PROJECT TITLE: Sonic ive-In ZONE ATLAS /RNG. FILE #: K-12/D19

LEGAL DESCRIPTION: Lot 2, West Albuquerque Business Add. Oct 21, 1935

CITY ADDRESS: 4803 Central Ave West

ENGINEERING FIRM: Marvin R Kortum CONTACT: Marvin R Kortum

ADDRESS: 1605 Speakman Dr SE Albuquerque NM 87123 PHONE: (505) 299-0774

OWNER: Sonic Drive-In CONTACT: J D Merritt

ADDRESS: PHONE: (505) 243-7880

ARCHITECT: Jim Miller and Associates CONTACT: Jim Miller

ADDRESS: 2821 Richmond Dr NE Albuquerque NM 87107 PHONE: (505) 844-1255

SURVEYOR: Edward R Elder CONTACT:

ADDRESS: PHONE: (505) 822-0024

CONTRACTOR: STKX CO. Inc CONTACT: Deke Noftsker

ADDRESS: 7818 Pan Am Fwy NE Albuquerque NM 87109 PHONE: (505) 822-0024

PRE-DESIGN MEETING:

x YES

____ NO

x COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. _____

EPC NO. _____

PROJ. NO. _____

TYPE OF SUBMITTAL:

____ DRAINAGE REPORT

x DRAINAGE PLAN

____ CONCEPTUAL GRADING & DRAINAGE PLAN

x GRADING PLAN

X EROSION CONTROL PLAN

____ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

____ SKETCH PLAT APPROVAL

____ PRELIMINARY PLAT APPROVAL

____ SITE DEVELOPMENT PLAN APPROVAL

____ FINAL PLAT APPROVAL

x BUILDING PERMIT APPROVAL

____ FOUNDATION PERMIT APPROVAL

____ CERTIFICATE OF OCCUPANCY APPROVAL

____ ROUGH GRADING PERMIT APPROVAL

____ GRADING/PAVING PERMIT APPROVAL

____ OTHER _____ (SPECIFY)

DATE SUBMITTED: February 25, 1988

BY: Marvin R Kortum

GRADING AND DRAINAGE PLAN
SONIC DRIVE-IN RESTAURANT
4803 Central Avenue West
Albuquerque, New Mexico
Lot 2, West Albuquerque Business Addition

I. ON-SITE CHARACTERISTICS

A. Description:

The Sonic Drive-In site (Lot 2, West Albuquerque Business Addition) consists of a rectangular shaped tract, about 80 feet east to west, and 330 feet long, and contains .63 acres. The south boundary is the north right-of-way line of Central Avenue. Central Avenue is a paved street, with standard curb and gutter, and a curbed central median. The east boundary borders the West Central Self Storage building, which is offset 6 inches east of the property line, and has a solid block wall for 325 feet of the 330 feet long property line. The north boundary is near the south right-of-way of Lombardy Road. Lombardy Road is a paved street with standard curb and gutter. There is a narrow lot (lot 18 Mersman Addition) a few feet wide which lies between the R.O.W. and the Sonic Drive-In site. The lot has little effect on drainage other than denying access to Lombardy Road, N. W. for storm runoff. There is also a 10 feet wide irrigation ditch easement along the north property line, parallel to Lombardy Road, but there is no evidence of an irrigation ditch having been in use for many years. The north 186 feet of the west side presently borders on a 1.5 acre vacant lot. The south 160 feet borders on the paved parking and access for a car wash facility. Lot 2 is presently vacant. For many years, up until a few years ago, the lot was the site for a small motel, or cabin camp. The buildings and foundations have been removed, with only remnants of foundations and floor slabs remaining. The demolition has left the lot with a bare, fairly level surface, which is lower in elevation than surrounding lands.

