

CITY OF ALBUQUERQUE



October 7, 2010

Genevieve Donart, P.E.
Isaacson & Arfman, P.A.
128 Monroe St. NE
Albuquerque, NM 87108

**Re: Ridgeview Village Park
Grading & Drainage Plan
Engineer's Stamp dated 09/27/2010 (A11/D007C)**

Dear Ms Donart,

Based upon the information provided in your submittal received 09-27-10, the above referenced plan is approved for Grading Permit and Work Order with the condition that comments made at DRC are addressed.

This project requires a Topsoil Disturbance Permit since it is disturbing $\frac{3}{4}$ of an acre or more and a National Pollutant Discharge Elimination System (NPDES) permit. Upon completion of the project, provide an Engineer Certification for our files.

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

If you have any questions, you can contact me at 924-3695.

Sincerely,

A handwritten signature in cursive script that reads "Curtis A. Cherne".

Curtis A. Cherne, P.E.
Senior Engineer, Planning Dept.
Development and Building Services

C: File

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 12/05)

PROJECT TITLE: Ridgeview Village Park ZONE MAP/DRG.FILE# A-11 / DWTC
DRB#: _____ EPC#: _____ WORK ORDER#: 783708

LEGAL DESCRIPTION: Portions of Tract A, Ridgeview Village, Unit 1
CITY ADDRESS: _____

ENGINEERING FIRM: ISAACSON AND ARFMAN CONTACT: Genny Donart
ADDRESS: 128 MONROE N.E. PHONE: 268-8828
CITY, STATE: ALBUQUERQUE, NM ZIP CODE: 87108

OWNER: City of Albuquerque - Parks CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

ARCHITECT: Dekker/Perich/Sabatini CONTACT: Katie Paquette
ADDRESS: 7601 Jefferson NE, Suite 100 PHONE: 923-3577
CITY, STATE: Albuquerque, NM ZIP CODE: 87109

SURVEYOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

- TYPE OF SUBMITTAL:
- DRAINAGE REPORT
 - DRAINAGE PLAN 1st SUBMITTAL
 - DRAINAGE PLAN RESUBMITTAL
 - CONCEPTUAL G & D PLAN
 - GRADING PLAN
 - EROSION CONTROL PLAN
 - ENGINEER'S CERT (HYDROLOGY)
 - CLOMR/LOMR
 - TRAFFIC CIRCULATION LAYOUT
 - ENGINEER/ARCHITECT CERT (TCL)
 - ENGINEER/ARCHITECT CERT (DRB S.P.)
 - ENGINEER/ARCHITECT CERT (AA)
 - OTHER (SPECIFY) _____

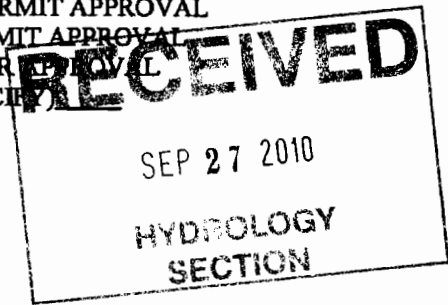
- CHECK TYPE OF APPROVAL SOUGHT:
- SIA/FINANCIAL GUARANTEE RELEASE
 - PRELIMINARY PLAT APPROVAL
 - S. DEV. PLAN FOR SUB'D APPROVAL
 - S. DEV. FOR BLDG. PERMIT APPROVAL
 - SECTOR PLAN APPROVAL
 - FINAL PLAT APPROVAL
 - FOUNDATION PERMIT APPROVAL
 - BUILDING PERMIT APPROVAL
 - CERTIFICATE OF OCCUPANCY (PERM)
 - CERTIFICATE OF OCCUPANCY (TEMP)
 - GRADING PERMIT APPROVAL
 - PAVING PERMIT APPROVAL
 - WORK ORDER PERMIT APPROVAL
 - OTHER (SPECIFY) _____

- WAS A PRE-DESIGN CONFERENCE ATTENDED:
- YES
 - NO
 - COPY PROVIDED

SUBMITTED BY: Genny Donart DATE: 9/27/10
Isaacson & Arfinan, P.A.

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope to the proposed development define the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report:** Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.




