

DRAINAGE CALCULATIONS

EXISTING CONDITIONS:

The site is presently totally paved with asphalt pavement and slopes generally from southwest to northeast. The adjoining lot to the east is also paved with asphalt and has some buildings and drains into the site across the east property line. Property to the south also partially drains into the site across the south property line. There is an existing drive pad which will continue to be used. Wellesley Street is paved with curb and gutter and slopes to the north.

PROPOSED CONDITIONS:

It is proposed, initially, to construct one 60' X 40' maintenance building on the northwest corner of the site. Some removal and replacement of asphalt pavement will be required to achieve acceptable drainage. Landscaping will be added along all sides of the site. Along the east and south sides of the site, where off-site flow must be accepted, landscaping will be provided in square planters with asphalt pavement between them so that the flow will pass through. Future buildings are planned along the north and south sides of the site. Grading and finish floor elevations are shown for future reference but for the first phase only the landscaping and the one building will be constructed.

SOIL INFORMATION:

(Refer to "Soil Survey of Bernalillo County", June, 1977). Soil is Web, Wink-Embudo complex, hydrologic soil group "B".

TIME OF CONCENTRATION:

(Use ten (10) minutes, minimum time of concentration).

RAINFALL, 100-YEAR, 6-HOUR:

(Refer to D.P.M., Plate 22.2 D-1). $R_6 = 2.25$ inches.

RAINFALL INTENSITY:

$I = R_6 \times 6.84 \times T_c^{-0.51} = 2.25 \times 6.84 \times 10^{-0.51} = 4.76$ inches per hour.

SITE IMPERVIOUSNESS:

Surface Type	"C"	"CN"	DIRECT RUNOFF	EXISTING AREA (SQ.FT.)	DEVELOPED AREA (SQ.FT.)
Building Roof	0.90	98	2.30		2400
Asphalt	0.95	98	2.30	33650	27473
Landscaping	0.25	61	0.25		3777
Totals:				33650	33650

Site Area in Acres = 0.7725 ac.

WEIGHTED "C" VALUES:

Existing Conditions: $C_w = 0.95$

Developed Conditions: $C_w = \frac{(0.90 \times 2400 + 0.95 \times 27473 + 0.25 \times 3777)}{33650} = 0.87$

PEAK DISCHARGE:

Existing Conditions: $Q_{100} = 0.95 \times 4.76 \times 0.7725 = 3.50$ cfs

$Q_{10} = 0.657 \times 3.50 = 2.30$ cfs

Developed Conditions:

$Q_{100} = CIA = 0.87 \times 4.76 \times 0.7725 = 3.20$ cfs; $Q_{10} = 0.657 \times 3.20 = 2.10$ cfs

VOLUME, 100-YEAR AND 10-YEAR, 6-HOUR:

Existing Conditions: $V_{100} = 33650(2.3 / 12) = 6450$ cf

$V_{10} = 0.657 \times 6450 = 4238$ cf

Developed Conditions:

$V_{100} = (29873 \times 2.3 + 3777 \times 0.25) / 12 = 5804$ cf

$V_{10} = 0.657 \times 5804 = 3813$ cf

OFF-SITE FLOW:

Off-site flow is generated by the parcel south of the site (Off-site Area 1), and the parcel directly east of the site (Off-site Area 2).

Off-site Area 1: $290 \times 200 = (40 \times 210 + 40 \times 40) = 48000$ sf

$Q_{100} = 0.95 \times 4.76 \times (48000 / 43560) = 4.98$ cfs. This flow quantity enters across the south boundary of the site.

Off-site Area 2: $540 \times 450 = 243000$ sf = 5.58 ac.

$Q_{100} = 0.95 \times 4.76 \times 5.58 = 25.23$ cfs. This flow quantity enters across the east boundary of the site.

SEWAGE LULVET FOR OFF-SITE AREA 1:

Design flow includes on-site and off-site flow.

