#### U.S. DEPARTMENT OF HOMELAND SECURITY Federal Emergency Management Agency National Flood Insurance Program

OMB No. 1660-0008 Expiration Date: November 30, 2018

# **ELEVATION CERTIFICATE**

Important: Follow the instructions on pages 1–9.

Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

					,, , , , , , , , , , , , , , , , , , , ,
SECTION A - PRO	PERTY INFO	RMATION		FOR INS	JRANCE COMPANY USE
A1. Building Owner's Name				Policy Nu	mber:
Mario A Bernardone					
A2. Building Street Address (including Apt., U Box No. 21 Road 1740	nit, Suite, and	l/or Bldg. No.) or P.(	D. Route and	Company	NAIC Number:
City		State		ZIP Code	
Farmington		New Mexico		87401	
A3. Property Description (Lot and Block Numb RANCHO ESTATES PART OF LOT 20, Tax P					
A4. Building Use (e.g., Residential, Non-Residential, Non	lential, Additio	on, Accessory, etc.)	Residential		
A5. Latitude/Longitude: Lat. 36 49 59.85	Long.	108 13 26.00	Horizontal Datum:	NAD	1927 × NAD 1983
A6. Attach at least 2 photographs of the building	ng if the Certif	icate is being used	to obtain flood insurar	nce.	
A7. Building Diagram Number8					
A8. For a building with a crawlspace or enclose	ure(s):				
a) Square footage of crawlspace or enclos	sure(s)	2,200 sq ft			
b) Number of permanent flood openings in	the crawlspa	ce or enclosure(s) v	vithin 1.0 foot above a	idjacent gi	rade0
c) Total net area of flood openings in A8.b	0	sq in			
d) Engineered flood openings?	⊠ No				
A9. For a building with an attached garage:					
a) Square footage of attached garage	2,500	sq ft			
b) Number of permanent flood openings in	the attached	garage within 1.0 fo	ot above adjacent gra	ide	0
c) Total net area of flood openings in A9.b	0	sq in	,	-	
d) Engineered flood openings?  Yes	× No				
SECTION B - FLO	OOD INSURA	NCE RATE MAP	(FIRM) INFORMATI	ON	
B1. NFIP Community Name & Community Numb	per	B2. County Name			B3. State
SAN JUAN COUNTY/350064		San Juan			New Mexico
B4. Map/Panel B5. Suffix B6. FIRM Individual Date		IRM Panel	B8. Flood Zone(s)		e Flood Elevation(s)
Number Date 35045C0700 F 08/05/2010		ffective/ evised Date	^	Floo	ne AO, use Base d Depth)
3304300700	06/05	/2010	A	5468.39	
B10. Indicate the source of the Base Flood Eleva	ation (BFE) da	ata or base flood de	pth entered in Item B	9:	
FIS Profile FIRM Community			711.		
B11. Indicate elevation datum used for BFE in Ite	em B9: N	GVD 1929 🔀 NA	VD 1988	/Source:_	
B12. Is the building located in a Coastal Barrier I	Resources Sv	stem (CBRS) area	or Otherwise Protecte	d Area (O	PA)? ☐ Yes ☒ No
Designation Date:	☐ CBRS			<b>\</b>	
	_ 051.0				

