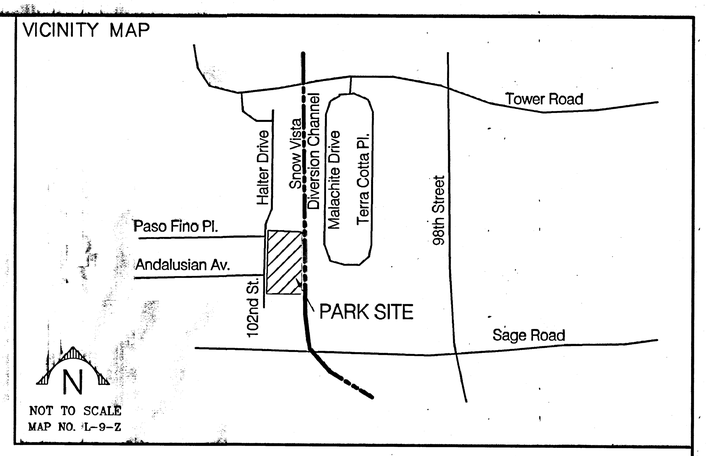
CITY OF ALBUQUERQUE
PARKS AND RECREATION DEPARTMENT
LANDSCAPE ARCHITECTURE AND CONSTRUCTION SERVICES

SUNRISE TERRACE PARK IMPROVEMENTS

850 102nd STREET SW — 4.71 ACRES

VICINITY MAP



INDEX TO DRAWINGS

SHEET NO.	TITLE
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3	SITE PLAN
4	DRAINAGE & GRADING PLAN AND BASIN DEFINITIONS
5	DRAINAGE CALCULATIONS AND ANALYSIS
6	HORIZONTAL GEOMETRY PLAN
7	PLAY AREA LAYOUT AND SITE AMENITIES LEGEND
8	TENNIS COURT DETAILS
9	SITE DETAILS
10	IRRIGATION PLAN, NOTES, LEGEND, & DETAILS
11	PLANTING PLAN, NOTE, AND LEGEND
12	TRAFFIC CONTROL
13	TRAFFIC CONTROL

APPROVED	ENGINEER	DATE
AMAFCA		

UTILITY COMPANY CONTACTS

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Albuquerque, New Mexico 87107
(505) 848-3426

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Kelly Bouska
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(505) 241-7752

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Albuquerque, New Mexico 87103
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Karen Shore
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Cathy Schneider
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Albuquerque, New Mexico 87102
(505) 245-6846

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ALBUQUERQUE
260-1990

CONSENSUS PLANNING, INC.
Planning / Landscape Architecture
924 Park Avenue SW
Albuquerque, NM 87102
(505) 764-9801 Fax 842-5495
e-mail: cp@consensusplanning.com

SEC JOB # 599608
Smith Engineering Company
A Full Service Engineering Company

REV.	SHEETS	CITY ENGINEER	DATE	USER DEPARTMENT	DATE	USER DEPARTMENT	DATE

ENGINEERS STAMP & SIGNATURE

APPROVED	ENGINEER	DATE
DRC Chairman		
Transportation		
Water/Wastewater		
Hydrology		
C I P		
Constr. Mngmt.		
Constr. Coord.		

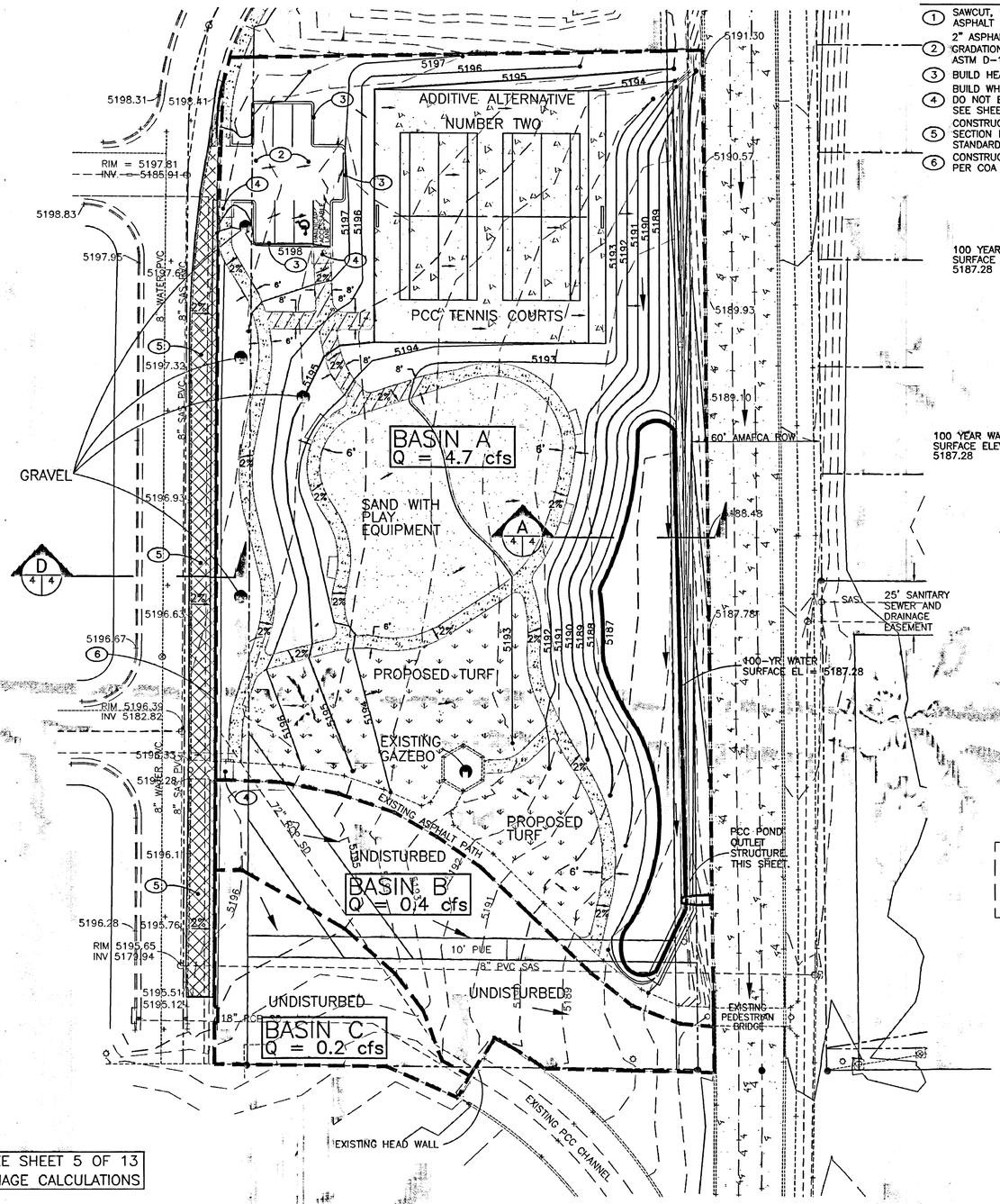
APPROVED FOR CONSTRUCTION

CITY ENGINEER — DATE

RECEIVED JUL 09 1999 HYDROLOGY SECTION

PROJECT NUMBER 579272

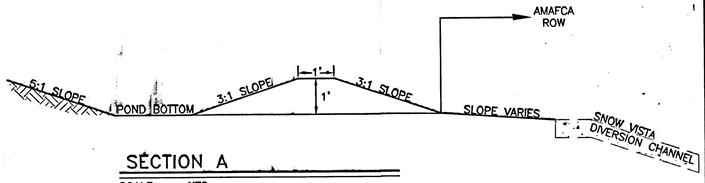
SHEET 1 OF 13



NOTE: SEE SHEET 5 OF 13 FOR DRAINAGE CALCULATIONS

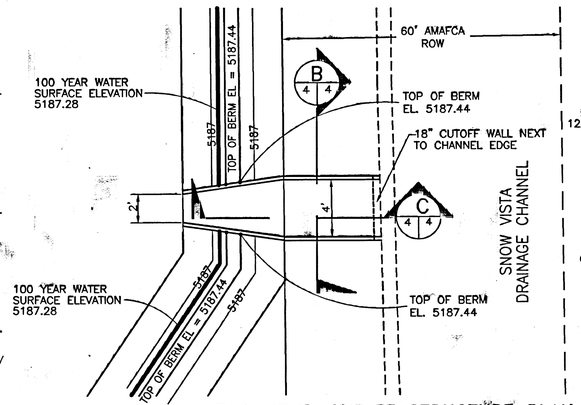
KEYED NOTES:

1. SAWCUT, REMOVE, AND DISPOSE OF EXISTING ASPHALT CURB.
2. 2" ASPHALTIC CONCRETE, 1500 LB. STABILITY, GRADATION C. COMPACT 12" SUBGRADE TO 95% ASTM D-1557. SEE SECTION A ON PAGE 6.
3. BUILD HEAD CURB PER DETAILS THIS SHEET.
4. BUILD WHEEL CHAIR ACCESSIBLE RAMP. DO NOT EXCEED 12:1 SLOPE ON RAMP. SEE SHEET 6 FOR COORDINATES.
5. CONSTRUCT NEW PAVEMENT SECTION PER SECTION D ON THIS SHEET AND PER COA STANDARD DRAWING 2405
6. CONSTRUCT STANDARD CURB AND GUTTER PER COA STANDARD DRAWING 2415



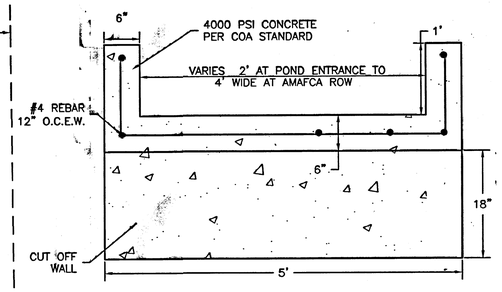
SECTION A

SCALE: = NTS



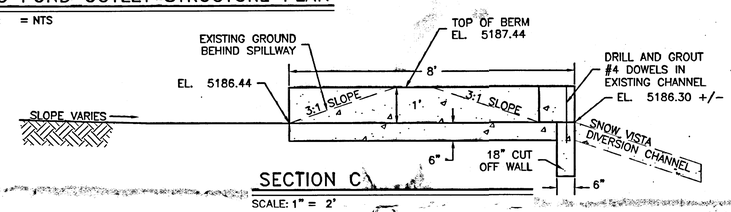
PCC POND OUTLET STRUCTURE PLAN

SCALE: = NTS



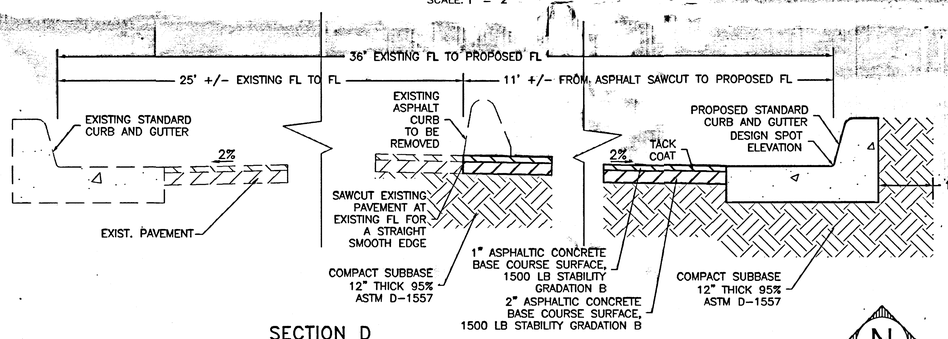
SECTION B

SCALE: 1" = 1'



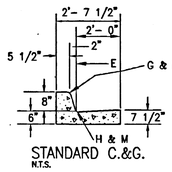
SECTION C

SCALE: 1" = 2'

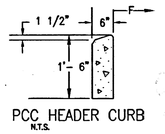


SECTION D

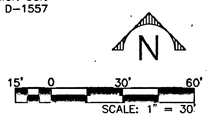
SCALE: = NTS



STANDARD C.&G.
N.T.S.



PCC HEADER CURB
N.T.S.



GENERAL NOTES:

1. CURBS, GUTTERS & CUT-OFF WALL TO BE CON-CONSTRUCTED OF P.C.C.
2. FOR STANDARD AND MEDIAN C. & G. PROVIDE CONTRACTION JTS. 6' O.C. MAX., ALSO PROVIDE 1/2" EXP. JTS. 48" O.C. MAX. AT CURB RETURNS & AT EACH SIDE OF DRIVEWAY.
3. FOR ALL OTHER C. & G. PROVIDE CONTR. JTS. AT 10' O.C., PROVIDE EXP. JTS. 50' O.C. & ADJACENT TO BUILDINGS & WALLS.
4. EDGES NOT SPECIF. DIMENSIONED SHALL BE EDGED WITH A 3/8" EDGING TOOL.
5. STD. C. & G. SHALL BE USED FOR NEW CONSTR. UNLESS OTHERWISE APPROVED BY THE ENGINEER.
6. REMOVE & REPLACE 12" WIDE STRIP OF PAVEMENT BEYOND LIP OF GUTTER WHEN CONSTRUCTING C. & G. ADJACENT TO EXIST. A.C. PAVEMENT.
7. STD. C. & G. REQUIRE FULL FORM ON ALL FACES EXCEPT WITH PRIOR APPROVAL OF ENGINEER.

CONSTRUCTION NOTES:

E. THEORETICAL FACE OF CURB OR FLOWLINE.
F. TRAFFIC SIDE.
G. 3/4" RADIUS.
H. 1 1/2" RADIUS.
M. DIMENSIONS AT ROUNDED CORNERS MEASURED TO INTERSECTION OF STRAIGHT LINES.

LEGEND:

EXISTING CHAIN LINK FENCE	NEW 6" CONCRETE SIDEWALKS AND CURB LINES		HORIZONTAL AND VERTICAL CONTROL POINT		EXISTING WATER VALVE
EXISTING WOOD FENCE	NEW STORM DRAIN MANHOLE		NEW STORM DRAIN FLOW ARROW	COA	CITY OF ALBUQUERQUE
EXISTING RAWD IRON FENCE	EXISTING STORM DRAIN MANHOLE	84.33	NEW SPOT ELEVATION	TOC	TOP OF CURB
EX OHE EXISTING OVERHEAD ELECTRIC	NEW 4" CONCRETE SIDEWALKS AND CURB LINES	5400	NEW INDEX CONTOUR LINE	FL	FLOWLINE
EXISTING SAS MANHOLE	BASIN BOUNDARY		NEW CONTOUR LINE	TOP	TOP OF PIPE
NEW STORM DRAIN		5400	EXISTING INDEX CONTOUR LINE	X 87.5	EXISTING SPOT ELEVATION
			EXISTING CONTOUR LINE	IE	INVERT ELEVATION
					EXISTING CATCH BASIN
					NEW CATCH BASIN

Smith Engineering Company
A Full Service Engineering Company
5439 Uptown Boulevard, N.E. Suite 202E Albuquerque, New Mexico 87110
599608

CITY OF ALBUQUERQUE
PARKS AND RECREATION DEPARTMENT
LANDSCAPE ARCHITECTURE AND CONSTRUCTION SERVICES

TITLE: SUNRISE TERRACE PARK

DRAINAGE & GRADING PLAN & BASIN DEFINITIONS

Design Review Committee	City Engineer Approval	Last Design Update	Mo. / Day / Yr.	Mo. / Day / Yr.

City Project No.	Zone Map No.	Sheet	Of
579272	L-9-Z	4	13

AS BUILT INFORMATION

		DATE
CONTRACTOR		
WORK STAKED BY		DATE
INSPECTOR'S ACCEPTANCE BY		DATE
FIELD VERIFICATION BY		DATE
DRAWINGS CORRECTED BY		DATE
MICRO-FILM INFORMATION		
RECORDED BY		DATE
NO.		