On-site flow: Building, 3400 sf; Landscaping, 157.5 sf; Pavement, 1842.5 sf

$C_w = (3400 \times 0.90 + 1842.5 \times 0.95 + 157.5 \times 0.25) / 5400 = 0.90$

$Q_{100} = 0.90 \times 4.76 \times (5400 / 43560) = 0.53$ cfs; Off-site Area 1 = 4.98 cfs

Total design flow = $0.53 + 4.98 = 5.51$ cfs. Use Weir Equation, $Q = CLH^{3/2}$

$C = 2.65$ $H = 0.65$ $L = Q / (C \times H^{3/2}) = 5.5 / (2.65 \times 0.65^{3/2}) = 3.97'$

Use 2' each 2'-0" sidewalk culverts.

SEWAGE LULVET AT N.W. CORNER OF SITE:

Landscaping $10 \times 200 + 15 \times 60 = 2900$ sf; Roof 3400 sf.

$C_w = (3400 \times 0.90 + 2900 \times 0.25) / 6300 = 0.60$

$Q_{100} = CIA = 0.60 \times 4.76 \times (6300 / 43560) = 0.41$ cfs;

Use Weir Equation $Q = CLH^{3/2}$ $C = 2.65$ $H = 0.65$

$L = Q / (C \times H^{3/2}) = 0.41 / (2.65 \times 0.65^{3/2}) = 0.30'$ Use a 1'-0" Sidewalk Culvert

DISCHARGE THROUGH DRIVEWAY:

