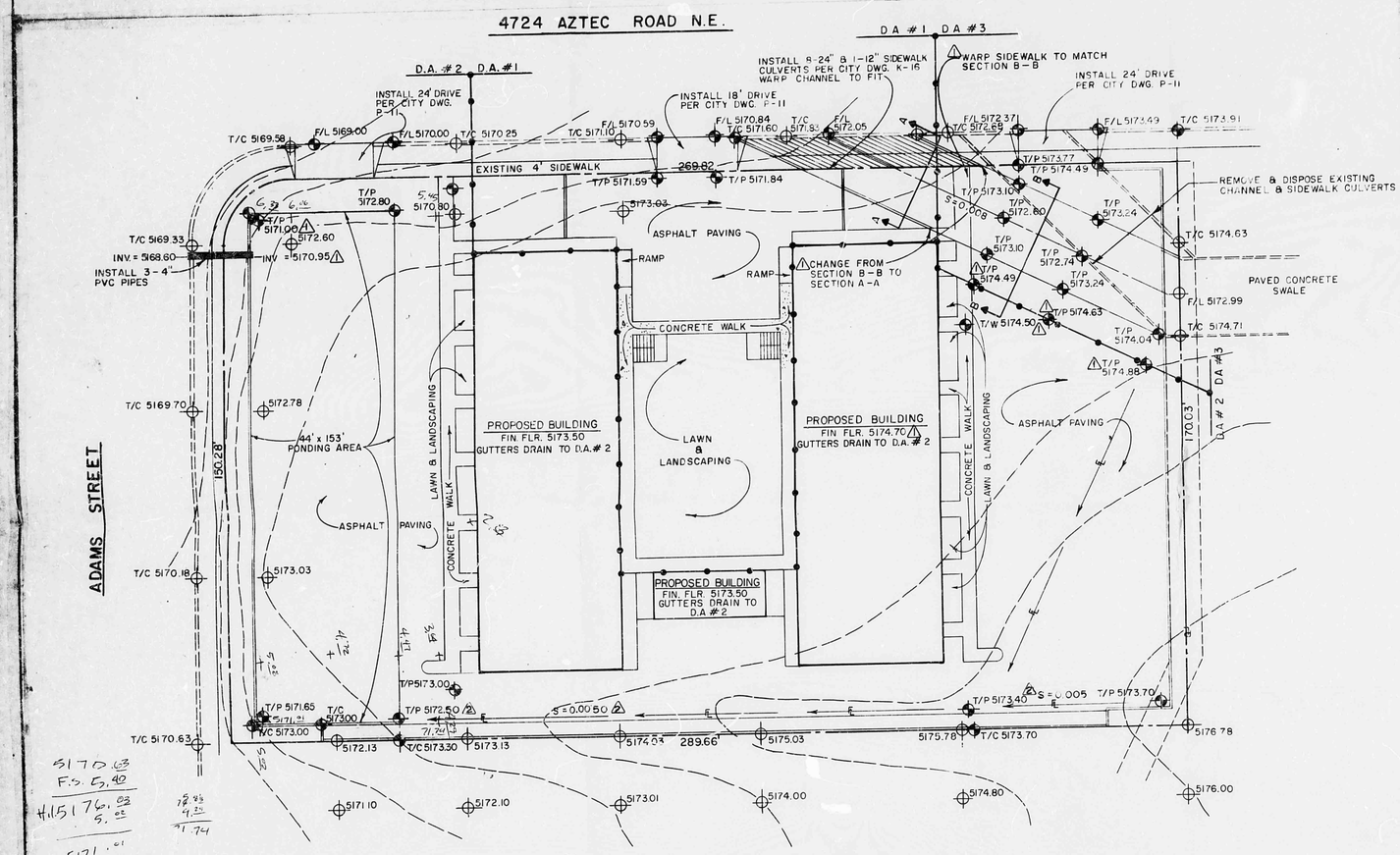
DRAINAGE PLAN

TRACT A WELLINGTON EAST

ALBUQUERQUE, N.M

REFER TO DRAINAGE PLAN FILE #G-17 / D23
BY EPSEY, HOUSTON & ASSOC. APPROVED 9/10/84
FLOOD MAP 23, BENCHMARK 3-G17, ELEV. 5162.30, SOIL TYPE "B"
TOTAL AREA 49222.80 SQ. FT. = 1.13 ACRES
TOTAL AREA ROOFED OR PAVED = _____ SQ. FT. = %
FILE # G17/D23 APPROVED _____