BENCH MARKS

BENCH MARK NUMBER 14-L9
LOCATED AT THE WNW QUADRANT OF TOWER RD. SW AND THE SNOW VISTA DRAINAGE CHANNEL, 0.20 MI +/- WEST OF CENTERLINE 98TH ST. 0.5' EAST OF THE WEST END OF SAID CHANNEL CROSSING, EPOXIED TO THE TOP.
DESCRIPTION - ACS 1 3/4" ALUM. DISK STAMPED "ACS BM, 14-L9".
ELEVATION 5204.188

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEERS SEAL

STATE OF NEW MEXICO
RICHARD J. DONOHUE
(13282)
REGISTERED PROFESSIONAL ENGINEER
11/1/99

NO.	DATE	REMARKS	BY

REVISIONS

DESIGN		DATE	NOV., 1999
DESIGNED BY	MM/RJD	DATE	NOV., 1999
DRAWN BY	SEC	DATE	NOV., 1999
CHECKED BY	RJD		

SRdrain.dwg 03/20/99 10:10:05

DEVELOPED HYDROLOGIC ANALYSIS

ALL TC'S ARE ASSUMED TO BE 12 MINUTES

PROJECT NAME = Sunrise Terrace Park

DEVELOPLED HYDROLOGIC CALCULATIONS
(for small watersheds < 40 acres (per DPM Section 22)

Precipitation Zone = 1

Table A-9 (DPM) Peak Discharge (cfs/acre)

FORMULA : Total Qp (cfs) = QpA*Aa+QpB*Ba+QpC*Ca+QpD*Da -- Note - "a" = area in acres

Basin & Condition or Analysis Point	Return Period 6-hr.	Qp per Land Treatment Type (cfs/acre) QpA	A (ac)	A (%)	QpB	B (ac)	B (%)	and QpC	C (ac)	C (%)	QpD	D (ac)	D (%)	Total Area (ac.)	Total Qp (cfs)
A	100	1.29	0.9632	47.7	2.03	0.2689	13.3	2.87	0.2010	10.0	4.37	0.5869	29.1	2.0200	4.9
A	10	0.24	0.9632	47.7	0.76	0.2689	13.3	1.49	0.2010	10.0	2.89	0.5869	29.1	2.0200	2.4
B	100	1.29	0.3100	101.3	2.03	0.0000	0.0	2.87	0.0000	0.0	4.37	0.0000	0.0	0.3060	0.4
B	10	0.24	0.3100	101.3	0.76	0.0000	0.0	1.49	0.0000	0.0	2.89	0.0000	0.0	0.3060	0.1
C	100	1.29	0.1600	100.0	2.03	0.0000	0.0	2.87	0.0000	0.0	4.37	0.0000	0.0	0.1600	0.2
C	10	0.24	0.1600	100.0	0.76	0.0000	0.0	1.49	0.0000	0.0	2.89	0.0000	0.0	0.1600	0.0
TOTALS	100		**1.4332**			**0.2689**			**0.2010**			**0.5869**		**2.4860**	**5.54**
	10		**1.4332**			**0.2689**			**0.2010**			**0.5869**		**2.4860**	**2.54**

Precipitation Zone = 1

Table A-8 (DPM) Excess Precipitation - E - (in.)

FORMULAS: Weighted E (in.) = EaA*Aa+EaB*Ba+EaC*Ca+EaD*Da / (total area "a") -- Note - "a" = area in acres
Total Runoff Volume (ac-ft) = Weighted E (in.) * (total area "a") / (12 in./ft)

Basin & Condition or Analysis Point	Return Period 6-hr.	Rainfall Excess -E per Land Treatment Type (inches) and Land Treatment Type (acres) EaA	A (ac)	A (%)	EaB	B (ac)	B (%)	EaC	C (ac)	C (%)	EaD	D (ac)	D (%)	Total Area (ac)	Weighted E (inches)	Runoff Volume (ac-ft)
A	100	0.44	0.9632	47.7	0.67	0.2689	13.3	0.99	0.2010	10.0	1.97	0.5869	29.1	2.0200	0.97	0.1633
A	10	0.08	0.9632	47.7	0.22	0.2689	13.3	0.44	0.2010	10.0	1.24	0.5869	29.1	2.0200	0.47	0.0794
B	100	0.44	0.3100	101.3	0.67	0.0000	0.0	0.99	0.0000	0.0	1.97	0.0000	0.0	0.3060	0.45	0.0114
B	10	0.08	0.3100	101.3	0.22	0.0000	0.0	0.44	0.0000	0.0	1.24	0.0000	0.0	0.3060	0.08	0.0021
C	100	0.44	0.1600	100.0	0.67	0.0000	0.0	0.99	0.0000	0.0	1.97	0.0000	0.0	0.1600	0.44	0.0059
C	10	0.08	0.1600	100.0	0.22	0.0000	0.0	0.44	0.0000	0.0	1.24	0.0000	0.0	0.1600	0.08	0.0011
TOTALS	100		1.4332			0.2689			0.2010			0.5869		2.4860		0.1805
	10		1.4332			0.2689			0.2010			0.5869		2.4860		0.0825

EXISTING HYDROLOGIC ANALYSIS

ALL TC'S ARE ASSUMED TO BE 12 MINUTES

PROJECT NAME = Sunrise Terrace Park

EXISTING HYDROLOGIC CALCULATIONS
(for small watersheds < 40 acres (per DPM Section 22)

Precipitation Zone = 1

Table A-9 (DPM) Peak Discharge (cfs/acre)

FORMULA : Total Qp (cfs) = QpA*Aa+QpB*Ba+QpC*Ca+QpD*Da -- Note - "a" = area in acres

Basin & Condition or Analysis Point	Return Period 6-hr.	Qp per Land Treatment Type (cfs/acre) QpA	A (ac)	A (%)	QpB	B (ac)	B (%)	and QpC	C (ac)	C (%)	QpD	D (ac)	D (%)	Total Area (ac.)	Total Qp (cfs)
ENTIRE SITE	100	1.29	2.4220	97.4	2.03	0.0000	0.0	2.87	0.0000	0.0	4.37	0.0640	2.6	2.4860	3.4
ENTIRE SITE	10	0.24	2.4220	97.4	0.76	0.0000	0.0	1.49	0.0000	0.0	2.89	0.0640	2.6	2.4860	0.8

Precipitation Zone = 1

Table A-8 (DPM) Excess Precipitation - E - (in.)

FORMULAS: Weighted E (in.) = EaA*Aa+EaB*Ba+EaC*Ca+EaD*Da / (total area "a") -- Note - "a" = area in acres
Total Runoff Volume (ac-ft) = Weighted E (in.) * (total area "a") / (12 in./ft)

Basin & Condition or Analysis Point	Return Period 6-hr.	Rainfall Excess -E per Land Treatment Type (inches) and Land Treatment Type (acres) EaA	A (ac)	A (%)	EaB	B (ac)	B (%)	EaC	C (ac)	C (%)	EaD	D (ac)	D (%)	Total Area (ac)	Weighted E (inches)	Runoff Volume (ac-ft)
ENTIRE SITE	100	0.44	2.4220	97.4	0.67	0.0000	0.0	0.99	0.0000	0.0	1.97	0.0640	2.6	2.4860	0.48	0.0993
ENTIRE SITE	10	0.08	2.4220	97.4	0.22	0.0000	0.0	0.44	0.0000	0.0	1.24	0.0640	2.6	2.4860	0.11	0.0228
TOTAL	**100**		**2.4220**			**0.0000**			**0.0000**			**0.0640**		**2.4860**		**0.0993**
	10		**2.4220**			**0.0000**			**0.0000**			**0.0640**		**2.4860**		**0.0228**

POND VOLUME CALCULATIONS

POND VOLUME CALCULATIONS:

TABLE
POND VOLUME and DISCHARGE CALCULATIONS

Emergency Spillway Elevation = 0.00

Elevation	Incremental Volume	Cumulative volume	Emergency Equals Discharge Coefficient "C"	Spillway Primary Length "L"	Discharge Head (h)	Discharge Q= CL(h)^1.5	Total Discharge
(ft)	(ac-ft)	(ac-ft)		(ft)	(ft)	(cfs)	(cfs)
(a)	(b)		(e)				
0.10	0.00975	0.00975	1.50	2.00	0.10	0.09	0.095
0.20	0.01034	0.02009	1.50	2.00	0.20	0.27	0.268
0.30	0.01094	0.03102	1.50	2.00	0.30	0.49	0.493
0.40	0.01153	0.04255	1.50	2.00	0.40	0.76	0.759
0.50	0.01212	0.05468	1.50	2.00	0.50	1.06	1.061
0.60	0.01272	0.06739	1.50	2.00	0.60	1.39	1.394
0.70	0.01331	0.08070	1.50	2.00	0.70	1.76	1.757
0.80	0.01391	0.09461	1.50	2.00	0.80	2.15	2.147
0.90	0.01450	0.10911	1.50	2.00	0.90	2.56	2.561
1.00	0.01509	0.12420	1.50	2.00	1.00	3.00	3.000
1.10	0.01569	0.13989	1.50	2.00	1.10	3.46	3.461
1.20	0.01628	0.15617	1.50	2.00	1.20	3.94	3.944
1.30	0.01688	0.17304	1.50	2.00	1.30	4.45	4.447
1.40	0.01747	0.19051	1.50	2.00	1.40	4.97	4.970
1.50	0.01806	0.20858	1.50	2.00	1.50	5.51	5.511
1.60	0.01866	0.22723	1.50	2.00	1.60	6.07	6.072

(a) Elevations and areas measured on .25"= survey shots
(b) Obtained from Autocad basemap drawing
(e) From "Handbook of Hydraulics" Brater, King, Lindell, Wei, 7th ed. page 5.25

WIER EQUATION

$Q = CLH^{1.5}$

WHERE C = DISCHARGE COEFICIENT
L = LENTH OF WIER IN FT.
H = DEPTH OF FLOW IN FT.

BASIN A AHYMO SUMMARY FILE

AHYMO POND SUMMARY:

PEAK DISCHARGE = 2.228 CFS – PEAK OCCURS AT 1.70 HOURS
MAXIMUM WATER SURFACE ELEVATION = 0.82 FT
MAXIMUM STORAGE = 0.0975 AC–FT

```
AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -                    - VERSION:  1997.02c     RUN DATE (MON/DAY/YR) =11/05/1999
   INPUT FILE = N:\599608\OPTION2\SUNRISE1.DAT                                        USER NO.= AHYMO-S-9702c01SEC01A-AH

                                  FROM  TO                  PEAK     RUNOFF              TIME TO   CFS      PAGE =   1
                   HYDROGRAPH     ID    ID       AREA     DISCHARGE  VOLUME    RUNOFF    PEAK      PER
   COMMAND       IDENTIFICATION  NO.   NO.     (SQ MI)     (CFS)    (AC-FT)   (INCHES)  (HOURS)   ACRE      NOTATION

   *S     THIS IS AN AHYMO HYDROLOGIC MODEL FOR:
   *S     Project Name -SUNRISE TERRACE PARK
   *S        MODEL DESCRIPTION - MODLING 2.02 ACRE PARK FOR CONTROLED RELEASE
   *S        100-yr. 24-hr. storm
   *S        Development Condition - Can release up to 1.3 cfs per acre
   *S        into the Snow Vista Channel
   *S             FILE NAME: SUNRISE1.DAT
   *S             USE PROCEDURES FROM COA DPM 22.2
   *S             PREPARED BY SMITH ENGINEERING (Rick Devine)
   *S             Rainfall Zone 1
   *S
   START                                                                                  TIME=      .00
   LOCATION                        BERNALILLO COUNTY
   RAINFALL  TYPE= 2                                                                      RAIN24=   2.660
   *S
   *S         The following uses entire park as one basin
   *S
   COMPUTE NM HYD          1.00   -    1      .00316      4.81      .183     1.08502   1.500    2.381 PER IMP=  29.07
   *S  Pond for basin ,xerascaped area
   ROUTE RESERVOIR         1.00   1    2      .00316      2.23      .172     1.01951   1.700    1.102 AC-FT=     .097
   *S
   FINISH
```

SUNRISE TERRACE PARK DRAINAGE ANALYSIS

SUNRISE TERRACE PARK

Sunrise Terrace Park is located on a 2.49 acre parcel of undeveloped land located in the southwest quadrant of Albuquerque. The west side of the park borders 102nd. Street. Snow Vista Diversion Channel runs along the east side of the Park, and an existing detention pond is located to the north. Access to the park will be off of 102nd Street. The site slopes vary from 3% to 4%. The climate in this area is considered semi-arid and is hot and dry with an average rainfall of 8 inches. The project is classified as zone x on the flood insurance rate map firm #35001c0336d.

HYDROLOGIC ANALYSIS

The City of Albuquerque's Development Process Manual (DPM) Section 22.2 was used to compute the 100-yr 6-hr peak flows and runoff volumes for the onsite basin. Precipitation is in zone 1. Tables A-8 and A-9 were used for these calculations. The park was divided into three basins based on developed runoff patterns. Basin A encompasses the northern portion of the site, everything north of the existing asphalt path. A 1 foot tall berm will be constructed on the east side of basin A to divert the flow to the southeast corner of basin A, then discharged to Snow Vista Diversion Channel at a rate less than historic. Basins B and C will remain unchanged from existing conditions and will freely discharge into the Snow Vista Diversion Channel. The existing condition flows were computed for comparison purposes only. There are no off-site flows entering the site for either existing or developed conditions.

A. **Existing Conditions - onsite**

There is no off-site drainage entering the park site. The existing site is mostly undeveloped (there is an existing asphalt path and gazebo on the south end of the site) and is vegetated with native grasses and sage brush. The water naturally drains to the east of the lot where it is intercepted by a 6" deep swale. The swale then empties into the Snow Vista Diversion Channel. The runoff that does not drain into the swale (the southern portion of the lot) drains to an existing drainage structure on the south side of the site which connects to the Snow Vista Diversion Channel down stream. The average slope is between 3% and 4%. There is currently a detention pond on the north side of the site, a swale on the east side (along side Snow Vista Diversion Channel), and a concrete drainage channel on the south side of the site. Due to the relatively small area, the existing conditions were calculated using the entire area of the park. An estimated 3.4 cubic feet per second was calculated for the existing 100 year event. Land treatment "A" was used on the undeveloped park area. Land treatment "D" was used for the existing asphalt trail and the Gazebo. Two drainage studies both conducted by Leedshill-Herkenhoff Inc., the first titled "SNOW VISTA CHANNEL, PHASE III" date July, 1982, and the second titled "AMOLE DMP", 1996 state that the maximum allowable discharge into the Snow Vista Channel to be 1.3 cfs per acre of land. Both of the studies are in the library at AMAFCA.

B. **Developed Conditions**

The developed park will have paved impermeable areas including concrete sidewalks, tennis court, bench sites, and an asphalt parking lot. There will also be a drip irrigated landscaped areas for native shrubs and trees, irrigated grass areas and a sand area for a playground. The following is a summary of the site. As the above mentioned drainage study stated, the allowable peak discharge is 1.3 cfs per acre. The park site could release 2.49 acres x 1.3 cfs/acre = 3.24 cfs allowed to channel from the park site.

For the developed conditions the park was divided into 3 sub-basins.

Basin A encompasses 2.02 acres with 47.7% of the site (0.96 ac) is either undisturbed or slightly modified (graded only) soil, or sand; land treatment A was used. 13.3% of the site (0.27 ac) is turf; land treatment B was used. 10% of the site (0.20 ac) is crushed fines on weed fabric; land treatment C was used. 29.1% of the site (0.59 ac) is concrete or asphalt; land treatment D was used. The sidewalks will have a 2% cross slope directed toward the turf area on the north, south, and west side and toward the pond on the east side of the sidewalk. Basin A will discharge an estimated 4.9 cfs in the 100 year storm.

Basins B encompasses 0.306 acres all of which is undisturbed; land treatment A was used. This area now drains to the Snow Vista Channel. An estimated 0.40 cfs discharge from Basin B in the 100 year storm.

Basin C encompasses 0.16 acres all of which is undisturbed; land treatment A was used. This area now drains to the tributary channel that drains to the Snow Vista Channel as shown on sheet 4 of 15 of this plan set. An estimated 0.2 cfs end up in the Snow Vista Channel in the 100 year storm.

The total developed peak discharge from the park is 4.81 cfs. 4.81 cfs exceeds the allowable 3.24 cfs (2.49 ac x 1.3 cfs/ac = 3.24 cfs) by 1.57 cfs. Basin B and C discharge a total of 0.6 cfs to the Snow Vista Channel. That leaves and allowable discharge of 3.24 cfs - 0.6 cfs = 2.64 cfs.

A proposed detention pond shall be constructed to intercept all of the Basin A discharge. A concrete rectangular weir section shall be constructed to release no more 2.64 cfs in the 100 year storm. This is approximately the maximum allowable peak discharge from this site. See pond and outlet structure details on sheet 4 of the plans set for details. An AHYMO run was routed through the pond to evaluate the weir section. The summary of this run is shown on this page. As you can see the peak entering the pond from Basin A is 4.9 cfs. The pond volume is 0.0975 ac-ft with a discharge through the outlet structure of 2.23 cfs.

Summary

The existing 100 year discharge from the park site is 3.4 cfs. The developed 100 year discharge from the park is 5.54 cfs. The proposed calculated discharge to the Snow Vista Diversion Channel is: 2.23 cfs from Basin A, 0.4 cfs from Basin B, and 0.2 cfs from Basin C, for a total discharge of 2.83 cfs. The allowable discharge to the channel is 3.24 cfs. The developed 100 year detainage volume needed in the park is 0.0975 ac-ft (4247 cubic feet) with an outlet Q of 2.23 cfs. The capacity of Snow Vista Diversion Channel is not exceeded by the additional volume that the developed park will produce.

AS BUILT INFORMATION
CONTRACTOR — DATE
STAKED BY — DATE
INSPECTOR'S ACCEPTANCE BY — DATE
FIELD VERIFICATION BY — DATE
DRAWINGS CORRECTED BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE
NO.

