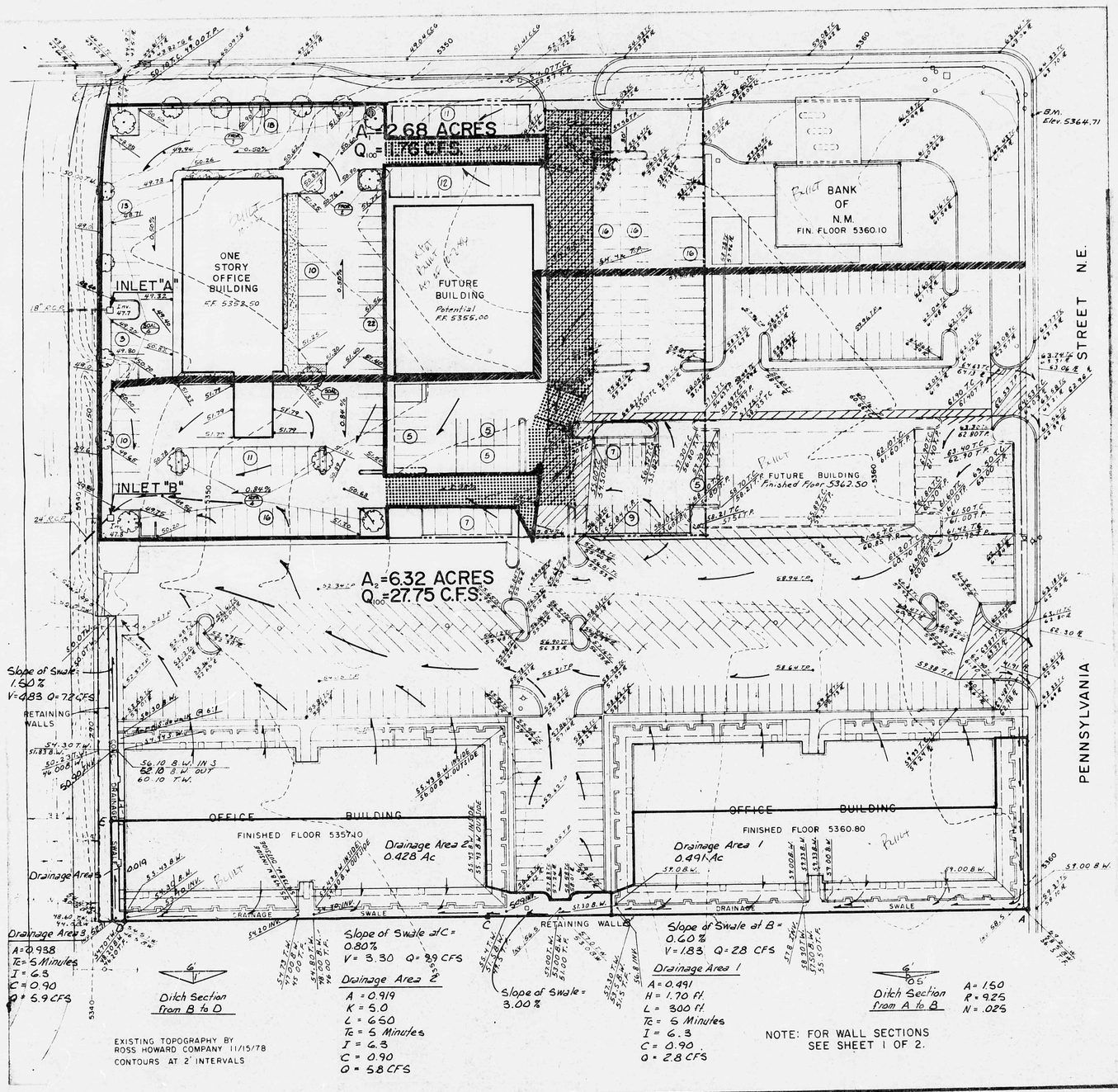
HYDROLOGY

G19/D9B
2 PLANS

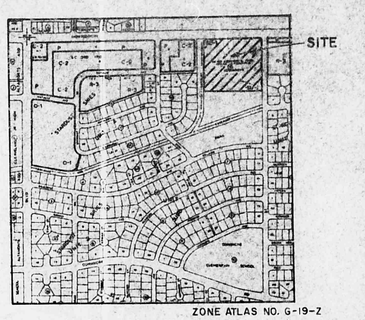
G19/D9B

2 Plans



NOTE: FOR WALL SECTIONS SEE SHEET 1 OF 2.

