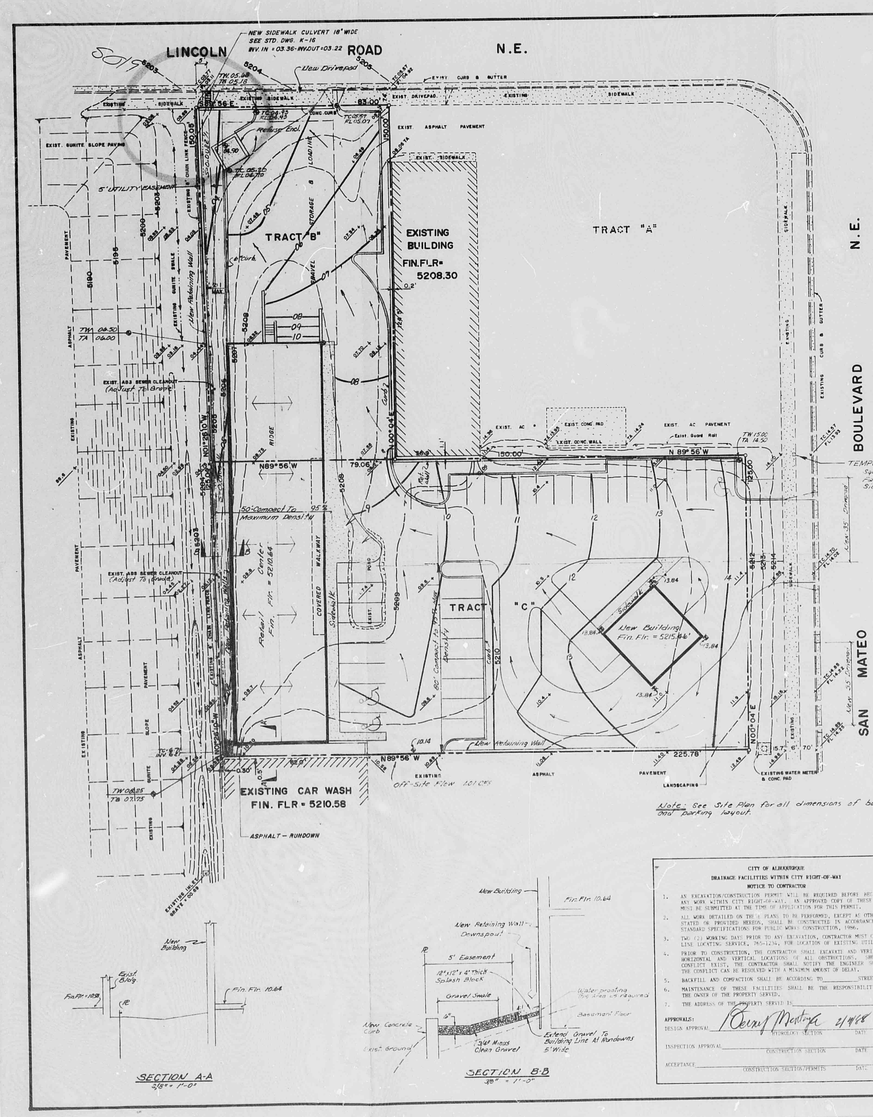
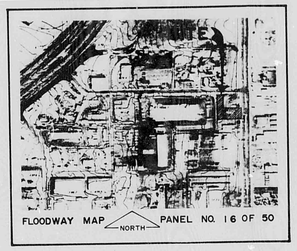
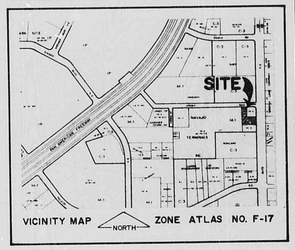
PUBLIC WORKS/HYDROLOGY

F17/D50







PRE-DISCUSSION CONFERENCE FINDINGS:

1. DRAINAGE PLAN FOR D.P.M. REQUIREMENTS PRIOR TO BUILDING PERMIT.
2. FLOOD DRAINAGE ON LINCOLN ROAD - IF DEVELOPED RUNOFF WILL BE MORE THAN 0.5 CUBIC FEET PER SECOND, THEN ENGINEER MUST ADDRESS DOWNSTREAM CAPACITY FOR FREE DISCHARGE.
3. EXISTING 60" RCP ON SAN MATEO WITH DRAIN GRATES.
4. ENGINEER MUST ADDRESS DRAINAGE ACROSS LOT LINES (REPLAT OR EASEMENT)

DRAINAGE COMMENTS:

1. THE SITE DOES NOT LIE WITHIN OR ADJACENT TO A DESIGNATED FLOOD HAZARD AREA.
2. THE PROPOSED GRADING OF THE SITE WILL CONTRIBUTE TO THE FLOOD HAZARD OFFS AT LINCOLN ROAD AND I-25. HOWEVER, DRAINAGE IMPROVEMENTS RECENTLY MADE BY THE STATE HIGHWAY DEPARTMENT ALONG I-25, INCLUDING INLETS AT THE WEST END OF LINCOLN ROAD, HAVE SUFFICIENTLY DIMINISHED THE FLOODING PROBLEM IN THIS AREA.
3. THE 60" RCP ON SAN MATEO BLVD. DOES NOT AFFECT THIS SITE BECAUSE THE SITE SLOPES TO THE WEST WHICH MAKES IT DIFFICULT TO DRAIN TO SAN MATEO BLVD.
4. THE SITE IS AN INFILL SITE.

