

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Sunset Gardens Subdivision Building Permit #: _____ City Drainage #: _____

DRB#: _____ EPC#: _____ Work Order#: _____

Legal Description: lots 1-70 sunset gardens subdivision

City Address: _____

Engineering Firm: RIO GRANDE ENGINEERING Contact: DAVID SOULE

Address: PO BOX 93924, ALBUQUERQUE, NM 87199

Phone#: 505.321.9099 Fax#: 505.872.0999 E-mail: DAVID@RIOGRANDEENGINEERING.COM

Owner: Joe Hahn Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Architect: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Surveyor: CONSTRUCTION SURVEY INCORPORATED Contact: JOHN GALLEGOS

Address: _____

Phone#: 917.8921 Fax#: _____ E-mail: _____

Contractor: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN 1st SUBMITTAL
- ☒ DRAINAGE PLAN RESUBMITTAL
- ☐ CONCEPTUAL G & D PLAN
- ☐ GRADING PLAN
- ☐ EROSION & SEDIMENT CONTROL PLAN (ESC)
- ☐ ENGINEER'S CERT (HYDROLOGY)
- ☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT (TCL)
- ☐ ENGINEER'S CERT (TCL)
- ☐ ENGINEER'S CERT (DRB SITE PLAN)
- ☐ ENGINEER'S CERT (ESC)
- ☐ SO-19
- ☐ OTHER (SPECIFY) _____

CHECK TYPE OF APPROVAL/ACCEPTANCE 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
- ☐ CERTIFICATE OF OCCUPANCY (PERM)
- ☐ CERTIFICATE OF OCCUPANCY (TCL TEMP)
- ☐ FOUNDATION PERMIT APPROVAL
- ☒ BUILDING PERMIT APPROVAL
- ☐ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ WORK ORDER APPROVAL
- ☐ GRADING CERTIFICATION
- ☐ SO-19 APPROVAL
- ☐ ESC PERMIT APPROVAL
- ☐ ESC CERT. ACCEPTANCE
- ☐ OTHER (SPECIFY) _____

WAS A PRE-DESIGN CONFERENCE ATTENDED: _____ Yes ☒ No _____ Copy Provided

DATE SUBMITTED: 1/19/15 By: _____

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 defines 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
4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development

UPDATED
DRAINAGE REPORT

For

SUNSET VILLA
Albuquerque, New Mexico

Prepared by

Rio Grande Engineering
PO Box 93924
Albuquerque, New Mexico 87199

JANUARY 2015



David Soule P.E. No. 14522

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Map

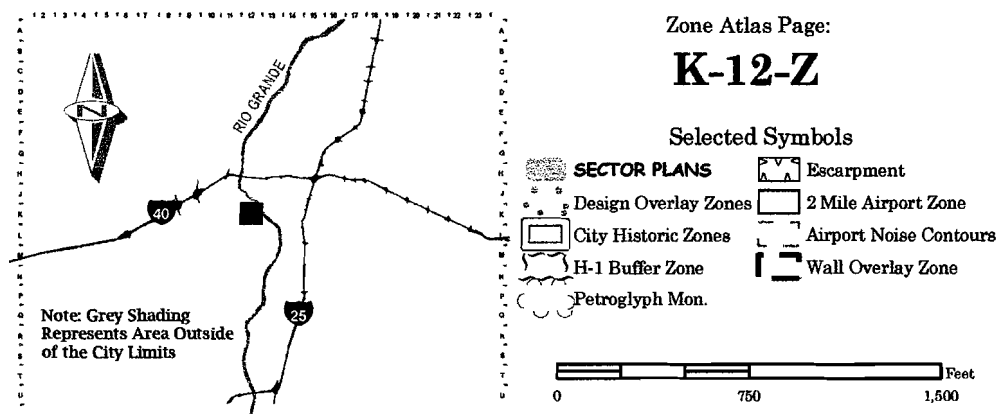
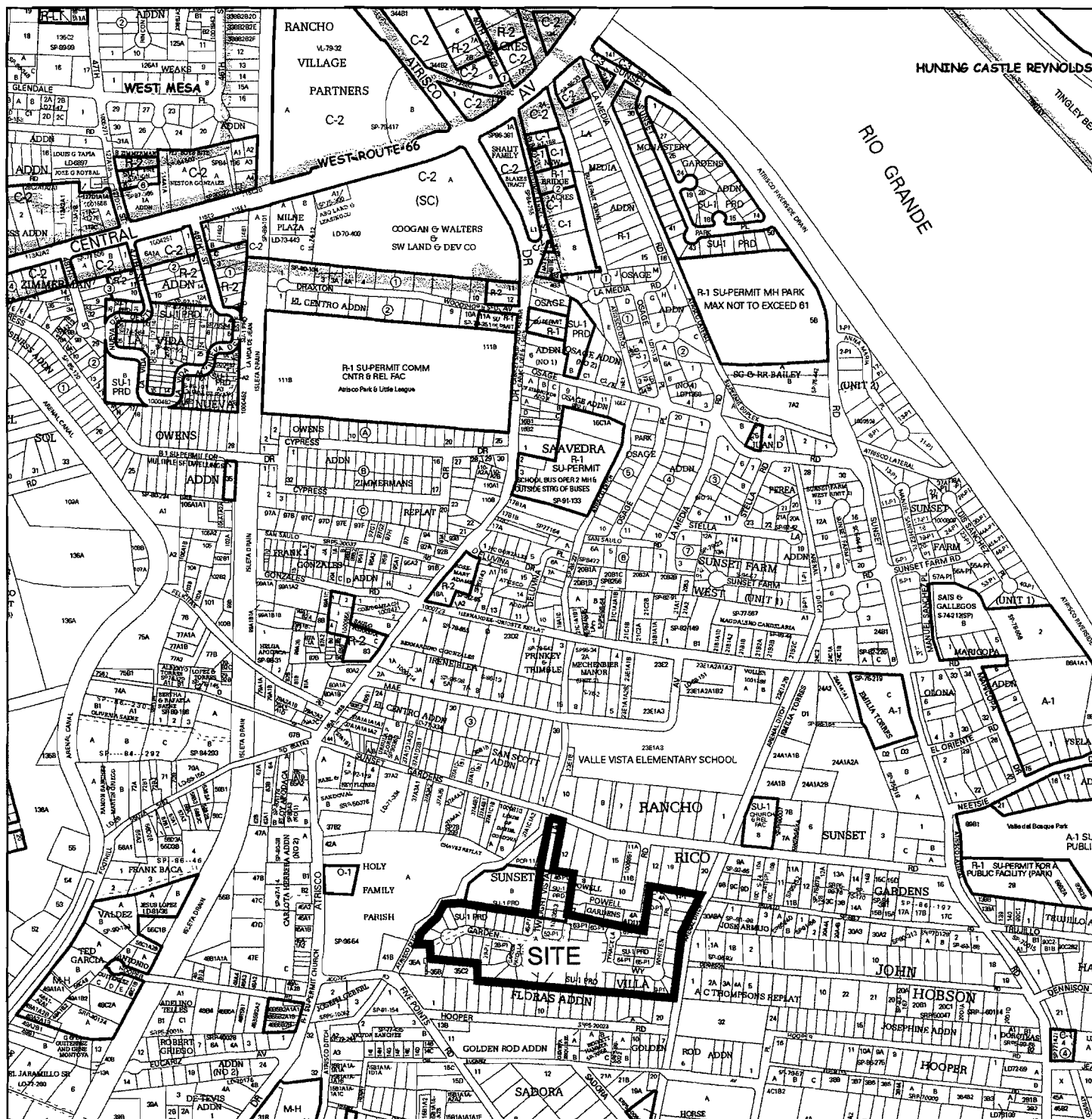
Site Grading and Drainage Plan

PURPOSE

The purpose of this report is to provide the Updated Drainage Management Plan for the development of a 70-lot subdivision located on Sunset Boulevard between the Arenal ditch and the Atrisco Ditch in the southwest valley. This plan was prepared in accordance with the City of Albuquerque design regulations, utilizing the City of Albuquerque's Development Process Manual drainage guidelines. This report will demonstrate that the grading does not adversely affect the surrounding properties, nor the upstream or downstream facilities.

