

Full Size or Largest Size
(site plan, landscape, elevations)

File Copy

PRELIMINARY DRAINAGE REPORT

CATTLETRAK TRUE HOMES (Case No 19-ZN-2016)

Plan #	_____
Case #	19-ZN-2016
D-S #	_____
<input type="checkbox"/> Accepted	
<input checked="" type="checkbox"/> Corrections	
DG	10/4/16
Reviewed By	Date



DAVID EVANS AND ASSOCIATES INC.

September 2016
DEA PROJECT NO. TRUH0001

19-ZN-2016
09/14/16

PROJECT TRACKING SHEET

STAFF CONTACTS						
CURRENT PLANNING	DESIGN CONSULTANT	ENGINEERING	FIRE	LONG RANGE PLANNING	STORM WATER	TRANSPORTATION
	Steve V.	D.Gue	R. King	Sara J.	Don Gerkin	

PROJECT NAME: 19-ZN-2016 CATTLETRACK VILLAGE

Coordinator: Jesus Murillo

All comments ***MUST*** include the Ordinance, Policy, or DSPM Section Numbers; please initial and date at the end of each of your comments.

Tracking sheet boiler comments that are not applicable shall be struck out to indicate the reviewer has considered those particular comments; please do not delete comments from the Tracking Sheet in case if they become relevant in the resubmittal.

DRAINAGE COMMENTS / DRAIN:

Administrative Review:

1st Review completed by ?????? on ??/??/??.

READY FOR SUBSTANTIVE REVIEW? NO YES

2nd Review completed by ?????? on ??/??/??.

READY FOR SUBSTANTIVE REVIEW? NO YES

3rd Review completed by ?????? on ??/??/??.

READY FOR SUBSTANTIVE REVIEW? NO YES

Application Deficiencies:

A.

Substantive Review:

1st Review completed by dger on 7/28/16.

READY TO BE DETERMINED? NO YES

2nd Review completed by dger on 10/4/16.

READY TO BE DETERMINED? NO YES

3rd Review completed by ?????? on ??/??/??.

READY TO BE DETERMINED? NO YES

All comments ***MUST*** include the Ordinance, Policy, or DSPM Section Numbers; please initial and date at the end of each of your comments.

Ordinance Issues:

- 1st Review comments 7/28/16, 2nd review comments 10/4/16: The drainage report is not approved and the case cannot be scheduled for a hearing date. Please revise the drainage report to address the following review comments.
- Add the case no. to the cover page of the drainage report. Case No. 19-ZN-2016. **ADDRESSED 10/4/16**
- BFE =1278.9. Based on the best available data, the BFE = 1278.9. The LF88 of homes needs to be elevated 1 ft. above this elevation. **ADDRESSED 10/4/16**
- AH Zone: Please show on the site plan the new AH flood zone layer and the current flood zone layers. Contact Gavan and Barker to get this information. . **NOT ADDRESSED 10/4/16 Please show**

PROJECT TRACKING SHEET

the proposed Flood Zone AH area and delineation limits line on the site plan. Use the FCDMC Lower Indian Bend Wash ADMS for this information.

5. Stormwater Storage Volume: Since there are existing impervious areas onsite, this site falls under the city's redevelopment policy for stormwater storage volume. This means you can use the difference between the pre-development (existing) weighted Runoff Coefficient ('C') and the post-development weighted Runoff Coefficient and provide onsite stormwater storage under the pre- vs. the post- conditions for the 100-year, 2-hour storm event, using the Volume Required (Vr) equation. ADDRESSED 10/4/16
6. Drainage Basins: Typically, private on lot drainage basins are not allowed in the rear yards of homes because they can't be viewed from the street to see that they haven't been filled in by the homeowner. These basins must be visible and accessible from the public street. The basins cannot be placed behind the private wall of the home or community, show on the site plan where the site wall will generally be located. Provide notes on the site plan and drainage report to provide mountable curbs in the street to provide access to the basins. Create an unobstructed pathway from the street to each basin. Dedicate access easements over these pathways. ADDRESSED 10/4/16 There are no "On Lot" retention basins since the required stormwater storage volume was reduced by the Redevelopment policy.
7. Some type of low height barrier and sign (decorative wall or fencing) must be erected that makes the homeowner aware of the basin and that this basin cannot be filled in. Drainage easements shall be dedicated over the basins. ADDRESSED 10/4/16 There are no "On Lot" retention basins since the required stormwater storage volume was reduced by the Redevelopment policy.
8. Although the City strongly encourages construction of detention basins which can be drained out within 36 hours by means of bleed off pipes, but often that is not feasible due to the flat nature of the terrain and stormwater storage is often provided in retention basins. In that case, the retention basins must also drain out within 36 hours through natural percolation. [Reference: COS DSPM: Section 4-1.402] ADDRESSED 10/4/16, basins will be drained by dry wells.
9. If stormwater storage is provided in retention basins, then please state in the Case Drainage Report that a Geotechnical report will be submitted along with the Improvement Plans submittal demonstrating that the retention basins will drain out within 36 hours through natural percolation or will be drained out within 36 hours by means of a number of drywells as needed based on a percolation test of the sub-surface soil which will utilize a dual-ring infiltrometer for the test and will consider a factor of safety of 2. [Reference: COS DSPM: Section 4-1.402] ADDRESSED 10/4/16
10. CLOMR: Please state what's the purpose of the CLOMR. What flood zones are you changing?
11. Compensatory Storage: Please discuss why it is required here? Is it because the flood zone will change from A to AH? What methodology are you using to evaluate compensatory storage and what is the reference document you're using? Provide the reference documents and the criteria. Discuss how the runoff will be contained on site, without it running off onto the neighbors parcel. You may need to provide restricted openings at the outlets in the wall. ADDRESSED 10/4/16
12. Discuss where the over flow spillway for the compensatory storage basin is located. ADDRESSED 10/4/16
13. The following review comments are from the 2nd review on 10/4/16:
14. Calculate the compensatory storage volumes for flood zone AH areas and compare it to the compensatory storage volume for flood zone A areas. Provide a typical cross section full size sheet across the site with the Flood Zone AH, similar to the full size sheet for Section A-A. 10/4/16

PROJECT TRACKING SHEET

- 15. Label all the full size exhibits with specific titles in the drainage report. 10/4/16
- 16. The Best Available Data for the Flood Zones in this area is from the FCDMC Lower Indian Bend Wash ADMS. The City does not support the CLOMR request because the flood zone is changing from A to AH. Please design the site for the future flood zone AH per the FCDMC Lower Indian Bend Wash ADMS. 10/4/16

17.

Policy and Design Related Issues:

18.

Technical Corrections to be resolved prior the final plans submittal:

19.