# **ELEVATION CERTIFICATE**

IMPORTANT: In these spaces, copy the corresponding	FOR INSURANCE COMPANY US		
Building Street Address (including Apt., Unit, Suite, and/or 21 Road 1740	oute and Box No.	Policy Number:	
City Stat Farmington New		Code 401	Company NAIC Number
SECTION C – BUILDING ELI	EVATION INFORMA	TION (SURVEY R	EQUIRED)
C1. Building elevations are based on: Construction *A new Elevation Certificate will be required when concern and the complete Items C2.a—h below according to the build Benchmark Utilized: OPUS  Indicate elevation datum used for the elevations in item NGVD 1929 NAVD 1988 Other/S Datum used for building elevations must be the same a) Top of bottom floor (including basement, crawlspane) Top of the next higher floor  c) Bottom of the lowest horizontal structural member d) Attached garage (top of slab)  e) Lowest elevation of machinery or equipment serving (Describe type of equipment and location in Common f) Lowest adjacent (finished) grade next to building (g) Highest adjacent (finished) grade next to building (g)	n Drawings* Bub binstruction of the build by E, V1–V30, V (with E ling diagram specified Vertical Datumens a) through h) belowers:  a s that used for the lace, or enclosure floor (V Zones only)  cing the building nents)  LAG)	ilding Under Constructing is complete.  BFE), AR, AR/A, AR in Item A7. In Puerloss  OPUS  OW.  BFE.  5478, 24  5481, 49  N/A  5479, 14  N/A  5478, 82  5479, 8	uction*
<ul> <li>h) Lowest adjacent grade at lowest elevation of deck structural support</li> </ul>	or stairs, including	N/A	x feet meters
SECTION D – SURVEYOR, E	NGINEER. OR ARC	CHITECT CERTIFIC	CATION
This certification is to be signed and sealed by a land surve I certify that the information on this Certificate represents in statement may be punishable by fine or imprisonment under Were latitude and longitude in Section A provided by a lice	eyor, engineer, or arc ny best efforts to inter er 18 U.S. Code, Sect	hitect authorized by pret the data availal tion 1001.	law to certify elevation information.
Certifier's Name	License Number		
Title Professional Engineer  Company Name Sakura Engineering and Surveying  Address 125 West Main St,  City	State New Mexico	ZIP Code 87401	REGISTERNO REGISTERN MEXICO REGISTERNO REGIS
Signature /	Date	Telephone	
Copy all pages of this Elevation Certificate and all attachments  Comments (including type of equipment and location, per Comments)  Detached garage slab elevation is 5479.06		cial, (2) insurance ag	jent/company, and (3) building owner.

# **ELEVATION CERTIFICATE**

IMPORTANT: In these spaces, copy the corresponding information from Section A.	FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 21 Road 1740	Policy Number:
City State ZIP Code Farmington New Mexico 87401	Company NAIC Number
SECTION E – BUILDING ELEVATION INFORMATION (SURVEY NOT FOR ZONE AO AND ZONE A (WITHOUT BFE)	REQUIRED)
For Zones AO and A (without BFE), complete Items E1–E5. If the Certificate is intended to support a complete Sections A, B, and C. For Items E1–E4, use natural grade, if available. Check the measurer enter meters.  E1. Provide elevation information for the following and check the appropriate boxes to show whether the highest adjacent grade (HAG) and the lowest adjacent grade (LAG).	ment used. In Puerto Rico only,
a) Top of bottom floor (including basement, crawlspace, or enclosure) is feet meters b) Top of bottom floor (including basement, crawlspace, or enclosure) is feet meters	
E2. For Building Diagrams 6–9 with permanent flood openings provided in Section A Items 8 and/or sthe next higher floor (elevation C2.b in the diagrams) of the building is feet meters feet feet meters feet feet feet meters feet	above or below the HAG.
SECTION F – PROPERTY OWNER (OR OWNER'S REPRESENTATIVE) CER	RTIFICATION
The property owner or owner's authorized representative who completes Sections A, B, and E for Zon community-issued BFE) or Zone AO must sign here. The statements in Sections A, B, and E are correspondently Owner or Owner's Authorized Representative's Name	ne A (without a FEMA-issued or ect to the best of my knowledge.
Address City Stat	e ZIP Code
Signature Date Tele	phone
Comments	X
	Check here if attachments.