BENCH MARKS
BENCH MARK NUMBER 14-L9
LOCATED AT THE WNW QUADRANT OF TOWER RD. SW AND THE SNOW VISTA DRAINAGE CHANNEL, 0.20 MI +/- WEST OF CENTERLINE 98TH ST. 0.5' EAST OF THE WEST END OF SAID CHANNEL CROSSING, EPOXIED TO THE TOP.
DESCRIPTION – ACS 1 3/4" ALUM. DISK STAMPED "ACS BM, 14-L9".
ELEVATION 5204.188

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

ENGINEERS SEAL
RICHARD J. DEVINE STATE OF NEW MEXICO 13282 REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REMARKS	BY
		REVISIONS	

DESIGN
DESIGNED BY MM/RJD DATE NOV., 1999
DRAWN BY SEC DATE NOV., 1999
CHECKED BY RJD DATE NOV., 1999

599608
Smith Engineering Company
A Full Service Engineering Company
5440 Uptown Boulevard, N.E. Suite 5000 Albuquerque, New Mexico 87110

CITY OF ALBUQUERQUE
PARKS AND RECREATION DEPARTMENT

TITLE: SUNRISE TERRACE PARK
DRAINAGE CALCULATIONS AND ANALYSIS

Design Review Committee | City Engineer Approval | Last Design Update | Mo. / Day / Yr. | Mo. / Day / Yr.

City Project No. 579272 | Zone Map No. L-9-Z | Sheet 5 Of 13

DESIGN POINT TABLE

POINT #	NORTHING	EASTING	ELEV. 5100+	DESCRIPTION
1	1477321.31	351804.73	95.00	TENNIS COURT
2	1477321.31	351912.73	93.92	TENNIS COURT
3	1477203.31	351804.73	95.00	TENNIS COURT
4	1477203.31	351912.73	93.92	TENNIS COURT
5	1477269.26	351734.94	97.98	SIDEWALK
6	1477250.77	351734.94	97.87	SIDEWALK
7	1477242.78	351737.16	97.70	SIDEWALK
8	1477229.23	351745.32	97.35	SIDEWALK
9	1477185.54	351752.54	96.79	SIDEWALK
10	1477157.77	351746.50	96.86	SIDEWALK
11	1477123.23	351747.08	96.68	SIDEWALK
12	1477097.08	351753.69	96.27	SIDEWALK
13	1477066.32	351752.58	96.05	SIDEWALK
14	1477036.23	351742.62	96.04	SIDEWALK
15	1477021.07	351739.89	96.08	SIDEWALK
16	1477007.63	351739.39	96.10	SIDEWALK
17	1477248.26	351780.17	98.04	SIDEWALK
18	1477218.95	351781.45	96.29	SIDEWALK
19	1477213.42	351754.98	96.71	SIDEWALK
20	1477213.42	351775.20	96.24	SIDEWALK
21	1477213.31	351789.24	95.65	SIDEWALK
22	1477213.31	351804.73	95.04	TENNIS COURT
23	1477209.14	351782.98	95.74	SIDEWALK
24	1477200.82	351784.56	95.10	SIDEWALK
25	1477181.58	351793.92	93.89	SIDEWALK
26	1477176.35	351805.25	93.45	SIDEWALK
27	1477184.49	351830.27	92.95	SIDEWALK
28	1477188.18	351844.84	92.93	SIDEWALK
29	1477189.33	351848.36	92.89	SIDEWALK
30	1477150.83	351895.25	92.23	SIDEWALK
31	1477111.36	351884.83	92.32	SIDEWALK
32	1477087.20	351864.48	93.06	SIDEWALK
33	1477070.04	351837.60	93.41	SIDEWALK
34	1477063.46	351806.42	93.72	SIDEWALK
35	1477062.27	351784.67	94.01	SIDEWALK
36	1477064.97	351757.39	95.84	SIDEWALK
37	1477172.40	351796.34	93.54	SIDEWALK
38	1477129.58	351780.64	93.81	SIDEWALK
39	1477122.10	351785.26	93.75	SIDEWALK
40	1477095.32	351790.04	93.79	SIDEWALK
41	1477087.33	351788.43	93.80	SIDEWALK
42	1477067.73	351791.37	93.90	SIDEWALK
43	1477089.86	351875.81	92.72	SIDEWALK
44	1477063.57	351879.14	92.53	SIDEWALK
45	1477040.02	351882.42	92.54	SIDEWALK
46	1477004.64	351900.86	91.15	SIDEWALK
47	1476944.70	351912.31	88.72	SIDEWALK
48	1476919.73	351906.76	88.35	SIDEWALK
49	1477005.51	351855.78	93.13	SIDEWALK
50	1477005.79	351863.03	93.04	SIDEWALK
51	1477011.28	351875.83	92.77	SIDEWALK
52	1477020.40	351885.17	92.04	SIDEWALK
53	1476944.28	351948.23	87.00	SPILLWAY
54	1476945.37	351954.81	86.51	SPILLWAY
55	1476945.49	351961.03	86.02	SPILLWAY
56	1476942.28	351948.25	87.00	SPILLWAY
57	1476941.37	351954.85	86.52	SPILLWAY
58	1476941.49	351961.13	86.04	SPILLWAY
59	1477211.11	351753.71	96.82	SIDEWALK
60	1477217.42	351754.66	96.78	SIDEWALK
61	1477208.27	351756.11	96.60	SIDEWALK
62	1477209.42	351757.10	96.60	SIDEWALK
63	1477217.42	351775.16	96.37	SIDEWALK
64	1477219.77	351777.41	96.43	SIDEWALK
65	1477222.57	351785.29	96.29	SIDEWALK
66	1477217.31	351790.79	95.79	SIDEWALK
67	1477209.42	351776.78	96.07	SIDEWALK
68	1477207.39	351779.24	95.89	SIDEWALK
69	1477206.94	351787.47	95.43	SIDEWALK
70	1477209.31	351789.43	95.48	SIDEWALK
71	1477178.95	351790.90	93.93	SIDEWALK
72	1477172.82	351789.82	93.74	SIDEWALK
73	1477180.98	351800.10	93.69	SIDEWALK
74	1477180.15	351804.01	93.56	SIDEWALK
75	1477060.75	351753.89	95.96	SIDEWALK
76	1477057.87	351756.61	95.88	SIDEWALK
77	1477044.85	351748.63	95.98	SIDEWALK
78	1477051.37	351755.54	95.86	SIDEWALK
79	1477065.23	351784.12	93.93	SIDEWALK
80	1477070.48	351786.84	93.94	SIDEWALK
81	1477069.16	351794.01	93.86	SIDEWALK
82	1477067.07	351797.58	93.82	SIDEWALK
83	1477086.56	351868.86	93.00	SIDEWALK
84	1477094.64	351874.29	92.81	SIDEWALK
85	1477096.84	351879.65	92.51	SIDEWALK
86	1477090.85	351878.64	92.56	SIDEWALK
87	1477023.42	351883.97	92.09	SIDEWALK
88	1477027.12	351884.64	92.00	SIDEWALK
89	1477018.26	351887.27	91.92	SIDEWALK
90	1477017.97	351889.26	91.80	SIDEWALK
91	1477294.43	351738.76	98.15	PARKING LOT
92	1477294.87	351747.68	97.81	PARKING LOT
93	1477314.28	351748.27	98.21	PARKING LOT
94	1477314.28	351774.97	97.68	PARKING LOT
95	1477294.87	351775.56	97.28	PARKING LOT
96	1477294.14	351789.83	97.00	PARKING LOT
97	1477270.05	351789.83	97.48	PARKING LOT
98	1477269.32	351784.56	97.58	PARKING LOT
99	1477249.41	351783.97	97.98	PARKING LOT
100	1477249.41	351749.27	98.20	PARKING LOT
101	1477268.82	351748.68	97.80	PARKING LOT
102	1477269.26	351737.94	98.14	PARKING LOT
104	1477094.67	351869.36	93.00	DIVIDER
105	1477112.64	351854.03	93.00	DIVIDER
106	1477137.04	351840.05	93.00	DIVIDER
107	1477149.32	351837.72	93.00	DIVIDER
108	1477170.55	351826.45	93.00	DIVIDER
109	1477174.15	351822.82	93.00	DIVIDER
110	1477177.43	351821.49	93.00	DIVIDER
111	1477188.30	351829.03	92.96	SIDEWALK
112	1477191.04	351843.91	92.95	SIDEWALK

DESIGN CURVE TABLE

NO.	DELTA	CHORD BEARING	TANGENT'	RADIUS'	ARC LENGHT '
C1	114°49'56"	S 50°36'59" E	56.33	36.00	72.15
C2	15°57'43"	S 14°47'05" W	20.61	147.00	40.95
C3	34°40'60"	S 40°06'27" W	16.55	53.00	32.08
C4	41°16'42"	S 78°05'16" W	17.02	45.20	32.56
C5	23°42'45"	S 86°52'13" W	11.13	53.00	21.93
C6	42°04'57"	N 66°45'11" E	7.46	19.40	14.25
C7	16°11'04"	N 10°13'09" E	7.78	54.70	15.45
C8	32°29'55"	N 02°03'43" E	16.03	55.00	31.20
C9	26°27'23"	N 00°57'35" W	17.75	75.50	34.86
C10	43°18'26"	N 09°23'10" W	23.82	60.00	45.35
C11	31°02'23"	N 15°31'11" W	4.30	15.50	8.40
C12	103°40'04"	S 20°08'15" W	36.90	29.00	52.47
C13	43°07'54"	S 10°07'50" E	14.62	37.00	27.85
C14	39°57'36"	S 08°32'39" E	10.55	29.01	20.23
C15	30°15'37"	S 25°55'12" E	11.09	41.00	21.65
C16	46°41'07"	N 10°48'32" W	33.23	77.00	62.74
C17	13°14'37"	N 27°31'47" W	20.08	173.00	39.99
C18	25°55'29"	N 07°56'44" W	12.20	53.00	23.98
C19	24°28'09"	N 07°13'05" W	13.56	62.52	26.70
C20	110°46'43"	S 70°35'27" E	5.07	3.50	6.77
C21	58°10'14"	N 09°37'57" E	3.48	6.25	6.35
C22	95°18'01"	N 27°21'50" E	4.39	4.00	6.65
C23	62°17'31"	S 59°40'10" E	2.42	4.00	4.35
C24	56°42'10"	S 46°39'46" W	5.40	10.00	9.90
C25	123°17'50"	S 43°20'14" E	4.17	2.25	4.84
C26	102°05'42"	N 09°59'54" E	4.95	4.00	7.13
C27	59°58'51"	S 78°02'18" E	2.31	4.00	4.19
C28	87°29'08"	S 46°15'26" E	5.26	5.50	8.40
C29	100°47'27"	S 39°36'17" W	2.42	2.00	3.52
C30	79°12'34"	N 50°23'44" W	2.07	2.50	3.46
C31	92°30'00"	N 43°45'00" E	2.35	2.25	3.63
C32	72°36'24"	S 53°41'48" E	0.73	1.00	1.27
C33	100°00'59"	S 39°59'30" W	1.19	1.00	1.75
C34	70°48'09"	N 10°18'38" E	2.31	3.25	4.02
C35	105°51'30"	N 81°21'33" W	1.65	1.25	2.31
C36	46°21'22"	S 22°03'38" E	1.93	4.50	3.64
C37	34°31'05"	S 27°58'46" E	12.58	40.50	24.40
C38	38°10'46"	S 29°48'37" E	14.88	43.00	28.65
C39	16°50'52"	S 40°28'33" E	11.94	80.61	23.70
C40	51°03'03"	N 26°15'58" E	53.56	112.16	99.94

102ND ST FLOW LINE ELEVATION DATA

POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
150	1476904.89	351729.35	5195.250	FL
151	1476921.75	351729.46	5195.520	FL
152	1476964.66	351729.76	5195.870	FL
153	1477071.13	351730.26	5198.400	FL
154	1477127.99	351730.51	5196.690	FL
155	1477183.75	351730.80	5197.080	FL
156	1477231.68	351731.09	5197.390	FL
157	1477324.60	351733.74	5198.410	FL

DESIGN POINTS FOR WHEELCHAIR RAMPS

POINT NO.	NORTHING	EASTING	ELEVATION 5100+	DESCRIPTION
113	1477261.26	351731.94	98.10	HC RAMP
114	1477261.26	351737.94	97.98	HC RAMP
115	1477239.94	351776.53	98.74	HC RAMP
116	1477240.29	351784.51	98.67	HC RAMP
117	1477248.36	351784.16	98.00	HC RAMP
118	1477248.26	351776.16	98.08	HC RAMP
119	1477269.26	351737.94	98.14	HC RAMP
120	1477269.26	351731.94	97.85	HC RAMP
121	1477007.91	351729.99	95.43	HC RAMP
122	1476999.36	351729.95	95.38	HC RAMP
123	1477007.67	351738.84	96.10	HC RAMP
124	1476999.19	351738.70	96.05	HC RAMP
91	1477294.43	351737.10	98.16	HC RAMP
125	1477294.43	351731.11	97.87	HC RAMP
126	1477302.49	351731.20	98.54	HC RAMP
127	1477302.43	351737.19	98.66	HC RAMP

EARTHWORK QUANTITIES

PRISMOIDAL METHOD

ORIGINAL SURFACE	original
FINAL SURFACE	design
CUT COMPACTION FACTOR	0.00 %
FILL COMPACTION FACTOR	25.00 % SWELL
RAW CUT VOLUME	1525.03 CY
RAW FILL VOLUME	567.00 CY

DESIGN LINE TABLE

NUMBER	DIRECTION	DISTANCE
L1	N 12°32'01" E	25.58'
L2	S 87°47'40" W	7.25'
L3	S 45°42'43" W	13.06'
L4	N 71°58'17" E	26.31'
L5	N 75°47'08" E	15.03'
L6	N 71°58'17" E	3.69'
L7	S 57°26'57" W	31.89'
L8	S 75°00'51" W	28.25'
L9	S 31°41'47" E	8.80'
L10	S 11°26'07" W	8.15'
L11	S 10°47'27" E	8.47'
L12	EAST	20.22'
L13	S 02°30'00" E	29.34'
L14	WEST	15.49'
L15	N 02°07'37" E	13.45'
L16	N 18°18'41" E	31.70'
L17	N 14°11'14" W	26.97'
L18	N 12°16'04" E	28.42'
L19	N 31°02'23" W	15.82'
L20	NORTH	18.49'
L21	S 45°14'19" E	5.11'
L22	S 10°43'14" E	12.50'
L23	N 0°34'13" E	7.07'

NOTES

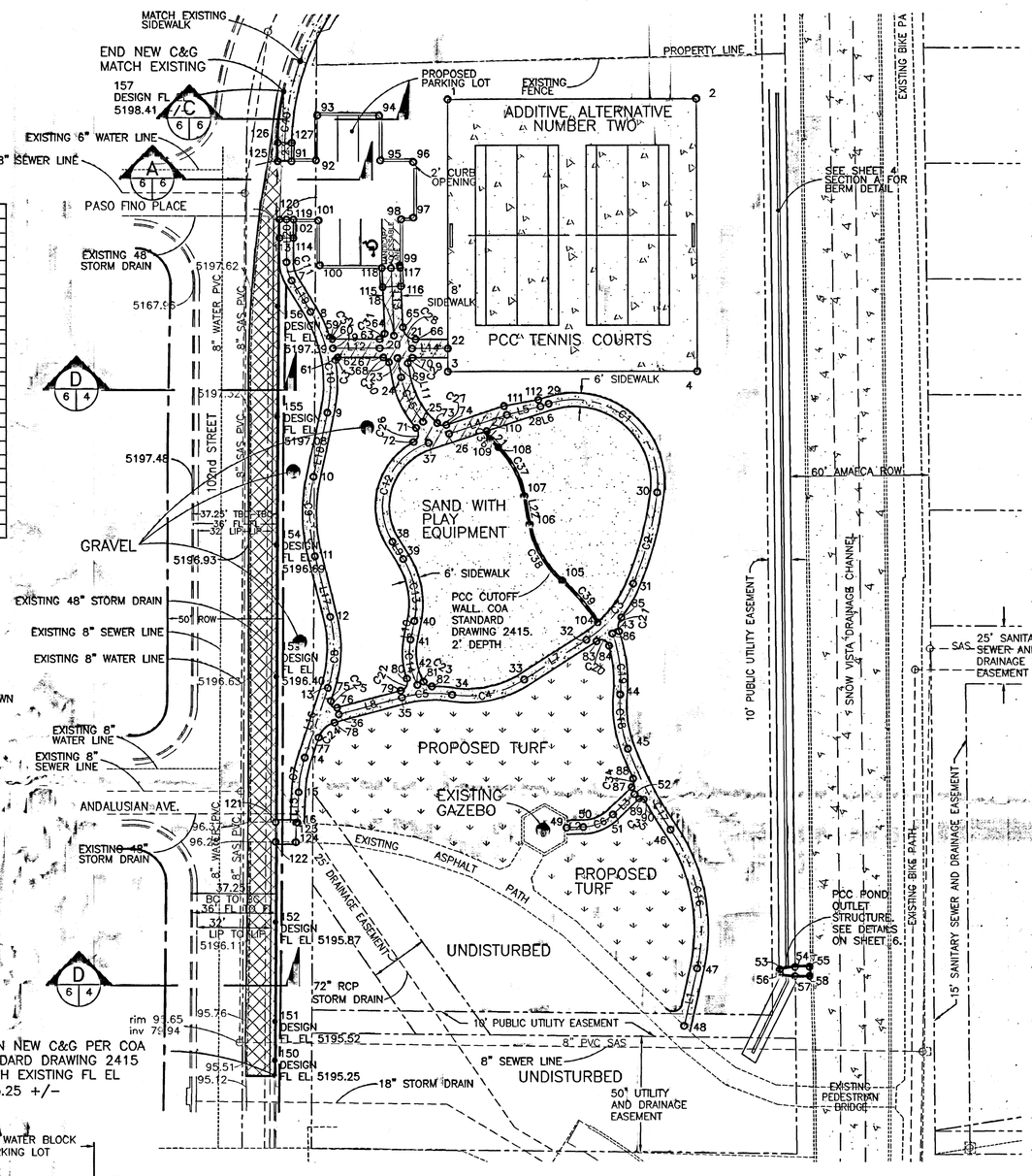
UNLESS NOTED ON THE PLANS, ALL SIDEWALK CENTERLINES ARE FOR 6' WIDE SIDEWALKS. CENTERLINE POINTS SHOWN SHALL BE OFFSET 3' LEFT AND RIGHT.

