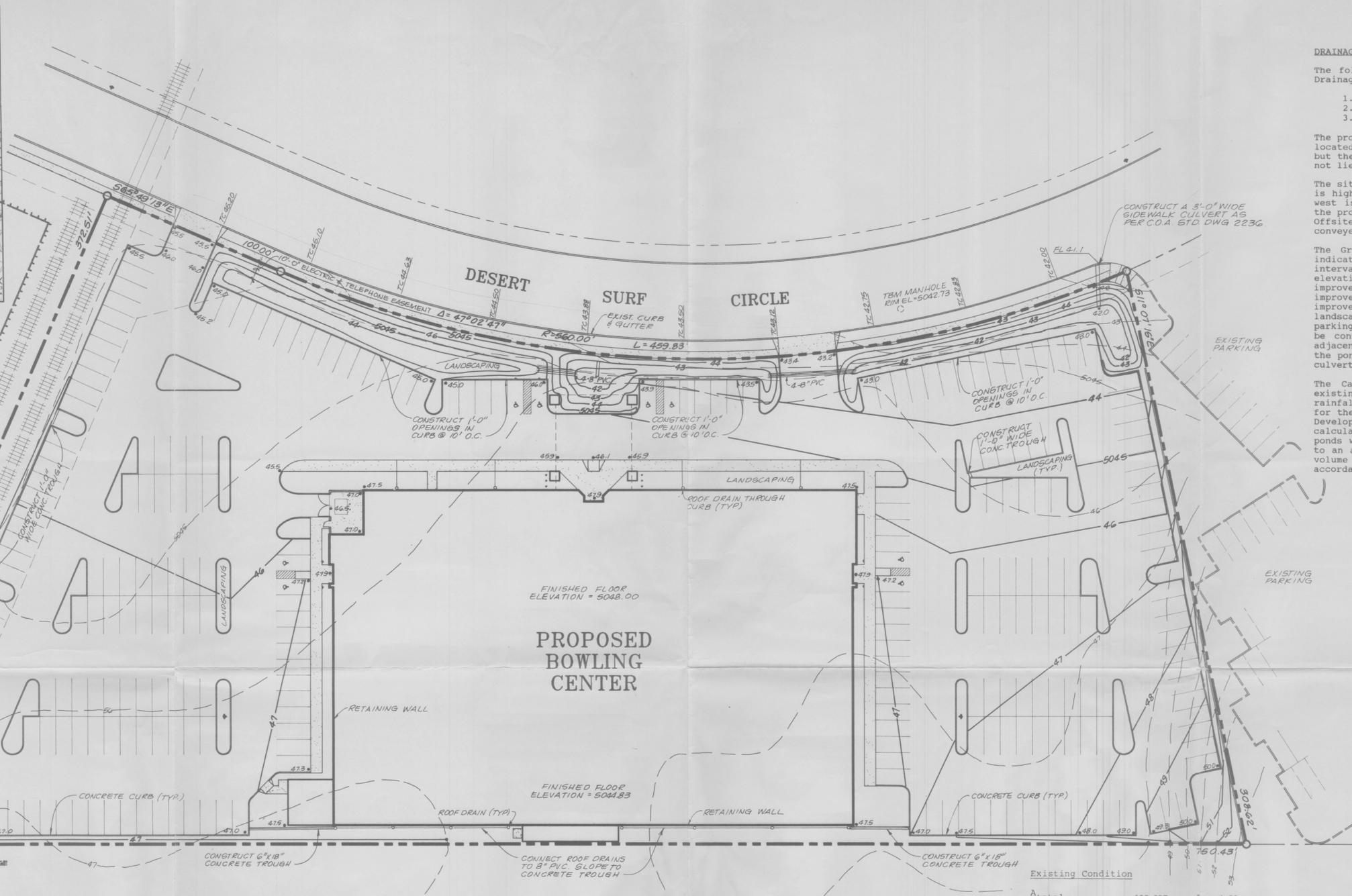




VICINITY MAP  
SCALE: 1" = 800'



**DRAINAGE PLAN**  
The following items concerning the Beach Bowl Grading and Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

The proposed improvements, as shown by the Vicinity Map, are located on Desert Surf Circle NE. The site is undeveloped, but the adjoining sites are fully developed. The site does not lie within a designated Flood Hazard Zone.

The site slopes from south to north. The land to the south is higher than the project site. The land to the east and west is approximately parallel with the project site, and the project site is higher than the street to the north. Offsite flows will be allowed to enter the site and be conveyed through the site.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 2'-0" intervals, 2) continuity between existing and proposed elevations, 3) the limit and character of existing improvements, and 4) the limit and character of proposed improvements. As shown by this plan, the proposed improvements consist of a building, asphalt parking and landscaping. Runoff from the roof will be conveyed into the parking lot through downspouts and piping. All runoff will be conveyed through the parking lot to landscaped ponds adjacent to Desert Surf Circle. Flows will cascade through the ponds and exit to Desert Surf Circle through a sidewalk culvert at the northeast corner of the project site.