0 10 20
1" = 20'



SUPERELEVATION AT CHANNEL BEND

Q = 55 cfs

Using HYDCAL, compute normal depth & critical depth.

ENTER CRITICAL DEPTH OPTION
(FOR ASSISTANCE TYPE "0")
0

OPTIONS AVAILABLE ARE:
1. RECTANGULAR, TRAPEZOIDAL, OR TRIANGULAR CROSS-SECTION
2. CIRCULAR CROSS-SECTION

ENTER CRITICAL DEPTH OPTION
(FOR ASSISTANCE TYPE "0")
1

ENTER:
1. CHANNEL BOTTOM WIDTH (FEET)
2. CHANNEL SIDE SLOPE (HORIZONTAL PER UNIT VERTICAL
3. FLOW RATE)
0
18.8025
55

CRITICAL DEPTH = .88 MINIMUM SPECIFIC ENERGY = 1.10

ENTER NORMAL DEPTH OPTION
(FOR ASSISTANCE TYPE "0")
0

OPTIONS AVAILABLE FOR NORMAL DEPTH CALCULATIONS ARE:
1. RECTANGULAR, TRAPEZOIDAL, OR TRIANGULAR CROSS-SECTION
2. CIRCULAR CROSS-SECTION

ENTER NORMAL DEPTH OPTION
(FOR ASSISTANCE TYPE "0")
1

ENTER:
1. MANNING'S N
2. CHANNEL BOTTOM WIDTH (FEET)
3. CHANNEL SIDE SLOPE (HORIZONTAL PER UNIT VERTICAL)
4. CHANNEL BOTTOM SLOPE (FEET/FEET)
5. FLOW RATE)
.017
0
18.8025
.008
55

NORMAL DEPTH = .82 SPECIFIC ENERGY = 1.11
AREA OF FLOW = 12.74 WATER VELOCITY = 4.32

Since normal depth is less than critical depth, use supercritical equation as follows:

$Q = 1.3V\,(b+2zD)^{1/2}$ where $v = 4.32$, $b = 8$, $z = 18.8025$

& $g = 32.2$ $r = 21.66$ (using a tangent = 5.0 &

delta = 26deg)

S = 1.07 ft.

Left top of channel should be 1.89 (1.07+0.82) ft. above the centerline elevations of the channel.

HYDROLOGY

DRAINAGE AREA #2 (D.A.#2) – AREA = 36,407 S.F. = 0.836 Ac. SOIL GROUP = B

VOLUME

FOR 90% IMPERVIOUS, SOIL GROUP B, CN = 95
DIRECT RUNOFF = 1.8"
V = 1.8 / 12 x 36,407 S.F. = 5461 C.F
POND VOLUME = 15 x 44 x 153 / 2 = 5049 C.F.

OUTLET PIPES 4" DIAMETER P.V.C.

$Q = CA\sqrt{2gh} = 0.60 \times 0.087\sqrt{2 \times 32.2 \times 1.5}$
Q = 0.51 CFS
USE 4 PIPES ∴ Q = 2.04 C.F.S.

DRAINAGE AREA # 3 (D.A. #3) – AREA = 3,504 = 0.080 Ac.

PEAK FLOW 100 YR. – 6 HR. = 2.3" Tc = 10 MIN.
I_{100} = 2.3 x 2.3 = 5.29"/HR.
Q_{100} = 5.29 x 1.00 x 0.080 = 0.42 CFS.

