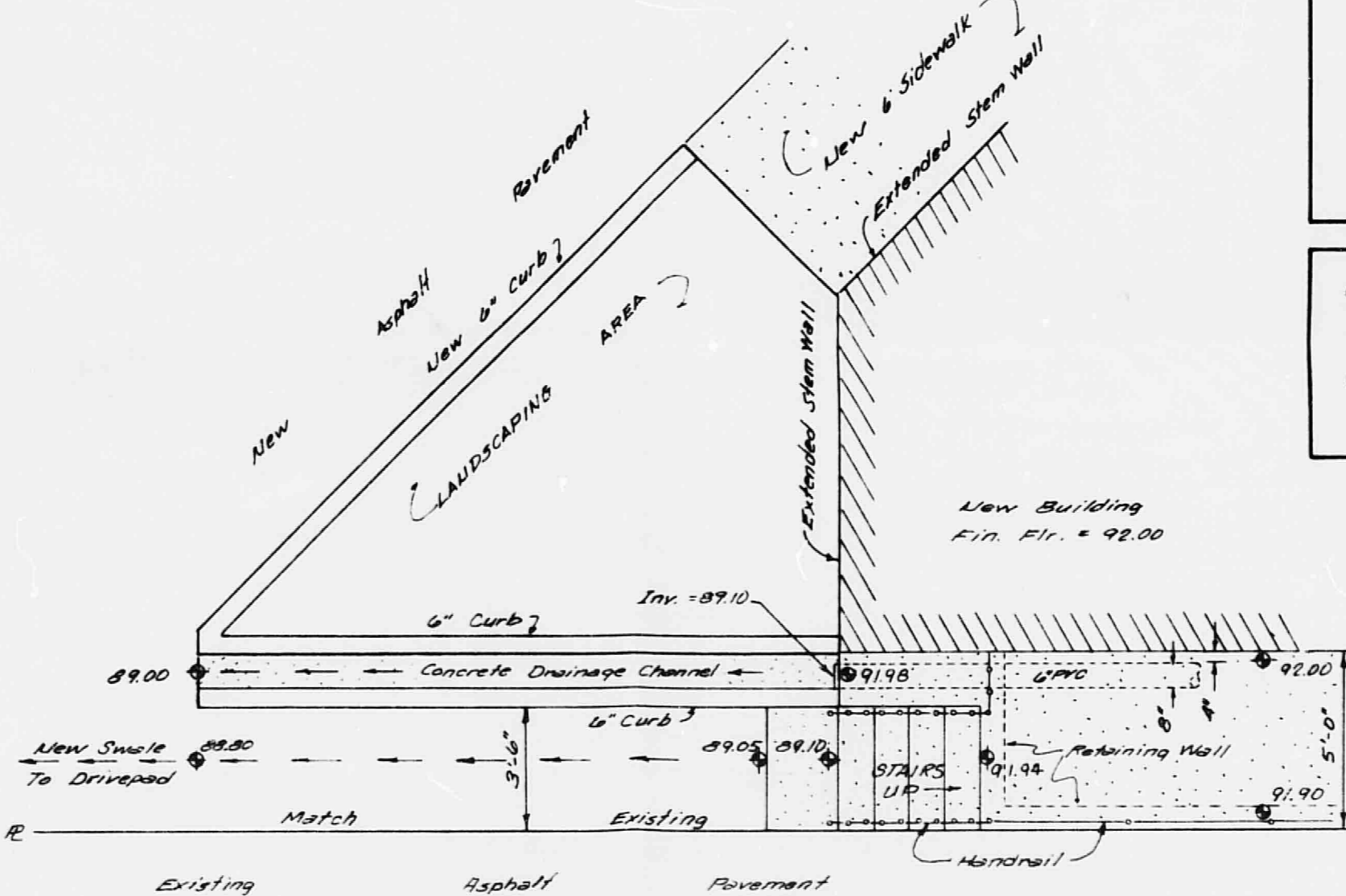


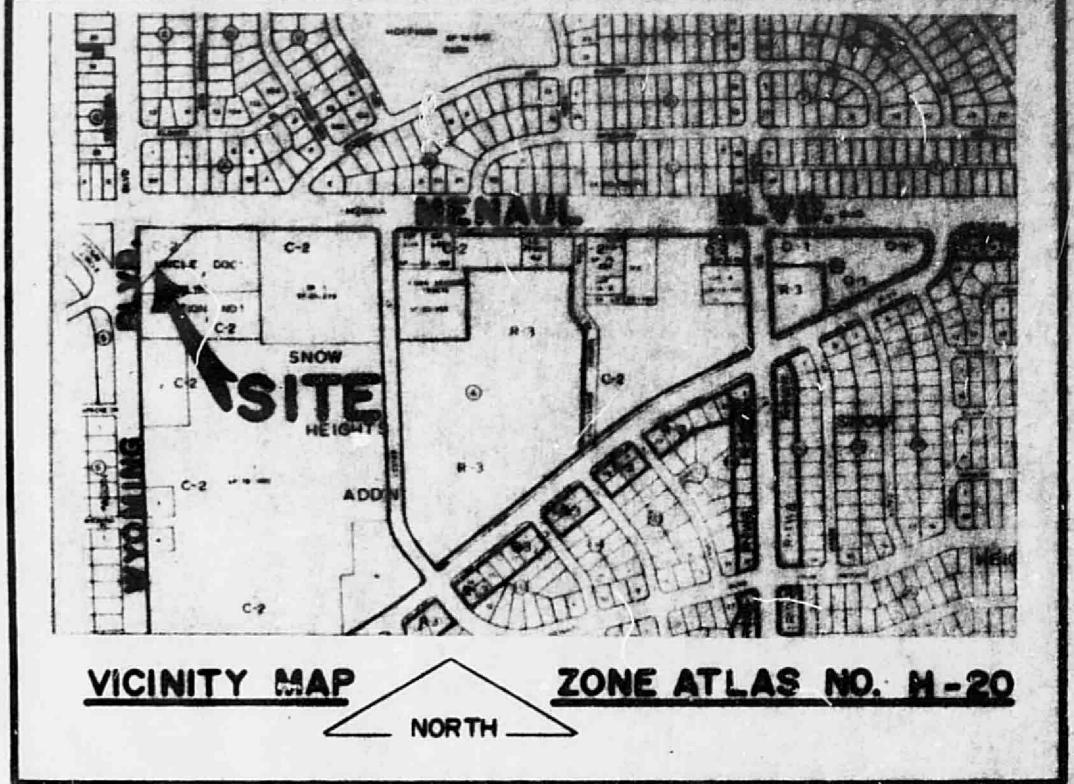
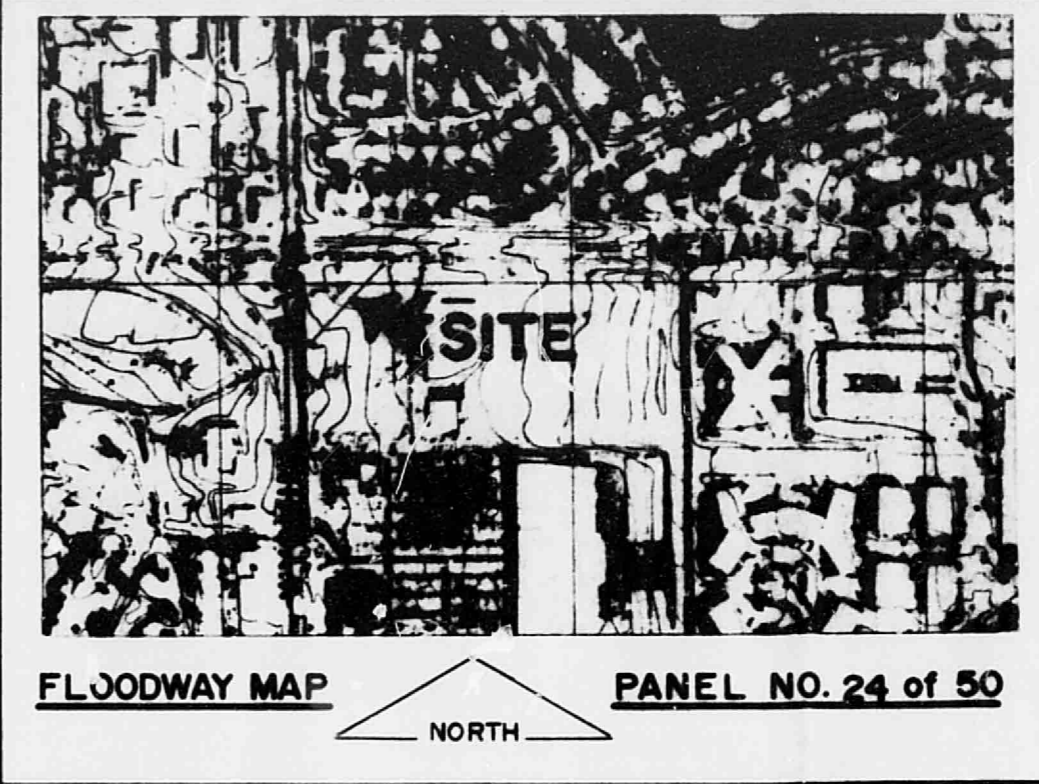
BENCH MARK:
CITY OF ALBUQUERQUE BENCH MARK 7-420 WAS USED TO ESTABLISH ALL EXISTING ELEVATIONS SHOWN ON THIS PLAN. THE STATION IS LOCATED AT THE INTERSECTION OF INDIAN SCHOOL ROAD AND WYOMING BLVD. IN THE NE QUADRANT OF THE INTERSECTION. STATION IS 44.2 FEET EAST OF CENTERLINE OF WYOMING BLVD. AND 30.7 FEET NORTH OF CENTERLINE OF INDIAN SCHOOL ROAD. STATION IS AN A.C.S. BRASS CAP SET IN A DRILLED HOLE IN THE SIDEWALK. STATION IS STAMPED "7-420, 1975 A.C.S.", ELEVATION = 5371.08 FEET.
TEMPORARY BENCH MARK IS A SQUARE AND THE LETTERS "TM", PAINTED ON THE EAST EDGE OF THE SIDEWALK NEAR THE SW CORNER OF SAID LOT 1. THE "TM" ELEVATION IS 5386.15 FEET.