Off-site Area 2 discharges through the driveway. $Q_{100} = 25.23$ cfs

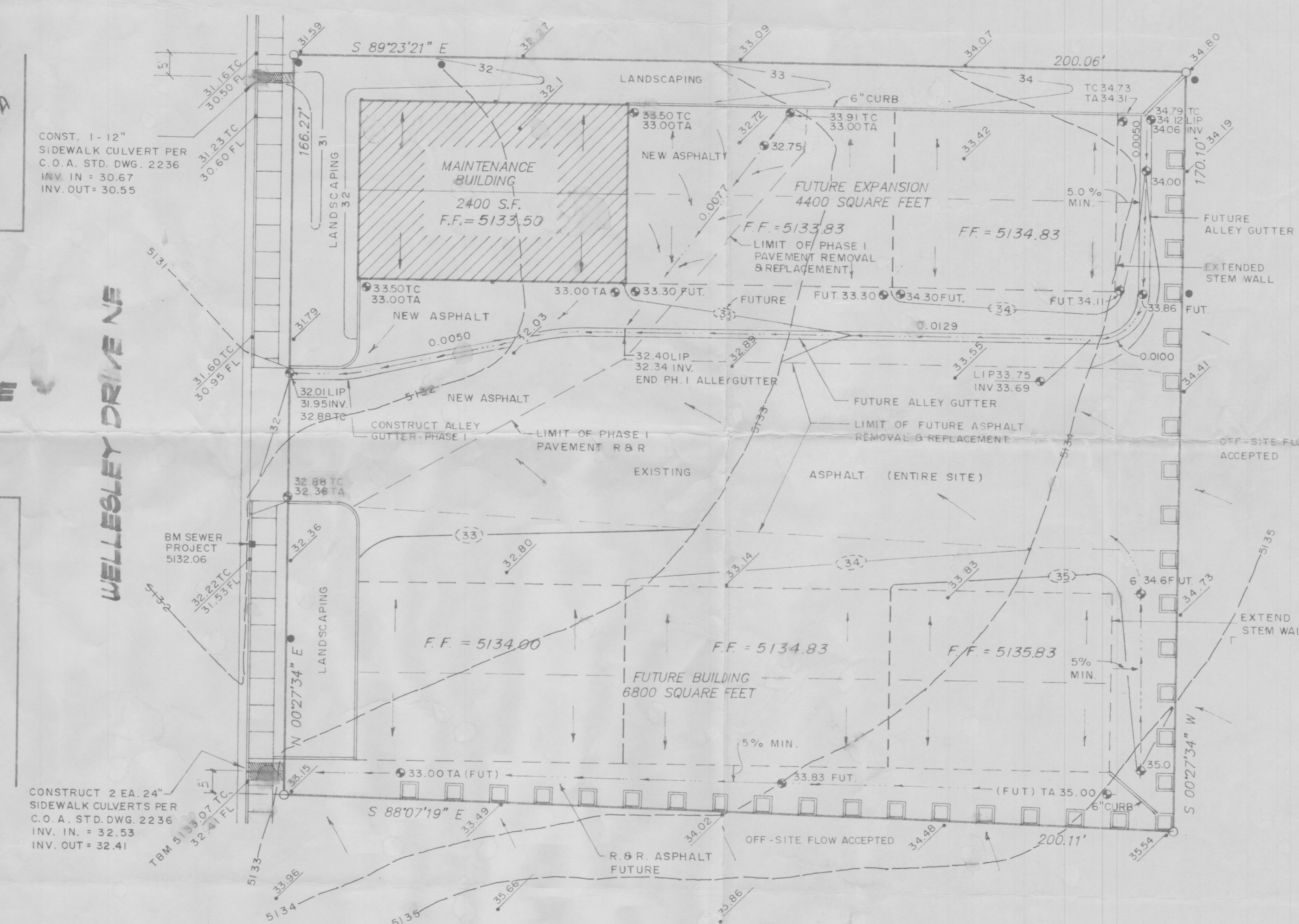
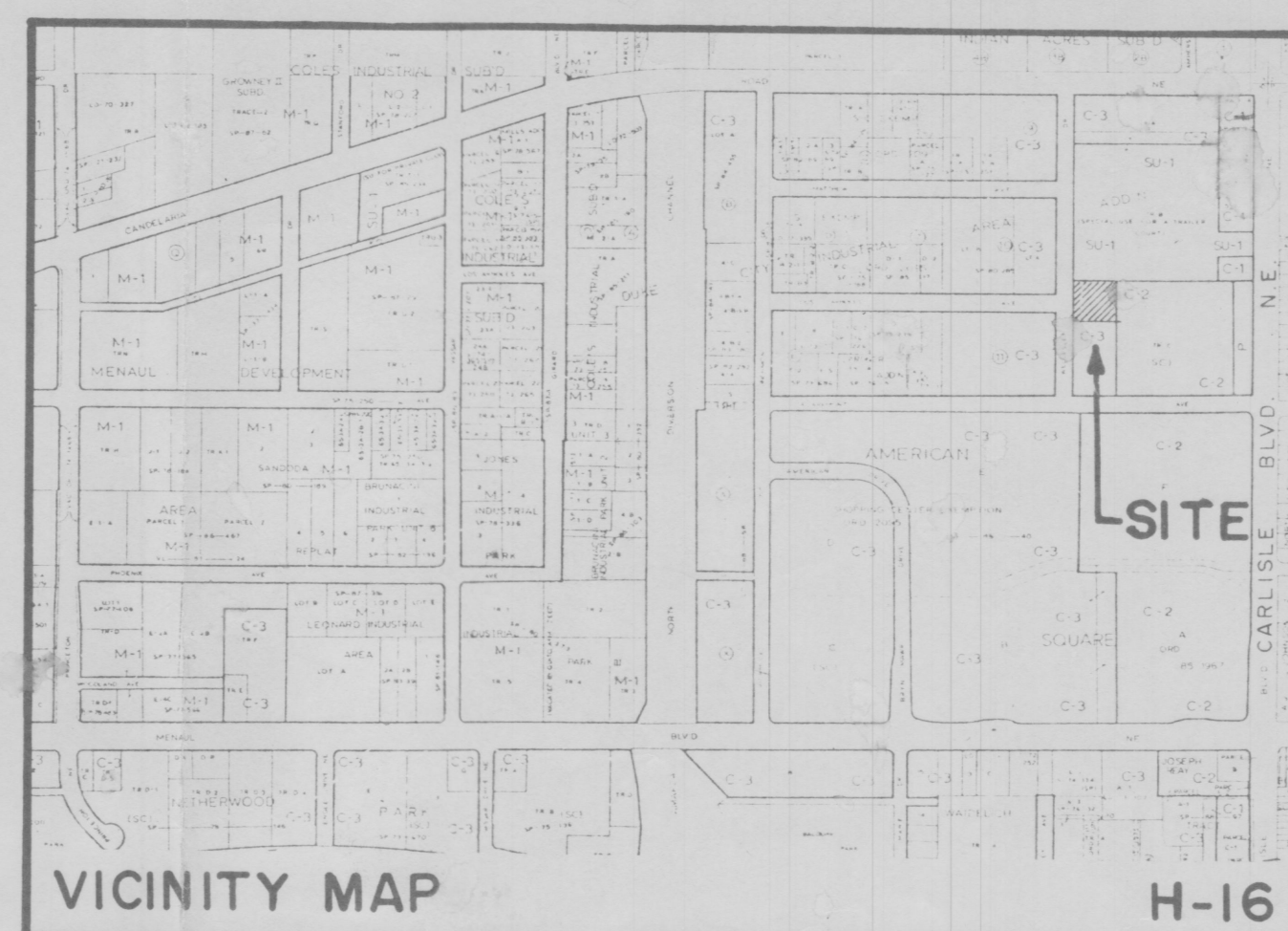