INTRODUCTION

The subject of this report, as shown on the Exhibit A, is a 12.3-acre parcel of land located on the south side of Sunset Boulevard between the Arenal ditch and the Atrisco Ditch in the southwest valley. The legal description of this site is Lots 1-70 Sunset Villa Subdivision. As shown on FIRM map35013C0333H, the majority of the site is located within Flood Zone X; a portion of the site is impacted by flood zone AH with base flood elevation of 4947. The site has had significant grading activities upon it over the past 10 years. The site is not in native condition. The site was graded in accordance with the approved grading plan prepared by Thompson Engineering. Due to the construction of raised pads and solid block perimeter walls, the site is not affected by any upland flow. The site currently retains its developed flows onsite, which is consistent with the surrounding properties. The development of the site will conform to the approved grading plan with the exception it will be graded in an interim condition due to the regional pond not having capacity for our discharge because it has not been completed with a drainage outfall. The subdivisions interim condition will retain the developed flow onsite in temporary drainage ponds.



EXISTING CONDITIONS

The site currently is a mass graded site with solid block perimeter walls. The site is not impacted by any upland flows. The site currently retains its flows onsite within the graded roadways. The site has been graded in accordance with the approved grading plan. The existing regional pond was constructed by Bernalillo County Public Works. The pond was designed to accept the developed flow from this site as well as flows from surrounding streets. The offsite flow is conveyed to this pond via an existing underground storm drain. The pond was designed to collect the regional water and pump it to a MRGCD drain west of this site. During the development of this site it was found the regional pond and mechanical outfall does not connect to the MRGCD drain as proposed. The county was contacted and notified this pond does not have capacity for our flow.

PROPOSED CONDITIONS

The proposed improvements consist of the completion of a new 70-lot subdivision serviced by a private paved roadway. The lots shall free discharge to the roadway and be conveyed within the roadway to the available downstream storm drain. The ultimate condition storm drain will be constructed. The inlets will be plugged at the storm drain outfall of each inlet and an opening thru the rear of the pond will be constructed. This allows the flow to enter into temporary drainage ponds. As shown in appendix A the site is comprised of 5 Drainage basins. Each basin drains to a single-A inlet. The entire 100-year 10-day volume will be temporarily retained within a pond for each basin. Due to the depth of the water table the ponds have minimum bottom elevation of 4939. The streets have been shown to adequately convey the storm water to the inlets. The inlets have been shown to adequately capture the storm water.

In the ultimate condition, the county will complete the pond outfall and the ponds can be reclaimed. The reclamation will entail plugging the temporary outfall in the back of each inlet and

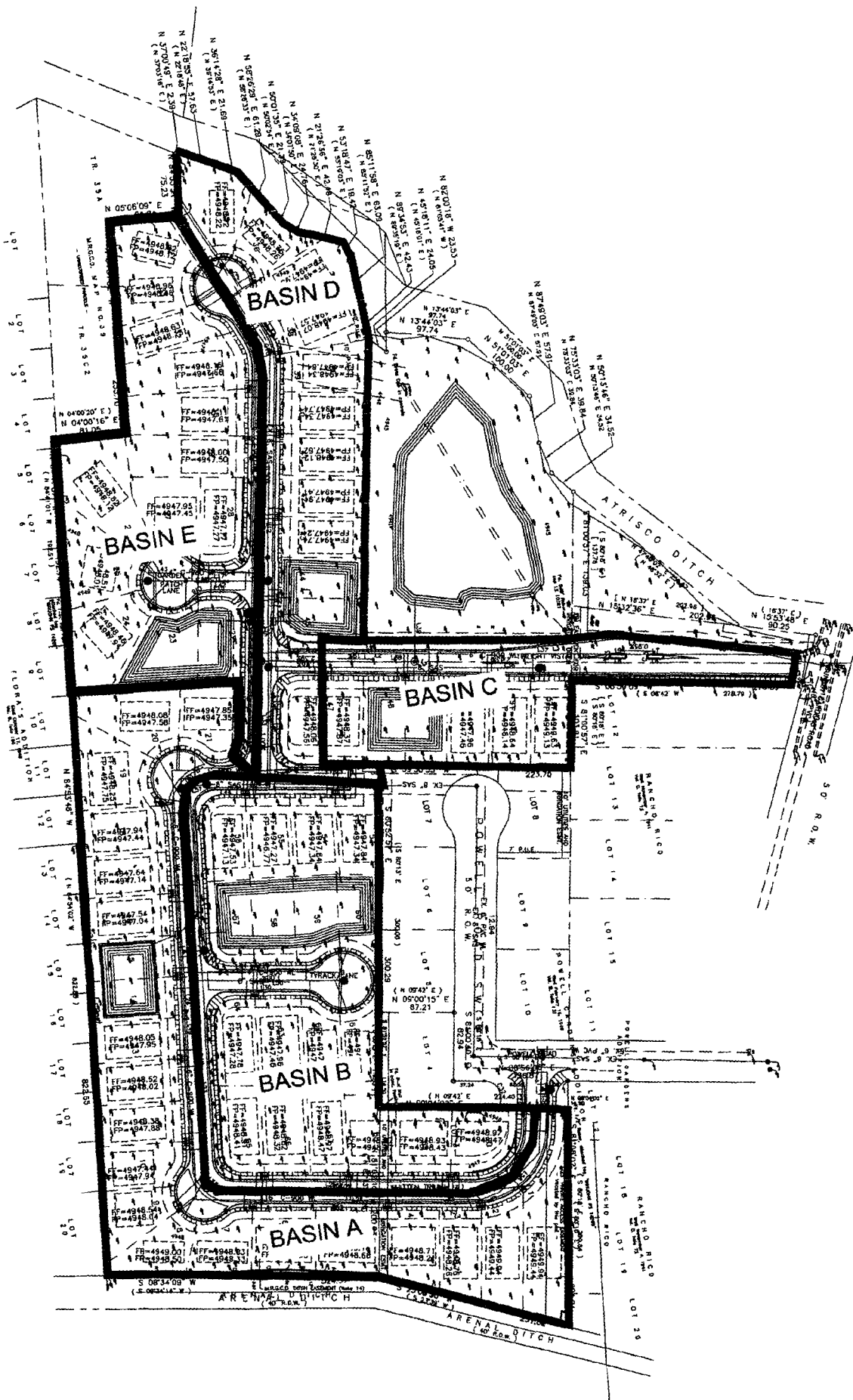
removing the plugs in the front. As shown the storm drain has the capacity to convey the peak developed storm water discharge.

Due to one lot being affected by the flood zone, and the fact it has been graded such that it is elevated, an elevation certificate will be issued showing the finished floor is 1' above the published flood plain, at time of construction

SUMMARY AND RECOMMENDATIONS

This project is a completion of a previously approved development of residential subdivision with the southwest valley. The development is hindered by the regional county pond not being completed. Therefore the interim grading plan allows for retention ponds to be located at the collection points of each basin. The permanent solution will be constructed and once the County pond is completed the ponds can be reclaimed and the storm drain will function as designed. Prior to this occurring the Pond and its outfall must be reanalyzed to assure all flows may be properly accommodated. The drainage infrastructure has been designed to accept and convey the 100-year peak flow and volumes. The site has been designed in accordance with City of Albuquerque Drainage ordinance. This drainage plan and report conforms to the governing drainage regulations of the City. Since the effected area site encompasses more than 1 acre, a NPDES permit will be required prior to any construction activity. An Elevation certificate will be required to be submitted and accepted prior to the release of building permits affected.