ENGINEERING REVIEW:

Administrative Review:

- | | | | | | |
|---|-------------------------------|----|--------------------------|-----|--------------------------|
| 1 st Review completed by ?????? on ??/??/??. | READY FOR SUBSTANTIVE REVIEW? | NO | <input type="checkbox"/> | YES | <input type="checkbox"/> |
| 2 nd Review completed by ?????? on ??/??/??. | READY FOR SUBSTANTIVE REVIEW? | NO | <input type="checkbox"/> | YES | <input type="checkbox"/> |
| 3 rd Review completed by ?????? on ??/??/??. | READY FOR SUBSTANTIVE REVIEW? | NO | <input type="checkbox"/> | YES | <input type="checkbox"/> |

Application Deficiencies:

B.

Substantive Review:

- | | | | | | |
|---|-------------------------|----|-------------------------------------|-----|--------------------------|
| 1 st Review completed by DGue on 07/27/2016. | READY TO BE DETERMINED? | NO | <input checked="" type="checkbox"/> | YES | <input type="checkbox"/> |
| 2 nd Review completed by ?????? on ??/??/??. | READY TO BE DETERMINED? | NO | <input type="checkbox"/> | YES | <input type="checkbox"/> |
| 3 rd Review completed by ?????? on ??/??/??. | READY TO BE DETERMINED? | NO | <input type="checkbox"/> | YES | <input type="checkbox"/> |

All comments ***MUST*** include the Ordinance, Policy, or DSPM Section Numbers; please initial and date at the end of each of your comments.

Ordinance Issues:

20.

Policy and Design Related Issues:

- 21. The gated entry must meet DS+PM Section 2-1.806 and Figure 2.1-3.

Technical Corrections to be resolved prior the final plans submittal:

22.

WATER & SEWER COMMENTS:

PRELIMINARY DRAINAGE REPORT
FOR
CATTLETRACK TRUE HOMES
(Case No 19-ZN-2016)

PREPARED FOR

TRUE HOMES
7831 E. BUENA TERRA WAY
SCOTTSDALE, AZ 85250

PREPARED BY

RAMZI GEORGES, P.E., C.F.M.
DAVID EVANS AND ASSOCIATES, INC.
4600 E. Washington Street, Suite 250
PHOENIX, AZ 85034
(602) 678-5151

September 2016
DEA PROJECT NO. TRUH0001



EXP: 3-31-2018

TABLE OF CONTENTS

1.	INTRODUCTION	1
2.	EXISTING DRAINAGE CONDITIONS	1
3.	PROPOSED DRAINAGE CONCEPT	2
3.1.	ON-SITE DRAINAGE CONVEYANCE	2
3.2.	CLOMR APPLICATION	2
3.3.	OFF-SITE DRAINAGE CONVEYANCE	3
3.4.	ON-SITE STORM WATER STORAGE	3
4.	HYDROLOGIC ANALYSIS	4
5.	HYDRAULIC ANALYSIS	4
6.	CONCLUSIONS	5
7.	REFERENCES	5

<u>FIGURES</u>	<u>TITLE</u>	<u>LOCATION</u>
1	Vicinity Map	Appendix A

<u>EXHIBITS</u>	<u>TITLE</u>	<u>LOCATION</u>
A	Drainage Area Map	Back Pocket

<u>APPENDIX</u>	<u>TITLE</u>	
A	Figures	Appendix A
B	FEMA Flood Insurance Rate Map	Appendix B
C	Volume Calculations and Data Sheets	Appendix C
D	Draft Exhibit of the Results of Lower Indian Bend Wash ADMP ...	Appendix D



Exp: 3-31-2017

1. INTRODUCTION

This Preliminary drainage report has been prepared under a contract with True Homes, owner/developer of the proposed subdivision. The purpose of this report is to provide preliminary drainage analyses, required by the City of Scottsdale, to support the proposed site plan for this project. This report and design follows the procedures outlined in the *City of Scottsdale, Design Standards and Policy Manual* (Reference 1) and the *Drainage Design Manuals for Maricopa County, Arizona, Volumes I and II* (References 2 and 3).

The overall project is located in Section 14, Township 2 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona. The site is bounded by Cattletrack Road to the west, residential development to the north, open space/tennis courts to the south, and Arizona Trail/Canal to the east. Figure 1, located in Appendix A, illustrates the location of the project in relation to the City of Scottsdale's street system.

The Cattletrack Subdivision project is a proposed development of approximately 1.9 acres. Onsite improvements include; street, graded pads, and open space/retention to the east.

2. EXISTING DRAINAGE CONDITIONS

This project is currently an existing single residential home. The site drains in an easterly direction towards the canal. There are few feet drop to the east. There is an open space to the south with tennis court and it is depressed several feet from the elevations onsite.

Cattletrack Road, to the west, is developed road with curb and gutter and slopes in a southerly direction.

Offsite runoff impacts the eastern portion of the site and a floodplain (Zone A) occupies the eastern portion of the site as shown in the FIRM panel 04013C1770L. Zone A floodplain is defined as areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.

The remainder of the site to the west is located in Zone D. Zone D floodplain is defined as Areas with possible but undetermined flood hazards. No flood hazard analysis has been conducted. Flood insurance rates are commensurate with the uncertainty of the flood risk.

The general lay of the land is in an easterly direction. Runoff flows towards the canal and ponds next to it and eventually flows in a southern direction when the ponding next to the canal recedes.

DEA drainage team researched available drainage information and coordinated with the Flood

control district and their consultant for the overall drainage study taken place in the area. This drainage report is based on existing floodplain conditions and not the new drainage study underway.

3. PROPOSED DRAINAGE CONCEPT

The proposed drainage concept is presented in three parts: on-site drainage conveyance, off-site drainage conveyance and on-site storm water storage. The hydrology analysis is summarized in section 4.0 and the hydraulic analysis is summarized in section 5.0. See Exhibit A, located in the back pocket, for a graphical illustration of the proposed drainage conditions map.

3.1. On-Site Drainage Conveyance

The intent of the grading design is to convey the runoff generated onsite during a 100-year 2-hour storm event or smaller into retention basin along the eastern open space of the overall project.

The road conveys street runoff to the east into the cul-de-sac and then spills into the open space east of the project along the canal. The eastern portion of the site is where the existing floodplain is located.

The extreme outfall of the site is over the canal, at an elevation of 1979.40. The finish floor elevations of the proposed subdivision are being designed to be above this elevation by at least a foot. Refer to Exhibit A in the back pocket of the report for reference and to the Concept Grading Plans also included in the back pocket.

3.2. CLOMR Application

A CLOMR application will be prepared and filed for this project. The purpose of the application is to remove portions of Lots 2 and 3 out of the floodplain and change the portion of the floodplain from Zone A to Zone D. The application will show that the proposed grading and reduction in the floodplain area is based on providing compensatory storage of (8,163 ft³) where the lots are being filled. The project will provide volume generated during the 100-year 2 hour storm event onsite for the pre versus post development drainage conditions.

The compensatory volume will be stored above the retention volume in the same basin and it will be allowed to enter and leave as needed (through wall openings) since it is a ponding situation next to the canal. The volume information is also reflected in the retention calculations section.

The compensatory storage is calculated based on the difference between the floodplain surface estimated at 1279.40 and what is currently existing onsite within the floodplain limits. The difference between the two surfaces, using Autodesk Civil 3D software, was accounted for in the compensatory storage calculations.