B. Surface Soils:

The soils, as identified on the Bernalillo County Soils Survey by the Soil Conservation Service, U. S. Department of Agriculture, are Gila loam (Gb). The Gila series consists of deep, well drained soils that formed in recent alluvium on the flood plains along the Rio Grande. Permeability is moderate, the hazard of water erosion is slight, and the runoff is slow. The engineering characteristics of the Gb soils are well suited for the purpose of single story buildings and paved parking. The soils have low shrink swell potential, are non-plastic, and have good permeability

(.6 to 2.0 inches per hour). The soils are classified as hydrologic soils Group B, the soils which absorb more water than is typical. Extensive sub-surface investigation will be required, particularly in the vicinity where the building is to be constructed to assure that old utilities service lines and other debris has been adequately removed. The adjacent storage buildings also appear fragile, so care must be exercised in working and compacting the soils on the Sonic Drive-In tract. The storage buildings are constructed of concrete block masonry, and may have only slight reinforcing, and marginal footings. The 300 feet long wall does not appear to have any expansion or contraction joints, and appears to exhibit numerous temperature and perhaps, settlement cracks. Its present condition probably should be independently verified and recorded prior to the start of earthwork on the Sonic tract.

C. Undeveloped Runoff:

In its present post demolition state, there would not be any storm runoff from the site since the site is sufficiently depressed to retain the 100 year storm precipitation. In the period before the recent demolition, the site did contribute some runoff to Central Avenue. The amount of storm runoff in this previously developed state is computed below.

D. Direct Runoff Volume, Previously Developed State:

The six hour, 100 year frequency rainfall for the tract is 2.3 inches, per 1973 N.O.A.A., Atlas 2, Volume IV (Plate 22.2, D-1). The previous surface is estimated to have been equivalent to residential, 1/8 acre lots, with a CN = 88 (Plate 22.2, C-2). For CN = 88, the direct runoff volume is 1.3 inches (Plate 22.2, C-4), for a total volume of (.63 acres x 43,560 ft.^{2}/acre x 1.3 inches x 1 ft./12 inches) = 2975 ft.^{3}.

E. Peak Runoff; Previously Developed State:

From Kirpich:

$TC = .0078 \frac{L^{0.77}}{S^{0.385}}$. For the tract, L = 340 ft. and

$S = \frac{.6}{340} = .0018$, for which TC = 8 minutes.

Use the rainfall intensity factor of 2.15 for ten minutes (Plate 22.2, D-2) and a C = .66 (Plate 22.2, C-1) from the above, peak runoff is computed as
$Q = (.66)(2.15)(2.3)(.63) = 2$ ft.^{3}/sec.

F. Developed Site Runoff:

In the developed state, it is proposed that the tract be developed as a drive-in restaurant, with a surrounding paved parking area. There will be some area devoted to landscaping. The present plan will develop less than half of the site. However, future expansion of the site by adding more parking and hardstand is very probable. Runoff estimates below will include such future expansions. Estimate a composite CN as follows:

	Percent	CN	CN
Roof and paved areas	85	96	81.6
Landscaped areas	15	61	9.15
			90.75

For CN = 90.75, the direct runoff is 1.4 inches (Plate 22.2, C-4) for a total volume of (.63 acre x 43,560 ft.^{2}/acre x 1.4 inches x 1 ft./12 in.) = 3200 ft.^{3}.

G. Peak Runoff from Developed Property:

Peak runoff can be estimated as above. For the 85% impervious area, the C factor is .81 (Plate 22.2, C-1) The time of concentration will remain below 10 minutes, due to the steep slope planned for the site, so use the intensity factor of 2.15, for a Q = CIA = (.81)(2.15)(2.3)(.63) = 2.5 ft.^{3}/sec.

H. Disposition of Developed Site Runoff:

The disposition of the storm runoff will be to Central Avenue, with most runoff entering directly into a double storm drain inlet located five feet downstream from the southeast corner of the property. Most of the storm runoff from the site will flow down the newly established swale in the portland cement concrete paving, and across the east drive pad, with some runoff flowing out a drivepad along the west end which is shared by written agreement with the adjacent property (the car wash).

II. OFF SITE FLOWS:

A. Major Terrain Features:

The Sonic Drive-In site is located in the Rio Grande flood plain. It is on a narrow strip of the flood plain, less than half a mile wide, along the west bank of the river. 300 feet west along Central Avenue is the steep slope which makes the start of the West Mesa. The site is not presently in the 10 year or 100 year floodway, but is in the 500 year floodway

as identified on the Albuquerque floodway maps. There are no identified 10 or 100 year floodways upstream or downstream from the Sonic site.

