HYDROLOGY

K12/D10

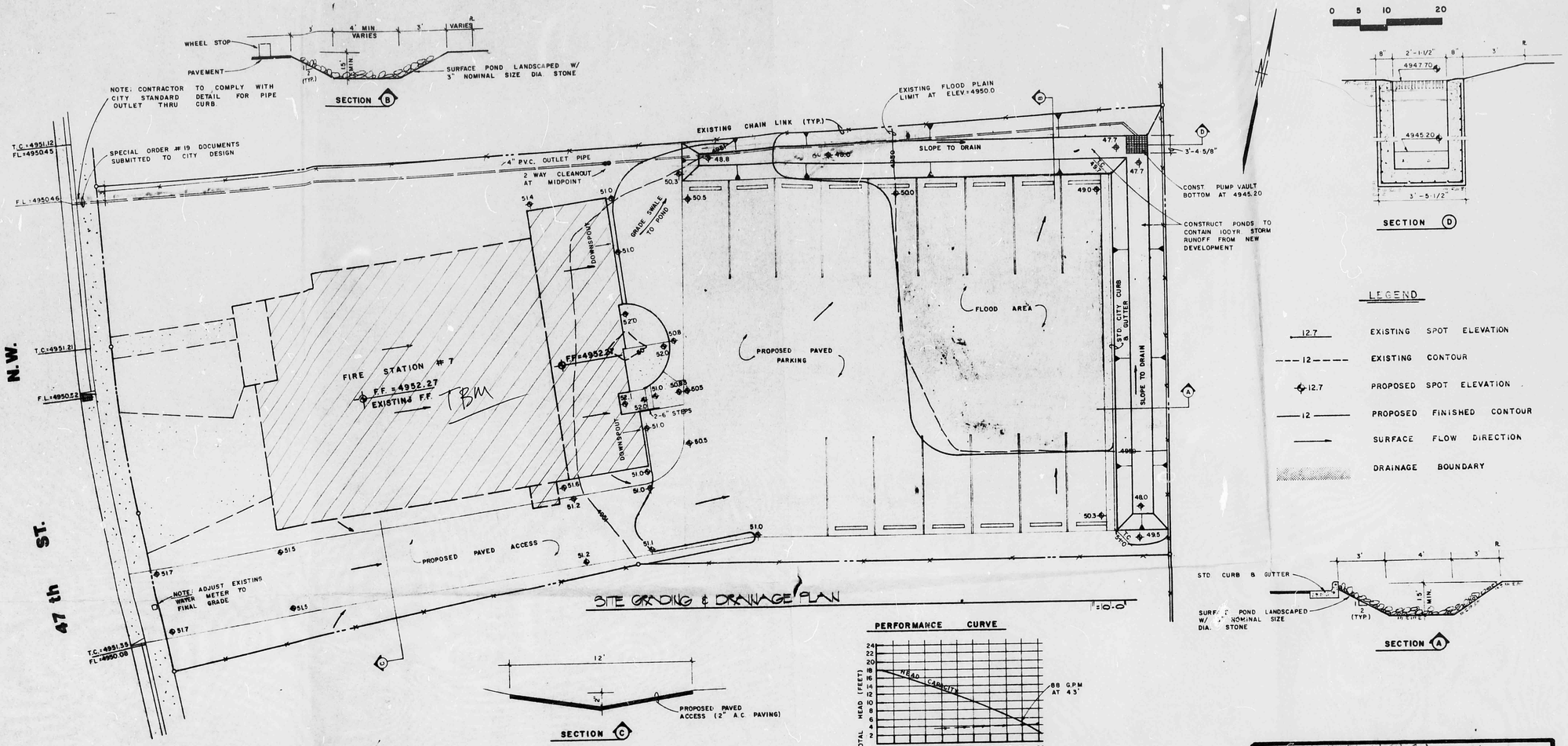
ONE PLAN

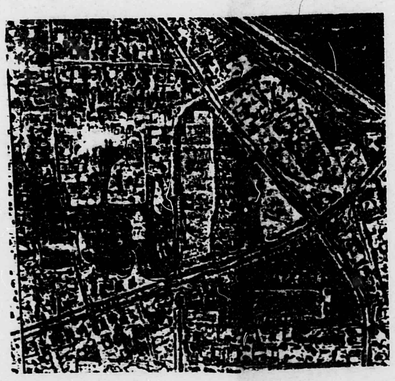
1 PLAN FOR

FIRE STATION #7

ADD. / RENOV.