SEPTEMBER 27, 2010

SUPPLEMENTAL INFORMATION

FOR

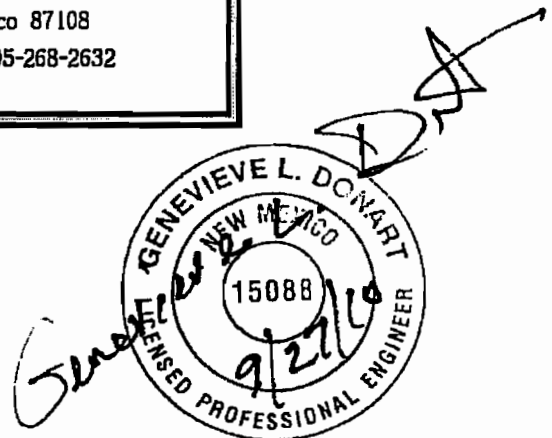
RIDGEVIEW VILLAGE PARK

BY



ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque, New Mexico 87108
Ph. 505-268-8828 Fax. 505-268-2632

RECEIVED
SEP 27 2010
HYDROLOGY
SECTION



GENEVEVE L. DONART
NEW MEXICO
15088
LICENSED PROFESSIONAL ENGINEER
9/27/10

CALCULATIONS: Ridgeview Village Park :

Based on Drainage Design Criteria for City of Albuquerque Section 22.2, DPM, Vol 2, dated Jan., 1993

ON-SITE

AREA OF SITE: 93329.443 SF = 2.1

100-year, 6-hour

HISTORIC FLOWS:

DEVELOPED FLOWS:

EXCESS PRECIP:

HISTORIC FLOWS:			DEVELOPED FLOWS:			EXCESS PRECIP:	
	Treatment SF	%		Treatment SF	%	Precip. Zone	
Area A =	0	0%	Area A =	0	0%	E _A	= 0.44
Area B =	0	0%	Area B =	0	0%	E _B	= 0.67
Area C =	93329.443	100%	Area C =	83996	90%	E _C	= 0.99
Area D =	0	0%	Area D =	9333	10%	E _D	= 1.97
Total Area =	93329.443	100%	Total Area =	93329.443	100%		

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

$$\text{Weighted E} = \frac{E_A A_A + E_B A_B + E_C A_C + E_D A_D}{A_A + A_B + A_C + A_D}$$

Historic E =	0.99 in.	Developed E =	1.09 in.
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On-Site Volume of Runoff: V₃₆₀ =

$$E * A / 12$$

Historic V ₃₆₀ =	7700 CF	Developed V ₃₆₀ =	8462 CF
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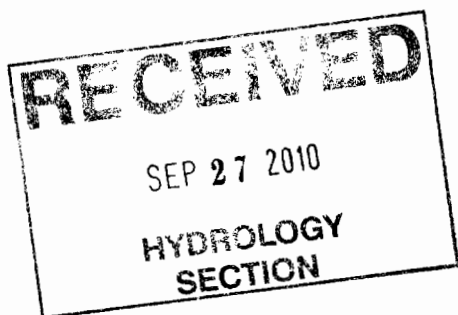
On-Site Peak Discharge Rate: $Q_p = Q_{pA} A_A + Q_{pB} A_B + Q_{pC} A_C + Q_{pD} A_D / 43,560$

For Precipitation Zone 1

Q _{pA} =	1.29	Q _{pC} =	2.87
Q _{pB} =	2.03	Q _{pD} =	4.37

Historic Q _p =	6.1 CFS	Developed Q _p =	6.5 CFS
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The overall site consists of 2.14254919651056 acre(s) located in Zone 1 which is designated as properties D. The 100-year, 6-hour historic discharge is 6.1 cfs. The proposed developed discharge is 6.5 cfs.



1770 DPM Calculations - 100 yr 6 hr.xlsm

BASIN NO. A DESCRIPTION

Area of basin flows = 9884 SF = 0.2 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 1.09 in.

Sub-basin Volume of Runoff (see formula above)

V₃₆₀ = 896 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_p = 0.7 cfs

LAND TREATMENT

A = 0%
B = 0%
C = 90%
D = 10%

BASIN NO. B DESCRIPTION

Area of basin flows = 10470 SF = 0.2 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 1.09 in.

Sub-basin Volume of Runoff (see formula above)

V₃₆₀ = 949 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_p = 0.7 cfs

LAND TREATMENT

A = 0%
B = 0%
C = 90%
D = 10%

BASIN NO. C DESCRIPTION

Area of basin flows = 23354 SF = 0.5 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 1.09 in.

Sub-basin Volume of Runoff (see formula above)

V₃₆₀ = 2117 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_p = 1.6 cfs

LAND TREATMENT

A = 0%
B = 0%
C = 90%
D = 10%

BASIN NO. D DESCRIPTION

Area of basin flows = 18631 SF = 0.4 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 1.09 in.