# **ELEVATION CERTIFICATE**

IMPORTANT: In these spaces, copy the cor	responding information	from Section A.	FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, 9 21 Road 1740	Suite, and/or Bldg. No.) or	P.O. Route and Box No.	Policy Number:
City Farmington	State New Mexico	ZIP Code 87401	Company NAIC Number
SECTI	ON G - COMMUNITY IN	FORMATION (OPTIONAL)	
The local official who is authorized by law or of Sections A, B, C (or E), and G of this Elevation used in Items G8–G10. In Puerto Rico only, en	n Certificate. Complete the		
G1. The information in Section C was tall engineer, or architect who is authorized data in the Comments area below.)	ken from other documenta zed by law to certify eleva	ation that has been signed a tion information. (Indicate th	nd sealed by a licensed surveyor, e source and date of the elevation
G2. A community official completed Sect or Zone AO.	tion E for a building locate	ed in Zone A (without a FEM)	A-issued or community-issued BFE)
G3. The following information (Items G4-	-G10) is provided for com	munity floodplain managem	ent purposes.
G4. Permit Number	G5. Date Permit Issued		Date Certificate of Compliance/Occupancy Issued
G7. This permit has been issued for:	New Construction S	Substantial Improvement	
G8. Elevation of as-built lowest floor (including of the building:	g basement)	feet	meters Datum
G9. BFE or (in Zone AO) depth of flooding at t	the building site:	feet	meters Datum
G10. Community's design flood elevation:		feet	meters Datum
Local Official's Name	Т	Title Title	
Community Name	Т	elephone	
Signature	D	Pate	
Comments (including type of equipment and loc	ation, per C2(e), if applica	able)	
			Check here if attachments.

#### **BUILDING PHOTOGRAPHS**

#### **ELEVATION CERTIFICATE**

See Instructions for Item A6.

OMB No. 1660-0008

Expiration Date: November 30, 2018

IMPORTANT: In these spaces,	FOR INSURANCE COMPANY USE		
Building Street Address (includin 21 Road 174	Policy Number:		
City	State	ZIP Code	Company NAIC Number
Farmington	New Mexico	87401	

If using the Elevation Certificate to obtain NFIP flood insurance, affix at least 2 building photographs below according to the instructions for Item A6. Identify all photographs with date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8. If submitting more photographs than will fit on this page, use the Continuation Page.

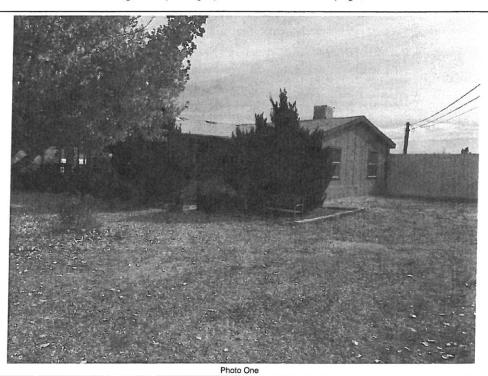


Photo One Caption Photo taken October 27, 2016 Northwest corner of the house



Photo Two

Photo Two Caption Photo taken October 27 ,2016 East side of the house with detached and attached garage visible

# **BUILDING PHOTOGRAPHS**

# **ELEVATION CERTIFICATE**

Continuation Page

IMPORTANT: In these spaces, copy the corr	FOR INSURANCE COMPANY USE		
Building Street Address (including Apt., Unit, S 21 Road 1740	uite, and/or Bldg. No.) or	P.O. Route and Box No.	Policy Number:
City	State	ZIP Code	Company NAIC Number
Farmington	New Mexico	87401	
If submitting more photographs than will fit o with: date taken; "Front View" and "Rear photographs must show the foundation with re	View"; and, if required,	"Right Side View" and "	Left Side View." When applicable,
	Photo O	ne	
	Photo One		
Photo One Caption			
	Photo Tw	0	
			,
acto Tivo Continu	Photo Two		
noto Two Caption			



# Drainage Calculations (Flood Waters)

# **Existing Condition**

Total Existing Area	Total Existing Area	1 <sub>100</sub> yr for 10 min	C <sub>Native</sub> Ground Cover	$Q (cfs) = C * I_{Max} * A$
2327.85 Ac.	101,401,146.00 sq. ft.	1.67	0.3	1166,25 cfs

19590.64 Tc 60 Subject: OPUS-RS solution: 7359 \_1026\_131829.m00 OP1479163785062

From: opus <opus@ngs.noaa.gov>

**Date:** 11/14/2016 3:57 PM **To:** sakura@sakuraeng.com

FILE: 7359\_1026\_131829.m00 OP1479163785062

NGS OPUS-RS SOLUTION REPORT

All computed coordinate accuracies are listed as 1-sigma RMS values. For additional information: http://www.ngs.noaa.gov/OPUS/about.jsp#accuracy