DRAINAGE AREA # 1 (D.A. #1) – AREA = 10,439 = 0.240 Ac.

COMPOSITE C

LAWN & LANDSCAPE	= 4,690	x 0.25	=	1172
SIDEWALK	= 1,322	x 0.95	=	1256
CONC. CHANNEL & ASPHALT	= 3,299	x 0.95	=	3134
	9,311			5,562

C = 5562 / 9311 = 0.60
Q = 0.60 x 5.29 x 0.240 = 0.76 C.F.S.

TOTAL SITE

COMPOSIT C

LAWN & LANDSCAPING	= 4690	x 0.25	=	1,173
ROOF	= 11,800	x 0.90	=	10,620
PAVING, SIDEWALK & CHANNEL	= 32,932	x 0.95	=	31,095
	49,222			42,888

C = 49,222 / 42,888 = 0.87

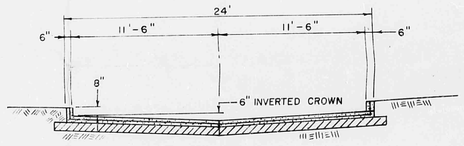
ALLOWABLE DISCHARGE – 10 YR
I_{10} = (2.3 x 0.657) x 2.3 = 3.48" / HR.
Q_{10} = 0.87 x 3.48 x 1.13 = 3.42 C.F.S.

ACTUAL DISCHARGE
D.A. # 1 Q = 0.76 C.F.S.
D.A. # 2 Q = 2.04 C.F.S.
D.A. # 3 Q = 0.42 C.F.S.
TOTAL ACTUAL = 3.22 C.F.S. O.K.

EROSION CONTROL NOTES

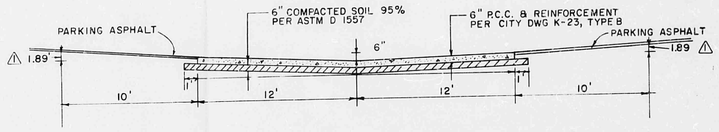
THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE TO THE FOLLOWING

1. NO SEDIMENT – BEARING WATER SHALL BE ALLOWED TO DISCHARGE THE SITE DURING CONSTRUCTION.
2. DURING GRADING OPERATIONS AND UNTIL THE PROJECT HAS BEEN COMPLETED, ALL ADJACENT PROPERTY, RIGHTS-OF-WAY, AND EASEMENTS SHALL BE PROTECTED FROM FLOODING.
3. ANY AND ALL SEDIMENTATION ORIGINATING ON THE SITE WHICH IS DEPOSITED WITHIN PUBLIC RIGHT-OF-WAY SHALL BE PROMPTLY AND COMPLETELY REMOVED BY THE CONTRACTOR.
4. CONTROL OF SEDIMENT – LADEN FLOOD WATERS WILL BE ACCOMPLISHED BY THE USE OF A COMPACTED EARTH BERM AT LEAST 12" HIGH. BERM SHALL BE LOCATED ALONG THE DOWNSTREAM PERIMETERS OF THE PROPERTY.



PER CITY DWG. K-23, TYPE B

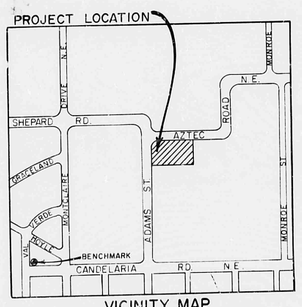
CONCRETE CHANNEL SECTION A-A
SCALE 1" = 5'



CONCRETE CHANNEL SECTION B-B
SCALE 1" = 5'

LEGEND

PROPERTY LINE
EXISTING CONTOUR — 5000
PROPOSED CONTOUR — 5000
EXISTING SPOT ELEVATION
PROPOSE SPOT ELEVATION
EXISTING CURB
FLOW DIRECTION
DRAINAGE AREA BOUNDARY