LEGAL DESCRIPTION:

TRACT "B" AND TRACT "C", AS SHOWN AND DESIGNATED ON THE PLAT OF TRACTS "A", "B", "C" AND "D", A PORTION OF THE LAND OF VISTA TERMINAL, INC., SITUATED WITHIN THE CITY OF ALBUQUERQUE, NEW MEXICO, FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO, ON FEBRUARY 14, 1975 IN VOLUME C-50, FOLIO 87.

EROSION CONTROL PLAN:

DURING CONSTRUCTION OF THE BUILDING, ALL RUNOFF FROM THE SITE SHALL BE CONTAINED ON SITE, USED OR OTHER SUITABLE FACILITIES CAPABLE OF HOLDING THE 10-YEAR 24-HOUR STORM.

BENCH MARK:

N.M. MKT 11 LOCATED AT THE INTERSECTION OF SAN MATEO BLVD. AND GUINEA ROAD, N.E. ZONE STATION IS A STANDARD N.M.S.H.T.D. BRASS TABLET, MOUNTED IN STAMPED CONC.MON.TP., SET IN TOP OF A CONCRETE POST FLUSH WITH THE GROUND. ELEVATION OF THE STATION IS 5,250.0 FEET.

CONSTRUCTION NOTES:

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICES AT 765-1234 FOR LOCATION OF EXISTING UTILITIES.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL OBSTRUCTIONS (MAINS, ETC.) 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.

CITY OF ALBUQUERQUE
DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY
NOTICE TO CONTRACTOR

1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHTS-OF-WAY. APPROVED TOP OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.
2. ALL WORK DETAILED ON THE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1986.
3. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICES, 765-1234, FOR LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL OBSTRUCTIONS (MAINS, ETC.) SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
5. BACKFILL AND COMPACTION SHALL BE ACCORDING TO ____ STREET CUT.
6. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITIES OF THE OWNER OF THE PROPERTY SERVED.
THE ADDRESS OF THE PROPERTY SERVED IS:

APPROVALS:
DESIGN APPROVAL — HYDROLOGY SECTION — DATE
INSPECTION APPROVAL — CONSTRUCTION SECTION — DATE
ACCEPTANCE — CONSTRUCTION SECTION/PERMITS — DATE

LEGEND

DESCRIPTION	NEW	EXISTING
CONTOUR	08	5208
SPOT ELEVATION	*	
PROPERTY LINE		
SWALE		
SHEET FLOW		
ROOF FLOW DIRECTION		
TOP OF CURB / CONCRETE	TC	
TOP OF ASPHALT	TA	
FLOW LINE	FL	

DRAINAGE CALCULATIONS

I. REFERENCES:
A. CITY OF ALBUQUERQUE DEVELOPMENT PROCESS MANUAL (DPM) VOLUME 2, DESIGN CRITERIA, CHAPTER 22.
B. FLOODWAY MAP, PANEL 16 OF 50, (FEMA), OCTOBER 14, 1983.
C. 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, WALKS			
ROOFS			
LAWNS & LANDSCAPING			
UNDEVELOPED	40583		
TOTAL AREA	40583 SF = 0.9317 AC		

WEIGHTED "C" VALUE = 0.40
PERCENT IMPERVIOUS = 0%

B. DEVELOPED RUNOFF COEFFICIENT:

TYPE OF SURFACE	AREA	"C"VALUE	AREA("C")
STREETS, DRIVES, WALKS	32653	0.95	31020
ROOFS	5580	0.90	5022
LAWNS & LANDSCAPING	2350	0.25	588
UNDEVELOPED			
TOTAL AREA	40583		36630

WEIGHTED "C" VALUE = 36630 / 40583 = 0.90
PERCENT IMPERVIOUS = 94%

C. RAINFALL, 100-YR.,6-HR.(REF. I.A., PLATE 22.2 D-1) P_6 = 2.2 INCHES
D. TIME OF CONCENTRATION: TEN MINUTES.
E. RAINFALL INTENSITY,I (REF. I.A., PLATE 22.2 D-2)
$I = P_6(6.04)(T)^{-0.51} = 2.2(6.04)(10)^{-0.51} = 4.65 IN/HR$
F. SOIL TYPE (REF. I.C., SHEET NO. 21) Type "B" Tipsea gravelly fine sandy loam, Hydrologic Soil Group "B".
G. RUNOFF CURVE NUMBER (CN)(REF.I.A., PLATE 22.2 C-2)
UNDEVELOPED CN: BSRT, CN = 32
DEVELOPED CN: ROOFS, PAVEMENT, CN = 98; LANDSCAPING, CN = 98, WEIGHTED CN = (98)(33588)+(32)(5000)/40583=96
H. DIRECT RUNOFF, Q_p, INCHES (REF. I.A., FL. 22.2 C-4)
UNDEVELOPED Q_p = 0.80 IN. DEVELOPED Q_p = 1.80 IN.