USER: sakura@sakuraeng.com DATE: November 14, 2016

RINEX FILE: 7359300t.160 TIME: 22:55:57 UTC

SOFTWARE: rsgps 1.37 RS51.prl 1.99.3 START: 2016/10/26 19:19:00 EPHEMERIS: igs19203.eph [precise] STOP: 2016/10/26 20:33:00 NAV FILE: brdc3000.16n OBS USED: 8082 / 8874 : 915

ANT NAME: LEIGS15 NONE QUALITY IND. 6.43/ 8.89
ARP HEIGHT: 1.554 NORMALIZED RMS: 0.367

REF FRAME: NAD\_83(2011)(EPOCH:2010.0000) IGS08 (EPOCH:2016.81921)

0.008(m)0.008(m)-1598803.470(m) **X**: -1598802.619(m) 0.017(m)Y: -4856000.573(m) 0.017(m)-4855999.234(m) 0.018(m)3803587.197(m) 0.018(m)**Z**: 3803587.323(m) 0.008(m)36 49 59.73934 0.008(m)36 49 59.75562 LAT: 0.006(m)251 46 34.44729 E LON: 251 46 34.49679 0.006(m)0.006(m)108 13 25.55271 W LON: 108 13 25.50321 0.006(m)

EL HGT: 1648.632(m) 0.024(m) 1647.752(m) 0.024(m) ORTHO HGT: 1669.577(m) 0.028(m) [NAVD88 (Computed using GEOID12B)]

UTM COORDINATES STATE PLANE COORDINATES UTM (Zone 12) SPC (3003 NM W)

Northing (Y) [meters] 4079973.278 647049.812

Easting (X) [meters] 747585.549 795175.371

Convergence [degrees] 1.66517457 -0.23405312
Point Scale 1.00035524 0.99993160
Combined Factor 1.00009649 0.99967296

US NATIONAL GRID DESIGNATOR: 12SYF4758579973(NAD 83)

#### BASE STATIONS USED

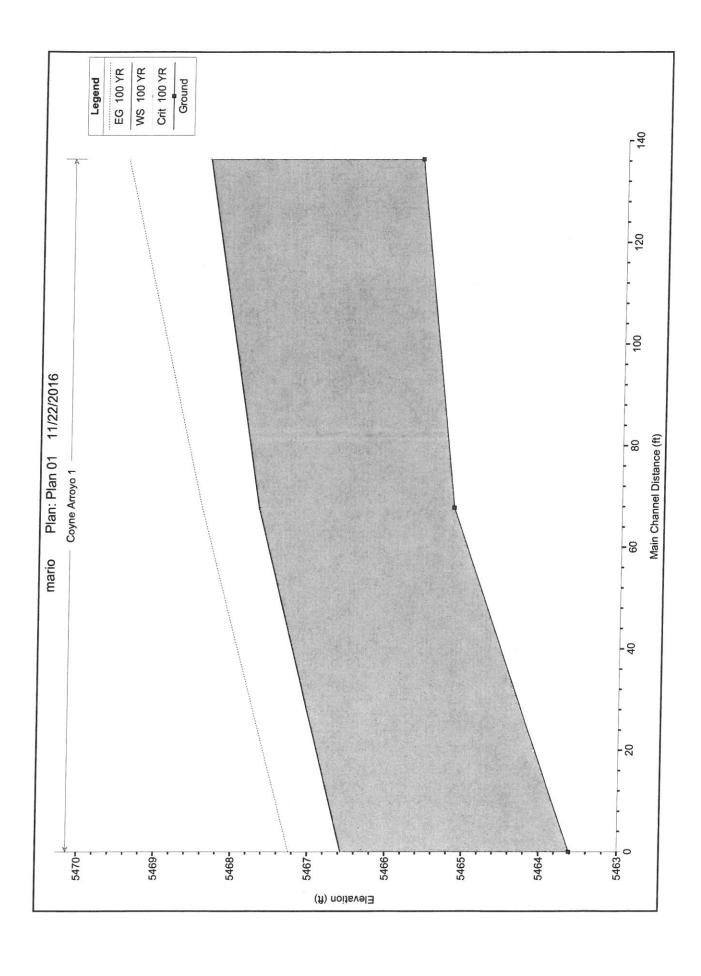
PID	DESIGNATION	LATITUDE	LONGITUDE	DISTANCE(m)
D02634	CTI4 COMPASSTOOLS4CRNR CORS ARP	N370910.489	W1074521.876	54712.8
DH5816	P028 CHACOCNHP_NM2005 CORS ARP	N360154.048	W1075430.227	93361.3
DQ3897	RG09 RG09LNDRTHNM2006 CORS ARP	N361816.595	W1070321.136	119908.4
DI2245	P011 SPIDERROCKAZ2005 CORS ARP	N360859.363	W1093109.175	138686.1
DQ3900	RG21 RG21FREEMNCO2006 CORS ARP	N374604.231	W1070633.057	143308.3
DL3642	MC09 NUCLA CORS ARP	N381435.614	W1083329.283	159293.6