Sub-basin Volume of Runoff (see formula above)

V₃₆₀ = 1689 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_p = 1.3 cfs

LAND TREATMENT

A = 0%
B = 0%
C = 90%
D = 10%

BASIN NO. E DESCRIPTION

Area of basin flows = 25419 SF = 0.6 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 1.09 in.

Sub-basin Volume of Runoff (see formula above)

V₃₆₀ = 2305 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_p = 1.8 cfs

LAND TREATMENT

A = 0%
B = 0%
C = 90%
D = 10%

BASIN NO. F DESCRIPTION

Area of basin flows = 3570 SF = 0.1 Ac.

The following calculations are based on Treatment areas as shown in table to the right

Sub-basin Weighted Excess Precipitation (see formula above)

Weighted E = 1.09 in.

Sub-basin Volume of Runoff (see formula above)

V₃₆₀ = 505 CF

Sub-basin Peak Discharge Rate: (see formula above)

Q_p = 0.4 cfs

LAND TREATMENT

A = 0%
B = 0%
C = 90%
D = 10%

BASIN SUMMARY

Basin No.	100-year, 6-hour Volume		Developed Flows (cfs)	Flows Discharged after Ponding (cfs)	Comments
	(cu. ft.)				
A	896	0.7	0.7	0.6	
B	949	0.7	0.7	0.6	Basin B routed to Basin C pond
C	2117	1.6	1.6	0.6	Available ponding volume greater than amount 100-year, 6-hour storm generates
D	1689	1.3	1.3	0.4	
E	2305	1.8	1.8	1.6	Discharges from driveway at Night Whisper Rd
F	505	0.4	0.4	0.3	Available ponding volume greater than amount 100-year, 6-hour storm generates
TOTAL VOLUME		8462	CF		
TOTAL DEVELOPED FLOWS			6.5	CFS	
TOTAL FLOWS DISCHARGED AFTER PONDING				3.4	CFS

Hydrograph A

CALCULATIONS: Ridgeview Village Park : 0

HYDROGRAPH FOR SMALL WATERSHED

DPM SECTION 22-2 * PAGE A-13/14

Base time, t_B , for a small watershed hydrograph is,

$$t_B = (2.107 * E * A / Q_P) - (0.25 * A_D / A)$$

Where

E	=	1.09 inches
A	=	2.14 acres
A_D	=	0.21 acres
Q_P	=	6.5 cfs

t_B	=	0.73 hours
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E is the excess precipitation in inches (from DPM TABLE A-8), Q_P is the peak flow, A_D is the area (acres) of treatment D , and A_T is the total area in acres. Using the time of concentration, t_C (hours), the time to peak in hours is:

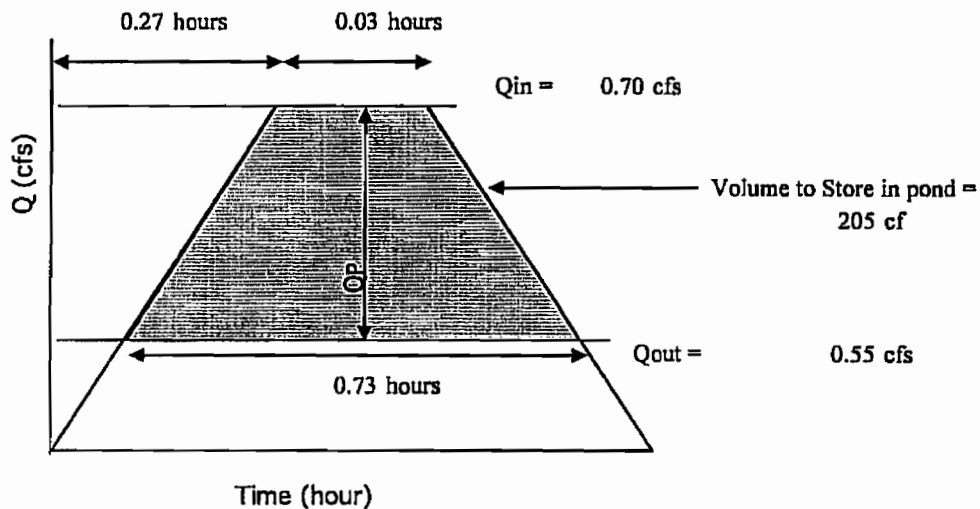
$$t_p = (0.7 * t_C) + ((1.6 - (A_D / A)) / 12)$$