III. ON-SITE PEAK DISCHARGE BY RATIONAL EQUATION:
A. EXISTING CONDITIONS:
Q_{100} = 0.40 X 4.65 X 0.9317 = 1.73 CFS
Q_{10} = 0.657 X 1.73 = 1.14 CFS
B. DEVELOPED CONDI.CONS:
Q_{100} = 0.90 X 4.65 X 0.9317 = 3.90 CFS
Q_{10} = 0.657 X 3.90 = 2.56 CFS

IV. ON-SITE VOLUME BY S.C.S. METHOD:
A. EXISTING CONDITIONS:
V_{100} = AREA (Q_p/12) = 40583 (0.80/12) = 2706 CF
V_{10} = 0.657 X 2706 = 1778 CF
B. DEVELOPED CONDITIONS:
V_{100} = AREA (Q_p/12) = 40583(1.80/12) =6087 CF
V_{10} = 0.657 X 6087 = 3999 CF

V. OFF-SITE FLOW:
FLOW FROM EXISTING CAR WASH PAVED AREA, APPROXIMATELY 16000 SF
Q = CIA = 0.95 X 4.65/X 11000(43560) = 1.05 CFS

VI. CAPACITY OF SWALE ADJACENT TO CAR WASH.
USE "V"-SHAPED CHANNEL, 5' WIDE X 6" DEEP.
A = 1.25 SF P = 2(2.25) = 5.00 FT. R = A/P =1.25/5.00 = 0.2451FT.
R = 0.087 (APPROX.) $R^{2/3}$ = 0.020 FT^2/3
(MANNING EQUATION)
Q = AX = A(1.486/N)$R^{2/3}S^{1/2}$
Q = 1.25(1.486/0.0074)(0.2451$^{2/3}$)(0.0010)$^{1/2}$ = 6.05 CFS
6.05 > 1.01 THE SECTION IS MORE THAN ADEQUATE.

VII. CAPACITY OF SECTION A-A:
AREA = 0.5 SF P = 2.12 FT. R = A/P = 0.5/2.12 = 0.2358 R = 0.017
S = 0.01 FT/FT
Q = AV = A(1.486/N)$R^{2/3}S^{1/2}$
Q = 0.5(1.486/0.0173)(0.2358)$^{2/3}$(0.01)$^{1/2}$ = 1.67 CFS
ACTUAL DISCHARGE
OFF-SITE FLOW = 1.01 CFS
BUILDING AND SWALE BEHIND BUILDING: 30.5 X 1.0 = 6205 SF
Q = CIA = 0.90 X 4.65 X 6205/(43560) = 0.93 CFS
TOTAL ACTUAL DISCHARGE, SECTION AA = 1.01 + 0.93 = 1.94 CFS
1.94 < 1.67 CAPACITY IS ADEQUATE.

RECEIVED JAN 6 1988 HYDROLOGY SECTION

JAMES D. LOVELADY
NEW MEXICO
NO. 5412
PROFESSIONAL ENGINEER
9/1/87

REVISED 1-26-88
REVISED 10-28-87

GRADING AND DRAINAGE PLAN
RETAIL CENTER & CONVENIENCE STORE
SAN MATEO BLVD. & LINCOLN ROAD, N.E.
ALBUQUERQUE, NEW MEXICO

R# 25 DATE 3-17-88 OP EOP

CITY OF ALBUQUERQUE

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The photographic process used meets the Basic Microfilm Standards of the National Micrographics Association (NMA)(1977)

DIRECTOR

NOTARY PUBLIC

OFFICIAL SEAL
Roberta Duran
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STATE OF NEW MEXICO
My Commission Expires 6/17/92