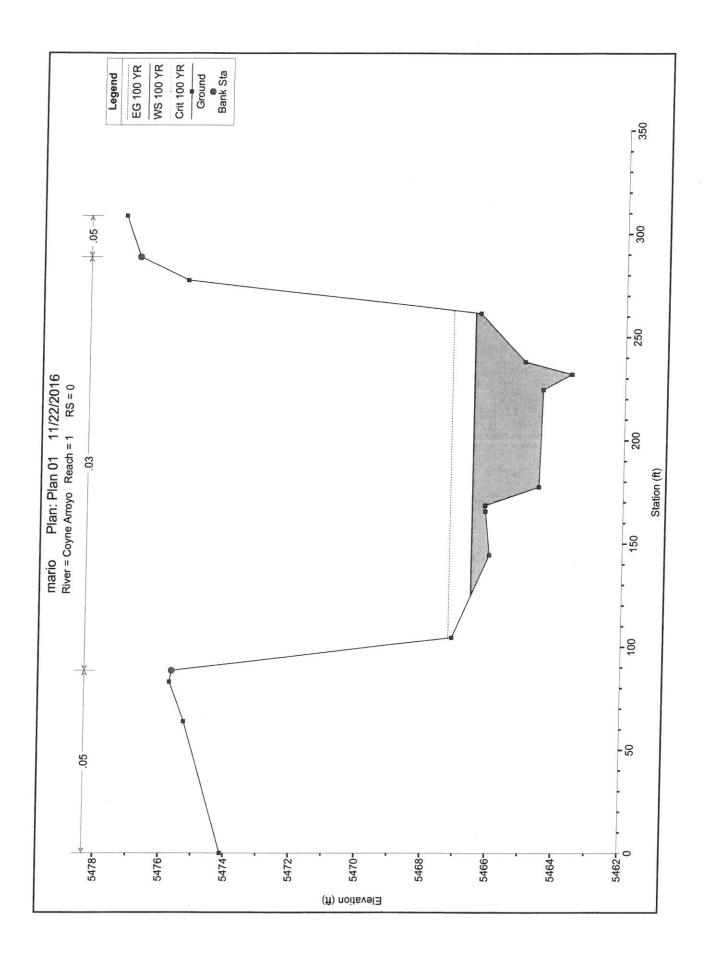
DI3419 P012 MONTICELLOUT2006 CORS ARP N380550.740 W1092001.763 171296.5 DI0438 NMGR GRANTS NMDOT CORS ARP N351259.649 W1075548.368 181375.6 DL3585 MC10 MONTROSE CORS ARP N382720.137 W1075242.393 182666.0

