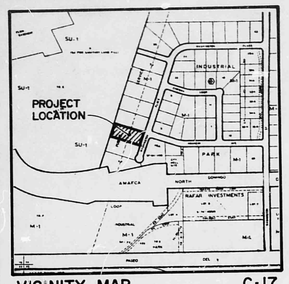
HYDROLOGY

C17/D1EE
1 PLAN

C17/D1EE

1 Plan



VICINITY MAP C-17

SCALE : 1" = 800'

LEGEND

- 5080 — EXISTING CONTOUR
- 80 — PROPOSED CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- EXISTING CHAINLINK FENCE
- EXISTING WALL
- PROPOSED CHAINLINK FENCE
- PROPOSED FENCE, OTHER
- PROPOSED ASPHALT
- PROPOSED CONCRETE
- EXISTING SWALE
- PROPOSED SWALE
- PROPOSED WATER BLOCK

LEGAL DESCRIPTION

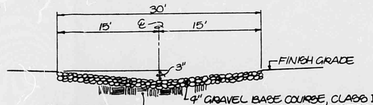
LOT 49, CLIMPORD INDUSTRIAL PARK

PROJECT BENCHMARK

ACS STATION "8-C17." A BRASS TABLET SET IN THE CURB, ON THE WEST SIDE OF WASHINGTON STREET, N.W. 0.3 MILES NORTH OF LOS ANGELES BLVD.
ELEVATION = 5111.029 FEET (M.S.L.D.)

T.B.M.

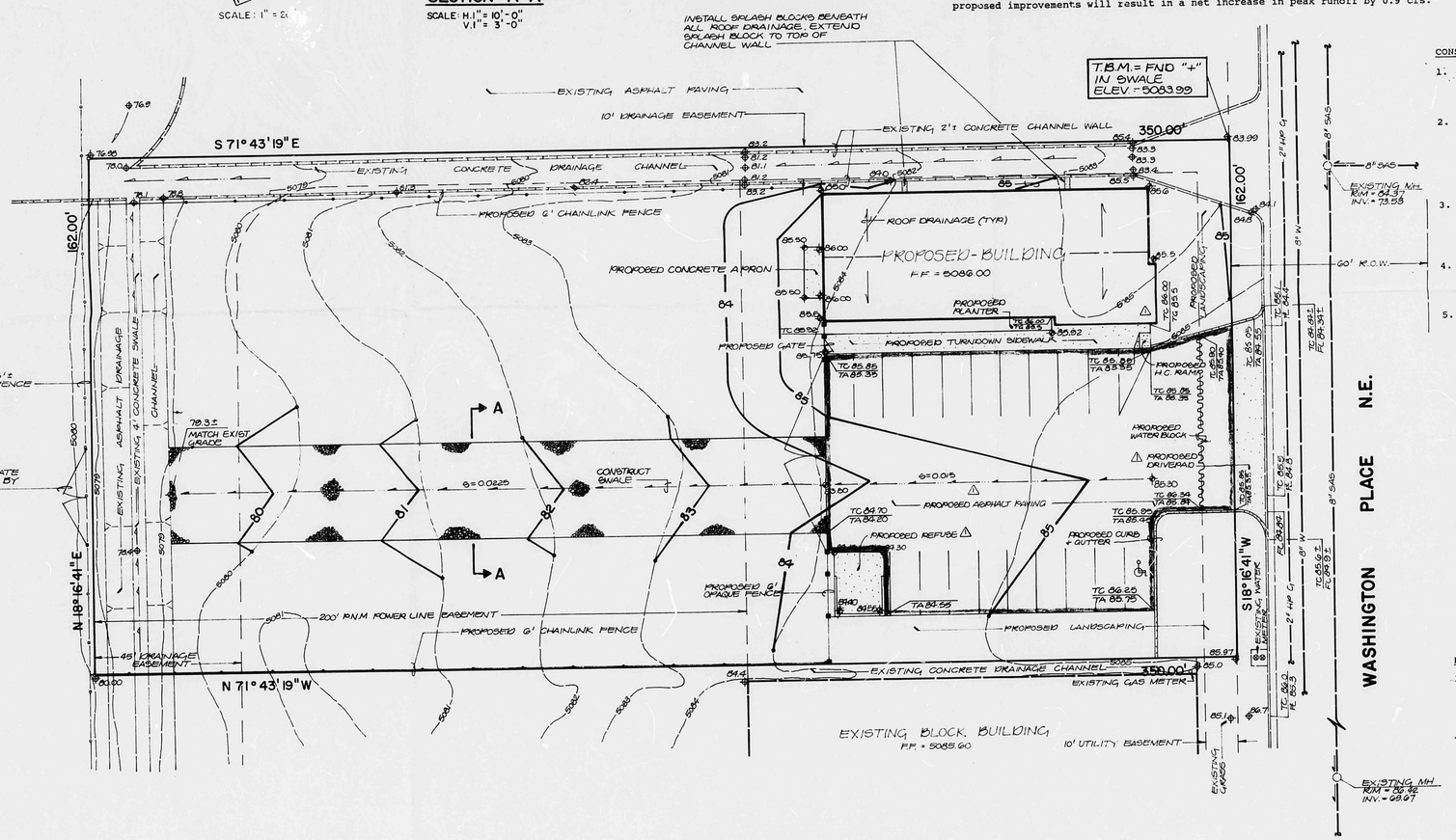
AN "+" SCRIBED IN THE SWALE AT THE NORTHEAST CORNER OF THE PROJECT.
ELEVATION = 5083.99 FEET (M.S.L.D.)