APPENDIX A
SITE HYDROLOGY



Weighted E Method

SUNSET VISTA

Existing Developed Basins

Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		100-Year, 6-hr.			10-day
			%	(acres)	%	(acres)	%	(acres)	%	(acres)	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Volume (ac-ft)
BASIN A	150867	3.463	5%	0.17317	20.0%	0.693	25.0%	0.86586	55%	1.905	1.465	0.423	12.44	0.677
BASIN B	127921	2.937	5%	0.14683	20.0%	0.587	25.0%	0.73417	55%	1.615	1.487	0.364	10.55	0.579
BASIN C	56984	1.308	5%	0.06541	20.0%	0.262	25.0%	0.32704	55%	0.719	1.487	0.162	4.70	0.258
BASIN D	87633	2.012	5%	0.10059	20.0%	0.402	25.0%	0.50294	55%	1.106	1.487	0.249	7.23	0.397
BASIN E	112460	2.582	5%	0.12909	20.0%	0.516	25.0%	0.64543	55%	1.420	1.487	0.320	9.27	0.509
TOTAL	535865	12.302	0%	0	20.0%	2.460	25.0%	3.07544	55%	6.766	1.465	1.502	43.39	2.404

Equations:

Weighted E = $E_a \cdot A_a + E_b \cdot A_b + E_c \cdot A_c + E_d \cdot A_d$ / (Total Area)

Volume = Weighted D * Total Area

Flow = $Q_a \cdot A_a + Q_b \cdot A_b + Q_c \cdot A_c + Q_d \cdot A_d$

Where for 100-year, 6-hour storm (zone 1)

Ea= 0.44	Qa= 1.29
Eb= 0.67	Qb= 2.03
Ec= 0.99	Qc= 2.87
Ed= 1.97	Qd= 4.37

The site initially will be gravel but ultimately will be paved, land treatments will be for ultimate paved condition

REQUIRED PROVIDED

POND A	0.677	0.681	ac-ft	12.44	cfs	
POND B	0.579	1.02	ac-ft	10.55	cfs	22.99 east reach storm drain
POND C	0.258	0.572	ac-ft	4.70	cfs	
POND D	0.397	0.604	ac-ft	7.23	cfs	
POND E	0.509	0.7	ac-ft	9.27	cfs	16.50 west reach storm drain 39.48 southreach

APPENDIX B

HYDRAULIC CALCULATIONS

Street Capacity Calculations

GARDEN WAY EAST SECTION 28' F-F Street Section with 8" curb

Slope= 0.006
Q=22.99 CFS

For water depths less than 0.125 feet

Y= Water depth
Area = $8 \cdot Y^2$
P= $\text{SQRT}(257 \cdot Y^2) + Y$
n= 0.017

Depth (ft)	Area (ft ²)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.01	0.00	0.17	0.00	0.00	0.00	0.19	0.00	0.33	0.0018848
0.02	0.00	0.34	0.01	0.00	0.00	0.30	0.01	0.38	0.0045908
0.04	0.01	0.68	0.02	0.01	0.01	0.48	0.02	0.42	0.0111278
0.06	0.03	1.02	0.03	0.02	0.04	0.63	0.04	0.45	0.0186349
0.08	0.05	1.36	0.04	0.04	0.08	0.76	0.06	0.47	0.0268376
0.1	0.08	1.70	0.05	0.07	0.14	0.88	0.09	0.49	0.0355923
0.12	0.12	2.04	0.06	0.11	0.23	1.00	0.12	0.51	0.0448091
0.125	0.13	2.13	0.06	0.13	0.26	1.02	0.13	0.51	0.0471777

For water depths greater than 0.125 ft but less than 0.365 ft

Y1= Y-0.125
A2= $A1 + 2 \cdot Y1 + 25 \cdot Y1^2$
P2= $P1 + \text{SQRT}(2501 \cdot Y1^2) + Y1$

Depth (ft)	Area (ft ²)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.13	0.14	2.38	0.06	0.14	0.27	1.00	0.13	0.49	0.0460163
0.16	0.23	3.91	0.06	0.23	0.46	1.01	0.16	0.45	0.0486259
0.2	0.42	5.95	0.07	0.48	0.95	1.15	0.23	0.45	0.0623776
0.24	0.69	8.00	0.09	0.90	1.81	1.32	0.32	0.47	0.0806096
0.2846	1.08	10.27	0.11	1.63	3.26	1.51	0.43	0.50	0.1037171
0.32	1.47	12.08	0.12	2.43	4.87	1.66	0.53	0.52	0.1234692
0.3551	1.91	13.87	0.14	3.45	6.89	1.81	0.64	0.53	0.1440036
0.365	2.05	14.37	0.14	3.77	7.55	1.85	0.67	0.54	0.1499436

For water depths greater than 0.365 ft but less than 0.667 ft

Y2= Y - 0.365
A3= $A2 + Y2^2 \cdot 14$
P3= $P2 + Y2$

Depth (ft)	Area (ft ²)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.37	2.12	14.38	0.15	3.99	7.98	1.89	0.70	0.55	0.1556607
0.4556	3.31	14.46	0.23	8.40	16.80	2.54	1.16	0.66	0.2556985
0.4848	3.72	14.49	0.26	10.18	20.37	2.74	1.33	0.69	0.2906669
0.5	3.94	14.51	0.27	11.16	22.33	2.84	1.42	0.71	0.3090234
0.54	4.60	14.55	0.31	13.91	27.82	3.09	1.67	0.74	0.357805
0.5584	4.75	14.56	0.33	15.25	30.50	3.21	1.79	0.76	0.3804643
0.63	5.76	14.64	0.39	20.91	41.83	3.63	2.29	0.81	0.4698487
0.667	6.27	14.67	0.43	24.10	48.21	3.84	2.56	0.83	0.5167338

For water depths greater than 0.667 ft but less than 0.847 ft

Y3= Y - 0.667
A4= $A3 + 14 \cdot Y3 + 25 \cdot Y3^2$
P4= $P3 + \text{SQRT}(2501 \cdot Y3^2)$

Depth (ft)	Area (ft ²)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.7	6.76	16.32	0.41	25.44	50.89	3.76	2.63	0.79	0.5090958
0.72	7.09	17.32	0.41	26.43	52.87	3.73	2.69	0.77	0.5071856
0.74	7.43	18.32	0.41	27.55	55.10	3.71	2.74	0.76	0.5069788
0.76	7.79	19.32	0.40	28.79	57.58	3.70	2.81	0.75	0.508251
0.78	8.17	20.32	0.40	30.16	60.31	3.69	2.88	0.74	0.5108175
0.8	8.58	21.32	0.40	31.64	63.29	3.69	2.95	0.73	0.5145251
0.847	9.60	23.68	0.41	35.63	71.26	3.71	3.14	0.71	0.5270333

Street Capacity Calculations

GARDEN WAY WEST SECTION

28' F-F Street Section with 8" curb

Slope= 0.006

Q=16.56 CFS

For water depths less than 0.125 feet

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0.06	0.03	1.02	0.03	0.02	0.04	0.63	0.04	0.45	0.0186349
0.08	0.05	1.36	0.04	0.04	0.08	0.76	0.06	0.47	0.0268376
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0.125	0.13	2.13	0.06	0.13	0.26	1.02	0.13	0.51	0.0471777