B. Off-Site Flow; Downstream:

Runoff leaving the Sonic site will enter the storm inlet leading to the 48" storm drain in Central Avenue. 1200 feet further east, this drain empties into the Isleta drain.

C. Nuisance Flow:

The Sonic site, as presently situated and as planned, is subjected to very little nuisance flow, or flow from adjacent sites. On the north, Lombardy Road, N. W., with its paved street and standard curb and gutter, channels runoff from that area to the west, where it then enters the subsurface storm drain along south street. There would be very slight runoff from the 7 feet wide vacant strip between the Lombardy Road sidewalk, and the Sonic site property line. Along the west, the presently vacant land slopes toward the west, away from the Sonic site. Minor inflow would occur from along the edge. There would be no inflow from the paved area of the car wash, as there exists a paved swale and curb which directs the runoff from the car wash out to Central Avenue. Along the east side, there is a 6 inch wide strip of the adjacent property which presently drains onto the Sonic site. This is the strip that is between the building wall and the property line. The proposed grading plan will accomodate runoff from this strip.

D. Central Avenue Run In.

The proposed site layout necessitates the joint use of an access by the Sonic Drive-In and the adjacent car wash. The drive pad for this access straddles the existing drainage swale, which presently channels runoff through and under sidewalk culvert, the flow exiting the property at less than 4 inches above the Central Avenue gutter flow line. The new drive pad will be depressed to permit continued flow of the storm runoff from the car wash site using existing grading. The alternative would be either extensive regrading of the car wash site, or placing an underground drain or drains on the car wash site to divert the runoff directly into the Central Avenue storm drain. (It should be noted that the car wash site runoff includes only storm runoff, the water routinely used for car washing is collected in a collection and disposal system independent of the site drainage system). The consequences of the above discussed arrangement is that storm runoff could back up onto the Sonic site at some flow less than a flood (flood stage being defined as street flow which is one foot or more above the gutter flow line). The possible back up onto the Sonic property will not cause any damage as all

sensitive structures will be elevated sufficiently. The back up onto the car wash property will be much the same as would presently occur with the under sidewalk culvert. Flooding at greater than 100 year levels would be much the same in that water would back up over a standard curb or through a subsurface drain to the 100 year plus storm level.

III. CONCLUSIONS AND RECOMMENDATIONS:

A. The Sonic Drive-In site is not within the 100 year floodway, as identified on the Albuquerque flood hazard map.

B. The storm runoff from the site to Central Avenue West will not increase flooding in a designated floodway immediately downstream of the site. The increase in total volume and peak flow over the previously developed site is slight, (225 $ft.^3$ and .5 $ft.^3/sec.$, respectively).

C. The finished floor elevation of on site buildings and other sensitive areas should be placed at or above the elevation of 4951.5.

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

MAYOR
KEN SCHULTZ

CHIEF ADMINISTRATIVE OFFICER
GENE ROMO

DEPUTY CAO PUBLIC SERVICES
FRANK MARTINEZ

DEPUTY CAO PLANNING/DEVELOPMENT
BILL MUELLER

March 7, 1988

Marvin R. Kortum, P.E.
1605 Speakman Drive, SE
Albuquerque, New Mexico 87123

RE: DRAINAGE PLAN FOR SONIC DRIVE-IN @ 4803 CENTRAL AVENUE, NW
(K-12/D19) RECEIVED FEBRUARY 25, 1988

Dear Mr. Kortum:

A preliminary review of your submittal for Building Permit approval has shown that the following information is lacking for this section to begin the review process:

INFORMATION NEEDED:

1. Filed recorded easement for access and cross-lot-line drainage required.

PLAN DRAWING:

1. Location, description, and elevation of T.B.M.
2. Finish floor elevation to full mean sea level designation.
3. Note identifying that a separate submittal will be required when the northern portion is developed.

Please provide this information so that we may process your request as expediently as possible.

