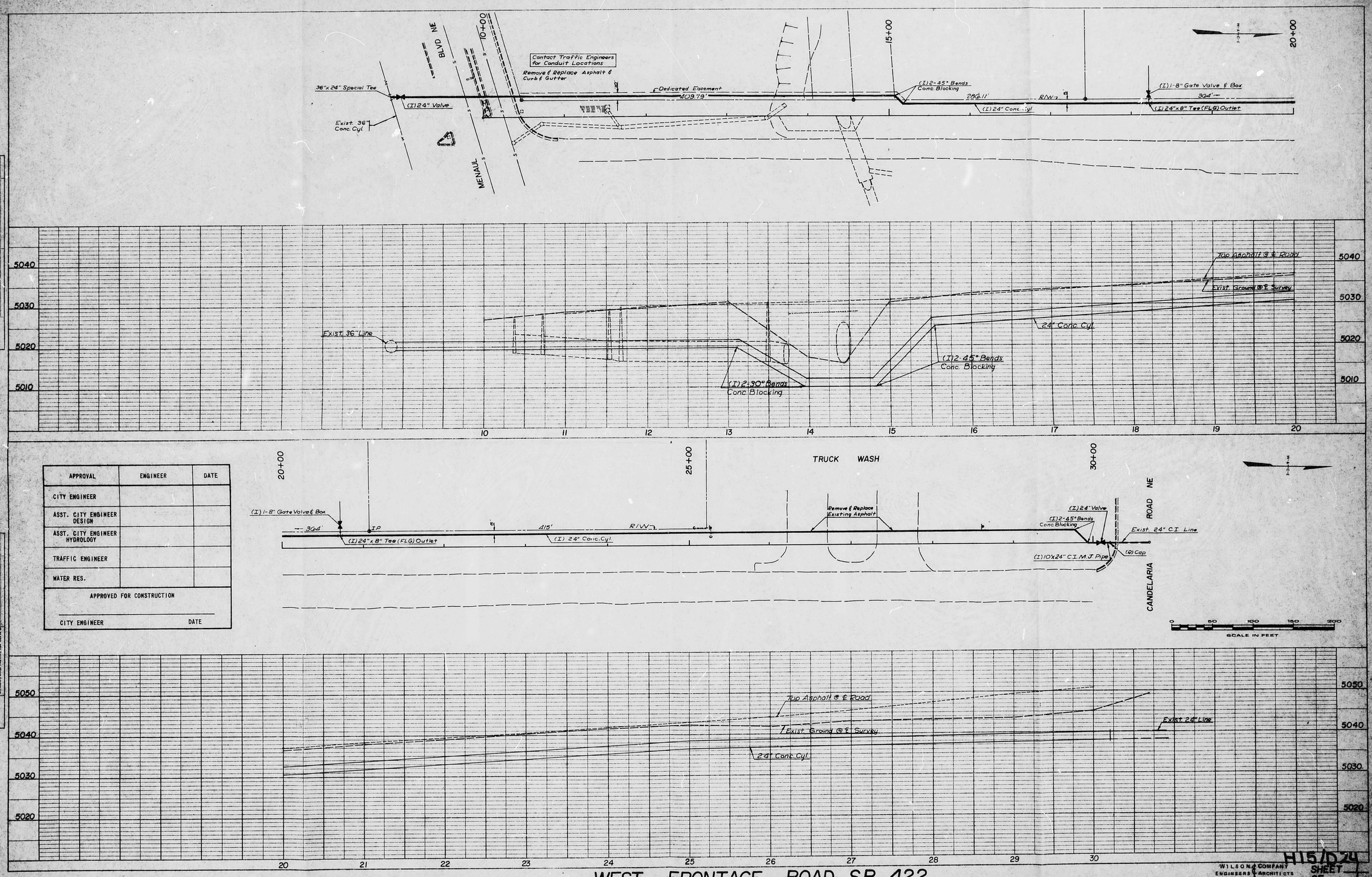
HYDROLOGY H15/D24 BROADBENT BUSINESS CENTER