SECTION A-A

SCALE: H.1" = 10'-0" V.1" = 3'-0"

SCALE : 1" = 2



DRAINAGE PLAN

The following items concerning the Balloon Fiesta Building Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

As shown by the Vicinity Map, the site is located north of Paseo Del Norte Drive N.E. and west of Washington Street N.E., adjacent to Washington Place N.E. At present, the site is partially developed with drainage channels on the north and west sides of the site. Much of the surrounding area is currently undeveloped. The proposed improvements consist of a building, paving and landscaping.

As shown by the FEMA Floodway Map Panel 9 of 50, the site does not lie within a designated Flood Hazard Zone. Furthermore, the site does not appear to contribute runoff to an existing flood hazard area. Due to the location of the drainage channels and that this site does not contribute runoff to an existing flooding problem, the free discharge of runoff from this site is appropriate.

The Grading Plan shows 1) existing contours at 1'0" intervals, 2) proposed grades indicated by spot elevations and contours at 1'0" intervals, 3) the limit and character of the existing improvements, and 4) the limit and character of all proposed improvements. As shown by this plan, the proposed improvements consist of paving, landscaping, and the addition of a building. Flows generally flow from southeast to northwest. Presently, a 10 foot wide concrete drainage channel extends along the north side of the site in an existing drainage easement. A 20 foot wide asphalt drainage channel also exists along the west side of the site within a 45 foot drainage easement. The 20 foot asphalt channel ties into the 10 foot concrete channel at the northwest corner. The drainage channel discharges into the AMAFCA North Diversion Channel. Presently runoff from the site discharges along the west side of the site into the asphalt drainage channel. Offsite flows from the east are contained in Washington Place N.E. No offsite flows are anticipated from the north, south, or west sides of the site.

As shown by this plan, runoff from the proposed improvements will be directed into the drainage channels. Flows from the north side of the roof will be directed into the concrete channel via splash blocks. Flows developing in the proposed parking area will be directed to the asphalt channel via an asphalt swale for erosion control. As shown by the calculations below, the asphalt swale capacity at analysis point Section A-A is 5.2 cfs which is sufficient to contain the peak runoff of 3.7 cfs for the site. Runoff from the undeveloped area will flow as before.

The Calculations which appear hereon analyze both the existing and developed conditions for the 100-year, 6-hour rainfall event. The Rational Method has been used to quantify the peak rate of discharge and the SCS Method has been used to quantify the volume of runoff. Both Methods have been used in accordance with the City of Albuquerque Development Process Manual, Volume II, and the Mayor's Emergency Rule adopted January 14, 1986. As shown by these calculations, the proposed improvements will result in a net increase in peak runoff by 0.9 cfs.

CONSTRUCTION NOTES:

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE 765-1234, FOR LOCATION OF EXISTING UTILITIES.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
3. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
4. ALL CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.
5. IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE MANNER ONLY, AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE OWNER OF SAID UTILITY, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES. THE ENGINEER HAS UNDERTAKEN NO FIELD VERIFICATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES, MAKES NO REPRESENTATION PERTAINING THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFOR. THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE, OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, AND UNDERGROUND UTILITY LINES. IN PLANNING AND CONDUCTING EXCAVATION, THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.