3.3. Off-Site Drainage Conveyance

The only runoff that impacts the site is from the floodplain to the east. The floodplain is currently being studied by Flood Control District of Maricopa County (FCDMC) in collaboration with the City of Scottsdale (COS). The current FEMA floodplain is changing based on the new study Lower Indian Bend Wash ADMP (see Appendix D), however the results are preliminary and not being used for this project. The existing/current effective firm panel information is being used for the purpose of this drainage report.

Through discussions with the consultant for FCDMC, the new study reflects a larger potential floodplain area for the project at a high water surface elevation estimated at 1278.90. This elevation is not higher than the adjacent existing grade near the canal at 1279.40. Refer to the exhibit located in Appendix D, showing a draft of the preliminary results of the study. As result, the finish floor elevations for the proposed subdivision are being set higher than the spill elevations along the adjacent Arizona Canal (existing floodplain at 1279.40) and it will also work for the draft copy of the proposed floodplain at 1278.90.

The volume that is being filled in the floodplain is being compensated for with open space at the eastern portion of the site, on top of the 100-year volume mentioned above. This is in accordance with *IS-Managing Floodplain Development Through National Insurance Program (NFIP)*, (Page 6-21), Reference #4. It states the NFIP floodway standard in 44 CFR 60.3(d) restricts new development from obstructing the flow of water and increasing flood heights. However, this provision does not address the need to maintain flood storage. Especially in flat areas, the floodplain provides a valuable function by storing floodwaters. When fill or buildings are placed in the flood fringe, the flood storage areas are lost and flood heights will go up because there is less room for the floodwaters. This is particularly important in smaller watersheds which respond sooner to changes in the topography.

3.4. On-Site Storm Water Storage

The City of Scottsdale requires new development to store the on-site runoff generated during a 100-year, 2-hour storm event. However, since this project is an infill project, it being allowed to retain only pre versus post runoff development volume. The required storage volume for the project site is estimated as follows:

$$V_R = (P/12)*A*C$$

Where:

- V_R = Calculated volume in acre-feet
- C_{wt} = Runoff coefficient (C= .35, Pre vs post)
- P = Precipitation amount in inches (2.18 inches)
- A = Drainage area in acres

The City strongly encourages detention basin which can be drained out within 36 hours by means of bleedoff pipes. However, where it is not feasible as in this site situation, the retention basins must also drain out within 36 hours by means of percolation. A geotechnical report will need to be submitted along with the improvement plans, demonstrating that the retention basins will drain out within 36 hours. A drywell may be needed and it is shown on the grading and drainage plans. It may be needed and utilized to assist in percolating the stored runoff for the 100-year 2 hour volume only into the ground, as there is no adjacent City storm drain system. The number of drywells will be determined after the first drywell is installed and a percolation test is done. The testing of the drywells will be performed and completed by a licensed geotechnical engineer.

4. HYDROLOGIC ANALYSIS

The hydrologic analysis for the site will be determined using the procedures set in the *City of Scottsdale Design Standards (Reference #1) and Policies Manual* and the *Drainage Design Manual for Maricopa County, Arizona, Volume I (Reference #2)*. Rational for Windows will be utilized to compute the on-site peak discharges. The program is based on the Flood Control District of Maricopa County methodology as explained in Volume 1. The following establishes the Rational Method equation and the basic input data required:

$$Q = C_{wt} I A$$

Where:

- C_{wt} = The runoff coefficient relating runoff to rainfall
- I = Average rainfall intensity in inches/hour, lasting for T_c
- T_c = The time of concentration (minutes)
- A = The contributing drainage area in acres (from Exhibit A).

Upon acceptance of this conceptual design by the City of Scottsdale, on-site peak discharges will be performed using the methodology above in order to size inlets and storm drain pipes as part of the final drainage report.

5. HYDRAULIC ANALYSIS

The hydraulic analysis of the proposed stormwater management facilities will be determined according to the *City of Scottsdale Design Standards (Reference #1) and Policies Manual* and the *Maricopa County Drainage Design Manual, Volume II, Hydraulics. (Reference #3)*

6. CONCLUSIONS

Based on the results of this study, it can be concluded that:

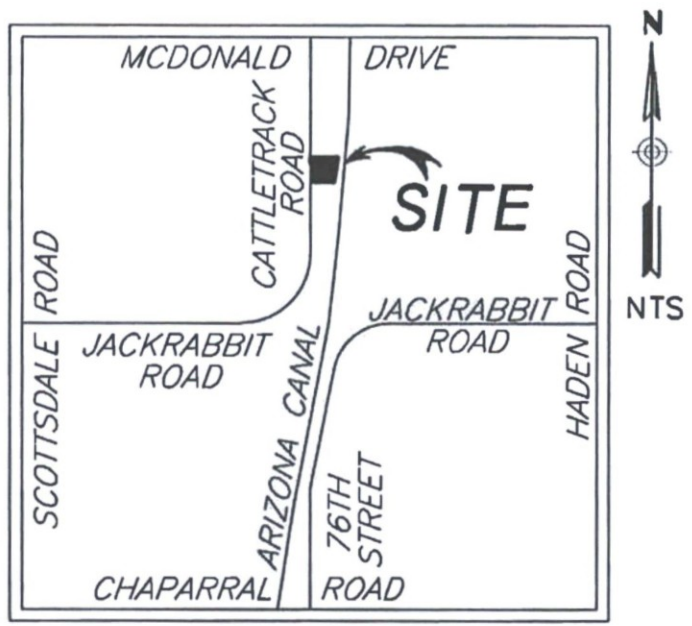
- * The site will be developed according to the *City of Scottsdale Design Standards and Policies Manual* and the *Drainage Design Manuals for Maricopa County*.
- * The pre versus post volume is retained on-site.
- * Compensatory storage will be provided for filling in the floodplain portion of the site.
- * The buildings will not be inundated during a 100-year storm event.
- * A CLOMR application will be filed after the acceptance of this drainage report, followed by a LOMR application after the project is built.

7. REFERENCES

- 1) *City of Scottsdale, Design Standards and Policy Manual*, January 2010.
- 2) *Drainage Design Manual for Maricopa County, Arizona, Volume I, Hydrology*, Flood Control District of Maricopa County, August 15, 2013.
- 3) *Drainage Design Manual for Maricopa County, Arizona, Volume II, Hydraulics*, Flood Control District of Maricopa County, August 15, 2013.
- 4) IS-9 Managing Floodplain Development Through The National Flood Insurance Program (NFIP) (page6-21)

APPENDIX A

FIGURE 1
(Vicinity Map)

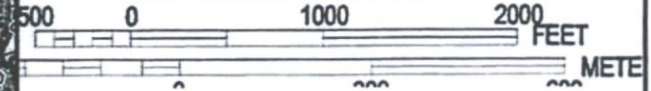


VICINITY MAP
N.T.S.