For water depths greater than 0.125 ft but less than 0.365 ft

Y1= Y-0.125

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Depth (ft)	Area (ft ²)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
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0.2	0.42	5.95	0.07	0.48	0.95	1.15	0.23	0.45	0.0623776
0.24	0.69	8.00	0.09	0.90	1.81	1.32	0.32	0.47	0.0806096
0.2846	1.08	10.27	0.11	1.63	3.26	1.51	0.43	0.50	0.1037171
0.32	1.47	12.08	0.12	2.43	4.87	1.66	0.53	0.52	0.1234692
0.3551	1.91	13.87	0.14	3.45	6.89	1.81	0.64	0.53	0.1440036
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P3= $P2 + Y2$

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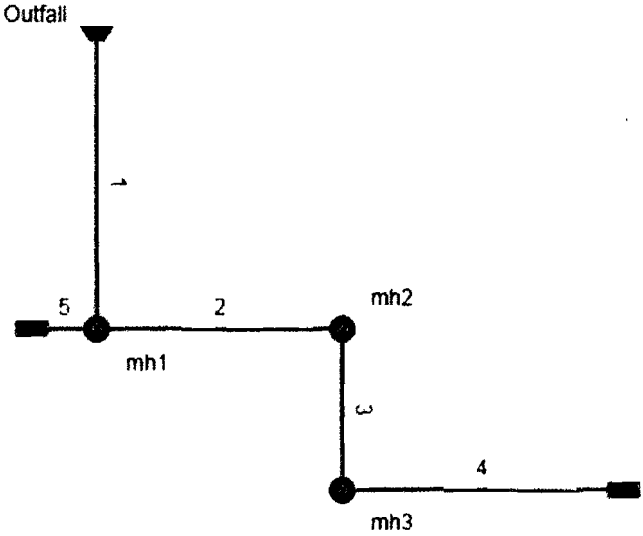
Depth (ft)	Area (ft ²)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
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0.74	7.43	18.32	0.41	27.55	55.10	3.71	2.74	0.76	0.5069788
0.76	7.79	19.32	0.40	28.79	57.58	3.70	2.81	0.75	0.508251
0.78	8.17	20.32	0.40	30.16	60.31	3.69	2.88	0.74	0.5108175
0.8	8.58	21.32	0.40	31.64	63.29	3.69	2.95	0.73	0.5145251
0.847	9.60	23.68	0.41	35.63	71.26	3.71	3.14	0.71	0.5270333

Plan View

Stormwater Studio v 1.0.1.5

Project Name: Enter Project Name...

01-16-2015



Storm Sewer Tabulation

Project Name: Enter Project Name...

Stormwater Studio v 1.0.1.5

01-16-2015

Line ID	Length (ft)	Drng Area		Rational (C)	C x Area		Tc		Intensity (in/hr)	Total Q (cfs)	Capacity (cfs)	Velocity (ft/s)	Pipe		Invert Elev		HGL Elev		Surface Elev		Line No
		Incr (ac)	Total (ac)		Incr	Total	Inlet (min)	Syst (min)					Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
Line 1	158	0.00	0.00	0.00	0.00	0.00	0.0	1.76	0.00	39.55	68.88	4.21	48	0.23	4938.57	4938.93	4941.50	4941.62	4944.50	4944.47	1
Line 2	143	0.00	0.00	0.00	0.00	0.00	0.0	1.03	0.00	22.99	30.04	3.27	36	0.20	4939.04	4939.33	4942.08	4942.23	4944.47	4945.14	2
Line 3	87.0	0.00	0.00	0.00	0.00	0.00	0.0	0.58	0.00	22.99	29.47	3.25	36	0.20	4939.36	4939.53	4942.44	4942.53	4945.14	4944.60	3
Line 4	164	0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	22.99	18.40	4.68	30	0.20	4939.56	4939.89	4942.63	4943.14	4944.60	4943.43	4
Line 5	38.0	0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	16.56	13.31	3.37	30	0.11	4939.08	4939.12	4942.07	4942.13	4944.47	4944.47	5

Notes:

DROP INLET CALCULATIONS

INLET	TYPE OF INLET	AREA (SF)	Q (CFS)	H (FT)	H ALLOW (FT)
1	SINGLE A	5.92	12.44	0.1905	0.67

ORIFICE EQUATION

$Q = CA \sqrt{2gH}$

C = 0.6

g = 32.2

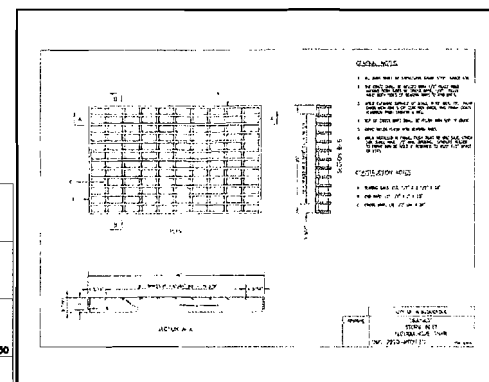
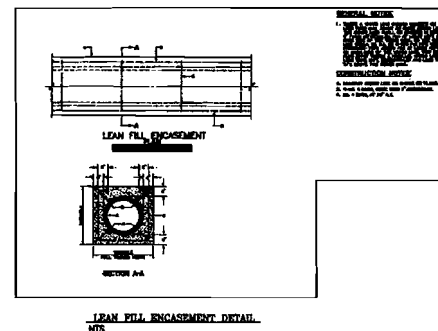
The max flow is 12.44 from basin A

APPENDIX C

STORM DRAIN PROFILES

CAUTION:
EXISTING UTILITIES ARE SHOWN FOR REFERENCE ONLY.
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OF THE CONTRACTOR TO CONDUCT ALL
NECESSARY FIELD INVESTIGATIONS PRIOR
TO ANY EXCAVATION TO DETERMINE THE
ACTUAL LOCATION OF UTILITIES & OTHER
IMPROVEMENTS.

LINE	LENGTH	BEARING
L38	183.39	N08°58'36"
L39	80.07	N81°01'24"
L40	13.12	S23°14'10"
L41	24.81	N75°41'25"



SCALE: HORIZ. 1"=50'
VERT. 1"=10'