Where $t_C = 0.20$ hours

$t_p = 0.27$ hours

Continue the peak for $0.25 * A_D / A_T$ hours. When A_D is zero, the hydrograph will be triangular. When A_D is not zero, the hydrograph will be trapezoidal. see the graph below:

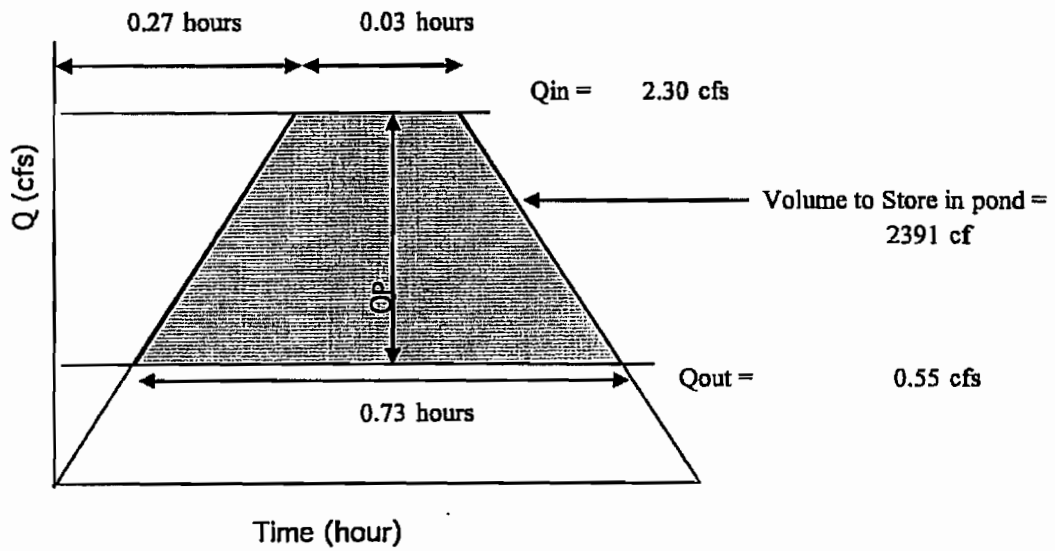
BASIN A POND



INFLOW / OUTFLOW HYDROGRAPH

Hydrograph B&C

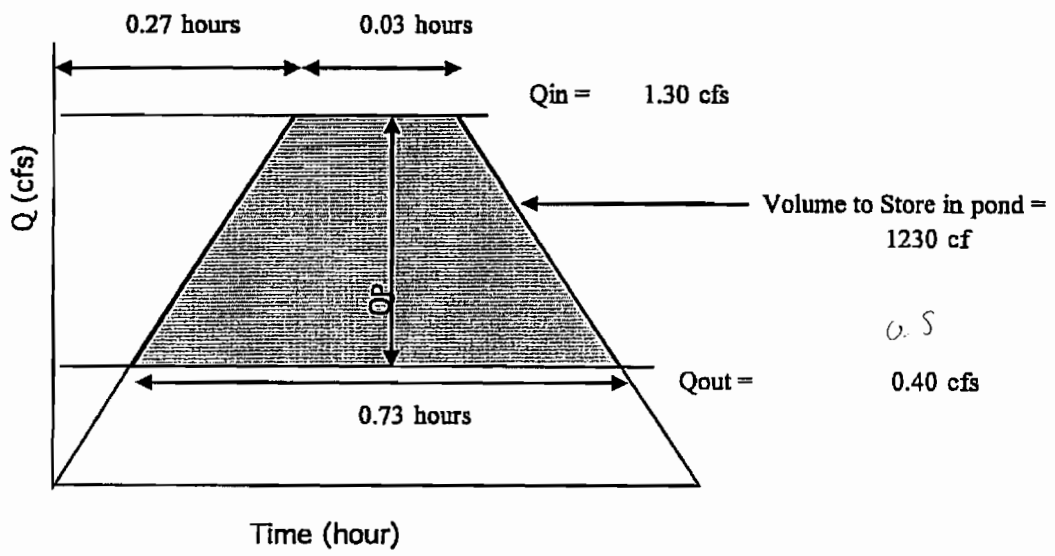
BASINS B & C POND



INFLOW / OUTFLOW HYDROGRAPH

Hydrograph D

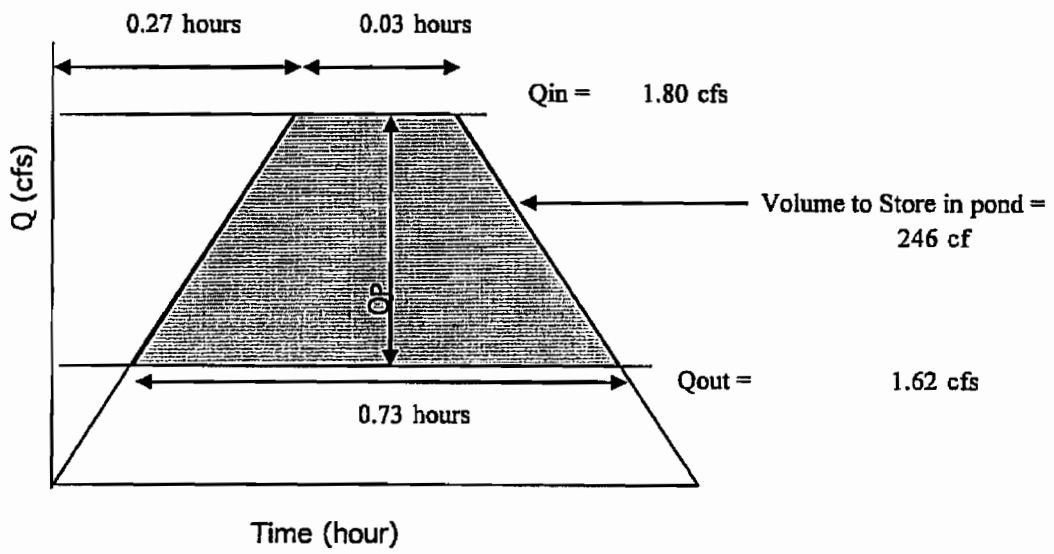
BASIN D POND