APPENDIX B
(FEMA Flood Insurance Rate Map)



MAP SCALE 1" = 1000'



NFIP

PANEL 1770L

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP
MARICOPA COUNTY,
ARIZONA
AND INCORPORATED AREAS

PANEL 1770 OF 4425

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	1770	L
PARADISE VALLEY, TOWN OF	040049	1770	L
SCOTTSDALE, CITY OF	045012	1770	L

Notice 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
04013C1770L
MAP REVISED
OCTOBER 16, 2013

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

APPENDIX C
(Volume Calculations and Data Sheets)

Contributing Drainage Areas: A

Basin:

Need 8,163 ft³ in compensatory volume and it was calculated using Civil 3D.

VOLUME REQUIRED CALCULATIONS (pre Vs Post Volume)

Type	Area		'C' Coefficient C	Precipitation (Inches)	Retention Required	
	(ft)	(Ac)			(ft ³)	(Ac-ft)
Residential	82,522	1.11	0.35	2.18	5,235	0.12

RETENTION BASIN CALCULATIONS

Elevation	Delta Depth (ft)	Surface Area (ft ²)	'C' Coefficient C	Precipitation (Inches)	Volume Provided			
					(ft ³)	Σ (ft ³)	(Ac-ft)	Σ (Ac-ft)
1279.0	1.0	8,843	0.35	8,161	8,161	0.19	0.43	
1278.0	1.0	7,497	0.35	6,579	10,769	0.15	0.25	
1277.0	1.0	5,702	0.35	4,190	4,190	0.10	0.10	
1276.0		2,842	0.35		10,769		0.25	
Onsite Storage Depth								
Basin Depth								
1.16								
						<i>Provided</i>		18,930
						<i>Required</i>		5,235
						<i>Balance</i>		<u>13,695</u>
								0.25
								0.12
								<u>0.13</u>

18,930 ft³ Total Volume Provided

5,235 ft³ Volume Needed for Retention

13,695 ft³ Excess Volume can be used for Floodplain

Total for Compensatory

13,694.77 ft³ > 8,163 ft³

Hence the volume provided exceeds 8,163ft³ needed volume for floodplain.

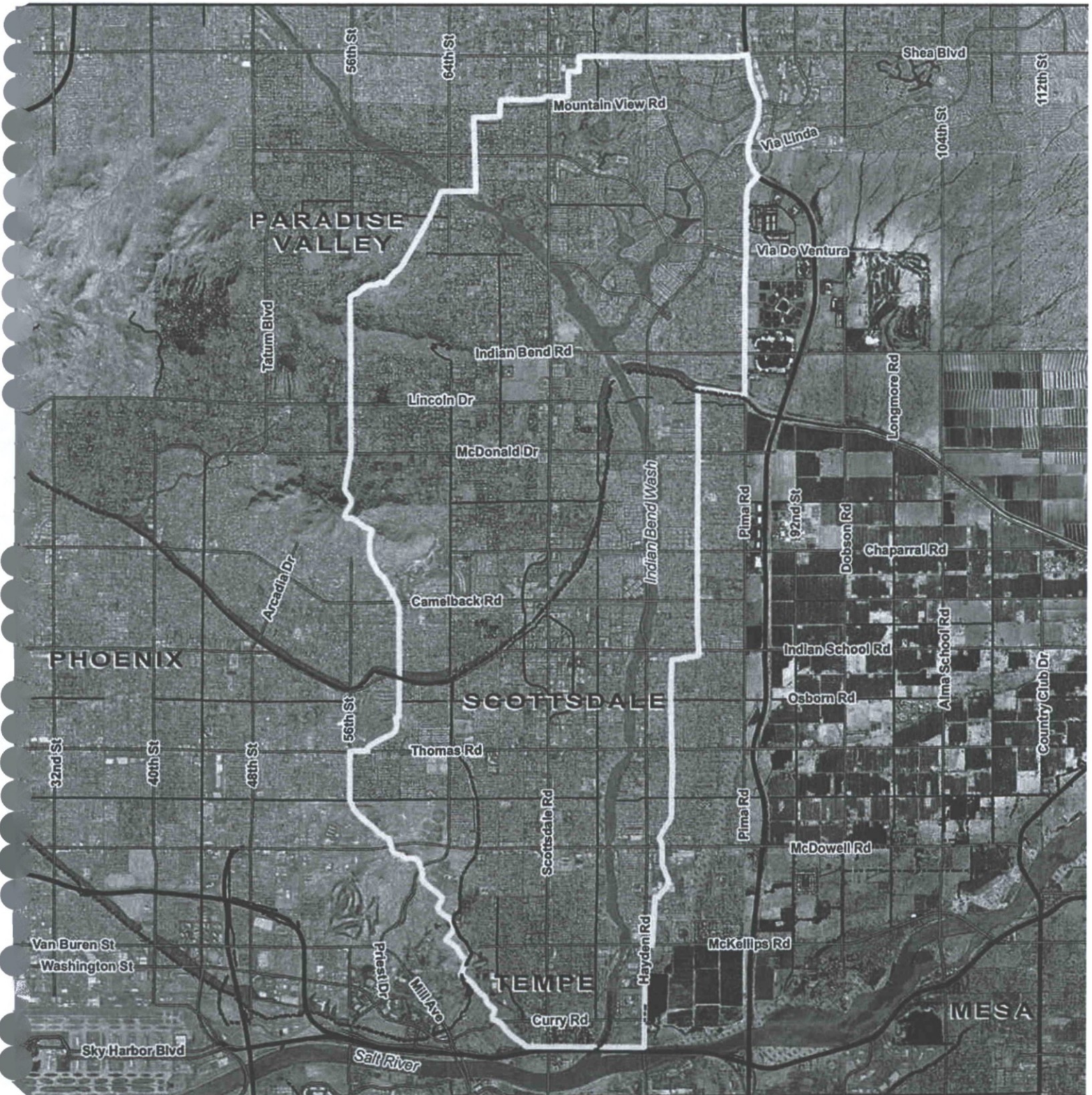
Weighted C Calculations

Existing House/Hardscape	8,517	(ft ²)	C=1.0
Total Lot Area	82,522	(ft ²)	C=0.35
Weighted C, Existing	0.41		
<i>Difference in C value between existing and proposed is</i>			
C Value for Developed (estimated)	0.76		
Difference in C value	0.35	{ 0.76 - 0.41 = 0.34 }	

APPENDIX D
(Draft Exhibit of the Results of Lower Indian Bend Wash ADMP)



