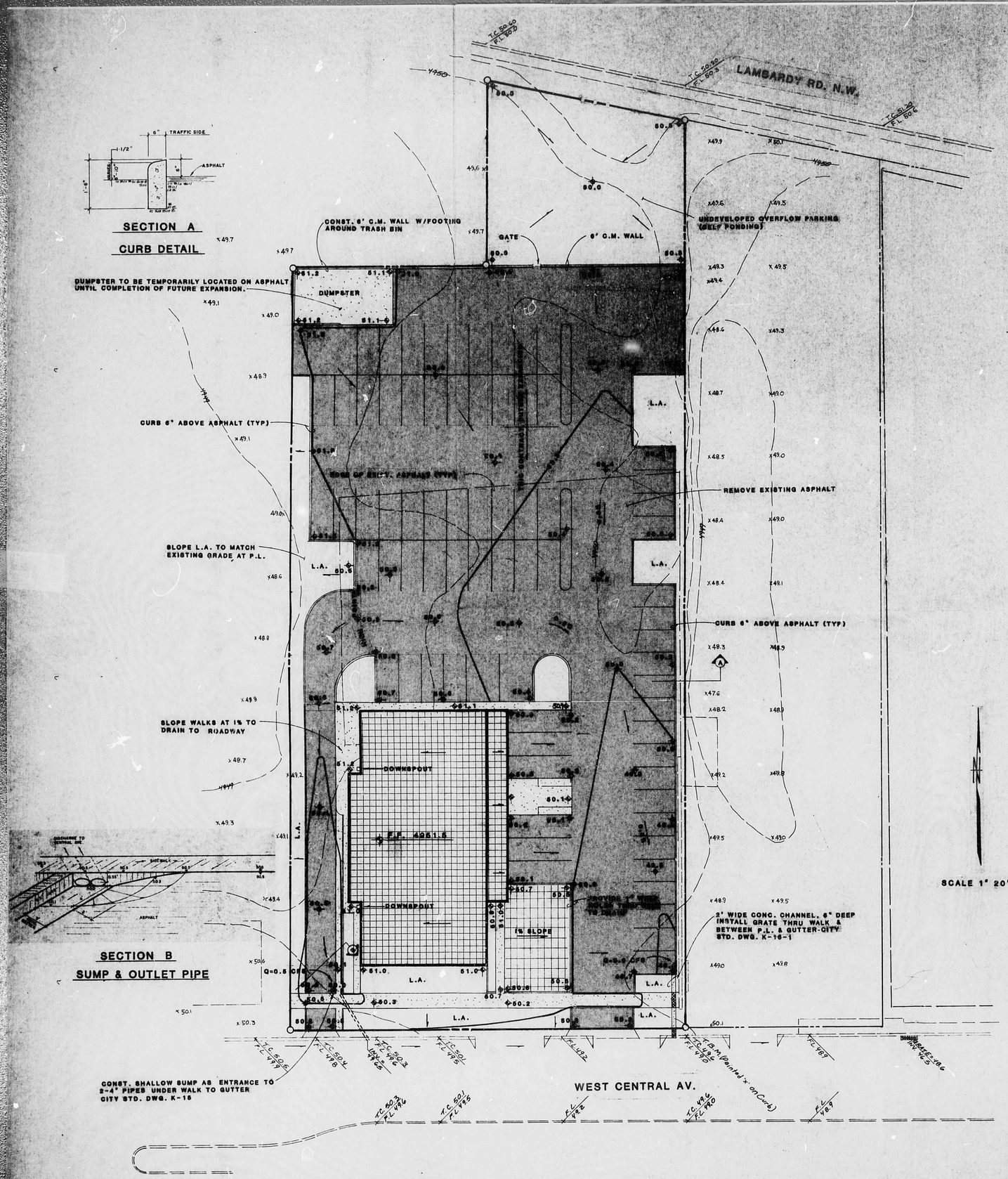
HYDROLOGY K11/D36 PAPA TOTI'S RESTAURANT

R11 / D36

PAPA TOTI'S

RESTAURANT

1 PLAN



LEGEND

	SIDEWALK, CURB & GUTTER (EXISTING, PROPOSED)
	PROPOSED ASPHALT
	BUILDING (EXISTING, PROPOSED)
	PROPERTY LINE
18.7x 4952	EXISTING SPOT ELEVATION
10	EXISTING CONTOUR
18.6	PROPOSED SPOT ELEVATION
10	PROPOSED CONTOUR
	SURFACE FLOW DIRECTION (EXISTING, PROPOSED)
L.A.	LANDSCAPED AREA
T.O.W.	TOP OF GRADE WALL (LESS THAN 18" HIGH)
T.O.W.	TOP OF RETAINING WALL (MORE THAN 18" HIGH)
T.A.	TOP OF ASPHALT
T.C.	TOP OF CURB
F.L.	FLOW LINE
F.F.	FINISHED FLOOR

CONSTRUCTION NOTES:

1. Before construction, the Contractor shall check and verify positional (ties) and shall make all applicable field measurements. Should any conflict, error or discrepancy be discovered, the contractor shall notify the Engineer at once to resolve the problem. It is recommended that the Contractor meet with the Engineer for a pre-design conference to discuss the scope of work and critical areas involved.
2. The Contractor shall be responsible for following the plans using his best skill and attention. Any departure from the plans must be approved by the Engineer and the City Hydrology Department prior to construction.
3. The Contractor shall check the site plan for locations of existing utilities within or adjacent to streets and shall take all necessary precautions and efforts to locate and protect these utilities. He shall give 48 hours notice to Line Locating Service, 766-1234, for any work that may interfere with said utilities.