INFLOW / OUTFLOW HYDROGRAPH

Hydrograph E

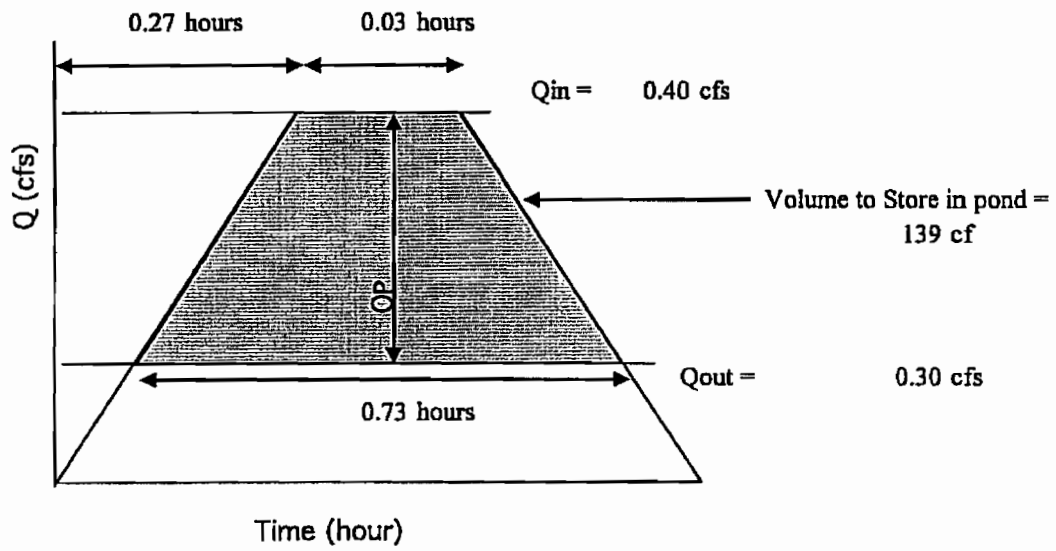
BASIN E POND



INFLOW / OUTFLOW HYDROGRAPH

Hydrograph F

BASIN F POND



INFLOW / OUTFLOW HYDROGRAPH

POND VOLUMES

POND #A		
Contour	Area	Volume
5292.00	925	
5291.50	586.9	378 CF
TOTAL VOL.		378 CF

POND #B		
Contour	Area	Volume
5291.50	355.7018	
5291.00	192	82 CF
TOTAL VOL.		82 CF

POND #C		
Contour	Area	Volume
5291.50	4379	
5291.00	3567	1192 CF
5290.50	1762	1332 CF
TOTAL VOL.		2524 CF