PLAN SHOT TWICE ONCE ON LIGHT ONCE ON DARK

CITY OF ALBUQUERQUE
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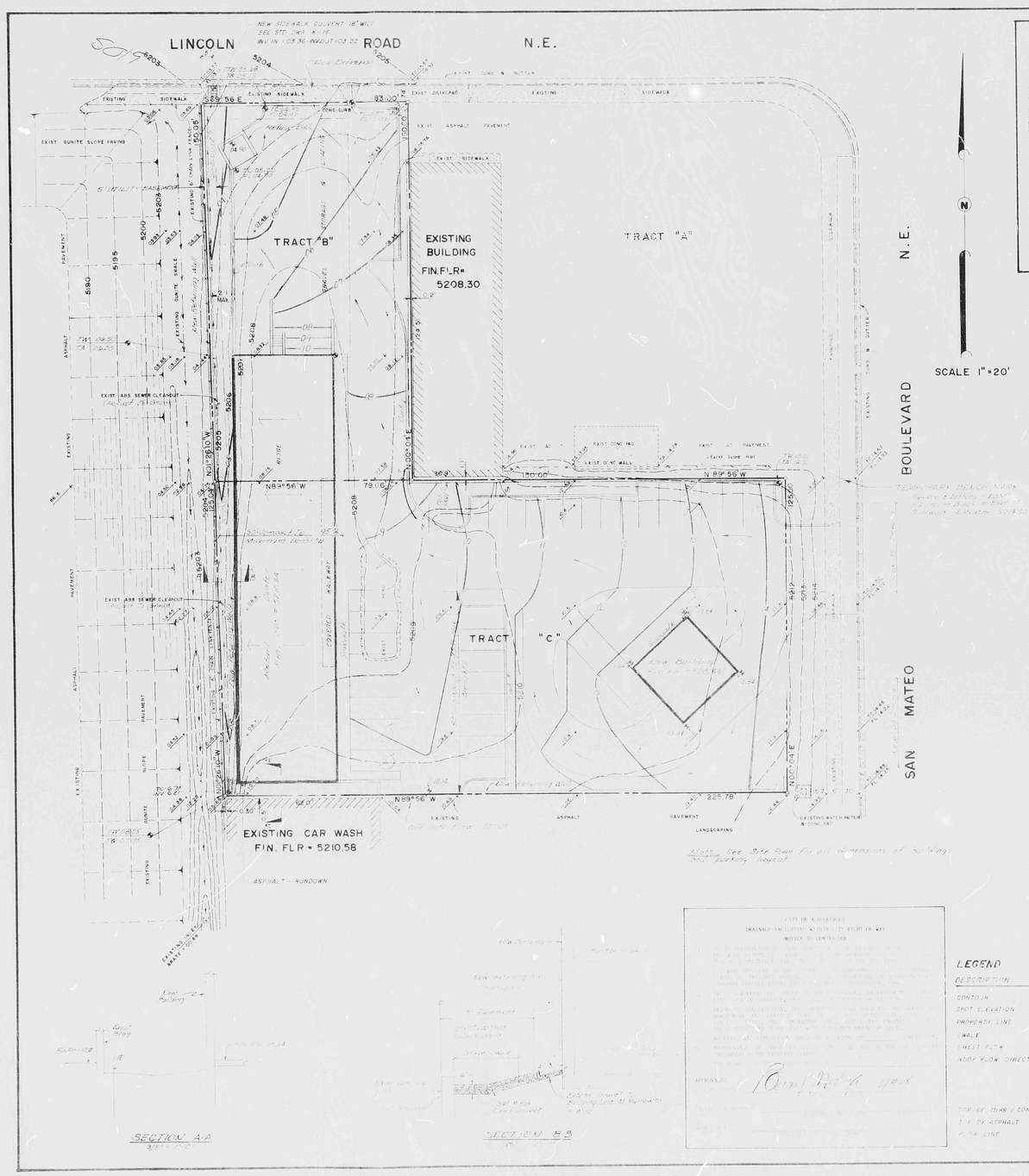
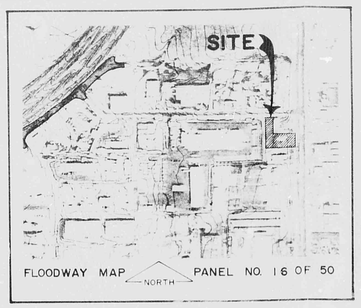
PLANS/PLATS ON FILE

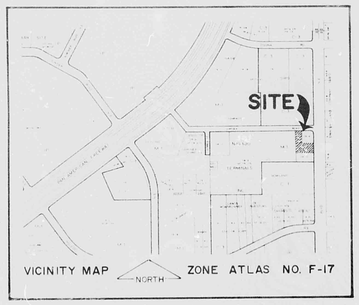
FILE DESC: F17/D50

PLANS/PLATS 2

E 30 D 24 C 20 B 16 A 12 CITY OF ALBUQUERQUE C D F







FIRE DESIGN CRITERIA / FINDINGS:

1. ORIGINAL PLAN SHALL INCORPORATE FLOW TO BUILDING PERMIT.
2. FIRE FLOW REQUIREMENTS MUST BE ACHIEVED PRIOR TO ACCESSIBLE COMBUSTIBLE MATERIALS ON SITE. FIRE HYDRANTS MUST BE ACCESSIBLE DURING CONSTRUCTION FOR FIRE PROTECTION.
3. FIRE HYDRANTS MUST BE ACCESSIBLE WITHIN 100 FEET OF ALL PORTIONS OF THE BUILDING.
4. ACCESS MUST BE WITHIN 150 FEET OF ALL PORTIONS OF THE BUILDING.

DRAINAGE COMMENTS:

1. THE SITE MUST BE GRADED OR SHOWN TO BE A DEDICATED PUBLIC DRAINAGE WAY.
2. THE EXISTING FLOWING ON THE SITE MUST ACCORDING TO THE FLOOD HAZARD MAP, FLOW ALONG THE N.E. BOUNDARY. DRAINAGE IMPROVEMENTS PROVIDED IN PART OF THE STATE HIGHWAY DEPARTMENT WORK ON THE LINCOLN PLUS THE ADDITION OF THE INTERNAL WALL, MAKE THE SITE TOTALLY DOMINEERING THE FLOWS.
3. THE SITE MUST BE AS MUCH SITE, THAT WAS DONE THAT THE DRAINAGE FLOW ON THE WEST BORDER MAKES IT DIFFICULT TO DRAIN TO THE STREET.
4. THE SITE IS TOTALLY FLAT.