VICINITY MAP K-11

FLOOD HAZARD MAP

SCOPE:

The proposed improvements are comprised of a 5,000 sq. ft. restaurant and associated parking lots, roadways, sidewalks, and landscaped areas. All runoff from the site will be routed to Central Ave. and then east to a storm drain inlet about 100' from the S.E. property corner.

The present site is undeveloped except for an old 0.9 acre asphalt parking area. Runoff from the site is generally toward the west to 50th St. or to the south onto Central Ave. A limited amount of runoff goes to a low lying area on the vacant lot (lot 2) immediately east of the site.

The intent of this plan is to show:

a) Grading relationships between the existing ground elevations and proposed finished elevations in order to facilitate positive drainage to designated discharge points.

b) The extent of proposed site improvements, including buildings, walks and pavement.

c) The flow rate/volume of rainfall runoff across or around these improvements and methods of handling these flows to meet City requirements for drainage management.

d) The relationship of onsite improvements with existing neighboring property to insure an orderly transition between proposed and surrounding grades.

GENERAL NOTES:

LEGAL: Lots 3 and 4, West Albuquerque Business Addition, Albuquerque, Bernalillo County, New Mexico

SURVEYOR: Martinez/Naylor and Associates, Albuquerque, April 24, 1985

B.M.: NM 45-1 at intersection of Central Ave. and Coors Blvd. south, Elevation = 5016.40.

T.B.M.: Top of curb at S.E. corner of Lot 3, Elevation = 4949.6'.

SOILS: Gila loam (Gb), Hydrologic Soil Group B

FLOOD HAZARD: The site is located near a 100-year FEMA flood boundary located just north of Central Ave. between 49th st. and the Isleta Drain. However, flows from the site do not impact this area.

OFF-SITE DRAINAGE: Site is not affected by off-site drainage

EROSION CONTROL: Very flat topography of site will prevent significant erosion.

CALCULATIONS:
Calculations are based on the City of Albuquerque D.P.M. Manual, Vol. II for the 100 year-6 hour storm, using the Rational Formula to compare the existing and proposed runoff rates.

RATIONAL METHOD- Q = CIA

Area of site: 53,160 sq.ft. = 1.22 Ac.

Run-off Coefficient:

Existing site:	Developed Site:
A imp. = 0.62 Ac	A imp. = 0.90 Ac
% imp. = 51 %	% imp. = 74 %
"C" = 0.60 (DPM 22.2 C-1)	"C" = 0.72 (DPM 22.2 C-1)

Rainfall Intensity:

$I = P_6 (6.84)\ Tc^{-0.81} = 4.65"$ per hour
where $P_6 = 2.2"$ (DPM 22.2 D-1)
Tc = 10 minutes

Existing Conditions:	Developed Conditions:
Q100 = (0.60)(4.65)(1.22) = 3.4 cfs	Q100 = (0.72)(4.65)(1.22) = 4.1 cfs
V100 = (3.4)(5 Tc)(60 sec/in)/2 = 5,100 cu. ft.	V100 = (4.1)(50)(60)/2 = 6,150 cu. ft.

SUMMARY:

Q100 = (4.1)-(3.4) = 0.7 cfs (increase)
V100 = (6,150)-(5,100) = 1,050 cu. ft. (increase)

DOWNSTREAM CAPACITY

Flow path from developed site will be the same as for present, undeveloped area (i.e., to inlet on Central Ave. 100' east of S.E. property corner). Total increase in 100-year peak flow is less than 1 cfs. Because of upstream inlets on 50th St. and on corner of 50th and Central, and large diameter of storm sewer (18" lateral, 48" main), there appears to be capacity for free dishcarge from site. Even if the inlet becomes overloaded, FEMA map does not indicate presence of 100-year flood hazard along Central Ave. farther east.

CHANNEL AND PIPE CALCULATIONS

Two-foot wide, 6"-deep channel at S.E. corner of site will receive Q100 = 3.6 cfs. Based on Design Chart in Chow's Open Channel Hydraulics, 1.6% slope and Manning's "n" = 0.013; normal depth in channel at 3.6 cfs is 0.32'. This provides 0.18' freeboard.

The two-4" PVC pipes at S.W. corner of site will receive Q100 = 0.5 cfs. Based on Manning's Equation and on "n" = 0.01 (PVC pipe), the two - 4" pipes have capacity to carry 0 cfs at 1.8% slope.
Calculation:

$$Q = \frac{0.59}{n} A d^{0.66} S^{0.50}$$

$$Q = \frac{0.39}{0.01} (.17)(.53)^{.66}(.018)^{.50}$$

$$Q = 0.65 \text{ cfs} > 0.5 \text{ o.k.}$$

RECEIVED
JUN 18 1985
HYDROLOGY SECTION

RESUBMITTAL 6-14-85:
- SECTION A ADDED
- SECTION B ADDED
- CHANNEL & PIPE CALCULATIONS ADDED

Walt Hines 6-19-85
WALT HINES DATE

WALTER G. HINES NEW MEXICO 7386 PROFESSIONAL ENGINEER
6-14-85

K11/D36

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REVISIONS	DATE
DESIGNED WGH	5-85
DRAWN MLW	5-85
CHECKED WGH	5-85

DRAINAGE / GRADING PLAN
PAPA TOTI'S RESTAURANT

ENGINEERING

WALTER G. HINES NEW MEXICO 7386 REGISTERED PROFESSIONAL ENGINEER

SHEET ___ OF ___