TOTAL BASINS B & C = 2606 CF
RETAINED IN BASIN C = 1332 CF

POND #D-1		
Contour	Area	Volume
5291.10	893	
5291.00	807	85 CF
5290.50	413	305 CF
TOTAL VOL.		390 CF

POND #D-2		
Contour	Area	Volume
5291.10	398	
5290.50	81	144 CF
5290.30	1	8 CF
TOTAL VOL.		152 CF

POND #D-3		
Contour	Area	Volume
5290.50	655	
5290.00	66	180 CF
TOTAL VOL.		180 CF

TOTAL BASIN D = 722 CF
RETAINED IN BASIN D = 542 CF

POND #E-1		
Contour	Area	Volume
5293.00	176	
5292.50	60	59 CF
TOTAL VOL.		59 CF

POND #E-2		
Contour	Area	Volume
5292.00	109	
5291.50	24	33 CF
TOTAL VOL.		33 CF

POND #E-3		
Contour	Area	Volume
5291.50	456	
5291.00	170	157 CF
TOTAL VOL.		157 CF

RETAINED IN BASIN E = 190 CF

POND #F		
Contour	Area	Volume
5293.40	958	
5293.00	621	316 CF
TOTAL VOL.		316 CF

POND #F RETENTION		
Contour	Area	Volume
5293.20	797	
5293.00	621	142 CF
TOTAL VOL.		142 CF

RETAINED IN BASIN F = 142 CF

IRMATION
IS MAP
BERNALILLO COUNTY

FLOOD HAZARD INF
IS NOT SHOWN ON
IN AREAS OUTSIDE

MAP SCALE 1" = 500'



NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0104G

FIRM

FLOOD INSURANCE RATE MAP
BERNALILLO COUNTY,
NEW MEXICO
AND INCORPORATED AREAS

PANEL 104 OF 825

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:	NUMBER	PANEL	SUFFIX
COMMUNITY	350002	0104	G
ALBUQUERQUE, CITY OF			
BERNALILLO COUNTY	350001	0104	G
UNINCORPORATED AREAS			
RIO RANCHO, CITY OF	350148	0104	G

Notes to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



MAP NUMBER
35001C0104G

MAP REVISED
SEPTEMBER 26, 2008

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



Weir Report

Ridgeview Village Park - 1' wide sidewalk culverts

Rectangular Weir

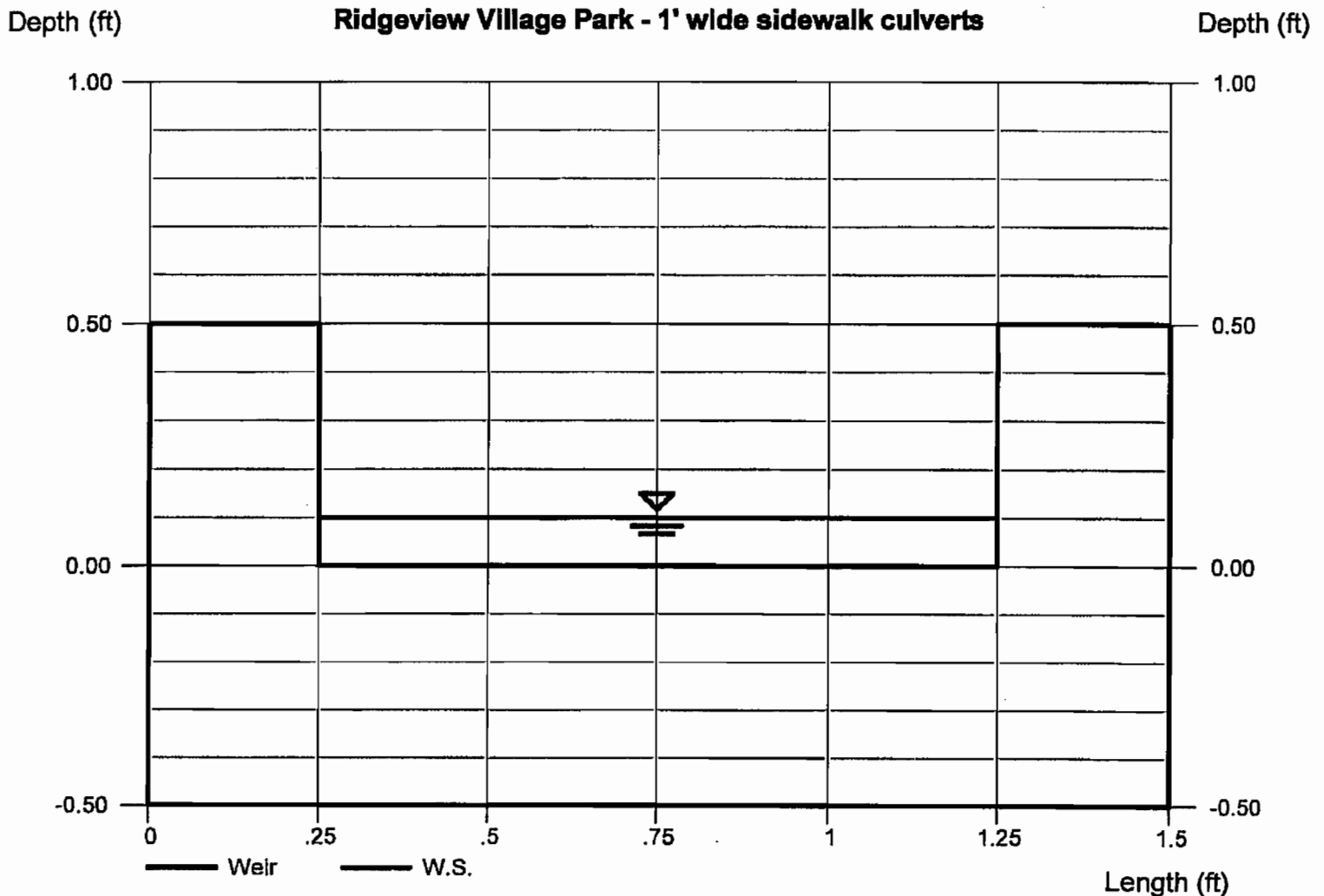
Crest = Sharp
 Bottom Length (ft) = 1.00
 Total Depth (ft) = 0.50