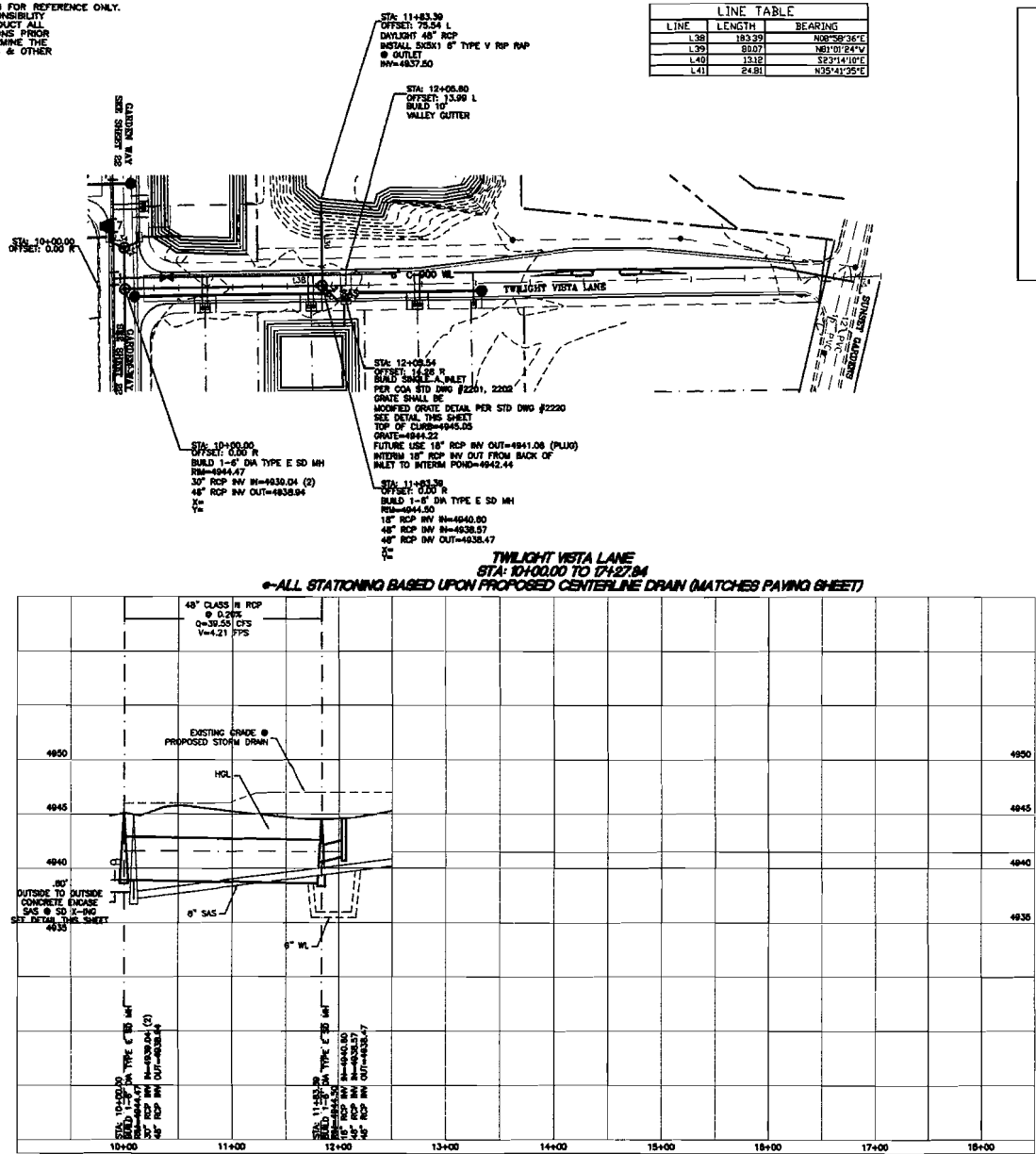
100 CENTS, APRIL 27
PAGE 20

ABCWUA & CITY OF ALBUQUERQUE
PUBLIC WORKS DIVISION
ENGINEERING GROUP

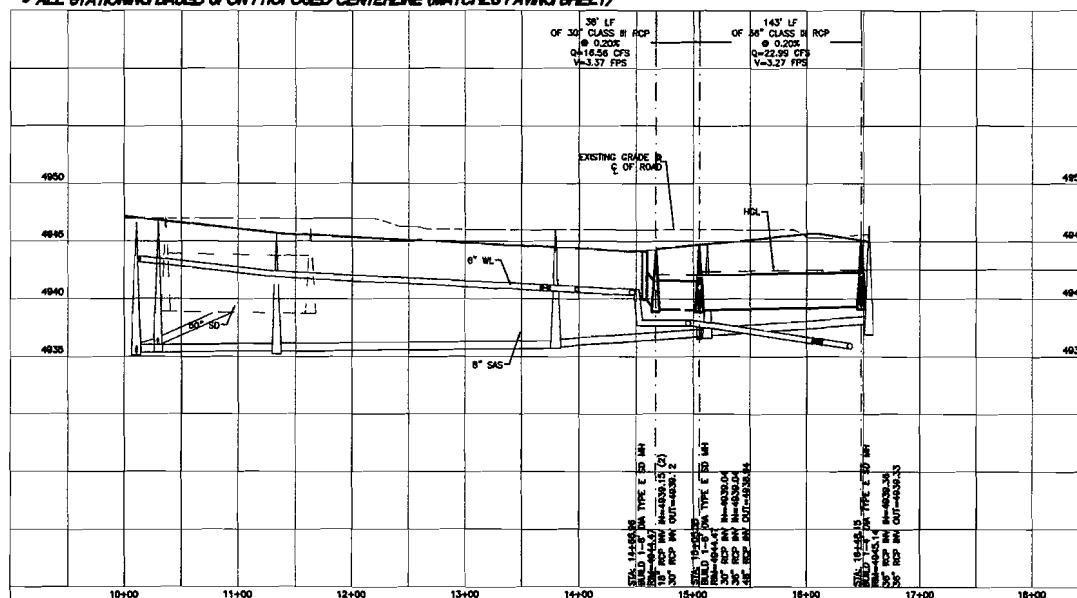
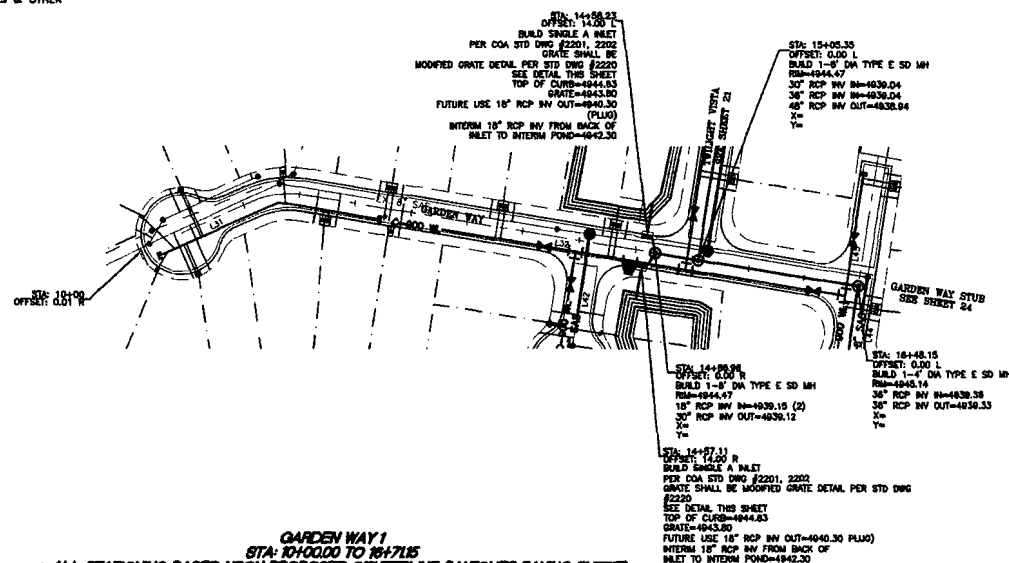
TITLE: **SUNSET VILLA**
TWILIGHT VISTA LANE STORM DRAIN IMPROVEMENTS

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	NO./DAY/YR.	NO./DAY/YR.
CITY PROJECT NO. 76ARR2		ZONE MAP NO. K-12-7	SHEET OF 21 2A	

CITY PROJECT NO.	764882	ZONE MAP NO.	K-12-7	SHEET	21	OF	24
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NECESSARY FIELD INVESTIGATIONS PRIOR
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ACTUAL LOCATION OF UTILITIES & OTHER
IMPROVEMENTS.