VICINITY MAP
ZONE MAP G-17

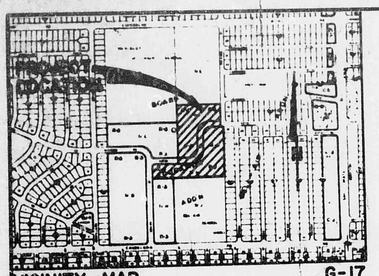
RECEIVED
AUG 29 1986
HYDROLOGY SECTION

REVISED 8-28-86

REVISED PER CITY COMMENTS 8-1-86
REVISED BUILDING LOCATION 7-16-86

LOGAN / GROSS & ASSOCIATES, INC.
CONSULTING CIVIL ENGINEERS
501 KINLEY N.E. 243-6353
ALBUQUERQUE, NEW MEXICO 87102

DRAINAGE PLAN	File # H-156
FOR: BOB PONTO	Date 5-26-86
AT: WELLINGTON EAST	Drawn C.L.B.
ALBUQUERQUE, N.M	Sheet 1 of 1

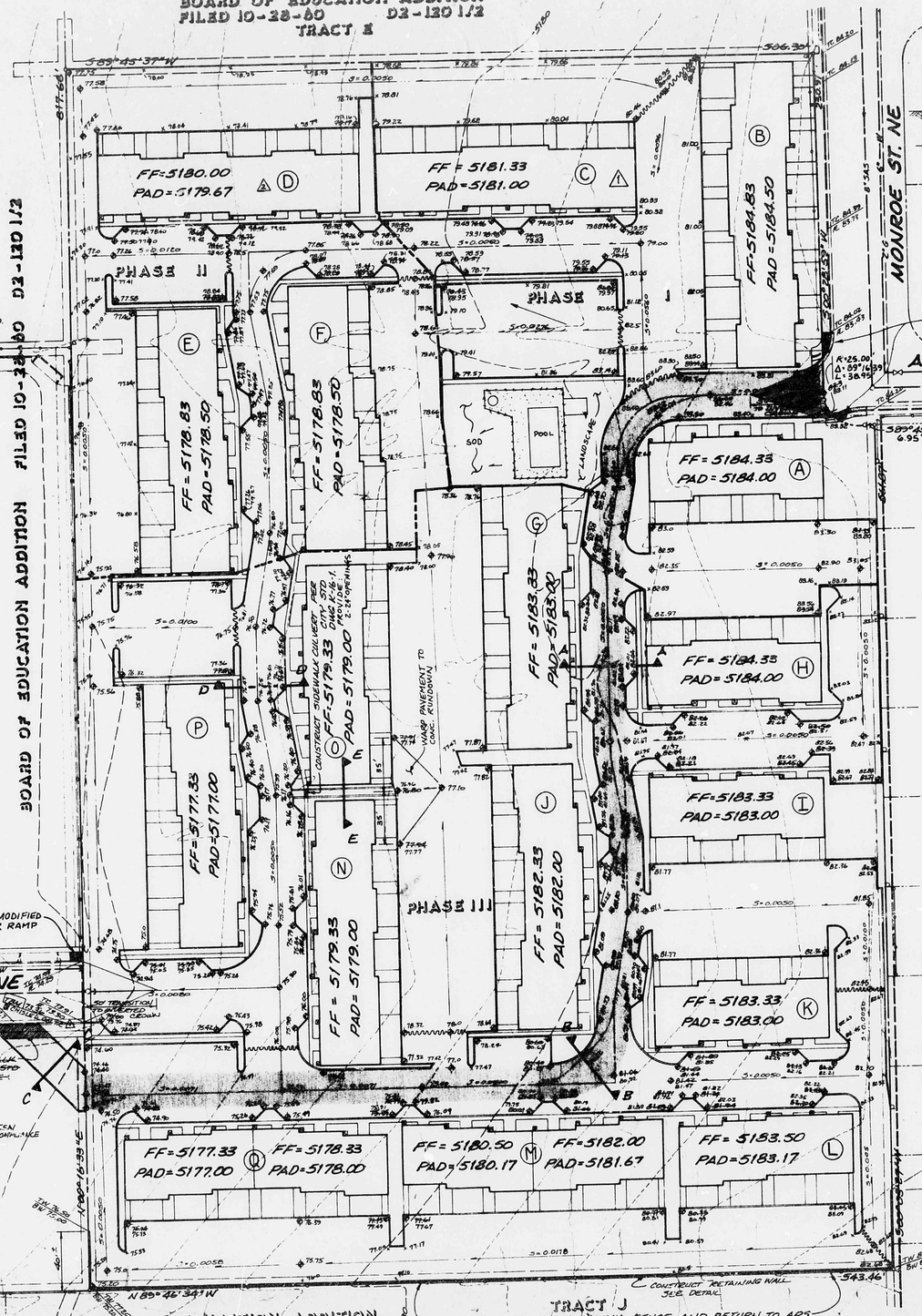


VICINITY MAP
SCALE 1" = 800'

G-17

SCALE 1"=40'
0 10 20 40 80

BOARD OF EDUCATION ADDITION
FILED 10-28-80 D2-120 1/2
TRACT E



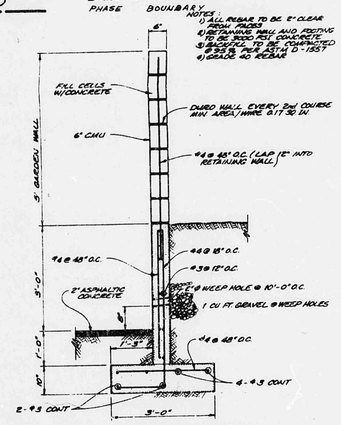
PROJECT BENCH MARK