Highlighted

Depth (ft) = 0.10
 Q (cfs) = 0.105
 Area (sqft) = 0.10
 Velocity (ft/s) = 1.05
 Top Width (ft) = 1.00

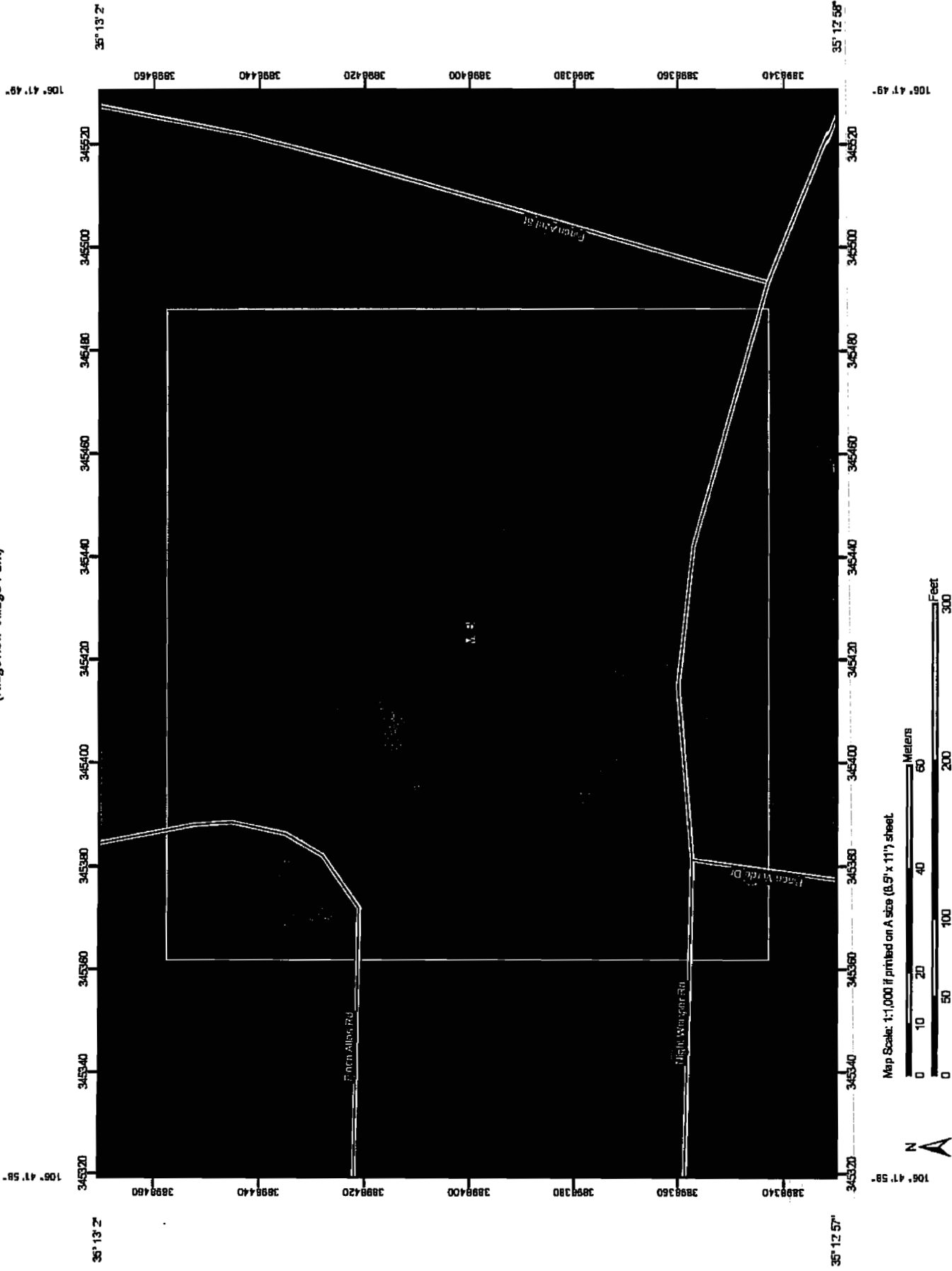
Calculations

Weir Coeff. Cw = 3.33
 Compute by: Q vs Depth
 No. Increments = 5



Depth (ft)	Q (cfs)	Area (sqft)	Veloc (ft/s)	Top Width (ft)	Energy (ft)
0.10	0.105	0.10	1.05	1.00	0.12
0.20	0.298	0.20	1.49	1.00	0.23
0.30	0.547	0.30	1.82	1.00	0.35
0.40	0.842	0.40	2.11	1.00	0.47
0.50	1.177	0.50	2.35	1.00	0.59

Soil Map—Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico
(Ridgeview Village Park)



Map Scale: 1:1,000 if printed on A size (8.5" x 11") sheet



MAP LEGEND

Area of Interest (AOI)		Area of Interest (AOI)		Very Stony Spot	
Soils		Soil Map Units		Wet Spot	
Special Point Features		Blowout		Other	
		Borrow Pit		Special Line Features	
		Clay Spot		Gully	
		Closed Depression		Short Steep Slope	
		Gravel Pit		Other	
		Gravelly Spot		Political Features	
		Landfill		Cities	
		Lava Flow		Water Features	
		Marsh or swamp		Oceans	
		Mine or Quarry		Streams and Canals	
		Miscellaneous Water		Transportation	
		Perennial Water		Rails	
		Rock Outcrop		Interstate Highways	
		Saline Spot		US Routes	
		Sandy Spot		Major Roads	
		Severely Eroded Spot		Local Roads	
		Sinkhole			
		Slicks or Slip			
		Sodic Spot			
		Spot Area			
		Stony Spot			

MAP INFORMATION

Map Scale: 1:1,000 If printed on A size (8.5" x 11") sheet.
 The soil surveys that comprise your AOI were mapped at 1:24,000.
 Please rely on the bar scale on each map sheet for accurate map measurements.
 Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: UTM Zone 13N NAD83