SCALE: 1"=40'
CONTOUR INTERVAL = 2'



VICINITY MAP
(Z-14-Z5)

The peak discharge rate for the designatd State Farm Insurance Company subject property has been estimated to be as follows:

A (Area)	3.112 acres (total site)*
C (Runoff Coef.)	0.85
I (Intensity)	5.164**

Developed (Subject Property)

A	1.99 acres
C	0.85
I	5.164
CFS (Drop Inlet "A")	8.735

Developed (Subject Property)

A	1.12 acres
C	0.85
I	5.164
CFS (Drop Inlet "B")	4.916

* As described by plat and survey of southerly portion of Tract A-4, Albuquerque Surveying Co., Inc., Albuquerque, New Mexico, August, 1984

** As determined for a developed site condition, storm drainage study - Penn Mont Plaza, Albuquerque, New Mexico, by Gardner Enigneers, Inc., Albuquerque, New Mexico, January, 1979

Discharge flows from adjacent property:

Developed

A	0.69 acres
C	0.85
I	5.164
CFS (Drop Inlet "A")	3.037

Developed

A	5.20 acres
C	0.85
I	5.164
CFS (Drop Inlet "B")	22.82

The total peak discharges to the existing drop inlets "A" and "B" have been estimated to be as follows:

For drainage area (A1) Q100 = 2.68 ac. x 0.85 x 5.164 = 11 76 CFS
For drainage area (A2) Q100 = 6.32 ac. x 0.85 x 5.164 - 27.75 CFS

Drainage area (A1) is designated to outfall through the existing drop inlet "A", having a rectangular contracted weir, H=1.00 feet, L=3.00 feet:

Qmax = 3 33 (L-0.2H)H 3/2 = 3.33 <3 - 0.2(1)> 1 3/2 = 9.32 CFS

Drainage area (A2) is designated to outfall through the existing drop inlet "B", having a rectangular contracted weir, H=1.00 feet, L=4.00 feet:

Qmax = 3.33 (L-0.2H)H 3/2 = 3.33 <4- 0.2 (1)> 1 3/2 = 12.65 CFS

Drainage area (A1) shall be delivered from the existing drop inlet to the existing drainage channel via an 18-inch diameter pipe having a capacity of 20-22 CFS. This proves to be of adequate size for the given watershed area

Drainage area (A2) shall be delivered from the existing drop inlet to the existing drainage channel via a 24-inch diameter pipe having a capacity of 37 - 40 CFS. This proves to be of adequate size for the given watershed area

I HEREBY CERTIFY THAT THE SITE PLAN MODIFICATIONS SHOWN ON THIS PLAN CONFORM TO THE ORIGINAL DRAINAGE PLAN DATED 7-21-81.

GILBERT D. GARDNER

GARDNER, MASON & ASSOCIATES, INC.
ALBUQUERQUE, NEW MEXICO

LEGEND

- = SPOT ELEVATION
- T.C. = TOP OF CURB
- F.L. = FLOW LINE ELEVATION
- T.W. = TOP OF WALL ELEVATION
- B.W. = BOTTOM OF WALL ELEVATION
- F.F. = FINISHED FLOOR ELEVATION
- T.P. = TOP OF PAVEMENT ELEVATION
- T.G. = TOP OF GRATE ELEVATION
- C.C.G. = TOP OF CROSS GUTTER ELEVATION
- INV. = INVERT ELEVATION
- T.F. = TOP OF FOOTING
- = FLOW LINE
- = PHASE I BOUNDARY
- = COMMON ACCESS EASEMENT
- = PHASE II BOUNDARY

SITE DEVELOPMENT PLAN

TRAFFIC ENGINEER TRANS. DEPT. DATE 11-19-84

N/A
PARKS & RECREATION DEPT. DATE

N/A
WATER RESOURCES DEPT. DATE

11/29/84
CITY ENGINEER ENG. DIV./AMAFCA DATE

LEGEND

PHASE I WORK SHALL INCLUDE: ONE STORY OFFICE BUILDING, 105 PARKING SPACES & COMMON ACCESS EASEMENT.