LEGAL DESCRIPTION:

LOTS "A" AND "B", TRACT "A", BLOCK 6, OF TRACT "A", BLOCK 6, THE ALBUQUERQUE TRACT, ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO, AS THE SAME IS SHOWN AND DESIGNATED ON THE PLAT OF THE ALBUQUERQUE TRACT, ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO, FILED IN THE OFFICE OF THE COUNTY CLERK, BERNALILLO COUNTY, NEW MEXICO, ON OCTOBER 1, 1963.

EROSION CONTROL PLAN:

NOTE: THE EXISTING SITE DRAINS FROM THE SOUTH TO THE NORTH. THE PROPOSED DRAINAGE PATTERN WILL BE THE SAME AS THE EXISTING.

BENCH MARK:

NOTE: ALL ELEVATIONS OF THE INFORMATION ON THIS PLAN, AND ALSO THOSE NOTED ON THE "TOPOGRAPHIC SURVEY" PLAN, ARE RELATIVE, WITH ELEVATIONS ASSUMED AS 100.00 FOR THE FINISHED FLOOR ELEVATION OF THE EXISTING BUILDING.

CONSTRUCTION NOTE:

PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL POSSIBLE CONFLICTING UTILITIES. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY WITH ANY CONFLICTS.

NOTE: ALL UTILITIES SHALL BE LOCATED WITHIN EXISTING OR PROPOSED EASEMENTS. THE ENGINEER DOES NOT CHECK UTILITY PLANS, INCLUDING BUT NOT LIMITED TO, WATER, GAS, ELECTRIC, TELEPHONE, CABLE TV, ETC.

DRAINAGE CALCULATIONS

I. REFERENCES:
A. CITY OF ALBUQUERQUE DEVELOPMENT PROCESS MANUAL (DPM) VOLUME 2, DESIGN CRITERIA, CHAPTER 22.
B. FLOOD HAZARD MAP, PANEL 16 OF 50, (1984), OCTOBER 16, 1983.
C. "THE HYDROLOGY OF BERNALILLO COUNTY", NEW MEXICO, U.S. DEPARTMENT OF CONSERVATION SERVICE, JUNE, 1977.

II. ON SITE RUNOFF CHARACTERISTICS:
A. EXISTING RUNOFF COEFFICIENTS:

TYPE OF SURFACE	AREA	"C" VALUE	AREA("C")
STREETS, DRIVES, WALKS			
ROOFS			
LAWN & LANDSCAPING: UNIRRIGATED	40583		
TOTAL AREA	40583 SF = 0.9317 AC		

WEIGHTED "C" VALUE = 0.40
PERCENT IMPERVIOUS = 0%

B. DEVELOPED RUNOFF COEFFICIENTS:

TYPE OF SURFACE	AREA	"C" VALUE	AREA("C")
STREETS, DRIVES, WALKS	32653	0.95	31020
ROOFS	5360	0.90	4824
LAWN & LANDSCAPING UNIRRIGATED	2350	0.25	588
TOTAL AREA	40583		36430

WEIGHTED "C" VALUE = 36430 / 40583 = 0.90
PERCENT IMPERVIOUS = 90%

C. TIME OF CONCENTRATION: (DPM CHAPTER)
1. EXISTING CONDITIONS: (DPM, I.A., PLATE 22.3 D-3)
$T_c = (11.9L^3/H)^{0.385}$ (L=0.9317 MILES, H=5.0 FEET) = 0.65 HOUR
2. DEVELOPED CONDITIONS: (DPM, I.A., PLATE 22.3 D-3)
$T_c = (11.9L^3/H)^{0.385}$ (L=0.9317 MILES, H=5.0 FEET) = 0.65 HOUR

D. UNIT PEAK DISCHARGE (DPM, I.A., PLATE NO. 22.1 D-1, Pattern gravel-covered, Slope = 0.5%, Hydrologic Soil Group "B")

E. RUNOFF CURVE NUMBER (DPM, I.A., PLATE 22.2 C-2)
1. EXISTING CONDITIONS: CN = 81
2. DEVELOPED CONDITIONS: PAVED, CN = 98; LANDSCAPING, GOOD, UNIRRIGATED, CN = 61; WEIGHTED CN = (32653x98 + 7807x61)/40583 = 96

H. DISCHARGE RUNOFF, Q_{100} (DPM, I.A., FIG. 22.2 C-4)
1. EXISTING: Q_{100} = 2.40 IN. DEVELOPED Q_{100} = 3.40 IN.

III. ON SITE PEAK DISCHARGE BY RATIONAL EQUATION:
A. EXISTING CONDITIONS:
Q_{100} = CIA = 2.40 x 0.40 x 0.9317 = 1.73 CFS
Q_{10} = 0.657 x 1.73 = 1.14 CFS
B. DEVELOPED CONDITIONS:
Q_{100} = CIA = 3.40 x 0.90 x 0.9317 = 2.90 CFS
Q_{10} = 0.657 x 2.90 = 1.90 CFS

IV. ON SITE VOLUME BY S.C.S. METHOD:
A. EXISTING CONDITIONS:
V_{100} = AR/12 = (0.9317 x 2.40)/12 = 2.236 CF
V_{10} = 0.657 x 2.236 = 1.470 CF
B. DEVELOPED CONDITIONS:
V_{100} = AR/12 = (0.9317 x 3.40)/12 = 3.087 CF
V_{10} = 0.657 x 3.087 = 2.029 CF