 This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.
 Soil Survey Area: Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico
 Survey Area Date: Version 9, Dec 9, 2008
 Date(s) aerial images were photographed: 10/6/1996
 The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico (NM600)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
MaB	Madurez loamy fine sand, 1 to 5 percent slopes	3.6	100.0%
Totals for Area of Interest		3.6	100.0%

Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico

MaB—Madurez loamy fine sand, 1 to 5 percent slopes

Map Unit Setting

Elevation: 4,850 to 6,000 feet

Mean annual precipitation: 7 to 10 inches

Mean annual air temperature: 58 to 60 degrees F

Frost-free period: 170 to 195 days

Map Unit Composition

Madurez and similar soils: 90 percent

Description of Madurez

Setting

Landform: Fan piedmonts, alluvial fans

Landform position (three-dimensional): Rise

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from igneous and sedimentary rock

Properties and qualities

Slope: 1 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high to high (0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 7 percent

Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 2.0

Available water capacity: Moderate (about 8.8 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Ecological site: Sandy (R042XA051NM)

Typical profile

0 to 4 inches: Loamy fine sand

4 to 21 inches: Sandy clay loam

21 to 60 inches: Sandy loam

Data Source Information

Soil Survey Area: Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico

Survey Area Data: Version 9, Dec 9, 2008