PHASE II WORK SHALL INCLUDE: FUTURE BUILDING, FIXWORK TO EXISTING ISLANDS & RE-STRIPING AS REQUIRED TO PROVIDE 114 SPACES.

(TREES) FRAXINUS ORNUS (FLOWERING ASH)

(SHRUBS) SORBUS ALNIFOLIA (KOREAN MOUNTAIN ASH)

(GROUND COVER) KOLKEWITZIA PANICULATA (GOLDEN RAINTREE)

FOR ADDITIONAL INFORMATION SEE LANDSCAPE PLAN.

APPROVAL AND CONDITIONAL ACCEPTANCE: AS BASIS FOR SITE DEVELOPMENT PROCESS MANUAL.
CITY ENGINEER, ALBUQUERQUE, BERNALILLO CO.
PLANNING DIV. DATE 11/21/84

SURVEY INFORMATION — FIELD NOTES

NO.	BY	DATE

BENCH MARKS — Cross(+) on Top of Curb S.S. W. Curb Return at Pennsylvania St. N.E. & Montgomery Blvd. N.E. Elev. 5364.71

AS BUILT INFORMATION — CONTRACTOR; WORK STAKED BY; INSPECTOR'S ACCEPTANCE BY; FIELD VERIFICATION BY; DRAWINGS CORRECTED BY; RECEIVED BY; MICRO-FILM INFORMATION — DATE; DATE; DATE; DATE; DATE; DATE

ENGINEER'S SEAL

NO.	DATE	REMARKS	BY
		REVISIONS DESIGN	

DESIGNED BY; DRAWN BY; CHECKED BY — DATE

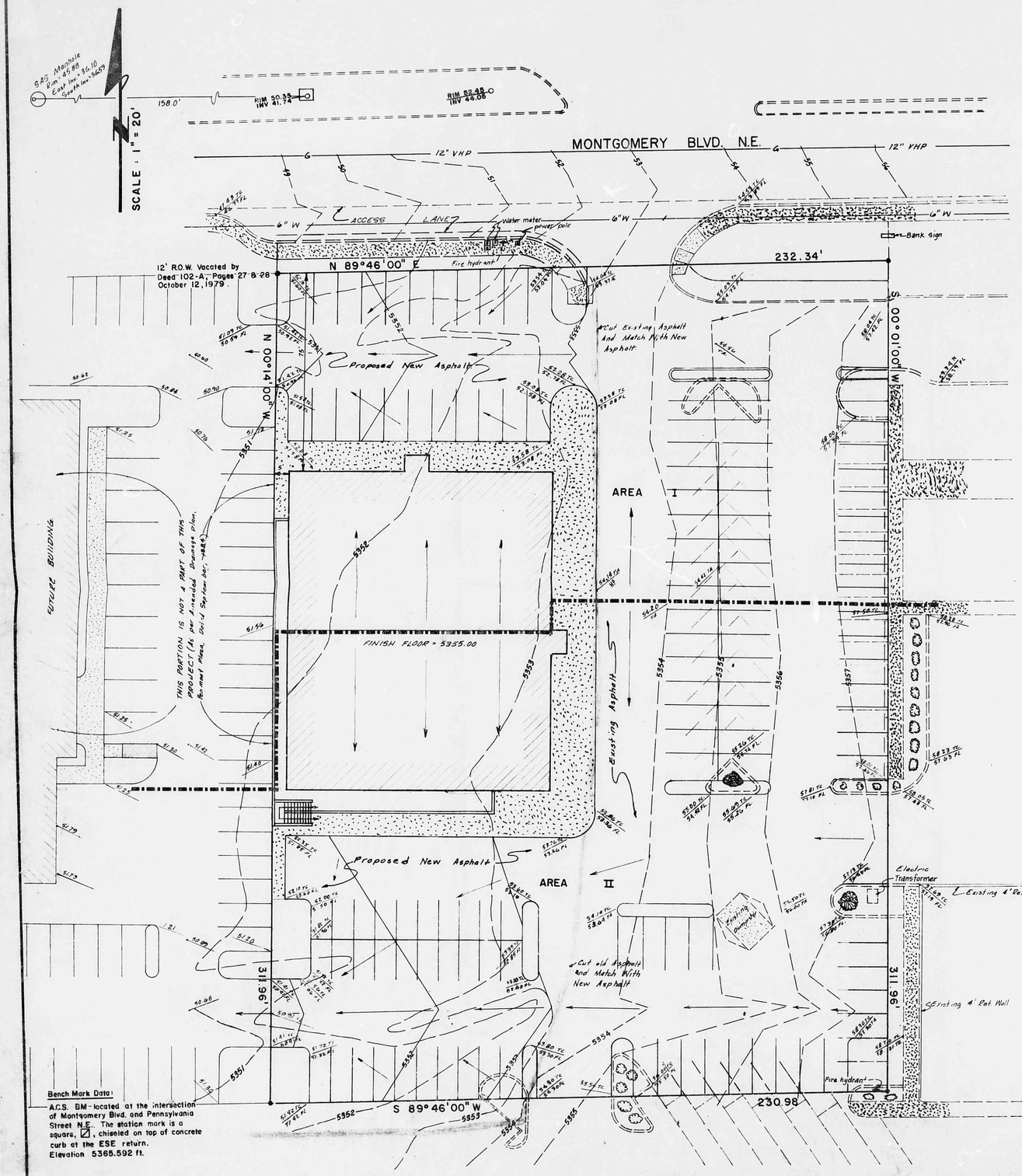
CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