Lower Indian Bend Wash ADMP



Document Path: X:\kai\requests\ashin\LIBW\LowerIndian8x11.mxd

Flood Control District of Maricopa County, GIS Division, Sept 2013



Miller Rd

FLOODPLAIN
LIMIT USING
DAVID EVANS
TOPO

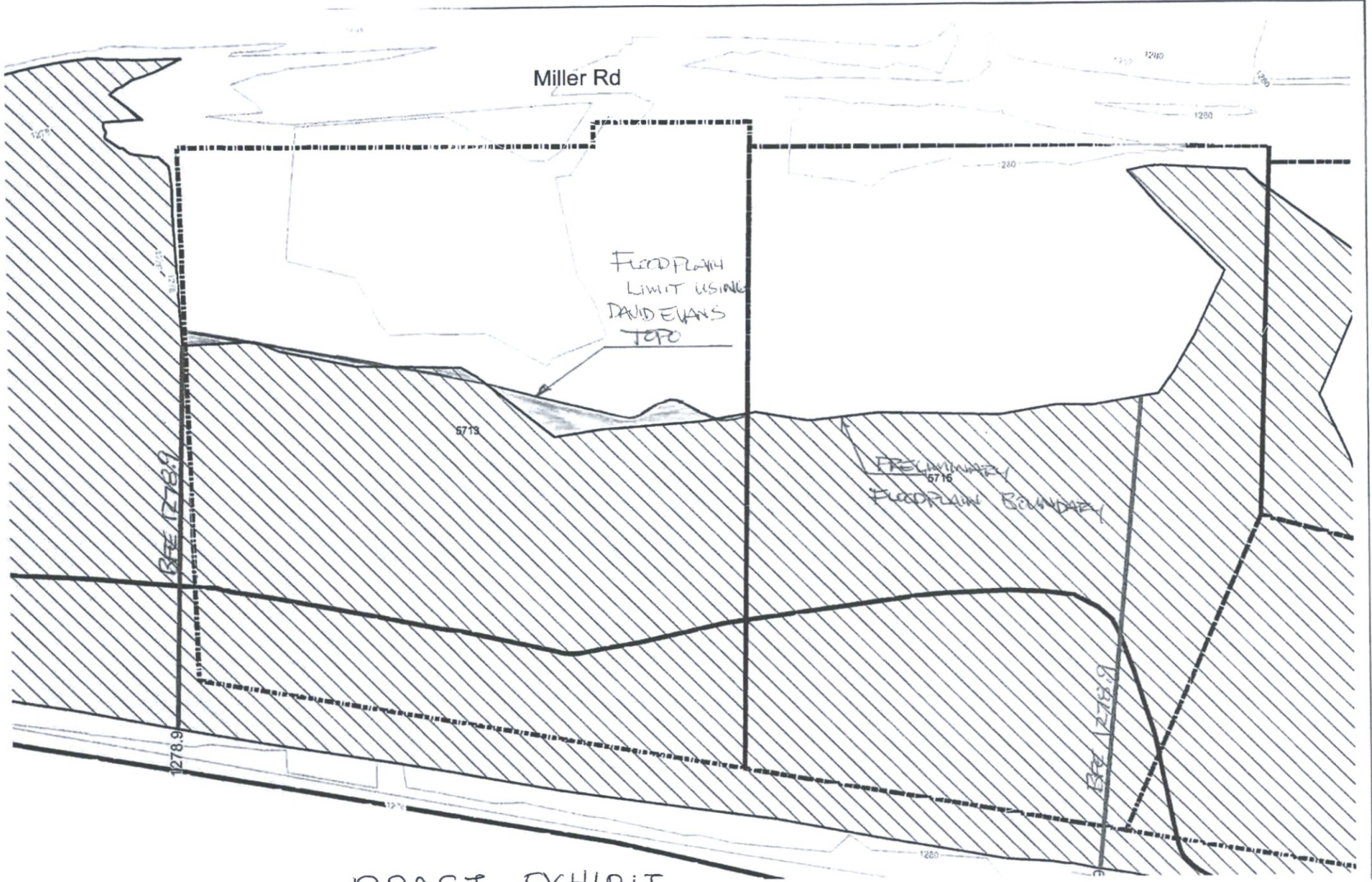
PRELIMINARY
FLOODPLAIN BOUNDARY

1278.9

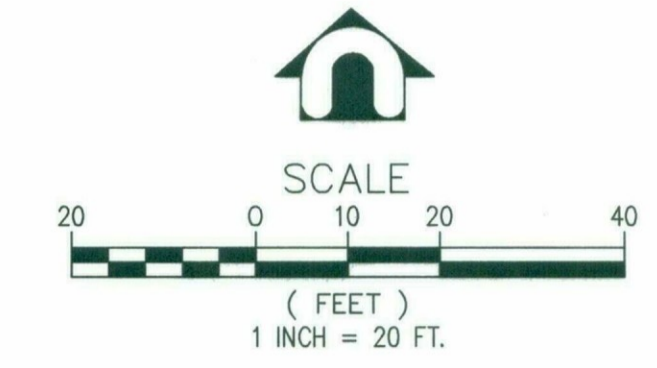
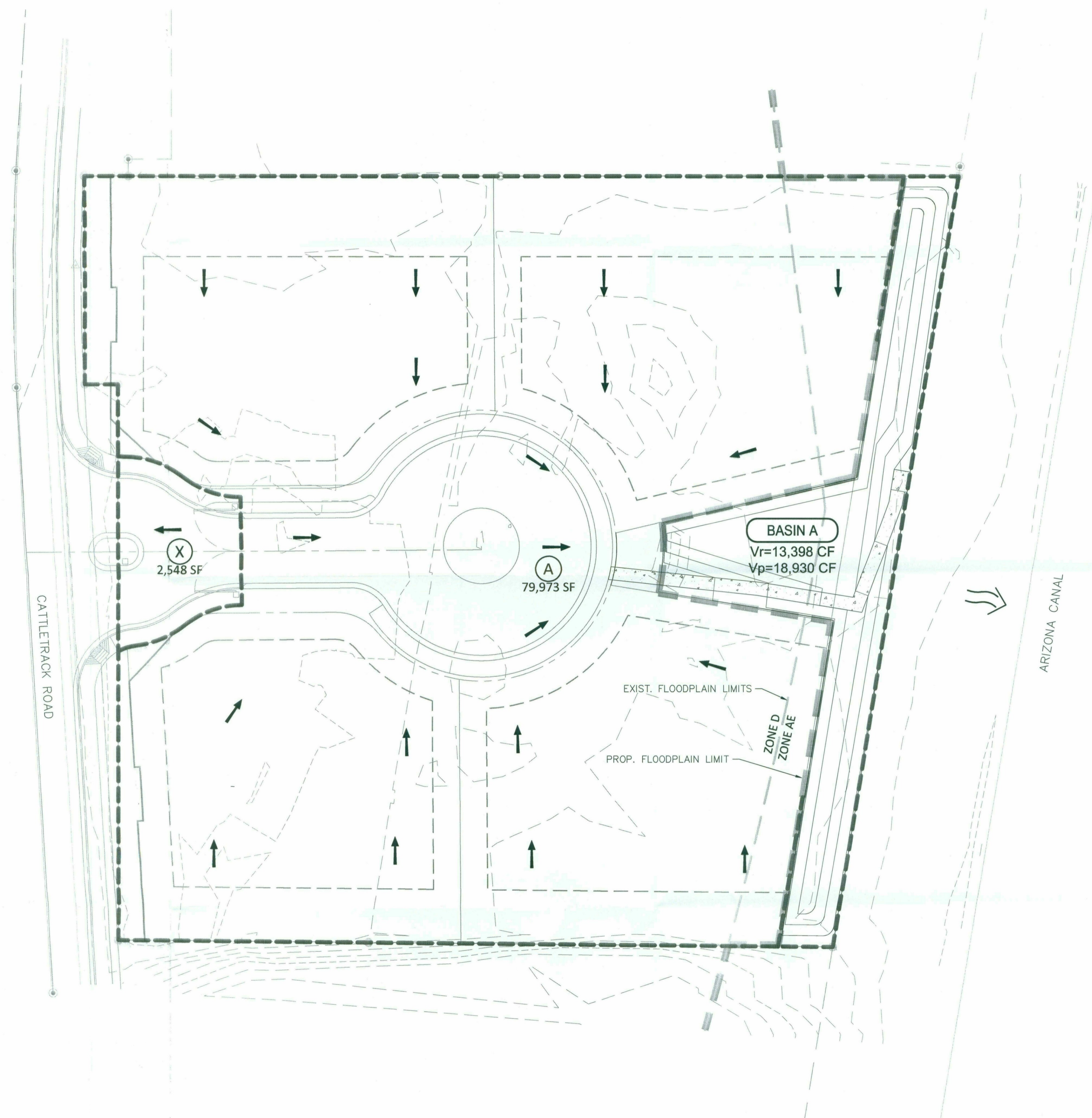
1278.9