ACS BENCH MARK 2-017 LOCATED AT THE INTERSECTION OF CANDELARIA RD. AND MADISON ST. NE. IN THE SOUTHEAST QUADRANT OF THE INTERSECTION. A SQUARE "D" CHISELED ON TOP OF CONCRETE CURB AT THE ESE CURB RETURN. ELEVATION = 5178.091 FEET (MSLD)

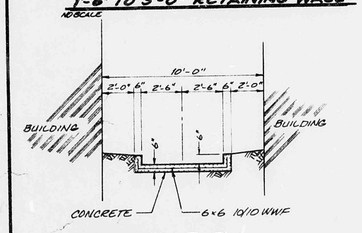
LEGEND

- 78.82 — PROPOSED SPOT ELEVATION
- 5175 — EXISTING CONTOUR
- DIRECTION OF FLOW
- SWALE
- EXISTING WALL
- NEW RETAINING WALL
- EXISTING CHAIN LINK FENCE
- WATER BLOCK
- ROOF DRAIN DOWNSPOUT SEE DRAINAGE REPORT
- DRAINAGE EASEMENT
- (F) BUILDING IDENTIFICATION
- PHASE BOUNDARY

NOTES:
1) ALL REBAR TO BE 6" CLEAR FROM FACES
2) RETAINING WALL AND FOOTING TO BE 3000 PSI CONCRETE
3) BACKFILL TO BE COMPACTED @ 95% PER ASTM D-1557
4) GRADE 40 REBAR



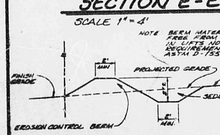
1'-6" TO 3'-0" RETAINING WALL



SECTION E-E

SCALE 1"=4'