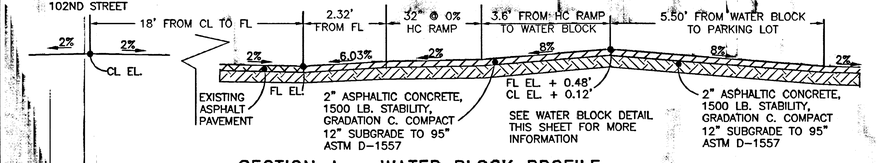
WHERE SIDEWALKS ARE NOT SYMMETRICAL ABOUT THE CENTERLINE, ADDITIONAL POINTS HAVE BEEN SHOWN ON THIS PLAN FOR SET THE EDGE OF SIDEWALK.

ALL SIDEWALKS SHALL HAVE A CROSS SLOPE OF NO MORE THAN 2%. NO NEW SIDEWALK SHALL HAVE A GRADE STEEPER THAN 5% EXCEPT AT WHEEL CHAIR RAMPS WHICH SHALL BE NO STEEPER THAN 8.33 % (12:1)

6" THINK SIDEWALK PER COA STANDARD DRAWING 2425, MAINTENANCE ACCESS. ALL OTHER SIDEWALK PAVING SHALL BE 4" THICK UNLESS OTHERWISE NOTED.

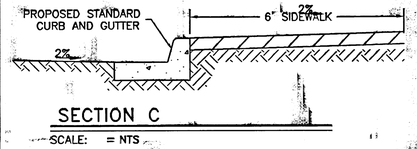
CONSTRUCT NEW PAVEMENT SECTION PER SECTION D ON SHEET 4 AND PER COA STANDARD DRAWING 2405





SECTION A – WATER BLOCK PROFILE

SCALE: = NTS



SECTION C

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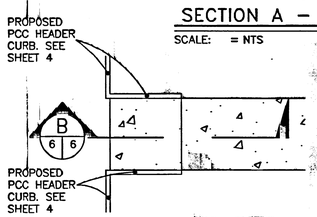
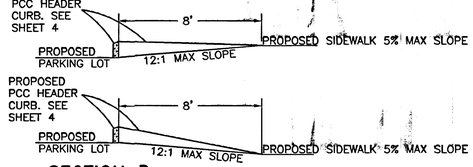


HANDICAP RAMP DETAIL

SCALE: = NTS



SECTION B

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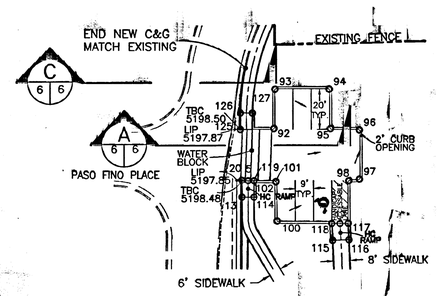


WATER BLOCK PLAN

SCALE: = NTS

Drawing name: Sitplan-dwg.DWG
Saved on: November 1, 1999 at 4:18 PM

AS BUILT INFORMATION
CONTRACTOR
WORK STAKED BY DATE
FIELD CHANGES ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE
MICRO-FILM INFORMATION
RECORDED BY DATE
NO.

BENCH MARKS
BENCH MARK NUMBER 14-L9
LOCATED AT THE WNW QUADRANT OF TOWER RD. SW AND THE SNOW VISTA DRAINAGE CHANNEL. 0.20 MI +/- WEST OF CENTERLINE 98TH ST. 0.5' EAST OF THE WEST END OF SAID CHANNEL CROSSING. EPOXIED TO THE TOP.
DESCRIPTION – ACS 1 3/4" ALUM. DISK STAMPED "ACS BM, 14-L9"
ELEVATION 5204.188

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

ENGINEERS SEAL
STATE OF NEW MEXICO (13282) REGISTERED PROFESSIONAL ENGINEER RICHARD J. DEVINE

NO.	DATE	REMARKS	BY
		REVISIONS	

DESIGN
DESIGNED BY NM/RJD DATE NOV., 1999
DRAWN BY SEC DATE NOV., 1999
CHECKED BY RJD DATE NOV., 1999

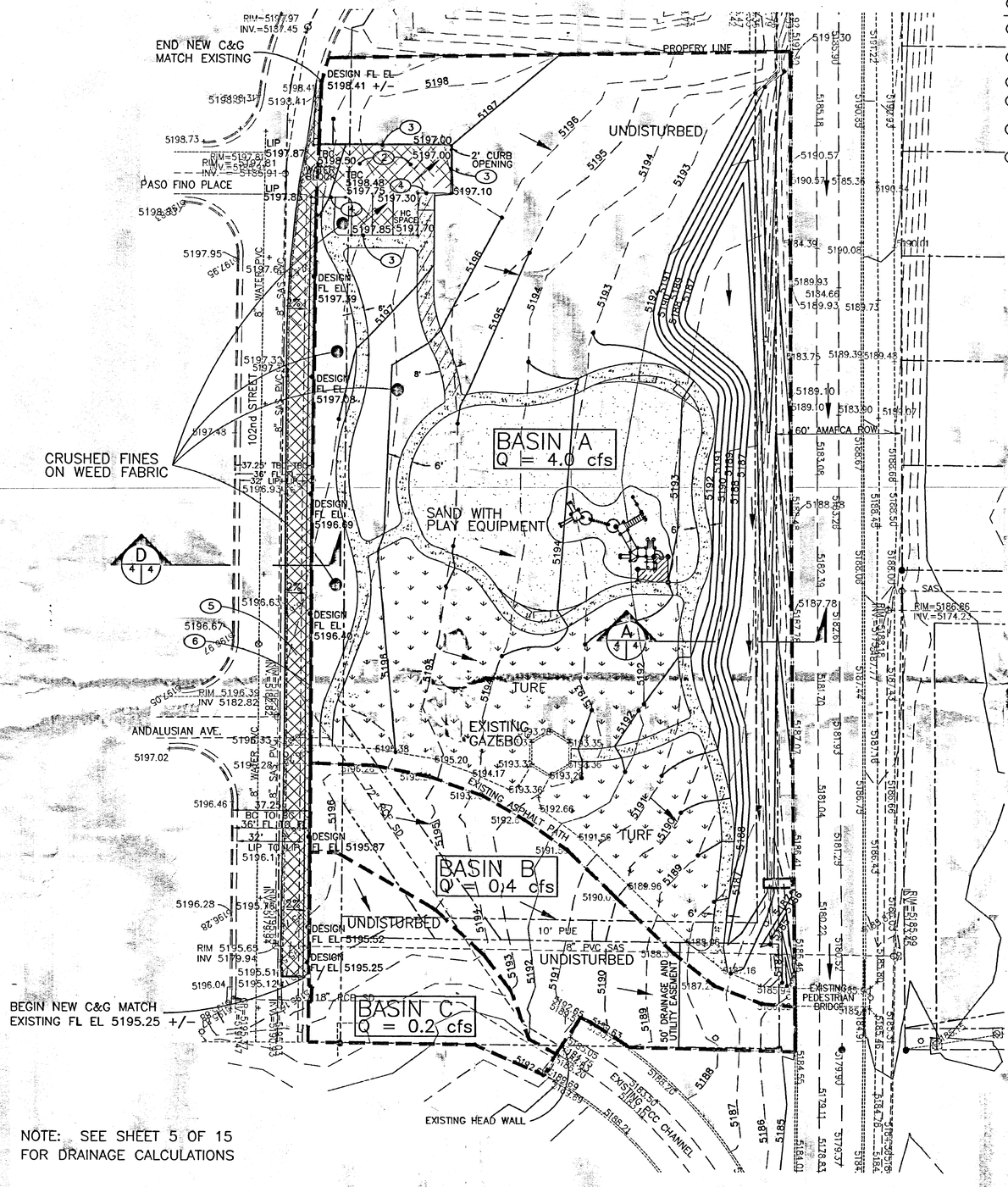
599608
Smith Engineering Company
A Full Service Engineering Company
5600 Uptown Boulevard, N.E. Suite 200N Albuquerque, New Mexico 87110

CITY OF ALBUQUERQUE
PARKS AND RECREATION DEPARTMENT
LANDSCAPE ARCHITECTURE AND CONSTRUCTION SERVICES

TITLE: SUNRISE TERRACE PARK
HORIZONTAL LAYOUT PLAN

Design Review Committee | City Engineer Approval | Last Design Update | Mo. / Day / Yr. | Mo. / Day / Yr.

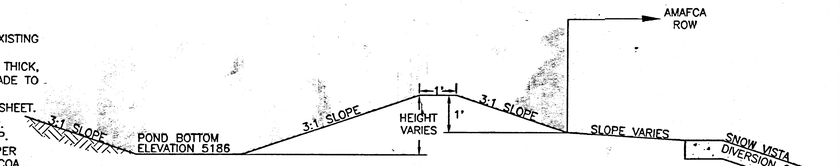
City Project No. 579272 | Zone Map No. L-9-Z | Sheet 6 Of 13



NOTE: SEE SHEET 5 OF 15 FOR DRAINAGE CALCULATIONS

KEYED NOTES:

1. SAWCUT, REMOVE, AND DISPOSE OF EXISTING ASPHALT CURB.
2. CONSTRUCT ASPHALT PARKING LOT 2" THICK, 1500 LB. SLAB. COMPACT 12" SUBGRADE TO 95% ASTM D-1557.
3. BUILD HEAD CURB PER DETAILS THIS SHEET.
4. BUILD WHEEL CHAIR ACCESSIBLE RAMP. DO NOT EXCEED 12:1 SLOPE ON RAMP.
5. CONSTRUCT NEW PAVEMENT SECTION PER SECTION D ON THIS SHEET AND PER COA STANDARD DRAWING 2405
6. CONSTRUCT STANDARD CURB AND GUTTER PER COA STANDARD DRAWING 2415



SECTION A
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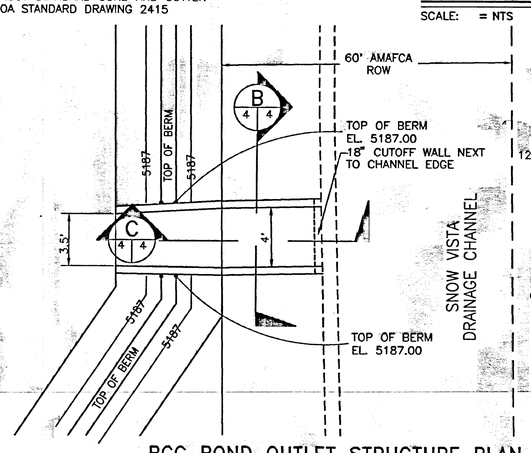
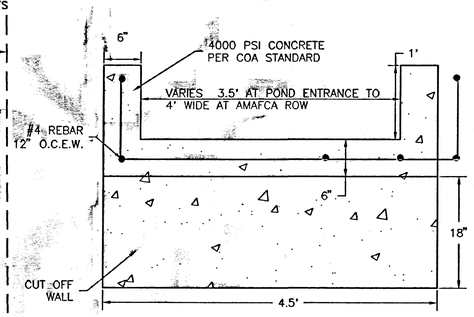


PCC POND OUTLET STRUCTURE PLAN
SCALE: = NTS



SECTION B
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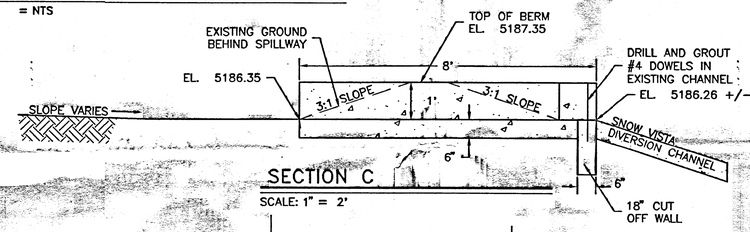

SECTION C
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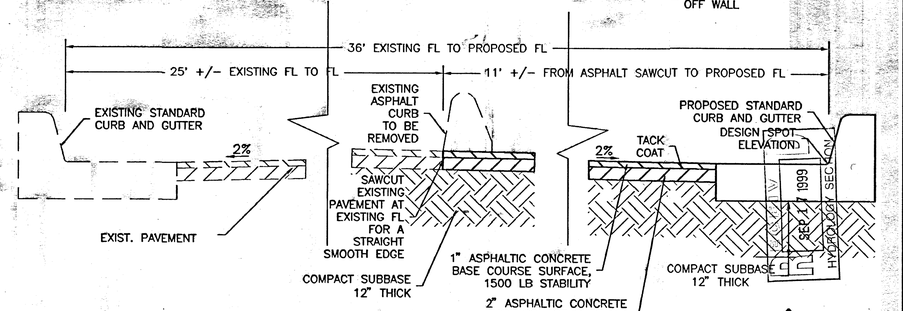

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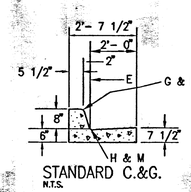
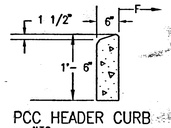
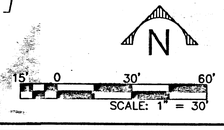
SCALE: = NTS



STANDARD C.&G.
N.T.S.



PCC HEADER CURB
N.T.S.



GENERAL NOTES:

1. CURBS, GUTTERS & CUT-OFF WALL TO BE CON-CONSTRUCTED OF P.C.C.
2. FOR STANDARD AND MEDIAN C. & G. PROVIDE CONTRACTION JTS. 6' O.C. MAX., ALSO PROVIDE 1/2" EXP. JTS. 48" O.C. MAX. AT CURB RETURNS & AT EACH SIDE OF DRIVEWAY.
3. FOR ALL OTHER C. & G. PROVIDE CONTR. JTS. AT 10' O.C., PROVIDE EXP. JTS. 50' O.C. & ADJACENT TO BUILDINGS & WALLS.
4. EDGES NOT SPECIF. DIMENSIONED SHALL BE EDGED WITH A 3/8" EDGING TOOL.
5. STD. C. & G. SHALL BE USED FOR NEW CONSTR. UNLESS OTHERWISE APPROVED BY THE ENGINEER.
6. REMOVE & REPLACE 12" WIDE STRIP OF PAVEMENT BEYOND LIP OF GUTTER WHEN CONSTRUCTING C. & G. ADJACENT TO EXIST. A.C. PAVEMENT.
7. STD. C. & G. REQUIRE FULL FORM ON ALL FACES EXCEPT WITH PRIOR APPROVAL OF ENGINEER.

CONSTRUCTION NOTES:

E. THEORETICAL FACE OF CURB OR FLOWLINE.
F. TRAFFIC SIDE.
G. 3/4" RADIUS.
H. 1 1/2" RADIUS.
M. DIMENSIONS AT ROUNDED CORNERS MEASURED TO INTERSECTION OF STRAIGHT LINES.

LEGEND:

- EXISTING CHAIN LINK FENCE
- EXISTING WOOD FENCE
- EXISTING RAWD IRON FENCE
- EXISTING OVERHEAD ELECTRIC
- EXISTING SAS MANHOLE
- NEW STORM DRAIN
- NEW 6" CONCRETE SIDEWALKS AND CURB LINES
- NEW STORM DRAIN MANHOLE
- EXISTING STORM DRAIN MANHOLE
- NEW 4" CONCRETE SIDEWALKS AND CURB LINES
- BASIN BOUNDARY
- HORIZONTAL AND VERTICAL CONTROL POINT
- NEW STORM DRAIN FLOW ARROW
- 84.33 NEW SPOT ELEVATION
- 5400 NEW INDEX CONTOUR LINE
- NEW CONTOUR LINE
- 5400 EXISTING INDEX CONTOUR LINE
- EXISTING CONTOUR LINE
- EXISTING WATER VALVE
- COA CITY OF ALBUQUERQUE
- TOC TOP OF CURB
- FL FLOWLINE
- TOP TOP OF PIPE
- X 87.5 EXISTING SPOT ELEVATION
- IE INVERT ELEVATION
- EXISTING CATCH BASIN
- NEW CATCH BASIN

AS BUILT INFORMATION

CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE
MICRO-FILM INFORMATION	
RECORDED BY	DATE
NO.	