LEGEND

EXISTING	NEW	DESCRIPTION
5388	88	CONTOUR LINE
59.06	59.06	SPOT ELEVATION
→	→	FLOW DIRECTION
---	---	SANITARY SEWER
---	---	WATERLINE
---	---	PROPERTY LINE
TC	TC	TOP OF CURB
TA	TA	TOP OF ASPHALT



ROOF DRAIN OUTFALL PLAN
1/4" = 1' - 0"



- PRE-DESIGN CONFERENCE FINDINGS:**
- DRAINAGE PLAN PER D.P.M. REQUIREMENT.
 - SITE NOT WITHIN A FLOOD ZONE NOR DOES IT CONTRIBUTE TO DOWNSTREAM FLOODING.
 - FREE DISCHARGE MAY BE APPROPRIATE; ENGINEER MUST ADDRESS DIFFERENCE BETWEEN EXISTING AND PROPOSED RUNOFF.
 - BUILDING OVER EXISTING ASPHALT.

- DRAINAGE COMMENTS:**
- THIS DRAINAGE PLAN CONFORMS TO THE REQUIREMENTS OF THE CITY OF ALBUQUERQUE DEVELOPMENT PROCESS MANUAL, D.P.M.
 - THE SITE DOES NOT LIE WITHIN OR ADJACENT TO A DESIGNATED FLOOD HAZARD AREA. RUNOFF FROM THE SITE DOES NOT CONTRIBUTE TO DOWNSTREAM FLOODING.
 - FREE DISCHARGE IS JUSTIFIED FOR THE FOLLOWING REASONS:
A. THE SITE IS AN IN-FILL SITE.
B. THE SITE IS ALREADY FULLY DEVELOPED. DEVELOPMENT WILL ACTUALLY RESULT IN A SLIGHT REDUCTION IN RUNOFF.
 - THE SITE RUNOFF WILL BE DIRECTED TO THE DRIVEWAY NEAREST THE SW CORNER OF THE SITE. ALL OTHER EXISTING DRIVEWAYS, EXCEPT THE ONE NEAREST THE NE CORNER OF THE SITE, WILL BE REPAVED AND REPAVED WITH STANDARD CURB AND GUTTER AND SIDEWALK.
 - ALL ROOF DRAINS WILL BE CONNECTED TO AN 8" PVC PIPE RUNNING ALMOST THE FULL LENGTH OF THE REAR SIDE OF THE BUILDING.
 - THE PROPOSED DEVELOPMENT DOES NOT BLOCK OFF-SITE FLOW NOR DOES IT PREVENT FLOW FROM THE SITE TO ADJACENT PROPERTY.