H15-D24

BROADBENT BUSINESS CENTER

2 PLANS



APPROVAL	ENGINEER	DATE
CITY ENGINEER		
ASST. CITY ENGINEER DESIGN		
ASST. CITY ENGINEER HYDROLOGY		
TRAFFIC ENGINEER		
WATER RES.		
APPROVED FOR CONSTRUCTION		
CITY ENGINEER	DATE	

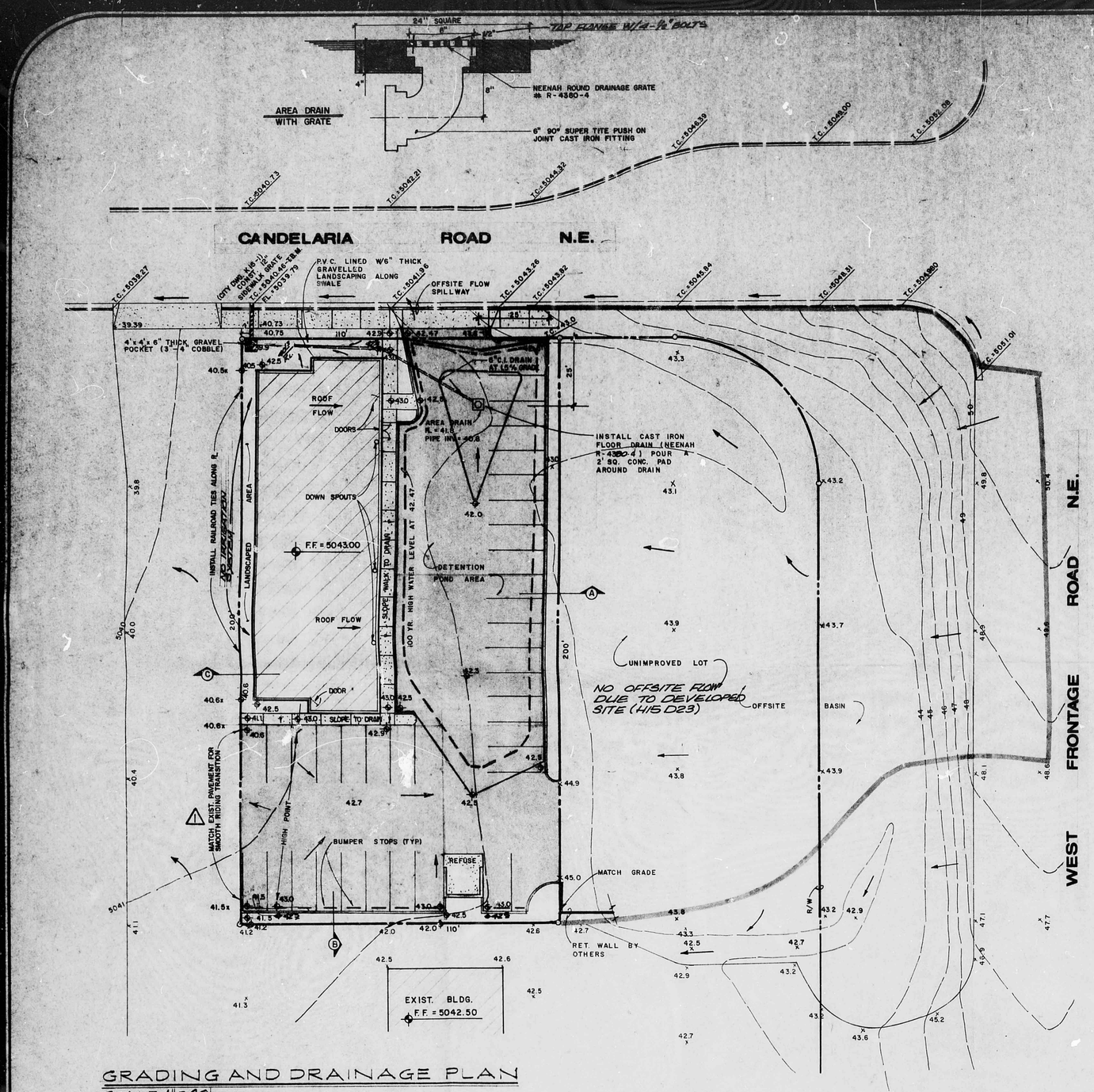
PLAN
SURVEYED
PLOTTED
NOTE BOOK
ALIGNMENT CHECKED
RT. OF WAY CHECKED
NO.
BY
DATE

