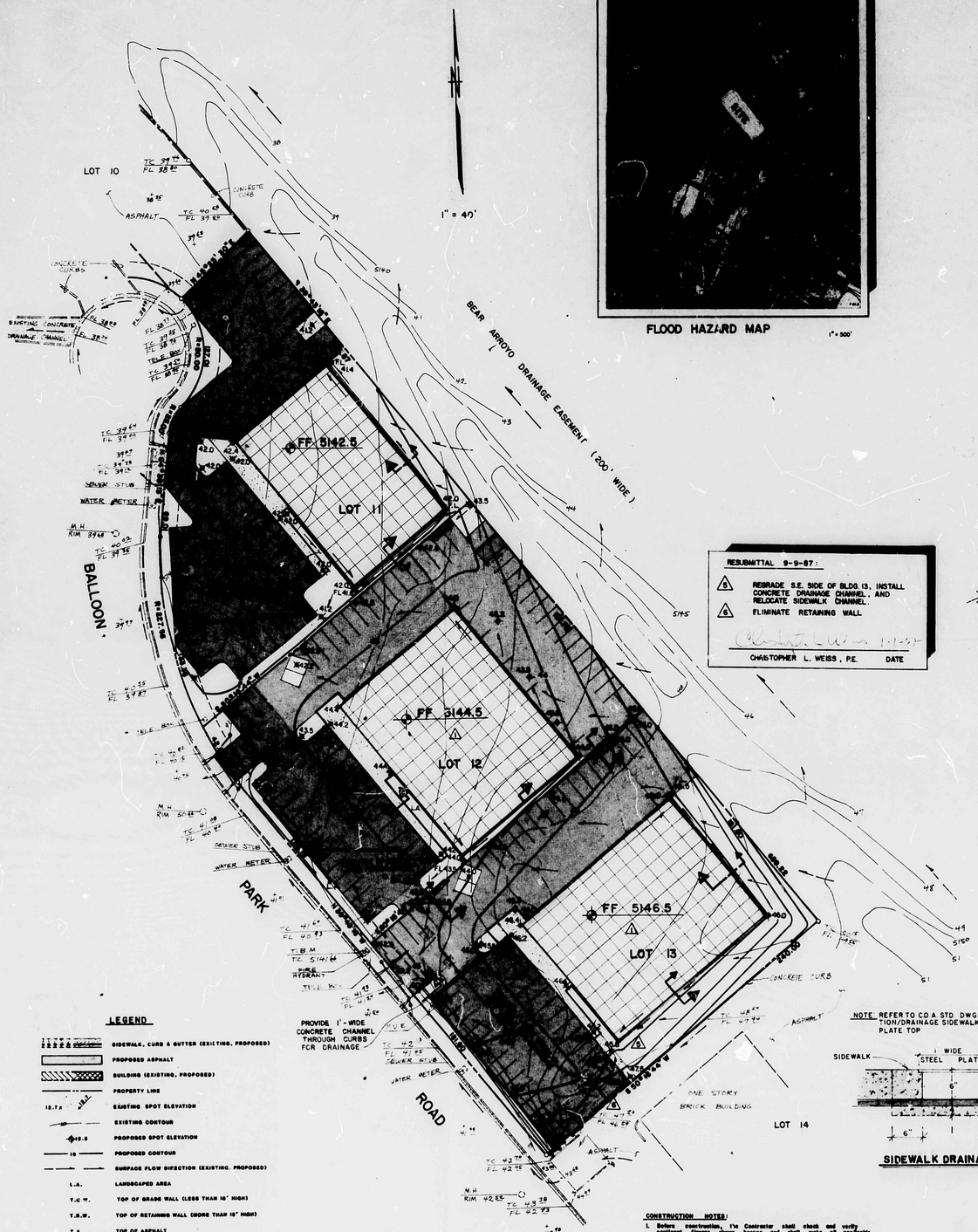
HYDROLOGY

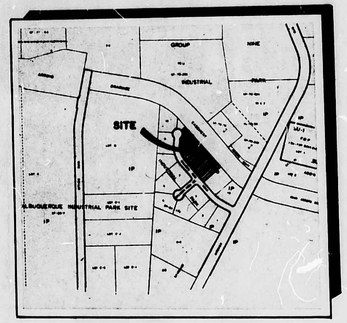
E17/D19g
1 PLAN

E17/D22G

1 Plan



FLOOD HAZARD MAP 1" = 500'



VICINITY MAP E-17 1" = 800'

RESUBMITTAL 10-13-86:

1. LENGTHEN BUILDINGS 12 & 13 BY 5' EACH
2. REVISE HEADER CURB, SECTION C
3. REPLACE CONCRETE CHANNEL WITH 2-4" PVC PIPES, SECTION A

Chris Weiss 10-14-86

CHRISTOPHER L. WEISS, P.E. DATE

VOID 2-17-87

RESUBMITTAL 9-9-87:

5. REGRADE S.E. SIDE OF BLDG 13, INSTALL CONCRETE DRAINAGE CHANNEL, AND RELOCATE SIDEWALK CHANNEL.
6. ELIMINATE RETAINING WALL

Chris Weiss 9-9-87

CHRISTOPHER L. WEISS, P.E. DATE

RESUBMITTAL 2-17-87:

1. MOVE BUILDINGS, LOTS 12 & 13, AND REVISE PARKING LOTS, LOTS 11, 12 & 13

Chris Weiss 2-18-87

CHRISTOPHER L. WEISS, P.E. DATE

RESUBMITTAL 4-2-87

1. REVISE PARKING LOTS 11, 12 & 13
2. MOVE REFUSE PAD & ENCLOSURE LOTS 11, 12 & 13
3. PROVIDE STEEL GRATE THRU WALK FOR DRAINAGE, LOT 13
4. CONSTRUCT RETAINING WALL, LOT 13

CHRISTOPHER L. WEISS, P.E. DATE

SCOPE: The proposed improvements are comprised of office buildings, paved access and parking areas, and associated landscaped areas located in the Balloon Field Industrial Park on Lots 11, 12 and 13.

The present site is comprised of three one-acre undeveloped parcels bordered on the SW by Balloon Park Road, a paved street, on the NE by Bear Arroyo, and on the NW and SE by existing office buildings. The lots will be graded to direct flows into Balloon Park Road for eventual drainage into Bear Arroyo, as shown on the approved Master Drainage Plan for Balloon Field Industrial Park.

The intent of this plan is to show:

a. Grading relationships between the existing ground elevations and proposed finished elevations in order to facilitate positive drainage to designated discharge points.

b. The extent of proposed site improvements, including buildings, walks and pavement.

c. The flow rate/volume of rainfall runoff across or around these improvements and methods of handling these flows to meet City requirements for drainage management.

d. The relationship of on-site improvements with existing neighboring property to ensure an orderly transition between proposed and surrounding grades.

GENERAL NOTES: The three lots will all drain to the north and west, each discharging from driveways into Balloon Field Road.

LEGAL: Lot Nos. 11, 12 and 13, Balloon Field Industrial Park, Albuquerque, New Mexico.

SURVEYOR: Ronald A. Forstbauer Surveying Company, Albuquerque, New Mexico

B.M.: Manhole rim at intersection of Kircher and Singer Boulevards. Elevation = 5,144.07'.

T.B.M.: Top of curb at fire hydrant on Balloon Park Road at Lot 12/13 Property Line. Elevation = 5,141.66'.

SOILS: Soil type "EmB", Hydrologic Soil Group "B".

FLOOD HAZARD: Site is not located within a flood hazard zone, as shown on FEMA Map No. 16.

OFF-SITE DRAINAGE: No off-site flows affect the site. Bear Arroyo on the NE, and Balloon Park Road on the SW isolate the site. Improvements on Lot 10 to the North, and Lot 14 to the south divert flows into Balloon Park Road.

EROSION CONTROL: Contractor will be responsible for containing any sediment generated during construction by using either a fabric silt fence or by constructing a 2'-high earth berm across low points.

CALCULATIONS: Calculations are based on the City of Albuquerque D.P.M. Manual, Vol. II for the 100-year, 6-hour storm, using the Rational Formula to compare the existing and proposed runoff rates.

RATIONAL METHOD - Q = CIA

Area of site: 130,680 sq. ft. = 3.0 Ac.

Runoff Coefficient:

Existing Area	Developed Site
Undeveloped Area = 130,680 ft^2	Roof Area = 35,328 ft^2
	Landscaped Area = 36,546 ft^2
	Paved Area = 58,806 ft^2
$C_u = \frac{130,680\ (0.40)}{130,680} = 0.40$	$C_r = \frac{35,328\ (0.90)}{130,680} = 0.24$
Composite C = 0.40	$C_l = \frac{36,546\ (0.25)}{130,680} = 0.07$
	$C_p = \frac{58,806\ (0.95)}{130,680} = 0.43$
	Composite C = 0.74

Rainfall Intensity:

$I = P_6\ (6.84)\ T_c^{-0.51} = 4.7"$ per hour

where $P_6 = 2.2"$ (DPM 22.2 D-1)

$T_c = 10$ minutes

Existing Condition:	Developed Condition:
$Q_{100} = (0.40)(4.7)(3.0) = 5.4$ cfs	$Q_{100} = (0.74)(4.7)(3.0) = 10.4$ cfs
$V_{100} = \frac{2.2}{12}(0.40)(130,680)$	$V_{100} = \frac{2.2}{12}(0.74)(130,680)$
= 9,580 cu. ft.	= 17,720 cu. ft.