- EROSION CONTROL PLAN:**
- THE SITE IS PRESENTLY PAVED. REMOVE ONLY THE AMOUNT OF PAVEMENT REQUIRED TO CONSTRUCT THE BUILDING FOUNDATION. THE RUNOFF FROM THIS AREA SHOULD BE RETAINED WITHIN THE AREA BY THE MATERIAL EXCAVATED FOR THE FOOTINGS. THE EXISTING SITE GRADING CAN BE DONE RAPIDLY SINCE THERE IS NOT MUCH GRADING REQUIRED. IT IS ANTICIPATED THAT THIS WORK WILL BE DONE DURING THE SEASON WHEN THUNDER SHOWERS RESULTING IN EXCESSIVE AMOUNTS OF RUNOFF ARE UNLIKELY TO OCCUR.

- CONSTRUCTION NOTES:**
- TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE AT 765-1234 FOR LOCATION OF EXISTING UTILITIES.
 - 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.
 - 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.
 - ALL CONSTRUCTION WITHIN CITY RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.

- GENERAL NOTES:**
- SEE SITE PLAN FOR DIMENSIONS OF PARKING LOT LAYOUT, BUILDING LOCATION, ETC.
 - NO SEARCH HAS BEEN MADE FOR EASEMENTS OF RECORD OTHER THAN THOSE SHOWN ON THE PLAT OF RECORD.

DRAINAGE CALCULATIONS

I. REFERENCES:

- CITY OF ALBUQUERQUE DEVELOPMENT PROCESS MANUAL (DPW) VOLUME 2, DESIGN CRITERIA, CHAPTER 22.
- FLOODWAY MAP, PANEL 24 OF 50, (FEMA), OCTOBER 14, 1983.
- SOIL SURVEY OF BERNALILLO COUNTY, NEW MEXICO, U.S. SOIL CONSERVATION SERVICE, JUNE, 1977.

II. ON-SITE RUNOFF CHARACTERISTICS:

A. UNDEVELOPED RUNOFF COEFFICIENT:

TYPE OF SURFACE	AREA	"C" VALUE	AREA("C")
STREETS, DRIVES, VALES	25998	0.95	24665
ROOFS	3624	0.90	3262
LAWNS & LANDSCAPING	240	0.25	60
UNDEVELOPED			
TOTAL AREA	29843 = 0.6851 AC.		28003
WEIGHTED "C" VALUE		28003 / 29843 = 0.92	
PERCENT IMPERVIOUS		98%	

B. DEVELOPED RUNOFF COEFFICIENT:

TYPE OF SURFACE	AREA	"C" VALUE	AREA("C")
STREETS, DRIVES, VALES	20445	0.95	19425
ROOFS	8750	0.90	7875
LAWNS & LANDSCAPING	648	0.25	162
UNDEVELOPED			
TOTAL AREA	29843		27460
WEIGHTED "C" VALUE		27460 / 29843 = 0.92	
PERCENT IMPERVIOUS		98%	

C. RAINFALL, 100-YR., 6-HR.: (REF. A., PLATE 22.2 D-1)
R₆ = 2.35 INCHES

D. TIME OF CONCENTRATION: TEN (10) MINUTES.

E. RAINFALL INTENSITY, I (REF. A., PLATE 22.2 D-2)
I = 4.97 INCHES/HOUR

F. SOIL TYPE (REF. I.C., SHEET NO. 31108B): MUDRY BE RUC, KESUDO-TIJERAS COMPLEX, HYDROLOGIC SOIL GROUP "B"

G. RUNOFF CURVE NUMBER (CN): (REF. I.A., PLATE 22.2 C-2)
UNDEVELOPED LAND USE: COMMERCIAL AND BUSINESS, 98% IMP.
DEVELOPED LAND USE: COMMERCIAL AND BUSINESS, 90% IMP.
DEVELOPED CN = 97