V. OFF-SITE FLOW:
FLOW FROM EXISTING CAR WASH WOULD HAVE APPROXIMATELY 1000 SF (.023 AC) OF A 0.90 C VALUE (PROBABLY) = 1.08 CFS

VI. CAPACITY OF CURB MOMENT TO CAR WASH:
FOR "B" SHAPED CURBS, S = 4.0% & C = 0.018
$Q = (1.49/n)(A)(R^{2/3})(S^{1/2})$; $R = A/P = (1.25/2.0) = 0.625$ FT.
A = 1.25 FT SQUARED
P = 2.0 FT
Q = (1.49/0.016)(1.25)(0.625)$^{2/3}$(0.04)$^{1/2}$ (MANNING EQUATION)
Q = (1.49/0.016)(1.25)(0.625)$^{2/3}$(0.20) = 11.6 x 0.73 x 0.20 = 1.69 CFS
1.69 CFS > 1.08 CFS, WHICH IS MORE THAN ADEQUATE.

VII. CAPACITY OF SECTION A-A:
FOR 1.0 FT. DEPTH: $Q = (1.49/n)(A)(R^{2/3})(S^{1/2})$; $R = A/P = (0.5x2.0)/(2 + 0.5x2.0) = 0.5x2/3 = 0.667$
A = 0.5 x 2.0 = 1.0 SQ. FT.
P = 2 + 0.5 x 2.0 = 3.0 FT.
$Q = (1.49/0.016)(1.0)(0.667)^{2/3}(0.04)^{1/2}$ = 93.1 x 0.76 x 0.20 = 14.2 CFS
SUBCRITICAL FLOW
FOR 0.5 FT. DEPTH: $Q = (1.49/n)(A)(R^{2/3})(S^{1/2})$; $R = A/P = (0.5x1.0)/(1 + 0.5x1.0) = 0.5x1/1.5 = 0.333$
A = 0.5 x 1.0 = 0.5 SQ. FT.
P = 1 + 0.5 x 1.0 = 1.5 FT.
$Q = (1.49/0.016)(0.5)(0.333)^{2/3}(0.04)^{1/2}$ = 93.1 x 0.48 x 0.20 = 8.9 CFS
SUBCRITICAL FLOW
THE CURB WILL HAVE A CAPACITY OF 14.2 CFS WITHOUT OVERTOPPING. THE CURB WILL HAVE A CAPACITY OF 8.9 CFS WITHOUT OVERTOPPING.

CITY OF ALBUQUERQUE
DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY
NOTICE TO CONTRACTOR

1. ALL DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE DRAINAGE REPORT, DRAINAGE MANUAL, CURRENT ADOPTED ZONE ATLAS, AND THE APPROVED DRAINAGE PLAN.
2. ALL DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY SHALL BE CONSTRUCTED TO THE LINES AND GRADES SHOWN ON THE APPROVED PLAN.
3. ALL DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS.
4. ALL DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY SHALL BE CONSTRUCTED BY A CONTRACTOR HAVING A CURRENT CITY OF ALBUQUERQUE CONTRACTOR'S LICENSE.
5. ALL DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY SHALL BE CONSTRUCTED UNDER THE SUPERVISION OF A REGISTERED PROFESSIONAL ENGINEER.
6. ALL DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY SHALL BE CONSTRUCTED WITHIN 30 DAYS OF THE ISSUANCE OF THE CITY PERMIT.
7. ALL DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY SHALL BE CONSTRUCTED WITHIN 30 DAYS OF THE ISSUANCE OF THE CITY PERMIT.

APPROVAL: [signature] 1988

LEGEND

DESCRIPTION	NEW	EXISTING
CONTOUR	08	5208
SPOT ELEVATION	x	x
PROPERTY LINE		
SWALE		
SHEET FLOW		
ROOF FLOW DIRECTION		
TOP OF CURB / CONCRETE	TC	
TOP OF ASPHALT	TA	
FLOW LINE	FL	

9/1/87
REVISED 1-26-86
REVISED 10-28-87

GRADING AND DRAINAGE PLAN
RETAIL CENTER & CONVENIENCE STORE
SAN MATEO BLVD. & LINCOLN ROAD, N.E.
ALBUQUERQUE, NEW MEXICO

PLAN SHOT TWICE
ONCE ON LIGHT
ONCE ON DARK

CITY OF ALBUQUERQUE
THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT.