BENCH MARKS

1) SAS MH AT INT. OF PASO FINO PL & 102ND ST. RIM EL. 5197.81
2) SAS MH AT INT OF ANDALUSION AVE. & 102ND ST. RIM EL. 5196.39
3) SAS MH ON 102ND ST. AT SW CORNER OF SITE. RIM EL. 5195.65
4) SAS MH EAST OF CHANNEL, NE OF PED BRIDGE. RIM EL. 5185.99
5) SAS MH EAST OF CHANNEL, NORTH OF BM #4. RIM EL. 5186.86

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEERS SEAL

RICHARD J. DEVINE — STATE OF NEW MEXICO — 13282 — REGISTERED PROFESSIONAL ENGINEER — 9/17/99

REVISIONS

NO.	DATE	REMARKS	BY	DATE
		DESIGN		
DESIGNED BY	RJD			SEPT., 1999
DRAWN BY	SEC			SEPT., 1999
CHECKED BY	PJC			SEPT., 1999

Smith Engineering Company
A Full Service Engineering Company
8400 Uptown Boulevard, N.E. Suite 300E Albuquerque, New Mexico 87110
599608

CITY OF ALBUQUERQUE
CAPITAL IMPLEMENTATION PROGRAM
LANDSCAPE ARCHITECTURE AND CONSRUCTION SERVICES

TITLE: SUNRISE TERRACE PARK

DRAINAGE & GRADING PLAN & BASIN DEFINITIONS

Design Review Committee	City Engineer Approval	Last Design Update	Mo. / Day / Yr.	Mo. / Day / Yr.

City Project No.	Zone Map No.	Sheet	Of
579272	L-9-Z	4	12

EXISTING HYDROLOGIC ANALYSIS

ALL TC'S ARE ASSUMED TO BE 12 MINUTES

PROJECT NAME = Sunrise Terrace Park

EXISTING HYDROLOGIC CALCULATIONS
(for small watersheds < 40 acres (per DPM Section 22)

Precipitation Zone = 1

Table A-9 (DPM) Peak Discharge (cfs/acre)

FORMULA : Total Qp (cfs) = QpA*Aa+QpB*Ba+QpC*Ca+QpD*Da — Note - "a" = area in acres

Basin & Condition or Analysis Point	Return Period 6-hr.	QpA	A (ac)	A (%)	QpB	B (ac)	B (%)	QpC	C (ac)	C (%)	QpD	D (ac)	D (%)	Total Area (ac.)	Total Qp (cfs)
		Qp per Land Treatment Type (cfs/acre) and					Land Treatment Type (acres)								
ENTIRE SITE	100	1.29	2.4220	97.4	2.03	0.0000	0.0	2.87	0.0000	0.0	4.37	0.0640	2.6	2.4860	3.4
ENTIRE SITE	10	0.24	2.4220	97.4	0.76	0.0000	0.0	1.49	0.0000	0.0	2.89	0.0640	2.6	2.4860	0.8

Precipitation Zone = 1

Table A-8 (DPM) Excess Precipitation - E - (in.)

FORMULAS: Weighted E (in.) = EaA*Aa+EaB*Ba+EaC*Ca+EaD*Da / (total area "a") — Note - "a" = area in acres

Total Runoff Volume (ac-ft) = Weighted E (in.) * (total area "a") / (12 in./ft)

Basin & Condition or Analysis Point	Return Period 6-hr.	EaA	A (ac)	A (%)	EaB	B (ac)	B (%)	EaC	C (ac)	C (%)	EaD	D (ac)	D (%)	Total Area (ac)	Weighted E (inches)	Runoff Volume (ac-ft)
		Rainfall Excess -E per Land Treatment Type (inches) and Land Treatment Type (acres)														
ENTIRE SITE	100	0.44	2.4220	97.4	0.67	0.0000	0.0	0.99	0.0000	0.0	1.97	0.0640	2.6	2.4860	0.48	0.0993
ENTIRE SITE	10	0.08	2.4220	97.4	0.22	0.0000	0.0	0.44	0.0000	0.0	1.24	0.0640	2.6	2.4860	0.11	0.0228
TOTAL	100		2.4220			0.0000			0.0000			0.0640		2.4860		0.0993
	10		2.4220			0.0000			0.0000			0.0640		2.4860		0.0228

DEVELOPED HYDROLOGIC ANALYSIS

ALL TC'S ARE ASSUMED TO BE 12 MINUTES

PROJECT NAME = Sunrise Terrace Park

DEVELOPLED HYDROLOGIC CALCULATIONS
(for small watersheds < 40 acres (per DPM Section 22)

Precipitation Zone = 1

Table A-9 (DPM) Peak Discharge (cfs/acre)

FORMULA : Total Qp (cfs) = QpA*Aa+QpB*Ba+QpC*Ca+QpD*Da — Note - "a" = area in acres

Basin & Condition or Analysis Point	Return Period 6-hr.	QpA	A (ac)	A (%)	QpB	B (ac)	B (%)	QpC	C (ac)	C (%)	QpD	D (ac)	D (%)	Total Area (ac.)	Total Qp (cfs)
		Qp per Land Treatment Type (cfs/acre) and					Land Treatment Type (acres)								
A	100	1.29	1.1600	57.4	2.03	0.4000	19.8	2.87	0.1800	8.9	4.37	0.2800	13.9	2.0200	4.0
A	10	0.24	1.1600	57.4	0.76	0.4000	19.8	1.49	0.1800	8.9	2.89	0.2800	13.9	2.0200	1.7
B	100	1.29	0.3100	101.3	2.03	0.0000	0.0	2.87	0.0000	0.0	4.37	0.0000	0.0	0.3060	0.4
B	10	0.24	0.3100	101.3	0.76	0.0000	0.0	1.49	0.0000	0.0	2.89	0.0000	0.0	0.3060	0.1
C	100	1.29	0.1600	100.0	2.03	0.0000	0.0	2.87	0.0000	0.0	4.37	0.0000	0.0	0.1600	0.2
C	10	0.24	0.1600	100.0	0.76	0.0000	0.0	1.49	0.0000	0.0	2.89	0.0000	0.0	0.1600	0.0
TOTALS	100		1.6300			0.4000			0.1800			0.2800		2.4860	4.65
	10		1.6300			0.4000			0.1800			0.2800		2.4860	1.77

Precipitation Zone = 1

Table A-8 (DPM) Excess Precipitation - E - (in.)

FORMULAS: Weighted E (in.) = EaA*Aa+EaB*Ba+EaC*Ca+EaD*Da / (total area "a") — Note - "a" = area in acres

Total Runoff Volume (ac-ft) = Weighted E (in.) * (total area "a") / (12 in./ft)

Basin & Condition or Analysis Point	Return Period 6-hr.	EaA	A (ac)	A (%)	EaB	B (ac)	B (%)	EaC	C (ac)	C (%)	EaD	D (ac)	D (%)	Total Area (ac)	Weighted E (inches)	Runoff Volume (ac-ft)
		Rainfall Excess -E per Land Treatment Type (inches) and Land Treatment Type (acres)														
A	100	0.44	1.1600	57.4	0.67	0.4000	19.8	0.99	0.1800	8.9	1.97	0.2800	13.9	2.0200	0.75	0.1257
A	10	0.08	1.1600	57.4	0.22	0.4000	19.8	0.44	0.1800	8.9	1.24	0.2800	13.9	2.0200	0.30	0.0506
B	100	0.44	0.3100	101.3	0.67	0.0000	0.0	0.99	0.0000	0.0	1.97	0.0000	0.0	0.3060	0.45	0.0114
B	10	0.08	0.3100	101.3	0.22	0.0000	0.0	0.44	0.0000	0.0	1.24	0.0000	0.0	0.3060	0.08	0.0021
C	100	0.44	0.1600	100.0	0.67	0.0000	0.0	0.99	0.0000	0.0	1.97	0.0000	0.0	0.1600	0.44	0.0059
C	10	0.08	0.1600	100.0	0.22	0.0000	0.0	0.44	0.0000	0.0	1.24	0.0000	0.0	0.1600	0.08	0.0011
TOTALS	100		1.6300			0.4000			0.1800			0.2800		2.4860		0.1429
	10		1.6300			0.4000			0.1800			0.2800		2.4860		0.0537

SUNRISE TERRACE PARK - DRAINAGE ANALYSIS

SUNRISE TERRACE PARK

Sunrise Terrace Park is located on a 2.49 acre parcel of undeveloped land located in the southwest quadrant of Albuquerque. The west side of the park borders 102nd Street. Snow Vista Diversion Channel runs along the east side of the Park, and an existing detention pond is located to the north. Access to the park will be off of 102nd Street. The site slopes vary from 3% to 4%. The climate in this area is considered semi-arid and is hot and dry with an average rainfall of 8 inches. The project is classified as zone x on the flood insurance rate map firm #35001c0336d.

HYDROLOGIC ANALYSIS

The City of Albuquerque's Development Process Manual (DPM) Section 22.2 was used to compute the 100-yr 6-hr peak flows and runoff volumes for the onsite basin. Precipitation is in zone 1. Tables A-8 and A-9 were used for these calculations. The park was divided into three basins based on developed runoff patterns. Basin A encompasses the northern portion of the site, everything north of the existing asphalt path. A 1 foot tall berm will be constructed on the east side of basin A to divert the flow to the southeast corner of basin A, then discharged to Snow Vista Diversion Channel at a rate less than historic. Basins B and C will remain unchanged from existing conditions and will freely discharge into the Snow Vista Diversion Channel. The existing condition flows were computed for comparison purposes only. There are no off-site flows entering the site for either existing or developed conditions.

A. **Existing Conditions - onsite**

There is no off-site drainage entering the park site. The existing site is mostly undeveloped (there is an existing asphalt path and gazebo on the south end of the site) and is vegetated with native grasses and sage brush. The water naturally drains to the east of the lot where it is intercepted by a 6" deep swale. The swale then empties into the Snow Vista Diversion Channel. The runoff that does not drain into the swale (the southern portion of the lot) drains to an existing drainage structure on the south side of the site which connects to the Snow Vista Diversion Channel down stream. The average slope is between 3% and 4%. There is currently a detention pond on the north side of the site, a swale on the east side (along side Snow Vista Diversion Channel), and a concrete drainage channel on the south side of the site. Due to the relatively small area, the existing conditions were calculated using the entire area of the park. An estimated 3.4 cubic feet per second was calculated for the existing 100 year event. Land treatment "A" was used on the undeveloped park area. Land treatment "D" was used for the existing asphalt trail and the Gazebo. Two drainage studies both conducted by Leedshill-Herkenhoff Inc., the first titled "SNOW VISTA CHANNEL, PHASE III" date July, 1982, and the second titled "AMOLE DMP", 1996 state that the maximum allowable discharge into the Snow Vista Channel to be 1.3 cfs per acre of land. Both of the studies are in the library at AMAFCA.

B. **Developed Conditions**

The developed park will have paved impermeable areas including concrete sidewalks and bench sites and an asphalt parking lot. There will also be a drip irrigated landscaped areas for native shrubs and trees, irrigated grass areas and a sand area for a playground. The following is a summary of the site. As the above mentioned drainage study stated, the allowable peak discharge is 1.3 cfs per acre. The park site could release 2.49 acres x 1.3 cfs/acre = 3.24 cfs allowed to channel from the park site.

For the developed conditions the park was divided into 3 sub-basins.

Basin A encompasses 2.02 acres with 57.4% of the site (1.16 ac) is either undisturbed or slightly modified (graded only) soil, or sand; land treatment A was used. 19.8% of the site (0.40 ac) is turf; land treatment B was used. 8.9% of the site (0.18 ac) is crushed fines on weed fabric; land treatment C was used. 13.9% of the site (0.28 ac) is concrete or asphalt; land treatment D was used. The sidewalks will have a 2% cross slope directed toward the turf area on the north, south, and west side and toward the swale on the east side of the sidewalk. An estimated 4.0 cfs discharge from Basin A in the 100 year storm.

Basins B encompasses 0.306 acres all of which is undisturbed; land treatment A was used. This area now drains to the Snow Vista Channel. An estimated 0.40 cfs discharge from Basin B in the 100 year storm.

Basin C encompasses 0.16 acres all of which is undisturbed; land treatment A was used. This area now drains to the tributary channel that drains to the Snow Vista Channel as shown on sheet 4 of 15 of this plan set. An estimated 0.2 cfs end up in the Snow Vista Channel in the 100 year storm.

The total developed peak discharge from the park is 4.6 cfs. 4.6 cfs exceeds the allowable 3.24 cfs (2.49 ac x 1.3 cfs/ac = 3.24 cfs) by 1.36 cfs. Basin B and C discharge a total of 0.6 cfs to the Snow Vista Channel. That leaves and allowable discharge of 3.24 cfs - 0.6 cfs = 2.64 cfs.

A proposed detention pond shall be constructed to intercept all of the Basin A discharge. A concrete rectangular weir section shall be constructed to release no more 2.63 cfs in the 100 year storm. This is approximately the maximum allowable peak discharge from this site. See pond and outlet structure details on sheet 4 of the plans set for details. An AHYMO run was routed through the pond to evaluate the weir section. The summary of this run is shown on this page. As you can see the peak entering the pond from Basin A is 4.0 cfs. The pond volume is 0.039 ac-ft with a discharge through the outlet structure of 2.63 cfs.

Summary

The existing 100 year discharge from the park site is 3.4 cfs. The developed 100 year discharge from the park is 4.63 cfs. The proposed calculated discharge to the Snow Vista Diversion Channel is: 2.63 cfs from Basin A, 0.4 cfs from Basin B, and 0.2 cfs from Basin C, for a total discharge of 3.23 cfs. The allowable discharge to the channel is 3.24 cfs. The developed 100 year detainage volume needed in the park is 0.039 ac-ft (1699 cubic feet) with an outlet Q of 2.63 cfs. The capacity of Snow Vista Diversion Channel is not exceeded by the additional volume that the developed park will produce.

POND VOLUME CALCULATIONS

POND VOLUME CALCULATIONS:

Emergency Spillway Elevation = 0.00

Elevation	Length of pond	Width of pond	Area	Incremental Volume	Cumulative volume	Emergency Equals Discharge Coefficient "C"	Spillway Primary Length "L"	Discharge Head (h)	Discharge Q= CL(h)^1.5	Total Discharge
(ft)	feet	feet	(acres)	(ac-ft)	(ac-ft)		(ft)	(ft)	(cfs)	(cfs)
(a)			(a)	(b)		(e)				
0.10	11.00	250.00	0.063	0.0032	0.0032	1.50	3.50	0.10	0.17	0.166
0.20	11.00	250.00	0.063	0.0063	0.0095	1.50	3.50	0.20	0.47	0.470
0.30	11.00	250.00	0.063	0.0063	0.0158	1.50	3.50	0.30	0.86	0.863
0.40	11.00	250.00	0.063	0.0063	0.0221	1.50	3.50	0.40	1.33	1.328
0.50	11.00	250.00	0.063	0.0063	0.0284	1.50	3.50	0.50	1.86	1.856
0.60	11.00	250.00	0.063	0.0063	0.0347	1.50	3.50	0.60	2.44	2.440
0.70	11.00	250.00	0.063	0.0063	0.0410	1.50	3.50	0.70	3.07	3.075
0.80	11.00	250.00	0.063	0.0063	0.0473	1.50	3.50	0.80	3.76	3.757
0.90	11.00	250.00	0.063	0.0063	0.0537	1.50	3.50	0.90	4.48	4.483
1.00	11.00	250.00	0.063	0.0063	0.0600	1.50	3.50	1.00	5.25	5.250

(a) Elevations and areas measured on .25"= survey shots
(b) Average area method
(c) From "Handbook of Hydraulics" Brater, King, Lindell, Wei. 7th ed. - NA
(d) area = 3.14159 * radius ^2
(e) From "Handbook of Hydraulics" Brater, King, Lindell, Wei. 7th ed. page 5.25

WIER EQUATION

$$Q = CLH^{1.5}$$

WHERE C = DISCHARGE COEFICIENT
L = LENTH OF WIER IN FT.
H = DEPTH OF FLOW IN FT.