LINE TABLE		
LINE	LENGTH	BEARING
L33	142.80	S80°56'36"
L34	45.30	N83°13'10"
L35	44.63	N64°39'44"

[illegible]

STA 11+84.45
 OFFSET: 10.00 L
 BUILD 1'-4" DA TYPE E S D MH
 RIR=4943.43
 18" RCP INV IN=4939.91 (3)
 30" RCP INV OUT=4939.90
 Y=

STA 11+84.80
 OFFSET: 14.00 L
 BUILD SINGLE A INLET
 PER DCA STD DWS #2201, 2202
 GRATE SHALL BE MODIFIED GRATE DETAIL
 PER STD DWS #2202--SEE DETAIL THIS SHEET
 TOP OF CURB=4944.68
 GRATE=4945.33
 FUTURE USE 18" RCP INV OUT=4939.73 (PLUG)
 INTERIM 18" RCP INV OUT FROM BACK OF
 INLET TO INTERIM POND=4941.73

STA 12+00.00
 OFFSET: 10.00 L
 BUILD 1'-4" DA TYPE E S D MH
 RIR=4944.50
 30" RCP INV IN=4939.56
 30" RCP INV OUT=4939.53

6" SAG+2.00% INLET PAV
 6" C-900-M

6" SAG+2.00% INLET PAV
 6" C-900-M

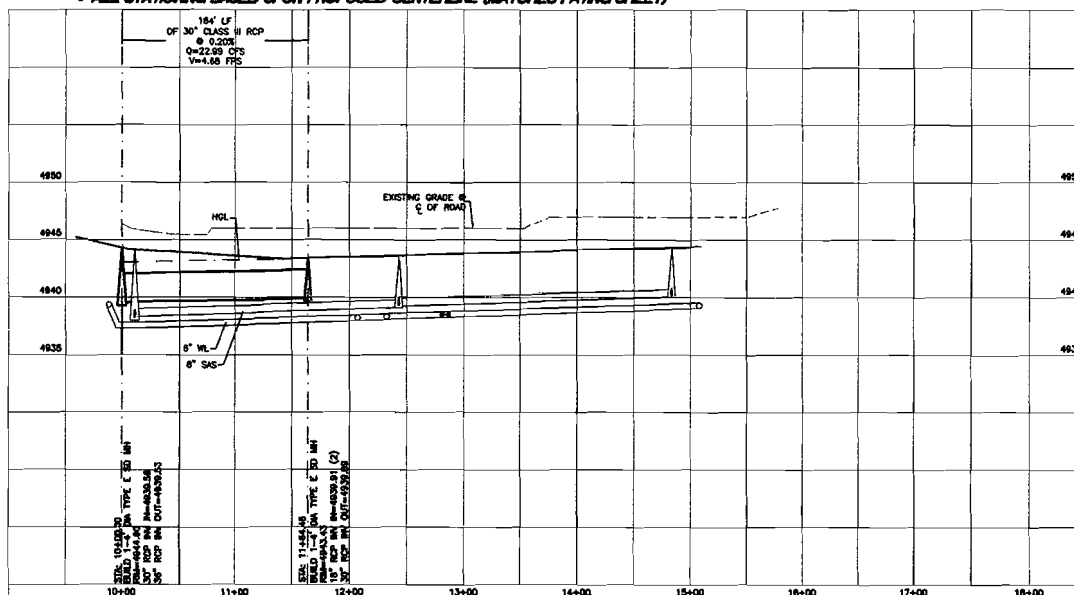
6" SAG+2.00% INLET PAV
 6" C-900-M

6" SAG+2.00% INLET PAV
 6" C-900-M

STA: 11+88.00
OFFSET: 14.00 L
BUILD SINGLE A INLET
PER DOA STD DWG #2201, 2202
GRATE SHALL BE MODIFIED GRATE DETAIL
PER STD DWG #2220-SEE DETAIL THIS SHEET
TOP OF CURB=4944.66
GRATE=4943.23
FUTURE USE 18" RCP INV OUT=4936.73 (PLWD)
INTERIM 18" RCP INV OUT FROM BACK OF
INLET TO INTERIM POND=4941.73

STA 17+08.00
OFFSET: 14.00 R
BUILD SINGLE A INLET
PER COA STD DWG #2201, 2202
GRATE SHALL BE MODIFIED GRATE DETAIL
PER STD DWG #2220-SEE DETAIL THIS SHEET
TOP OF CURB=4844.90
GRATE=4843.67
FUTURE USE 18" RCP IN/OUT=4838.87 (PLUG)
INTERIOR 18" RCP IN/OUT FROM BACK OF
INLET TO INTERIOR R/W=4841.32

GARDEN WAY 2
STA: 10+00.00 TO 12+87.68
•ALL STATIONING BASED UPON PROPOSED CENTERLINE (MATCHES PAVING SHEET)



LINE	LENGTH	BEARING
L47	231.34	S84°40'50"
L48	240.42	S84°40'50"
L49	518.92	S84°40'50"

AS BUILT INFORMATION	
CONTRACTOR	DATE
DESIGNED BY	DATE
CHECKED BY	DATE
FIELD	DATE
APPROVED BY	DATE
RECORDED BY	DATE
MACRO-FILM INFORMATION	
RECORDED BY	DATE
45.	

[illegible][illegible]

ENGINEER'S SEAL

DATE: 2-12-14	DESIGNED BY: WCMU	REMARKS	BY:
DATE: 2-12-14	DRAWN BY: WCMU		
JOB NO. 21401	DRAWN NAME: 21401-LAYOUT-1-06-13		
DESIGN			
NO.	DATE		



SCALE: HORIZ. 1"=30'
VERT. 1"= 5'



Rio Grande Engineering
1000 CENTRAL AVENUE SE
SUITE 200
ALBUQUERQUE, NM 87102
(505) 263-6665

ABCWUA & CITY OF ALBUQUERQUE
PUBLIC WORKS DIVISION
ENGINEERING GROUP

TITLE: **SUNSET VILLA**
GARDEN WAY STORM DRAIN IMPROVEMENTS 2

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

CITY PROJECT NO. 764882

ZONE MAP NO.
K-12-Z

SHEET 23 OF 24

10+00	11+20	12+00	13+00
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SCALE: HORIZ. 1"=50'
VERT. 1"=5'



Rio Grande Engineering

[illegible]

ABCWUA & CITY OF ALBUQUERQUE
PUBLIC WORKS DIVISION
ENGINEERING GROUP

TITLE: **SUNSET VILLA**
STUB STREET STORM DRAIN IMPROVEMENTS

DESIGN REVIEW COMPLETE

CITY ENGINEER APPROVAL

30700N MONITOR 15M

100

DAY

0/00

1/yr

1000

CITY PROJECT NO. 764882

ZONE MAP NO.
K-12-7

SHEET 24 OF 24

	SH
--	----

SHEET

24

ON

2

24

1

[illegible][illegible][illegible]

ENGINEER'S SEAL

DATE: 2-12-14	BY
DATE: 2-12-14	
JOB NO.: 21401	

	REMARKS
	REVISIONS
	DESIGN
	DUT-1-06-13

[illegible]