TITLE: PENN-MONT PLAZA AMENDED SITE PLAN & DRAINAGE PLAN

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
City Engineer			Liquid Waste		
A.C.E.- Design			Traffic		
A.C.E.- Hydrology			Water		

DRAWING NO. MAP NO. G-19-Z SHEET 1 OF 1

GRADING AND DRAINAGE PLAN
OF
PENNMONT PLAZA
FOR
HACKER LTD.
ALBUQUERQUE, NEW MEXICO
APRIL 5, 1985



Bench Mark Data:
A.C.S. BM - located at the intersection of Montgomery Blvd. and Pennsylvania Street N.E. The station mark is a square, ☑, chiseled on top of concrete curb at the ESE return.
Elevation 5365.592 ft.

SITE DRAINAGE CRITERIA

This is a grading and drainage plan for the Pennmont Plaza Office Building, Albuquerque, New Mexico. The report consists of a hydrolic study of the probable 100-year storm affecting the site. The purpose of this plan is to route the generated runoff developed by this project and design free discharge into the lot west of this site.

The following are required by the City of Albuquerque Drainage Section concerning this drainage plan:

A. Vicinity Map
B. Bench Mark Data
C. Grading and Drainage plan per D.P.M.
D. Site Drainage Criteria

The plan shows:
A. Existing contours at one foot intervals.
B. Proposed grades indicated by contours and spot elevations.
C. Swales and ponds as indicated by the legend shown.
D. Grading and drainage plan.

This site does not lie within a designated flood hazard zone.

DRAINAGE NOTES AND CALCULATIONS

1. Legal Description: Tract A-4-2A, Block 15, Stardust Skies Subdivision, Unit 4, Albuquerque, New Mexico, Filed on 6-10-85. Book C-27, Page 94.

2. Zoning: SU-1, Zone Atlas No. G-19-Z.

3. Soil Type: As per the U.S.D.A. Soil Conservation Report on soils of Bernalillo County, this is defined as a sandy loam of the hydrolic group B. Hence, the C value as per the D.P.M. for use in the rational equation = 0.34.

4. Offsite Flows: Offsite flows from the Bank of New Mexico which is east of subject property will not be blocked. See attached Exhibit Map A. The maximum developed flows are as follows:

$Q = CIA$ $C = 0.90$, $I = 4.88$, $A = 1.1848$ Ac.