R# 35 DATE 3-19-02 OP [illegible]

CITY OF ALBUQUERQUE
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[signature] 3/15/02
DIRECTOR

Roberta Duran
NOTARY PUBLIC

OFFICIAL SEAL
Roberta Duran
NOTARY PUBLIC
07/07/02

D24 C20 B16 A12 CITY OF ALBUQUERQUE C D

VICINITY MAP F-17

SCALE 1" = 800'

LEGEND

- 6810 — EXISTING CONTOUR
- + 5489 — EXIST. SPOT ELEVATION
- EXIST. SWALE
- EXIST. TOP OF SLOPE
- EXIST. TOE OF SLOPE
- TC — TOP OF CURB
- FL — FLOWLINE
- PROPOSED CONCRETE
- PROPOSED ASPHALT
- PROPOSED SWALE
- + PROPOSED SPOT ELEVATION
- PROPOSED CONTOUR
- BASIN BOUNDARY

LEGAL DESCRIPTION

TRACTS B & C, LANDS OF UNIVO TECHNOLOGY, ALBUQUERQUE, NEW MEXICO

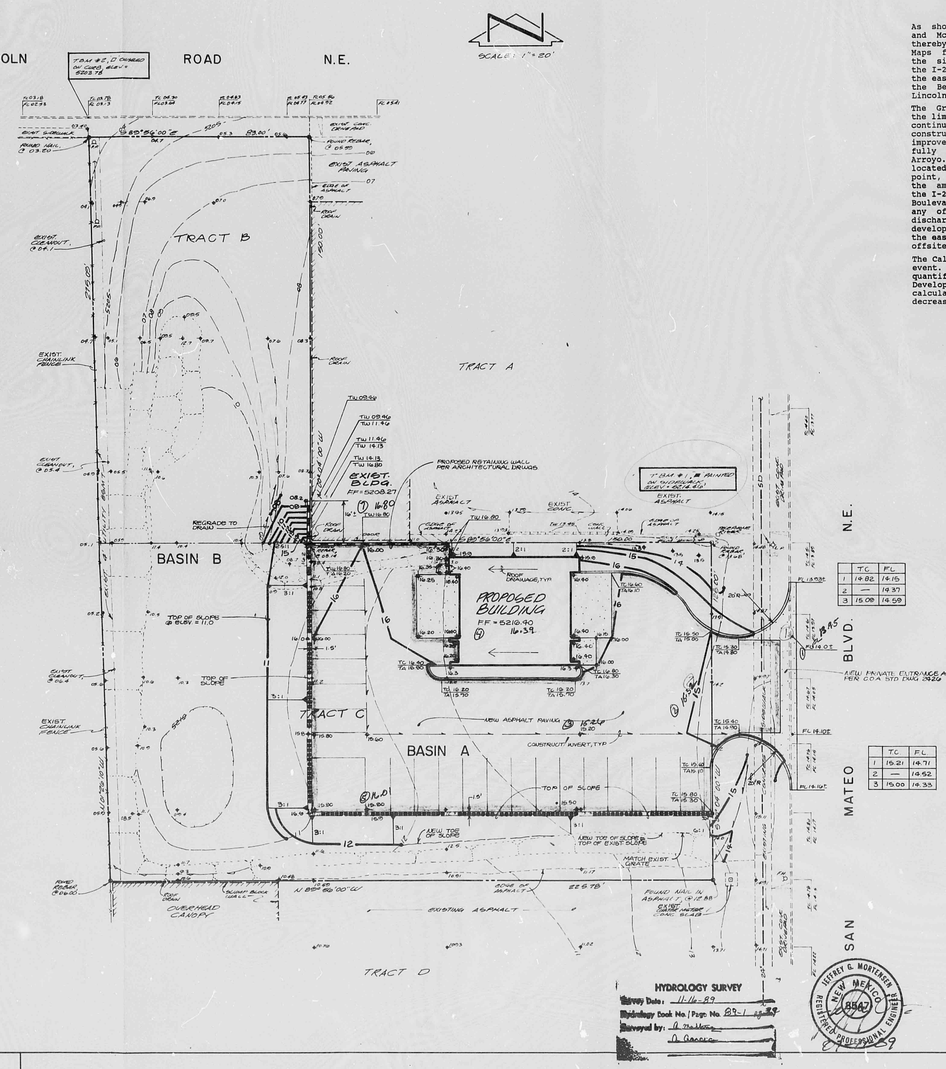
PROJECT BENCHMARK

A STANDARD N.M.S.H.D. BRASS DISKET, STAMPED "UNI-3621", SET ON TOP OF CONC. POST SET FLUSH WITH GROUND LOCATED 41' FROM EAST LINE OF THE MEDIAN IN SAN MATEO BLVD. AS MEASURED FROM THE INTERSECTION OF SAN MATEO BLVD. & SAN MATEO BLVD. N.E. ELEVATION = 6168.32 FEET (M&S.C.D.)

TEMPORARY BENCHMARKS

TBM #1 - A PAINTED SQUARE, #, SET ON THE SIDEWALK OF SAN MATEO BLVD. N.E. IN A PROJECTION OF NORTH PROPERTY LINE OF TRACT C, AS SHOWN HEREON. ELEV. = 6214.45 FEET (M&S.C.D.)

TBM #2 - A CHISELED "X" SET ON TOP OF CURB ALONG LINCOLN RD. N.E. IN A PROJECTION OF THE COMMON PROPERTY LINE OF TRACT B, AS SHOWN HEREON. ELEV. = 5209.78 FEET (M&S.C.D.)