PROFILE
SURVEYED
PLOTTED
TRAFF. BOOK
GRADES CHECKED
B.M. & NOTES
NO.
BY
DATE

WILSON & COMPANY
ENGINEERS & ARCHITECTS

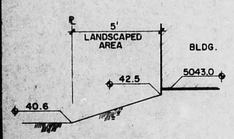
H15/D24
SHEET
OF

WEST FRONTAGE ROAD S.R. 422

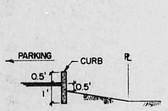


GRADING AND DRAINAGE PLAN

SCALE 1" = 20'



SECTION (C)



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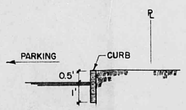
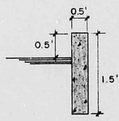
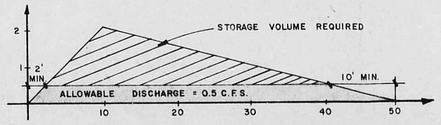


SECTION (A)



CURB DETAIL



Storage vol. = 1/2(2-0.5)(38 Min.)(60) = 1710 ft^3

Pond vol. provided

Elev.	Area	Avg.	Depth	Vol.
41.8	0			
		> 340	0.2	68
42.0	680			
		> 3638	0.47	1709
47.47	6596			

1777 ft^3 ≈ 1710 ft^3 req'd

General Notes

- Survey Bench Mark: C of A "9-H-15" El. = 5034.93
- T.B.M., P.C. N.W. corner of site. Elev. 5040.46
- Legal: Tract E-1-A, Replat of Tract E-1, Sundt's Ind. Addn., Albuquerque, New Mexico
- Zone: M-1
- Surveyor: Walker Surveying Co.
- Soil Type: Cu (SCS Soil Map Page 21) Hydrologic Soil Group "A."
- S.O. W/P Submitted to City Design

Design Criteria

- Pre-design meeting w/City Hydrologic on 4-26-83, the following criteria was established:
  1. Ponding due to downstream flooding
  2. Grade site to drain to Candelaria
  3. Pond discharge to be 0.5 c.f.s. or undeveloped (whichever is greater)
- Offsite flows - Offsite drainage basin consists of a portion of the west Frontage Road and an undeveloped lot east of the site. Flow intercepts the site in general sheet flow with a slight concentration of flows at the N.E. corner.

  Offsite Area = 0.7 Ac
  % imperviousness = 10%
  C = 0.21 for soil group "A" (DPM Plate 22.2 C-1)
  I = (2.2)(2.15) = 4.73 "/hr. (DPM Plate 22.2 D-1 and 22.2 D-2)
  Q = CIA = (0.21)(4.73)(0.7) = 0.7 c.f.s.

- Undeveloped Site Conditions

  Site Area = (110 x 200) = 0.5 Ac
  % impervious = 0%
  C = 0.16 for soil group "A"
  I = (2.2)(2.15) = 4.73 "/hr.
  Q = CIA = (0.16)(4.73)(0.5) = 0.4 c.f.s.

- Developed Site Conditions To Pond

  20,500 ft^2 imperviousness divided by 22,000 ft^2 total = 93% impervious
  C = 0.81 (DPM Plate 22.2 C-1)
  Q_{100} = CIA = (0.81)(4.73)(0.49 Ac) = 2 c.f.s.
  V_{100} = 1/2 (50)(60)(2) = 3000 ft^3

- Developed Site Conditions To Adjoining West Property

  1575 ft^2 Area with 975 ft^2 imperviousness = 0.62 % impervious
  C = 0.5 (DPM Plate 22.2 C-1)
  Q_{100} = CIA = (0.5)(4.73)(0.04) = 0.1 c.f.s. sheet flow onto existing asphalt.

- Detention Pond Size Requirements

  Drain - 6" dia. cast iron pipe at 1.5% — Kutters formula indicates pipe will carry 0.5 c.f.s.