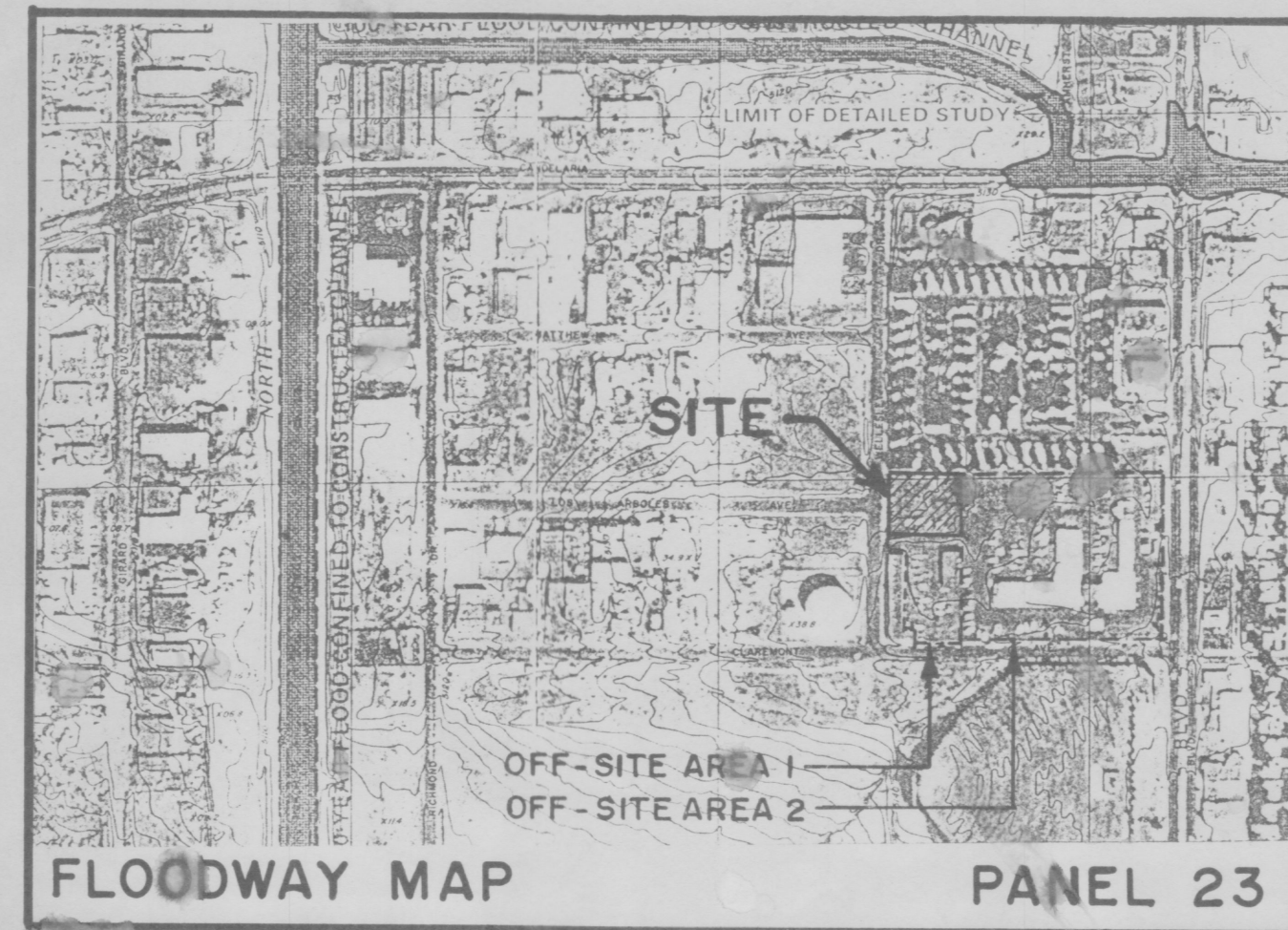
On-site flow = 3.2 cfs = $(0.53 + 0.41) = 2.26$ cfs. Total $Q_{100} = 27.49$ cfs