1278.9

DRAFT EXHIBIT



P:\T\TRUH0000001\0400CAD\EP\BASES\EP-HY-X-TRUH0001.dwg jcf 9/13/2016 11:31 AM



DEVELOPER/OWNER
 TRUE HOMES
 7831 E. BUENA TERRA WAY
 SCOTTSDALE, AZ 85250

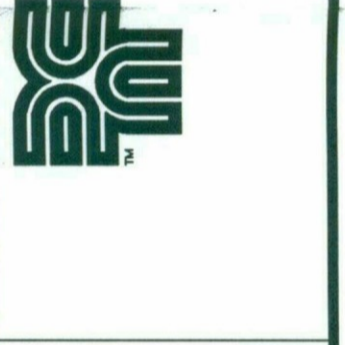
ENGINEER
 DAVID EVANS AND ASSOCIATES, INC.
 4600 E. WASHINGTON STREET, SUITE 250
 PHOENIX, AZ 85034
 CONTACT: RAMZI GEORGES, P.E.
 (602) 678-5151

LEGEND

- FLOW DIRECTION
- SUB BASIN BOUNDARY
- SUB BASIN LABEL
- SUB BASIN AREA LABEL
- CONCENTRATION POINT
- RETENTION BASIN LABEL
- RETENTION BASIN VOLUME REQUIRED
- RETENTION BASIN VOLUME PROVIDED
- OUTFALL

PROJECT MANAGER:	
DESIGNED BY: JCF	
DRAWN BY: JCF	
CHECKED BY: RYG	
DATE: 9/13/2016	

DAVID EVANS AND ASSOCIATES INC.
 4600 E WASHINGTON ST. SUITE 250
 Phoenix, Arizona 85034
 Phone: 602.678.5151



DRAINAGE AREA MAP
 5713 N. CATTLETRACK ROAD
 SCOTTSDALE, ARIZONA

SCALE:
 1: 20

SECTION: 14
 TOWNSHIP: 2N
 RANGE: 4E

JOB NO.:
 TRUH0001

SHEET
 1 OF 1



DEVELOPER/OWNER

TRUE HOMES
7831 E. BUENA TERRA WAY
SCOTTSDALE, AZ 85250

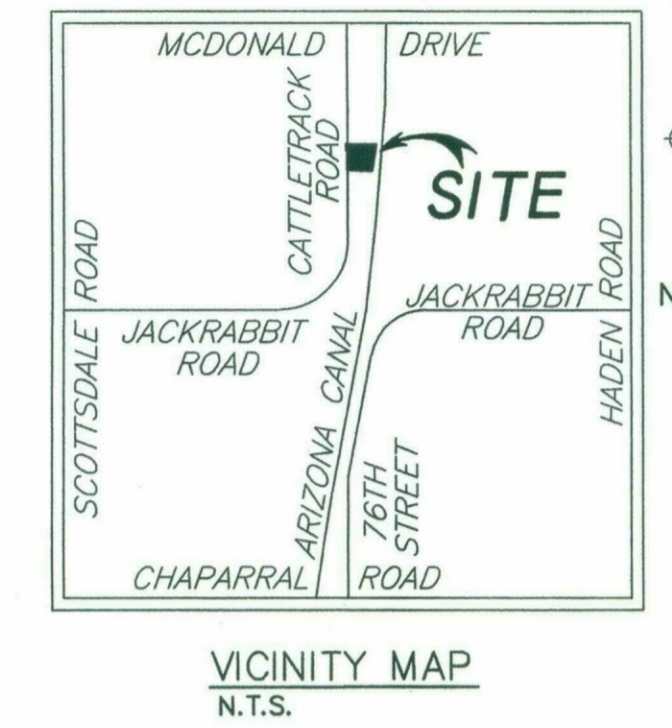
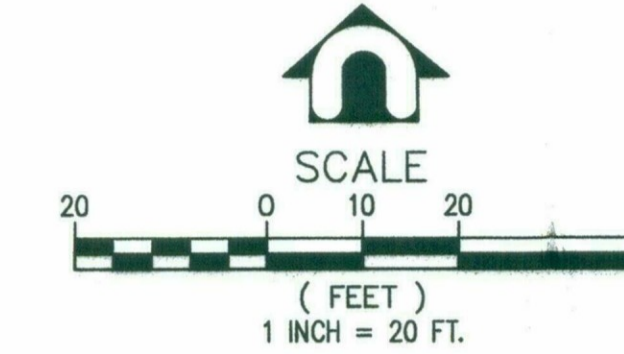
SITE ARCHITECT

LVA URBAN DESIGN STUDIO
120 SOUTH ASH AVENUE
TEMPE, ARIZONA 85281
CONTACT: ALEX STEDMAN
PHONE: (480) 994-0994

ENGINEER

DAVID EVANS AND ASSOCIATES, INC.
4600 EAST WASHINGTON STREET, SUITE 250
PHOENIX, AZ 85034
CONTACT: RAMZI GEORGES
PHONE: (602) 678-5151

CONCEPTUAL GRADING & DRAINAGE PLAN
FOR 5713 N. CATTLETRACK ROAD
CITY OF SCOTTSDALE, ARIZONA



LEGAL DESCRIPTION

THAT PART OF THE NORTH HALF OF SECTION 14, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF THE NORTHEAST QUARTER OF SAID SECTION 14;

THENCE SOUTH (ASSUMED) ALONG THE WEST LINE OF SAID NORTHEAST QUARTER, A DISTANCE OF 1247.50 FEET TO THE POINT OF BEGINNING;