VERQUE
N

IMPROVEMENTS

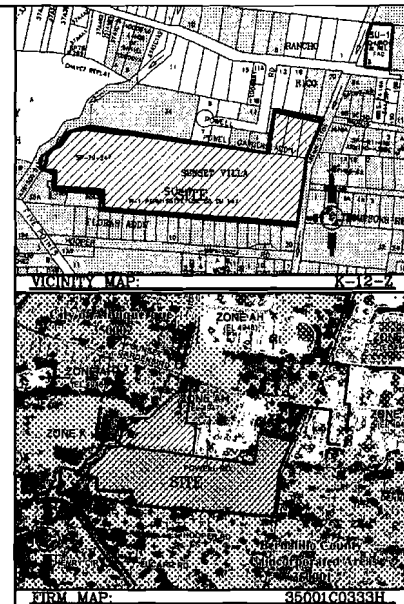
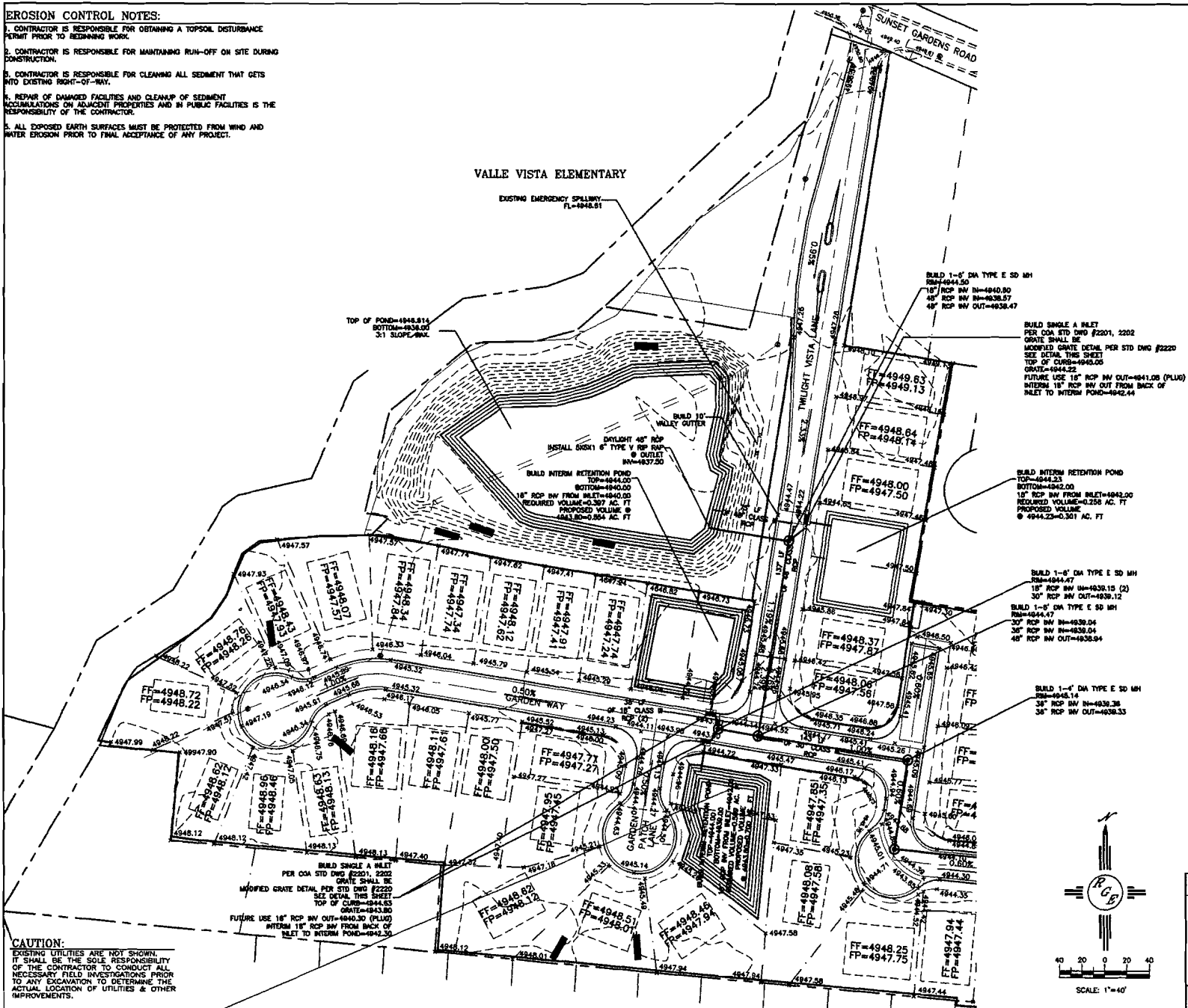
MO./DAY/YR.	MO./DAY/YR.

NO.	SHEET	OF
7	24	24

EROSION CONTROL NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RUN-OFF ON SITE DURING CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT THAT GETS INTO EXISTING RIGHT-OF-WAY.
4. REPAIR OF DAMAGED FACILITIES AND CLEANUP OF SEDIMENT ACCUMULATIONS ON ADJACENT PROPERTIES AND IN PUBLIC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
5. ALL EXPOSED EARTH SURFACES MUST BE PROTECTED FROM WIND AND WATER EROSION PRIOR TO FINAL ACCEPTANCE OF ANY PROJECT.

CAUTION:
EXISTING UTILITIES ARE NOT SHOWN.
IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO ANY EXCAVATION TO DETERMINE THE ACTUAL LOCATION OF UTILITIES & OTHER IMPROVEMENTS.



LEGAL DESCRIPTION:

TRACT 5, LANDS OF MINOR

NOTES:

1. ALL SPOT ELEVATIONS REPRESENT FLOORLINE ELEVATION UNLESS OTHERWISE NOTED.
2. ALL CURBS AND GUTTER TO 8" STANDARD UNLESS OTHERWISE NOTED.
3. ALL RETAINING WALL DESIGN SHALL BE BY OTHERS.