K12-D10





FLOOD HAZARD MAP

NOTES

1. Legal: Lot 4, Block 6 of the Zimmerman Addition, Albuquerque, NM. Zone Atlas #K-12
2. Survey: City of Albuquerque Survey Department, 12/82.
3. B.M: F.H. at 47th & Glendale #3K-12. Elevation = 4951.42
4. T.B.M. Finished floor of existing building = 4952.27.
5. Soil Type: Gb (SCS Map #30), Hydrologic Soil Group 'B'.

DESIGN CRITERIA - Per pre-design meeting with Fred Aguirre on 2/7/83.

1. Site is partially located in Flood Area. Flood level established at elevation 4950.0. Required minimum finished floor for new construction = 4951.0.
2. Positive drainage into a City R/W is required. Allowable discharge = 0.5 cfs using orifice formula $Q=CAV2gh$ under a maximum head value of 18" and using a 4" diameter discharge pipe.
3. Ponding required for runoff created by new development (Q_{100}).
4. S.O. #19 required for construction within City R/W.

DRAINAGE DESIGN

1. Area of development = 7350 ft.^{2} (includes access road, parking, building).
2. 100 year storm volume generated by development

$$= \frac{(2.2")}{12}(1.0)(7350\ ft.^2) = 1350\ ft.^3$$

$$= 1350\ ft.^3 \times 7.481 = 10{,}100\ gallons.$$

3. Surface pond required, trapezoidal section.

top width = 10'
Depth = 1.5'
Bottom width = 4.0'
S:S = 2:1-Landscaped

Total length = 129', as shown on plan.

4. Outflow system - Use a Myer SR Submersible Sewage Pump, or equal. Pipe system = 4" PVC, with a 3.9 elevation difference and an actual and equivalent pipe = 210'.

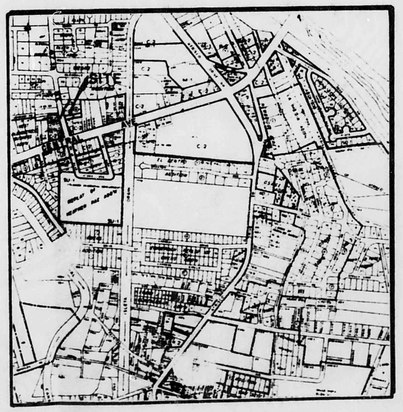
Fluid head at different flow rates:

@ 40 gpm =	0.05 head loss/100'x210'	+3.9	= 4.01'
@ 50 gpm =	0.09x2.1	+3.9	= 4.09'
@ 60 gpm =	0.12x2.1	+3.9	= 4.15'
@ 70 gpm =	0.15x2.1	+3.9	= 4.22'
@ 80 gpm =	0.18x2.1	+3.9	= 4.28'
@ 90 gpm =	0.24x2.1	+3.9	= 4.40'

From Pump Performance Curve for Myer SR Pump, for a 4/10 HP 1700 RPM motor, 115 volt, with a 2" pump outlet, the pumps capable of a Q = 88 gpm @ 4.3', velocity = 2.3'/sec.

Time to pump 10,100 gallons = 1 hr.-55 min.

Flow rate = 0.2 cfs outflow for pump. Place pump in a concrete vault 2.5' deep x per single 'D' square, covered with a removable grate.



VICINITY MAP K-12 - D10

K12/D10

RECEIVED APR 12 1983 ENGINEERING

LEGEND

12.7	EXISTING SPOT ELEVATION
12	EXISTING CONTOUR
12.7	PROPOSED SPOT ELEVATION
12	PROPOSED FINISHED CONTOUR
	SURFACE FLOW DIRECTION
	DRAINAGE BOUNDARY

PROJECT: FIRE STATION NO. 7 ADDITION/RENOVATION
ALBUQUERQUE NEW MEXICO

SHT. TITLE: GRADING PLAN

DRWN: CKD: JOB NO:
DATE:
RVNS:
ENGR: CHRISTOPHER L. KEPPLER, NEW MEXICO, REGISTERED PROFESSIONAL ENGINEER
ARCH: STATE OF NEW MEXICO, RAYMOND A. VALLES, NO. 1135, REGISTERED ARCHITECT

SHEET: C1
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