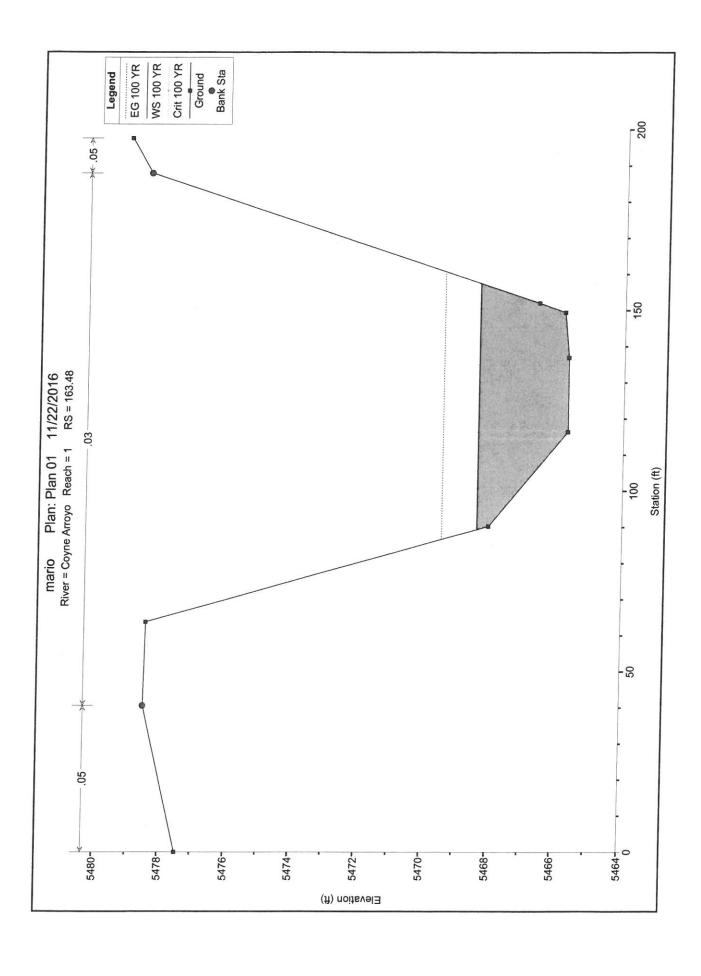
NEAREST NGS PUBLISHED CONTROL POINT

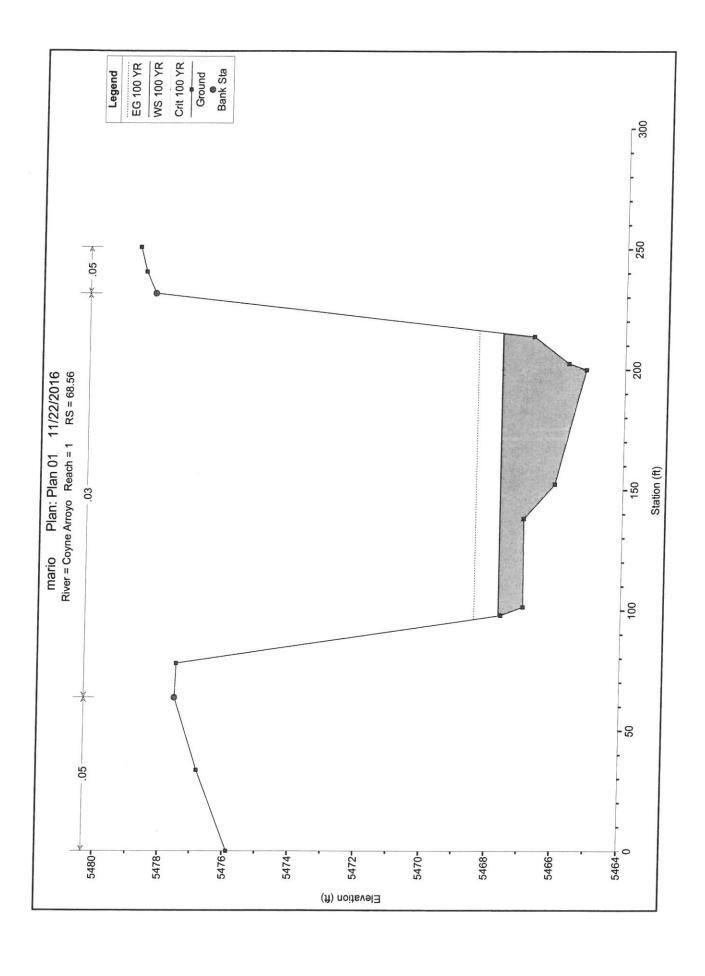
G00366 CEDAR N365119.952 W1080930.008 6336.9

This position and the above vector components were computed without any knowledge by the National Geodetic Survey regarding the equipment or field operating procedures used.