THENCE SOUTH 89 DEGREES 58 MINUTES 34 SECONDS EAST, A DISTANCE OF 137.53 FEET; THENCE SOUTH 09 DEGREES 49 MINUTES 15 SECONDS WEST, A DISTANCE OF 287.21 FEET; THENCE NORTH 89 DEGREES 27 MINUTES 53 SECONDS WEST, A DISTANCE OF 92.55 FEET; THENCE NORTH, ALONG A LINE 4.00 FEET WEST OF AND PARALLEL TO THE WEST LINE OF SAID NORTHEAST QUARTER, A DISTANCE OF 205.19 FEET;

THENCE WEST A DISTANCE OF 12.30 FEET; THENCE NORTH A DISTANCE OF 77.01 FEET; THENCE SOUTH 89 DEGREES 58 MINUTES 34 SECONDS EAST, A DISTANCE OF 16.30 FEET TO THE POINT OF BEGINNING; AND

TOGETHER WITH AN EASEMENT FOR INGRESS AND EGRESS OVER THE EAST 16 FEET OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF THE NORTHEAST QUARTER OF THE NORTHWEST QUARTER OF SECTION 14, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, EXCEPT THE SOUTH 77.01 FEET; AND

TOGETHER WITH AN EASEMENT FOR INGRESS AND EGRESS OVER THE EAST 16 FEET OF THE NORTHEAST QUARTER OF THE SOUTHEAST QUARTER OF THE NORTHEAST QUARTER OF THE NORTHWEST QUARTER OF SECTION 14, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA; AND

THAT PORTION OF THE NORTHEAST QUARTER OF SECTION 14, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF THE LAND DESCRIBED IN THE DEED RECORDED IN DOCKET 10821, PAGE 112 OF OFFICIAL RECORDS IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY;

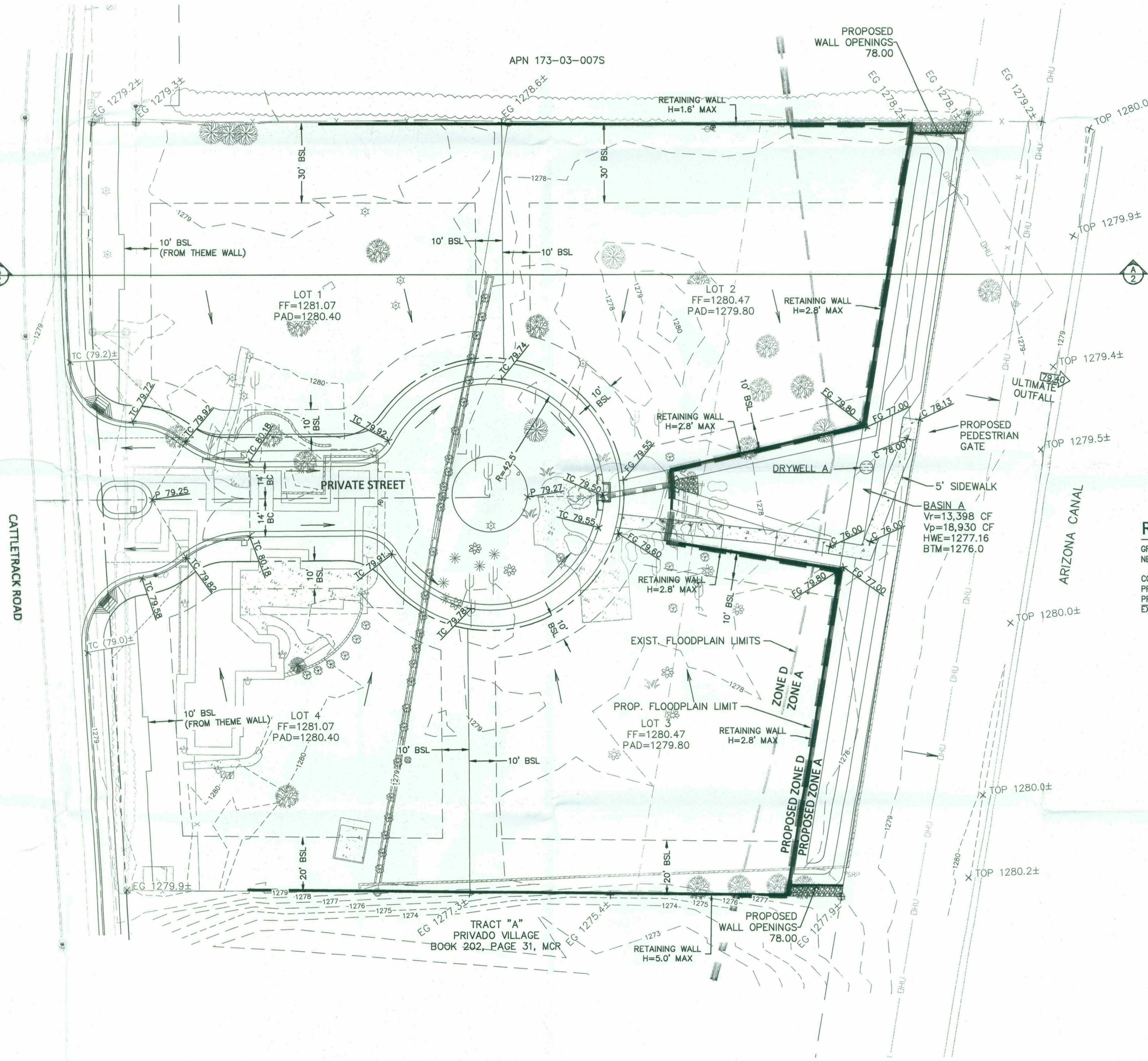
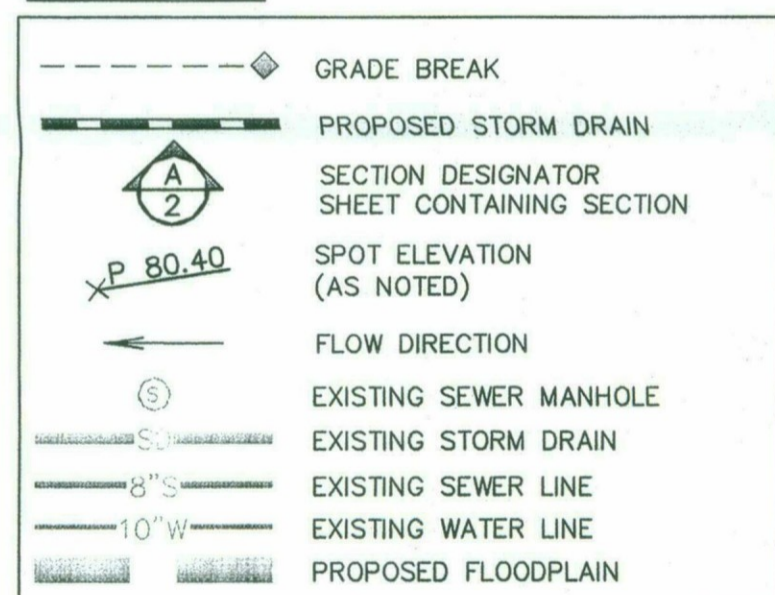
THENCE SOUTH 09 DEGREES 20 MINUTES 13 SECONDS WEST (SOUTH 09 DEGREES 49 MINUTES 15 SECONDS WEST RECORD) ALONG THE EAST LINE OF SAID LAND, A DISTANCE OF 287.21 FEET;

THENCE SOUTH 89 DEGREES 56 MINUTES 55 SECONDS EAST, A DISTANCE OF 172.77 FEET TO THE WEST RIGHT-OF-WAY LINE OF THE ARIZONA CANAL;

THENCE NORTH 08 DEGREES 49 MINUTES 06 SECONDS EAST ALONG SAID WEST RIGHT-OF-WAY LINE, A DISTANCE OF 288.34 FEET TO THE EASTERLY PROLONGATION OF THE NORTH LINE OF SAID LAND DESCRIBED IN DOCKET 10821, PAGE 112;

THENCE SOUTH 89 DEGREES 32 MINUTES 24 SECONDS WEST (NORTH 89 DEGREES 58 MINUTES 34 SECONDS WEST RECORD) ALONG SAID EASTERLY PROLONGATION, A DISTANCE OF 170.38 FEET TO THE POINT OF BEGINNING.