BASIN A AHYMO SUMMARY FILE

AHYMO POND SUMMARY:
PEAK DISCHARGE = 2.630 CFS — PEAK OCCURS AT HOUR 1.65
MAXIMUM WATER SURFACE ELEVATION = 0.630
MAXIMUM STORAGE = 0.0366 AC-FT

```
AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -          - VERSION: 1997.026   RUN DATE (MON/DAY/YR) =09/14/1999
INPUT FILE = N:\599608\DOCUMS~1\NEWFOL~1\TEST.TXT                  USER NO.= AHYMO-S-9702c01SEC01A-AH

          FROM TO                    PEAK    RUNOFF                TIME TO CFS   PAGE = 1
   HYDROGRAPH ID ID     AREA  DISCHARGE  VOLUME   RUNOFF  PEAK  PER  COMMAND
  IDENTIFICATION NO. NO.  (SQ MI)  (CFS)   (AC-FT)  (INCHES) (HOURS) ACRE  NOTATION

 *S   THIS IS AN AHYMO HYDROLOGIC MODEL FOR:
 *S   Project Name -SUNRISE TERRACE PARK
 *S     MODEL DESCRIPTION - MODLING 2.02 ACRE PARK FOR CONTROLED RELEASE
 *S     100-yr. 24-hr. storm
 *S     Development Condition - Can release up to 1.3 cfs per acre
 *S   into the Snow Vista Channel
 *S       FILE NAME: SUNRISE1.DAT
 *S       USE PROCEDURES FROM COA DPM 22.2
 *S       PREPARED BY SMITH ENGINEERING (Rick Devine)
 *S       Rainfall Zone 1
 *S
START                                                    TIMD=    .00
LOCATION              BERNALILLO COUNTY
RAINFALL  TYPE= 2                                        RAIN24=  2.660
 *S
 *S     The following uses entire park as one basin
 *S
COMPUTE NM HYD      1.00  -  1   .00316    3.96   .134   .79482  1.500  1.957 PER IMP=  14.00
 *S Pond for basin ,xerascaped area  250 ft x 11 ft +/-
ROUTE RESERVOIR     1.00  1  2   .00316    2.63   .144   .85385  1.650  1.300 AC-FT=   .037
 *S
FINISH
```

AS BUILT INFORMATION
CONTRACTOR
WORK STAKED BY — DATE
INSPECTIONS — DATE
ACCEPTANCE — DATE
FIELD VERIFICATION BY — DATE
DRAWINGS CORRECTED BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE
NO.

BENCH MARKS
1) SAS MH AT INT. OF PASO FINO PL. & 102ND ST. RIM EL. 5197.81
2) SAS MH AT INT OF ANDALUSION AVE. & 102ND ST. RIM EL. 5196.39
3) SAS MH ON 102ND ST. AT SW CORNER OF SITE. RIM EL. 5195.65
4) SAS MH EAST OF CHANNEL, NE OF PED BRIDGE. RIM EL. 5185.99
5) SAS MH EAST OF CHANNEL, NORTH OF BM #4. RIM EL. 5188.86

SURVEY INFORMATION
FIELD NOTES
NO. | BY

ENGINEERS SEAL
RICHARD J. DEVINE — STATE OF NEW MEXICO — 13282 — REGISTERED PROFESSIONAL ENGINEER
9/17/99

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY RJD — DATE SEPT., 1999
DRAWN BY SEC — DATE SEPT., 1999
CHECKED BY RJC — DATE SEPT., 1999

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Smith Engineering Company
A Full Service Engineering Company
5460 Uptown Boulevard, N.E. Suite 302B Albuquerque, New Mexico 87110

CITY OF ALBUQUERQUE
CAPITAL IMPLEMENTATION PROGRAM
LANDSCAPE ARCHITECTURE AND CONSTRUCTION SERVICES

TITLE: SUNRISE TERRACE PARK
DRAINAGE CALCULATIONS AND ANALYSIS

Design Review Committee | City Engineer Approval | Last Design Update | Mo. / Day / Yr. | Mo. / Day / Yr.

City Project No. 579272 | Zone Map No. L-9-Z | Sheet 5 Of 12

P:\DRAICALC.DWG 03/17/99 14:37:53

DESIGN POINT TABLE

POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
4	1477007.82	351737.91	5196.07	PI
5	1477017.02	351738.12	5196.12	PC
8	1477032.21	351741.18	5196.11	PT
9	1477058.92	351751.63	5196.00	PC
12	1477098.82	351753.65	5196.24	PT
13	1477118.71	351748.10	5196.58	PC
16	1477163.56	351749.52	5196.75	PRC
19	1477242.01	351741.46	5197.67	PRC
22	1477258.52	351737.38	5197.92	PT
23	1477269.26	351737.97	5197.01	PI
24	1477173.17	351798.68	5195.12	PC
27	1477199.25	351791.31	5195.86	PRC
30	1477224.93	351784.81	5196.84	PT
31	1477271.43	351784.81	5197.23	PI
32	1477083.94	351905.65	5192.91	PI
33	1477084.28	351889.86	5193.31	PC
36	1477078.67	351869.45	5193.68	PT
37	1477068.13	351852.57	5194.06	PC
40	1477073.58	351824.47	5194.32	PT
41	1477085.34	351815.91	5194.64	PC
44	1477096.05	351801.38	5195.00	PT
45	1477100.11	351789.54	5195.24	PC
48	1477107.51	351781.53	5195.48	PT
49	1477116.04	351777.83	5195.62	PC
52	1477173.77	351820.69	5194.53	PRC
55	1477181.17	351859.85	5194.00	PRC
58	1477187.79	351896.34	5193.11	PCC
61	1477151.67	351919.46	5192.35	PT
62	1477150.55	351919.10	5192.35	PC
65	1477114.15	351918.33	5192.43	PRC
68	1477087.52	351916.48	5192.46	PRC
71	1477021.43	351917.19	5191.39	PRC
74	1476981.44	351929.49	5189.76	PCC
77	1476954.72	351930.43	5188.45	PT
78	1476915.15	351926.23	5187.69	PI
79	1477004.07	351856.07	5193.14	PC
82	1477012.08	351899.01	5191.59	PT
83	1477018.60	351913.15	5191.49	PI
84	1477023.87	351912.92	5191.48	PC
85	1477021.32	351911.89	5191.54	PT
86	1477014.41	351911.23	5191.38	PC
87	1477011.66	351918.00	5191.22	PT
88	1477075.97	351909.49	5192.74	PT
89	1477080.93	351905.69	5192.94	PC
90	1477086.93	351905.72	5192.89	PT
91	1477094.59	351915.65	5192.53	PC
92	1477104.85	351779.50	5195.55	PT
93	1477106.64	351773.47	5195.75	PC
94	1477112.30	351771.34	5195.82	PT
95	1477118.32	351773.74	5195.75	PC
96	1477108.65	351754.02	5196.65	PC
97	1477106.18	351759.74	5196.16	PT
98	1477098.98	351758.94	5196.27	PT
99	1477096.81	351757.91	5196.42	PT
100	1477171.10	351793.68	5195.19	PT
101	1477172.95	351794.68	5195.19	PC
102	1477177.35	351802.33	5195.11	PC
103	1477175.65	351804.82	5195.02	PT
104	1477245.43	351777.81	5197.32	PC
105	1477242.43	351780.81	5197.23	PT
106	1477254.10	351740.49	5197.84	PC
107	1477251.43	351743.47	5197.77	PT
108	1477245.43	351748.16	5197.66	PC
109	1477240.97	351745.54	5197.66	PT
128	1477269.43	351734.98	5198.13	HC RAMP
130	1477269.43	351740.99	5198.01	HC RAMP

TEMPORARY BENCH MARKS

POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
115	1477280.66	351716.92	5197.81	BENCH MARK
116	1477021.47	351714.90	5196.39	BENCH MARK
117	1476912.67	351714.19	5195.65	BENCH MARK
118	1476908.76	352010.05	5185.99	BENCH MARK
119	1477083.09	352013.29	5186.86	BENCH MARK

102ND ST FLOW LINE ELEVATION DATA

POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
120	1476904.89	351729.35	5195.250	FL
121	1476921.75	351729.46	5195.520	FL
122	1476964.66	351729.76	5195.870	FL
123	1477071.13	351730.26	5196.400	FL
124	1477127.99	351730.51	5196.690	FL
125	1477183.75	351730.80	5197.080	FL
126	1477231.68	351731.09	5197.390	FL
127	1477324.60	351733.74	5198.410	FL

DESIGN POINTS FOR HANDICAP SURFACE

POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
132	1477271.43	351780.81	5197.30	HC RAMP
133	1477263.43	351780.81	5197.97	HC RAMP
134	1477271.43	351788.81	5197.15	HC RAMP
135	1477263.43	351788.81	5197.82	HC RAMP

DESIGN CURVE TABLE

NUMBER	DELTA	RADIUS	TANGENT	ARC LENGTH	CHORD LENGTH
C1	20°03'26"	44.50	7.87	15.58	15.50
C2	36°58'31"	63.00	21.06	40.66	39.95
C3	34°48'45"	75.00	23.51	45.57	44.87
C4	50°10'23"	93.00	43.54	81.44	78.86
C5	34°06'25"	29.00	8.90	17.26	17.01
C6	25°14'51"	62.00	13.89	27.32	27.10
C7	28°23'47"	54.00	13.66	26.76	26.49
C8	33°12'43"	37.03	11.04	21.46	21.17
C9	85°53'32"	21.00	19.55	31.48	28.62
C10	35°01'23"	30.00	9.47	18.34	18.05
C11	47°39'29"	13.50	5.96	11.23	10.91
C12	120°03'16"	41.50	71.96	86.96	71.90
C13	34°36'20"	67.00	20.87	40.47	39.85
C14	35°23'47"	61.00	19.47	37.68	37.09
C15	99°57'20"	28.00	33.34	48.85	42.88
C16	32°16'08"	65.50	18.95	36.89	36.40
C17	37°45'16"	41.25	14.10	27.18	26.69
C18	46°55'42"	83.00	36.03	67.98	66.10
C19	13°58'14"	172.00	21.07	41.94	41.83
C20	16°10'48"	95.00	13.50	26.83	26.74
C21	28°21'47"	89.14	22.53	44.13	43.68

EARTHWORK QUANTITIES

PRISMOIDAL METHOD

ORIGINAL SURFACE	original
FINAL SURFACE	design
CUT COMPACTION FACTOR	0.00 %
FILL COMPACTION FACTOR	30.00 % SWELL
RAW CUT VOLUME	167.56 CY
RAW FILL VOLUME	733.46 CY
CMP FILL VOLUME	592.00 CY

N

15' 0 30' 60'

SCALE: 1" = 30'

NOTES

UNLESS NOTED ON THE PLANS, ALL SIDEWALK CENTERLINES ARE FOR 6' WIDE SIDEWALKS. CENTERLINE POINTS SHOWN SHALL BE OFFSET 3' LEFT AND RIGHT.

WHERE SIDEWALKS ARE NOT SYMMETRICAL ABOUT THE CENTERLINE, ADDITIONAL POINTS HAVE BEEN SHOWN ON THIS PLAN FOR SET THE EDGE OF SIDEWALK.

ALL SIDEWALKS SHALL HAVE A CROSS SLOPE OF NO MORE THAN 2%. NO NEW SIDEWALK SHALL HAVE A GRADE STEEPER THAN 5% EXCEPT AT WHEEL CHAIR RAMPS WHICH SHALL BE NO STEEPER THAN 8.33 % (12:1)

6" THICK SIDEWALK FOR COA MAINTENANCE ACCESS. ALL OTHER SIDEWALK PAVING SHALL BE 4" THICK UNLESS OTHERWISE NOTED.

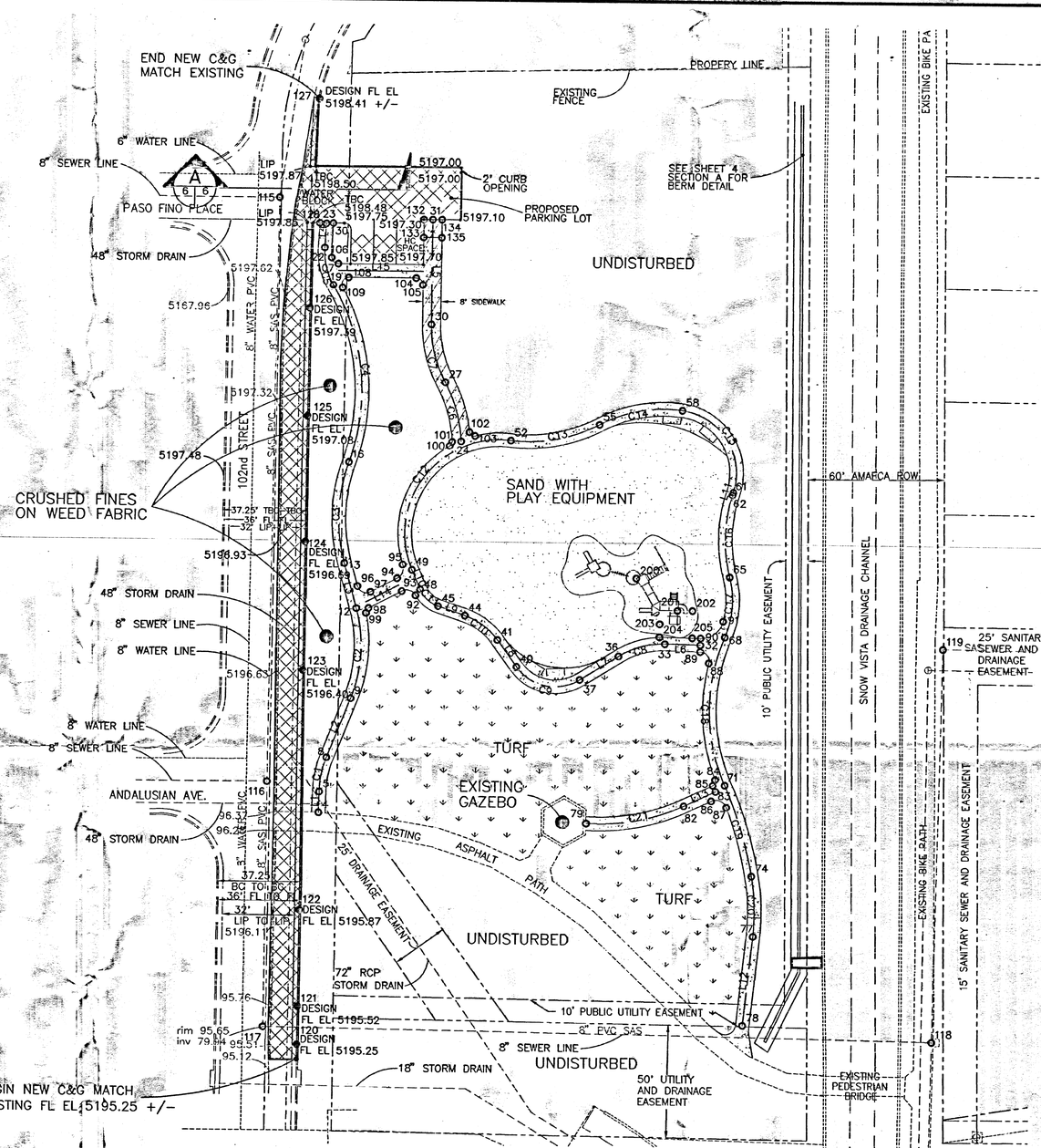
CONSTRUCT NEW PAVEMENT SECTION PER SECTION D ON SHEET 4 AND PER COA STANDARD DRAWING 2405

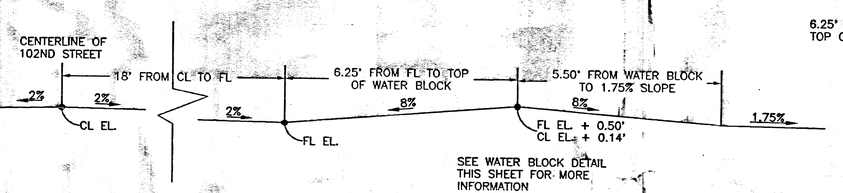
DESIGN LINE TABLE

NUMBER	DIRECTION	DISTANCE
L1	N 01°19'40" E	9.20'
L2	N 21°23'06" E	28.68'
L3	N 15°35'25" W	20.66'
L4	N 03°09'22" E	10.76'
L5	NORTH	46.50'
L6	N 88°45'46" W	15.79'
L7	S 58°01'57" W	19.91'
L8	N 36°04'32" W	14.55'
L9	N 71°05'55" W	12.51'
L10	N 23°26'26" W	9.30'
L11	S 17°21'37" W	1.18'
L12	S 06°04'05" W	39.79'
L13	N 65°15'05" E	15.57'
L14	S 62°12'21" W	16.43'
L15	NORTH	37.34'

ADA PLAY GROUND EQUIPMENT COORDINATES

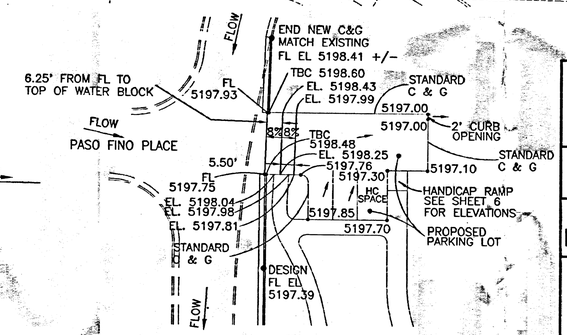
NODE NO.	NORTH	EAST	ELEV	DESCRIPTION
200	1477113.26	351876.95	5193.630	FOOTING
201	1477099.11	351895.30	5193.260	FOOTING
202	1477099.11	351902.01	5193.070	FOOTING
203	1477093.08	351887.51	5193.380	FOOTING
204	1477087.25	351887.49	5193.680	FOOTING
205	1477087.01	351902.01	5193.370	FOOTING





SECTION A – WATER BLOCK PROFILE

SCALE: = NTS



WATER BLOCK PLAN

SCALE: = NTS

AS BUILT INFORMATION

CONTRACTOR		DATE
WORK STAKED BY		DATE
INSPECTOR'S ACCEPTANCE BY		DATE
FIELD VERIFICATION BY		DATE
DRAWINGS CORRECTED BY		DATE

MICRO-FILM INFORMATION

RECORDED BY DATE

NO.