- Overflow Spillway Calcs.

  $Q = CLH^{3/2}$, L_{max} = 11.42, H = L tan 2.16

  $Q = CL(L\tan 2.16)^{3/2} = C(\tan 2.16)^{3/2}(L^{6/4})$

  $Q = C(\tan(2.16))^{3/2}\int_0^{11.42} L^{6/4}\,dL = (0.02)\left[\frac{L^{10/4}}{10.4}\right]_0^{11.42}$ = 3.53 c.f.s.

△1 REVISIONS 9-10-83

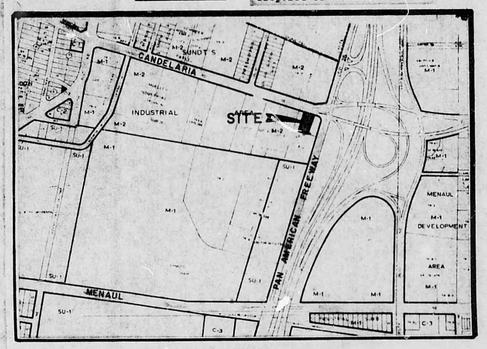
1. SLOPE PAVEMENT DOWN TO MATCH EXISTING ASPHALT SURFACE TO WEST ADJACENT GRADES.
2. REMOVE RETAINING WALL ALONG WEST R. SLOPE LANDSCAPING DOWN TO EXISTING GROUND ADJACENT GRADES.
3. REVISE PIPE OUTLET DETAIL, PIPE SIZE AND GRADE.

△2 REVISIONS 10-5-83

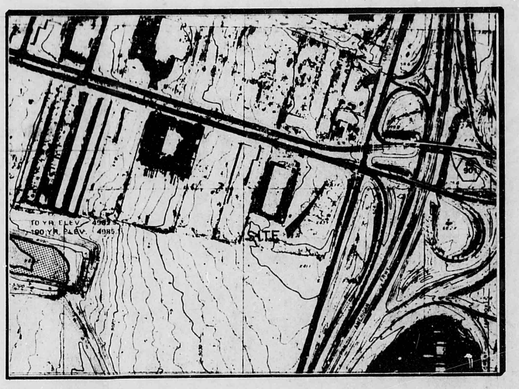
1. GRADES ADDED TO SOUTH R.
2. IRRIGATION SYSTEM NOTE
3. GRADE CHANGE AT FRONT OF BLDG., ADDITIONAL PIPE LENGTH AT 1% SLOPE
4. OVERFLOW SPILLWAY CALCS.

LEGEND

- 12.7 — EXISTING SPOT ELEVATION
- 12 — EXISTING CONTOUR
- 12.7 — PROPOSED SPOT ELEVATION
- 12 — PROPOSED FINISHED CONTOUR
- SURFACE FLOW DIRECTION
- Asphalt Pavement
- Landscaped Area
- Property Line
- Existing Curb/Gutter w/Walk
- Proposed Structures



VICINITY MAP H-15



FLOOD HAZARD MAP

APPROVED FOR DRAINAGE
10/10/83
DATE
SIGNATURE TITLE
ADVISE DRANAGE INSPECTOR WHEN GRADING EXECUTED

RECEIVED
OCT 07 1983
HYDROLOGY SECTION

REVISED 10-5-83

H15/D24

REVISED 10-5-83

1520 CANDELARIA ROAD NE

CONSULTANTS, TERRA SOL INC.
ALBUQUERQUE OFFICE - 1100 B ALVARADO N.E. ALBUQUERQUE, N. MEX. 87110 266-3444
SANDIA PARK OFFICE - P.O. BOX 148 SANDIA PARK, N. MEX. 87047 281-1991

Revisions	Date

Designed C.L.W. 5-83
Drawn N.W. 5-83
Checked C.L.W. 5-83

MOTEL A1
FOR
J. W. JACKSON
ALBUQUERQUE NEW MEXICO

CHRISTOPHER L. WALKER
NEW MEXICO
8483
REGISTERED PROFESSIONAL ENGINEER

SHEET 2 OF 2