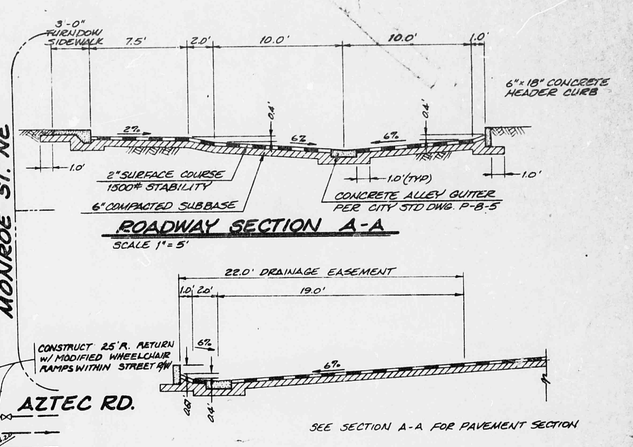
NOTE: BERM MATERIAL SHALL BE CLEAN FREE FROM DEBRIS AND COMPACTED. (CLODS NOT TO EXCEED 6" COMPACTION REQUIREMENTS SHALL BE 90% ASTM D-1557)



TYPICAL DITCH-DIKE EROSION CONTROL

NO SCALE

NOTE:
ROOF TOP FLOW-RESTRICTORS HAVE BEEN INSPECTED AND ARE IN SUBSTANTIAL COMPLIANCE WITH ENGINEER'S DRAWINGS.



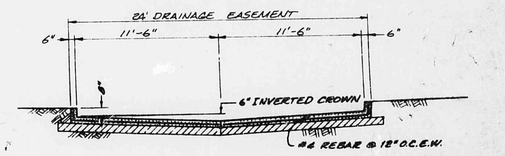
ROADWAY SECTION A-A

SCALE 1"=5'

SEE SECTION A-A FOR PAVEMENT SECTION

ROADWAY SECTION B-B

SCALE 1"=5'

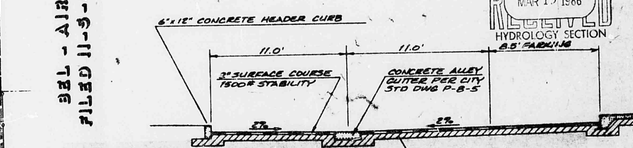


NOTE: CONSTRUCT CONCRETE RUNDOWN PER CITY STD DWG. K-12-4

CONCRETE RUNDOWN SECTION C-C

SCALE 1"=5'

RECEIVED
MAR 13 1986
HYDROLOGY SECTION



ROADWAY SECTION D-D

ENGINEER'S DRAINAGE CERTIFICATION

I, the undersigned, being a professional engineer registered in the State of New Mexico, do hereby certify that this as-built drawing for Wellington East Apartments was prepared by me or under my supervision and that the as-built elevations shown are based on actual field surveys performed by Espey, Huston and Associates, Inc. (EH&A). I further certify that it is in substantial compliance with the approved drainage report and plan and that he temporary drainage and erosion control facilities are in place and in substantial compliance with the approved erosion control plan.

JAMES L. LEYNOR JR. NEW MEXICO 9168 REGISTERED PROFESSIONAL ENGINEER

ENGINEER'S DRAINAGE CERTIFICATION

DRAINAGE PHASING CERTIFICATION

NO	REVISIONS	BY	DATE
4	ASBUILT - PHASE [illegible] COMPLETION OF SITE DRAINAGE CERTIFICATION		7/15/85
3	ASBUILT - PHASE II		6-21-85
2	ASBUILT - PHASE I		

WELLINGTON EAST APARTMENTS
GRADING PLAN

WILLIAM L. CULLINAN NEW MEXICO 5975 REGISTERED PROFESSIONAL ENGINEER

ESPEY, HUSTON & ASSOC., INC.
Engineering & Environmental Consultants
4801 INDIAN SCHOOL [illegible] SUITE 204
ALBUQUERQUE, NEW MEXICO 87110
PHONE [illegible]

DESIGNED BY DAL DATE NOV. [illegible] SHEET NO.
DRAWN BY TKW F.B.
CHECKED BY DAL JOB NO. [illegible] OF SHEETS
APPROVED BY