BENCH MARKS

1) SAS MH AT INT. OF PASO FINO PL & 102ND ST. RIM EL. 5197.81
2) SAS MH AT INT OF ANDALUSION AVE. & 102ND ST. RIM EL. 5196.39
3) SAS MH ON 102ND ST. AT SW CORNER OF SITE. RIM EL. 5195.65
4) SAS MH EAST OF CHANNEL, NE OF PED. BRIDGE. RIM EL. 5185.99
5) SAS MH EAST OF CHANNEL, NORTH OF BM #4. RIM EL. 5186.86

SURVEY INFORMATION

NO.	BY	DATE	FIELD NOTES

ENGINEERS SEAL

J. DEVINE TOMKO NEW MEXICO REGISTERED PROFESSIONAL ENGINEER (13282) 9/17/99

NO.	DATE	REMARKS	BY

REVISIONS

DESIGN

DESIGNED BY RJD	DATE SEPT., 1999	
DRAWN BY SEC	DATE SEPT., 1999	
CHECKED BY PJC	DATE SEPT., 1999	

599608

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8400 Uptown Boulevard, N.E. Suite 300E Albuquerque, New Mexico 87110

CITY OF ALBUQUERQUE
CAPITAL IMPLEMENTATION PROGRAM
LANDSCAPE ARCHITECTURE AND CONSRUCTION SERVICES

TITLE: SUNRISE TERRACE PARK

HORIZONTAL LAYOUT PLAN

Design Review Committee	City Engineer Approval	Last Design Update	Mo. / Day / Yr.	Mo. / Day / Yr.

City Project No. 579272 | Zone Map No. L-9-Z | Sheet 6 Of 12

Drawing Name: n:\128.sis\dwg\sunrise\s-ptpln.dwg
Saved on: January 20, 1999 at 7:01 PM

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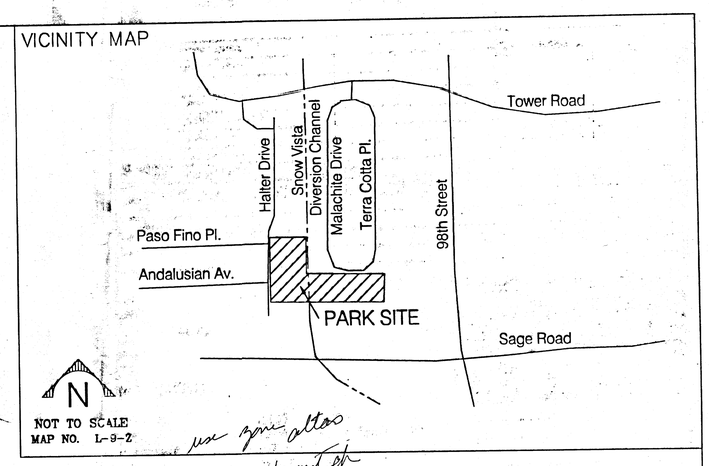
1706

CITY OF ALBUQUERQUE
CAPITAL IMPLEMENTATION PROGRAM
LANDSCAPE ARCHITECTURE AND CONSTRUCTION SERVICES

SUNRISE TERRACE PARK IMPROVEMENTS

HALTER DRIVE SW — 4.71 ACRES

VICINITY MAP



use spec altos
doesn't match

INDEX TO DRAWINGS

SHEET NO.	TITLE
1	TITLE SHEET, VICINITY MAP, INDEX TO DRAWINGS
2	GENERAL NOTES & LEGEND
3	SITE PLAN
4	DRAINAGE, GRADING, AND BASIN DEFINITION PLAN
5	DRAINAGE CALCULATIONS AND ANALYSIS
6	HORIZONTAL GEOMETRY PLAN
7	PLAY AREA LAYOUT AND SITE DETAILS
8	SITE DETAILS
9	IRRIGATION PLAN, NOTES, LEGEND, AND DETAILS
10	PLANTING PLAN, NOTES, LEGEND, AND DETAILS
11	TRAFFIC CONTROL
12	TRAFFIC CONTROL

RECEIVED AUG 10 1999 HYDROLOGY SECTION

APPROVED	ENGINEER	DATE
AMAFCA		

RECEIVED AUG 10 1999 HYDROLOGY SECTION

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SEC JOB # 599608
Smith Engineering Company
A Full Service Engineering Company

REV.	SHEETS	CITY ENGINEER	DATE	USER DEPARTMENT	DATE	USER DEPARTMENT	DATE

ENGINEERS STAMP & SIGNATURE

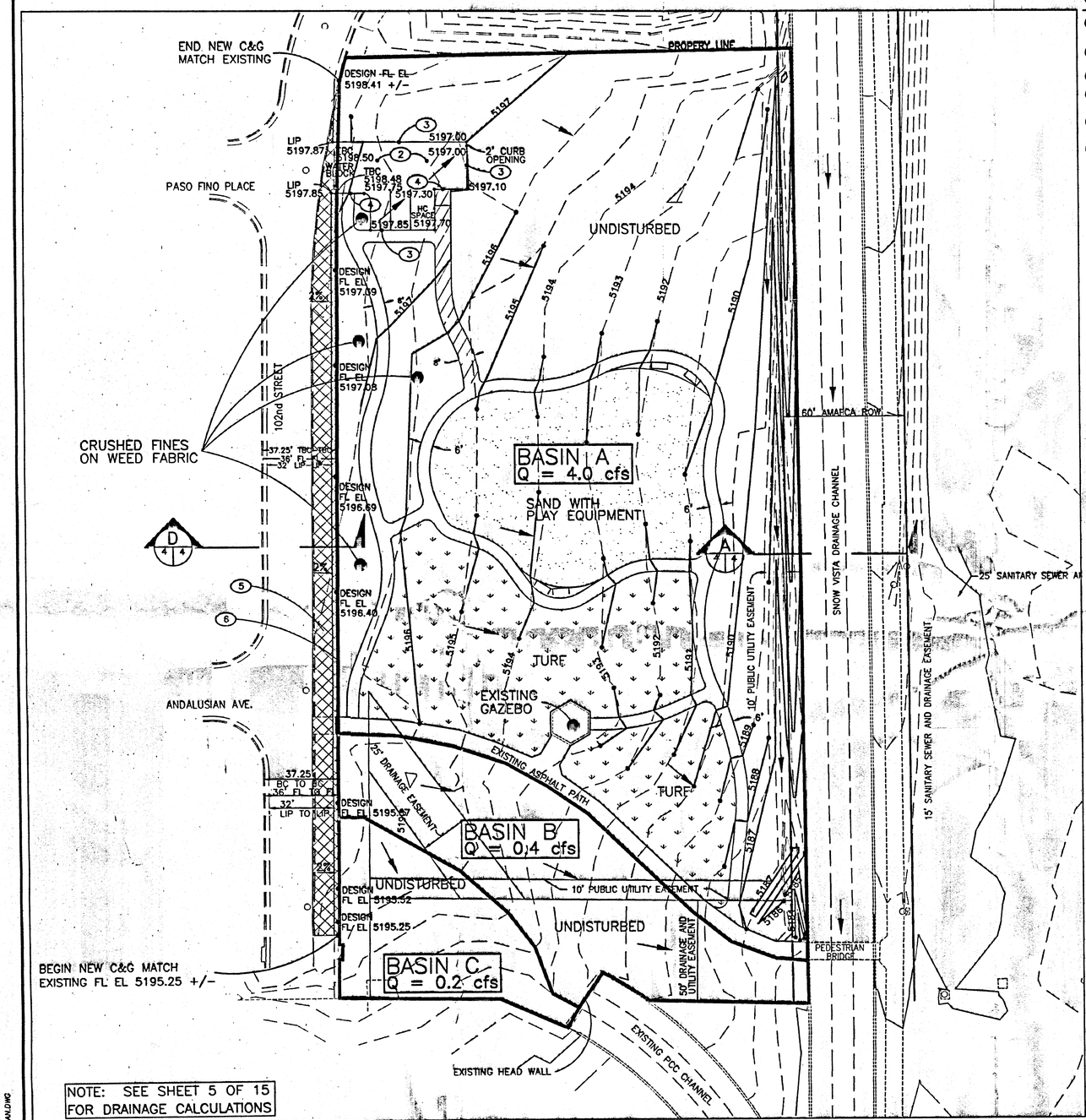
APPROVED	ENGINEER	DATE
DRC Chairman		
Transportation		
Water/Wastewater		
Hydrology		
C I P		
Constr. Mngmt.		
Constr. Coord.		

APPROVED FOR CONSTRUCTION

CITY ENGINEER DATE

PROJECT NUMBER 579272

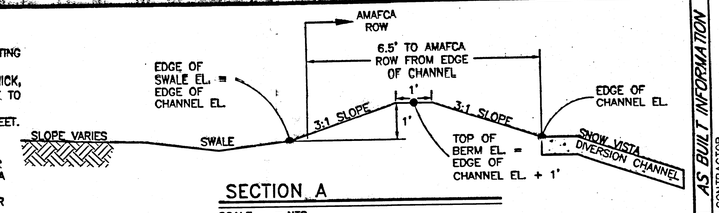
SHEET 1 OF 12



NOTE: SEE SHEET 5 OF 15 FOR DRAINAGE CALCULATIONS

KEYED NOTES:

1. SAWCUT, REMOVE, AND DISPOSE OF EXISTING ASPHALT CURB.
2. CONSTRUCT ASPHALT PARKING LOT 2" THICK, 1500 LB. SLAB. COMPACT 12" SUBGRADE TO 95% ASTM D-1557.
3. BUILD HEAD CURB PER DETAILS THIS SHEET.
4. BUILD WHEEL CHAIR ACCESSIBLE RAMP. DO NOT EXCEED 12:1 SLOPE ON RAMP.
5. CONSTRUCT NEW PAVEMENT SECTION PER SECTION D ON THIS SHEET AND PER COA STANDARD DRAWING 2405
6. CONSTRUCT STANDARD CURB AND GUTTER PER COA STANDARD DRAWING 2415



SECTION A

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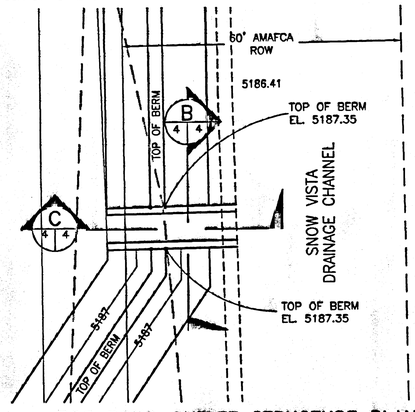

PCC POND OUTLET STRUCTURE PLAN

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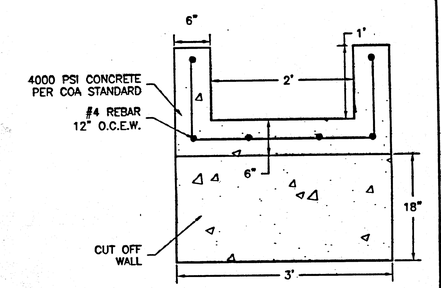

SECTION B

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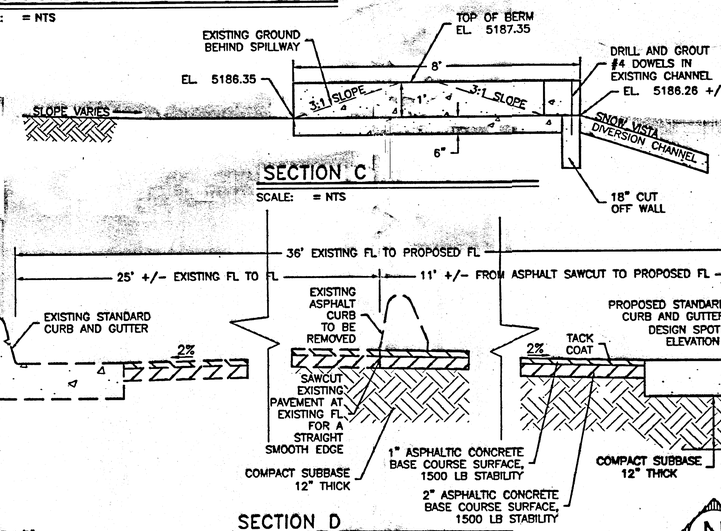


SECTION C

SCALE: = NTS

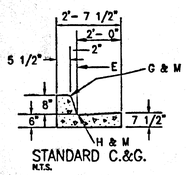
SECTION D

SCALE: = NTS

N

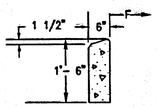
15' 0 30' 60'

SCALE: 1" = 30'



STANDARD C.&G.

N.T.S.



PCC HEADER CURB

N.T.S.

GENERAL NOTES:

1. CURBS, GUTTERS & CUT-OFF WALL TO BE CON-CONSTRUCTED OF P.C.C.
2. FOR STANDARD AND MEDIAN C. & G. PROVIDE CONTRACTION JTS. 6' O.C. MAX., ALSO PROVIDE 1/2" EXP. JTS. 48" O.C. MAX. AT CURB RETURNS & AT EACH SIDE OF DRIVEWAY.
3. FOR ALL OTHER C. & G. PROVIDE CONTR. JTS. AT 10' O.C., PROVIDE EXP. JTS. 50' O.C. & ADJACENT TO BUILDINGS & WALLS.
4. EDGES NOT SPECIF. DIMENSIONED SHALL BE EDGED WITH A 3/8" EDGING TOOL.
5. STD. C. & G. SHALL BE USED FOR NEW CONSTR. UNLESS OTHERWISE APPROVED BY THE ENGINEER.
6. REMOVE & REPLACE 12" WIDE STRIP OF PAVEMENT BEYOND LIP OF GUTTER WHEN CONSTRUCTING C. & G. ADJACENT TO EXIST. A.C. PAVEMENT.
7. STD. C. & G. REQUIRE FULL FORM ON ALL FACES EXCEPT WITH PRIOR APPROVAL OF ENGINEER.

CONSTRUCTION NOTES:

E. THEORETICAL FACE OF CURB OR FLOWLINE.

F. TRAFFIC SIDE.

G. 3/4" RADIUS.

H. 1 1/2" RADIUS.

M. DIMENSIONS AT ROUNDED CORNERS MEASURED TO INTERSECTION OF STRAIGHT LINES.

LEGEND:

- EXISTING CHAIN LINK FENCE
- EXISTING WOOD FENCE
- EXISTING RAWD IRON FENCE
- EX OHE — EXISTING OVERHEAD ELECTRIC
- EXISTING SAS MANHOLE
- NEW STORM DRAIN
- EXISTING STORM DRAIN
- NEW STORM DRAIN MANHOLE
- EXISTING STORM DRAIN MANHOLE
- EXISTING CONCRETE SIDEWALKS AND CURB LINES
- NEW CONCRETE SIDEWALKS AND CURB LINES
- HORIZONTAL AND VERTICAL CONTROL POINT
- NEW STORM DRAIN FLOW ARROW
- 84.33 — NEW SPOT ELEVATION
- 5400 — NEW INDEX CONTOUR LINE
- NEW CONTOUR LINE
- 5400 — EXISTING INDEX CONTOUR LINE
- EXISTING CONTOUR LINE
- EXISTING WATER VALVE
- COA — CITY OF ALBUQUERQUE
- TOC — TOP OF CURB
- FL — FLOWLINE
- TOP — TOP OF PIPE
- X 87.5 — EXISTING SPOT ELEVATION
- IE — INVERT ELEVATION
- EXISTING CATCH BASIN
- NEW CATCH BASIN

AS BUILT INFORMATION

CONTRACTOR		DATE
WORK STAKED BY		DATE
INSPECTOR'S ACCEPTANCE BY		DATE
FIELD VERIFICATION BY		DATE
DRAWINGS CORRECTED BY		DATE

MICRO-FILM INFORMATION

RECORDED BY	DATE
NO.	