HEC-RAS Version 4.1.0 Jan 2010 U.S. Army Corps of Engineers Hydrologic Engineering Center 609 Second Street Davis, California

X	X	XXXXXX	XX	XX		XX	XX	Х	X	XXXX
X	Χ	X	X	X		X	X	X	X	X
X	X	X	X			X	X	X	X	X
XXX	XXXX	XXXX	X		XXX	XX	XX	XXX	XXX	XXXX
X	X	X	X			X	X	X	X	X
X	Χ	X	X	X		X	X	X	X	X
X	Χ	XXXXXX	XX	XX		X	X	X	X	XXXXX

PROJECT DATA

Project Title: mario
Project File: mario.prj

Run Date and Time: 11/22/2016 9:12:43 AM

Project in English units

#### PLAN DATA

Plan Title: Plan 01

Plan File : C:\Users\Scott\Documents\mario.p01

Geometry Title: mario

Geometry File : C:\Users\Scott\Documents\mario.g01

Flow Title : Flow 01

Flow File : C:\Users\Scott\Documents\mario.f01

## Plan Summary Information:

Number of: Cross Sections = 3 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

#### Computational Information

Water surface calculation tolerance = 0.01 Critical depth calculation tolerance = 0.01 Maximum number of iterations = 20

Maximum difference tolerance

= 0.3

Flow tolerance factor

= 0.001

#### Computation Options

Critical depth computed only where necessary

Conveyance Calculation Method: At breaks in n values only

Friction Slope Method: Average Conveyance Computational Flow Regime: Subcritical Flow

#### FLOW DATA

Flow Title: Flow 01

Flow File : C:\Users\Scott\Documents\mario.f01

Flow Data (cfs)

River

Reach

RS

100 YR

Coyne Arroyo

163.48

1166.25

#### **Boundary Conditions**

River

Reach

Profile

Upstream

Downstream

Coyne Arroyo Critical

1

100 YR

Critical

GEOMETRY DATA

Geometry Title: mario

Geometry File : C:\Users\Scott\Documents\mario.g01

CROSS SECTION

RIVER: Coyne Arroyo

REACH: 1

RS: 163.48

		mario.rep			
INPUT Description:					
Station Elevation Data Sta Elev Sta 0 5477.46 40.58 136.91 5465.65 149.45	Elev 5478.5		90.23 54	68.04 116.36	Elev 5465.64 5479.08
	n Val	3 Sta n Val 37.87 .05			
Bank Sta: Left Right 40.58 187.87	T	eft Channel 57.8 68.56		Coeff Contr.	Expan.
CROSS SECTION OUTPUT Pro	file #100 Y	'R			
E.G. Elev (ft)	5469.45	Element		Left OB	Channel
Right OB Vel Head (ft)	1.06	Wt. n-Val.			0.030
W.S. Elev (ft) 71.31	5468.39	Reach Len. (	ft)	67.80	68.56
Crit W.S. (ft)	5468.39	Flow Area (s	q ft)		141.33
E.G. Slope (ft/ft)	0.010619	Area (sq ft)			141.33
Q Total (cfs)	1166.25	Flow (cfs)			1166.25
Top Width (ft)	68.16	Top Width (f	t)		68.16
Vel Total (ft/s)	8.25	Avg. Vel. (f	t/s)		8.25
Max Chl Dpth (ft)	2.75	Hydr. Depth (	(ft)		2.07
Conv. Total (cfs)	11317.6	Conv. (cfs)			11317.6
Length Wtd. (ft)	68.56	Wetted Per. (	ft)		68.75
Min Ch El (ft)	5465.64	Shear (lb/sq	ft)		1.36
Alpha 0.00	1.00	Stream Power	(lb/ft s)	197.57	0.00
5.00 5			<b>5.</b> \		

Cum Volume (acre-ft)

Cum SA (acres)

0.51

0.34

0.77

0.10

Frctn Loss (ft)

C & E Loss (ft)

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth

for the water surface and continued on with the calculations.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the

need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated

water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

#### CROSS SECTION

RIVER: Coyne Arroyo

REACH: 1 RS: 68.56

#### INPUT

Description:

Station Elevation Data num= 14

Sta Elev 10 5475.8733.59999 5476.83 63.77 5477.5477.93001 5477.5 97.98 5467.61 101.42 5466.93 138.06 5466.95 152.44 5466.03 199.95 5465.16 202.57 5465.68 213.69 5466.74 231.49 5478.33 240.49 5478.63 250.71 5478.82

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .05 63.77 .03 231.49 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan. 63.77 231.49 67.8 67.8 71.31 .1 .3

#### CROSS SECTION OUTPUT Profile #100 YR

E.G. Elev (ft) Right OB	5468.43	Element	Left OB	Channel
Vel Head (ft)	0.74	Wt. n-Val.		0.030
W.S. Elev (ft) 71.31	5467.69	Reach Len. (ft)	67.80	67.80
Crit W.S. (ft)	5467.69	Flow Area (sq ft)		168.92
E.G. Slope (ft/ft)	0.012022	Area (sq ft)		168.92

Q Total (cfs)	1166.25	mario.rep Flow (cfs)		1166.25
Top Width (ft)	117.33	Top Width (ft)		117.33
Vel Total (ft/s)	6.90	Avg. Vel. (ft/s)		6.90
Max Chl Dpth (ft)	2.53	Hydr. Depth (ft)		1.44
Conv. Total (cfs)	10636.6	Conv. (cfs)		10636.6
Length Wtd. (ft)	67.80	Wetted Per. (ft)		117.84
Min Ch El (ft)	5465.16	Shear (lb/sq ft)		1.08
Alpha 0.00	1.00	Stream Power (lb/ft s)	250.71	0.00
Frctn Loss (ft)	0.83	Cum Volume (acre-ft)		0.27
C & E Loss (ft)	0.02	Cum SA (acres)		0.20

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth

for the water surface and continued on with the calculations.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the

need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated

water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

#### CROSS SECTION

RIVER: Coyne Arroyo

REACH: 1

RS: 0

#### **INPUT**

Description:

Station Elevation Data num= 16 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev 63.82 5475.28 0 5474.1 82.98 5475.74 88.48 5475.67 104.58 5467.13 144.55 5466.02 165.7 5466.16 168.59 5466.17 177.52 5464.55 224.62 5464.47 232.04 5463.61 238.2 5465.03 261.63 5466.41 277.5 5475.36 288.69 5476.83 308.65 5477.27

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .05 88.48 .03 288.69 .05

Bank Sta: Left Right Coeff Contr. Expan. 88.48 288.69 .1 .3

# CROSS SECTION OUTPUT Profile #100 YR

E.G. Elev (ft) Right OB	5467.24	Element	Left OB	Channel
Vel Head (ft)	0.67	Wt. n-Val.		0.030
W.S. Elev (ft)	5466.57	Reach Len. (ft)		
Crit W.S. (ft)	5466.57	Flow Area (sq ft)		177.48
E.G. Slope (ft/ft)	0.012548	Area (sq ft)		177.48
Q Total (cfs)	1166.25	Flow (cfs)		1166.25
Top Width (ft)	137.26	Top Width (ft)		137.26
Vel Total (ft/s)	6.57	Avg. Vel. (ft/s)		6.57
Max Chl Dpth (ft)	2.96	Hydr. Depth (ft)		1.29
Conv. Total (cfs)	10411.2	Conv. (cfs)		10411.2
Length Wtd. (ft)		Wetted Per. (ft)		137.70
Min Ch El (ft)	5463.61	Shear (lb/sq ft)	9	1.01
Alpha	1.00	Stream Power (lb/ft s)	308.65	0.00
0.00 Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

# River:Coyne Arroyo

Reacl	n River Sta.	n1	n2	n3
1	163.48	.05	.03	.05
1	68.56	.05	.03	.05
1	0	.05	.03	.05

### SUMMARY OF REACH LENGTHS

River: Coyne Arroyo

Re	ach R	iver Sta. Le	eft CI	hannel	Right
1		163.48	67.8	68.56	71.31
1		68.56	67.8	67.8	71.31
1		3			

# SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: Coyne Arroyo

Reach	River Sta.	Contr.	Expan.
1	163.48	.1	.3
1	68.56	.1	.3
1	0	.1	.3