The Calculations, which appear below, analyze both the existing and developed conditions for the 100-year, 6-hour rainfall event. The Rational and SCS Method have been used for the analysis in accordance with the City of Albuquerque Development Process Manual, Volume II. As shown by the calculations, the peak rate of runoff will increase, but the ponds will reduce the peak rate of runoff being discharged to an amount equal to the undeveloped flow rate. The pond volume exceeds the required capacity. The runoff rate is in accordance with previously established criteria.

**CALCULATIONS**

**Ground Cover Information**  
From SCS Bernalillo County Soil Survey, Plate: 21  
Hydrologic Soil Group: B, Wink WeB  
Existing Pervious CN = 79 (DPM Plate 22.2 C-2 Pasture or Range Land: Poor condition)  
Developed Pervious CN = 61 (DPM Plate 22.2 C-2)

**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 from 0.51 to 4.65 in/hr  
 $i = P_6 (6.84) T^{-0.51} = 4.65$  in/hr  
 $P_6 = 2.2$  in (DPM Plate 22.2 D-1)  
 $T_6 = 10$  min (minimum)  
 $A^c =$  area, acres

**SCS Method**  
Volume:  $V = 3630 (DRO) A$   
Where DRO = Direct runoff in inches  
 $A =$  area, acres

**LEGAL DESCRIPTION**  
Parcel D, Renaissance Center III

**ADDRESS**  
1700 Desert Surf Circle NE

**BENCHMARK**  
ACS station 2-F16 located 0.4 miles west of I-25 in median of Montano Road NE, Elevation = 5062.08

- 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 A "TOPSOIL DISTURBANCE PERMIT" PRIOR TO BEGINNING CONSTRUCTION.

- CONSTRUCTION NOTES**
1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR SHALL CONTACT LINE LOCATING SERVICE 765-1234, FOR THE 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 CONSTRUCTION SAFETY AND HEALTH.
  4. ALL CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.

**Existing Condition**

$A_{total}$	=	185,397	sf = 4.26	ac
Roof area	=	0	sf = 0	ac
Paved area	=	0	sf = 0	ac
Landscaped area	=	185,397	sf = 4.26	ac
$C = 0.40$	(Weighted average per Emergency Rule, 01/14/86)			
$Q_{100} = CiA = 0.40(4.65)4.26 = 7.9$	cfs			
$A_{imp} = 0$	sf; % impervious = 0 %			
Composite CN = 79	(DPM Plate 22.2 C-3)			
DRO = 0.65	in (DPM Plate 22.2 C-4)			
$V_{100} = 3630 (DRO) A = 10,051$	cf			

**Developed Condition**

$A_{total}$	=	185,397	sf = 4.26	ac
Roof area	=	50,675	sf = 1.16	ac
Paved area	=	100,235	sf = 2.30	ac
Landscaped area	=	34,487	sf = 0.80	ac
$C = 0.80$	(Weighted average per Emergency Rule, 01/14/86)			
$Q_{100} = CiA = 0.80(4.65)4.26 = 15.8$	cfs			
$A_{imp} = 150,910$	sf; % impervious = 81 %			
Composite CN = 91	(DPM Plate 22.2 C-3)			
DRO = 1.35	in (DPM Plate 22.2 C-4)			
$V_{100} = 3630 (DRO) A = 20,876$	cf			

**Comparison**

$Q_{100}$	=	15.8 - 7.9 = 7.9	cfs
$V_{100}$	=	20,876 - 10,051 = 10,825	c.f.

Allowable Discharge =  $7.9 + 0.05(4.26) = 8.1$  cfs

**Sidewalk Culvert Capacity**  
 $Q = \frac{1.49}{0.015} (1.8) (0.56) (0.0064) = 8.0$  cfs

**LEGEND**

EXISTING	NEW	DESCRIPTION
---	---	CURB & GUTTER
---	---	CURB
55.5	46.8	SPOT ELEVATION
45	---	CONTOUR
□	□	BUILDING
---	---	DRAINAGE PIPE
---	---	PROPERTY LINE
---	---	BASIN DIVISION LINE
○	○	ROOF DRAINS
□	□	RUNDOWN

**GRADING & DRAINAGE**  
SCALE: 1" = 30'-0"

**CLAUDIO VIGIL ARCHITECTS**

**BEACH BOWL**  
1700 DESERT SURF CIRCLE, N.E.  
ALBUQUERQUE, NEW MEXICO

**SHEET C-3**

AUG 23 1989

PROFESSIONAL ENGINEER  
STATE OF NEW MEXICO  
THOMAS J. THOMAS  
3792  
LAND SURVEYOR

APPROVALS	NAME	DATE
A.C.E./DESIGN		
INSPECTOR		
A.C.E./FIELD		