EROSION CONTROL MEASURES

1. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AT THE PROPERTY LINES AND WETTING THE SOIL TO KEEP IT FROM BLOWING.
2. THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY SO THAT THE EXCAVATED MATERIAL IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.
3. THE CONTRACTOR SHALL SECURE "TOPSOIL DISTURBANCE PERMIT" PRIOR TO BEGINNING CONSTRUCTION.

CALCULATIONS

Ground Cover Information

From SCS Bernalillo County Soil Survey,
Plate 11: EmB - Embudo Complex
Hydrologic Soil Group: B
Existing Pervious CN = 70 (DPM Plate 22.2 C-2
Pasture or Range Land: fair condition)
Developed Pervious CN = 61 (DPM Plate 22.2 C-2
open spaces: good condition)

Time of Concentration/Time to Peak

$T_c = 0.0078\ L^{0.77}/S^{0.385}$ (Kirpich Equation)

$T_p = T_c = 10$ min.

Point Rainfall

$P_6 = 2.2$ in. (DPM Plate 22.2 D-1)

Rational Method

Discharge: $Q = CiA$

where C varies
$i = P_6\ (6.84)\ T_c^{-0.51} - 4.65$ in/hr
$P_6 = 2.2$ in (DPM Plate 22.2D-1)
$T_c = 10$ min (minimum)
A = area, acres

SCS Method

Volume: $V = 3630(DRO)\ A$

Where DRO = Direct runoff in inches
A = area, acres

Existing Condition

A_{total} = 56,700 sf = 1.30 Ac
Undeveloped area = 50,060 sf (0.88)
Paved area = 6,640 sf (0.12)
C = 0.47 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CiA = 0.47(4.65)1.30 = 2.8$ cfs
A_{imp} = 6,640 sf; % impervious = 12 %
Composite CN = 73.5 (DPM Plate 22.2 C-3)
DRO = 0.43 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)A = 2,030$ cf

Developed Condition

A_{total} = 56,700 sf = 1.30 Ac
Roof area = 4,000 sf (0.07)
Paved area = 19,080 sf (0.34)
Landscaped area = 4,710 sf (0.08)
Undeveloped area = 28,910 sf (0.51)
C = 0.61 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CiA = 0.61(4.65)1.30 = 3.7$ cfs
A_{imp} = 23,080 sf; % impervious = 41 %
Composite CN = 82 (DPM Plate 22.2 C-3)
DRO = 0.78 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)\ A = 3,680$ cf

Section A-A

Manning Equation:
$Q = (1.49/n)AR^{2/3}s^{1/2}$
Where n = 0.040
A = 3.75 sf
wp = 30 ft
R = A/wp = 0.125 ft
S = 0.0225
$Q = (1.49/0.040)3.75(0.125)^{2/3}(0.0225)^{1/2}$
$Q = 5.2$ cfs $> Q_{100} = 3.7$ cfs

Comparison

ΔQ_{100} = 3.7 - 2.8 = 0.9 cfs (increase)
ΔV_{100} = 3,680 - 2,030 = 1,650 cf (increase)

GRADING AND DRAINAGE PLAN PREPARED UNDER THE SUPERVISION OF

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER

07-07-87

TOPOGRAPHIC SURVEY PREPARED BY OTHERS AND PROVIDED BY OWNER. ITS ADEQUACY IS HEREBY DISCLAIMED AS IT RELATES TO THIS DRAWING.

07-29-87

RECEIVED JUL 29 1987 HYDROLOGY SECTION

811 DALLAS N.E. · ALBUQUERQUE, NEW MEXICO · 87110
ENGINEERS

GRADING & DRAINAGE PLAN
BALLOON FIESTA BUILDING

DESIGN BY PML
DRAWN BY LBD
APPROVED BY JGM

No.	Date	By	Revision
1	07/87	PML	REVISED PARKING LOT; DRIVEPAD; BUILDING; SIDEWALK; ADDED REFUSE

JOB NO. 870821
DATE 6·87
SHEET 1 OF 1