N. DIRECT RUNOFF, Q₀, INCHES (REF. I.A., PL. 22.2 C-4)
UNDEVELOPED Q₀ = 2.1 IN. DEVELOPED Q₀ = 2.0 IN.

III. ON-SITE PRAISE DISCHARGE BY RATIONAL EQUATION:

A. EXISTING CONDITIONS:
Q₁₀₀ = 0.94 I 4.97 I 0.68 = 3.22 CFS
Q₁₀ = 0.657 I 3.22 = 2.12 CFS

B. DEVELOPED CONDITIONS:
Q₁₀₀ = 0.92 I 4.97 I 0.69 = 3.15 CFS
Q₁₀ = 0.657 I 3.15 = 2.07 CFS

IV. ON-SITE PRAISE DISCHARGE BY S.C.S. METHOD:

A. EXISTING CONDITIONS:
Q₁₀₀ = AREA (Q₁₀₀/12) = 29843 (2.1/12) = 5223 CF
Q₁₀ = 0.657 I 5223 = 3432 CF

B. DEVELOPED CONDITIONS:
Q₁₀₀ = AREA (Q₁₀₀/12) = 29843 (2.0/12) = 4974 CF
Q₁₀ = 0.657 I 4974 = 3266 CF

V. ROOF DRAIN OUTFALL LINE:
ROOF AREA = 8750 SF = 0.20 AC. Q = CIA = 0.94(4.97)(0.69) = 0.89 CFS
CAPACITY OF 8" PVC PIPE, BY HANDBOOK EQUATION: S = 0.0000 77777.
N = 0.009 AREA = 0.3491 SF P = 88/12 = 0.167 FT.
V = (1.486/77777)^(2/3) / (1.486/0.009)^(1/2) (0.167)^(2/3) (0.009)^(1/2) = 3.8769 CFS
Q = AF = 0.3491 I 3.8769 = 1.35 CFS > 0.89 CFS (ADEQUATE)
TRI 8" PVC. A = 0.1963 SF P = 1.57 FT. R = 0.1963 / 1.57 = 0.125
V = (1.486/0.009)^(2/3) / (1.486/0.125)^(1/2) (0.009)^(1/2) = 1.193 FT.
Q = AF = 0.1963 I 1.193 = 0.63 CFS (ADEQUATE) USE 8" PLASTER PIPE.

LEGAL DESCRIPTION:
A CERTAIN TRACT OF LAND DESIGNATED AS LOT 1 OF THE LAND DIVISION PLAT OF TRACTS "M" AND "N" OF CIRCLE 200 EASTION NO. 1, IN THE CITY OF ALBUQUERQUE, NEW MEXICO, AS THE SAME IS SHOWN AND DESIGNATED ON SAID LAND DIVISION PLAT, FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY NEW MEXICO ON APRIL 3, 1973, IN VOLUME 98, FOLIO 4, LOTS THAT PORTION CONVEYED TO THE CITY OF ALBUQUERQUE ON JANUARY 3, 1984, DOCUMENT NO. 88-194, BOOK 9, PAGE 201 A, FOLIO 4571; AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:
BEGINNING AT THE SOUTHWESTERLY CORNER OF SAID TRACT, MARKING THE ORIGINAL SOUTHWESTERLY CORNER OF SAID LOT 1 BEARS S 45° 20' 17" W, 2.09 FEET DISTANCE FROM SAID POINT OF BEGINNING; S 0° 23' 50" W, 234.54 FEET ALONG THE EAST RIGHT-OF-WAY OF WYOMING BLVD., 4.12, TO AN ANGLE POINT; THENCE, N 45° 20' 17" E, 13.96 FEET ALONG THE RIGHT-OF-WAY CORNER TO WYOMING BLVD., N.E. AND MENAUL BLVD., S.E. TO AN ANGLE POINT; THENCE, S 88° 50' 50" W, 234.55 FEET ALONG THE SOUTH RIGHT-OF-WAY OF MENAUL BLVD., S.E. TO THE WESTERLY CORNER; THENCE LEAVING SAID RIGHT-OF-WAY S 45° 20' 17" W, 341.40 FEET TO THE POINT OF BEGINNING; AND CONTAINING 29843.96 SQUARE FEET.

GRADING AND DRAINAGE PLAN
BOARDWALK DEVELOPMENT CORPORATION
NEW RETAIL BUILDING
FEB 23 1987
HYDROLOGY SECTION