BENCH MARKS

1) SAS MH AT INT. OF PASO FINO PL & 102ND ST. RIM EL. 5197.81
2) SAS MH AT INT OF ANDALUSION AVE. & 102ND ST. RIM EL. 5196.39
3) SAS MH ON 102ND ST. AT SW CORNER OF SITE. RIM EL. 5195.65
4) SAS MH EAST OF CHANNEL, NE OF PED BRIDGE. RIM EL. 5185.99
5) SAS MH EAST OF CHANNEL, NORTH OF BM #4. RIM EL. 5186.86

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEERS SEAL

STATE OF NEW MEXICO — J. DEVINE TAPIA — 13283 — REGISTERED PROFESSIONAL ENGINEER

REVISIONS

NO.	DATE	REMARKS	BY	DATE
		DESIGN	R.JD	AUG, 1999

DESIGNED BY	R.JD	DATE AUG, 1999
DRAWN BY	SEC	DATE AUG, 1999
CHECKED BY	PJC	DATE AUG, 1999

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5971 Uptown Boulevard, N.E. Suite 100B Albuquerque, New Mexico 87109

CITY OF ALBUQUERQUE
CAPITAL IMPLEMENTATION PROGRAM
LANDSCAPE ARCHITECTURE AND CONSRUCTION SERVICES

TITLE: SUNRISE TERRACE PARK

DRAINAGE & GRADING PLAN & BASIN DEFINITIONS

Design Review Committee	City Engineer Approval	Last Design Update	Mo. / Day / Yr.	Mo. / Day / Yr.

City Project No.	Zone Map No.	Sheet	Of
579272	L-9-Z	4	15

Drawing name: N:\98635\OPTION\SITEPLAN.DWG
Saved on: January 20, 1999 at 7:01 PM

EXISTING HYDROLOGIC ANALYSIS

ALL TC'S ARE ASSUMED TO BE 12 MINUTES

PROJECT NAME = Sunrise Terrace Park

EXISTING HYDROLOGIC CALCULATIONS
(for small watersheds < 40 acres (per DPM Section 22)

Precipitation Zone = 1

Table A-9 (DPM) Peak Discharge (cfs/acre)

FORMULA: Total Qp (cfs) = QpA*Aa+QpB*Ba+QpC*Ca+QpD*Da — Note - "a" = area in acres

Basin & Condition or Analysis Point	Return Period 6-hr.	Qp per Land Treatment Type (cfs/acre) and Land Treatment Type (acres) QpA	A (ac)	A (%)	QpB	B (ac)	B (%)	QpC	C (ac)	C (%)	QpD	D (ac)	D (%)	Total Area (ac.)	Total Qp (cfs)
ENTIRE SITE	100	1.29	2.4220	97.4	2.03	0.0000	0.0	2.87	0.0000	0.0	4.37	0.0640	2.6	2.4860	3.4
ENTIRE SITE	10	0.24	2.4220	97.4	0.78	0.0000	0.0	1.49	0.0000	0.0	2.89	0.0640	2.6	2.4860	0.8

Precipitation Zone = 1

Table A-8 (DPM) Excess Precipitation - E - (in.)

FORMULAS: Weighted E (in.) = EaA*Aa+EaB*Ba+EaC*Ca+EaD*Da / (total area "a") — Note - "a" = area in acres

Total Runoff Volume (ac-ft) = Weighted E (in.) * (total area "a") / (12 in./ft)

Basin & Condition or Analysis Point	Return Period 6-hr.	Rainfall Excess - E per Land Treatment Type (inches) and Land Treatment Type (acres) EaA	A (ac)	A (%)	EaB	B (ac)	B (%)	EaC	C (ac)	C (%)	EaD	D (ac)	D (%)	Total Area (ac)	Weighted E (inches)	Runoff Volume (ac-ft)
ENTIRE SITE	100	0.44	2.4220	97.4	0.67	0.0000	0.0	0.99	0.0000	0.0	1.97	0.0640	2.6	2.4860	0.48	0.0993
ENTIRE SITE	10	0.08	2.4220	97.4	0.22	0.0000	0.0	0.44	0.0000	0.0	1.24	0.0640	2.6	2.4860	0.11	0.0228
TOTAL	100		2.4220			0.0000			0.0000			0.0640		2.4860		0.0993
	10		2.4220			0.0000			0.0000			0.0640		2.4860		0.0228

DEVELOPED HYDROLOGIC ANALYSIS

ALL TC'S ARE ASSUMED TO BE 12 MINUTES

PROJECT NAME = Sunrise Terrace Park

DEVELOPLED HYDROLOGIC CALCULATIONS
(for small watersheds < 40 acres (per DPM Section 22)

Precipitation Zone = 1

Table A-9 (DPM) Peak Discharge (cfs/acre)

FORMULA: Total Qp (cfs) = QpA*Aa+QpB*Ba+QpC*Ca+QpD*Da — Note - "a" = area in acres

Basin & Condition or Analysis Point	Return Period 6-hr.	Qp per Land Treatment Type (cfs/acre) and Land Treatment Type (acres) QpA	A (ac)	A (%)	QpB	B (ac)	B (%)	QpC	C (ac)	C (%)	QpD	D (ac)	D (%)	Total Area (ac.)	Total Qp (cfs)
A	100	1.29	1.1600	57.4	2.03	0.4000	19.8	2.87	0.1800	8.9	4.37	0.2800	13.9	2.0200	4.0
A	10	0.24	1.1600	57.4	0.78	0.4000	19.8	1.49	0.1800	8.9	2.89	0.2800	13.9	2.0200	1.7
B	100	1.29	0.3100	101.3	2.03	0.0000	0.0	2.87	0.0000	0.0	4.37	0.0000	0.0	0.3060	0.4
B	10	0.24	0.3100	101.3	0.78	0.0000	0.0	1.49	0.0000	0.0	2.89	0.0000	0.0	0.3060	0.1
C	100	1.29	0.1600	100.0	2.03	0.0000	0.0	2.87	0.0000	0.0	4.37	0.0000	0.0	0.1600	0.2
C	10	0.24	0.1600	100.0	0.78	0.0000	0.0	1.49	0.0000	0.0	2.89	0.0000	0.0	0.1600	0.0
TOTALS	100		1.6300			0.4000			0.1800			0.2800		2.4860	4.85
	10		1.6300			0.4000			0.1800			0.2800		2.4860	1.77

Precipitation Zone = 1

Table A-8 (DPM) Excess Precipitation - E - (in.)

FORMULAS: Weighted E (in.) = EaA*Aa+EaB*Ba+EaC*Ca+EaD*Da / (total area "a") — Note - "a" = area in acres

Total Runoff Volume (ac-ft) = Weighted E (in.) * (total area "a") / (12 in./ft)

Basin & Condition or Analysis Point	Return Period 6-hr.	Rainfall Excess - E per Land Treatment Type (inches) and Land Treatment Type (acres) EaA	A (ac)	A (%)	EaB	B (ac)	B (%)	EaC	C (ac)	C (%)	EaD	D (ac)	D (%)	Total Area (ac)	Weighted E (inches)	Runoff Volume (ac-ft)
A	100	0.44	1.1600	57.4	0.67	0.4000	19.8	0.99	0.1800	8.9	1.97	0.2800	13.9	2.0200	0.75	0.1257
A	10	0.08	1.1600	57.4	0.22	0.4000	19.8	0.44	0.1800	8.9	1.24	0.2800	13.9	2.0200	0.30	0.0506
B	100	0.44	0.3100	101.3	0.67	0.0000	0.0	0.99	0.0000	0.0	1.97	0.0000	0.0	0.3060	0.45	0.0114
B	10	0.08	0.3100	101.3	0.22	0.0000	0.0	0.44	0.0000	0.0	1.24	0.0000	0.0	0.3060	0.08	0.0021
C	100	0.44	0.1600	100.0	0.67	0.0000	0.0	0.99	0.0000	0.0	1.97	0.0000	0.0	0.1600	0.44	0.0059
C	10	0.08	0.1600	100.0	0.22	0.0000	0.0	0.44	0.0000	0.0	1.24	0.0000	0.0	0.1600	0.08	0.0011
TOTALS	100		1.6300			0.4000			0.1800			0.2800		2.4860		0.1429
	10		1.6300			0.4000			0.1800			0.2800		2.4860		0.0537

AHYMO SUMMARY FILE

LOCATION	PEAK DISCHARGE (cfs)	VOLUME (ac-ft)	CFS PER ACRE
PARK	4.01	0.136	1.957
POND*	0.76	0.136	0.371

* DISCHARGE FROM BASIN A INTO SNOW VISTA DIVERSION CHANNEL

SUNRISE TERRACE PARK DRAINAGE ANALYSIS

SUNRISE TERRACE PARK

Sunrise Terrace Park is located on a 2.49 acre parcel of undeveloped land located in the southwest quadrant of Albuquerque. The west side of the park borders 102nd Street. Snow Vista Diversion Channel runs along the east side of the Park, and an existing detention pond is located to the north. Access to the park will be off of 102nd Street. The site slopes vary from 3% to 4%. The climate in this area is considered semi-arid and is hot and dry with an average rainfall of 8 inches. The project is classified as zone x on the flood insurance rate map firm #35001c0336d.

HYDROLOGIC ANALYSIS

The City of Albuquerque's Development Process Manual (DPM) Section 22.2 was used to compute the 100-yr 6-hr peak flows and runoff volumes for the onsite basin. Precipitation is in zone 1. Tables A-8 and A-9 were used for these calculations. The park was divided into three basins based on developed runoff patterns. Basin A encompasses the northern portion of the site, everything north of the existing asphalt path. A 1 foot tall berm will be constructed on the east side of basin A to divert the flow to the southeast corner of basin A, then discharged to Snow Vista Diversion Channel at a rate less than historic. Basins B and C will remain unchanged from existing conditions and will freely discharge into the Snow Vista Diversion Channel. The existing condition flows were computed for comparison purposes only. There are no off-site flows entering the site for either existing or developed conditions.

A. Existing Conditions - onsite

There is no off-site drainage entering the park site. The existing site is mostly undeveloped (there is an existing asphalt path and gazebo on the south end of the site) and is vegetated with native grasses and sage brush. The water naturally drains to the east of the lot where it is intercepted by a 6" deep swale. The swale then empties into the Snow Vista Diversion Channel. The runoff that does not drain into the swale (the southern portion of the lot) drains to an existing drainage structure on the south side of the site which connects to the Snow Vista Diversion Channel down stream. The average slope is between 3% and 4%. There is currently a detention pond on the north side of the site, a swale on the east side (along side Snow Vista Diversion Channel), and a concrete drainage channel on the south side of the site. Due to the relatively small area, the existing conditions were calculated using the entire area of the park. An estimated 3.4 cubic feet per second was calculated for the existing 100 year event. Land treatment "A" was used on the undeveloped park area. Land treatment "D" was used for the existing asphalt trail and the Gazebo. A drainage study, titled "Sunrise Meadows Subdivision" prepared by Ryals Engineering, 3/29/96, was conducted on Sunrise Meadows Subdivision which is located on the east side of the Snow Vista Channel. Page three states "it was assumed the maximum allowable discharge into the diversion channel is 1.3 cfs per acre of land. This discharge was also confirmed with AMAFCA.

reference master plan not

B. Developed Conditions

The developed park will have paved impermeable areas including concrete sidewalks and bench sites and an asphalt parking lot. There will also be a drip irrigated landscaped areas for native shrubs and trees, irrigated grass areas and a sand area for a playground. The following is a summary of the site. As the above mentioned drainage study stated, the allowable peak discharge is 1.3 cfs per acre. The park site could release 2.49 acres x 1.3 cfs/acre = 3.24 cfs allowed to channel from the park site.

For the developed conditions the park was divided into 3 sub-basins.

Basin A encompasses 2.02 acres with 57.4% of the site (1.16 ac) is either undisturbed or slightly modified (graded only) soil, or sand; land treatment A was used. 19.8% of the site (0.40 ac) is turf, land treatment B was used. 8.9% of the site (0.18 ac) is crushed fines on weed fabric; land treatment C was used. 13.9% of the site (0.28 ac) is concrete or asphalt; land treatment D was used. The sidewalks will have a 2% cross slope directed toward the turf area on the north, south, and west side and toward the swale on the east side of the sidewalk. An estimated 4.00 cfs discharge from Basin A in the 100 year storm.

Basins B encompasses 0.306 acres all of which is undisturbed, land treatment A was used. This area now drains to the Snow Vista Channel. An estimated 0.40 cfs discharges from Basin B in the 100 year stohm.

Basin C encompasses 0.16 acres all of which is undisturbed; land treatment A was used. This area now drains to the tributary channel that drains to the Snow Vista Channel as shown on sheet 4 of 15 of this plan set; An estimated 0.2 cfs end up in the Snow Vista Channel in the 100 year storm.

The total developed peak discharge from the park is 4.7 cfs. 4.7 cfs exceeds the allowable 3.24 cfs (2.49 ac x 1.3 cfs/ac = 3.24 cfs) by 1.46 cfs. Basin B and C discharge a total of 0.6 cfs to the Snow Vista Channel. That leaves and allowable discharge of 3.24 cfs - 0.6 cfs = 2.64 cfs.

A proposed detention pond shall be constructed to intercept all of the Basin A discharge. A concrete rectangular weir section shall be constructed to release no more 2 cfs in the 100 year storm. This is .64 cfs less than the allowable 2.64 cfs peak discharge. See pond and outlet structure details on sheet 4 of the plans set for details. An AHYMO computer program run was routed through the pond to evaluate the weir section. The summary of this run is shown on this page. As you can see the peak entering the pond from Basin A is 4 cfs. The pond volume is 0.136 ac-ft with a maximum discharge through the outlet structure of 2 cfs.

Summary

The existing 100 year discharge from the park site is 3.4 cfs. The developed 100 year discharge from the park is 4.7 cfs. The proposed calculated discharge to the Snow Vista Diversion Channel is: 2 cfs from Basin A, 0.4 cfs from Basin B, and 0.2 cfs from Basin C, for a total discharge of 2.6 cfs. The allowable discharge to the channel is 3.2 cfs. The developed 100 year detainage volume needed in the park is 0.136 ac-ft (5924 cubic feet) with an outlet Q of 2 cfs. The capacity of Snow Vista Diversion Channel is not exceeded by the additional volume that the developed park will produce.

POND VOLUME CALCULATIONS

POND VOLUME CALCULATIONS:

Emergency Spillway Elevation = 0.00

Elevation	Length of pond	Width of pond	Area	Incremental Volume	Cumulative volume	Emergency Equals Discharge Coefficient "C"	Spillway Primary Length "L"	Discharge Head (h)	Discharge Q= CL(h)^1.5	Total Discharge
(ft)	feet	feet	(acres)	(ac-ft)	(ac-ft)		(ft)	(ft)	(cfs)	(cfs)
(a)			(a)	(b)		(e)				
0.10	25.00	400.00	0.230	0.0115	0.0115	1.50	2.00	0.10	0.09	0.095
0.20	25.00	400.00	0.230	0.0230	0.0344	1.50	2.00	0.20	0.27	0.268
0.30	25.00	400.00	0.230	0.0230	0.0574	1.50	2.00	0.30	0.49	0.493
0.40	25.00	400.00	0.230	0.0230	0.0803	1.50	2.00	0.40	0.76	0.759
0.50	25.00	400.00	0.230	0.0230	0.1033	1.50	2.00	0.50	1.06	1.061
0.60	25.00	400.00	0.230	0.0230	0.1263	1.50	2.00	0.60	1.39	1.394
0.70	25.00	400.00	0.230	0.0230	0.1492	1.50	2.00	0.70	1.76	1.757
0.80	25.00	400.00	0.230	0.0230	0.1722	1.50	2.00	0.80	2.15	2.147
0.90	25.00	400.00	0.230	0.0230	0.1951	1.50	2.00	0.90	2.56	2.561
1.00	25.00	400.00	0.230	0.0230	0.2181	1.50	2.00	1.00	3.00	3.000

(a) Elevations and areas measured on .25"= survey shots
(b) Average area method
(c) From "Handbook of Hydraulics" Brater, King, Lindell, Wei. 7th ed. - NA
(d) area = 3.14159 * radius ^2
(e) From "Handbook of Hydraulics" Brater, King, Lindell, Wei. 7th ed. page 5.25

WIER EQUATION

$Q = CLH^{1.5}$

WHERE C = DISCHARGE COEFICIENT
L = LENTH OF WIER IN FT.
H = DEPTH OF FLOW IN FT.

AS BUILT INFORMATION
CONTRACTOR — DATE
WORK STAKED BY — DATE
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BENCH MARKS
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3) SAS MH ON 102ND ST. AT SW CORNER OF SITE. RIM EL. 5195.65
4) SAS MH EAST OF CHANNEL, NE OF PED BRIDGE. RIM EL. 5185.99
5) SAS MH EAST OF CHANNEL, NORTH OF BM #4. RIM EL. 5186.86

SURVEY INFORMATION
FIELD NOTES
NO. | BY

ENGINEERS SEAL
JOHN J. DEVINE, JR. — STATE OF NEW MEXICO — 13282 — REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY RJD — DATE AUG. 1999
DRAWN BY SEC — DATE AUG. 1999
CHECKED BY PJC — DATE AUG. 1999

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CITY OF ALBUQUERQUE
CAPITAL IMPLEMENTATION PROGRAM
LANDSCAPE ARCHITECTURE AND CONSTRUCTION SERVICES

TITLE: SUNRISE TERRACE PARK
DRAINAGE CALCULATIONS AND ANALYSIS

Design Review Committee | City Engineer Approval | Last Design Update | Mo. / Day / Yr. | Mo. / Day / Yr.

City Project No. 579272 | Zone Map No. L-9-Z | Sheet 5 of 15

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