SUMMARY: $Q_{100} = (10.4)-(5.4) = 6$ cfs (increase)

$V_{100} = (17,720)\ (9,580) = 8,140$ cu. ft. (increase)

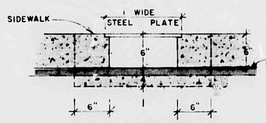
LEGEND

- SIDEWALK, CURB & GUTTER (EXISTING, PROPOSED)
- PROPOSED ASPHALT
- BUILDING (EXISTING, PROPOSED)
- PROPERTY LINE
- 12.7 x — EXISTING SPOT ELEVATION
- EXISTING CONTOUR
- 12.5 — PROPOSED SPOT ELEVATION
- 10 — PROPOSED CONTOUR
- SURFACE FLOW DIRECTION (EXISTING, PROPOSED)
- L.A. — LANDSCAPED AREA
- T.W.W. — TOP OF GRADE WALL (LESS THAN 18" HIGH)
- T.R.W. — TOP OF RETAINING WALL (MORE THAN 18" HIGH)
- T.A. — TOP OF ASPHALT
- T.C. — TOP OF CURB
- F.L. — FLOW LINE
- F.F. — FINISHED FLOOR

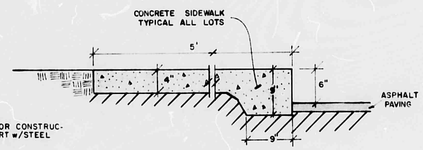
CONSTRUCTION NOTES:

1. Before construction, the Contractor shall check and verify pertinent figures shown hereon and shall make all applicable field measurements. Should any conflict, error or discrepancy be discovered, the contractor shall notify the Engineer at once to resolve the problem. It is recommended that the Contractor meet with the Engineer for a pre-design conference to discuss the scope of work and utilized areas involved.
2. The Contractor shall be responsible for following the plans using his best skill and attention. Any departure from the plans must be approved by the Engineer and the City Hydrology Department prior to construction.
3. The Contractor shall check the site plan for locations of existing utilities within or adjacent to streets and shall take of necessary precautions and efforts to locate and protect these utilities. He shall give 48 hours notice to the Locating Service, 765-1234 for any work that may interfere with field utilities.

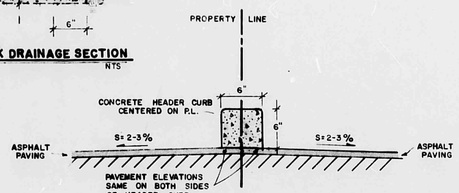
NOTE: REFER TO CO A STD. DWG. K-16 FOR CONSTRUCTION/DRAINAGE SIDEWALK CULVERT w/STEEL PLATE TOP



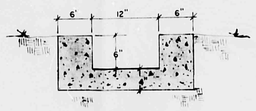
SIDEWALK DRAINAGE SECTION
NTS



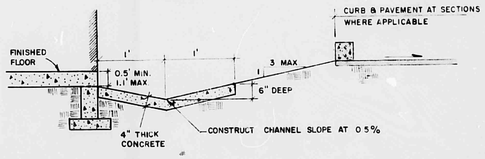
SECTION C
SIDEWALK
N.T.S.



SECTION A
PAVING TRANSITION BETWEEN LOTS
N.T.S.



SECTION D
CONCRETE CHANNEL
N.T.S.



SECTION B
CONCRETE DRAINAGE CHANNEL FOR ROOF DRAINS ON LOTS 11, 12 & 13
N.T.S.

RECEIVED
SEP 09 1987
HYDROLOGY SECTION

WEISS-HINES ENGINEERING INC.
1100 ALVARADO N.E. SUITE B
ALBUQUERQUE, NEW MEXICO 87110
(505) 266 - 3444

REVISIONS	DATE
1 P.E.	9/9/87
2	2/17/87
3	

DESIGNED WCH 10-86
DRAWN WCH 10-86
CHECKED CLW 10-86

GRADING & DRAINAGE PLAN
BALLOON FIELD INDUSTRIAL PARK
LOTS 11, 12 & 13

WHH ENGINEERING

CHRISTOPHER L. WEISS
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER

SHEET 1 OF 1