LEGEND



RETENTION AND SITE DATA

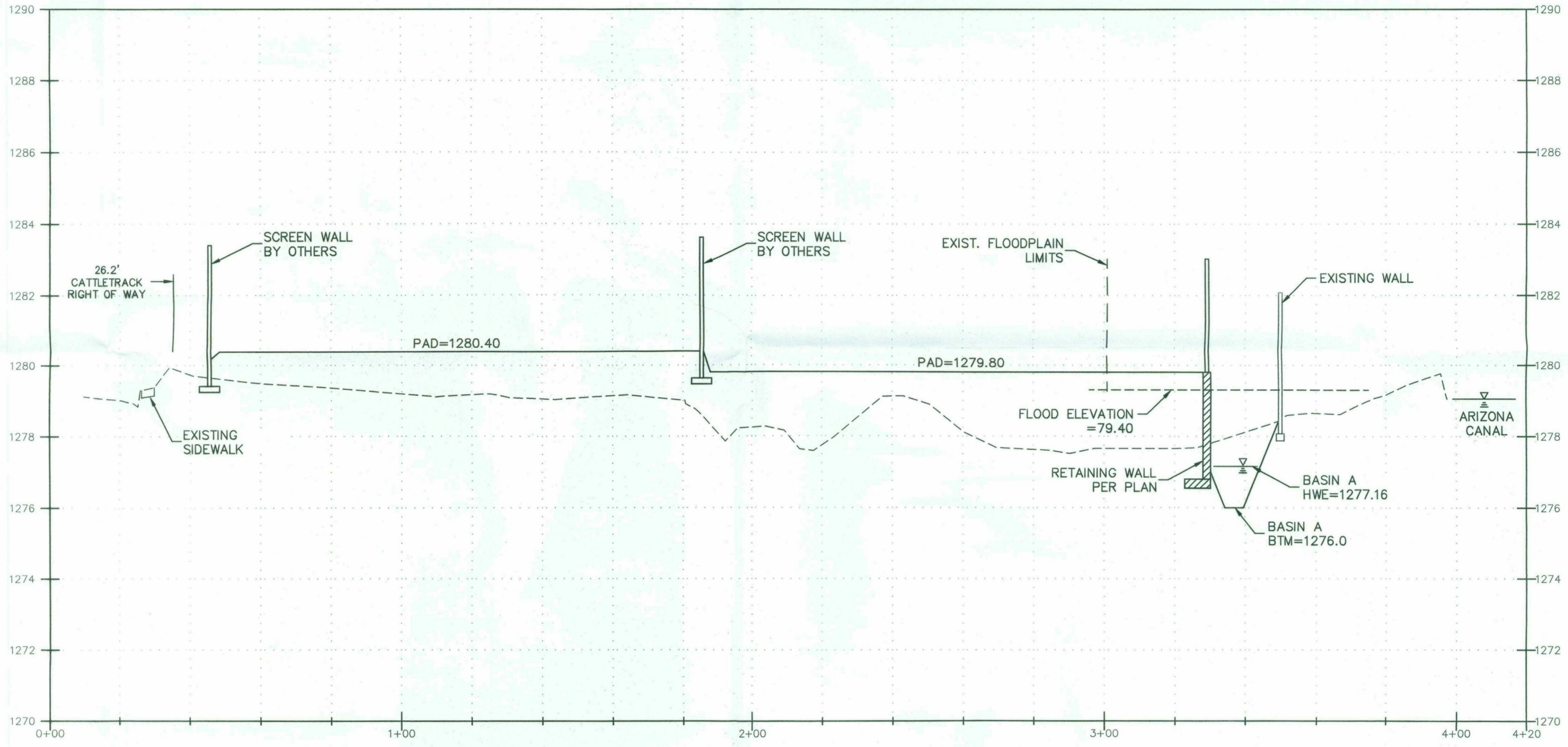
GROSS AREA: 82,522 SF / 1.89 AC
NET AREA: 71,107 SF / 1.62 AC

COMPENSATORY RETENTION VOLUME: 8,163 CF / 0.19 AC-FT
PRE VERSUS POST VOLUME: 5,235 CF / 0.12 AC-FT
PROVIDED VOLUME: 18,930 CF / 0.43 AC-FT
EXCESS VOLUME: 5,532 CF / 0.12 AC-FT

Table with columns for DRAWN BY, DESIGN BY, CHECKED BY, DATE, REVISION, and SHEET 1 OF 2. Includes project title and company information.

P:\T\TRUHO000001\0400040\EC\1\SHEETS\CONCEPT\EC-FG-01-CONCEPT G & D.dwg, jcf, Sep. 13, 2016 12:36:32pm



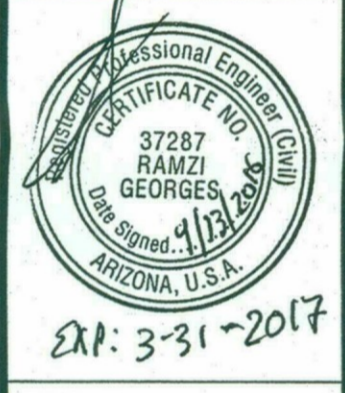


SECTION A-A
 SCALE H: 1"=20'
 SCALE V: 1"=2'

P:\1\TRUH0000001\0400CAD\EC\SHEETS\CONCEPT\EC-FG-001-CONCEPT G & D.dwg .jcf Sep 13, 2016 12:23:14pm

DRAWN BY:	JCF
DESIGN BY:	JCF
CHECKED BY:	RYG
DATE:	09-13-2016
REVISION	DATE
BY	

DAVID EVANS AND ASSOCIATES INC.
 4600 E Washington Street, Suite 250
 Phoenix Arizona 85034
 Phone: 602.678.5151



CONCEPT GRADING & DRAINAGE
 5713 N. CATTLETRACK ROAD
 SCOTTSDALE, ARIZONA

SECTION:	14
TWNSHP:	2N
RANGE:	4E
JOB NO.:	TRUH0001
SHEET	2 OF 2



NOT FOR CONSTRUCTION