Use Weir Equation. $Q = CLH^{3/2}$ $C = 2.65$ $L = 30'$ $H = 0.5$

$Q = 2.65 \times 30 \times 0.5^{3/2} = 28.1$ cfs > 27.49 cfs Adequate.

*27,923.05 sf 7m
23,650 sf 7m
89 m 7m
43.24 m
12
32.20 (CR) A*

LOS ARBOLES AVENUE



LEGEND

EXISTING	NEW	FUTURE	DESCRIPTION
---	---	---	CONTOUR
•	•	•	SPOT ELEVATION
---	---	---	PROPERTY LINE
---	---	---	SWALE
---	---	---	SHEET FLOW
---	---	---	DOWN SPOUT
---	---	---	ROOF DRAINAGE
TA	TA	TA	TOP OF ASPHALT
TC	TC	TC	TOP OF CURB
FL	FL	FL	FLOW LINE

BENCH MARK:

Station 1-G16, located on the south side of Candelaria Blvd. N.E., west of Wellesley St. in front of house # 3310 Candelaria, N.E. A square chiseled on top of concrete curb. Elevation 5119.15 Feet.

TEMPORARY BENCH MARK (TBM):

A line scored on top of curb opposite the S.W. corner of the Site. Elevation = 5133.07 Feet.

LEGAL DESCRIPTION:

Lot G-2, Duke City Industrial Area Addition, replat filed October 10, 1991.

S.O. 19
CITY OF ALBUQUERQUE
DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY
NOTICE TO CONTRACTOR

- 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 these plans to be performed under contract, except as otherwise stated or provided herein, shall be constructed in accordance with Standard Specifications for Public Works Construction, 1986.
- Two (2) working days prior to any excavation, contractor must contact New Mexico One Call System, Inc. (260-1990), for location of 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 or surveyor so that the conflict can be resolved with a minimum amount of delay.
- Backfill compaction shall be according to street use.
- Maintenance of these facilities shall be the responsibility of the owner of the property served.
- The address of the property served is _____

APPROVALS:

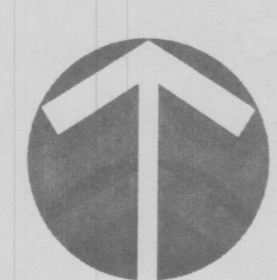
HYDROLOGY _____ (Name) _____ (Date)

INSPECTOR _____ (Name) _____ (Date)

CONSTRUCTION _____ (Name) _____ (Date)

GRADING & DRAINAGE PLAN

SCALE: 1"=20.0'



RECEIVED
JAN 30 1992
HYDROLOGY

**MAINTENANCE BUILDING
FOR G. BLAKE CHANSLOR**
LOCATED ON WELLESLEY DRIVE, ALBUQUERQUE, NM

ARCHITECTURE
THE KEN HOVEY DESIGN GROUP INC.
505/255-9400 • 335 JEFFERSON STREET SE, SUITE B, ALBUQUERQUE, N.M. 87108

PLANK 0 101
11/3/92

JOB NO:	
DATE:	
REVISIONS	

SHEET
C2