	TC	FL
1	16.02	16.15
2	—	16.37
3	15.08	14.58

	TC	FL
1	16.21	14.71
2	—	14.52
3	15.00	14.35

HYDROLOGY SURVEY
Survey Date: 11-16-89
Hydrology Book No./Page No. 89-1 / 48
Surveyed by: A. Garcia

JEFFREY G. MORTENSEN NEW MEXICO 8840 REGISTERED PROFESSIONAL ENGINEER

DRAINAGE PLAN

The following items concerning the Instant Oil San Mateo Grading and Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

As shown by the Vicinity Map, the site is located on the west side of San Mateo Boulevard N.E. between Lincoln Road N.E. and McLeod Road N.E. At present, the site is undeveloped. Much of the surrounding area is currently developed, thereby making this an infill site. As shown by Panel 16 of the National Flood Insurance Flood Boundary and Floodway Maps for the City of Albuquerque, New Mexico, this site does not lie within a designated flood hazard area. At present, the site discharges runoff onto Lincoln Road N.E. Flooding is designated to the west where Lincoln Road N.E. intersects the I-25 East Frontage Road. There is no apparent flooding, however, shown within San Mateo Boulevard N.E. which lies to the east of the site. San Mateo Boulevard N.E. has been constructed with a public storm drain system which discharges to the Bear Arroyo. At present, the site drains from east to west and then from south to north onto Lincoln Road N.E. Lincoln Road N.E. drains in a westerly fashion toward the I-25 East Frontage Road.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1'0" intervals, 2) the limit and character of the existing improvements, 3) the limit and character of the proposed improvements, and 4) continuity between existing and proposed grades. As shown by this plan, the proposed improvements will consist of the construction of a commercial building along with adjacent paving and landscaping. Runoff generated by these proposed improvements will be discharged into San Mateo Boulevard N.E. As previously mentioned, San Mateo Boulevard N.E. is a fully improved public street with a public storm drain system. This public storm drain system outfalls to the Bear Arroyo. The remainder of the site will continue to drain in its existing condition. There is an existing depression located along the west end of Tract C. Overflow runoff from this depression drains to the north onto Tract B. From this point, runoff flows into Lincoln Road N.E. and follows the pattern of runoff previously described. Due to the fact that the amount of runoff being discharged to the designated flood hazard area at the intersection of Lincoln Road N.E. and the I-25 East Frontage Road, the fact that this is an infill site, and the diversion of developed runoff to San Mateo Boulevard N.E., the free discharge of runoff from this site is appropriate. The proposed development does not receive any offsite flows from Tracts A and B because those parcels have been developed in a manner which avoids such a discharge. Tract A does contribute roof runoff to Tract B, however, that occurrence does not affect the proposed development. Due to the fact that there is no designated flooding within San Mateo Boulevard N.E., offsite flows from the east are not anticipated. Tract E, which is situated to the west of the site is topographically lower, therefore, no offsite flows are expected from that direction.

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 generated. 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 demonstrated by these calculations, the proposed improvements will increase the peak discharge of runoff to San Mateo Boulevard N.E., while decreasing the peak rate of discharge to Lincoln Road N.E.

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 safety and health.
4. All construction within public right-of-way shall be performed in accordance with applicable City of Albuquerque Stanlards 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 31: EtC - Embudo-Tijeras Complex,
TgB - Tijeras gravelly fine sandy loam
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
Pasture or Range Land: 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

Basin B
$A_{total} = 40{,}370$ sf = 0.93 Ac
C = 0.40 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CiA = 0.40(4.65)(0.93) = 1.7$ cfs
A_{imp} = -0- sf; % impervious = -0-%
Composite CN = 70 (DPM Plate 22.2 C-3)
DRO = 0.38 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)A = 1280$ cf

Developed Condition

Basin A
$A_{total} = 15{,}000$ sf = 0.34 Ac
Roof area = 1700 sf (0.11)
Paved area = 11,930 sf (0.80)
Landscaped area = 1370 sf (0.09)
C = 0.88 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CiA = (0.88)(4.65)(0.34) = 1.4$ cfs
$A_{imp} = 13{,}630$ sf; % impervious = 91 %
Composite CN = 95 (DPM Plate 22.2 C-3)
DRO = 1.7 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)A = 2100$ cf

Basin B
$A_{total} = 25{,}370$ sf = 0.58 Ac
C = 0.40 (Weighted average per Emergency Rule, 1/14/86)
$Q_{100} = CiA = (0.40)(4.65)(0.58) = 1.1$ cfs
A_{imp} = -0- sf; % impervious = -0-%
Composite CN = 70 (DPM Plate 22.2 C-3)
DRO = 0.38 in (DPM Plate 22.2 C-4)
$V_{100} = 3630\ (DRO)A = 800$ cf

Comparison

Basin A
$\Delta Q_{100} = 1.4 - 0 = 1.4$ cfs (increase)
$\Delta V_{100} = 2100 - 0 = 2100$ cf (increase)

Basin B
$\Delta Q_{100} = 1.7 - 1.1 = 0.6$ cfs (decrease)
$\Delta V_{100} = 1280 - 800 = 480$ cf (decrease)

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Chas. T. Hatch 11/5/92
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07/07/92

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GRADING AND DRAINAGE PLAN
INSTANT OIL - SAN MATEO

DESIGN BY	L.P.U.
DRAWN BY	C.V.M.
APPROVED BY	J.G.M.

No.	Date	By	Revision

JOB NO. 890662
DATE 7 - 1989
SHEET 1 OF 1

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