LEGEND

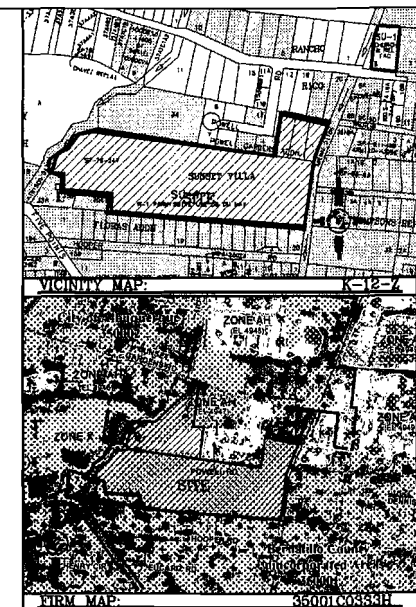
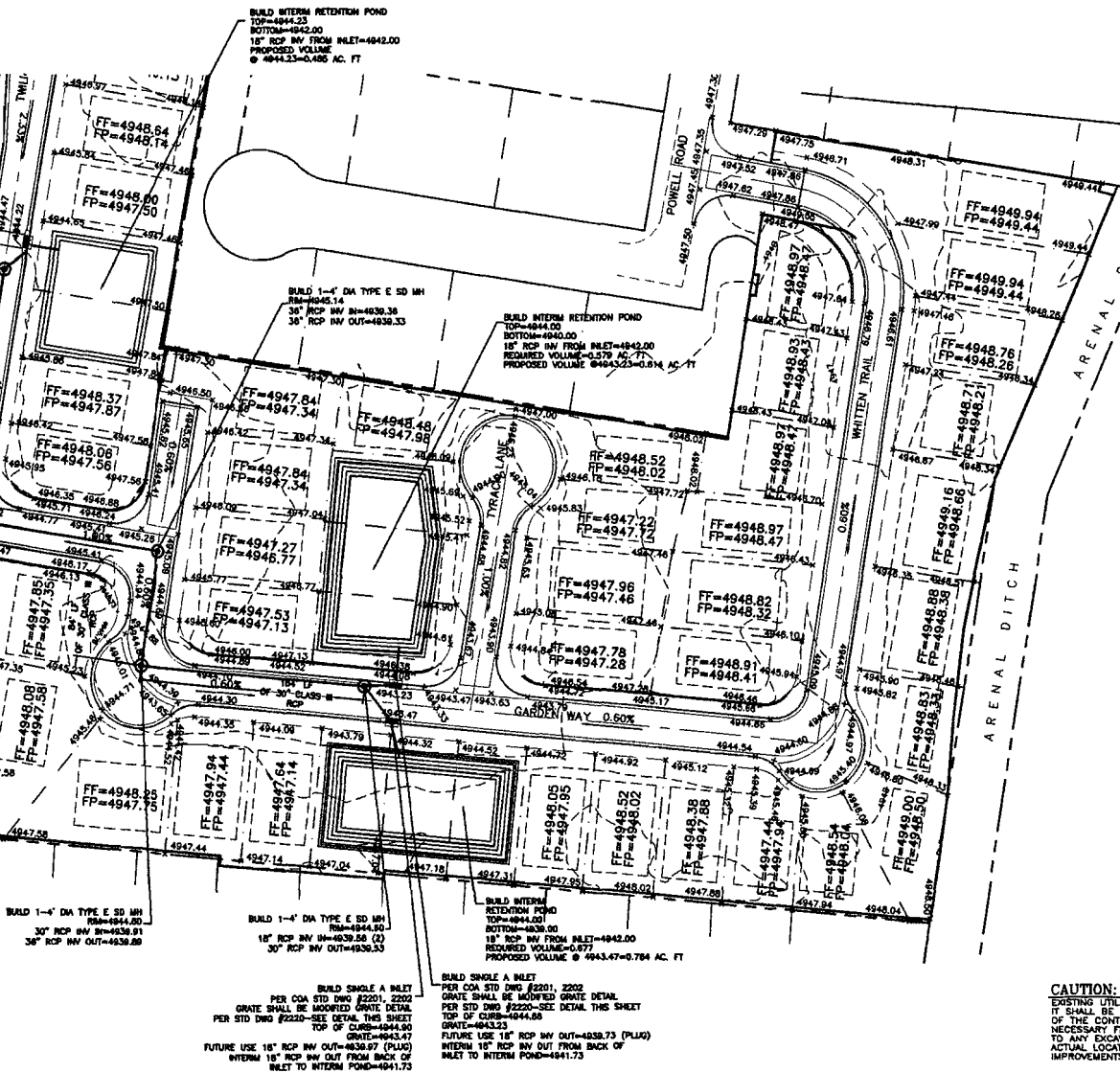
---	EXISTING CONTOUR
---	EXISTING INDEX CONTOUR
---	PROPOSED CONTOUR
---	PROPOSED INDEX CONTOUR
---	PROPOSED STORM DRAIN
---	EXISTING SPOT ELEVATION
---	PROPOSED SPOT ELEVATION
---	BOUNDARY
---	CENTERLINE
---	RIGHT-OF-WAY
---	PROPOSED CURB AND GUTTER
---	EXISTING CURB AND GUTTER
---	PROPOSED SIDEWALK
---	PROPOSED SETBACK
---	PROPOSED LOT LINE
---	PROPOSED SCREEN WALL
---	EXISTING SCREEN WALL

* FOR INFORMATION ONLY

	SUNSET VILLA GRADING AND DRAINAGE PLAN	DRAWN BY: MCKI DATE: 1-19-15 21401-1000-1-06-13
	1/19/15 DAVID SOULE P.E. #14359	Rio Grande Engineering 1400 CENTRAL AVENUE, SUITE 200 ALBUQUERQUE, NM 87102 (505) 975-0000

EROSION CONTROL NOTES:

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LEGAL DESCRIPTION: TRACT 5, LANDS OF MADON

- NOTES:**
1. ALL SPOT ELEVATIONS REPRESENT FINISHING ELEVATION UNLESS OTHERWISE NOTED.
 2. ALL CURBS AND GUTTER TO 8" STANDARD UNLESS OTHERWISE NOTED.
 3. ALL RETAINING WALL DESIGN SHALL BE BY OTHERS.

LEGEND	
---	EXISTING CONTOUR
---	EXISTING INDEX CONTOUR
---	PROPOSED CONTOUR
---	PROPOSED INDEX CONTOUR
---	PROPOSED STORM DRAIN
---	EXISTING SPOT ELEVATION
X	PROPOSED SPOT ELEVATION
---	BOUNDARY
---	CENTERLINE
---	RIGHT-OF-WAY
---	PROPOSED CURBS AND GUTTER
---	EXISTING CURBS AND GUTTER
---	PROPOSED SIDEWALK
---	PROPOSED SETBACK
---	PROPOSED LOT LINE
---	PROPOSED SCREEN WALL
---	EXISTING SCREEN WALL

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 IMPROVEMENTS.



ENGINEER'S SEAL 1/19/15 DAVID SOULE P.E. #14927	SUNSET VILLA GRADING AND DRAINAGE PLAN	DRAWN BY: NCW DATE: 1-19-15 31401-LX001-1-08-15
	 Ro Grande Engineering 1800 CENTRAL AVENUE NE SUITE 200 ALBUQUERQUE, NM 87106 (505) 271-0000	SHEET # 6A OF 24 JOB # 31401

DROP INLET CALCULATIONS

INLET	TYPE OF INLET	AREA (SF)	Q (CFS)	H (FT)	H ALLOW (FT)
a	DOUBLE	7.68	23.88	0.4170	1
b	DOUBLE	7.68	20.26	0.3002	1
c	SINGLE A	3.84	9.02	0.2380	1
d	SINGLE A	3.84	13.88	0.5635	1
e	SINGLE A	3.84	17.8	0.9268	1

ORIFICE EQUATION

$$Q = CA \sqrt{2gH}$$

$$C = 0.6$$

$$g = 32.2$$

FLOW RATES ARE DOUBLED

Submitted as addendum to
report later

Weighted E Method
SUNSET VISTA

Existing Developed Basins

											100-Year, 6-hr.			10-day
Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Volume (ac-ft)
			%	(acres)	%	(acres)	%	(acres)	%	(acres)				
BASIN A	150867	3.463	5%	0.17317	20.0%	0.693	20.0%	0.69269	55%	1.905	1.416	0.409	11.94	0.663
BASIN B	127921	2.937	5%	0.14683	20.0%	0.587	20.0%	0.58733	55%	1.615	1.438	0.352	10.13	0.567
BASIN C	56984	1.308	5%	0.06541	20.0%	0.262	20.0%	0.26163	55%	0.719	1.438	0.157	4.51	0.253
BASIN D	87633	2.012	5%	0.10059	20.0%	0.402	20.0%	0.40236	55%	1.106	1.438	0.241	6.94	0.389
BASIN E	112460	2.582	5%	0.12909	20.0%	0.516	20.0%	0.51635	55%	1.420	1.438	0.309	8.90	0.499
TOTAL	535865	12.302	0%	0	20.0%	2.460	25.0%	3.07544	55%	6.766	1.465	1.502	43.39	2.404

Equations:

Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed*Ad / (Total Area)

Volume = Weighted D * Total Area

Flow = Qa * Aa + Qb * Ab + Qc * Ac + Qd * Ad

Where for 100-year, 6-hour storm (zone 1)

- Ea= 0.44 Qa= 1.29
- Eb= 0.67 Qb= 2.03
- Ec= 0.99 Qc= 2.87
- Ed= 1.97 Qd= 4.37

The site initially will be gravel but ultimatly will be paved, land treatments will be for ultimate paved conditiosn

	REQUIRED	PROVIDED				
POND A	0.663	0.764	ac-ft	11.94	cfs	
POND B	0.567	1.07	ac-ft	10.13	cfs	22.07 east reach storm drain
POND C	0.253	0.572	ac-ft	4.51	cfs	
POND D	0.389	0.604	ac-ft	6.94	cfs	
POND E	0.499	0.7	ac-ft	8.90	cfs	15.84 west reach storm drain
						37.91 southreach

Submitted 8/20/15 as revision to report