$Q_{100} = 0.90(4.88)(1.185) = 5.203$ cfs

5. Undeveloped Conditions: This site is a partially developed lot with asphalt pavement on approx. half of the site with islands and parking stripes. The terrain slopes from east to west and its generated flow is in sheet flow mode. The total area of this tract is 72,266.0723 S.F. or 1.6590 Ac. contributing runoff. The total flow under an undeveloped condition is shown hereon:

Using $P = 2.3''$

$I = P(6.84)^{-0.51} = 4.88$ in./hr., $t_c = 10$ min.

$A = 0.8240$ AC. asphalt Pavement, $C = 0.8549$

$C_{comp.} = \frac{0.90(0.8240) + 0.34(0.8549)}{1.6590} = 0.618$

$Q_{undevelop} = CIA = 0.618(4.88)(1.6590) = 5.00$ cfs

6. Developed Drainage Plan: According to the Master Drainage Plan on file with the hydrologist at the City Engineer's Office and approved by the City Planning Division Dated November 11, 1984, performed by Gardner, Mason and Assoc., Inc. Albuquerque, N.M., as per G-19. D-9, the site will be persitted free discharge into the lot west of the site through two driveways. The flow will then go through swales constructed by interim plan pending construction of the proposed building, referred to as Phase I on the drawing titled Revised Development Plan, sheet 2, by the Castillo Company, Phoenix, Arizona; also on file in the Master Plan. The flow will then be collected by the two existing catch basins which were built per the Master Plan, and then empty into the Julie Drainage Channel.

The total runoff from the site with the proposed development will be distributed into two drainage areas as shown on plan and computed as follows:

AREA I: RUNOFF CALCULATIONS

Roof and Paved Area = 0.6596 Ac.
Landscaped Area = 0.0415 Ac.
Total Area I = 0.7011 Ac.

$C_{comp} = \frac{0.90(0.6596) + 0.34(0.0415)}{0.7011} = 0.8668$

$I = 4.88$ $A = 0.7011$

$Q_{100} = CIA = 0.8668(4.88)(0.7011) = 2.9656$ cfs

AREA II: RUNOFF CALCULATIONS

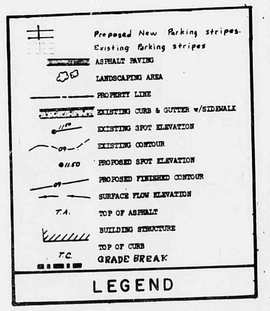
Roof and Paved Area = 0.9097 Ac.
Landscaped Area = 0.0481 Ac.
Total Area II = 0.9578 Ac.

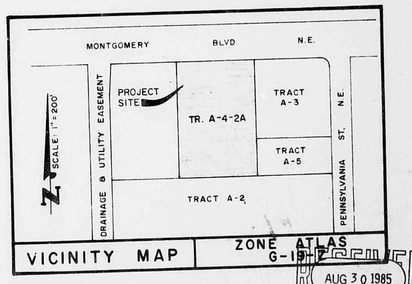
$C_{comp.} = \frac{0.90(0.9097) + 0.34(0.0481)}{0.9578} = 0.8718$

$I = 4.88$ $A = 0.9578$

$Q_{100} = CIA = 0.8718(4.88)(0.9578) = 4.0752$ cfs

Total Area I and Area II = 7.041 cfs.





RECEIVED AUG 30 1985 HYDROLOGY SECTION

N. M. LEGAL REGISTERED LAND PROFESSIONAL ENGINEER 5949 8/5/85

I, JOHN F. ESQUIBEL, UNDER THE LAWS OF NEW MEXICO, AM A REGISTERED LAND SURVEYOR NUMBER 5949 AND CERTIFY THAT THIS PLAT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, SHOWS ALL EASEMENTS OF RECORD, MEETS MINIMUM REQUIREMENTS FOR MONUMENTATION AND SURVEYS OF THE ALBUQUERQUE SUBDIVISION ORDINANCE, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

JOHN F. ESQUIBEL, N.M.R.L.S. NO. 5949

SHEET No. C2 OF 47

A & E ENGINEERING, INC.
CIVIL ENGINEERING · SURVEYING · LAND PLANNING
1330 SAN PEDRO N.E. · SUITE 208 (505) 266-8791
ALBUQUERQUE, NEW MEXICO 87110

SHEET 1 OF 3