Cordially,

/ Bernie J. Montoya

Bernie J. Montoya, C.E.
Engineering Assistant

BJM/bsj

FILE COPY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

March 7, 1988

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/ Bernie J. Montoya

Bernie J. Montoya, C.E.
Engineering Assistant

BJM/bsj

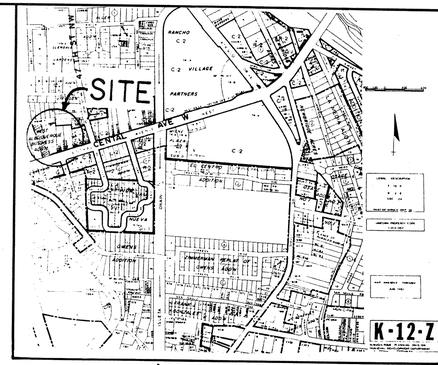
LEGEND

	EXISTING	NEW
SPOT ELEV.	X 51.11	
TOP OF CURB	TC	TC
FLOW LINE	FL	FL
FINISHED FLOOR	FFE	FFE
SWALE		
LANDSCAPE		
TRAFFIC FLOW MARKER		

1"=20'

LEGAL

LOT 2, WEST ALBUQUERQUE BUSINESS ADD.
OCT 21, 1935



BENCH MARK 6-J12 ELEV. 4951.235
LOCATED AT THE INTERSECTION OF 47 ST. & HERRERA RD. NW. X CHISLED ON TOP OF THE CURB AT THE NNE RETURN

LOMBARDY ROAD NW

TC 51.34
FL 50.34

TC 51.31
FL 50.70

N 86° 25' 20" E
81.12

SELF STORAGE BUILDING
FFE 52.42

property line
6"
adjacent building wall
SLOPE SURFACE TO DRAIN AWAY FROM BUILDING
PROVIDE DRAIN CHANNEL THROUGH CURB
pcc pavement
header curb

SECTION (A)-(A)
1"=2'

330.23
S 15° 07' 10" E

FUTURE EXPANSION

FFE 52.42
FFE 51.75

WEST SURFACE OF EXISTING BUILDING IS 0.5' EAST OF PROPERTY LINE

ROOF DRAINAGE

PARKING UNDER CANOPY COVER

STORAGE UNITS FFE 51.75
LIVING UNIT FFE 51.85

TC 49.85
FL 48.91 (C.B. INLET)
TC 49.86
FL 49.26

PCC PAVEMENT

346.60'
N 15° 57' 40" W

BUILDING

RAISED PCC WALKWAY

EASEMENT

ASPHALT PAVING

SWALE
S=0.036 ft/ft

CAR WASH BUILDING
FFE 51.41

S 74° 47' 00" W
80.43'
S=0.022 ft/ft

TS 50.21
FL 49.71
(CULVERT INLET)

TC 50.07
FL 49.47
(CULVERT OUTLET)

CENTRAL AVENUE WEST

VACANT LAND

PRELIMINARY

(A) REMOVE EXISTING ASPHALT CURB ON CAR WASH PROPERTY. PLACE NEW PCC PAVEMENT TO PROPERTY LINE, AT ELEVATION WHICH MATCHES THE EXISTING ASPHALT. BACK FILL GAP WITH ASPHALT TO SMOOTH SURFACE AND WATER TIGHT JOINT. DO NOT BLOCK SWALE.

(B) REMOVE EXISTING DRIVEPAD AND THROUGH SIDEWALK CULVERT. PLACE NEW DRIVEPAD, STD. C & G AND SIDEWALK AS SHOWN, TO INCLUDE DEPRESSED DRIVEPAD TO PERMIT EXISTING SWALE TO DRAIN FREELY

(C) CUT BACK EXISTING ASPHALT AND SUBBASE. RE-SHAPE TO PROVIDE SMOOTH TRANSITION TO NEW DRIVE-PAD. PLACE NEW ASPHALT SURFACE.

EROSION CONTROL
PLACE BERM ON LOW SIDE OF ON-SITE EARTH TO POND RUNOFF.

RUNOFF

	UNDEVELOPED (D)	DEVELOPED
TOTAL VOLUME FT.^{3}	2975	3200
PEAK VOLUME FT.^{3} / SEC.	2	2.5

(D) Prior to demolition

MARVIN R. KORTUM, P.E.
Civil Engineering
1605 Speakman Drive, SE.
Albuquerque, New Mexico 87123
(505) 299-0774

GRADING & DRAINAGE PLAN
SONIC DRIVE-IN
4803 CENTRAL AVE. WEST

RECEIVED
FEB 25 1988
HYDROLOGY SECTION

K-12 | SHEET 1 OF 1